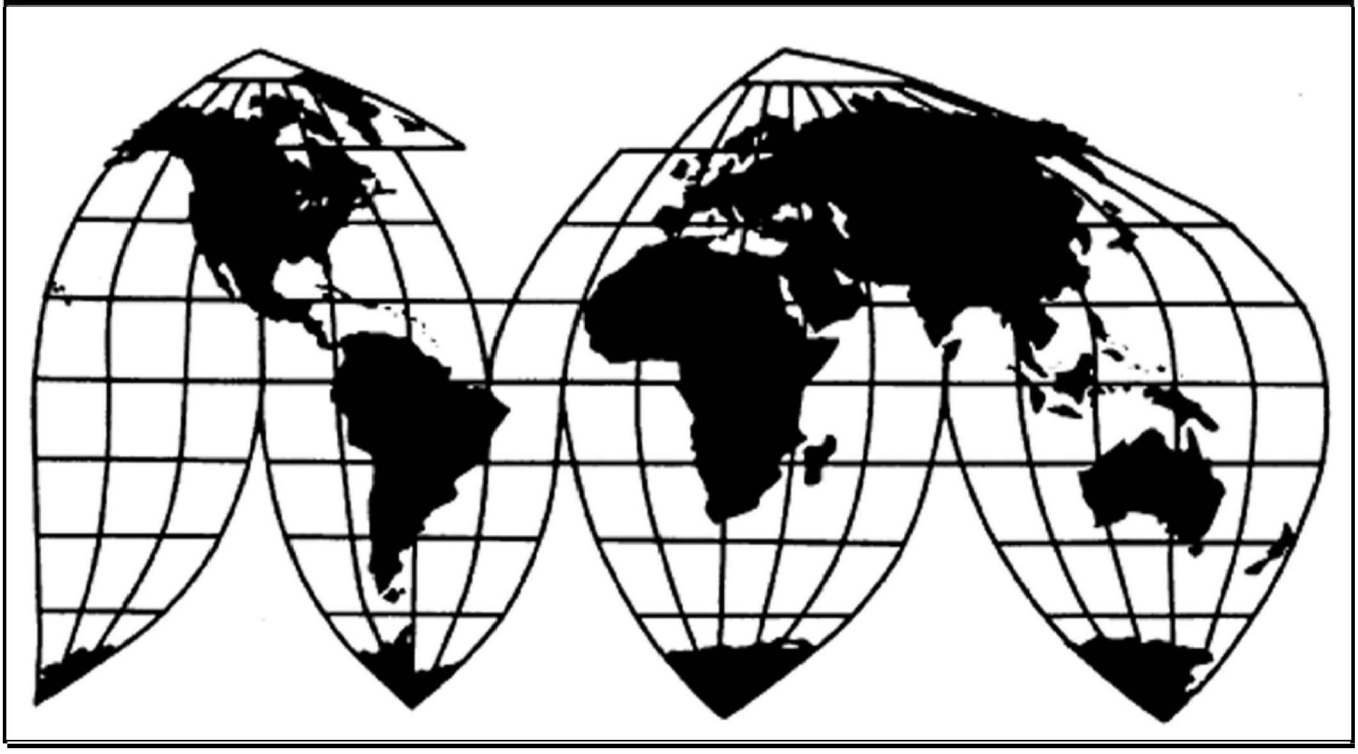
In the Matter of

CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF

Investigation No. 337-TA-1131

Publication 5256 **February 2022**

U.S. International Trade Commission



Washington, DC 20436

U.S. International Trade Commission

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UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF**	**Investigation No. 337-TA-1131**

NOTICE OF A COMMISSION DETERMINATION TO REVIEW IN PART AND VACATE IN PART A FINAL INITIAL DETERMINATION AND TO AFFIRM THE FINDING OF NO VIOLATION OF SECTION 337; TERMINATION OF THE INVESTIGATION

AGENCY: U.S. International Trade Commission.

ACTION: Notice.

SUMMARY: Notice is hereby given that the U.S. International Trade Commission has determined to review in part the Administrative Law Judge's ("ALJ") final initial determination ("ID"), issued on January 10, 2020, affirm the ID's finding of no violation of section 337 in the above-referenced investigation, and vacate in part the ID. The investigation is terminated.

FOR FURTHER INFORMATION CONTACT: Benjamin S. Richards, Esq., Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436, telephone (202) 708-5453. Copies of non-confidential documents filed in connection with this investigation may be viewed on the Commission's electronic docket (EDIS) at https://edis.usitc.gov. For help accessing EDIS, please email EDIS3Help@usitc.gov. General information concerning the Commission may also be obtained by accessing its Internet server at *https://www.usitc.gov*. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission's TDD terminal, telephone (202) 205-1810.

SUPPLEMENTARY INFORMATION: The Commission instituted this investigation on September 10, 2018, based on a complaint, as supplemented, filed by SIPCO LLC of Ashburn, Virginia ("SIPCO"). *See* 83 FR 45681–82 (Sep. 10, 2018). The complaint, as supplemented, alleges violations of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), based upon the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless mesh networking products and related components thereof by reason of infringement of certain claims of U.S. Patents Nos. 6,914,893 ("the '893 patent"); 7,103,511 ("the '511 patent"); 8,964,708 ("the '708 patent"); and 9,439,126 ("the '126 patent"). *See id.* The notice of investigation names the following respondents: Emerson Electric Co. of St. Louis, Missouri; Emerson Process Management LLLP of

Bloomington, Minnesota; Emerson Process Management Asia Pacific Private Limited of Singapore; Emerson Process Management Manufacturing (M) Sdn. Bhd. of Nilai, Malaysia; Fisher-Rosemount Systems, Inc. of Round Rock, Texas; Rosemount Inc. of Shakopee, Minnesota; Analog Devices, Inc. of Norwood, Massachusetts; Linear Technology LLC of Milpitas, California; Dust Networks, Inc. of Union City, California; Tadiran Batteries Inc. of Lake Success, New York; and Tadiran Batteries Ltd. of Kiryat Ekron, Israel. *See id.* The Office of Unfair Import Investigations is not a party to this investigation. *See id.*

During the course of the investigation, respondents Dust Networks, Inc., Tadiran Batteries Inc., and Tadiran Batteries Ltd. were terminated from the investigation. The remaining respondents are Emerson Electric Co.; Emerson Process Management LLLP; Emerson Process Management Asia Pacific Private Limited; Emerson Process Management Manufacturing (M) Sdn. Bhd.; Fisher-Rosemount Systems, Inc.; Rosemount Inc.; Analog Devices, Inc.; and Linear Technology LLC (collectively "Respondents"). The asserted claims of the '126 patent and '511 patent were also terminated from the investigation. The '893 and '708 patents remain asserted in this investigation.

On January 10, 2020, the ALJ issued the final ID in this investigation. The ID found no violation of section 337. The ID's finding included subsidiary findings that SIPCO failed to show infringement of any asserted claim of the '893 or '708 patents and that all of the remaining asserted claims of the '708 patent were invalid. The ID also found that SIPCO failed to satisfy the domestic industry requirement for either of the '708 or '893 patents. The ID also included the ALJ's recommended determination on remedy bonding. In the event the Commission were to find a violation of section 337, the ALJ recommended issuance of a limited exclusion order, a cease and desist order, and a bond of either 0.1% or 0.05%, depending on the basis for the violation finding.

On January 27, 2020, SIPCO and Respondents submitted petitions seeking review of the ID. On February 4, 2020, SIPCO and Respondents submitted responses to the others' petitions.

Having examined the record of this investigation, including the ID, the petitions for review, and the responses thereto, the Commission has determined to review the ID with respect to (1) the construction of "remote wireless device" in the '708 patent; (2) infringement and validity of the '708 patent; (3) infringement and validity of the '893 patent; and (4) whether SIPCO satisfies the domestic industry requirement of section 337 for the '708 or the '893 patent. The Commission has determined not to review the remainder of the ID.

On review, the Commission has determined to affirm the ID's finding of no violation of section 337 with regard to the '708 patent and the '893 patent. In addition, the Commission has determined to vacate certain portions of the final ID. The Commission opinion is issued concurrently herewith.

The investigation is hereby terminated.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), and in part 210 of the Commission's Rules of Practice and Procedure (19 CFR 210).

By order of the Commission.

Lisa R. Barton
Secretary to the Commission

Issued: April 21, 2020

CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF **Inv. No. 337-TA-1131**

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **NOTICE** has been upon the following parties as indicated, on April 21, 2020.

Lisa R. Barton, Secretary
U.S. International Trade Commission
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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

In the Matter of **CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF**	**Investigation No. 337-TA-1131**

COMMISSION OPINION

The Commission determined to review in part the final initial determination ("ID") of the presiding Administrative Law Judge ("ALJ"), which issued on January 10, 2020. On review, the Commission has determined that there has been no violation of section 337 of the Tariff Act of 1930, 19 U.S.C. § 1337, as amended ("Section 337"), based upon the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless mesh networking products and related components thereof by reason of infringement of certain claims of U.S. Patent Nos. 6,914,893 ("the '893 patent") and 8,964,708 ("the '708 patent"). The Commission has further determined to take no position on certain issues and to vacate certain portions of the ID identified herein. This opinion sets forth the Commission's reasoning in support of its determination. In addition, the Commission adopts the findings in the ID that are not inconsistent with this opinion.

I. BACKGROUND

A. Procedural History

On September 10, 2018, the Commission instituted this investigation based on a complaint, as supplemented, filed by SIPCO LLC of Ashburn, Virginia ("SIPCO"). *See* 83 Fed. Reg. 45681–82 (Sep. 10, 2018). The complaint, as supplemented, alleged violations of Section 337 based upon

the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless mesh networking products and related components thereof by reason of infringement of certain claims of the '893 patent; the '708 patent; U.S. Patent No. 7,103,511 ("the '511 patent"); and U.S. Patent No. 9,439,126 ("the '126 patent"). *See id.* The notice of investigation named eleven respondents: Emerson Electric Co. of St. Louis, Missouri; Emerson Process Management LLLP of Bloomington, Minnesota; Emerson Process Management Asia Pacific Private Limited of Singapore; Emerson Process Management Manufacturing (M) Sdn. Bhd. of Nilai, Malaysia; Fisher-Rosemount Systems, Inc. of Round Rock, Texas; Rosemount Inc. of Shakopee, Minnesota (collectively the "Emerson respondents"); Analog Devices, Inc. of Norwood, Massachusetts; Linear Technology LLC of Milpitas, California (collectively the "Analog respondents"); Dust Networks, Inc. of Union City, California; Tadiran Batteries Inc. of Lake Success, New York; and Tadiran Batteries Ltd. of Kiryat Ekron, Israel (collectively the "Tadiran Batteries respondents"). *See id.* The Office of Unfair Import Investigations is not a party to this investigation. *See id.*

While the investigation was before the ALJ, Dust Networks, Inc. and the Tadiran Batteries respondents were terminated from the investigation. ID at 1. Additionally, the asserted claims of the '511 and '126 patents were withdrawn prior to the evidentiary hearing. *Id.* at 2. Accordingly, the remaining parties in this investigation are complainant SIPCO, the Emerson respondents, and the Analog respondents. The remaining patents at issue are the '893 and '708 patents.

B. The Accused Products

Per the notice of institution, the plain language description of the products at issue in this investigation is "wireless mesh networking gateways, input/output cards, remote devices, transceivers, network managers, system-on-chip nodes, printed circuit boards, circuit components, batteries, and field communicator devices." 83 Fed. Reg. 45681, 45682 (Sep. 10, 2018). "The

accused products are wireless devices used for industrial control and monitoring that are compatible with the WirelessHART protocol, including Emerson gateways and field devices," which "use wireless radio chips manufactured by Analog." ID at 3. "The domestic industry products are the One Wireless Network line of products sold by third party Honeywell International Inc. ("Honeywell"), which include a device manager, field device access point, and additional field devices." *Id.*

C. The Asserted Patents

As noted above, the remaining patents at issue are the '893 and '708 patents. The '708 and '893 patents claim priority to a common set of applications. *See* JX-0001 at 2 (the '893 patent); JX-0003 at 2–3 (the '708 patent). The '708 patent also claims priority to several additional applications, including the application that would issue as the '893 patent. JX-0003 at 2. Thomas D. Petite is the sole inventor on both patents. JX-0001 at 2; JX-0003 at 2. The '893 patent is entitled "System and Method for Monitoring and Controlling Remote Devices" and issued on July 5, 2005. JX-0001 at 2. In broad terms, the '893 patent describes two aspects of a wireless mesh network—the collection and arrangement of hardware to form the network, e.g., a gateway, several transceivers, etc., and the structure and format of the messages transferred through the network. The ID reproduces the following two figures of the '893 patent, which are illustrative of these two aspects of the invention:

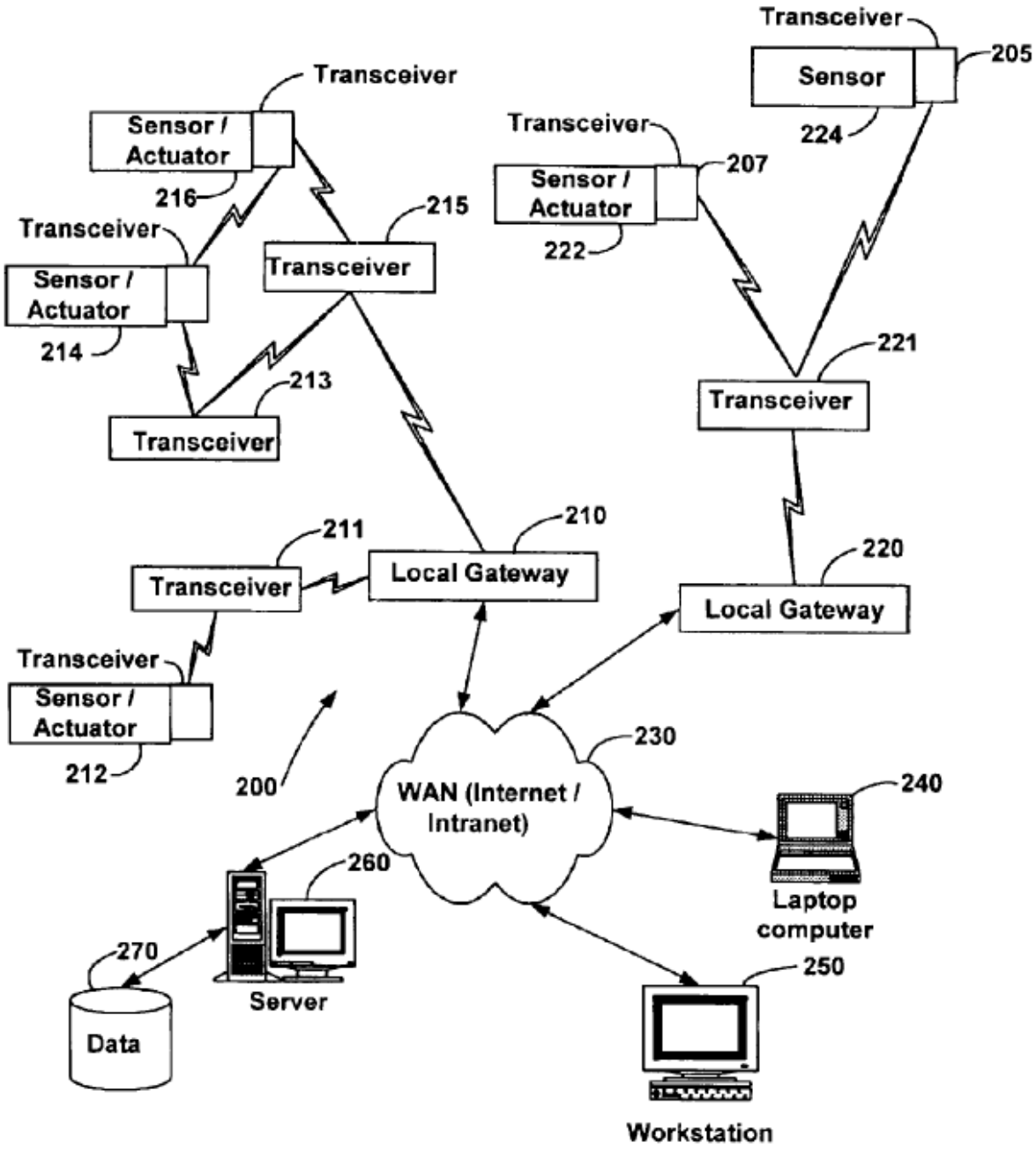
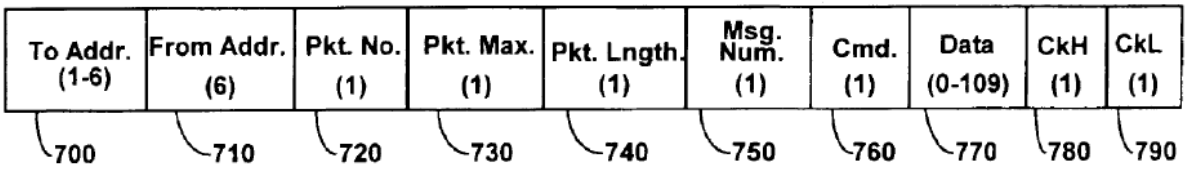

Transceiver
205
Sensor
224
Transceiver
Sensor / Actuator
207
222
Transceiver
Sensor / Actuator
216
215
Transceiver
Transceiver
Sensor / Actuator
214
213
Transceiver
221
Transceiver
211
210
Transceiver
Local Gateway
220
Local Gateway
Transceiver
Sensor / Actuator
212
200
230
WAN (Internet / Intranet)
240
Laptop computer
260
270
Server
Data
250
Workstation

FIG. 2

* * *

FIG. 7 Message Structure



ID at 4–5. The '893 patent expires on September 23, 2020. *Id.* at 5; *see also* Compl., ¶ 44.

The '708 patent is entitled "Systems and Methods for Monitoring and Controlling Remote Devices" and issued on February 24, 2015. JX-0003 (the '708 patent). The specification of the '708 patent is substantially similar to the specification of the '893 patent, which follows from the fact that the '708 patent is a continuation, through an intervening continuation application, of the '893 patent. ID at 5. The '708 patent expires on January 7, 2022. *Id.*; *see also* Compl., ¶ 48.

II. STANDARD ON REVIEW

"A petition will be granted and review will be ordered if it appears that an error or abuse of the type described in [210.43(b)(1)] is present or if the petition raises a policy matter connected with the initial determination, which the Commission thinks it necessary or appropriate to address." 19 C.F.R. § 210.43(d)(2). With respect to the issues under review, "the Commission may affirm, reverse, modify, set aside or remand for further proceedings, in whole or in part, the initial determination of the administrative law judge." 19 C.F.R. § 210.45(c). The Commission also "may take no position on specific issues or portions of the initial determination," and "may make any finding or conclusions that in its judgment are proper based on the record in the proceeding." *Id.*; *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984).

III. ANALYSIS

The Commission determines to make the findings, conclusions, and supporting analysis set forth below. Any findings, conclusions, and supporting analysis in the ID regarding issues that

are under review that are not inconsistent with these findings, conclusions, and supporting analysis are affirmed and adopted herein.

A. The '708 Patent

1. Asserted Claims

SIPCO alleged that the respondents infringe claims 1, 2, 9, and 10 of the '708 patent. For domestic industry purposes, SIPCO relied on claims 1, 2, and 10. Claim 1 is the sole independent claim at issue. It reads:

> **1.** A wireless communication device for use in a wireless communication system configured to communicate command and sensed data within the wireless communication systems, the wireless communication device comprising:
>
> a transceiver configured to send and receive wireless communications;
>
> and a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising an address of at least one **remote wireless device**; a command indicator comprising a command code; a data value comprising· a message, wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code.

'708 patent, cl. 1 (emphasis added to disputed term). Claims 2, 9, and 10 depend from claim 1 and read:

> **2.** The wireless communication device of claim 1, wherein the transceiver comprises a unique transceiver address to distinguish the transceiver from other transceivers in the wire-less communication system.
>
> * * *
>
> **9.** The wireless communication device of claim 1, wherein the command code indicates a change in settings of an actuator associated with the wireless communication device.
>
> **10.** The wireless communication device of claim 1, wherein the command code indicates a request for a ping response by the wireless communication device.

Id. at cls. 2, 9, 10.

2. Claim Construction

The ALJ's *Markman* order construed the claimed "remote wireless device" of claim 1 of the '708 patent to mean "a device that is in wireless communication with another device," and the ID further clarified that the claimed "remote wireless device" could be a local gateway in the wireless communication system. *See* ID at 20–24 (". . . I reject SIPCO's proposal to limit 'remote wireless device' to exclude gateways."). The Commission has determined to review and vacate the portion of the ID finding that the claimed "remote wireless device" could be a local gateway. *Id.*[1] The Commission has determined not to review the rest of the ID's claim constructions and therefore adopts those constructions. *Id.* at 24–27. As explained below, the ID's findings that the '708 patent is not infringed and that the asserted claims are invalid can stand on their own without the ID's finding that a local gateway could be the claimed "remote wireless device." Thus, vacating that portion of the ID's construction of "remote wireless device" does not alter the ID's ultimate finding of no violation with respect to the '708 patent.

3. Infringement

The ID found that the accused products do not infringe the asserted claims because SIPCO was precluded from relying on its sole infringement theory due to its failure to disclose the theory

[1] The Commission's review is limited to the ID's resolution of whether a "remote wireless device" could be a local gateway in a wireless communication system. The parties did not petition for review of the ALJ's *Markman* order, which construed the term to mean "a device that is in wireless communication with another device." Order 26 at 47. At the time of the *Markman* hearing, the parties agreed that a "remote wireless device" must be separate from a local gateway but disagreed over how much separation was required. *See id.* at 46–47. The *Markman* order adopted its construction in response to that dispute, effectively determining that no specific amount of separation was required. *See id.* The Commission's review does not extend to that determination in the *Markman* order.

during discovery. ID at 38–39. The Commission has determined not to review the ID's finding and adopts the ID's analysis.

The Commission has further determined to supplement the ID's reasoning with respect to SIPCO's reliance on the reference to an AP SK_Response ACK Packet in its infringement contentions. SIPCO argued that this is evidence that it timely disclosed the infringement theory it ultimately relied on for the '708 patent. *See* ID at 37; *see also* Complainant's Petition for Review at 38 (Jan. 27, 2019) (hereinafter "CPR"). The ID rejected SIPCO's argument on two grounds. First, the ID found that SIPCO had waived its ability to rely on the AP SK_Response ACK Packet as evidence that it timely disclosed its infringement theory because it failed to rely on the AP SK_Response ACK Packet in its briefing on a related motion *in limine* and in its initial post-hearing brief. ID at 37. The ID explained that SIPCO's failure left Respondents with no opportunity to respond to SIPCO's argument that it relied on the AP SK_Response ACK Packet. *Id.* Second, the ID found "that the 'AP SK_Response ACK Packet' disclosed in SIPCO's infringement contentions appears to be a multi-layer message having a MAC header, Net header, and Transport header," which meant it could not be an example of the single layer ACK messages that SIPCO relied on to show infringement. ID at 37–38. In other words, even if not waived, the disclosure of the AP SK_Response ACK Packet in SIPCO's contentions would not amount to timely disclosure of SIPCO's intention to rely on single-layer ACK messages to show infringement of the outgoing message limitation of claim 1.

SIPCO's petition for review challenged the first of the ID's findings—that it waived its ability to rely on the AP SK_Response ACK Packet—but offered no rebuttal to the ID's second finding—that the AP SK_Response ACK Packet is a multi-layer message unlike the one SIPCO relied on for infringement. CPR at 38–39. Accordingly, even if SIPCO were correct that the ID

erred by applying waiver to its reliance on the AP SK_Response ACK Packet, it would not alter the ID's finding that SIPCO failed to disclose its intention to rely on single-layer ACK messages to satisfy the outgoing message limitation of claim 1 of the '708 patent. This is because SIPCO has failed to allege any error in the ID's factual finding that the AP SK_Response ACK Packet referenced in SIPCO's infringement contentions is not an example of the type of ACK message that SIPCO ultimately relied on to show infringement. With that additional explanation, the Commission affirms the ID's finding that no asserted claim of the '708 patent is infringed.

4. Validity

The Commission has determined not to review the ID's findings that the asserted claims of the '708 patent are invalid as anticipated and obvious and notes that the Commission's vacatur of portions of the ID's discussion regarding the claim term "remote wireless device" does not change the ID's analysis of anticipation or obviousness. The Commission, however, has determined to review the ID's findings with respect to patent eligibility under 35 U.S.C. § 101 and obviousness-type double patenting and, on review, the Commission takes no position on those two issues.

The Commission notes that SIPCO's petition for review asserted that the ID's anticipation and obviousness findings rested on three erroneous claim constructions, one of which was the construction of "remote wireless device." As explained above, the Commission has determined to vacate the ID's finding that the phrase "remote wireless device," as it appears in claim 1 of the '708 patent, could encompass a local gateway in the claimed remote wireless system. That determination, however, does not undo the ID's anticipation and obviousness findings. This is because the ID did not rely on the equivalent of a local gateway in any of the prior art to satisfy the "remote wireless device" limitation of claim 1.

For example, in the case of U.S. Patent No. 5,963,650 to Simionescu *et al.* ("Simionescu") (JX-0133), the ID relied on the data acquisition devices ("DAs") and the communications between those DAs disclosed therein. *See* ID at 49. As SIPCO acknowledged in its petition, "the DAs in Simionescu are akin to the remote devices" of the '708 patent. CPR at 25. Though SIPCO went on to argue that the ID relied "on communications *from the DCS*[2] to the DA," CPR at 26 (emphasis SIPCO's), the Commission disagrees. SIPCO's argument is based on a construction-specific theory that a repeater cannot format a message and the related argument that preformatted messages cannot be received from a repeater. *See* CPR at 26. The ID found both of those arguments unpersuasive and the Commission has determined not to review those findings. Accordingly, even if "remote wireless device" were construed to exclude local gateways, SIPCO would not prevail on anticipation with respect to Simionescu unless it also prevailed on one or both of its other claim construction arguments for the '708 patent. It has not done so. Thus, the Commission's determination to vacate the portion of the ID's finding that a "remote wireless device" can include a local gateway does not undercut the ID's finding that Simionescu anticipates all of the asserted claims of the '708 patent.

The ID's analysis of the other prior art references is likewise not dependent on the ID's findings with respect to whether a remote wireless device can include a local gateway. With respect to U.S. Patent No. 6,124,806 to Cunningham *et al.* ("Cunningham") (JX-0149), the ID explained that the reference disclosed a component referred to as a data collection module

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[2] "DCS" stands for "data collection system," a component disclosed in Simionescu that is akin to a local gateway. *See* CPR at 26.

("DCM"), which can receive messages directly from a host module, or from another DCM acting as a repeater.[3] ID at 62. Here again, the ID's reliance on communications between separate DCMs acting as repeaters, which are akin to two remote devices exchanging messages, is appropriate even if a local gateway cannot be a "remote wireless device." The DCMs are analogous to the remote wireless devices of claim 1, *see* CPR at 27, and thus whether the term "remote wireless device" encompasses a local gateway will not alter the ID's finding that Cunningham anticipates claims 1, 2, and 9.

The same is also true with respect to the obviousness findings based on U.S Patent No. 6,100,817 to Mason *et al.* ("Mason") (JX-0134) and other references. ID at 72–83 (finding claims 1, 2, 9, and 10 obvious). For Mason, the ID limited its analysis to Respondents' obviousness arguments that were based on meter-to-meter communications (e.g., communications between separate utility meters), which are analogous to the remote wireless devices of claim 1. *Id.*; *cf. also id.* at 64–67, 72, n.4 (declining to consider anticipation and obviousness arguments based on node-to-meter communications disclosed in Mason). Thus, whether "remote wireless device" encompasses a local gateway will also not alter the ID's findings of obviousness based on Mason.[4]

At bottom, each of the ID's findings of anticipation and obviousness are based on

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[3] While the ID notes that the DCMs of Cunningham can receive preformatted messages from a host module as well as from a DCM acting as a repeater, the ID is clear that it is relying on the DCMs and not the host module to support its finding that Cunningham anticipates the asserted claims. *See* ID at 62 ("I find that the **DCMs** disclosed in Cunningham anticipate claim 1 of the '708 patent." (emphasis added)).

[4] Because Simionescu and Cunningham both anticipate claim 1, where the disputed "remote wireless device" term appears, the ID's obviousness analyses based on those references is also unaffected by the Commission's determination to vacate the ID's finding that a "remote wireless device" could be a local gateway in the claimed wireless communication system.

disclosures in the prior art that teach communications between two remote wireless devices. The ID did not rely on communications between local gateways and remote devices in reaching its conclusions on anticipation and obviousness. Therefore, the Commission's determination to vacate the ID's finding that a local gateway can be a "remote wireless device" does not disturb those invalidity findings.

B. The '893 Patent

1. Asserted Claims

SIPCO alleged that the respondents infringe claims 1, 2, 10, and 19 of the '893 patent. Claims 1 and 19 are the independent claims at issue. Claims 2 and 10 depend from claim 1. The asserted claims read:

> **1.** A system for communicating commands and sensed data between remote devices, the system comprising:
>
> a plurality of transceivers, each transceiver being in communication with at least one other of the plurality of transceivers, wherein each transceiver has a unique address, wherein the unique address identities an individual transceiver, wherein each transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages;
>
> a controller, connected to one of the plurality of transceivers, the controller being in communications with each of the plurality of transceivers via a controller transceiver, the controller communicating via preformatted messages;
>
> wherein the preformatted messages comprises [*sic*] at least one packet, wherein the packet comprises:
>
> a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;
>
> sender address comprising the unique address of the sending transceiver;
>
> a command indicator comprising a command code;
>
> at least one data value comprising a scalable message; and
>
> an error detector comprising a redundancy check error detector; and

wherein the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages.

2. The system of claim 1, wherein the plurality of transceivers further comprise at least one integrated transceiver, wherein the integrated transceiver comprises:

one of the plurality of transceivers, and

a sensor detecting a condition and outputting a sensed data signal to the transceiver.

* * *

10. The system of claim 1, wherein the plurality of transceivers further comprise at least one actuated transceiver, wherein the actuated transceiver comprises:

one of the plurality of transceivers,

a sensor detecting a second condition and outputting a sensed data signal to the transceiver; and

an actuator controlling a third condition and receiving control signals from the transceiver.

* * *

19. A system for controlling geographically diverse devices from a central location, the system comprising:

means for sending and receiving messages, wherein the sent messages contain commands and the received messages contain responses to the commands, wherein the message comprises at least one means for packeting a message;

a plurality of means for communicating information, the communicating means comprising:

means for receiving messages;

means for preparing responses to the received message; and

means for sending the response message;

wherein each communicating means has a unique identifying address; and

wherein the packeting means comprises

means for identifying intended recipients;

means for identifying the sender;

means for indicating a command;

means for data transfer; and

means for indicating potential error.

'893 patent, cls. 1, 2, 10, 19.

2. Infringement

The ID found that the accused products do not infringe claims 1, 2, and 10 of the '893 patent. ID at 101–03. The Commission has determined to review that finding. On review, the Commission has determined to affirm the ID's conclusion, which is based on finding that the "scalable address" limitation from claim 1 does not read on the accused products, either literally or under the doctrine of equivalents. The Commission has further determined to take no position on whether the "controller, connected . . ." limitation in claim 1 or the "actuator" limitation in claim 10 read on the accused products. *See* ID at 95–96, 102. In addition, the Commission has determined not to review the ID's finding that the accused products do not infringe claim 19. ID at 109.

The Commission has further determined to review certain additional portions of the ID's infringement analysis. First, the Commission has determined to review and vacate footnote 16 on page 94 of the ID. Second, the Commission has determined to review the ID's indirect infringement findings to correct two clerical errors. Specifically, the citation to "*Id.* at 1307" on the seventeenth line of page 111 is corrected to read: "*DSU Med Corp. v. JMS Co.*, 471 F.3d 1293, 1307 (Fed. Cir. 2006)." And, the citation to "*Commil USA v. Cisco Systems, Inc.*, 575 U.S. 623 (2015)" is corrected to read "*Commil USA v. Cisco Systems, Inc.*, 575 U.S. 632 (2015)." Finally, the Commission has determined to review and vacate the ID's statement on page 112 that "there is no evidence that Analog has sold DN2510 and LTC5800 chips for importation after being served

the complaint." ID at 112.

3. Validity

The Commission has determined to review the ID's findings with respect to the eligibility of the asserted claims of the '893 patent under 35 U.S.C. § 101, the obviousness of those claims under 35 U.S.C. § 103, and whether those claims are invalid for obviousness-type double patenting. On review, the Commission takes no position on those issues. The Commission has determined not to review the ID's finding that claim 10 of the '893 patent is not indefinite under 35 U.S.C. § 112.

C. Domestic Industry

The Commission has determined to review the ID's findings concerning whether SIPCO satisfies the domestic industry requirement of Section 337. On review, the Commission has determined to take no position on whether SIPCO satisfies the domestic industry requirement for either the '708 or '893 patent.

IV. CONCLUSION

The Commission has determined that there has been no violation of Section 337 by the remaining respondents in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain wireless mesh networking products and related components thereof by reason of infringement of certain claims of the '708 or '893 patent. Consistent with the reasoning laid out above, the Commission has determined to review the final ID in part and take no position on certain issues as well as vacate certain portions of the ID. The Commission has determined not to review the remainder of the ID. Accordingly, the investigation is terminated with a finding of no violation of Section 337.

By order of the Commission.

Lisa R. Barton
Secretary to the Commission

Issued: April 23, 2020

CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF **Inv. No. 337-TA-1131**

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **COMMISSION OPINION** has been upon the following parties as indicated, on April 24, 2020.

Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

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On Behalf of Respondents Emerson Electric Co. Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Limited, Emerson Process Management Manufacturing (M) Sdn. Bhd, Fisher-Rosemount Systems, Inc.. and Rosemount Inc.

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of **CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF**	**Inv. No. 337-TA-1131**

INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND RECOMMENDED DETERMINATION ON REMEDY AND BONDING

Administrative Law Judge Dee Lord

(January 10, 2020)

Appearances:

For Complainant SIPCO LLC:

James R. Barney, Elizabeth A. Niemeyer, G. Gregory Gramenopoulos, Karthik Kumar, Houtan K. Esfahani, Aidan C. Skoyles, Kelly S. Horn, and Philip J. Eklem of Finnegan, Henderson, Farabow, Garrett & Dunner LLP in Washington, DC.

For Respondents Emerson Electric Co., Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Ltd., Emerson Process Management Manufacturing (M) Sdn. Bhd., Fisher-Rosemount Sys., Inc., and Rosemount Inc.:

James R. Batchelder, James L. Davis, Jr., and Daniel W. Richards of Ropes & Gray LLP in East Palo Alto, CA; Matthew J. Rizzolo of Ropes & Gray LLP in Washington, DC; and Cassandra Roth and Matthew R. Shapiro of Ropes & Gray LLP in New York, NY.

For Respondents Analog Devices, Inc. and Linear Technology LLC:

Alexander P. Ott and Jay H. Reiziss of McDermott Will & Emery in Washington, DC; and Thomas DaMario of McDermott Will & Emery LLP in Chicago, IL.

Pursuant to the Notice of Investigation (Sept. 4, 2018) and Commission Rule 210.42, this is the administrative law judge's final initial determination and recommendation determination on remedy and bonding in the matter of *Certain Wireless Mesh Networking Products and Related Components Thereof*, Commission Investigation No. 337-TA-1131. 19 C.F.R. § 210.42(a)(1)(i).

For the reasons discussed herein, it is my final initial determination that there is no violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, and/or the sale within the United States after importation of certain wireless mesh networking products and related components thereof, with respect to U.S. Patent No. 6,914,893 ("the '893 patent") or U.S. Patent No. 8,964,708 ("the '708 patent").

TABLE OF CONTENTS

The following abbreviations may be used in this Initial Determination:

Tr.	Transcript
WS	Witness Statement
DWS	Direct Witness Statement
RWS	Rebuttal Witness Statement
JX	Joint Exhibit
CX	Complainant's exhibit
CPX	Complainant's physical exhibit
CDX	Complainant's demonstrative exhibit
RX	Respondent's exhibit
RPX	Respondent's physical exhibit
RDX	Respondent's demonstrative exhibit
CPHB	Complainant's pre-hearing brief
CIB	Complainant's initial post-hearing brief
CRB	Complainant's reply post-hearing brief
RPHB	Respondent's pre-hearing brief
RIB	Respondent's initial post-hearing brief
RRB	Respondent's reply post-hearing brief

I. BACKGROUND

A. Procedural History

The Commission instituted this investigation in response to a complaint filed by SIPCO LLC alleging violations of section 337 of the Tariff Act of 1930, as amended, by reason of infringement of certain claims of U.S. Patent No. 6,914,893 ("the '893 patent"); U.S. Patent No. 7,103,511 ("the '511 patent"); U.S. Patent No. 8,964,708 ("the '708 patent"); and U.S. Patent No. 9,439,126 ("the '126 patent"). Notice of Investigation (Sept. 4, 2018). The complaint named Respondents Emerson Electric Co., Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Ltd., Emerson Process Management Manufacturing (M) Sdn. Bhd., Fisher-Rosemount Sys., Inc., Rosemount Inc., Analog Devices, Inc., Linear Technology LLC, Dust Networks, Inc., Tadiran Batteries Inc., and Tadiran Batteries Ltd. *Id.* at 2-3.

The Commission ordered that an investigation be instituted to determine "whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of" the accused products by reason of infringement of the asserted claims "and whether an industry in the United States exists as required by subsection (a)(2) of section 337." *Id.* at 2. The investigation was instituted upon publication of the Notice of Investigation in the *Federal Register* on Monday, September 10, 2018. 83 Fed. Reg. 45681-82 (2018); *see* 19 C.F.R. § 210.10(b).

Respondent Dust Networks, Inc. was terminated from the investigation pursuant to Order No. 6 (Oct. 31, 2018), *not reviewed by* Comm'n Notice (Nov. 26, 2018). Respondents Tadiran Batteries Inc. and Tadiran Batteries Ltd. were terminated from the investigation pursuant to Order No. 20 (Jul. 19, 2019), *not reviewed by* Comm'n Notice (Aug. 13, 2019).

Certain asserted claims were terminated from the investigation pursuant to Order No. 11 (Mar. 14, 2019), *not reviewed by* Comm'n Notice (Apr. 5, 2019). The '126 patent and certain additional asserted claims were terminated from the investigation pursuant to Order No. 16 (Jun. 21, 2019), *not reviewed by* Comm'n Notice (Jul. 12, 2019). The '511 patent was terminated from the investigation pursuant to Order No. 28 (Aug. 23, 2019), *not reviewed by* Comm'n Notice (Sept. 13, 2019). An additional asserted claim was terminated pursuant to Order No. 31 (Aug. 28, 2019), *not reviewed by* Comm'n Notice (Sept. 19, 2019).

A *Markman* hearing was held on February 26, 2019, and a *Markman* order (Order No. 26) issued on August 13, 2019.

Pursuant to Order No. 10 (Mar. 25, 2019) and Order No. 12 (Mar. 25, 2019), fact discovery in the investigation was extended by one month, and the evidentiary hearing was scheduled for September 4-10, 2019. Pursuant to Order No. 41 (Dec. 9, 2019), the target date was extended to May 11, 2010. Comm'n Notice (Dec. 20, 2019).

B. The Parties

1. Complainant

The Complainant is SIPCO LLC ("SIPCO"). Notice of Investigation at 2. SIPCO is a Georgia limited liability company with a principal place of business in Virginia. CIB at 6; Complaint ¶ 10. SIPCO is the successor-in-interest to StatSignal Systems, Inc., a company co-founded by Thomas David Petite in 2003. CIB at 1; Complaint ¶ 11.

2. Respondents

The Respondents remaining in the investigation are Emerson Electric Co., Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Ltd., Emerson Process Management Manufacturing (M) Sdn. Bhd., Fisher-Rosemount Sys., Inc., and

Rosemount Inc. (collectively, "Emerson"); and Analog Devices, Inc. and Linear Technology LLC (collectively, "Analog").

Emerson Electric Co. is a Missouri corporation that is the worldwide parent for several subsidiaries named as respondents in this investigation: Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Ltd., Emerson Process Management Manufacturing (M) Sdn. Bhd., Fisher-Rosemount Sys., Inc., and Rosemount Inc. RIB at 6; Emerson Response to Complaint ¶¶ 19-24.

Analog Devices, Inc. is a Massachusetts corporation that is the corporate parent of Linear Technology LLC, a Delaware company with a principal place of business in California. RIB at 6; Analog Response to Complaint ¶¶ 28-26.

C. Products at Issue

The products at issue are "wireless mesh networking gateways, input/output cards, remote devices, transceivers, network managers, system-on-chip nodes, printed circuit boards, circuit components, batteries, and field communicator devices." Notice of Investigation at 2.

The accused products are wireless devices used for industrial control and monitoring that are compatible with the WirelessHART protocol, including Emerson gateways and field devices. CIB at 11-12; RIB at 12-14. These products use wireless radio chips manufactured by Analog. RIB at 13.

The domestic industry products are the OneWireless Network line of products sold by third party Honeywell International Inc. ("Honeywell") [redacted]. CIB at 13; RIB at 13-14.

D. Asserted Patents

There are two asserted patents remaining in the investigation, the '893 and '708 patents, which are part of the same patent family and name Thomas D. Petite as the sole inventor.

1. The '893 patent

The '893 patent is entitled "System and Method for Monitoring and Controlling Remote Devices" and issued on July 5, 2005. JX-0001 ("the '893 patent"). The specification describes "a computerized system for monitoring and controlling remote devices by transmitting data between the remote systems and a gateway interface via a packet message protocol system." '893 patent at 2:31-36. "The system comprises one or more remote sensors to be read and possibly one or more actuators to be remotely controlled." *Id.* at 2:37-39. The patent identifies Fig. 2 as a "monitoring/control system of the present invention." *Id.* at 3:4-5.

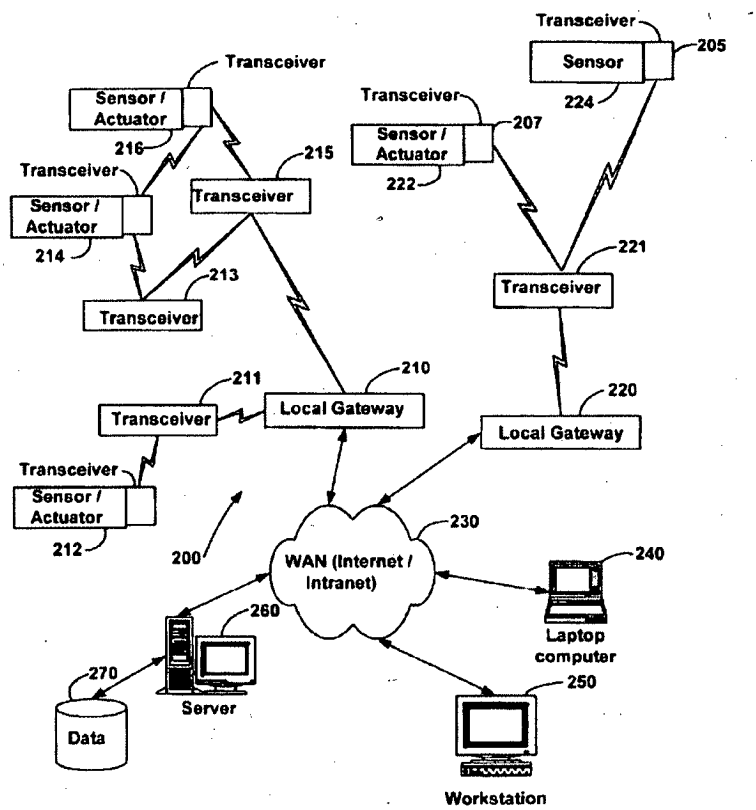
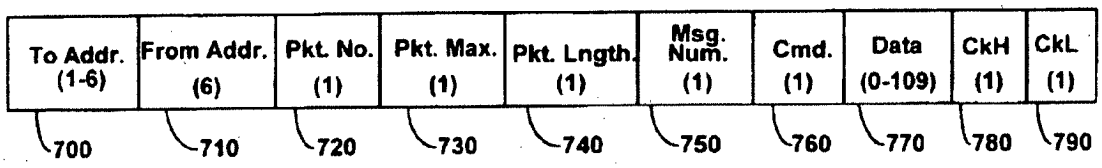


FIG. 2

Id. at Fig. 2. This figure depicts control system 200 comprising a plurality of stand-alone transceivers (211, 213, 215, 221), transceivers with integrated sensors and/or actuators (212, 214, 216, 222, 224), and local gateways (210, 220). *Id.* at 3:38-41, 4:23-28.

The specification further describes messages that are transmitted between local gateways and transceivers with a standard format, allowing each device in the system to communicate. *Id.* at 10:22-25. Figure 7 of the patent "illustrat[es] the message protocol of the present invention." *Id.* at 3:18-19.

FIG. 7 Message Structure



Id. at Fig. 7. This protocol includes a "to" address that indicates the intended recipient, a "from" address indicating the origin of the message, information about the size of the message, a command that can request data from the receiving device, a data section to transmit the requested data, and checksum sections to detect errors in the transmission. *Id.* at 10:25-11:35.

The '893 patent expires on September 23, 2020. Complaint ¶ 44.

2. The '708 patent

The '708 patent is entitled "Systems and Methods for Monitoring and Controlling Remote Devices" and issued on February 24, 2015. JX-0003 ("the '708 patent"). Through an intervening application, the '708 patent is a continuation of the '893 patent. *Id.* As a result, the specification of the '708 patent is substantially similar to the specification of the '893 patent, and the figures are identical, including Figures 2 and 7 reproduced above.

The '708 patent expires on January 7, 2022. Complaint ¶ 48.

E. Level of Ordinary Skill in the Art

The parties have agreed that a person of ordinary skill in the art ("POSITA") should have "a bachelor's degree in computer science, computer engineering, electrical engineering, or a related discipline, or equivalent experience, and would have approximately two years of experience with, or exposure to, the design and development of wireless communication network systems, including familiarity with protocols used there." Order No. 26 at 7; CIB at 8; RIB at 8.

F. Witness Testimony

I received testimonial evidence in this investigation in the form of witness statements, live testimony, and deposition designations.

1. Fact Witnesses

SIPCO began the hearing with the testimony of Ms. Candida Petite, the former chief operating officer of SIPCO. Tr. at 103-153. The next witness was Mr. David Petite, the inventor of the asserted patents. *Id.* at 156-258. SIPCO later called Mr. Robert Colao, the chief licensing executive for SIPCO through his consulting firm, radiusIP. *Id.* at 453-95, 695-721. SIPCO also called Alan Wierzbicki, the current chief executive officer for SIPCO. *Id.* at 496-839.

In Respondents' rebuttal case, they called Mr. Robert Karschnia, a vice president at Rosemount Inc. Tr. at 724-877. Respondents also called Mr. John Groves, a vice president at Emerson. *Id.* at 895-965.

2. Expert Witnesses

SIPCO relies on testimony from Mr. John Crockett, who was qualified as an expert in software and firmware source code analysis and digital logic programming. CX-0003C; Tr. at 261-73 (expert qualification at 262:10-19). SIPCO also relies on testimony from Dr. Sumit Roy, who was qualified as an expert in the field of wireless communication and sensor networks. CX-0001C; Tr. at 292-343 (expert qualification at 293:23-294:6). SIPCO further relies on

testimony from Dr. Nader Mir, who was qualified as an expert in computer networks and protocols, wireless mesh networks, and networking devices. CX-0002C; CX-1868C; Tr. at 346-451 (expert qualification at 348:2-12). SIPCO also relies on the testimony of Mr. Todd Schoettelkotte, who was qualified as an expert in economics. CX-0004C; CX-1871C; Tr. at 541-692 (expert qualification at 542:17-543:2). In rebuttal, SIPCO relies on testimony from Dr. Kevin Almeroth, who was qualified as an expert in the field of wireless communication networks, including wireless mesh networking. CX-1850C; CX-1870C; Tr. at 1258-1401 (expert qualification at 1260:18-1261:4).

Respondents rely on the testimony of Dr. Vijay Madisetti, who was qualified as an expert in wireless networking, mesh networks, automation, and computer networks and protocols. RX-0536C; RX-0547C; RX-0822C; RX-0823C. Tr. at 1019-1255 (expert qualification at 1021:11-21). Respondents also rely on the testimony of Dr. Thomas Vander Veen, who was qualified as an expert in economics. RX-0548C; Tr. at 966-1015 (expert qualification at 967:22-968:4).

3. Deposition Designations

SIPCO submitted designated deposition transcripts for Analog witnesses David Bacher (JX-0010C), Alain Levesque (JX-0014C), and Jonathan Simon (JX-0028C); and Emerson witnesses John Groves (JX-0011C), Robert Karschnia (JX-0013C), Eric Rotvold (JX-0015C), Theodore Schnaare (JX-0016C), and Arvind Sharma (JX-0018C). SIPCO also submitted designated deposition transcripts for Tadiran Batteries Ltd. representative Sol Jacobs (JX-0012C), Honeywell representative Norman Swanson (JX-0020C), and Arcelormittal representative Donald Shulock (JX-0019C).

Respondents submitted designated deposition transcripts for SIPCO witnesses Robert Scott (JX-0017C), Robert Colao (JX-0021C), Keith Im (JX-0021C), and Kenneth Lee (JX-0023C).

II. JURISDICTION

In order to have the power to decide a case, a court or agency must have both subject matter jurisdiction and jurisdiction over either the parties or the property involved. 19 U.S.C. § 1337; *Certain Steel Rod Treating Apparatus and Components Thereof*, Inv. No. 337-TA-97, Commission Memorandum Opinion, 215 U.S.P.Q. 229, 231 (1981).

A. Subject Matter Jurisdiction

Section 337 confers subject matter jurisdiction on the Commission to investigate, and if appropriate, to provide a remedy for, unfair acts and unfair methods of competition in the importation, the sale for importation, or the sale after importation of articles into the United States. *See* 19 U.S.C. §§ 1337(a)(1)(B) and (a)(2). The Commission has subject matter jurisdiction over this investigation based on SIPCO's allegations that the accused products are imported into the United States. CIB at 21-22; *see Amgen Inc. v. Int'l Trade Comm'n*, 565 F.3d 846, 854 (Fed. Cir. 2009) ("In this case, the Commission had jurisdiction as a result of Amgen's allegation that Roche imported an article . . . covered by the claims of a valid and enforceable United States patent."). Emerson and Analog have not contested SIPCO's allegations of importation. *See* Emerson Response to Complaint ¶¶ 136-45; Analog Response to Complaint ¶¶ 146-48.

B. Personal Jurisdiction

Respondents have submitted to the personal jurisdiction of the Commission by answering the Complaint and Notice of Investigation, participating in discovery, appearing at hearings, and

filing motions and briefs. *See Certain Miniature Hacksaws*, Inv. No. 337-TA-237, USITC Pub. No. 1948, Initial Determination at 4, 1986 WL 379287, *1 (Oct. 15, 1986), *not reviewed in relevant part by* Comm'n Action and Order, 1987 WL 450871 (Jan. 15, 1987).

C. *In Rem* Jurisdiction

The Commission has *in rem* jurisdiction over the accused products by virtue of their importation into the United States. *See Sealed Air Corp. v. U.S. Int'l Trade Comm'n*, 645 F.2d 976, 985-86 (C.C.P.A. 1981) (holding that the ITC's jurisdiction over imported articles is sufficient to exclude such articles). As discussed above, Respondents have not contested SIPCO's allegations of importation. Respondents explicitly admit to the importation of the accused products in their interrogatory responses. JX-0054C at 128-90 (Emerson Response to Interrogatory No. 34); JX-0037C at 32-34 (Analog Response to Interrogatory No. 46).

III. LEGAL STANDARDS

A. Infringement

Section 337(a)(1)(B)(i) prohibits "the importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles that – (i) infringe a valid and enforceable United States patent or a valid and enforceable United States copyright registered under title 17." 19 U.S.C. §1337(a)(1)(B)(i). The Commission has held that the word "infringe" in Section 337(a)(1)(B)(i) "derives its legal meaning from 35 U.S.C. § 271, the section of the Patent Act that defines patent infringement." *Certain Electronic Devices with Image Processing Systems, Components Thereof, and Associated Software*, Inv. No. 337-TA-724, Comm'n Op. at 13-14 (December 21, 2011).

Infringement must be proven by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988). A preponderance

of the evidence standard "requires proving that infringement was more likely than not to have occurred." *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n.15 (Fed. Cir. 2005).

1. Claim Construction

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996) (citation omitted). The construction of claims is simply a way of elaborating the normally terse claim language[] in order to understand and explain, but not to change, the scope of the claims." *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (alterations in original) (quoting *Scripps Clinic v. Genentech, Inc.*, 927 F.2d 1565, 1580 (Fed. Cir. 1991)). "[O]nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). The words of a claim "'are generally given their ordinary and customary meaning,'" which is "the meaning that the term would have to a person of ordinary skill in art" as of the date that the patent application was filed. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

2. Direct and Indirect Infringement

Under 35 U.S.C. § 271(a), direct infringement of a patent consists of making, using, offering to sell, or selling the patented invention without consent of the patent owner.

In addition to direct infringement, a respondent may be liable for indirect infringement, including induced infringement, which is defined in section 271(b) of the Patent Act: "Whoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. § 271(b). *See DSU Med. Corp. v. JMS Co., Ltd.*, 471 F.3d 1293, 1305 (Fed. Cir. 2006) (*en banc*) ("To establish liability under section 271(b), a patent holder must prove that once the defendants knew of the patent, they actively and knowingly aided and abetted another's direct infringement.") (citations omitted). "The mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven." *Id.* (citations omitted). The Supreme Court has held that induced infringement "requires knowledge that the induced acts constitute patent infringement." *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 766 (2011). In *Suprema, Inc. v. Int'l Trade Comm'n*, the Federal Circuit upheld the Commission's interpretation of the section 337 language "articles that infringe" in the context of induced infringement, holding that the statute "covers goods that were used by an importer to directly infringe post-importation as a result of the seller's inducement." 796 F.3d 1338, 1352-53 (Fed. Cir. 2015).

Another form of indirect infringement is contributory infringement, defined in section 271(c) of the Patent Act: "Whoever offers to sell . . . or imports into the United States a component of a patented machine, . . . or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer." 35 U.S.C. § 271(c). The intent requirement for contributory infringement requires that respondent knows "that the combination for which [the] component

was especially designed was both patented and infringing." *Global-Tech*, 563 U.S. at 763. A violation of section 337 based on contributory infringement requires that "the accused infringer imported, sold for importation, or sold after importation within the United States, the accused components that contributed to another's direct infringement." *Spansion, Inc. v. Int'l Trade Comm'n*, 629 F.3d 1331, 1353 (Fed. Cir. 2010).

3. Literal Infringement and the Doctrine of Equivalents

A complainant must prove either literal infringement or infringement under the doctrine of equivalents. Literal infringement requires the patentee to prove that the accused device meets each and every limitation of the asserted claim(s). *Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Int'l, Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004). "If even one limitation is missing or not met as claimed, there is no literal infringement." *Elkay Mfg. Co. v. EBCO Mfg. Co.*, 192 F.3d 973, 980 (Fed. Cir. 1999). Literal infringement is a question of fact. *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1332 (Fed. Cir. 2008). Under the Doctrine of Equivalents, "a product or process that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997).

B. Invalidity

It is the respondents' burden to prove invalidity, and the burden of proof never shifts to the patentee to prove validity. *Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V.*, 528 F.3d 1365, 1380 (Fed. Cir. 2008). "Under the patent statutes, a patent enjoys a presumption of validity, *see* 35 U.S.C. § 282, which can be overcome only through facts supported by clear and convincing evidence . . . ." *SRAM Corp. v. AD-II Eng'g, Inc.*, 465 F.3d 1351, 1357 (Fed. Cir.

2006); *see also Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 100-114 (2011) (upholding the "clear and convincing" standard for invalidity).

The clear and convincing evidence standard placed on the party asserting an invalidity defense requires a level of proof beyond the preponderance of the evidence. Although not susceptible to precise definition, "clear and convincing" evidence has been described as evidence that produces in the mind of the trier of fact "an abiding conviction that the truth of a factual contention is 'highly probable.'" *Price v. Symsek*, 988 F.2d 1187, 1191 (Fed. Cir. 1993) (quoting *Buildex, Inc. v. Kason Indus., Inc.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988)).

1. Anticipation

Pursuant to 35 U.S.C. § 102, a patent claim is invalid as anticipated if:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant;
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States;
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent;
>
> (g)(2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it.

35 U.S.C. § 102 (2000).[1] "A patent is invalid for anticipation if a single prior art reference discloses each and every limitation of the claimed invention. Moreover, a prior art reference

[1] As explained in the revision notes and legislative reports in 35 U.S.C.A. § 100 (May 13, 2015), the language of 35 U.S.C. § 102 that was effective prior to the America Invents Act controls in this investigation.

may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference." *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citations omitted).

2. Obviousness

Section 103 of the Patent Act states:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

35 U.S.C. § 103(a) (2000).[2]

"Obviousness is a question of law based on underlying questions of fact." *Scanner Techs.*, 528 F.3d at 1379. The underlying factual determinations include: "(1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of non-obviousness." *Id.* (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). These factual determinations are often referred to as the "*Graham* factors."

The critical inquiry in determining the differences between the claimed invention and the prior art is whether there is a reason to combine the prior art references. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-21 (2007). In *KSR*, the Supreme Court rejected the Federal Circuit's rigid application of the teaching-suggestion-motivation test. While the Court stated that "it can be important to identify a reason that would have prompted a person of ordinary skill in the

[2] *See supra*, n.1.

relevant field to combine the elements in the way the claimed new invention does," it described a more flexible analysis:

> Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue . . . . As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

Id. at 418. Applying *KSR*, the Federal Circuit has held that, where a patent challenger contends that a patent is invalid for obviousness based on a combination of prior art references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device . . . and would have had a reasonable expectation of success in doing so." *PharmaStem Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007).

In addition to demonstrating that a reason exists to combine prior art references, the challenger must demonstrate that the combination of prior art references discloses all of the limitations of the claims. *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 1373-1374 (Fed. Cir. 2010), *abrogated on other grounds by Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014) (upholding finding of non-obviousness based on substantial evidence that the asserted combination of references failed to disclose a claim limitation); *Velander v. Garner*, 348 F.3d 1359, 1363 (Fed. Cir. 2003) (explaining that a requirement for a finding of obviousness is that "all the elements of an invention are found in a combination of prior art references").

3. Indefiniteness

"The Patent Act requires that a patent specification 'conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.'" *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014) (quoting 35 U.S.C. § 112, ¶ 2). "[T]he second paragraph of § 112 contains two requirements: first, [the claim] must set forth what the applicant regards as his invention, and second, it must do so with sufficient particularity and distinctness, *i.e.*, the claim must be sufficiently definite." *Allen Eng'g Corp. v. Bartell Indus., Inc,.* 299 F.3d 1336, 1349 (Fed. Cir. 2002) (citation and internal quotation marks omitted) (alteration in original). A claim does not satisfy the second requirement and is thereby indefinite "if read in light of the specification delineating the patent, and the prosecution history, [it] fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus*, 534 U.S. at 901. Indefiniteness is a question of law, subject to a determination of underlying facts. *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1343-44 (Fed. Cir. 2016). The party challenging the validity of a claim bears the burden of establishing indefiniteness. *Id.*

4. Obviousness-Type Double Patenting

Non-statutory "obviousness-type" double patenting "is a judicially created doctrine adopted to prevent claims in separate applications or patents that do not recite the 'same' invention, but nonetheless claim inventions so alike that granting both exclusive rights would effectively extend the life of patent protection." *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1373 (Fed. Cir. 2005) (citations omitted). There are two steps in a double patenting analysis: "First, the court construes the claims in the earlier patent and the claims in the later patent and determines the differences. Second, the court determines whether those differences

render the claims patentably distinct." *Abbvie Inc. v. Mathilda & Terence Kennedy Inst. of Rheumatology Trust,* 764 F.3d 1366, 1374 (Fed. Cir. 2014) (internal quotations removed). "'A later claim that is not patentably distinct from,' *i.e.,* 'is obvious over[] or anticipated by,' an earlier claim is invalid for obviousness-type double patenting." *Id.* (alteration in original) (quoting *Sun Pharm. Indus., Ltd. v. Eli Lilly & Co.,* 611 F.3d 1381, 1385 (Fed. Cir. 2010)).

C. Patent Eligibility

"A patent may be obtained for 'any new and useful process, machine, manufacture, or composition of matter of any new and useful improvement thereof.'" *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility*, 827 F.3d 1341, 1347 (quoting 35 U.S.C. § 101). "The Supreme Court has 'long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.'" *Id.* (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107, 2116 (2013)). [T]he Supreme Court set forth a two-step analytical framework to identify patents that, in essence, claim nothing more than abstract ideas." *Id.* In the first step, the court determines "'whether the claims at issue are directed to a patent-ineligible concept.'" *Id.* (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int'l.*, 573 U.S. 208, 218 (2014)). If so, the court determines whether, "'considering the elements of each claim both individually and 'as an ordered combination,'" "the additional elements 'transform the nature of the claim' into a patent-eligible application.'" *Id.* (quoting *Alice*, 573 U.S. at 217).

Under step one of the *Alice* analysis, the Federal Circuit holds that claims focused "on collecting information, analyzing it, and displaying certain results of the collection and analysis," "fall into a familiar class of claims 'directed to' a patent-ineligible concept." *Elec. Power Grp., LLC v. Alstom S.A.,* 830 F.3d 1350, 1353 (Fed. Cir. 2016). At step two, the question is whether

anything in the claim elements, scrutinized "more microscopically," removes "the claims from the class of subject matter ineligible for patenting." *Id.* at 1354. What is required to establish eligibility, under both steps one and two, is an element of technological innovation that amounts to more than the abstract idea itself. "[I]t is 'relevant to ask whether the claims are directed to an improvement in computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis.'" *Procter & Gamble Co. v. QuantifiCare Inc.*, 288 F. Supp. 3d 1002, 1022 (N.D. Cal. 2017). A patentee may be required to present "an arguably inventive set of components or methods, such as measurement devices or techniques, that would generate new data." *Elec. Power,* 830 F.3d at 1355.

D. Domestic Industry

In patent-based proceedings under section 337, a complainant must establish that an industry "relating to the articles protected by the patent . . . exists or is in the process of being established" in the United States. 19 U.S.C. § 1337(a)(2). Under Commission precedent, the domestic industry requirement of section 337 consists of an "economic prong" and a "technical prong." *See, e.g., Alloc, Inc. v. Intl Trade Comm'n,* 342 F.3d 1361, 1375 (Fed. Cir. 2003). To meet the technical prong, the complainant must establish that it practices at least one claim of the asserted patent. *Certain Point of Sale Terminals and Components Thereof,* Inv. No. 337-TA-524, Order No. 40 at 17-18 (Apr. 11, 2005). "The test for satisfying the 'technical prong' of the industry requirement is essentially [the] same as that for infringement, *i.e.*, a comparison of domestic products to the asserted claims." *Alloc*, 342 F.3d at 1375.

With respect to the "economic prong," subsection (3) of Section 337(a) provides:

> For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned –

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

19 U.S.C. § 1337(a)(3).

IV. THE '708 PATENT

A. Background and Asserted Claims

SIPCO is asserting claims 1, 2, 9, and 10 of the '708 patent against Respondents. In addition, SIPCO is relying on claims 1, 2, and 10 of the '708 patent to satisfy the domestic industry requirement. Claim 1 is an independent claim and recites:

> A wireless communication device for use in a wireless communication system configured to communicate command and sensed data within the wireless communication systems, the wireless communication device comprising:
>
> a transceiver configured to send and receive wireless communications;
>
> and a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; a data value comprising a message, wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code.

'708 patent at 14:6-23.

Claims 2, 9, and 10 each depend directly from claim 1 and add the following limitations to claim 1: Claim 2 requires that the transceiver have a "unique transceiver address to distinguish the transceiver from other transceivers in the wireless communication system." *Id.* at co. 14:24-27. Claim 9 requires that the command code "indicate[] a change in settings of an actuator associated with the wireless communication device." *Id.* at col 14:46-48. Claim 10

requires that the command code "indicate[] a request for a ping response by the wireless communication device." *Id.* at 14:49-51.

B. Claim Construction

The *Markman* order construed several disputed terms. The term "remote wireless device" recited in claim 1 was construed to mean "a device that is in wireless communication with another device." Order No. 26 (Aug. 13, 2019) at 47. In the *Markman* order, I found that the term "receiver address" recited in claim 1 should be given its plain and ordinary meaning. *Id.* at 47-48. In so doing, I rejected Respondents' proposed construction that would have limited "receiver address" to the address of the "intended recipient(s) for the message—not merely a repeater." *Id.* The terms "the command code" and "by the wireless communication device" recited in claim 10 were found not to be indefinite and were found to require that the wireless communication device of claim 1 receive a command code requesting a ping response. *Id.* at 48-51.

In addition to the claim construction disputes addressed in the *Markman* order, the parties' post-hearing briefs raise three additional claim construction disputes relating to claim 1. One dispute relates to a term construed in the *Markman* order—"remote wireless device"—while the remaining disputes relate to terms not previously construed—"the controller further configured to format a message" and "from another wireless communication device."

1. "remote wireless device"

Claim 1 is directed to a "wireless communication device" having "a controller configured to communicate with at least one other remote wireless device" and "further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device." '708 patent at 14:6-17. During the *Markman* proceedings, both parties argued that the

term "remote wireless device" should be given its plain and ordinary meaning, but disagreed on the plain and ordinary meaning. Respondents argued that "the plain meaning of 'remote' connotes a physical distance—in the context of the claimed 'remote wireless device' in the specification, this requires that the device is distant from a local gateway." RIMB at 41-42. SIPCO countered that "remote" did not require the devices to be distant from each other, only that they be separate from each other. CIMB at 33 (arguing that "remote" should be construed to mean "located remotely"). In the *Markman* order, I rejected both interpretations and found that a "remote wireless device" is "a device that is in wireless communication with another device." Order No. 26 (Aug. 13, 2019) at 46-47.

SIPCO now seeks to further define the term so as to exclude the "local gateway." CIB at 96-97. There is no basis for so doing. SIPCO identifies no support for its position in the claim language. Not only has neither party argued that "remote wireless device" is a term of art, during the *Markman* proceedings, both parties argued that the term should be given its plain and ordinary meaning. The plain and ordinary meaning of the words "remote," "wireless," and "device" does not exclude "local gateways," so long as the gateways are wireless and remote. The surrounding claim language does not distinguish between "remote wireless devices" and "local gateways." None of the asserted claims of the '708 patent even recite "gateway."

Unable to rely on the claim language to narrow the term, SIPCO turns to the specification's descriptions of the disclosed embodiments. According to SIPCO, the specification "describes 'remote devices' as the devices in the network that are monitored and controlled, and refers to the 'gateway' separately, never referring to it as a 'remote device.'" CIB at 97-98. According to SIPCO, this "deliberate use of contrasting language—'remote' versus 'local'—shows the patentee's intent to distinguish a 'remote wireless device' from a local gateway." *Id.*

These descriptions, however, fall short of the clear and unmistakable statements needed for lexicography and disavowal of claim scope. *Thorner v. Sony Comput. Entm't Am.*, 669 F.3d 1362, 1365-66 (Fed. Cir. 2012). The specification does not define or disavow claim scope with respect to "remote wireless device;" the term does not even appear in the specification. Moreover, it is clear that the specification's descriptions are using "local gateway" as a point of reference, describing any devices located separate from the gateway as "remote devices." Accordingly, while the specification uses the term "remote device" to refer to "the devices in the network that are monitored and controlled," it also uses "remote" and "device" to describe devices that monitor and control the network. For instance, laptop computer 240 and workstation 250 in Figure 2 are described as being "remote" and being at a "remote location."

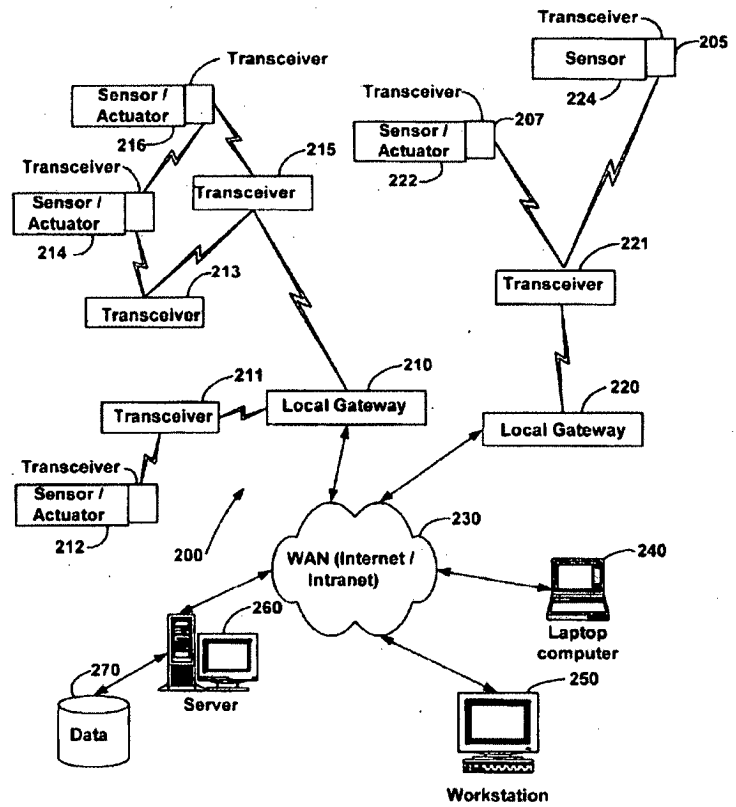


FIG. 2

'708 PATENT at 8:19-21; *see also id.* at 9:42-48 (describing a "network server" as a "remote comput[ing] device").

Rejecting SIPCO's argument is also fully consistent with the *Markman* order issued by the district court in *SIPCO, LLC v. ABB, Inc., et al.,* Civil Action No. 6:11-cv-0048 LED-JDL.[3] Although the '708 patent was not asserted in this district court case, the '511 patent was. The '708 patent and '511 patent are related to each other and each claims priority to U.S. Patent Nos. 6,028,522 and 6,218,953. JX-0002.0002; JX-0003.0003. The term "remote device" appears in the claims of the '511 patent and SIPCO cited to the district court's analysis of this term in support of its proposed construction of "remote wireless device" in the '708 patent. CIMB at 33-34 ("As noted above, in the context of the '511 Patent, a district court previously considered this same dispute and construed 'remote' as SIPCO proposes, expressly rejecting a proposal similar to Respondents' 'located distant' phrasing. *See* CXM-8 at 6-11 (rejecting defendant Schlange/Trane's 'at a distance far away, far removed,' and defendant Coulomb's 'in a geographical location separate from' proposals). The district court's reasoning there also applies to the '708 Patent.").

In its *Markman* order, the district court explicitly rejected a proposed construction by one of the defendants that explicitly excluded "local gateway" or "site controller" from the scope of "remote device." District Court *Markman* Order at 9. In support of this argument the defendant—mirroring SIPCO's argument—"point[ed] to several portions of the specification that describe devices used at a distance from the gateway or site controller" and argued that "the patents-in-suit describe transceivers and a host computer as 'remote' while referring to the

[3] The district court's Claim Construction Memorandum Opinion and Order (E.D. Tex. July 30, 2012) is Exhibit CXM-8 to SIPCO's initial *Markman* brief.

gateway as the 'local component' that receives 'remote' transmissions." *Id.* The court rejected the defendant's argument as improperly narrowing the term "remote" by importing limitations from the specification. *Id.* at 7-8.

In its post-hearing brief, SIPCO places weight on Respondents' position during the *Markman* proceedings that "remote wireless device" should be construed to mean "located distant from the local gateway." *Id.* at 97 (quoting Order No. 26 at 46) (emphasis omitted). Respondents' proposed construction during *Markman* proceedings is of no consequence as it was explicitly rejected. Order No. 26 at 46-47.

Based on the foregoing, I reject SIPCO's proposal to limit "remote wireless device" to exclude gateways.

2. "the controller further configured to format a message"

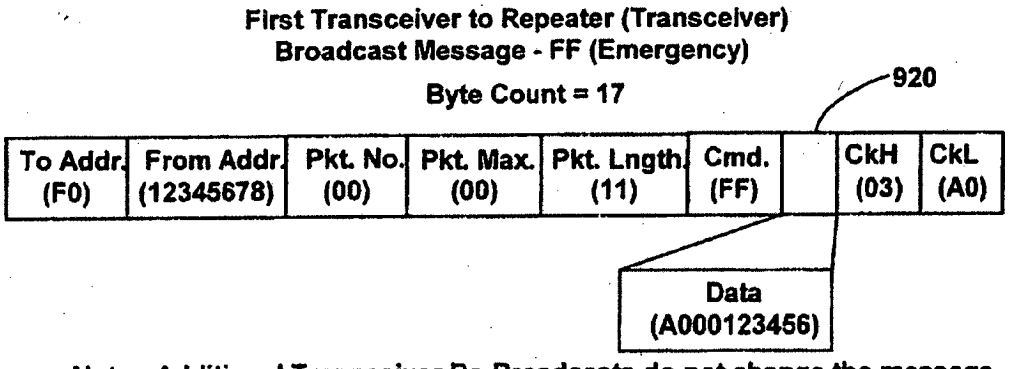
Claim 1 requires that the "wireless communication device" have a controller configured to format a message having a receiver address, a command indicator, and a data value. '708 PATENT at 14:15-18. The parties dispute whether this limitation requires that the wireless communication device originate the formatted message or whether it can be satisfied by a device that repeats a message originated by another device.

SIPCO does not argue that the plain and ordinary meaning of "format a message" supports its proposed limitation. The plain and ordinary meaning of "to format" is to apply a format. Tr. (Madisetti) at 1112:11-20, 1117:7-11, 1118:10-15; *see also* Tr. (Roy) at 299:8-13 ("Q. Isn't it true that a preformatted message means that there is a format for the packet? A. What it means is that it's a message which is formatted according to an agreed-on or preformatted packet structure."). So long as a device is applying a format to an outgoing message, it satisfies the term's plain and ordinary meaning, irrespective of whether it is originating the message or

merely repeating the message. Nor has SIPCO argued that the surrounding claim language supports its position. Rather SIPCO points to the specification and claim language from related patents. The cited evidence, however, is not persuasive.

SIPCO makes two arguments based on the specification. The bulk of SIPCO's citations to the specification relate to its argument that "the '708 Patent's disclosure of formatting of a message is to enable remote devices to transmit original messages." CIB at 99-101 (citing '708 PATENT at 7:5-13, 7:52-64, 7:52-64, 9:58-67, 11:40-12:3, FIGS. 7 & 9). This, however, is irrelevant as there is nothing in the claim language that limits the formatting to the original message and SIPCO does not argue that these disclosures constitute either lexicography or disavowal on the part of the patentees.

SIPCO's second argument relating to the specification is based on the following exemplary message from Figure 9.



The message is an example of an emergency broadcast message (FF) sent from the central server (0012345678) to a stand-alone transceiver (F0). '708 PATENT at 11:47-54. The message contains command data (A000123456) "that may be used by the system to identify further transceivers to send the signal through on the way to the destination device." *Id.* In support of

its proposed claim construction, SIPCO points to the following statement in Figure 9: "Additional Transceiver Re-Broadcasts do not change the message. The messages are simply received and re-broadcast." While it stands to reason that a stand-alone transceiver will not change the "message" that it is relaying to its ultimate destination, this does not mean that the stand-alone transceiver does not format the message before relaying it. In particular, the broadcast emergency message received by transceiver FO is addressed to transceiver FO. Before relaying the message, transceiver FO will have to change the address.

In support of its position, SIPCO also cites to claim language in U.S. Patent No. 8,013,732 ("'732 patent;" RX-0025). The '708 and '732 patents claim priority to several common applications, *viz.*, abandoned application 09/271,571 and the applications that led to U.S. Patent Nos. 6,028,522; 6,218,953; 643,268; and 6,437,692. JX-0003.0002-.0003; RX-0025.0001. Notably both parties cite the '732 patent in support of their proposed constructions of "the controller further to format a message." CIB at 101; RIB at 121.

SIPCO points claims to claims 1, 13, and 20 of the '732 patent, which employ the term "retransmit" to claim the re-transmission of a signal. CIB at 101. According to SIPCO, the use of the term "retransmit," instead of "format," "reflects the contrast between formatting and originating a message and receiving and retransmitting a message." *Id.* SIPCO's argument is unavailing as there is no conflict between the different terminology employed in the two patents. The plain and ordinary meaning of "retransmit" excludes devices that originate messages, while "formatting a message" is broad enough to encompass both repeaters and originators of messages. Such an interpretation is fully supported by the specification of the '732 patent, which teaches that the repeaters "format" the message being retransmitted. RX-0025 at 3:36-39

("Additional transceivers may be configured as stand-alone devices that serve to simply receive, format, and further transmit system data signals.").

Based on the foregoing, I reject SIPCO's proposal to exclude the retransmission of messages from the scope of "to format a message."

3. "from another wireless communication device"

Claim 1 requires that the claimed "wireless communication device" have a controller that is configured to receive a preformatted message "from another wireless communication device." SIPCO argues that this claim language requires that the "another wireless communication device" be the device that originated the message and not a device that is retransmitting the message. CRB at 54. SIPCO argues that interpreting the claim language to encompass repeaters is tantamount to rewriting the claim language "from another wireless communication device" to "via another wireless communication device." *Id.* SIPCO's argument is unpersuasive. The word "from" is not a term of art and its meaning is "readily apparent even to lay judges." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). The word "from" encompasses both messages transmitted by the originating device and messages retransmitted by repeaters.

Based on the foregoing, I reject SIPCO's proposal to limit "from another wireless communication device" to the originators of messages.

C. Infringement

SIPCO argues that Emerson field devices that include a fully programmed DN2510 or LTC5800, and any products including such field devices, infringe claims 1, 2, 9, and 10 of the '708 patent. CIB at 101-02. Claim 1 contains two "message" limitations. The first message limitation relates to an outgoing message to "another remote wireless device." '708 patent at 14:12-18. The outgoing message is required to have (1) a receiver address of a remote wireless

device; (2) a command indicator comprising a command code; and (3) a data value comprising a message. *Id.* at 14:15-18. The second message is an incoming message "from another wireless communication device." *Id.* at 14:12-23. In contrast to the outgoing message, the incoming message is only required to have a "command code." *Id.* at 14:28-33. For both messages, SIPCO relies on the WirelessHart ACK and Keep-Alive messages. CIB at 103, 108.

Respondents argue, however, that SIPCO is precluded from relying on the ACK and Keep-Alive messages for the first message. Specifically, Respondents argue that SIPCO failed to disclose its contention that the ACK and Keep-Alive messages satisfy the limitations requiring a "command indicator comprising a command code" and a "data value comprising a message." RIB at 122-23. SIPCO disputes Respondents' position, arguing that while its expert Prof. Roy was precluded from testifying in support of the contention, it was not precluded from advancing the contention. The parties' dispute stems from Order No. 36 (Sept. 3, 2019), which granted in part Respondents' motion *in limine* no. 1 (Motion Docket No. 1131-028).

1. Technological Background: The Accused Messaging Protocol

In order to understand the parties' dispute, it is first necessary to understand the structure of the messages sent and received by the accused devices. The accused devices use a wireless communication standard called the WirelessHART protocol, which can be used in a wireless mesh network, such as the one shown below.

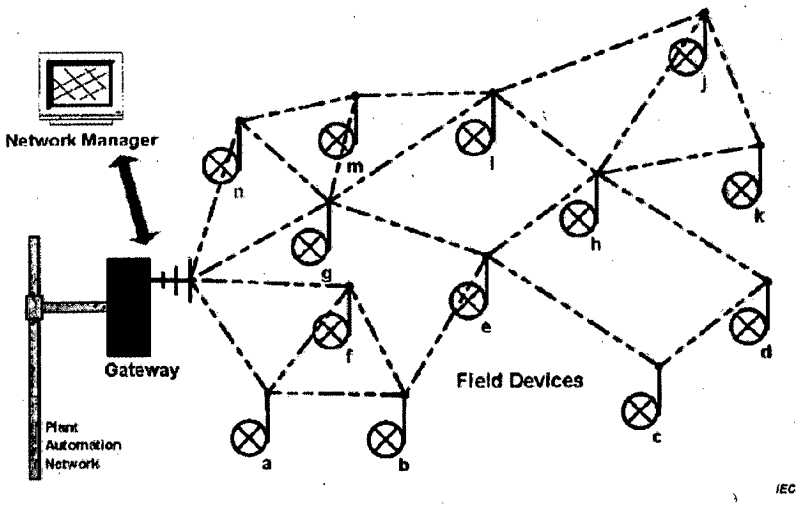


Figure 14 – Wireless network

CX-1095 at § 6.2.2.2. The network depicted in the figure employs a mesh topology having a network manager, a gateway, and 13 field devices. Each field device can not only be the source or the final destination for a message but can act as a repeater that relays messages to their intended destinations. *Id.* For instance, only a subset of the field devices (a, f, g, and n) can transmit messages to and receive messages from the gateway directly, *i.e.*, in one "hop." *Id.* The remaining field devices must communicate with the gateway through messages relayed through one or more intervening field devices, *i.e.*, in two or more "hops." *Id.*

The messages transmitted within the network have one or more layers. The data-link (DL) layer governs communications between a wireless device and one or more adjacent devices. DLPDUs (DL layer protocol data units) are used to transmit information to adjacent devices. *See id.* at § 6.2.1.3. The data-link layer consists of two sublayers. *Id.* at § 6.2.1.1. The higher sublayer is the logical link control (LLC) sublayer and is responsible for preparing DLPDUs for transmission, parsing received DLPDUs, and error detection. *Id.* at § 6.2.1.2. The lower sublayer is the medium access control (MAC) sublayer, which is responsible for sending DLPDUs queued in the device's buffers and receiving DLPDUs sent by neighboring device. *Id.*

at §§ 6.2.1.3, 6.4.1. To minimize interference, the network employs Time Division Multiple Access (TDMA) and channel hopping protocols. *Id.* at § 6.2.1.3. TDMA is implemented by assigning one time slot to two devices and designating one device as the source and the other as the destination. *Id.* The time slot provides sufficient time for the source device to transmit one DLPDU and the destination device to respond by transmitting an ACK DLPDU. *Id.* The ACK DLPDU indicates either that the transmission was successfully received and handled or that an error occurred. *Id.* The TDMA techniques are used in conjunction with channel hopping, so that for each time slot, the source and destination devices have an assigned frequency. *Id.* at § 6.2.1.4. This allows the same time slot to be used concurrently by multiple pairs of devices, wherein each pair of devices is operating at a different frequency. *Id.*

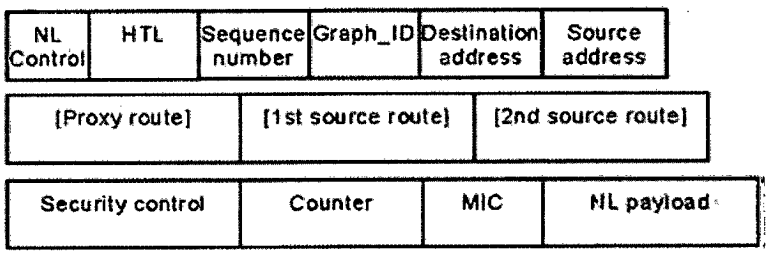
There are five different types of DLPDUs: (1) ACK, (2) Keep-alive, (3) Advertise, (4) Disconnect, and (5) Data. *Id.* at § 6.3.2.1. The different types of DLPDUs have the same general structure:

0x41	Address specifier	Sequence number	Network_ID	Destination address	Source address	DLPDU specifier	DLL payload	MIC	CRC

Id. at § 6.2.1.1. The ACK, Keep-Alive, Advertise, and Disconnect DLPDUs are single hop communications between adjacent wireless devices in direct communication with each other and "are not propagated to the network layer or onward through the network." *Id.* at § 6.3.2.1. As such, these DLPDUs are single layer messages. *Id.* Data DLPDUs, on the other hand, are used to forward data through one or more intermediary wireless devices to its intended destination. *Id.* at § 6.3.2.2.1.

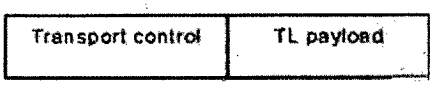
The payload (DLL payload) of a Data DLPDU is an NPDU (network layer protocol data unit) generated by the network layer. CX-1095 at §§ 6.3.2.1-6.3.2.2. The network layer is

responsible for routing messages to or from the gateway. The transmission of a message between the gateway and a field device may take several hops. *Id.* at § 6.2.2.2. The NPDU contains the information needed to route the packet to its final destination. *Id.* The general structure of an NPDU is shown below.



Prof. Roy's Initial Expert Report at 86.[4]

The payload of the NPDU (NL payload) is a TPDU (transport layer protocol data unit) generated by the transport layer. The transport layer is responsible for ensuring that data from the application layer is communicated to its final destination in the network. CX-1095 at § 6.7.1. The transport layer supports both unacknowledged and acknowledged services. *Id.* If unacknowledged service is used, the destination device does not acknowledge receiving the message and data may be delivered in a different order than it was sent. *Id.* If acknowledged service is used, the receiving device acknowledges receipt of the data and, if no acknowledgement is received, the transport layer will resend the data. *Id.* With acknowledged service, the data must be delivered in the same order in which it was sent. *Id.* The TPDU contains information needed for the selected service. *Id.* at § 6.7.3. The general structure of a TPDU is shown below.



[4] An excerpt from Prof. Roy's initial expert is Exhibit 4 to Respondents' motion *in limine* no. 1. The figure reproduced from Prof. Roy's report is a more legible version of the figure on CX-1095.0126.

Id. at § 6.7.2.

The payload of a TPDU (TL payload) is an APDU (application layer data unit) generated by the application layer. CX-1097.0019-.0020. APDUs contain data being transmitted to and from user applications. *Id.* The general structure of an APDU is shown below.

CX-1095 at § 8.3.2.1.

2. Procedural Background

a. Respondents' Motion *In Limine* No. 1 and Order No. 36

Respondents' motion *in limine* no. 1 sought to strike testimony from the direct witness statement of Prof. Roy, a technical witness for SIPCO, on the basis that the challenged testimony related to opinions that had not been disclosed in Prof. Roy's expert report. The challenged testimony related to Prof. Roy's opinion that the ACK and Keep-Alive messages satisfied claim 1's requirement that the remote communication device be configured to format a message having (1) a receiver address, (2) a command indicator comprising a command code, and (3) a data value comprising a message. Memorandum at 1. The deadline to file motions *in limine* was August 14, 2019, while the deadline to file prehearing briefs was August 23, 2019. *See* Order No. 12 (extending target date and amending procedural schedule). Because of this timing, Respondents' motion *in limine* did not address SIPCO's prehearing brief, but focused solely on Prof. Roy's direct witness statement.

In its opposition, SIPCO argued that Prof. Roy's expert report disclosed the contention that the ACK and Keep-Alive messages satisfied the requirements of the first message by, *inter alia*, incorporating by reference SIPCO's infringement contentions. Opposition at 4-5, 9. In making this argument, SIPCO raised the issue of whether it had disclosed the challenged

contentions during fact discovery. As determined in Order No. 36, SIPCO's infringement contentions disclosed the contention that the receiver address limitation of the outgoing message could be satisfied by either a DLPDU address or an NPDU address but did not disclose the contention that DLPDUs satisfy the outgoing message's command indicator and data value limitations. Order No. 36 (Sept. 3, 2019) at 4-6.[5] In particular, explicitly citing to SIPCO's infringement contentions, Order No. 36 found that "there is no identification of a 'command indicator comprising a command code' or a 'data value comprising message' with respect to DLPDU messages in any of the previous disclosures identified by SIPCO." *Id.* at 6 (citing Opp. Ex 5 ('708 infringement contentions) at 27-31).

b. The Pre-Hearing Conference

Order No. 36 issued on Tuesday, September 3, 2019, the day before the start of the hearing. At the pre-hearing conference, relying on the findings in Order No. 36, Respondents made an oral motion to strike the portions of SIPCO's prehearing brief reflecting SIPCO's contentions that the ACK and Keep-Alive messages satisfy the "command indicator" and "data value" limitations. Pre-hearing Tr. at 17:14-18:7. SIPCO countered that Order No. 36 only struck portions of Prof. Roy's testimony relating to those contentions, not the contentions themselves. *Id.* at 18:10-19:1.

Although I denied Respondents' motion, I gave Respondents leave to address the issue in their post-hearing brief and SIPCO was told that its counsel could "make whatever arguments

[5] Although SIPCO disclosed a contention that a DLPDU address satisfied the receiver address limitation of claim 1 in its interrogatory response, Order No. 36 found that this contention was "not reflected in Dr. Roy's expert report and w[as] foreclosed by his deposition testimony." Order No. 36 (Sept. 2, 2019) at 4. As a result, testimony relating to this contention was stricken from Prof. Roy's witness statement.

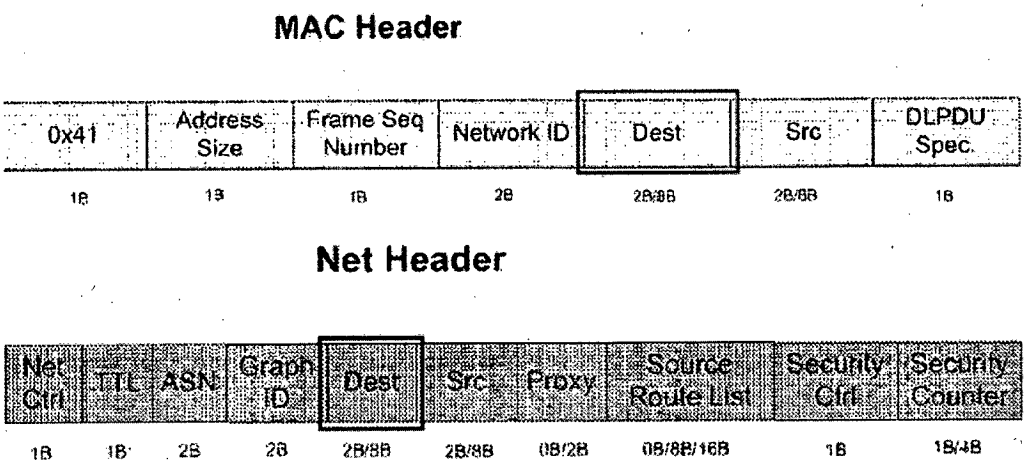
they believe are appropriate in light of Order Number 36 in their post-hearing brief." *Id.* at 19:2-8.

3. SIPCO's Infringement Contentions

In its post-hearing briefs, SIPCO argues that the issue of whether it is precluded from relying on the ACK and Keep-Alive messages for infringement in view of Order No. 36 was decided in its favor at the hearing. *See, e.g.*, CRB at 103 ("Respondents attempted to strike the ACK and Keep-Alive infringement theory during the pre-hearing conference, but the ALJ denied their oral motion . . . ."). The transcript from the pre-hearing conference is clear, however: I made no decision on the merits of Respondents' argument at either the pre-hearing conference or at the hearing and explicitly gave Respondents leave to raise the issue in their post-hearing brief. Pre-hearing Tr. at 19:2-8.

An examination of SIPCO's infringement contentions confirms that SIPCO failed to disclose its theory that the ACK and Keep-Alive messages satisfy the command indicator and data value limitations of claim 1. SIPCO argues that it disclosed its contention that the "receiver address" limitation of outgoing messages was satisfied by the DLPDU address and that this disclosure was sufficient to place Respondents on notice that it was relying on DLPDUs, such as ACK and Keep-Alive messages, for the remaining requirements for the outgoing message. CRB at 42. An examination of SIPCO's infringement contentions reveals, however, that the DLPDU relied on by SIPCO for the "receiver address" was not an ACK or a Keep-Alive DLPDU, but a Data DLPDU.

As discussed above, there are five types of DLPDUs. For the receiver address, SIPCO's infringement contentions identify the destination address in the DLPDU (MAC Header) or, in the alternative, the destination address in the NPDU (Net Header).

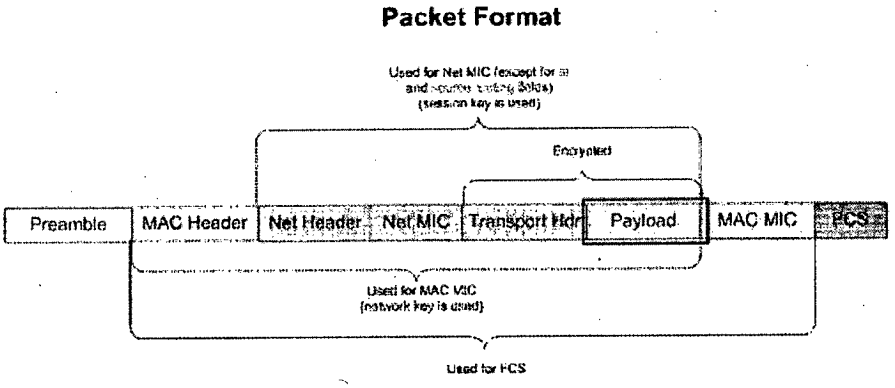


JX-0085C.1634-.1635; *see also id.* ("In view of the above, under SIPCO's proposed construction of 'receiver address,' *i.e.,* the plain and ordinary meaning, either destination address in the packet is a receive [*sic*] address.").[6] Although SIPCO's infringement contentions do not explicitly limit the DLPDU it is relying on for the "receiver address" to a particular type of DLPDU, it is clear from the contentions that the DLPDU is a Data DLPDU, not an ACK or Keep-Alive DLPDU.

The infringement contentions describe the DLPDU being used in a packet containing an NPDU and being generated to relay the NPDU along a multi-hop path to its final destination: "[T]he controller in the Analog Accused Products, including those in the Emerson Accused Products, are configured to insert into packets the destination address of an intended receiving remote device as the NPDU (final) destination address, and the address of the next remote device to receive (and repeat) the message as the DLPDU (next hop) destination address." *Id.* at .1634. Consistent with this description of the DLPDU being used to relay an NPDU to its final destination, for the command indicator and the data value limitations, SIPCO's infringement

[6] SIPCO's proposed construction of "receiver address" was adopted in the *Markman* order. Order No. 26 at 47-48 (Aug. 13, 2019).

contentions identify the payload portion of a packet having a MAC header (DLPDU), a Net Header (NPDU), and a "Transport Hdr" (TPDU).



Id. at .1637, .1639.

ACK and Keep-Alive DLPDUs "are not propagated to the network layer or onward through the network." CX-1095 at § 6.3.2.1. Rather, these DLPDUs are single hop communications, "generated and consumed" by wireless devices in direct communication with each other. *Id.* As such, ACK and Keep-Alive DLPDUs, unlike the packet referenced and shown in SIPCO's infringement contentions, are single-layer messages and do not have an NPDU or TPDU. *Id.* In contrast, a Data DLPDU is a multilayer message that contains an NPDU as payload, which in turn carries a TPDU as payload. *Id.* at § 6.3.2.2.1.

The interpretation of SIPCO's infringement contentions as relying on a Data DLPDU and not an ACK or Keep-Alive DPLDU for the "receiver address" limitation is bolstered by SIPCO's contentions regarding the incoming message. For the incoming message, SIPCO explicitly identifies the ACK and Keep-Alive messages. SIPCO's Infringement Contentions at 33-34. The claimed device must be able to implement a function corresponding to a "command code" contained in the incoming message. '708 patent at 14:18-23. For this element, SIPCO's infringement contentions explicitly identify the ACK DLPDU's response code and the Keep-

Alive DLPDU in its entirety. JX-0085C.1642-.1643. The explicit reference and analysis of the ACK and Keep-Alive DLPDUs with respect to the incoming message stands in clear contrast to the absence of any reference or analysis of these DLPDUs with respect to the outgoing message.

SIPCO's infringement contentions cite an "AP SK_Response Ack Packet" with respect to the "command indicator" and "data value" requirements of the outgoing message.

AP SK_Response Ack Packet

MAC Header:		, 14 bytes
Net Header:		, 16 bytes
Trans Header:		, 1 bytes
Extended Device Status:		, 2 bytes
Hart Command 0x3C1	;(Write Network Key)	, 20 bytes
Hart Command 0x3C3	;(Write Session)	, 33 bytes
Hart Command 0x3C2	;(Write Mote ID)	, 6 bytes
MIC:		, 2 bytes
Total:		94 bytes

JX-0085C.1638; *see also id.* at .1640, 1642, 1652, 1656. SIPCO argues that these are explicit disclosures of the ACK message in the "context of the message limitations." CRB at 42-43. Respondents' have not had the opportunity to respond to this argument because it was not raised in either SIPCO's opposition to Respondents' motion *in limine* or SIPCO's initial post-hearing brief. Accordingly, SIPCO's arguments regarding the "AP SK_Response ACK Packet" have been waived. Ground Rule 11.1 ("The post-hearing brief shall discuss the issues and evidence tried within the framework of the general issues determined by the Commission's Notice of Investigation, the general outline of the briefs as set forth in Appendix B, and those issues that are included in the pre-hearing brief and any permitted amendments thereto. All other issues shall be deemed waived."). Moreover, it should be noted that the "AP SK_Response ACK Packet" disclosed in SIPCO's infringement contentions appears to be a multi-layer message

having a MAC header, Net header, and Transport header. As discussed above, the ACK DLPDU is a single-layer message and does not have a Net header and a Transport header.

In summary, while SIPCO disclosed its contention that the "to" address of a Data DLPDU satisfied the receiver address limitation of the outgoing message there is no similar disclosure for the ACK and Keep-Alive DLPDUs. In addition, while SIPCO disclosed its contention that the ACK and Keep-Alive DLPDUs satisfied the "command code" limitation of claim 1's incoming message, it did not provide a similar disclosure for the command indicator of the outgoing message. There is no disclosure of a DLPDU satisfying the data value limitation of the outgoing message.

Based on the foregoing, I find that SIPCO's infringement contentions failed to place Respondents on notice that SIPCO intended to rely on the ACK DLPDU or Keep-Alive DLPDU to satisfy claim 1's outgoing message limitation requiring a receiver address, a command indicator comprising a command code, and a data value comprising a message. As discussed in Order No. 36, SIPCO did not disclose the contentions even during expert discovery. Instead, SIPCO disclosed its theory for the first time in the witness statement of its expert Prof. Roy after the close of expert discovery. Such an untimely disclosure is prejudicial to Respondents and SIPCO is precluded from relying on the ACK and Keep-Alive DLPDUs to satisfy the outgoing message limitation of claim 1. *See, e.g.,* Order No. 36 (Sept. 3, 2019) at 4 and 6 (finding Prof. Roy's untimely disclosure of the same theory to be prejudicial to Respondents).

4. The accused products do not infringe the asserted claims.

The only theory of infringement advanced by SIPCO in its post-hearing briefs relied on the ACK and Keep-Alive DLPDUs satisfying the outgoing message limitation claim 1. Because

SIPCO is precluded from relying on this theory to show infringement, SIPCO cannot show that the accused products infringe claim 1 or dependent claims 2, 9, and 10.

5. Respondents do not indirectly infringe the asserted claims.

SIPCO argues that Analog indirectly infringes the asserted claims by actively inducing Emerson and others to infringe the asserted claims by using the accused Emerson products. CIB 42-45. SIPCO also argues that the Analog and Emerson contributorily infringe the asserted claims by selling the accused products to customers. *Id.* at 45. To show that Analog and Emerson indirectly infringe the asserted claims, SIPCO must show that the claims are directly infringed by someone else. *See, e.g., Dynacore Holdings Corp. v. U.S. Philips Corp.*, 363 F.3d 1263, 1272 (Fed. Cir. 2004) ("Indirect infringement, whether inducement to infringe or contributory infringement, can only arise in the presence of direct infringement . . . ."). For the reasons set forth above, SIPCO has not shown that the accused Emerson products infringe the claims of the '708 patent. Without an act of direct infringement, SIPCO cannot show that Respondents indirectly infringed the asserted patents.

D. Domestic Industry—Technical Prong

For the technical prong of the domestic industry requirement, SIPCO relies on Honeywell's OneWireless Network products. CIB at 111. SIPCO asserts that the Honeywell products practice claims 1, 2, and 10 of the '708 patent. *Id.* The only disputes raised by Respondents with respect to the technical prong are based on their contention that the claims require SIPCO to show that networks incorporating the Honeywell products existed as of the filing date of the complaint. RIB at 129. The '708 patent claims, however, are directed to a "wireless communication device for use in a wireless system," not a network or system. '708

patent at 14:6-9. Accordingly, for the '708 patent, it is sufficient for SIPCO to show that the Honeywell devices exist and that they practice the asserted claims.

1. Independent Claim 1

To the extent that the preamble is limiting, there is no dispute that Honeywell's field device products are wireless communication devices for use in Honeywell's OneWireless Network and are configured to communicate commands and sensed data within the network. *See, e.g.,* CX-0002C (Mir DWS) at Q/A 283. As required by claim 1, the Honeywell field devices have [redacted] configured to send and receive wireless communications. *See, e.g., id.* at Q/A 284-288. The Honeywell products also have a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message. Specifically, the [redacted] in the Honeywell products is configured to communicate sensor data using the ISA100.11 wireless communications protocol. *See, e.g., id.* at Q/A 289-291. The processor communicates with other devices via preformatted messages based on the ISA100.11a protocol. *See, e.g., id.* at Q/A 291. Each Honeywell OneWireless field device is configured to communicate with "at least one other remote wireless device," in the form of another Honeywell OneWireless field device. *See, e.g., id.* at Q/A 292.

The Honeywell OneWireless field devices format messages according to the ISA100.11a protocol. *See, e.g., id.* at Q/A 294-296. There is no dispute that ISA100.11a packets include a receiver address comprising an address of at least one remote wireless device in the Media Access Control ("MAC") header (or "MHR") of the Data Link Layer. *See, e.g., id.* at Q/A 119-121, 296). The receiver address in the MAC header/MHR is the address of the intended "next-hop" receiving transceiver of at least one remote device. *See, e.g., id.* at Q/A 122. The ISA100.11a messages also include a command indicator comprising a command code. *See, e.g.,*

id. at Q/A 299-301. In particular, the DHDR sub-header includes an "ACK needed" field, "Signal quality in ACK" field, a "Request EUI-64 field," "Include Daux" field, "Include slow hopping offset" field, and "Clock recipient" field, each of which constitutes a command indicator. *See, e.g.,* CX-0002C (Mir DWS) at Q/A 301. The "ACK needed," "Signal quality in ACK," and "Request EUI-64" command indicators each comprise a numeric command code indicating whether an acknowledgement is required from the message recipient and whether additional information is also required. *See, e.g., id.* at Q/A 301. The messages sent by the Honeywell field devices include an application layer packet that comprises a data value comprising a message. *See, e.g., id.* at Q/A 303-305.

The Honeywell field devices are configured to receive preformatted messages from other wireless devices in a Honeywell OneWireless Network. *See, e.g., id.* at Q/A 307-309. Some of the messages include command codes. CX-0002C (Mir DWS) at Q/A 307-309. The field devices are configured to implement a certain function based on a command code. *See, e.g., id.* at Q/A 309. For example, in response to a request for an ACK, where the ACK request calls for the return of additional data, such as "Signal quality" or an "EUI-64," the controller implements a function, *viz.,* preparing a preformatted ACK message that includes the requested information. *See, e.g., id.*

Based on the foregoing, I find that Honeywell OneWireless Network field devices practice claim 1 of the '708 patent.

2. Dependent Claim 2 and 10

As required by claim 2, the transceiver of each Honeywell field device has a unique address to distinguish the transceiver from other transceivers in the wireless communication system. *See, e.g.,* CX-0002C (Mir DWS) at Q/A 82-86, 310. As required by claim 10, the

Honeywell field devices are configured to respond to command codes comprising "a request for a ping response by the wireless communication device." *See, e.g., id.* at Q/A 322, 324.

Based on the foregoing, I find that Honeywell OneWireless Network field devices practice claims 2 and 10 of the '708 patent.

E. Invalidity

1. Patent Eligibility

Respondents contend that that asserted claims of the '708 patent are invalid under 35 U.S.C. § 101 because the claims are "directed to the abstract idea of communicating information between devices in a wireless network, and does not recite anything inventive and transformative—such as new components, or a technological improvement to the functioning or arrangement of the recited conventional components, that might transform them into patent eligible subject matter." RIB at 49-50.

The basics of section 101 jurisprudence in the era post-*Alice* are by now familiar. "A patent may be obtained for 'any new and useful process, machine, manufacture, or composition of matter of any new and useful improvement thereof.'" *Bascom,* 827 F.3d 1341 at 1347 (quoting 35 U.S.C. § 101). "The Supreme Court has 'long held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.'" *Id.* (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589 (2013)). "[T]he Supreme Court set forth a two-step analytical framework to identify patents that, in essence, claim nothing more than abstract ideas." *Id.* In the first step, the court determines "'whether the claims at issue are directed to a patent-ineligible concept.'" *Id.* (quoting *Alice*, 573 U.S. at 217). If so, the court determines whether, "'consider[ing] the elements of each claim both individually and 'as an ordered combination,'" "the additional

elements 'transform the nature of the claim' into a patent-eligible application.'" *Id.* (quoting *Alice*, 573 U.S. at 217).

Under step one of the *Alice* analysis, the Federal Circuit holds that claims focused "on collecting information, analyzing it, and displaying certain results of the collection and analysis," "fall into a familiar class of claims 'directed to' a patent-ineligible concept." *Elec. Power Grp., LLC v. Alstom S.A.,* 830 F.3d 1350, 1353 (Fed. Cir. 2016). At step two, the question is whether anything in the claim elements, scrutinized "more microscopically," removes "the claims from the class of subject matter ineligible for patenting." *Id.* at 1354. A patentee may be required to present "an arguably inventive set of components or methods, such as measurement devices or techniques, that would generate new data." *Id.* at 1355.

Another consideration under step two is the "machine-or-transformation" test. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 76-77 (2012) (citing *Bilski v. Kappos,* 561 U.S. 593 (2010)). This test is satisfied when a patent "does not merely claim a principle, but a machine embodying a principle." *Id.* at 82-84 (quoting *Neilson v. Harford,* Webster's Patent Cases, at 371). In this analytical framework, unconventional steps are required that confine the claims "to a particular, useful application of the principle." *Id.* at 84.

The analysis adopted in *Mayo* has resulted in several decisions finding patent eligibility based on demonstrated technological innovation. These cases "stand for the proposition that specific technological modifications to solve a problem or improve the functioning of a known system generally produce patent eligible subject matter." *Phoenix Licensing, L.L.C. v. Consumer Cellular, Inc.,* No. 2:16-CV-0152-JRG-RSP, 2017 WL 1065938, at *18 (E.D. Tex. Mar. 8, 2017), *report and recommendation adopted,* No. 2:16-CV-0152-JRG-RSP, 2017 WL 1177988 (E.D. Tex. Mar. 30, 2017) (citing *Trading Techs. Int'l v. CGQ, Inc.*, 675 F. App'x.

1001, 1005 (Fed. Cir. 2017)). In *McRO, Inc. v. Bandai Namco Games Am.*, 837 F.3d 1299 (Fed. Cir. 2016), the court found patent eligibility in specific rules for improving computer animation. The Circuit found that patents that automated part of a preexisting method for 3-D facial expression animation were not abstract because the patent "focused on a specific asserted improvement in computer animation, *i.e.*, the automatic use of rules of a particular type." *Id.* at 1314. "[I]n *Enfish,* the Federal Circuit determined that claims directed to a specific type of self-referential table constituted a specific 'solution to a problem in the software arts' such that they were 'non-abstract improvements to computer technology.' *Finjan, Inc. v. Blue Coat Sys.*, Case No. 15-cv-03295-BLF, 2016 WL 7212322 at *5 (quoting *Enfish,* 822 F.3d at 1339).[7] In *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1248 (Fed. Cir. 2014), the court found eligible patents based on "systems and methods of generating a composite web page that combines certain visual elements of a 'host' website with content of a third-party merchant."

Although the two-step procedure in *Alice* survives, in some cases the eligibility analysis, as it has evolved, focuses primarily on whether the patent discloses a technological innovation. This is because the two steps for decision-making "are plainly related," involving "overlapping scrutiny of the content of the claims." *Elec. Power,* 830 F.3d at 1353 (citing *TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 611–15 (Fed. Cir. 2016)). What is required to establish eligibility, under both steps, is an element of technological innovation that amounts to more than the abstract idea itself. *See Procter & Gamble Co. v. QuantifiCare Inc.*, 288 F. Supp. 3d 1002, 1022 (N.D. Cal. 2017) ("[I]t is 'relevant to ask whether the claims are directed to an improvement in

[7] *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016).

computer functionality versus being directed to an abstract idea, even at the first step of the *Alice* analysis.'") (quoting *Enfish,* 822 F.3d at 1335).

Recently, the Federal Circuit held—in a case involving a SIPCO patent similar to those at issue here—that U.S. Patent No. 8,908,842 (the '842 patent), constituted a technology-based solution to a technological problem and was therefore eligible for a patent. *SIPCO, LLC v. Emerson Elec. Co.,* 939 F.3d 1301 (Fed. Cir. 2019). While not strictly a decision under section 101 (the Circuit does not utilize the *Alice* analysis), *SIPCO* virtually compels a finding of eligibility in the instant case, as discussed below.[8]

SIPCO's patents are saved from ineligible abstractness because they embody a technological innovation. As the Federal Circuit held in its recent decision, "SIPCO's claims combine certain communication elements in a particular way to address a specific technical problem with a specific technical solution." 939 F.3d at 1313. In the case before me, as in *SIPCO*, "it is clear from both the claims and the specification that the claimed invention implements a communication system that connects an unconnected, remote device with a central station." SIPCO Reply at 27 (quoting *SIPCO,* 939 F.3d at 1312.)

In *SIPCO*, the Federal Circuit reviewed and reversed a holding by the Patent Trial and Appeal Board ("PTAB") under 37 C.F.R. § 42.301(b), which requires the PTAB to consider "'whether the claimed subject matter as a whole recites a technological feature that is novel and unobvious over the prior art; and solves a technical problem using a technical solution.'" 939 F.3d at 1303 (quoting 37 C.F.R. § 42.301(b)). The arguments made by Emerson in *SIPCO* were the same as in this case: Emerson contended that the claims of the '842 patent were directed to

[8] Respondents do not address the *SIPCO* decision in their post-hearing briefing on patent eligibility. *See* RIB at 49-61; RRB at 69-73.

the ineligible, abstract idea of "'establishing a communication route between two points to relay information.'" *Id.* at 1305 (quoting J.A. 215). Emerson argued that the concept embodied in the patent 'has been practiced for centuries in applications such as the Postal Service, Pony Express, and telegraph, where a route is established to relay mail or other communications from one point to another.'" *Id.* The PTAB agreed that the features from claim 1 were not drawn to a technical solution to a technical problem and determined that the patent claimed nothing more than "generic and known hardware elements and routine computer functions.'" *Id.* (quoting J.A. 390-91).

In its decision on appeal, the Circuit in *SIPCO* likens the case to *Bascom.* 939 F.3d at 1318. In *Bascom,* the Federal Circuit found patent-eligible a tool for filtering content on the Internet "at a specific location, remote from the end-users, with customizable filtering features specific to each end user." *Bascom,* 827 F.3d at 1350. The Circuit agreed with the district court that filtering content is an abstract idea because it is a longstanding, well-known method of organizing human behavior. Under *Alice* step two, however, the Circuit found an inventive concept "in the non-conventional and non-generic arrangement of known, conventional pieces." *Id.* Accordingly, the court ruled that the '842 patent satisfies section 101 for the same reasons as the patent in the *Bascom* case: SIPCO's '842 patent embodies an innovative arrangement of known components that solved a technological problem.

As in the '842 patent at issue in *SIPCO*, the '708 patent implements a communication system that connects remote devices with a central station. The patent solves a technological problem with a technological solution, *i.e.*, using transceivers to communicate between remote devices and gateway interfaces, and adopting specific packet message protocols. The patented system overcomes the technological problems caused by prior art control systems that were

susceptible to a single point of failure if a local controller went out of service and eliminates potentially dangerous and expensive hard wiring.

Respondents rely on a line of cases in which the Federal Circuit has determined that wireless communication *per se* is not patentable. *See, e.g., Chamberlain Grp., Inc. v. Techtronic Indus. Co.*, 935 F.3d 1341, 1347 (Fed. Cir. 2019) ("[T]he broad concept of communicating information wirelessly, without more, is an abstract idea.'"). The Federal Circuit expressly distinguishes *Chamberlain* in its opinion in *SIPCO*, however, stating that SIPCO's '842 patent "provides a more specific implementation of a communication scheme." *SIPCO*, 939 F.3d at 1319 n. 3. The Circuit points to "a communication scheme . . . that combines an established communications network with a short-range wireless connection between a low-power transceiver and an intermediate node on the established network." *Id.* SIPCO's "two-step solution," the court concludes, "extends the reach of the existing network while overcoming problems of interference, contention, and interception." *Id.* Under similar reasoning, the '708 patent describes particular technological innovations that result in improved communication between remote devices— the claims are directed to wireless communication via a preformatted message protocol wherein a receiving device implements a function corresponding to a command code in a received message. *See* CIB at 117-22. The patent therefore is eligible under section 101.[9]

[9] The cases cited by Respondents are distinguishable. For example, in *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 768 (Fed. Cir.), (*petition for writ of certiorari docketed* October 22, 2019), the Federal Circuit found ineligible a patent that was "nothing more than the abstract idea of communication over a network for interacting with a device," where the patent specification did not "suggest that the invention involved overcoming some sort of technical difficulty." That is not the situation with the '708 patent, as discussed above. In *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC,* 874 F.3d 1329, 1337 (Fed. Cir. 2017), the Circuit found that the claimed solution merely recited a series of abstract steps ("converting," "routing,"

2. Anticipation

Respondents contend that the asserted claims or a subset thereof are anticipated by U.S. Patent No. 5,963,650 to Simionescu *et al.* ("Simionescu;" JX-0133); U.S. Patent No. 6,124,806 to Cunningham *et al.* ("Cunningham;" JX-0149); and U.S Patent No. 6,100,817 to Mason *et al.* ("Mason;" JX-0134).[10]

a. Prior-Art Status of References

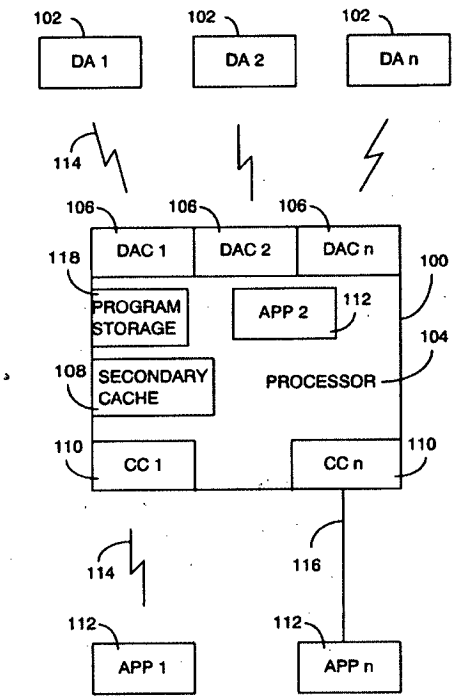
There is no dispute that Simionescu, Cunningham, and Mason are prior art to the '708 patent. Simionescu issued on October 5, 1999 from an application filed on May 1, 1997. JX-0133.0001. Accordingly, Simionescu is prior art under at least 35 USC §102(a). Cunningham issued on September 26, 2000 from an application filed on September 11, 1998. JX-0149.0001. Accordingly, Cunningham is prior art under at least 35 USC §102(e). Mason issued on February August 8, 2000 from an application filed on March 17, 1998. JX-0134.0001. Accordingly, Mason is prior art under at least 35 USC §102(e).

"controlling," "monitoring," and "accumulating records") using "result-based functional language" without describing how the goal of real-time load balancing was achieved. Again, the '708 patent does not suffer from these deficiencies. Similarly, in *Affinity Labs of Texas, LLC v. DIRECTV, LLC,* 838 F.3d 1253, 1262 (Fed. Cir. 2016), the Federal Circuit invalidated a patent that "claim[ed] the general concept of out-of-region delivery of broadcast content through the use of conventional devices, without offering any technological means of effecting that concept."

[10] In their post-hearing briefs, Respondents argued that "SIPCO is also estopped from contesting the invalidity of the Asserted Claims of the '708 patent because substantially similar claims—with no material differences—have already been held unpatentable in the '492 IPR FWD." RIB at 171-72; *see* RX-0372 (IPR2016-01896, Final Written Decision (Mar. 21, 2018)). On December 20, 2019, after the submission of rebuttal post-hearing briefs, the Federal Circuit vacated and remanded the PTAB's final written decision. *SIPCO, LLC v. Emerson Electric Co.,* Case No. 2018-1856, 2019 WL 6998644 (Fed. Cir. 2019). Accordingly, Respondents' collateral estoppel argument no longer has any basis.

b. Simionescu

Respondents contend that the data acquisition devices ("DAs") disclosed in Simionescu anticipate claims 1, 2, 9, and 10 of the '708 patent. The DAs disclosed in Simionescu are wireless devices that are used to monitor or control equipment. JX-0133 at 4:25-32. The DAs are capable of peer-to-peer communication, so that they can communicate directly with other DAs. *Id.* at 4:46-51. Simionescu teaches that networks can be formed using multiple DAs in conjunction with a data collection system ("DCS").



The DCS receives and stores information received from the DAs and is used by user applications (APP 112) to send messages and queries to the DAs. *Id.* at 4:61-63, 6:11-30. The DAs can be incorporated into mesh networks. *Id.* at 11:47-51.

Figure 3 shows a network comprised of DAs and DCS.

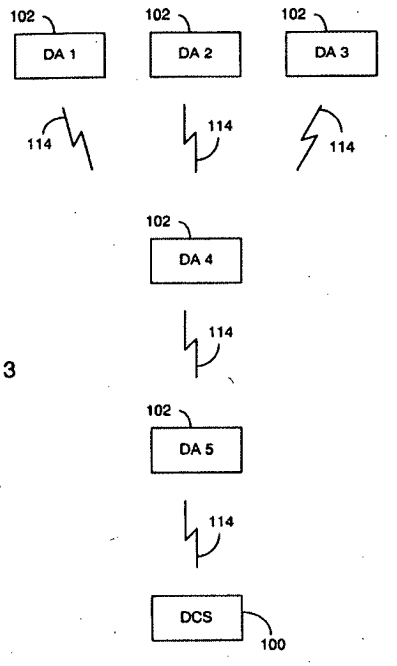


Figure 3

As shown in the figure, DCS 100 is located outside of the transmission range of DAs 1, 2, and 3. *Id.* at 8:45-53. In order to communicate with DCS 100, DAs 1, 2, and 3 must relay signals through DAs 4 and 5. *Id.* at 8:45-59.

i. Claim 1

(A) Undisputed Limitations

To the extent that it is limiting, there is no dispute that each DA satisfies the preamble. Specifically, the DAs are wireless communication devices that are configured to send and receive wireless communications within the network. Each DA has a RF transceiver 210 and is capable of wirelessly communicating with other DAs 102. *See, e.g.,* JX-0133 at 4:61-63, 8:45-59, 7:1-3, 10:8-32, FIGs. 2 & 3. In addition, RF transceiver 102 satisfies claim 1's requirement that the DAs have "a transceiver configured to send and receive wireless communications."

(B) "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message"

As required by claim 1, the DAs have "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message." JX-0133 at 14:10-11. Specifically, each DA has a processor consisting of I/O interface connector 204, microcontroller 214, and microprocessor 212. *See, e.g.,* JX-0133 at 7:1-16, FIGs. 2 & 3; RX-0536C (Madisetti WS) at Q/A198; RDX-0003C.41. The processor is configured to communicate with other remote wireless devices via an RF transceiver. *See, e.g.,* JX-0133 at 4:46-51, 7:1-16, 8:45-59, FIGs. 2 & 3. With respect to communicating using preformatted messages, Simionescu teaches that a "complete wireless networking protocol is stored in DA 102 which is capable of supporting both point to point and point to multi-point communications." *Id.* at 7:27-32. Simionescu further teaches that "the communication protocols may be anything suitable for transmission of data between remote locations." *Id.* at 20:9-11.

Although they raise this argument in the context of a different limitation of claim 1, SIPCO and its expert Dr. Almeroth argue that Simionescu's references to communication protocols and networking protocols do not "necessarily include[] communications via preformatted messages." CX-1850C (Almeroth DWS) at Q/A 354. SIPCO's argument is unpersuasive. *Id.* Although it does not specify a specific protocol, the specification teaches that the DAs communicate using a networking or communication protocol. JX-0133 at 7:27-32, 20:9-11. Thus, the DAs will send and receive messages complying with the requirements of the protocol. *Id.* Such messages are by definition preformatted. Hrg. Tr. (Roy) at 299:3-23.

(C) the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; a data value comprising a message

Claim 1 requires that the controller be configured to format a message having a receiver address, a command indicator comprising a command code, and data value. '708 patent at 14:14-18. This limitation is satisfied by the DA's processor. In particular, the DA's processor formats messages according to a "complete wireless communication protocol." *Id.* at 5:46-54. The formatted messages can be sent to other DAs. For instance, Simionescu teaches that "a user application can issue a command or query to one data acquisition device and that data acquisition device can then communicate directly with other data acquisition devices." *Id.* at 5:48-51. Doing so "greatly reduces" the workload on the server "by allowing it to offload work to the data acquisition device which would otherwise have to be performed by the server." *Id.* at 5:51-54. The "query" or "command" received from the user application is relayed to the appropriate DA 102, which takes the appropriate action. *Id.* at 6:31-48.

The message sent from a DA acting as a repeater to the final DA is formatted by the repeating DA. *Id.* at 5:46-54, 7:27-32, 20:9-11. The formatted message contains a receiver address, *viz.*, the address of the final DA 102. *Id.* at 6:11-12 ("In the preferred embodiment, APPs 112 can access any appropriate DA 102."), 6:36-39 ("If the requested data is not in the secondary cache 108, then the processor 104 initiates communication with the particular DA 102 via data acquisition device connector 106 (hereinafter DAC 106)."), 6:60-63 ("Ensuring that the appropriate DA 102 communicates with the appropriate APP 112 is accomplished via any suitable identification protocol for communication devices."); 11:51-54 ("Since each node is individually addressable, messages can be routed from source to destination via any number of

nodes, without limiting the coverage area."). The message also contains "a command indicator comprising a command code," in the form of a query or command received from DCS 100. *Id.* at 5:46-54. The message also contains a data value comprising a message in the form of the parameters of the command or query. *See, e.g., id.* at 10:37-40 ("For example, a weather station would have multiple sensors, such as wind indicators, ground water detectors, thermometers, etc. Each sensor may be used by one or more applications.").

SIPCO argues that the message sent by the repeating DA does not have a "receiver address" or "command indicator." SIPCO's arguments are based on its proposed construction of the term "to format a message," which requires the DA to receive the message directly from the device that originated it. CRB at 53-54. Because SIPCO's proposed construction was rejected, SIPCO's argument fails.

(D) "wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code"

As required by claim 1, a DA has a "controller" that "is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code." '708 patent at 14:19-23. In particular, a DA will take "the appropriate response or action" after receiving a command or query from user application. *Id.* at 6:45-47.

SIPCO raises two arguments regarding this limitation. The first argument is that the claim language requires that the DA, not the DCS, originate the command or query. This argument is based on SIPCO's proposed construction of "from another wireless communication device," which requires that the "another wireless communication device" originate the

preformatted message. SIPCO's proposed construction was rejected above. Correctly construed, the claim language is satisfied by a DA receiving a message containing a query or command from a repeating DA. The second argument raised by SIPCO is that Simionescu does not disclose that the DAs receive preformatted messages. This argument was addressed in the context of the term "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message" and was rejected.

For the reasons set forth above, I find that Simionescu discloses each limitation of claim 1, thereby anticipating it.

ii. Claim 2

Claim 2 depends on claim 1 and adds the requirement that the transceiver of each DA device have a "unique transceiver address to distinguish the transceiver from other transceivers in the wireless communication system." '708 patent at 14:26-28. In support of their contention that the DAs satisfy this limitation, Respondents point to disclosures in Simionescu teaching that the DAs are "individually addressable" using "any suitable identification protocol." *Id.* at 6:60-63, 11:51-54; *see also id.* at 6:36-39 ("If the requested data is not in the secondary cache 108, then the processor 104 initiates communication with the particular DA 102 via data acquisition device connector 106 (hereinafter DAC 106)."). Respondents argue that the ability to individually address the DAs requires that each DA have a unique address.

Respondents are in effect arguing that claim 2's "unique transceiver address" limitation is inherently disclosed. A claim is anticipated "if each and every limitation is found either expressly or inherently in a single prior art reference." *King Pharm., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1274 (Fed. Cir. 2010) (quoting *Celeritas Techs. Ltd. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1360 (Fed.Cir.1998)) (internal quotation marks omitted). A limitation is inherently

disclosed only if it is "necessarily" present in the prior art reference. *Id.* SIPCO does not dispute that assigning the DAs' transceivers unique addresses would make each DA individually addressable, but argues that this is not the only way of making the DAs individually addressable.

According to SIPCO's expert Dr. Almeroth, "a POSITA would have recognized that all devices on each level of a hierarchy might have a similar address, such that any message could be routed via multiple pathways so long as it does not pass through the same levels of the hierarchy multiple times (thereby preventing infinite communication loops)." CX-1850C (Almeroth DWS) at Q/A 357. Dr. Almeroth does not explain why his methodology avoids the use of unique addresses. In particular, he describes the devices on the same hierarchy as having "similar"—not the same—addresses. Similar unique addresses are still unique. Moreover, he fails to explain how the routing methodology he describes is consistent with the networks disclosed in Simionescu. For instance, Figure 3 depicts a network in which messages are relayed from DCS 100 to DA 1, DA 2, or DA 3 through DA 4 and DA 5.

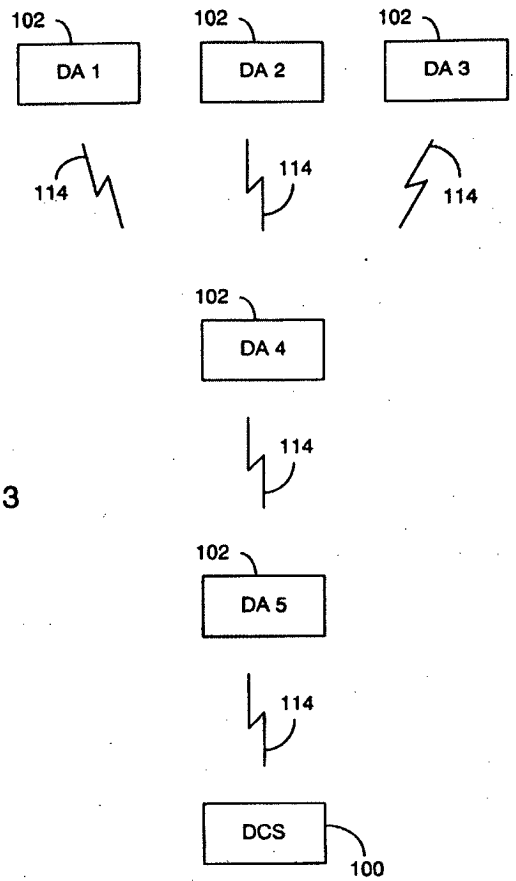


Figure 3

Dr. Almeroth offers no explanation as to how DCS 100 would be able to send a message to DA 1 and not DA 2 and 3, if DA 1 did not have a unique address.

Based on the foregoing, I find that Simionescu anticipates claim 2.

iii. Claim 9

Claim 9 depends from claim 1 and adds the requirement that the command code in the preformatted message "indicate a change of the settings of an actuator associated with the" DA. '708 patent at 14:46-48. There is no dispute that this limitation is disclosed in Simionescu. Simionescu teaches that the DA "may be a . . . unit of equipment which performs a specific active function, such as irrigation in agricultural environments or control of a manufacturing

assembly line." *Id.* at 4:25-29; *see also id. at* 6:5-9, 7:11-13. After the DA receives a query or command, the DA will take the "appropriate response." *Id.* at 6:45-47.

Based on the foregoing, I find that Simionescu anticipates claim 9.

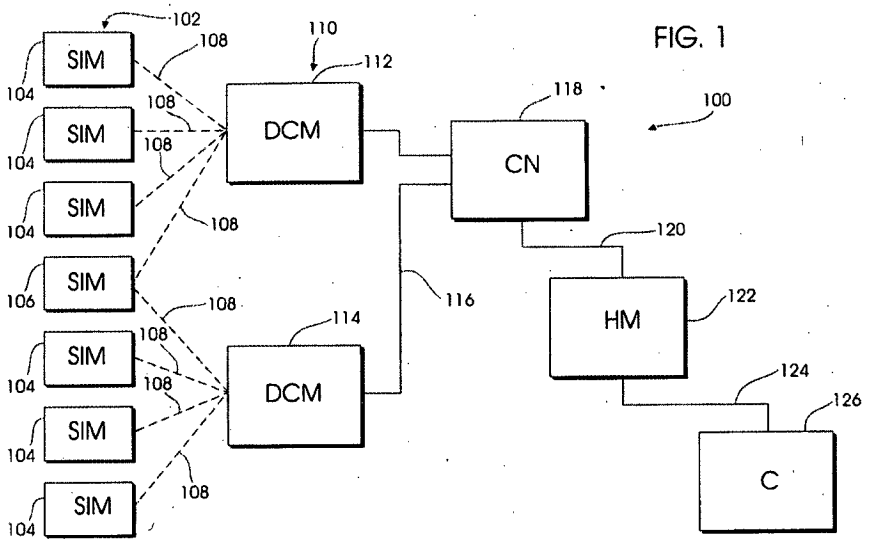
iv. Claim 10

Claim 10 depends from claim 1 and further requires that the preformatted message received by the DA "indicate[] a request for a ping response." '708 patent at 14:49-51. There is no dispute that Simionescu discloses this limitation. In particular, the DAs are able to route around a malfunctioning device. *Id.* at 10:20-35, 12:55-60. One of ordinary skill in the art would have recognized that in order determine the presence of a malfunctioning device, the DAs receive and respond to requests for ping responses. RX-0536C (Madisetti WS) at Q/A 213.

Based on the foregoing, I find that Simionescu anticipates claim 10.

c. Cunningham

Respondents contend that the data collection modules ("DCMs") disclosed in Cunningham anticipate claims 1, 2, 9, and 10 of the '708 patent. The DCMs are used in a wide-area remote telemetry system that can be used to read electric, gas, and water meters and other types of systems. JX-0149 at 1:15-18. The system uses a network of multiple sensor interface modules ("SIMs") and DCMs to collect data. An example of one such network is shown in Figure 1 of Cunningham.



SIMs "are intelligent communications devices which attach to gas, electric and water meters and other types of monitored equipment." JX-0149 at 7:32-34. Each SIM has the appropriate sensor for the hardware being monitored. *Id.* at 4:39-44. SIMs 104 receive information about the monitored equipment from their sensors and transmit the sensor information to DCMs 112 and 114. *Id.* at 13:30-35. The information is transmitted as a formatted packet having a header, information signal, and error detecting code. *Id.* at 14:12-15, FIG. 21. The SIMs can transmit the information wirelessly. *Id.* at 6:11-19. The DCMs collect the information from the SIMs and transmit the information to the host module (HM 122) through the network system (CN 118). *Id.* at 7:19-27. The host module stores and processes the information. *Id.* The host module can transmit the information to a customer interface (CC 126). *Id.*

i. Claim 1

(A) Undisputed limitations

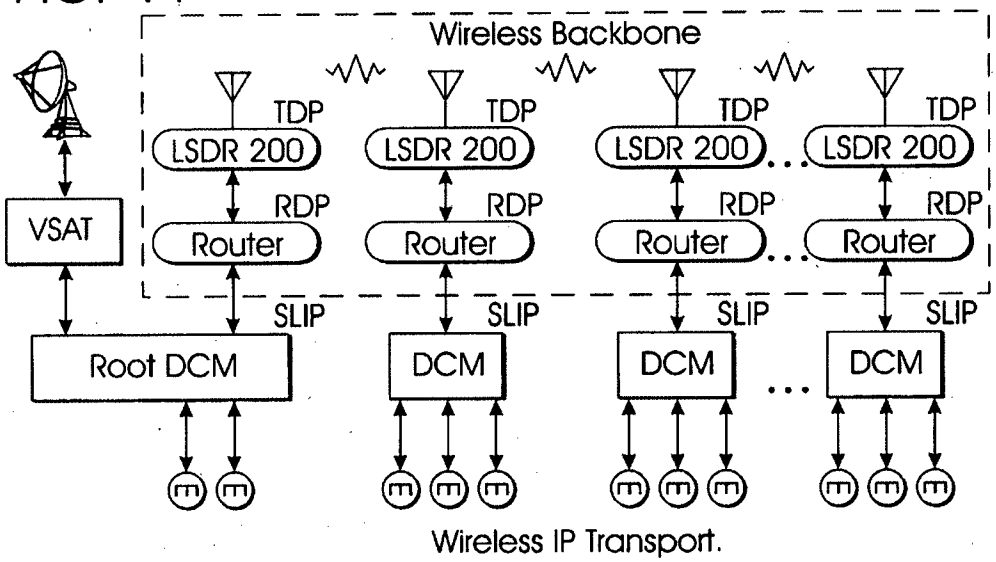
SIPCO only disputes whether Cunningham discloses the last limitation of claim 1. To the extent it is limiting, Cunningham satisfies the preamble. Specifically, the DCM is a wireless communication device for use in a wireless communication system. The DCM receives and

collects data from the SIMs. JX-0149 at 32:29-31. The DCM uploads the information to the host module on a periodic basis or "in response to a demand from the host module." *Id.* at 32:29-32. Communications between the DCM and host module are "two-way and interactive." *Id.* at 32:35-37. Communications between the SIMs and the DCM can be wireless and can either one-way or two-way. *Id.* at 6:11-13, 29-66-31:2. In addition to receiving data from SIMs, DCMs can receive data from other DCMs that are unable to upload to the host module through a network connection. *Id.* at 33:16-25. Cunningham refers to DCMs used to relay data from another DCM to the host module as "data repeater module[s]." *Id.* The communications between a data repeater module and other DCMs are wireless. *Id.* at 20:4-18.

As required by claim 1, each DCM has a "transceiver" for sending and receiving wireless communications. *See, e.g., id.* at 32:35-37. Each DCM "has a unique internal, Class C subnet IP address." *Id.* at 35:3-4. Each DCM also has a CPU, which is a controller configured to communicate with at least one other remote wireless device via the transceiver. *See, e.g., id.* at 19:16-24 ("Once a valid signal is identified, the receiver stops hopping and decodes the entire data packet which is passes along to CPU module for collection and evaluation. The receiver and the CPU modules are connected by a motherboard that also holds power regulation circuitry. At predetermined times, the CPU relays data accumulations out of the box by means of a MOTOROLA™ pager (VAIL50 with external antenna) and the second antenna that protrudes through the top of the box."), FIG. 25 (Motherboard/Power Supply 2006 connecting CPU 2004 and Transmitter/Receiver 2008). The CPU is configured to communicate using a preformatted message protocol in which fragments of IP packets "are encapsulated in the data fields of RDP [radio data protocol] packets" and the RDP packets are in turn encapsulated in TDP (transmission data protocol) packets. *Id.* at 35:24-34, 6:48-49, 40:2-6.

Figure 44 illustrates the relationship between the TDP packets, the RDP packets, and IP packets. Figure 44 depicts a Wireless Radio Backbone ("WRB") "designed for bi-directional communication between data collection module processors." *Id.* at 33:45-50.

FIG. 44



Each DCM "has a processor which talks to a router which talks to a radio which transmits and receives signals." *Id.* at 33:50-52. The root DCM transmits information to the host module. *Id.* at 33:36-38. In order to send a message to another DCM, the sending DCM's processor sends its router an IP packet (SLIP) and the router fragments the IP packet and encapsulates each fragment in a RDP packet. *Id.* at 35:24-35. The RDP packers are sent to the DCM's low speed data radio (LSDR 200), a transceiver. *Id.* at 40:2-3, 41:7-21. The LSDR 200 encapsulates each RDP packet in a TDP packet and broadcasts the TDP packet. *Id.* at 40:3-6, 41:7-21.

When an LSDR 200 of another DCM receives a TDP packet that matches its address, the RDP packet is stripped out of the TDP packet and sent to the router. *Id.* at 41:23-28. The router strips the IP packet fragment out of the RDP packet and sends the fragment to the DCM's

processor and sends an acknowledgement RDP packet to the sender. *Id.* If the LSDR 200 receives a packet that does not match its address, the packet is discarded and no acknowledgement is sent to the sender. *Id.* at 40:12-14.

As further required by claim 1, the DCM's CPU is configured to format a message having (1) a receiver address comprising an address of at least one remote wireless device, (2) a command indicator comprising a command code, and (3) a data value comprising a message. As discussed above, the DCMs format messages into TDP packets that encapsulate RDP packets, which in turn encapsulate IP packets. *See, e.g., id.* at 36:48-49, 40:2-6. A TDP packet sent from a DCM acting as a repeater to another DCM satisfies the claim limitation.

The figure below shows the structure of an RDP packet.

Sync Word	Destination	Src.	ID	Cmd	Hop	nRts	Routes	Seq	Len	Data	CkSm	
CFA3593E 4	XX XX XX XX 4	XX 1	XX 1	00 1	XX 1	XX 1	15 bytes 0–15	XX 1	XX 1	255 bytes 0–255	X 1	16 to 286 bytes

Sync Word	Destination	Src	ID	Cmd	CkSm	
CFA3593E 4	XX XX XX XX 4	XX 1	XX 1	FX 1	XX 1	12 bytes

JX-0149.0062. The "Destination" field holds a 4-byte address, which can be a DCM address. *Id.* at 37:35-38 ("Destination 4 byte IP address. If RB subnet address, then the first 3 bytes are the subnet address while the last byte is a data collection module address (even) or a router address (odd)."). The RDP packet has a CMD field that contains RDP command codes. *Id.* at 37:42-50 (identifying commands in RDP packet). The RDP packet also has a Data field that contains the "data transferred by RDP packets. *Id.* at 37:61-64.

(B) wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code

The sole disputed limitation of claim 1 is whether the DCMs are configured to receive a preformatted message containing a command code "from another wireless device." There is no dispute that the DCMs receive preformatted messages containing RDP commands and that the DCMs will implement functions corresponding to the commands. For example, the code 00 in the "cmd" field of RDP packet specifies "Mode 0 IP Packet." *Id.* at 38:6. A DCM receiving a message with that code will transmit an acknowledgement that it received the message. *Id.* at 36:66-37:2. There is also no dispute that this message can be received directly from the host module or from another DCM acting as a repeater. SIPCO argues that the claim term "another wireless communication device" does not encompass either the host module or a DCM repeating messages from the host module. SIPCO's argument that a DCM repeating a message from the host module is not "another wireless communication device" is based on its claim construction position that the "another wireless communication" must originate the message containing the command. This interpretation of the claims, however, was rejected.

Based on the foregoing, I find that the DCMs disclosed in Cunningham anticipate claim 1 of the '708 patent.

ii. Claim 2

There is no dispute that the DCM disclosed in Cunningham has a "unique transceiver address to distinguish the transceiver from other transceivers in the wireless communication system," as required by claim 2. '708 patent at 14:26-28. In particular, each DCM has a "unique

internal, Class C subnet IP address." JX-0149 at 34:66-35:17. Based on the foregoing, I find that Cunningham anticipates claim 2.

iii. Claim 9

There is no dispute that the DCMs disclosed in Cunningham satisfy claim 9's requirement that the command code in the preformatted message "indicate a change of the settings of an actuator associated with the" DCM. '708 patent at 14:46-48. In particular, Cunningham discloses a "device adjustment module" that changes the settings of an actuator in response to "controlling information" in order to "adjust the operation usage" of a heating and cooling system "to stay below increased billing increment costs." JX-0149 at 46:64-47:10. There is no dispute that the device adjustment module is a DCM. *See id.* at 46:62-47:10, FIG. 49. Based on the foregoing, I find that Cunningham anticipates claim 9.

iv. Claim 10

The parties dispute whether Cunningham discloses claim 10's limitation requiring that the preformatted message received by the DCM "indicate[] a request for a ping response." '708 patent at 14:49-51. For this limitation, Respondents point to Cunningham's disclosures that (1) host modules monitor the health of the network, (2) DCMs are expected to respond to the host module within 30 seconds, and (3) the host module can send a DCM a command for a radio self-check. JX-0149 at 32:27-46, 38:1-38, 44:19-22. SIPCO counters that these descriptions of the DCM do not explicitly or inherently disclose the DCM receiving and responding to a ping request. With respect to the command for a radio self-check, SIPC argues that the command is not a ping request to verify that the radio is reachable by a device external to the radio, but a request that the radio check its internal components. CIB at 126-27.

I find that Respondents have not shown by clear and convincing evidence that Cunningham discloses a ping request. Respondents do not assert that the disclosures from Cunningham that they rely upon explicitly disclose the limitation of claim 10. In the absence of an explicit disclosure of the limitation, Respondents must show that the limitation is inherently disclosed. *King Pharm.*, 616 F.3d at 1274. The only evidence that Respondents cite in support of their contention that the limitation is inherently disclosed is the testimony of their expert Dr. Madisetti. In the cited testimony, Dr. Madisetti testifies that "it would have been obvious for a device to send a basic command seeking a response as a ping to confirm the strength of its connection to a neighboring device," in light of Cunningham's disclosures. RX-0536C (Madisetti WS) at Q/A 325. A limitation that is inherently disclosed is necessarily present, not merely obvious. *See, e.g., King Pharm.*, 616 F.3d at 1274 ("[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must ***necessarily*** include the unstated limitation . . . . ") (quoting *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002)) (internal quotation marks omitted) . (emphasis in original).

Based on the foregoing, I find that Cunningham does not anticipate claim 10.

d. Mason

Mason discloses an automatic meter reading ("AMR") network consisting of "concentrator nodes" and "end meters." The meters may monitor electricity, gas, or water usage. JX-0134 at 5:32-34. Figure 1 of Mason shows an example of such a network.

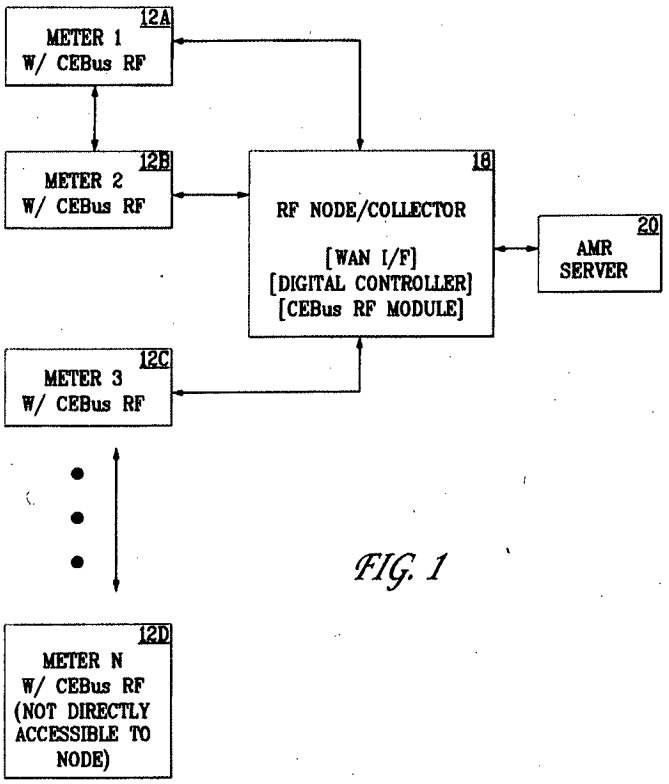


FIG. 1

In the network, RF node/ collector 18 ("node 18") can access information stored on any of the meters 12A-D. *Id.* at 2:50-64. As shown in Figure 1, meter 12A (meter 1), meter 12B (meter 2), and meter 12C (meter 3) are able to communicate directly with node 18. *Id.* at 5:32-34, 6:15-38. Meter 12D (meter N), however, is "inaccessible" to node 18 and communications between node 18 and meter 12D must be routed through meter 12C, which acts as a repeater. *Id.* at 6:15-38. Information received by node 18 from the meters can be accessed by the AMR system. *Id.* at 2:54-64.

Respondents' anticipation contentions rely on the direct communications between the node and meters, while Respondents' obviousness contentions rely on the meter-to-meter communications between meters acting as repeaters and meters that are unable to communicate directly with the node. There is no dispute, however, that Respondents did not disclose their

anticipation argument based on Mason during fact or expert discovery. The argument was disclosed the first time in the supplemental witness statement of their expert Dr. Madisetti. *See* RRB at 76-77. Dr. Madisetti's supplemental witness statement was served less than two weeks before the start of the hearing. *Compare* RX-0822C.11 (dated August 22, 2019) *with* Order No. 12 (Mar. 25, 2019) at 1 (rescheduling the hearing to September 4-10).[11]

Respondents argue that the late disclosure of their anticipation argument is the result of the construction of "remote wireless device" adopted in the *Markman* order. RRB at 76-77. As recounted above, the *Markman* order rejected Respondents' proposed construction requiring the "remote wireless device" to be "located distant from the local gateway," finding instead that the term only required a device that is in wireless communication with another device. Order No. 26 (Aug. 13, 2019) at 46-47. Respondents correctly interpret the adopted construction as being broad enough to encompass a wireless gateway. *See supra.* Respondents argue that the new anticipation argument is appropriate because the *Markman* order adopted a construction that was not proposed by either party. RRB at 76-77.

Whether the *Markman* order adopted a construction proposed by the parties is irrelevant. The construction adopted was not only foreseeable from the claim language and the specification of the '708 patent, it was foreseeable from the district court's claim construction order in *SIPCO, LLC v. ABB, Inc., et al.,* Civil Action No. 6:11-cv-0048 LED-JDL. As recounted above in the claim construction section, during *Markman* proceedings, SIPCO cited the district court's analysis of the term "remote device" from the '511 patent in support of its construction of

[11] Dr. Madisetti's supplemental witness statement was not the subject of a motion *in limine* because it was served after the August 21, 2019 deadline for motions *in limine*. Order No. 12 (Mar. 25, 2019) at 2; Tr. at 1024:11-1025:2. The parties were given leave to address the issue in their post-hearing briefs. Tr. at 1024:11-1025:10.

"remote wireless device." CIMB at 33-34. In its *Markman* order, the district court considered and rejected a proposed construction by one of the defendants that excluded "local gateway" or "site controller" from the scope of "remote device." District Court *Markman* Order at 9.

In their rebuttal post-hearing brief, Respondents argue that their expert should have the same opportunity to address the *Markman* order's construction of "remote wireless devices" that SIPCO's experts had. Respondents' argument is unpersuasive. The supplemental witness statements are the result of an agreement between the between the parties. On September 3, 2019, the day before the start of the hearing, the parties' submitted a paper styled as a "Joint Request to Submit Supplemental Witness Statements" requesting permission to submit supplemental witness statements addressing the *Markman* order (Order No. 26).[12] The request noted that SIPCO "object[ed] to a portion of Dr. Madisetti's supplemental direct witness statement (RX-0822C Q/A 9-19) as new." Joint Request at 2. During the hearing, I deferred ruling on SIPCO's objection and ordered the parties to address the issue in their post-hearing briefs. Tr. at 1024:11-1025:10. In contrast, Respondents did not raise any objection to the scope of SIPCO's supplemental witness statements prior to or at the hearing. Instead, Respondents raise an objection to SIPCO's supplemental witness statements for the first time in their rebuttal post-hearing brief. Accordingly, Respondents have waived any objections to SIPCO's supplemental witness statements. *See, e.g.*, Ground Rule 11.1.

Based on the foregoing, I find that Respondents have not shown good cause for advancing a new argument days before the start of the hearing and their anticipation argument based on Mason is hereby stricken.

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[12] Because it was not styled as a motion, the paper was not assigned a motion docket number. It is unclear why the parties did not style the paper as a motion.

3. Obviousness

To the extent that Simionescu, Cunningham, and Mason are found not to disclose each limitation of the asserted claims, Respondents contend that the missing limitations would have been obvious. While Respondents' obviousness arguments with respect to Simionescu have been mooted by the finding that Simionescu anticipates each of the asserted claims, obviousness arguments remain with respect to Cunningham and Mason. Respondents' obviousness contentions rely on four secondary references: (1) U.S. Patent No. 6,208,266 to Lyons *et al.* ("Lyons;" RX-0011); (2) U.S. Patent No. 5,874,903 to Shuey *et al.* ("Shuey;" RX-0409); (3) American National Standard, Protocol Specification for ANSI Type 2 Optical Port, C12.18 (1996) ("C12.18;" JX-0147); and (4) U.S. Patent No. 5,696,695 to Ehlers et al. ("Ehlers;" RX-0004).[13]

a. Prior-Art Status of Secondary References

There is no dispute that the secondary references relied upon by Respondents qualify as prior art. Lyons issued on March 11, 2001 from an application filed on April 28, 1997 and is prior art under 35 U.S.C. §102(e). RX-0011.0001. Shuey issued on February 23, 1999 from an application filed on June 6, 1997 and is prior art under 35 USC §§102(a) and (e). RX-0409.0001. C12.18 is a technical specification approved by the American National Standards Institute (ANSI) on April 8, 1996 and published by the National Electrical Manufactures Association (NEMA) in 1996, and is prior art under 35 USC § 102(b). JX-0147 at 4. Ehlers issued on December 7, 1997 from an application filed on June 7, 1995 and is prior art under 35

[13] In their discussion of obviousness with respect to the '708 patent, Respondents' initial and rebuttal post-hearing briefs identify and cite to Shuey as JX-0132, an exhibit which was not admitted into evidence. Although JX-0132 was not admitted into evidence, Shuey was admitted into evidence as RX-0409. In their discussion of obviousness as to the '893 patent, Respondents identify and cite to Shuey by the correct exhibit number.

USC §102(b).

b. Cunningham

Cunningham anticipates claims 1, 2, and 9, but not claim 10. In particular, Cunningham does not disclose claim 10's limitation requiring the command code in claim 1's preformatted message be a request for a ping. Respondents argue that a ping request is obvious in view of Cunningham either by itself or in combination with Lyons.

I agree with Respondents that the use of a request for a ping response would have been obvious. Lyons discloses a network that can be used to monitor utility meters. RX-0011.0001 (Abstract). One example of such a network is shown in Figure 18 of Lyons.

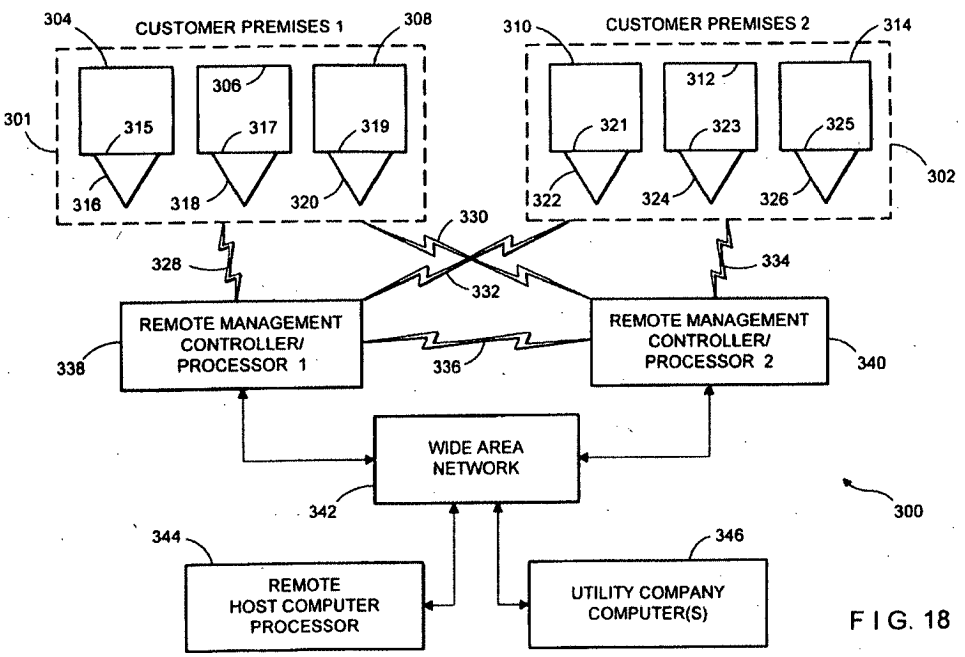

FIG. 18

As shown in Figure 18, imaging devices 304, 306, and 308 are in customer premises 1, and imaging devices 310,312, and 314 are in customer premises 2. The imaging devices monitor the customers' utility meters. *Id.* at 15:46-16:10. The meter imaging devices located in customer

premise 1 are controlled by "remote management controller/processor 1" 338, while the meter imaging devices located in customer premise 2 are controlled by "remote management controller/processor 2" 340. *Id.* at 6:11-19.

Link 336 is provided between remote management controller 338 and remote management controller 340. *Id.* at 36:59-64. This link allows "each of the controllers 338, 340 to ascertain whether the other controller is functioning properly." *Id.* at 36:59-64. The controllers 338, 340 do so by "periodically transmit[ting] a predetermined 'ping' or inquiry signal via the link 336 to the other controller which, if the other controller is functioning properly, causes the other controller to transmit a predetermined response signal via the link 336 to the controller that transmitted the inquiry signal." *Id.* at 36:35-37:3. A controller's failure to respond to a ping request indicates that the controller is no longer functioning properly. If the system determines that a controller is no longer functioning properly, the system may notify the user, or deactivate the malfunctioning controller. *Id.* at 37:3-33.

It would have been obvious to incorporate the ping functionality disclosed in Lyons into the DCMs disclosed in Cunningham. Specifically, Cunningham teaches that the host module is responsible for "monitor[ing] the network health." JX-0149 at 44:19-22. Communications between the DCMs and host modules are two-way and interactive. *Id.* at 32:35-38. DCMs are expected to respond within 30 seconds of being polled by the host module. *Id.* at 32:37-40. The DCMs receive diagnostic information in the form of "radio self test." *Id.* at 38:10; *see also id.* at 36:48. The disclosure of Lyons compliments that of Cunningham by teaching how a specific type of diagnostic information—a request for a ping—is used to monitor health. The ping request used in Lyons would be another diagnostic tool that could be used by the host module to ascertain the health of the system. If the host module determines a DCM is malfunctioning, it

would be able to notify the user that the DCM is no longer functioning properly or re-route network traffic around the DCM.

The only argument advanced by SIPCO against combining Cunningham with Lyons is based on a misreading of Cunningham. Specifically, SIPCO argues that one of ordinary skill in the art would not combine the two references because Lyons "only teaches that remote management controllers 'ping' each other, or that they can ping imaging devices. Lyons does not discuss that utility meters issue ping commands to or receive from other utility meters." CIB at 132 (internal citations omitted). The DCMs disclosed in Cunningham, however, are not meters; they perform a function similar to that of the remote management controllers in Lyons.

As discussed above, the SIMs in Cunningham attach to meters and collect information regarding utility usage. JX-0149 at 4:39-44, 7:32-34, 13:30-35. The SIMs send this information to the DCMs. *Id.* at col. 13:30-35. Each DCM collects information from multiple SIMs and transmits the collected information to the host module, so that the information can be accessed by a user. *Id.* at col. 7:19-27. As in Cunningham, Lyons discloses a system in which the devices are attached to utility meters. RX-0011 at 15:48-21. These devices—called imaging devices—monitor the meters and send information concerning utility usage to the remote management controllers. *Id.* at 15:48-16:10. The remote management controllers temporarily store the information before transmitting it to the host processor. *Id.* at 16:52-17. Thus, the DCMs in Cunningham are analogous in function to the controllers in Lyons, and the SIMs in Cunningham are analogous in function to the imaging devices in Lyons.

Based on the foregoing, I find that it would have been obvious to modify Cunningham to incorporate the request for a ping disclosed in Lyons.

c. Mason

Respondents argue that meter-to-meter communication disclosed in Mason renders claims 1, 2, and 9 obvious when combined with the teachings of Shuey and C12.18.[14] In the alternative, Respondents argue that claim 9 would have been obvious in view of the combination of Mason, Shuey, and C12.18 in further combination with Ehlers. Respondents argue that claim 10 is obvious in view of the Mason, Shuey, and C12.18 combination in further combination with Lyons.

i. Claim 1

(A) Undisputed Limitations

To the extent that it is limiting, there is no dispute that the meters disclosed in Mason satisfy the preamble. Specifically, the meters are wireless communication devices that are configured to send and receive wireless communications within an automatic meter reading ("AMR") fixed network RF system. JX-0134.0001 (Abstract). As shown in Figure 1 of Mason, meter 12C can relay communications between node 18 and meter N.

[14] Respondents also rely on the meter-to-node communications disclosed in Mason for obviousness. Respondents' obviousness arguments relating to meter-to-node communications, however, are a reprise of their anticipation arguments relying on meter-to-node communications. As found above, Respondents failed to timely disclose their invalidity theory based on Mason's meter-to-node communications. Accordingly, Mason's meter-to-node communications will not be considered in the context of obviousness.

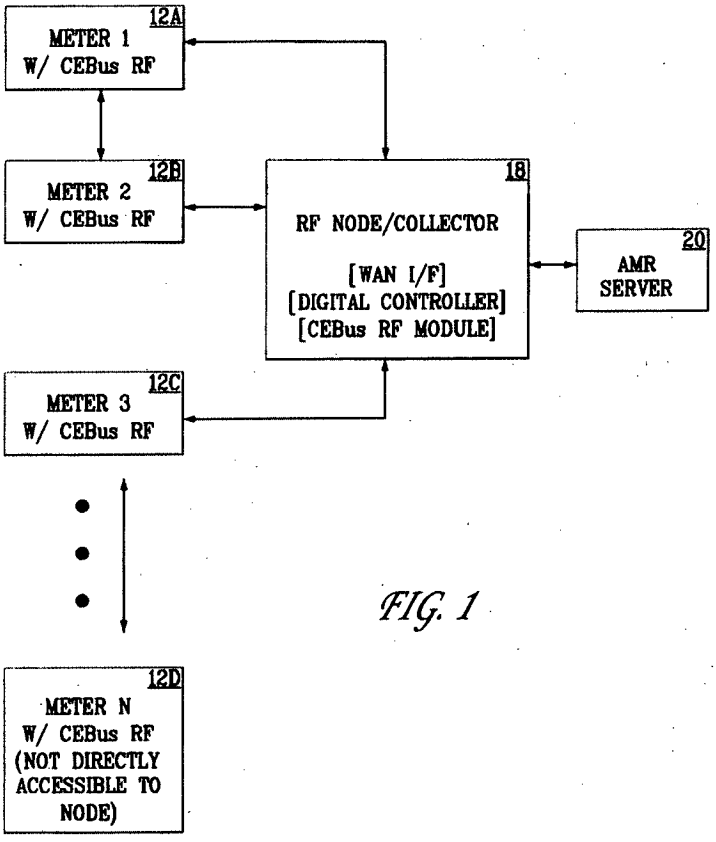

FIG. 1

Id. at 6:15-38. Communication between the meters is wireless. *See, e.g., id.* at 5:35-45 ("Each of the meters has a corresponding CEBUS RF module for receiving RF communications from a node, or collector, 18, or sending RF communications to the node, and also for communication with a CEBUS local area network (LAN) within the residence or business with which the meter is associated. The node 18 preferably includes a wide area network (WAN) interface, a digital controller, and a CEBUS RF module.").

As required by claim 1, each of the meters has "a transceiver configured to send and receive wireless communications." *See, e.g., id.* at FIGs. 1 and 2, 2:54-63 ("An AMR system in accordance with the present invention comprises a plurality of utility meters, each meter comprising a radio frequency (RF) module for transmitting and receiving RF CEBUS message packets in accordance with a prescribed CEBUS protocol, wherein the CEBUS message packets

contain embedded AMR message packets in accordance with a prescribed AMR protocol . . . ."), 5:35-41 ("Each of the meters has a corresponding CEBUS RF module for receiving RF communications from a node, or collector, 18, or sending RF communications to the node, and also for communication with a CEBUS local area network (LAN) within the residence or business with which the meter is associated.").

There is no dispute that the meters' CEBUS RF module is "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message." '708 patent at 14:12-14. Specifically, the module is configured to "transmit[] and receiv[e] RF CEBUS message packets in accordance with a prescribed CEBUS protocol, wherein the CEBUS message packets contain embedded AMR message packets in accordance with a prescribed AMR protocol." JX-0134 at 2:54-63.

(B) the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; a data value comprising a message

Claim 1 requires a controller configured to format a message having a receiver address comprising an address of at least one remote wireless device, a command indicator comprising a command code, and a data value comprising a message. '708 patent at 14:14-18. For this limitation, Respondents point to the messages transmitted from one meter to another meter. As discussed above with respect to Figure 1, the meters can act as repeaters. JX-0134 at 6:22-26. This allows the RF node to communicate with an otherwise "inaccessible" meter by routing messages through other meters. *Id.* at 6:24-35. The retransmitted message contains the destination meter's address, *i.e.*, the receiver address. JX-0134 at 3:13-16, 7:32-34, 10:52-62, 13:13-15:20. The message also contains command codes. *Id.* at 7:1-11, 9:37-40, 10:1-11, 13:13-

60. Moreover, it is undisputed that C12.18 discloses command codes. CIB at 134 ("Respondents also propose to import into Mason's packets an application layer command such as C12.18's 'write' command. Although it is a 'command code," C12.18's 'write' command would also be formatted into the message by Mason's RF node/collector 18, not a repeating utility meter."); *see also* JX-0147.0011-.0012 (listing application layer "<requests>"). There is no dispute that one of ordinary skill in the art would use the C12.18 protocol in conjunction with Mason. Mason explicitly teaches that "[t]he command/response format typically used for meter communications . . . will adhere to the ANSI C12.18 standard protocol for meter communications." JX-0134 at 9:37-40. The message contains data comprising a message in the form of command parameters. *Id. at* 13:13-60.

SIPCO argues that the repeating meter does not format the message being relayed. While Mason does not explicitly describe the repeating meter formatting the relayed message, Mason explicitly refers to patent application 08/870,640, which issued as Shuey, for details on how to implement the repeater functionality of the meters:

> Copending U.S. patent application Ser. No. 08/870,640, filed Jun. 6, 1997, entitled "RF Repeater for Automatic Meter Reading System," and U.S. patent application Ser. No. 08/908,728, filed Aug. 7, 1997, entitled "Energy Meter with Multiple Protocols for Communication with Local and Wide Area Networks' disclose related inventions concerning the use of fixed RF networks for AMR applications with utility meters having CEBUS capabilities. For example, the 640 application teaches a way to make the RF system adaptive to read hard to access meters within the network, by permitting any meter in the network to operate as a repeater.

JX-0134 at 6:15-26. This reference to Shuey provides a clear motivation to incorporate the repeater functionality disclosed in Shuey with the meters disclosed in Mason.

Even without Mason's express reference to Shuey, a person of ordinary skill in the art would have had a strong motivation to combine the two references. Mason's and Shuey's

disclosures are very similar. Like Mason, Shuey is directed to an AMR system that "utilizes repeater technology to access hard to read meters within a fixed network structure," so that "each meter in the network has the ability to repeat messages as required." RX-409.0001 (Abstract). The meters disclosed in Shuey and meters disclosed in Mason can be used in systems with the same architecture.

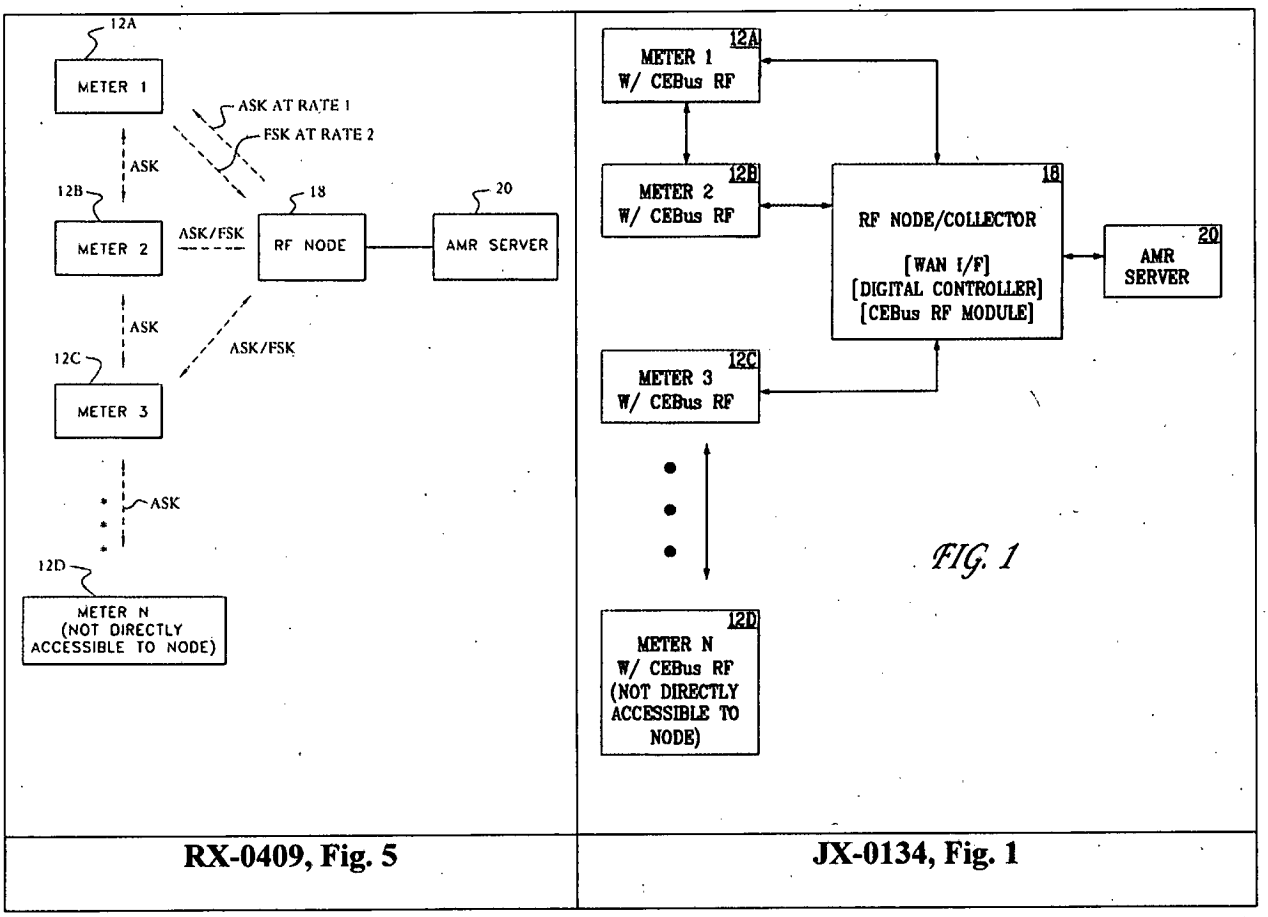

FIG. 1

RX-0409, Fig. 5 | **JX-0134, Fig. 1**

As with the system disclosed in Mason, the system disclosed in Shuey communicates using the CEBUS protocol. *See, e.g.*, RX-0409 at 3:53-55. Furthermore, Shuey and Mason share a named inventor (Kenneth C. Shuey). *Id.* at .0001; JX-0134.0001.

The meters disclosed in Shuey are "programmed to receive a message from an AMR node via the RF transceiver and, depending on the content of the message, to respond to the node or repeat the message by sending a modified message in a format that is receivable by another

meter in the AMR network." RX-0409 at 2:13-18, 2:33-41. Shuey discloses a repeater protocol for increasing the range of the nodes. *Id.* at 6:19-7:49. The disclosed protocol allows for single- and two-level repeats. The table below illustrates the changes to a message's RPT and SPARE fields that occur in a two-level repeat.

Double Repeat		
RPT = 01XXXXXX	NODE-->RPTx	SPARE = 01YYYYYY
RPT = 11YYYYYY	RPTx-->RPTy	SPARE = 01XXXXXX
RPT = 00YYYYYY	RPTy-->METER	SPARE = 01XXXXXX
RPT = 10YYYYYY	METER-->RPTy	SPARE = 10XXXXXX
RPT = 11XXXXXX	RPTy-->RPTx	SPARE = 10YYYYYY
RPT = 00YYYYYY	RPTx-->NODE	SPARE = 10XXXXXX

Id. at 7:5-13.

In the two-level repeat, the node sets the RPT field with 01XXXXXX and the SPARE field with 01YYYYYY. *Id.* at 7:5-15. The RPT field indicates that the message will be repeated (01) and contains the address of the first repeater (XXXXXX). The SPARE field indicates that the message will be repeated (01) and contains the address of the second repeater (YYYYYY). *Id.* After the first repeater receives the message, it changes the RPT field to 11YYYYYY before retransmitting it. *Id.* at 7:20-26. With these changes, the RPT field indicates that the message is being repeated from a repeater to another repeater (11) and contains the address of the second repeater (YYYYYY). *Id.* The first repeater also changes the SPARE field by replacing the second repeater's address (YYYYYY) with its own (XXXXXX). *Id.* Before transmitting the message received from the first repeater, the second repeater changes the code in the RPT field from 11 to 00, but otherwise keeps the data unchanged. *Id.* 7:26-29. Code 00 indicates to the destination meter that it should respond to the message. *Id.* at 7:26:32.

In order to respond to the message, the destination meter changes the code 11 in the RPT field and the code 01 in the SPARE field to 10, to indicate that the message incoming (*i.e.*, from

a meter to the node), but does not change the addresses in the two fields. *Id.* at 7:33-35. After receiving the incoming message, the second repeater modifies the message by changing the command in the RPT field from 10 to 11 to indicate that the message is from a repeater. *Id.* at 7:36-42. The second repeater also changes the address in the RPT field from its address (YYYYYY) to that of the first repeater (XXXXXX) and changes the address in the SPARE field from the first repeater's address to its address. *Id.* After receiving the message from the second repeater, the first repeater changes the code in the RPT field to 00 and transmits the message to the node. *Id.* at 7:43-46.

SIPCO argues that the proposed Mason and Shuey combination does not satisfy the "format a message" limitation and that one of ordinary skill in the art would not have been motivated to combine the two references. With regard to whether the proposed combination satisfies the "format a message" limitation, SIPCO argues that even if the meters disclosed in Mason were modified as proposed by Respondents, the modified meters "would not 'format,' *i.e.*, originate, a message comprising 'a receiver address comprising an address of at least one remote wireless device; [and] a command indicator comprising a command code." CIB at 132-33 (alterations in original). This argument is based on SIPCO's proposed construction of "format," which equates formatting a message with originating a message. SIPCO's proposed claim construction was rejected above.

SIPCO raises two arguments regarding whether one of the ordinary skill would have been motivated to combine the references. The first argument advanced by SIPCO is that there is no motivation to modify Mason in view of Shuey because "a person of ordinary skill would have understood that Mason's repeating meter is already configured to repeat packets to a destination utility meter without any need for modification with Shuey's teachings." CIB at 133. This

argument is premised on SIPCO's contention that the message sent by the RF node to the repeating meters "already includes all repeating and destination meters' address information in the packet." *Id.* at 133. SIPCO's argument is undermined by the fact that Mason expressly describes Shuey as providing a description on how to implement the repeating functionality of the meters. JX-0134 at 6:15-26.

In its second argument, SIPCO argues that one of ordinary skill would not have been motivated to modify Mason to format repeated messages as described in Shuey. According to SIPCO, the repeated messages disclosed in Shuey are modified because the node and meters disclosed in Shuey "transmit using different signal types, frequency or amplitude shift keying (FSK/ASK)." *Id.* at 133. On this basis, SIPCO argues that one of ordinary skill would have had no motivation to use Shuey's formatting scheme with Mason because there is no indication that the nodes and meters in Mason communicate using different signal types. While some of the preferred embodiments disclosed in Shuey use two different signal types, *see, e.g.,* RX-0409 at FIG. 1 ("FSK" and "ASK"), the portion of Shuey relied on by Respondents is directed to expanding the range of the nodes by using meters as repeaters. *Id.* at 6:19-7:54. There is no indication that the system described in this portion is using more than one signal type. Moreover, the inventors of Mason clearly believed that the repeater protocol disclosed in Shuey is applicable to Mason's repeating meters or they would not have cited to it.

Based on the foregoing, I find that there is motivation to modify Mason to incorporate Shuey's repeater protocol. I further find that so modified, Mason renders the "format a message" limitation of claim 1 obvious.

(C) wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code

There is no dispute that the meters disclosed in Mason modified as discussed above with respect to the "format a message" limitation satisfy claim 1's "receive a preformatted message limitation." So modified the meters would receive messages formatted pursuant to Shuey's repeater protocol. Such messages would instruct the meters to respond to the message (code 00) or to forward the message (code 01). RX-0409 at 6:42-7:54. In addition, a meter may receive a message either directly from the node or through a repeater containing a C12.18 command, such as "write." JX-0134 at 9:37-40, 10:1-10 ("C12.18 application layer command"). The meter will respond as appropriate to a C12.18 command. *Id.* at 10:14-22 ("C12.18 application layer command").

Based on the foregoing, I find that claim 1 is obvious over Mason in view of Shuey and C12.18.

ii. Claim 2

There is no dispute that the meters disclosed in Mason each have a transceiver that has a "unique transceiver address to distinguish the transceiver from other transceivers in the wireless communication system," as required by claim 2. '708 patent at 14:26-28. In particular, each meter has a "unique address," allowing the node to read individual meters. JX-0134 at 3:27-29;10:42-46.

Based on the foregoing, I find that claim 2 is obvious over Mason in view of Shuey and C12.18.

iii. Claim 9

Respondents argue that the combination of Mason, Shuey, and C12.18 either by itself or in further combination with Ehlers, satisfies claim 9's requirement that the command code in the preformatted message "indicate a change of the settings of an actuator associated with the" meter. '708 patent at 14:46-48. Mason discloses that the meters have a "disconnect switch drive circuit." JX-0134 at 5:58-64. According to Respondents, the disconnect drive circuit "is an actuator that is remotely controlled using the CEBUS protocol for home or residential automation functions through the C12.18 application layer command." RIB at 148 (internal quotation marks omitted).

SIPCO does not dispute that the "disconnect switch drive circuit" is an actuator, but argues that Respondents have not shown that the actuator "can be activated wirelessly (as opposed to, for example, a manual push of a button on-site)" and have not identified a C12.18 command that activates the circuit. CIB at 134. While Mason may not disclose the specific C12.18 commands used by the system to activate that disconnect switch drive circuit, it teaches that the meters can receive "C12.18 application layer command[s]." RX-0409 at 10:1-10; *see also* RX-0822C (Madisetti Supp. DWS) at Q/A 19. SIPCO does not contend that there are no "C12.18 application layer command[s]" that can be used to activate the "disconnect switch drive circuit." CIB at 134. Accordingly, the combination of Mason, Shuey, and C12.18 renders claim 9 obvious.

Because the combination of Mason, Shuey, and C12.18 renders claim 9 obvious by itself, Respondents alternative theory in the which the combination is further modified in view of Ehlers is rendered moot.

iv. Claim 10

Respondents argue that claim 10's limitation requiring that the preformatted message received by one of Mason's repeating meters "indicate[] a request for a ping response" would have been obvious in view of the combination of Mason, Shuey, and C12.18 in further combination with Lyons. '708 patent at 14:49-51. As discussed above, Lyons discloses a network that can be used to monitor utility meters. RX-0011.0001 (Abstract). In the network of Lyons, remote management controllers are used to monitor sets of meter imaging devices that capture meter readings. *Id.* at 6:11-19. As discussed above with respect to Cunningham, the controllers can "ping" each other to verify that the other controller is functioning properly. *Id.* at 36:59-64. The controllers, however, can also "be adapted to 'ping' the imaging devices under their respective commands to determine whether their imaging devices are functioning properly, and if not, to determine such failure condition to the host processor 344." *Id.* at 37:44-48.

The only argument advanced by SIPCO regarding Lyons is that one of ordinary skill in the art would not have modified the Mason meters to originate "ping" requests. CIB at 135. It is undisputed that Lyons discloses the node (*i.e.*, the controller) issuing ping requests to either another node or to a meter imaging device. *Id.* SIPCO's argument depends on its proposed construction of "from another communication device." Under SIPCO's proposed construction of this term, the "ping" request would have to originate from another remote device, not a local gateway. As discussed above, SIPCO's proposed claim construction was rejected. SIPCO does not contest that Lyons would have motivated one of ordinary skill in the art to modify the nodes in Mason to issue ping requests to meters. As discussed in Lyons, such functionality would have been beneficial as it would allow the nodes to determine whether the meters were properly functioning and, if not, to notify the system that a meter needed to be repaired. RX-0011 at

37:44-48. With such a modification to the nodes of Mason, a repeating meter could receive a preformatted message with a ping request either directly from the node or from another repeating meter.

4. Obviousness-Type Double Patenting

Respondents further contend that the claims 1, 2, 9, and 10 are invalid for obviousness-type double patenting in view of either claim 21 of U.S. Patent No. 7,697,492 ("'492 patent;" RX-0053) or claim 16 of U.S. Patent No. 8,013,732 ("'732 patent;" RX-0025).

a. Claim 21 of the '492 Patent

Claim 21 of the '492 patent depends on claim 19 through claim 20. Claim 19 recites:

> In a system for communicating commands and sensed data between remote devices comprising a communications device for communicating commands and sensed data, the communications device comprising:
>
> a transceiver operatively configured to be in communication with at least one other of a plurality of transceivers, wherein the transceiver has a unique address, wherein the unique address identities the individual transceiver, wherein the transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages;
>
> a controller configured to be in communication with the transceiver, the controller configured to provide preformatted messages for communication; wherein the preformatted messages comprises at least one packet, wherein the packet comprises: a receiver address comprising a scalable address of the at least one of the intended receiving transceivers; sender address comprising the unique address of the sending transceiver; a command indicator comprising a command code; at least one data value comprising a scalable message; and an error detector comprising a redundancy check error detector; and wherein the controller is configured to interact with the transceiver to send preformatted command messages.

RX-0053 at 15:32-58.

Claim 20 adds the requirement that the communication device of claim 19 have "a sensor operatively configured to detect a condition and output a sensed data signal that corresponds to

the condition to the transceiver." *Id.* at 16:1-4. Claim 21 adds the requirement that the communication device of claim 20 be "configured to receive a preformatted command message requesting sensed data, confirms the receiver address as its own unique address, receives the sensed data signal, formats the sensed data signal into scalable byte segments, determines a number of segments required to contain the sensed data signal, and generates and transmits the preformatted response message comprising at least one packet." *Id.* at 16:5-12.

i. Claim 1 of the '708 Patent

To the extent that they are limiting, there is no substantive difference between the preambles of claim 1 of the '708 patent and claim 19 of the '492 patent. The preamble of claim 1 of '708 patent recites "[a] wireless communication device for use in a wireless communication system configured to communicate command and sensed data within the wireless communication systems . . . ." '708 patent at 14:6-9. The preamble of claim 19 of the '492 patent recites "[i]n a system for communicating commands and sensed data between remote devices comprising a communications device for communicating commands and sensed data . . . ." RX-0053 at 15:32-35.

Claim 1 of the '708 patent requires the "wireless communication device" have "a transceiver configured to send and receive wireless communications." *Id.* at 14:1-2. Claim 19 of the '492 patent similarly requires that the "communications device" have "a transceiver operatively configured to be in communication with at least one other of a plurality of transceivers, . . . wherein the transceiver is geographically remote from the other of the plurality of transceivers." RX-0053 at 15:36-41.

Claim 1 of the '708 patent requires that the "wireless communication device" also have "a controller configured to communicate with at least one other remote wireless device via the

transceiver with a preformatted message." '708 patent at 14:12-14. This limitation is mirrored in claim 19 of the '492 patent, which requires the "communications device" have "a controller configured to be in communication with the transceiver, the controller configured to provide preformatted messages for communication." RX-0053 at 15:44-46.

Claim 1 of the '708 patent requires that the controller be "configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; [and] a data value comprising a message." '708 patent at 14:14-18. Claim 19 of the '492 patent similarly requires a controller configured "to provide preformatted messages for communication," wherein the preformatted message contains: the receiver address of at least one remote device ("a receiver address comprising a scalable address of the at least one of the intended receiving transceivers"); "a command indicator comprising a command code;" and a data value comprising a message ("at least one data value comprising a scalable message." RX-0053 at 15:47-55.

Claim 19 of the '492 patent does not have a limitation analogous to the final limitation of claim 1 of the '708 patent requiring that the controller be "configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message implement a certain function corresponding to the command code." '708 patent at 14:18-23. For this limitation, Respondents rely on claim 21 of the '492 patent which requires that the "transceiver [be] configured to receive a preformatted command message requesting sensed data, confirms the receiver address as its own unique address, receives the sensed data signal, formats the sensed data signal into scalable byte segments, determines a number of segments required to contain the sensed data signal, and generates and transmits the preformatted response message comprising at least one packet." RX-0053 at 16:5-12. Thus,

claim 1 of the '708 patent requires that the controller of the "wireless communication device" perform the claimed function, whereas claim 21 of the '492 patent requires that the transceiver of the communications device perform the claimed function.

Respondents argue that the difference in claim language does not render the claims patentably distinct and that "one of ordinary skill would have understood, or at least found it obvious, that just like '708 claim 1, '492 claim 21's controller is configured to receive a preformatted command message via the transceiver and implement a function, as recited, of obtaining and providing data in response to the command message it received from another device." RRB at 86. Such an interpretation of claim 21 of the '492 patent, however, would require ignoring explicit claim language requiring the recited functions to be performed by the transceiver not the controller.

Based on the foregoing, I find that claim 21 of the '492 patent does not render claim 1 of the '708 patent invalid for obviousness-type double patenting.

ii. Dependent claims 2, 9, and 10

Because claim 21 of the '492 patent does not render claim 1 of the '708 patent invalid for obviousness-type double patenting, it does not render claim 1's dependents invalid for obviousness-type double patenting.

b. Claim 16 of the '732 Patent

Claim 16 of the '732 patent depends from claim 13. Claim 13 of the '732 patent recites:

> In a system comprising a plurality of wireless devices configured for remote wireless communication and comprising a device for monitoring and controlling remote devices, the device comprising:
>
> a transceiver having a unique identification code and being electrically interfaced with a sensor, the transceiver being configured to receive select

> information and identification information transmitted from another wireless transceiver in a predetermined signal type;
>
> the transceiver being further configured to wirelessly retransmit in the predetermined signal type the select information, the identification information associated with the nearby wireless transceiver, and transceiver identification information associated with the transceiver making retransmission; and
>
> a data controller operatively coupled to the transceiver and the sensor, the data controller configured to control the transceiver and receive data from the sensor, the data controller configured to format a data packet for transmission via the transceiver, the data packet comprising data representative of data sensed with the sensor.

RX-0025 at 20:1-20. Claim 16 requires the data controller of claim 13 to be further "configured to receive data packets comprising a function code, and in response to the function code, implement a function." *Id.* at 20:32-35.

i. Claim 1 of the '708 Patent

The preambles of claim 1 of the '708 patent and claim 13 of the '732 patent are similar in scope to each other. Claim 1 is directed to "[a] wireless communication device for use in a wireless communication system configured to communicate command and sensed data within the wireless communication systems," while claim 13 of the '732 patent is directed to "a device for monitoring and controlling" "a plurality of wireless devices configured for remote wireless communication." '708 patent at 14:6-9; RX-0025 at 20:1-4.

Claim 1 of the '708 patent requires the "wireless communication device" have "a transceiver configured to send and receive wireless communications." '708 patent at 14:1-2. Claim 13 of the '703 patent similarly requires that the "device" have "a transceiver . . . configured to receive select information and identification information transmitted from another wireless transceiver in a predetermined signal type" and "configured to wirelessly retransmit in the predetermined signal type the select information." *Id.* at 20:5-12. Claim 1 of the '708 patent

further requires that the "wireless communication device" also have "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message." '708 patent at 14:12-14. This limitation is mirrored in claim 1 of the '732 patent, which requires that the "device" have "a data controller . . . configured to format a data packet for transmission via the transceiver," wherein "the transceiver being further configured to wirelessly retransmit in the predetermined signal type the select information." RX-0025 at 20:10-21.

Claim 1 of the '708 patent also requires that the controller be "configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; [and] a data value comprising a message." '708 patent at 14:14-18. While claim 19 of the '492 patent requires that the "data controller" be configured to format a message, the formatted message is only required to have "identification information associated with the nearby wireless transceiver" and "data sensed with the sensor." RX-0025 at 20:10-22. In other words, unlike claim 1 of the '708 patent, the message formatted by the data controller of claim 13 of the '732 patent is not required to have a "command indicator comprising a command code." For this element, Respondents rely on claim 16's recitation of a "function code." Claim 16's "function code," however, is in a data packet received by the "device," not a data packet being formatted by the data controller for transmission. *Id.* at 20:10-22. Respondents argue that it would have been understood by or obvious to one of ordinary skill "that '732 claim 16's device ***sends and receives*** function codes to accomplish its claimed function of 'monitoring and controlling remote devices,' and at minimum it would have been obvious to do so." RRB at 87. Respondents' arguments are unavailing.

Respondents' argument that one of ordinary skill in the art would have understood the device of claim 16 of the '732 patent formats outgoing messages with "function codes," as well as receives such messages is based on reading limitations from the preferred embodiments into the claims. RRB at 165-66 ("Moreover, the '732 patent's tangible embodiments confirm that it would have been obvious for the packet to identify the remote device to be 'monitor[ed]' or 'control[led]' using a 'receiver address' field in the signal transmitted by a transceiver along with data and command codes.") (quoting RX-0025 at 15:16-19, 15:27-29, 15:55-60). With respect to obviousness, Respondents argue that it would have been obvious to modify claim 16 of the '732 patent in view of Mason because "both are directed to systems used to monitor and collect information from remote devices, and a POSITA would have looked to Mason's teachings in order to achieve the utility of the '732 patent." RRB at 166. This analysis, however, does not provide a motivation to combine the references. Respondents do not explain, for example, why one of ordinary skill would not simply use the system disclosed in Mason, instead of modifying claim 16 of the '732 patent.

The final limitation of claim 1 of the '708 patent requires that the controller be "configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message implement a certain function corresponding to the command code." '708 patent at 14:18-23. Claim 16 of the '732 patent similarly requires that the "data controller" be "configured to receive data packets comprising a function code, and in response to the function code, implement a function." RX-0025 at 20:32-35.

Based on the foregoing, I find that claim 16 of the '732 patent does not render claim 1 of the '708 patent invalid for obviousness-type double patenting.

ii. Dependent claims 2, 9, and 10

Because claim 16 of the '732 patent does not render claim 1 of the '708 patent invalid for obviousness-type double patenting, it does not render claim 1's dependents invalid for obviousness-type double patenting.

V. THE '893 PATENT

A. Asserted Claims

SIPCO asserts claims 1, 2, 10, and 19 of the '893 patent. CIB at 22-39. Claim 1 recites:

> 1. A system for communicating commands and sensed data between remote devices, the system comprising:
>
> a plurality of transceivers, each transceiver being in communication with at least one other of the plurality of transceivers, wherein each transceiver has a unique address, wherein the unique address identities an individual transceiver, wherein each transceiver is geographically remote from the other of the plurality of transceivers, wherein each transceiver communicates with each of the other transceivers via preformatted messages;
>
> a controller, connected to one of the plurality of transceivers, the controller being in communications with each of the plurality of transceivers via a controller transceiver, the controller communicating via preformatted messages;
>
> wherein the preformatted messages comprises at least one packet, wherein the packet comprises:
>
> a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;
>
> sender address comprising the unique address of the sending transceiver;
>
> a command indicator comprising a command code;
>
> at least one data value comprising a scalable message; and
>
> an error detector comprising a redundancy check error detector; and
>
> wherein the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages.

'893 patent at 14:49-15:12. Claim 2 depends from claim 1 and recites:

> 2. The system of claim 1, wherein the plurality of transceivers further comprise at least one integrated transceiver, wherein the integrated transceiver comprises:
>
> one of the plurality of transceivers; and
>
> a sensor detecting a condition and outputting a sensed data signal to the transceiver.

Id. at 15:13-18. Claim 10 also depends from claim 1 and recites:

> 10. The system of claim 1, wherein the plurality of transceivers further comprise at least one actuated transceiver, wherein the actuated transceiver comprises:
>
> one of the plurality of transceivers;
>
> a sensor detecting a second condition and outputting a sensed data signal to the transceiver; and
>
> an actuator controlling a third condition and receiving control signals from the transceiver.

Id. at 15:59-67. Claim 19 is a separate independent claim and recites:

> 19. A system for controlling geographically diverse devices from a central location, the system comprising:
>
> means for sending and receiving messages, wherein the sent messages contain commands and the received messages contain responses to the commands, wherein the message comprises at least one means for packeting a message;
>
> a plurality of means for communicating information, the communicating means comprising:
>
> means for receiving messages;
>
> means for preparing responses to the received message; and
>
> means for sending the response message;
>
> wherein each communicating means has a unique identifying address; and
>
> wherein the packeting means comprises

means for identifying intended recipients;

means for identifying the sender;

means for indicating a command;

means for data transfer; and

means for indicating potential error.

Id. at 17:4-24.

B. Claim Construction

In the *Markman* order, the term "receiver address" in claim 1 was construed to mean a receiver address that includes an address of at least one of the intended receiving transceivers that has a variable size based on the size and complexity of the system. Order No. 26 at 18-19. The parties also agreed that the term "scalable address" in claim 1 should be construed to mean an address that has a variable size based on the size and complexity of the system. *Id.* at 16-18.[15]

With respect to claim 10, the claim language referencing a "second condition" and a "third condition" was found to imply the existence of a "first condition." *Id.* at 19-20. The parties agreed that claim 19 is subject to paragraph 6 of section 112 of the Patent Act, and several disputed terms were construed to have the following functions and corresponding structure:

"means for indicating potential error"	Function: indicating potential error	Structure: a field of the data packet containing the check sum error detector 780 and 790 (such as the "CkH" or "CkL"

[15] These constructions are consistent with the Federal Circuit's recent opinion in *SIPCO, LLC v. Emerson Elec. Co.*, construing the term "scalable address" in a related patent to require "that the portion of the receiver address that identifies the specific intended recipient or recipients of the message be scalable and include the address of at least one remote device." 2019 WL 6998644, slip op. at 8, Case No. 2018-1856 (Fed. Cir. Dec. 20, 2019). The court held that "[t]he scalability refers to the ability of that portion of the receiver address to vary based on the size and complexity of the system." *Id.*

		fields shown in FIG. 9) and equivalents thereof
"means for sending and receiving messages"	Function: sending messages containing commands and receiving messages containing responses to commands	Structure: a gateway (element 600), including an antenna (element 610) and a RF transceiver (element 615), and structural equivalents thereof
"means for communicating information"	Function: communicating information	Structure: Remote transceivers 211, 212, 213, 214, 215, 216, 221, 224, 340, and 500 and structural equivalents thereof
"means for receiving messages"	Function: receiving messages	
"means for preparing responses to the received messages"	Function: preparing responses to the received messages	
"means for sending the response message"	Function: sending the response message	

Id. at 20-37. The parties also agreed to the construction of additional means-plus-function terms:

"means for packeting a message" / "packeting means"	Function: packeting a message Structure: the packet message protocol shown in FIGs. 7-9, and structural equivalents thereof
"means for identifying intended recipients"	Function: identifying intended recipients Structure: a field of the data packet containing the scalable 'to' address 700 or as shown in FIGs. 8 and 9, and structural equivalents thereof
"means for identifying the sender"	Function: identifying the sender Structure: a field of the data packet containing the 'from' address 710 or as shown in FIG. 9, and structural equivalents thereof
"means for indicating a command"	Function: indicating a command Structure: a field of the data packet containing the command ('Cmd.') 760 or as shown in FIG. 9, and structural equivalents thereof
"means for data transfer"	Function: data transfer Structure: a field of the data packet containing the scalable data section ('Data') 770 or as shown in FIG. 9, and structural equivalents thereof

See CIB at 24-25.

C. Infringement

SIPCO alleges infringement of claims 1, 2, 10, and 19 of the '893 patent, based on the operation of Emerson's field devices and gateways in a wireless mesh network using the WirelessHART protocol. CIB at 25-47. SIPCO's infringement allegations rely primarily on theories of indirect infringement,[16] based on the operation of wireless mesh networks by Emerson's customers. CIB at 39-47. SIPCO identifies several examples of Emerson customers using Emerson's products in wireless mesh networks. CIB at 42-43 (identifying uses by Goodyear, Arcelormittal, Harcros Chemicals, Inc., ExxonMobil, The American Crystal Sugar Company, Continental Resources, Inc., and Conoco Philips).

1. Claim 1

SIPCO relies on Dr. Roy's analysis of the accused products with respect to infringement of claim 1 of the '893 patent. CX-0001C (Roy DWS) at Q/A 189-229. Respondents rely on the opinions of Dr. Madisetti to rebut these allegations. RX-0547C at Q/A 205-231, 244-45.

The parties have not addressed whether the preamble of claim 1 is limiting, but Dr. Roy nevertheless identifies evidence in Emerson documents that the accused products are designed to be used in "a system for communicating commands and sensed data between remote devices." CX-0001C at Q/A 191-97.

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[16] SIPCO alleges direct infringement based on Emerson's testing of its products in a network in the United States, but the Commission has held that such testing is not a violation of section 337 without a showing of indirect infringement. *Certain Electronic Devices with Image Processing Sys.*, 337-TA-724, Comm'n Op. at 13-19 (Dec. 21, 2011) ("In the absence of indirect infringement, we find no support in the language of the statute that Congress intended section 337 to reach [] domestic actions using imported articles.").

a. a plurality of transceivers

Dr. Roy identifies Emerson's field devices containing Analog DN2510 and LTC5800 chips with transceivers that are in communication with each other, meeting this claim limitation. CX-0001C at Q/A 198-202. There is no dispute that the accused products infringe this limitation.

b. each transceiver has a unique address

Dr. Roy identifies an 8-byte MAC address and a 2-byte network address ("nickname") associated with each transceiver in the Emerson field devices. CX-0001C at Q/A 203-04. There is no dispute that the accused products infringe this limitation.

c. each transceiver is geographically remote from the other of the plurality of transceivers

Dr. Roy identifies evidence that the accused products are used in wireless mesh networks where field devices are spread throughout facilities that are geographically remote from each other. CX-0001C at Q/A 205-08. There is no dispute that the accused products infringe this limitation.

d. communication via preformatted messages

Dr. Roy identifies evidence that the WirelessHART protocol uses a preformatted packet structure. CX-0001C at Q/A 209-10. There is no dispute that the accused products infringe this limitation.

e. a controller connected to one of the plurality of transceivers, the controller being in communication with each of the plurality of transceivers

Dr. Roy identifies Analog's network manager software running on Emerson gateways as the claimed "controller" that communicates with the transceivers in Emerson field devices. CX-0001C at Q/A 211-12. Respondents do not dispute that the Emerson gateways communicate

with the Emerson field devices but argue that these devices are not "connected," relying on a statement Dr. Roy made on cross-examination. Tr. (Roy) at 304:5-8 ("Q: And those field devices are not connected to the Emerson gateway; they're just in communication with it, in your opinion? A. That would be correct, yes."). In redirect examination, however, Dr. Roy explained that he misunderstood the question from Respondents' counsel, affirming that there is a "wireless connection" between the Emerson gateways and field devices, meeting this limitation. Tr. at 338-339. Based on this testimony, I find that SIPCO has shown that the accused products infringe this limitation.

f. the controller communicating via preformatted messages

Pointing to the same preformatted packet structure of the WirelessHART protocol discussed above, Dr. Roy identifies evidence that the Emerson gateways communicate via preformatted messages. CX-0001C at Q/A 213-14. There is no dispute that the accused products infringe this limitation.

g. the preformatted messages comprise at least one packet

Dr. Roy again refers to the WirelessHART protocol for evidence that the preformatted messages comprise at least one packet. CX-0001C at Q/A 215-16. There is no dispute that the accused products infringe this limitation.

h. a receiver address comprising a scalable address

Dr. Roy identifies the NPDU address used in the WirelessHART protocol as the claimed "scalable address." CX-0001C at Q/A 218-19. Dr. Roy explains that the NPDU final destination address can be either 2 bytes or 8 bytes in size, which meets the requirements for a "scalable address." *Id.* at Q/A 219.

The parties agreed to construe the term "scalable address" to mean an address that has a variable size based on the size and complexity of the system. Order No. 26 at 16-19. Dr. Roy offers his opinion that this limitation is met because "[t]he field device's 8-byte address is typically used before the Emerson field device joins the mesh network, and its 2-byte address is typically used after the field device joins the mesh network." CX-0001C at Q/A 220. Dr. Madisetti does not agree that this claim limitation is infringed by the Emerson field devices, explaining that the devices "are addressed using short or long addresses based on the current status of the device being addressed—and not based on the size and complexity of the system." RX-0547C at Q/A 211. In his opinion, the use of 2-byte addresses after a device joins a network does not meet the "scalable address" construction that was agreed upon by the parties. *Id.* at Q/A 212. Respondents argue that the accused products cannot infringe this limitation because the "scalable address" is always 2 bytes when connected to a network—the complexity of the network has no effect on the size of the address. RIB at 20-21.

SIPCO argues that the NPDU address is a "scalable address" because the Emerson field devices have 8-byte addresses when they are part of "a large system of potential Emerson field devices to which it could connect." CRB at 8. SIPCO contends that the devices have 2-byte addresses when they connect to a network, which will "necessarily be smaller and less complex than the entire universe of Emerson field devices." *Id.*; *see* CX-0001C (Roy DWS) at Q/A 227. I agree with Respondents, however, that "the entire universe of Emerson field devices" is not a "system" as that term is used in the '893 patent. RRB at 12-13. The preamble of claim 1 recites "[a] system for communicating commands and sensed data between remote devices," '893 patent at 1:50-51, and there is no communication of commands or sensed data between unconnected devices in the universe of Emerson field devices. The size of the NPDU address is fixed at 2

bytes for Emerson field devices in a "system" as described in the '893 patent, regardless of the size and complexity of that system. Accordingly, the accused products do not literally infringe this limitation.

SIPCO further contends that the Emerson field devices infringe this limitation under the doctrine of equivalents. CIB at 29-30. Dr. Roy submits that the function of the 2-byte NPDU address is "uniquely identifying a transceiver in the wireless mesh network while conserving bandwidth and reducing power consumption of the remote devices." CX-0001C at Q/A 221. He explains that "[t]he scaling down of the address length from 8 bytes to 2 bytes once the Emerson field device joins the mesh network reduces the packet length, and thus performs the function of conserving bandwidth and reducing power consumption of the remote devices." *Id.* SIPCO argues that the NPDU address thus satisfies performs the same function as a scalable address in the same way, with the same result. CIB at 29-30.

Respondents dispute SIPCO's allegations under the doctrine of equivalents, arguing that finding a fixed 2-byte address to be equivalent to a "scalable address" would vitiate the limitation. RIB at 24-25. Respondents further argue that SIPCO is estopped from arguing for equivalents based on its statements during *inter partes* reviews of related patents. *Id.* at 22-24. Respondents' arguments are supported by the testimony of Dr. Madisetti, who cites arguments made by SIPCO in an *inter partes* proceeding based on two prior art references: U.S. Patent No. 5,673,252 to Johnson *et al.* ("Johnson," CX-1334) and the EIA709.1 standard (JX-0148). RX-0547C at Q/A 218. In particular, SIPCO distinguished a 24-bit and 32-bit address identified in Johnson, arguing that "Johnson discloses that these two addresses are separate and distinct, used for two different purposes, and used for two distinct types of messages." RX-0437.0030-.0040. With respect to EIA709.1, SIPCO argued that different "address sizes [] for each of the

different 'types' of messages are fixed" and "each 'type' is used in a specific manner." RX-0437.0052-.0054. SIPCO now argues that the address sizes in Johnson and EIA709.1 are different from what is accused in the Emerson products, explaining that Johnson's addresses are associated with different types of messages and that the addresses in the EIA709.1 standard are used for different modes of operation. CRB at 10-12. I agree with SIPCO that these prior statements do not rise to the level of estoppel, but I find that SIPCO's statements are relevant to determining the scope of this limitation.

Although estoppel does not preclude SIPCO from alleging infringement under the doctrine of equivalents, SIPCO's alleged function-way-result analysis fails to make a *prima facie* case for infringement—Dr. Roy's testimony does not address the critical differences between the claimed scalable address and the fixed 2-byte NPDU address in the accused products. Under the agreed construction for "scalable address," the address must vary in size based on the size and complexity of the system, and SIPCO fails to identify any address in the accused products that performs this function. The fact that the NPDU address performs other necessary functions does not establish equivalence with respect to this claim limitation. Accordingly, SIPCO has failed to show that the accused products infringe the "scalable address" limitation.

i. a sender address comprising the unique address of the sending transceiver

Dr. Roy identifies the NPDU original source address used in the WirelessHART protocol as the claimed "sender address." CX-0001C at Q/A 218. There is no dispute with respect to infringement of this limitation.

j. a command indicator comprising a command code

Dr. Roy identifies the command numbers in the Application Layer Protocol Data Unit (APDU) as the claimed "command indicator comprising a command code." CX-0001C at Q/A 218. There is no dispute with respect to infringement of this limitation.

k. at least one data value comprising a scalable message

Dr. Roy identifies the data values in the APDU as the claimed "data value comprising a scalable message." CX-0001C at Q/A 218. Respondents argue that Dr. Roy failed to offer any evidence or analysis to show that these value fields are "scalable." RIB at 26-27. In its pre-hearing and post-hearing brief, however, SIPCO identifies an Analog document (CX-0045C), discussed during the deposition of David Bacher, describing messages with varying data sizes. CIB at 33-34; CPHB at 109-10 (citing JX-0010C (Bacher Dep. Tr.)).[17] In particular, SIPCO points to the [redacted] of size [redacted] and example command sizes of [redacted] [redacted]. CX-0045C.0002-0004. Although there is no explicit testimony from Dr. Bacher confirming that this Analog document describes the "scalable message" described by Dr. Roy, I agree with SIPCO that there is sufficient evidence to show infringement of this limitation. Dr. Bacher identifies CX-0045C as "a document Analog created to describe the [] packet format used in our implementation of WirelessHART." JX-0010C at 138-39. The document describes commands with varying sizes. CX-0045C.0002-0004. Respondents have offered no evidence in

[17] This deposition transcript was the subject of a motion to reopen the record, which was denied pursuant to Order No. 39 (Nov. 25, 2019).

rebuttal to these disclosures,[18] and accordingly, I find that the accused products infringe this limitation.

l. a redundancy check error detector

Dr. Roy identifies the Data Link Layer Protocol Data Unit (DLPDU) CRC as the claimed "redundancy check error detector." CX-0001C at Q/A 218. There is no dispute with respect to infringement of this limitation.

m. the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages

Referencing his discussion of the preformatted packet structure of the WirelessHART protocol, Dr. Roy submits that the accused products send command messages and response messages in accordance with this limitation. CX-0001C at Q/A 229. There is no dispute with respect to infringement of this limitation.

For the reasons discussed above with respect to the "scalable address" limitation, however, SIPCO has failed to show that the accused products infringe claim 1 of the '893 patent.

2. Claim 2

Claim 2 depends from claim 1 and adds two limitations regarding the integrated transceiver. Dr. Roy further analyzed the Accused Products with respect to infringement of claim 2. CX-0001C (Roy DWS) at Q/A 230-33. He identifies certain Emerson field devices that include an integrated transceiver comprising a transceiver and a sensor detecting a condition and

[18] Respondents argue that SIPCO's infringement theory should be barred because it was not disclosed in SIPCO's contentions during discovery, but as discussed above, SIPCO disclosed this theory in its pre-hearing brief, and Respondents did not file a motion *in limine* or raise any objection to the admission of CX-0045C as evidence for infringement of this limitation.

outputting a sensed data signal to the transceiver. *Id.* at Q/A 233. There is no dispute with respect to infringement of these limitations.

For the reasons discussed above with respect to claim 1, however, SIPCO has failed to show that the accused products infringe claim 2 of the '893 patent.

3. Claim 10

Claim 10 depends from claim 1 and adds three limitations regarding the actuated transceiver. Dr. Roy further analyzed the Accused Products with respect to infringement of these limitations of claim 10. CX-0001C (Roy DWS) at Q/A 234-47. Respondents rely on the opinions of Dr. Madisetti to rebut these allegations. RX-0547C at Q/A 239-43.

a. at least one actuated transceiver, whereing the actuated transceiver comprises one of the plurality of transceivers

Dr. Roy refers to his identification of transceivers in the Emerson field devices as evidence of actuated transceivers meeting the limitations of claim 10. CX-0001C at Q/A 237. There is no dispute with respect to infringement of this limitation.

b. a sensor detecting a second condition and outputting a sensed data signal to the transceiver

Dr. Roy refers to his analysis with respect to claim 2 as evidence of a sensor meeting the limitations of claim 10. CX-0001C at Q/A 240. He further identifies secondary, tertiary and quaternary variables sensed by the Emerson field devices. *Id.* There is no dispute with respect to infringement of this limitation.

c. an actuator controlling a third condition and receiving control signals from the transceivers

Dr. Roy identifies several examples of transceivers in the Emerson field devices that are configured to change one or more settings in response to a control signal or command code. CX-0001C at Q/A 246. He specifically identifies an alarm module, a "disconnect" command,

and "Keep Alive" commands. *Id.* Respondents argue that SIPCO has failed to identify an "actual" actuator, such as an electric motor. RIB at 27-28. Respondents identify no evidence to support a reading of the claims that requires an "actual" actuator, however, only citing legal arguments from SIPCO's *Markman* brief that are taken out of context. RIB at 27-28; *see* RX-0547C (Madisetti RWS) at Q/A 239. Accordingly, I decline to import a limitation into the claim requiring an "actual" actuator, and accordingly, SIPCO has shown that the Emerson field devices infringe this limitation.

For the reasons discussed above with respect to claim 1, however, SIPCO has failed to show that the accused products infringe claim 10 of the '893 patent.

4. Claim 19

SIPCO relies on Dr. Roy's analysis of the Accused Products with respect to infringement of claim 19 of the '893 patent. CX-0001C (Roy DWS) at Q/A 248-73. Respondents rely on the opinions of Dr. Madisetti to rebut these allegations. RX-0547C at Q/A 205-38, 44-45.

The parties have not addressed whether the preamble of claim 19 is limiting, but Dr. Roy nevertheless identifies evidence that Emerson field devices are used in settings where they are "geographically diverse" and controlled from a central location. CX-0001C at Q/A 249-52.

a. means for sending and receiving messages

Dr. Roy identifies Emerson's gateways and I/O cards to meet the functional and structural limitations of the "means for sending and receiving messages" limitation of claim 19. CX-0001C at Q/A 254. In particular, Dr. Roy identifies circuit boards including Analog's network manager software and identifies an antenna and RF transceiver on Emerson's gateways and I/O cards, and on the Emerson 781 Wireless Field Link. *Id.* There is no dispute with respect to infringement of this limitation, and the Analog block diagrams cited by Dr. Roy appear to

show antenna circuitry and an RF transceiver corresponding to the structures in the specification of the '893 patent.

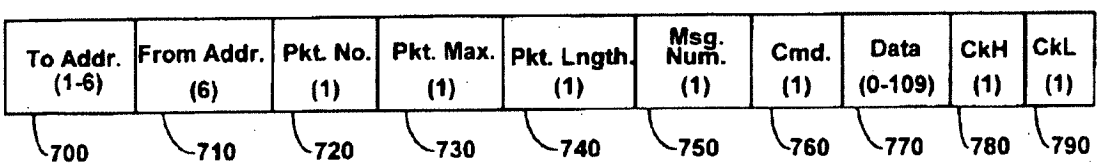
b. the sent messages contain commands and the received messages contain responses to the commands

Dr. Roy references his analysis with respect to claim 1, pointing to the packet structure of the WirelessHART protocol to meet the requirements in the claim regarding the contents of sent and received messages. CX-0001C at Q/A 256. There is no dispute with respect to infringement of these limitations.

c. the message comprises at least one means for packeting a message

Dr. Roy identifies the packet structure of the WirelessHART protocol to meet the "means for packeting" limitation, highlighting the similarities between Figure 7 of the '893 patent and the WirelessHART packet message protocol. CX-0001C at Q/A 260.

FIG. 7 Message Structure



'893 patent, Fig. 7.

0x41	Address specifier	Sequence number	Network_ID	Destination address	Source address	DLPDU specifier	DLL payload	MIC	CRC

IEC

Figure 15 – DLPDU Structure

CX-1095 at 84, Fig. 15. Respondents argue that the WirelessHART packet structure lacks the "packet max" field disclosed in Figure 7. RIB at 28-29. I agree with SIPCO, however, that the "packet max" is a limitation of claim 20, which is not included in claim 19. *See* '893 patent at 17:28-29 (claim 20 requires "means for indicating a total number of packets in a message"). An

infringing product does not need to contain the structural limitations of Figure 7 that are not recited in claim 19. The functional and structural elements necessary to infringe the "packeting means" limitation of claim 19 are enumerated in the claim language describing what "the packeting means comprises," which are discussed in more detail below.

d. a plurality of means for communicating information

Dr. Roy cites the function of communicating information between devices in a network and identifies the RF transceiver, antenna, transceiver controller, and battery in the Emerson field devices to meet the structural limitations of the "means for communicating information." CX-0001C at Q/A 263. Respondents do not dispute infringement of this limitation, although Dr. Roy fails to make any explicit comparison between the accused products and any specific structure disclosed in the specification. *Id.* As discussed in the *Markman* order, however, the specification describes the "means for communicating information" broadly, including both stand-alone transceivers and integrated transceivers with different structures. *See* Order No. 26 at 29-31 (identifying remote transceivers 211, 212, 213, 214, 215, 216, 221, 224, 340, and 500 as corresponding structure). Dr. Roy identifies block diagrams and circuit diagrams for the DN2510 and LTC5800 chips that include an RF transceiver, antenna, and transceiver controller corresponding to structures disclosed in the specification, CX-0001C at Q/A 263, and in the absence of any rebuttal, this is sufficient to carry SIPCO's burden on infringement for this limitation.

e. [communicating means comprising] means for receiving messages

Dr. Roy cites the command codes received by Emerson field devices and identifies the RF transceiver, antenna, transceiver controller, and battery in these devices to meet the

functional and structural limitations of the "means for receiving messages." CX-0001C at Q/A 265. There is no dispute with respect to infringement of this limitation.

f. [communicating means comprising] means for preparing responses to the received messages

Dr. Roy cites the response packets sent by Emerson field devices and identifies the data controller in these devices to meet the functional and structural limitations of the "means for preparing responses to received messages." CX-0001C at Q/A 267. There is no dispute with respect to infringement of this limitation.

g. [communicating means comprising] means for sending the response message

Dr. Roy cites the response packets sent by Emerson field devices and identifies the RF transceiver, antenna, transceiver controller, and battery in these devices to meet the functional and structural limitations of the "means for sending the response message." CX-0001C at Q/A 269. There is no dispute with respect to infringement of this limitation.

h. wherein each communicating means has a unique identifying address

Dr. Roy cites the MAC address and network address of the Emerson field devices to meet the limitation requiring that "each communicating means [have] a unique identifying address." CX-0001C at Q/A 271. There is no dispute with respect to infringement of this limitation, and SIPCO has thus shown that the accused products infringe the "communicating means" limitation for the reasons discussed above.

i. [the packeting means comprises] means for identifying intended recipients

Dr. Roy identifies the NPDU destination address described in the WirelessHART protocol to meet the functional and structural limitations of the "means for sending the response message." CX-0001C at Q/A 273. Pursuant to the claim construction agreed to by the parties,

the corresponding structure for the "means for identifying intended recipients" is the "to" address 700 described in the specification:

> The "to" address 700 indicates the intended recipient of the packet. This address can be scalable from one to six bytes based upon the size and complexity of the system. By way of example, the "to" address 700 can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver. In a six byte "to" address, the first byte indicates the transceiver type—to all transceivers, to some transceivers, or a specific transceiver. The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated). The "to" address 700 is scalable from one byte to six bytes depending upon the intended recipient(s).

'893 patent at 10:31-43. Dr. Roy's testimony refers back to his analysis for claim 1, CX-0001C at Q/A 273, but he fails to identify specific elements of the NPDU destination address that correspond to the structures described in the specification for the "to" address 700. In particular, Dr. Roy does not identify a part of the NPDU destination address that corresponds to the "transceiver type," and as discussed above in the context of claim 1, the NPDU destination address is not scalable "based on the size and complexity of the system." *See* RIB at 29; RX-0547C (Madisetti RWS) at Q/A 205-31. Accordingly, SIPCO has failed to carry its burden to show infringement, and the accused products do not infringe this limitation of claim 19.

j. [the packeting means comprises] means for identifying the sender

Dr. Roy identifies the NPDU source address described in the WirelessHART protocol to meet the functional and structural limitations of the "means for identifying the sender." CX-0001C at Q/A 273. Pursuant to the claim construction agreed to by the parties, the corresponding structure for the "means for identifying the sender" is the "from" address 710 described in the specification as "the six-byte unique transceiver address of the transceiver originating the transmission." '893 patent at 10:46-47. Dr. Roy does not analyze the NPDU

source address in the context of the "from" address 710 described in the specification, and accordingly, his testimony is insufficient to carry SIPCO's burden to show infringement of this limitation.

k. [the packeting means comprises] means for indicating a command

Dr. Roy identifies the APDU command number described in the WirelessHART protocol to meet the functional and structural limitations of the "means for indicating a command." CX-0001C at Q/A 273. Pursuant to the claim construction agreed to by the parties, the corresponding structure for the "means for indicating a command" is the command byte 760, which "requests data from the receiving device as necessary." '893 patent at 10:66-67. Dr. Roy's testimony does not analyze the APDU command number in the context of the command byte 760 described in the specification, and accordingly, SIPCO has failed to carry its burden to show infringement of this limitation.

l. [the packeting means comprises] means for data transfer

Dr. Roy identifies the APDU value described in the WirelessHART protocol to meet the functional and structural limitations of the "means for data transfer." CX-0001C at Q/A 273. Pursuant to the claim construction agreed to by the parties, the corresponding structure for the "means for data transfer" is the scalable data section 770, which "may contain data as requested by a specific command" and "is scalable up to 109 bytes." '893 patent at 11:11-21. Dr. Roy's testimony does not analyze the APDU value in the context of the scalable data section 770 described in the specification, and in particular, Dr. Roy fails to identify any evidence that the APDU value is "scalable." *See* RIB at 29-30. Accordingly, SIPCO has failed to carry its burden to show infringement of this limitation.

m. [the packeting means comprises] means for indicating potential error

Dr. Roy identifies the CRC field of the DLPDU described in the WirelessHART protocol to meet the functional and structural limitations of the "means for indicating potential error." CX-0001C at Q/A 273. Pursuant to the claim construction agreed to by the parties, the corresponding structure for the "means for indicating potential error" is the checksum section 780 or 790, which "is used to detect errors in the transmissions." '893 patent at 11:22-23. The specification describes one embodiment that uses a "cyclic redundancy check sum methodology," specifically "CRC-16." *Id.* at 11:24-47. The WirelessHART specification describes a CRC field that "is based on the 16 bit ITU-T CRC polynomial, also known as a CRC16." CX-1095 at 87 (subsection 6.3.1.2.8). This field of the DLPDU structure in the accused products thus infringes the "means for indicating potential error" limitation.

As discussed above, however, SIPCO has failed to carry its burden to show infringement of several limitations of claim 19, and the accused products do not have a "scalable address" as required as part of the claimed "means for identifying intended recipients."

5. Indirect Infringement

SIPCO contends that Emerson and Analog are liable for induced and contributory infringement of the asserted claims of the '893 patent. CIB at 39-49. There can be no indirect infringement without an underlying direct infringement, and SIPCO's allegations fail for this reason alone. The parties' additional arguments with respect to indirect infringement are addressed below.

a. Indirect Infringement by Emerson

SIPCO submits that Emerson had knowledge of alleged infringement of the '893 patent in 2013, when SIPCO sent a letter to Emerson initiating licensing discussions. JX-0142C. To

prove inducement, Emerson identifies evidence that Emerson provides advertising and support to its customers for implementing WirelessHART networks. CIB at 43-45. In particular, SIPCO identifies Emerson's distribution of wireless "Best Practices" (CX-0097C), which encourage customers to set up wireless mesh networks, and Emerson's participation in the annual Emerson Global User Exchange, where Emerson's representatives meet directly with customers. *See* CX-1180; CX-0102C; CX-0254C; CX-0123C; JX-0013C (Karschnia Dep. Tr.) at 256-57, 183-85, 259-60. SIPCO also identifies technical support provided by Emerson to customers and Emerson's dissemination of case studies of customer networks. CX-0001C (Roy DWS) at Q/A 434-443 (citing CX-0100C; CX-0101C; CX-0121C; CX-0099C; CX-0103; CX-0107C; CX-0111C). Emerson does not dispute this evidence showing that it actively induces its customers to implement WirelessHART networks.

SIPCO further alleges that Emerson contributes to its customers' infringement by selling and importing three categories of components: the DN2510 and LTC5800 chips loaded with Analog source code for WirelessHART messaging in Emerson field devices; the APM2510 transceiver in Emerson's gateways and I/O cards; and the SmartPower Modules powering Emerson's field devices. CIB at 45-46. Dr. Roy offers his opinion that these components are especially made and adapted for use in infringing WirelessHART networks and have no substantial non-infringing uses. CX-0001C at Q/A 462-82. Respondents argue that the Emerson field devices have a substantial non-infringing use wherein these devices are placed in a non-wireless configuration for use as a [redacted]. RX-0547C (Madisetti RWS) at Q/A 158 (explaining how the "non-wireless configuration" is a substantial non-infringing use); JX-0013C (Karschnia Dep. Tr.) at 59-60 (describing a [redacted] in all Emerson products). SIPCO argues that any use of these devices as a [redacted] is not substantial, as there is no

description of this mode in any Emerson documentation—the documentation instead encourages customers to use Emerson products in wireless networks. CIB at 45-46; CRB at 18-19. I agree with SIPCO that the evidence in the record supports a finding that there are no substantial non-infringing uses for the accused Emerson products under SIPCO's theory of direct infringement.

SIPCO has failed to prove that Emerson meets the intent requirement for indirect infringement, however. [redacted], citing a claim construction order from an earlier District Court case, where the term "scalable address" was construed to mean "an address that has a variable size based on the size and complexity of the system." JX-0160C at 4 (citing *SIPCO, LLC v. Amazon.com, Inc.*, No. 2:08-CV-359-JRG, 2012 WL 5195942, at *46 (E.D. Tex. Oct. 19, 2012)). Emerson thus argues that it had a good-faith belief of non-infringement that precludes any showing of the intent necessary for induced or contributory infringement. RIB at 30. Emerson has maintained its position on non-infringement from 2013 through the pendency of this investigation,[19] and the record thus supports Emerson's claim that it had a good-faith belief of noninfringement when selling products to its customers. Where an accused infringer "did not believe its [product] infringed," the Federal Circuit has held that "it had no intent to infringe." *Id.* at 1307; *see also Commil USA, LLC v. Cisco Systems, Inc.*, 575 U.S. 623 (2015) (affirming that a good-faith belief of noninfringement can negate the specific intent necessary for induced infringement). Based on this precedent, Emerson's good-faith belief of noninfringement precludes any finding of liability for induced or contributory infringement.

[19] As discussed above, I agree with Emerson that their products do not infringe the "scalable address" limitation under the proper construction for this term.

b. Indirect Infringement by Analog

With respect to Analog, SIPCO relies on the allegations in the complaint to establish the requisite knowledge of the asserted patents. CIB at 39-40. In *Certain Television Sets, Television Receivers, Television Tuners, and Components Thereof*, the Commission held that "service of a section 337 complaint can be adequate to provide knowledge of the asserted patents" for the purpose of indirect infringement. Inv. No. 337-TA-910, Comm'n Op. at 40-43 (Oct. 30, 2015). With respect to induced infringement, SIPCO contends that Analog collaborated with Emerson in the development of the software for the DN2510 and LTC5800 chips, sold these chips with the WirelessHART software to Emerson along with user guides and datasheets, and thus induced Emerson to use these products in wireless mesh networks in testing and in setup for Emerson customers. CIB at 40-42. With respect to contributory infringement, SIPCO contends that Analog's sale of DN2510 and LTC5800 chips with WirelessHART software contributes to direct infringement by Emerson and its customers. *Id.* at 45-46.

Analog argues that it cannot be liable for indirect infringement because none of the alleged infringing acts occurred after it acquired knowledge of the patents. RIB at 30-32. Analog's software development in collaboration with Emerson occurred long before there is any evidence that Analog knew of the asserted patents, and there is no evidence that Analog has sold DN2510 and LTC5800 chips for importation after being served the complaint. On this record, I thus find that SIPCO has failed to show that Analog induced or contributed to infringement with the required knowledge and intent. Accordingly, SIPCO has not carried its burden to show that Analog can be liable for indirect infringement.

D. Domestic Industry

SIPCO claims a domestic industry based on Honeywell's OneWireless Network products. CIB at 48-65. In particular, SIPCO identifies Honeywell's XYR 6000 field devices, Field Device Access Point (FDAP), and Wireless Device Manager (WDM). *Id.* at 48-49 (citing JX-0184C, [redacted]). SIPCO asserts that Honeywell's OneWireless Network products practice the asserted patents when used in wireless mesh networks as described in Honeywell's documents and the testimony of Honeywell witnesses. *Id.*

As an initial matter, there is a dispute between SIPCO and Respondents regarding the appropriate "article" that should be identified as the domestic industry product with respect to the '893 patent. Respondents argue that the protected article under section 337 must practice the asserted patent claims, and as discussed above in the context of infringement, no single field device can practice the asserted claims of the '893 patent without being part of a network. RIB at 34 n.14. SIPCO argues that it does not need to establish the existence of any such network, contending that "the OneWireless Network products themselves are 'articles protected by the patent.'" CIB at 57. SIPCO's position is inconsistent with the requirements for satisfying the technical prong of the domestic industry requirement, which call for "a comparison of the domestic products to the asserted claims" that "is essentially [the] same as that for infringement." *Alloc, Inc. v. Intl Trade Comm'n,* 342 F.3d 1361, 1375 (Fed. Cir. 2003). It is therefore incorrect for SIPCO to assert that each individual Honeywell device is a "protected article" under section 337—only a system of devices in a network can practice the asserted claims.[20]

[20] SIPCO does not attempt to satisfy the technical prong through indirect infringement, where a component could be found to contributorily infringe the asserted claims.

SIPCO relies on Dr. Nader Mir's analysis of the Honeywell OneWireless Network products to supports its contentions that the domestic industry products practice claims 1 and 2 of the '893 patent. CX-0002C (Mir DWS) at Q/A 3. Respondents rely on the opinions of Dr. Madisetti to rebut these allegations. RX-0547C at Q/A 340-41.

1. Claim 1

The parties have not addressed whether the preamble of claim 1 is limiting, but Dr. Mir nevertheless identifies evidence in Honeywell documents that the Honeywell OneWireless Network products are designed to be used in "a system for communicating commands and sensed data between remote devices." CX-0002C at 46-60. He addresses the remaining limitations of claim 1 on a limitation-by-limitation basis. *Id.* at Q/A 61-155.

a. a plurality of transceivers

Dr. Mir identifies several Honeywell field devices containing transceivers that are in communication with each other, meeting this claim limitation. CX-0002C at Q/A 61-80. There is no dispute that the domestic industry products practice this limitation.

b. each transceiver has a unique address

Dr. Mir identifies a unique 128-bit EUI-64 identifier and a 16-bit alias associated with each Honeywell field device. CX-0002C at Q/A 81-88. There is no dispute that the domestic industry products practice this limitation.

c. each transceiver is geographically remote from the other of the plurality of transceivers

Dr. Mir identifies evidence that Honeywell's OneWireless Network products are designed to be used in wireless mesh networks where devices are geographically remote from each other. CX-0002C at Q/A 89-96. In particular, Dr. Mir identifies a [redacted]

[redacted]

[redacted] *Id.* at Q/A 92-94 (citing CX-0366; JX-0020). There is no dispute that the domestic industry products practice this limitation.

d. communication via preformatted messages

Dr. Mir identifies evidence that Honeywell's OneWireless Network products communicate using the ISA100.11a protocol, which uses a preformatted message structure. CX-0002C at Q/A 97-99. There is no dispute that the domestic industry products practice this limitation.

e. a controller connected to one of the plurality of transceivers, the controller being in communication with each of the plurality of transceivers

Dr. Mir identifies Honeywell's Wireless Device Manager as the claimed "controller" that communicates with the transceivers in Honeywell field devices. CX-0002C at Q/A 102-10. There is no dispute that the domestic industry products practice this limitation.

f. the controller communicating via preformatted messages

Pointing to the same preformatted message structure of the ISA100.11a protocol discussed above, Dr. Mir identifies evidence that Honeywell's Wireless Device Manager communicates via preformatted messages. CX-0002C at Q/A 111-14. There is no dispute that the domestic industry products practice this limitation.

g. the preformatted messages comprise at least one packet

Dr. Mir again refers to the ISA100.11a protocol for evidence that the preformatted messages comprise at least one packet. CX-0002C at Q/A 115-18. There is no dispute that the domestic industry products practice this limitation.

h. a receiver address comprising a scalable address

SIPCO asserts that the Media Access Control ("MAC") header (or "MHR") in the ISA100.11a protocol is the claimed receiver address comprising a scalable address. CIB at 53-

54. Dr. Mir explains that the MHR/MAC header for a field device is 8 octets long before the device joins a network and it is 2 octets after the field device joins a network. CX-0002C at Q/A 129. SIPCO argues that these two sizes for the MHR/MAC header meet the "scalable address" limitation, which requires an address that has a variable size based on the size and complexity of the system. CIB at 53-54. As discussed above in the context of infringement, however, an address that is fixed in size when devices are connected to a network is not a "scalable address" that meets this claim limitation, either literally or under the doctrine of equivalents. Accordingly, for the same reason that the accused Emerson products do not infringe, the Honeywell domestic industry products do not practice this limitation.

i. a sender address comprising the unique address of the sending transceiver

Dr. Mir identifies a "source address" in the MHR/MAC header of the ISA100.11a protocol as the claimed "sender address." CX-0002C at Q/A 135-37. There is no dispute that the domestic industry products practice this limitation.

j. a command indicator comprising a command code

Dr. Mir identifies a field for an Application Layer Service (APL) type in the Application Layer Protocol Data Unit (APDU) as the claimed "command indicator comprising a command code." CX-0002C at Q/A 138-43. There is no dispute that the domestic industry products practice this limitation.

k. at least one data value comprising a scalable message

Dr. Mir identifies the payload in the Application Layer of an ISA100.11a packet as the claimed "data value comprising a scalable message." CX-0002C at Q/A 144-47. There is no dispute that the domestic industry products practice this limitation.

l. a redundancy check error detector

Dr. Mir identifies the frame check sequence (FCS) described in the ISA100.11a protocol and implemented in Honeywell's source code as the claimed "redundancy check error detector." CX-0002C at Q/A 148-50. There is no dispute that the domestic industry products practice this limitation.

m. the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages

Referencing his discussion of the preformatted message structure of the ISA100.11a protocol, Dr. Mir identifies command messages and response messages that are sent by Honeywell's Wireless Device Manager in accordance with this limitation. CX-0002C at Q/A 151-55. There is no dispute that the domestic industry products practice this limitation.

For the reasons discussed above with respect to the "scalable address" limitation, however, SIPCO has failed to show that Honeywell's OneWireless Network products practice claim 1 of the '893 patent.

2. Claim 2

Dr. Mir identifies certain Honeywell field devices that include a radio board including a transceiver and a sensor board detecting conditions, such as pressure, temperature, and other discrete, analog, and digital inputs, meeting the limitations of claim 2. CX-0002C at Q/A 156-60. There is no dispute that the domestic industry products practice this limitation

For the reasons discussed above with respect to claim 1, however, SIPCO has failed to show that Honeywell's OneWireless Network products practice claim 2 of the '893 patent.

3. Existence of Domestic Industry Network

Respondents argue that even if SIPCO had shown that Honeywell's OneWireless Network products practiced the asserted claims of the '893 patent, the technical prong of the

domestic industry requirement would not be satisfied because SIPCO has failed to show that any network of Honeywell OneWireless Network products was authorized to practice the asserted patents or that any such network existed at the time of the filing of the complaint. RIB at 34-47. For the reasons discussed below, I find that there is sufficient evidence in the record to show that a network of Honeywell's OneWireless Network products existed that SIPCO could rely on to satisfy the technical prong.

The Commission has held that the technical prong of the domestic industry requirement requires the existence of a tangible "article protected by the patent, *i.e.*, a physical embodiment of the patented invention." *Certain Thermoplastic-Encapsulated Electric Motors, Components Thereof, and Products and Vehicles Containing Same II* ("*Thermoplastic-Encapsulated Electric Motors*"), Inv. No. 337-TA-1073, Comm'n Op. at 10 (Aug. 12, 2019); *see also id.* n.13 (citing *ClearCorrect Operating, LLC v. Int'l Trade Comm'n*, 810 F.3d 1283, 1293-94 (Fed. Cir. 2015) (defining "article" not to include intangibles)). As discussed above, the articles protected by the asserted claims of the '893 patent must be a system of devices in a network. SIPCO has identified evidence of three such systems where Honeywell customers used Honeywell OneWireless Network products in a wireless mesh network: (1) a 2013 case study published by Honeywell describing a wireless system in Valero Energy Corporation's Wilmington refinery (JX-0182); (2) a 2011 case study published by Honeywell describing a wireless system in the Frontier El Dorado refinery (RX-0383), and (3) a 2009 report published by the ISA100 Wireless Compliance Institute describing a test of the wireless system in an Arkema plant in Crosby, Texas (JX-0163).

Respondents contend that SIPCO's evidence of Honeywell networks is too old, arguing that complainants must prove the existence of a domestic industry at the time of the complaint.

See Motiva, LLC v. Int'l Trade Comm'n, 716 F.3d 596, 601 n.6 (Fed. Cir. 2013) ("We also affirm the Commission's use of the date of the filing of Motiva's complaint in this case as the relevant date at which to determine if the domestic industry requirement of Section 337 was satisfied.").[21] This temporal requirement is typically evaluated in the context of the economic prong, however, and the Commission has found that a domestic industry can exist at the time of the complaint even when the domestic industry products have been discontinued, based on expenditures that continued to the time of the complaint. *See, e.g., Certain Marine Sonar Imaging Devices, including Downscan and Sidescan Devices, Products Containing the Same, and Components Thereof*, Inv. No. 337-TA-921, Comm'n Op. at 60 (Jan. 6, 2016) (reversing the ID's exclusion of warranty expenditures where the repairs result in products that "no longer practice the claims of the patent."); *Certain Electronic Digital Media Devices and Components Thereof*, Inv. No. 337-TA-796, Comm'n Op. at 99-102 (Sept. 6, 2013) ("There is no question that the evidence shows that Apple exploited the asserted patents through substantial investment in engineering and R&D related to its discontinued products, which the ALJ found practiced the asserted patents."). If complainants can rely on past investments in the development of discontinued products as part of a domestic industry, then it follows that SIPCO can rely on licensing that covers products that existed in the past. There is no dispute that SIPCO's domestic industry in licensing exists at the time of the complaint, and SIPCO can therefore establish the

[21] Respondents also cite *Thermoplastic-Encapsulated Electric Motors*, where the Commission found no domestic industry where complainant "has not shown the presence of an article protected by the patent at the time of the complaint." Comm'n Op. at 10. The issue addressed in that investigation was whether drawings for the design of a product could be an "article" under section 337. *Id.* That question is tangential to the dispute in the present investigation, where there is no dispute that products existed at some time but may not have persisted to the time of the complaint.

existence of a domestic industry by identifying significant or substantial investments that are "with respect to the articles protected by the patent."[22]

Respondents further argue that SIPCO has failed to show that the Valero, Frontier, and Arkema networks are "articles protected by the patent" because there is no evidence that they were authorized to practice the asserted patents at the time they were created. RIB at 36-40. The record shows, however, that Honeywell has a license from SIPCO [redacted]. JX-0184C at ¶¶1.7, 3.2, Ex. C. This license agreement thus grants [redacted]. *See* JX-0182 at 2 ("In August 2012, Valero updated its OneWireless R120 installation to the latest R200 functionality.").[23]

Accordingly, SIPCO has established the existence of at least one Honeywell OneWireless Network that was protected under the SIPCO-Honeywell license, which was in effect at the time of the complaint. But as discussed above, the technical prong of the domestic industry

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[22] As discussed below in the context of the economic prong, SIPCO has failed to allocate its licensing expenditures to the domestic industry products.

[23] Respondents also argue that the Honeywell customer networks are not covered by the SIPCO-Honeywell license [redacted]. JX-0182 at 2-3. Even if subsequent purchases of [redacted], this would not preclude SIPCO from relying on [redacted] of the asserted patents in 2013.

requirement for the '893 patent is not satisfied because the Honeywell products do not practice the "scalable address" limitation.

E. Invalidity

Respondents contend that the asserted claims of the '893 patent are ineligible under 35 U.S.C. § 101, obvious under 35 U.S.C. § 103, invalid for obviousness-type double patenting, and indefinite under 35 U.S.C. § 112. RIB at 49-114.[24]

1. Patent Eligibility

Respondents' arguments under section 101 for the '893 patent are the same as those addressed above for the '708 patent. *See* RIB at 49-70. Under similar reasoning, the asserted claims of the '893 patent are also eligible under section 101 because they describe particular technological innovations that result in improved communication between remote devices—the asserted '893 patent claims are directed to wireless communications using preformatted messages with a scalable receiver address.

2. Obviousness

Respondents contend that the asserted claims of the '893 patent are invalid for obviousness in view of three primary references: U.S. Patent No. 5,963,650 (JX-0133, "Simionescu"), U.S. Patent No. 6,124,806 (JX-0149, "Cunningham"), and U.S. Patent No. 6,100,817 (JX-0134, "Mason"). RIB at 70-105. These obviousness contentions are supported by

[24] In their post-hearing briefs, Respondents argued that "SIPCO is estopped from contesting the invalidity of the Asserted Claims because claims that are substantially similar—with no material differences—have already been held unpatentable in the '492 IPR FWD." RIB at 117-18. This collateral estoppel argument has no basis, however, because as discussed *supra*, n.10, the cited IPR decision was vacated and remanded by the Federal Circuit. *See SIPCO, LLC v. Emerson Elec. Co.*, Case No. 2018-1856, 2019 WL 6998644 (Fed. Cir. 2019).

the testimony of Dr. Madisetti. RX-0536C at Q/A 63. SIPCO relies on the testimony of Dr. Almeroth in rebuttal to Respondents' invalidity contentions. CX-1850C at Q/A 454-553.

a. Simionescu

Respondents contend that Simionescu renders the asserted claims of the '893 patent obvious in combination with U.S. Patent No. 5,726,644 (JX-0131, "Jednacz") and U.S. Patent No. 5,440,545 (RX-0001, "Bucholz"). Dr. Madisetti's testimony includes an analysis of the '893 patent claims in view of these prior art references. RX-0536C at Q/A 214-48; RDX-0011.

i. Claim 1

Respondents contend that Simionescu renders claim 1 of the '893 patent obvious in combination with Jednacz, a patent that issued from an application that was filed in June 1995 and describes a system for "sensed-data transmission from a multiplicity of sensor locations to a central location, as well as control signals transmitted back to selected locations." JX-0131 at 1:26-36.[25]

The parties have not addressed whether the preamble of claim 1 is limiting, but they nevertheless dispute whether the preamble is met by disclosures in Simionescu. *See* CIB at 75. Dr. Madisetti submits that Simionescu discloses or at least renders obvious the limitations in the preamble because it describes a system for communicating commands between remote devices such as irrigation equipment and utility meters. RX-0536C at Q/A 220. SIPCO disputes Dr. Madisetti's testimony, relying on Dr. Almeroth's opinion that Simionescu fails to disclose that the remote devices communicate and receive individualized commands. CX-1850C (Almeroth RWS) at Q/A 456. There is an explicit disclosure of "peer to peer operation" in

[25] SIPCO does not dispute the prior art status of Jednacz.

Simionescu, however, wherein "a user application can issue a command or query to one data acquisition device and that data acquisition device can then communicate directly with other data acquisition devices." JX-0133 at 5:46-51; *see also id.* at Fig. 3, 11:47-51 ("As shown above, in FIG. 3, the DA 102 is also designed to function as a node in a mesh of RF-communicating devices, relaying information received from I/O devices 206 (which may be sensors or active devices), across the network in a daisy-chain form."). To the extent that the preamble of claim 1 is limiting, Respondents have shown that it is rendered obvious by Simionescu.

(A) a plurality of transceivers

Dr. Madisetti identifies the data acquisition devices ("DAs") disclosed in Simionescu as the "plurality of transceivers" in claim 1. RX-0536C at Q/A 221. There is no dispute that this limitation is rendered obvious by Simionescu.

(B) each transceiver has a unique address

Simionescu discloses that "each node is individually addressable." JX-0133 at 11:51-55. Jednacz discloses "unique identification codes," which may be "a serial number, bar code number, or other number related to an address or identifying number stored in the transceiver." JX-0131 at 7:12-19, 17:6-10. Dr. Madisetti relies on these disclosures for the "unique address" limitation of claim 1. RX-0536C at Q/A 222. SIPCO disputes that this limitation is rendered obvious, relying on Dr. Almeroth's testimony that Simionescu's devices could be individually addressable without using unique addresses. CX-1850C (Almeroth RWS) at Q/A 460. As discussed above with respect to the '708 patent, Dr. Almeroth fails to explain how the Simionescu's devices could be individually addressable without unique addresses. Moreover, even if Dr. Almeroth's testimony was credited, I agree with Respondents that one of ordinary skill in the art would recognize that unique addresses are one of a finite number of predictable

options for individually addressing devices. Jednacz confirms that unique addresses were known in the prior art. Accordingly, this limitation is obvious in view of Simionescu alone or in combination with Jednacz.

(C) each transceiver is geographically remote from the other of the plurality of transceivers

Simionescu explicitly describes "remotely located DAs." JX-0133 at 8:45-55, Fig. 3. Dr. Madisetti identifies these devices as the claimed "geographically remote" transceivers. RX-0536C at Q/A 223. There is no dispute that this limitation is rendered obvious by Simionescu.

(D) communication via preformatted messages

Simionescu describes "a complete wireless networking protocol" that is "capable of supporting both point to point and point to multi-point communications." JX-0133 at 7:29-35. Simionescu further teaches that "the communication protocols may be anything suitable for transmission of data between remote locations." *Id.* at 20:9-11. Jednacz explicitly discloses "a communication protocol which specifies a packet structure." JX-0131 at 3:25-29. Examples of packet structures are depicted in Figure 6 of Jednacz:

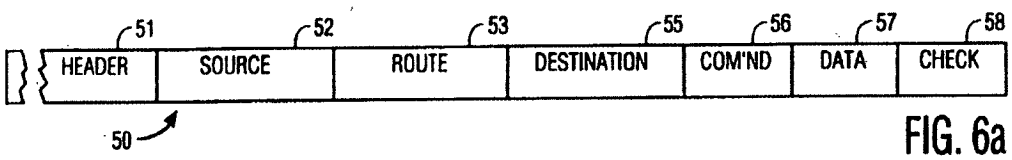

FIG. 6a

Id. at 8:1-3, Fig. 6a. In Dr. Madisetti's opinion, it would be obvious to one of skill in the art that the wireless networking protocol in Simionescu would include preformatted messages, such as the packets disclosed in Jednacz. RX-0536C at Q/A 224-25. Dr. Almeroth does not agree, suggesting that a communication protocol does not necessarily include preformatted messages. CX-1850C at Q/A 462.

As discussed above with respect to the '708 patent, Simionescu inherently discloses that the DAs communicate using preformatted messages. Even if Simionescu's disclosures were insufficient to meet this limitation, I agree with Respondents that one of ordinary skill in the art would recognize that preformatted messages are one of a finite number of predictable options for implementing a networking protocol as described in Simionescu. Jednacz confirms that preformatted messages were known in the prior art. Accordingly, this limitation is obvious in view of Simionescu alone or in combination with Jednacz.

(E) a controller connected to one of the plurality of transceivers, the controller being in communication with each of the plurality of transceivers

Simionescu describes the components of each DA in Figure 2: "The DA 102 includes RF Transceiver 210, primary cache 202, program storage 208, microprocessor 212, microcontroller 214, and I/O interface connector 204." JX-0133 at 7:1-4, Fig. 2. Dr. Madisetti identifies the microprocessor, microcontroller, and I/O interface connector comprising the claimed "controller" connected to the RF transceiver and communicating with other Das. RX-0536C at Q/A 226. There is no dispute that this limitation is rendered obvious by Simionescu.

(F) the controller communicating via preformatted messages

Pointing to the same disclosures in Simionescu and Jednacz discussed above, Dr. Madisetti explains how it would be obvious to one of skill in the art that the identified controller in Simionescu communicates via preformatted messages. RX-0536C at Q/A 228-29. This limitation is rendered obvious for the same reasons discussed above with respect to communication via preformatted messages.

(G) the preformatted messages comprise at least one packet

Simionescu describes an "RF packet" when discussing pincodes used to discriminate between networks and when describing a "Power Saver Mode." JX-0133 at 9:27-31, 13:6-11. According to Dr. Madisetti, these disclosures make it obvious to one of ordinary skill in the art that the preformatted messages in Simionescu comprise at least one packet. RX-0536C at Q/A 230. The arguments that SIPCO raises with respect to this limitation were addressed above in the context of the preformatted messages limitation. Accordingly, this limitation is rendered obvious in view of Simionescu's disclosure of "RF packets."

(H) a receiver address comprising a scalable address

As discussed above, Simionescu discloses that its DAs are "individually addressable." JX-0133 at 11:51-55. Respondents rely on Jednacz to disclose a "scalable address" meeting the limitations of the '893 patent. RIB at 79-81. Jednacz describes a "destination block 55, which is the address of the combination for which the packet's control data is intended. The address can be completely arbitrary, or can contain portions identifying the building (useful if adjacent building interference is a recognized problem) as well as addresses within groups." JX-0131 at 14:18-23. Jednacz further discloses that "[i]ncreasing the length of the address, by increasing the number of levels or increasing the number of bits per digit, allows use of this scheme for buildings with a large number of rooms." *Id.* at 13:21-26. In Dr. Madisetti's opinion, the "destination block" address in Jednacz meets the "scalable address" limitation of the '893 patent, representing an address for a receiver that has a variable size based on the size and complexity of the system. RX-0536C at Q/A 231. Dr. Almeroth contends that the "destination block" in Jednacz is not variable because the buildings described in Jednacz are likely to have a fixed number of rooms. CX-1850C at Q/A 465. This is an overly restrictive reading of the claim

construction for "scalable address," however. Jednacz explicitly discloses that the length of its address can increase with the size of a building, which meets the requirements for this limitation.

SIPCO further argues that Respondents have failed to show that one of ordinary skill in the art would have combined the communication system of Simionescu with the addresses disclosed in Jednacz. CIB at 73-75. Dr. Almeroth submits that Simionescu and Jednacz are in different fields, with Simionescu describing a sensor network in a wide geographic area and Jednacz describing a control system in a building. CX-1850C at Q/A 211. Dr. Almeroth submits that this distinction is significant because the system in Simionescu is likely to be battery-powered while the system in Jednacz is hard-wired, raising different concerns for power consumption. *Id.* at Q/A 212-13. In addition, Dr. Almeroth identifies differences in the network architecture described in Simionescu and Jednacz, describing the Simionescu network as "hierarchical" while the Jednacz network is "distributed." *Id.* at Q/A 211, 216. Respondents disagree with Dr. Almeroth's criticisms, and Dr. Madisetti submits that "Simionescu and Jednacz are in the same field, are similarly structured, and identify several advantageous reasons why a POSITA would have been motivated to apply Jednacz's teachings in implementing Simionescu." RX-0536C at Q/A 176.

As discussed above, I agree with Respondents that using a preformatted message in Simionescu's "communication protocol" would have been obvious to one of ordinary skill in the art. Jednacz discloses an example of a preformatted message in the prior art, but it does not necessarily follow that every feature of Jednacz's message format would have been obvious to implement in combination with Simionescu. As recognized by Dr. Almeroth, the message format in Jednacz includes a "route" field that would not be needed for the network in Simionescu. CX-1850C at Q/A 463. With respect to the "receiver address" limitation,

Respondents have failed to identify any motivation for incorporating Jednacz's scalable address with Simionescu. Jednacz describes a need for such scalability based on the size of a building, but Respondents identify no similar disclosure in Simionescu that would motivate one of ordinary skill in the art to implement a scalable address. Dr. Madisetti's suggestion to combine Jednacz with Simionescu appears to be driven by hindsight, using the specification and claims of the '893 patent to guide his opinions rather than the disclosures in the prior art. *See Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008) ("In other words, Mylan's expert, Dr. Anderson, simply retraced the path of the inventor with hindsight, discounted the number and complexity of the alternatives, and concluded that the invention [] was obvious. Of course, this reasoning is always inappropriate for an obviousness test . . . .").

Accordingly, Respondents have failed to show that the "scalable address" limitation is obvious in view of Simionescu in combination with Jednacz.

(I) a sender address comprising the unique address of the sending transceiver

The message format in Jednacz includes a "source" block: "The first information block 52 is the address of the node or transceiver which originated the packet." JX-0131 at 14:5-7, Fig. 6a. Although there is no dispute that this limitation is disclosed in Jednacz, Respondents identify no motivation for one of ordinary skill in the art to combine this feature of Jednacz with Simionescu, and Dr. Madisetti's testimony regarding this limitation is conclusory. RX-0536C at Q/A 231. Accordingly, Respondents have failed to show that the "sender address" limitation is obvious in view of Simionescu in combination with Jednacz.

(J) a command indicator comprising a command code

As discussed above, I agree with Respondents that Simionescu discloses transmitting commands to remote devices: "Once the query or command sent by APP 112 is received by DA 102, the appropriate response or action is taken." JX-0133 at 6:45-47. In addition, there is no dispute that the message format in Jednacz includes a "command" block: "a command block 56, which may contain various kinds of network information or packet description, such as 'acknowledgment,' or the packet length, or priority information; or may designate that some special response is required of the combination such as transmitting a test signal." JX-0131 at 14:23-29, Fig. 6a. Respondents identify no motivation for one of ordinary skill in the art to combine the command block in Jednacz's message format with Simionescu's transmitted commands, however, and Dr. Madisetti's testimony regarding this limitation is conclusory. RX-0536C at Q/A 231. Accordingly, Respondents have failed to show that the "command indicator" limitation is obvious in view of Simionescu in combination with Jednacz.

(K) at least one data value comprising a scalable message

As discussed above, I agree with Respondents that Simionescu discloses receiving data from remote devices. *See, e.g.,* JX-0133 at 8:45-55, 9:32-48, 10:7-15. In addition, there is no dispute that the message format in Jednacz includes a "data" field, which is scalable: "Different packets may be of different lengths, usually because of differing lengths of the data field 57." JX-0131 at 14:65-66, Fig. 6a. Respondents identify no motivation for one of ordinary skill in the art to implement Jednacz's scalable message to transmit data in Simionescu's network, however, and Dr. Madisetti's testimony regarding this limitation is conclusory. *See* RX-0536C (Madisetti

DWS) at Q/A 231. Accordingly, Respondents have failed to show that the "scalable message" limitation is obvious in view of Simionescu in combination with Jednacz.

(L) a redundancy check error detector

Simionescu describes "forward error correction (FEC) with bit scrambling and data interleaving to decode damaged packets." JX-0133 at 9:27-31. The message format in Jednacz includes a "check" block: "The check block 58 is the last transmitted in most formats. This may follow any desired error checking or correction routine, and may be more or less than one byte in length." JX-0131 at 14:33-35, Fig. 6a. Respondents identify no motivation for one of ordinary skill in the art to implement Jednacz's check block to perform the error correction described in Simionescu, however, and Dr. Madisetti's testimony regarding this limitation is conclusory. *See* RX-0536C (Madisetti DWS) at at Q/A 231. Accordingly, Respondents have failed to show that the "error detector" limitation is obvious in view of Simionescu in combination with Jednacz.

(M) the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages

As discussed above, Dr. Madisetti identifies Simionescu's microprocessor, microcontroller, and I/O interface connector comprising the part of each DA that sends commands and receives data from other DAs and meeting the limitations for the claimed "controller." RX-0536C at Q/A 233. Dr. Madisetti explains that it would have been obvious to one of ordinary skill in the art to use this controller to send and receive preformatted messages, citing the example of the message format in Jednacz. *Id.* at Q/A 234. For the reasons discussed above in the context of the "controller" and "preformatted messages" limitation, I agree with Respondents that this limitation is obvious in view of Simionescu alone or in combination with Jednacz.

For the reasons discussed above with respect to each of the limitations specifying what the claimed "packet comprises," however, Respondents have failed to show that claim 1 of the '893 patent is obvious in view of Simionescu in combination with Jednacz.

ii. Claim 2

With respect to claim 2, Dr. Madisetti identifies the claimed "integrated transceiver" disclosed in Simionescu's RF transceiver 210 and I/O interface connector 204 coupled to I/O device 206, which is attached to multiple sensors. RX-0536C at Q/A 235. In particular, Figure 5 of Simionescu depicts that "I/O device 260 is attached to multiple sensors, which in this example are the gas, water, and electric meters 502, 504, 506 typically found at a residence." JX-0133 at 9:32-36, Fig. 5. There is no dispute that Simionescu thus discloses the limitations recited in claim 2, but for the reasons discussed above with respect to claim 1, Respondents have failed to show that claim 2 is obvious in view of Simionescu in combination with Jednacz.

iii. Claim 10

With respect to claim 10, Dr. Madisetti identifies the claimed "actuated transceiver" disclosed in Simionescu's RF transceiver 210 connected to a "unit of active equipment," such as "fertilizing or irrigation equipment." RX-0536C at Q/A 236 (citing JX-0133 at 5:58-6:10). With respect to the claimed "second condition" and "third condition," Dr. Madisetti refers back to his discussion regarding the communication of commands and sensed data disclosed in Simionescu. *Id.* at Q/A 237-38. Dr. Almeroth submits that Simionescu fails to disclose an "actuator" that "actually controls any specific active function," CX-1850C at Q/A 470, but Simionescu discloses that each DA 102 can control sensors and other equipment through the I/O interface. JX-0133 at 5:58-6:10, 9:32-53. Nevertheless, for the reasons discussed above with respect to claim 1,

Respondents have failed to show that claim 2 is obvious in view of Simionescu in combination with Jednacz.

iv. Claim 19

Respondents contend that Simionescu renders claim 19 of the '893 patent obvious in combination with Jednacz.[26] RIB at 82-86; RX-0536C (Madisetti DWS) at Q/A 239-48. The parties' arguments with respect to claim 19 are substantially identical to those discussed above in the context of claim 1. *See* CIB at 76; CX-1850C (Almeroth RWS) at Q/A 471-75. Accordingly, as discussed above, Respondents have failed to show that claim 19 is obvious in view of Simionescu in combination with Jednacz because they have failed to identify any motivation for incorporating the relevant elements of the "packeting means" disclosed in Jednacz into the networking protocol of Simionescu.

b. Cunningham

Respondents contend that Cunningham renders the asserted claims of the '893 patent obvious in combination with U.S. Patent No. 5,673,252 (RX-0003, "Johnson"). Dr. Madisetti's testimony includes an analysis of the '893 patent claims in view of these prior art references. RX-0536C at Q/A 326-68; RDX-0008.

i. Claim 1

Respondents contend that Cunningham renders claim 1 of the '893 patent obvious in combination with Johnson, a U.S. Patent that issued in September 1997 and describes a

[26] Respondents also offer a further combination with Buchholz, a U.S. Patent that issued in August 1995 and describes a protocol for segmenting a large data packet into smaller segments for transmission, and then reassembling the message. RX-0001. Dr. Madisetti relies on Buchholz for disclosures of certain components of the '893 patent's packet structure depicted in Figure 7 of the specification, RX-0536C at Q/A 242, but as discussed above in the context of infringement, these are not required limitations of claim 19's "packeting means."

communications protocol using packets transmitted through intermediate data terminals. RX-0003 at Abstract.[27]

The parties have not addressed whether the preamble of claim 1 is limiting, but Dr. Madisetti nevertheless identifies disclosures in Cunningham describing a system for communicating commands and sensed data between remote devices. RX-0536C at Q/A 332. There is no dispute with respect to the preamble of claim 1 in view of Cunningham.

(A) a plurality of transceivers

Dr. Madisetti identifies the data collection modules disclosed in Cunningham as the "plurality of transceivers" in claim 1. RX-0536C at Q/A 312. There is no dispute that this limitation is rendered obvious by Cunningham.

(B) each transceiver has a unique address

Cunningham discloses that "[e]ach data repeater module processor and router has a unique internal, Class C subnet IP address." JX-0149 at 35:3-8; *see* RX-0536C (Madisetti DWS) at Q/A 334. There is no dispute that the "unique address" limitation is thus rendered obvious by Cunningham.

(C) each transceiver is geographically remote from the other of the plurality of transceivers

Cunningham repeatedly describes "remote monitoring" and data collection "in remote areas," describing a specific embodiment where "the sensor interface module is located at a maximum distance of 600 ft. to 2000 ft. from a data collection module." JX-0149 at 14:1-11; *see* RX-0536C (Madisetti DWS) at Q/A 335. There is no dispute that the "geographically remote" limitation is thus rendered obvious by Cunningham.

[27] SIPCO does not dispute the prior art status of Johnson.

(D) communication via preformatted messages

Cunningham describes communication using "SLIP encapsulated Internet Protocol (IP) datagrams," which are transmitted as Radio Data Protocol (RDP) packets within Transmission Data Protocol (TDP) packets. JX-0149 at 36:1-41:13. The specification shows the format of these packets:

TDP

Preamble	Sync Word	Destination	Src	Cmd	Data	Next Freq	CRC	
7E 7E 7E 7E	CF A3 59 3E	XX XX XX XX	XX	XX	256 bytes	XX	XX XX	20 to
4	4	4	1	1	0–275	1	2	291 bytes

<RDP Packet>

RDP

Sync Word	Destination	Src	Cmd	# Routes	Routes	Sequence	Length	Data	
CF A3 59 3E	XX XX XX XX	XX	XX	XX	15 bytes	XX	XX	255 bytes	13 to
4	4	1	1	1	0–15	1	1	0–255	283 bytes

IP

<32 bits>

0	Version/IHL	Type of Service	Total Length
4	Identification		0/DR/MF/Fragment Offset
8	TTL	Protocol	Header Checksum
12	Source Address		
16	Destination Address		
20	Options/Padding		
24	Data		

Id. at 40:35-41:13; *see* RX-0536C (Madisetti DWS) at Q/A 336. There is no dispute that the "preformatted messages" limitation is thus rendered obvious by Cunningham.

(E) a controller connected to one of the plurality of transceivers, the controller being in communication with each of the plurality of transceivers

Dr. Madisetti identifies the CPU in Cunningham's data collection modules as the claimed "controller" of the '893 patent. RX-0536C at Q/A 337. Cunningham explains that "[e]ach data collection module has a processor which talks to a router which talks to a radio which transmits and receives signals." JX-0149 at 33:45-55. There is no dispute that the "controller" limitation is thus rendered obvious by Cunningham.

(F) the controller communicating via preformatted messages

As discussed above, Cunningham discloses communication via Transmission Data Protocol (TDP) packets, which contain Radio Data Protocol (RDP) packets carrying IP datagrams. JX-0149 at 36:1-41:13. There is no dispute that Cunningham thus discloses a controller that communicates via preformatted messages.

(G) the preformatted messages comprise at least one packet

There is no dispute that the TDP and RDP packets in Cunningham meet the limitation requiring that the preformatted messages comprise at least one packet.

(H) a receiver address comprising a scalable address

Cunningham discloses a "destination" field in the RDP packet, and Respondents rely on a combination of Cunningham with Johnson to show that it would have been obvious to make this field a "scalable address." RIB at 88-91. Johnson discloses a packet structure wherein "[t]he source or destination address is specified in an expanding, in byte units, address field." RX-0003 at 38:38-39. Dr. Madisetti explains that the size of the address field in Johnson changes based on

certain circumstances. RX-0536C at Q/A 339. Specifically, Johnson describes "broadcast addressing," with different address sizes:

> For network service modules, broadcast addressing arises in several different circumstances, and is handled differently for each. Some information is intended for all network service modules, and is identified only by the slot/subchannel the information occupies; no address is specified. Some information is intended for only one type of network service module. The information may be identified either by subchannel only or by using the network service module type as the address. Some information is intended for only one network service module, and network service module type and address are required; alternatively, type may be omitted if implied by subchannel. Finally, some information is intended only for a subset, or tier, of the network service modules of a particular type. In this case, all network service modules which recognize a tiered address have, in addition to their normal ID, a 24-bit tier address assigned to them.

RX-0003 at 42:18-34. A type of message broadcast to a class is depicted in Johnson's Figure 42, where an [NSMTYP] address field has a size of 8 bits and is described as optional. *Id.* at 55:40-48. Another type of message is an individually addressed broadcast, which is depicted in Johnson's Figure 43, adding an NSMADR address field of 32 bits to the optional [NSMTYP] field. *Id.* at 55:49-59.

FIG. 42

ADDRESS	CONTROL		NETWORK MESSAGE	
[NSMTYP]	MSGTYPE	APPL. DEP.	APPLICATION COMMAND	DATA LINK LAYER
				NETWORK LAYER
(8/0)	(4)	(4)	(52/60)	(BITS)

FIG. 43

ADDRESS		CONTROL		NETWORK MESSAGE	
[NSMTYP]	NSMADR	MSGTYPE	APPL. DEP.	APPLICATION COMMAND	DATA LINK LAYER
					NETWORK LAYER
(8/0)	(32)	(4)	(4)	(20/28)	(BITS)

Id. at Fig. 42, Fig. 43. Johnson further discloses tiered addressing that "includes two parts, the first is a 24-bit pattern and the second is a 24-bit mask selecting which of the pattern bits must match corresponding bits of a network service module's assigned tier address for that network service module to be addressed. *Id.* at 42:34-39.

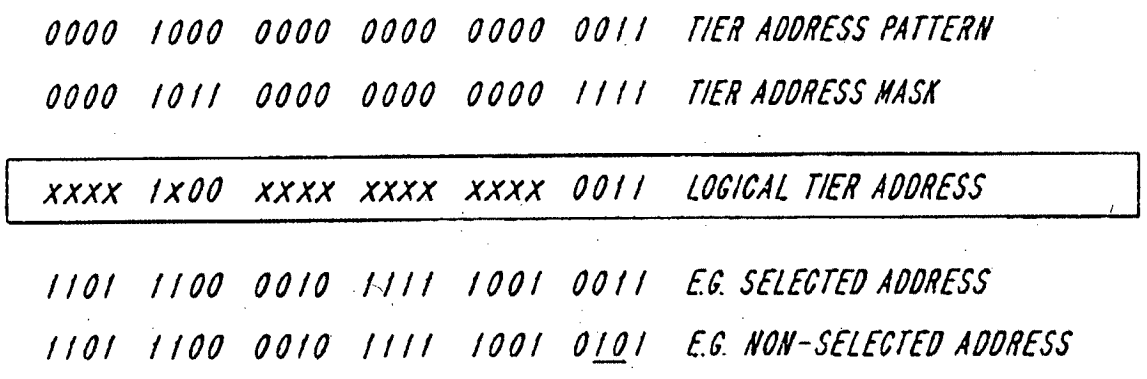

FIG. 36

Id. at Fig. 36, 41:38-53. Dr. Madisetti offers his opinion that these three addressing schemes disclose scalable addresses, with Figure 42 showing scalability between 0-bit and 8-bit addresses, Figure 43 showing scalability between 32-bit and 40-bit addresses, and Figure 36 showing a two-part address of 48 bits. RX-0536C at Q/A 339. Respondents contend that each of these addressing schemes discloses a "scalable address," with addresses that change in size based on the size and complexity of the system. RIB at 88-90.

SIPCO disagrees with Respondents' interpretation of Johnson, arguing that the address fields identified by Dr. Madisetti are fixed in size for different types of messages. CIB at 78-79. As Dr. Almeroth explains, the part of the address field in each of Johnson's embodiments that is "an address of at least one of the intended receiving transceivers" (the scalable address in the claim construction for "receiver address") is fixed in size at 32 bits for the NSMADR address and fixed in size at 24 bits for the tier address pattern. CX-1850C at Q/A 482. The optional

[NSMTYP] address is fixed in size at 8 bits. *Id.*[28] I agree with SIPCO that none of the three examples of addresses in Johnson meet the "scalable address" limitation of the '893 patent.

Respondents argue in the alternative that the collective disclosure of these different addressing schemes with different sized addresses in Johnson renders the "scalable address" limitation obvious. RIB at 88-90. The NSMADR address is 32 bits while the tier address pattern is 24 bits, and Dr. Madisetti suggests that the difference in size for these addresses is based on the size and complexity of the network. RX-0536C at Q/A 341. Respondents cite no disclosure in Johnson to support Dr. Madisetti's opinion, however, and there is no evidence that Johnson describes any scalability between the address fields in the tiered addressing depicted in Figure 36 and the broadcast messages in Figures 42 and 43. I thus agree with SIPCO that Johnson merely discloses different address lengths in different message types used for different purposes, CIB at 78-79, and Respondents have failed to show that Johnson discloses a "scalable address" or renders this limitation obvious.[29]

Dr. Madisetti identifies several reasons that a person of ordinary skill in the art would have been motivated to combine Cunningham with the addressing schemes disclosed in Johnson,

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[28] The optional [NSMTYP] address in Johnson is not "an address of at least one of the intended receiving transceivers" because it is used to broadcast a message to a class of receivers, rather than addressing a particular transceiver. *See* RX-0003 at 55:39-48 (describing "Broadcast to Class Address Messages").

[29] The Patent Trial and Appeal Board (PTAB) of the USPTO addressed a similar "receiver address" limitation in a related SIPCO patent, finding that neither of the three identified addressing schemes in Johnson disclosed a "scalable address." RX-0372 (IPR2016-01896, Final Written Decision (Mar. 21, 2018)) at 25. The PTAB concluded, however, that the collective disclosure of varying sizes of addresses for the three types of messages in Johnson met the "scalable address" limitation, based on a construction that was "not limited to a scalable unique address." *Id.* at 26-27. This construction was recently reversed by the Federal Circuit, however, in *SIPCO, LLC v. Emerson Elec. Co.*, and remanded to the PTAB for further proceedings. 2019 WL 6998644, slip op. at 8-9, Case No. 2018-1856 (Fed. Cir. Dec. 20, 2019).

RX-0536C at Q/A 302, but since Johnson does not disclose a "scalable address," no such combination would render this limitation obvious.

(I) a sender address comprising the unique address of the sending transceiver

Cunningham discloses a "Src" field in the RDP packet and a "Routes" field that contains a "source address." JX-0149 at 40:31-67; *see* RX-0536C (Madisetti DWS) at Q/A 342. There is no dispute that the "sender address" limitation is thus rendered obvious by Cunningham.

(J) a command indicator comprising a command code

Cunningham discloses a "Cmd" field in the RDP packet that contains "RDP commands." JX-0149 at 38:1-38; *see* RX-0536C (Madisetti DWS) at Q/A 343. There is no dispute that the "command indicator" limitation is thus rendered obvious by Cunningham.

(K) at least one data value comprising a scalable message

Cunningham discloses a "Data" field in the RDP packet with a size that is scalable from 0-255 bytes. JX-0149 at 40:31-67; *see* RX-0536C (Madisetti DWS) at Q/A 344. There is no dispute that the "data value" and "scalable message" limitations are thus rendered obvious by Cunningham.

(L) a redundancy check error detector

Cunningham discloses a "CRC" field in the TDP packet and explains that this is a "cyclic redundancy check," which "can be used as signal verification information" and for "detecting burst errors occurring in the communication signal transmission." JX-0149 at 15:33-16:6, 40:2-7; *see* RX-0536C (Madisetti DWS) at Q/A 354. There is no dispute that the "error detector" limitation is thus rendered obvious by Cunningham.

(M) the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages

As discussed above, Dr. Madisetti identifies the CPU in Cunningham's data collection modules as the claimed "controller," and each data collection module communicates through a radio. RX-0536C at Q/A 337. Dr. Madisetti further explains that this controller sends and receives TDP packets containing a "demand" or "request" for data and receives TDP packets in response. *Id.* at Q/A 346. There is no dispute that the "command messages" and "response messages" limitations are thus rendered obvious by Cunningham.

For the reasons discussed above with respect to the "scalable address" limitation, however, Respondents have failed to show that claim 1 of the '893 patent is obvious in view of Cunningham in combination with Johnson.

ii. Claim 2

Cunningham discloses that that "the device may have communication capabilities that allow for a direct connection to the data collection module without requiring the use of a sensor interface module." JX-0149 at 10:6-9. In particular, "the flow computer can be programmed to directly communicate with the data collection module and, thus, bypass the sensor interface module." *Id.* at 9:62-65. Dr. Madisetti explains that these disclosures show that Cunningham discloses an "integrated transceiver" meeting the limitations of claim 2. RX-0536C at Q/A 347-49. There is no dispute that Cunningham discloses these limitations, but for the reasons discussed above with respect to claim 1, Respondents have failed to show that claim 2 is obvious in view of Cunningham in combination with Johnson.

iii. Claim 10

Cunningham describes device adjustment modules, which are used to "control a Johnson Control™ thermostat by attaching a device control module with a power system, processor with associated firmware, and a radio." JX-0149C at 46:64-47:10. Dr. Madisetti relies on this disclosure and the description of an "integrated transceiver" discussed above in the context of claim 2 as evidence that Cunningham discloses the claimed "actuated transceiver" of claim 10. RX-0536C at Q/A 350-52. Dr. Almeroth submits that Cunningham's disclosures fail to describe an "actuator," suggesting that one of ordinary skill in the art would know that device adjustment modules could control devices "via a separate mechanism." CX-1850C at Q/A 488. Dr. Almeroth does not explain what alternate mechanisms would be used, however, and his testimony fails to rebut Dr. Madisetti's opinion that an actuated receiver would be obvious to one of ordinary skill. Dr. Madisetti further identifies the claimed "second condition" with "sensed data signals" from devices such as a thermometer that would be part of the thermostat disclosed in Cunningham. RX-0536C at Q/A 353. Dr. Madisetti identifies the claimed "third condition" with "control signals" in the air conditioning and heating system that would be controlled by the thermostat disclosed in Cunningham. *Id.* at Q/A 354. This is sufficient to show that Cunningham discloses each limitation recited in claim 10, but for the reasons discussed above with respect to claim 1, Respondents have failed to show that claim 2 is obvious in view of Cunningham in combination with Johnson.

iv. Claim 19

Respondents contend that Cunningham renders claim 19 of the '893 patent obvious in combination with Johnson. RIB at 94-96; RX-0536 (Madisetti DWS) at Q/A 355-68. The parties' arguments with respect to claim 19 are substantially identical to those discussed above in

the context of claim 1. *See* CIB at 78-79; CX-1850C (Almeroth RWS) at Q/A 489. Accordingly, as discussed above, Respondents have failed to show that claim 19 is obvious in view of Cunningham in combination with Johnson because neither of these references discloses the claimed "scalable address."

c. Mason

Respondents contend that Mason renders the asserted claims of the '893 patent obvious in combination with Shuey, C12.18, the LonTalk Protocol Specification (RX-0331, "LonTalk"), and the Electronic Industries Alliance Standard, Control Network Protocol Specification, EIA709.1 (JX-0148, "EIA709.1"). RIB at 96-105.

i. Claim 1

Respondents contend that Mason renders claim 1 of the '893 patent obvious in combination with LonTalk, a document describing a network standard from Echelon Corp. that is dated 1994 (RX-0331),[30] and EIA709.1, a technical specification published in March 1998 (JX-0148), further relying on disclosures in C12.18 (JX-0147) and Shuey (RX-0409).

[30] SIPCO disputes whether the LonTalk specification was publicly accessible before the priority date of the '893 patent, noting that it bears a documentation number that could suggest that it was an internal document. CIB at 82-83; CX-1850C (Almeroth RWS) at Q/A 495. As evidence of public availability, Respondents identify references to the LonTalk protocol in other prior art documents. *See* JX-0134 at 17:7-8 (Mason describes "the (LonTalk)-Talk protocol"); RX-0338 at 2:49-55 (a patent filed in 1995 describes "the LonTalk™ protocol developed by Echelon Corporation"). SIPCO has identified no reason to doubt that these prior art references to "LonTalk" refer to the same protocol described in the LonTalk specification. Accordingly, even if it is not clear whether the 1994 LonTalk specification (RX-0331) qualifies as prior art as a printed publication, the record shows that the LonTalk protocol was in use prior to the critical date. Accordingly, I find that the LonTalk specification qualifies as prior art under 35 U.S.C. § 102(b) as a description of a protocol that was in use before the priority date of the '893 patent.

(A) Undisputed Limitations

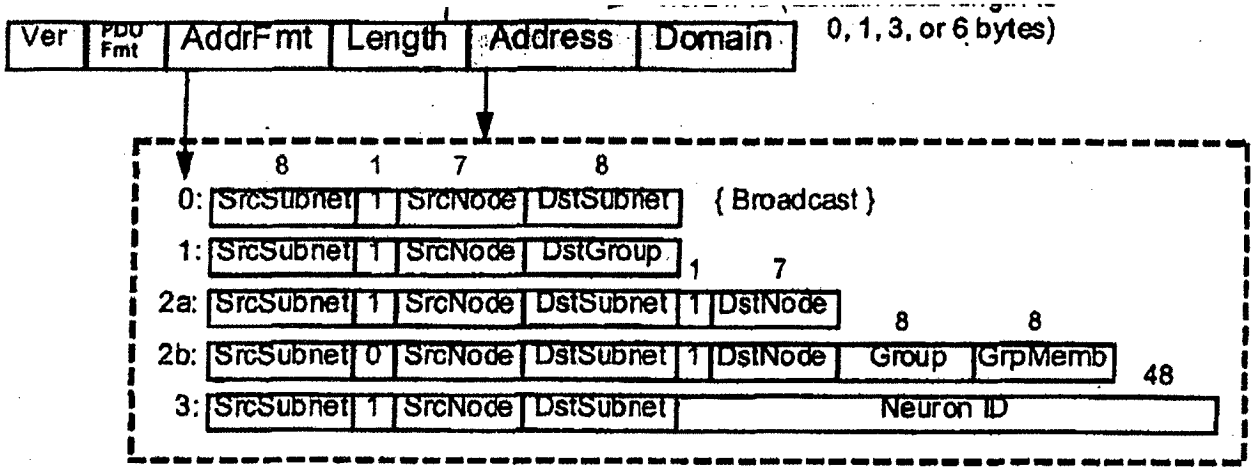
There is no dispute that Mason discloses many of the limitations in claim 1, and Dr. Madisetti addresses these limitations by referring back to his opinions with respect to the '708 patent. RX-0536C at Q/A 515. In particular, Mason discloses an automatic meter reading ("AMR") system in which a plurality of meters communicate with a node using wireless messages formatted according to the CEBUS protocol. JX-0134 at 5:32-57, Fig. 1. Each meter contains an RF transceiver, an "electric metering board," and a "CEBus RF Board" that controls the transceiver. *Id.* at 16:57-65, Fig. 2. The meters are assigned unique addresses, which are specified in the CEBUS protocol. *Id.* at 7:19-54. The messages comprise packets with fields defined by the CEBUS protocol:

Ctrl	DA	DHC	SA	SHC	NPDU header	APDU header	CAL Overhead	User defined header	C12.18 appl layer cmd	Cks
02	null	null	null	10 00	50	B4 A8 yy yy yy yy	50 F4 31 30 F6	00 00 00 00 00 04 1A	30 08 05	xx

Id. at 13:13-60. There is no dispute that these packets comprise a sender address ("SHC"), and a one byte checksum ("Cks"), and that the controller sends command messages and receives response messages. *Id.* at 7:19-54, 13:13-60, 15:49-54. SIPCO only disputes Mason's disclosure of the claimed "scalable address," "command indicator," and "scalable message." CIB at 81-82; CRB at 32-34.

(B) "scalable address"

With respect to the "scalable address" limitation, Respondents rely on a combination of Mason with EIA709.1 and LonTalk. RIB at 99-100. EIA709.1 describes five address formats for its address field:



JX-0148 at 150, Fig. 36; *see also* RX-0331 at 112. The first two address formats are 8 bits in length: "Address format #0 facilitates domain-wide broadcast;" and "Address format #1 supports multicast message delivery." JX-0148 at 150. The next two address formats are 16 bits and 32 bits in length: "Address format #2 has two variants. With variant #2a, both the source and the destination address are of the form (subnet, node). . . . Variant #2b supports group acknowledgments." *Id.* The fifth address format is 56 bits long: "Address format #3 supports addressing by Unique_Node_ID." *Id.* According to Dr. Madisetti, these address formats meet the "scalable address" limitation of the '893 patent, because different size addresses are used for different types of messages and different destinations. RX-0536C at Q/A 518.

SIPCO disagrees with Respondents' interpretation of EIA709.1, arguing that the address fields are fixed in size for each type of message. CIB at 81. These arguments are similar to those addressed above in the context of the Johnson reference, and I agree with SIPCO that none of the five address formats disclosed in EIA709.1 are a "scalable address." In particular, address format #1 and #2 are for domain-wide and multicast messages, and thus do not identify the address of one receiving transceiver. The portion of address format #2 that addresses the destination node is fixed at 7 bits. Address format #3 uses a long address "to facilitate address

assignment," but this is fixed at 48 bits. As discussed in the context of infringement, using a short address for communication in the network while using a long address for joining the network is not a "scalable address" in the context of the '893 patent.

Respondents further argue that the disclosure of these different address formats renders the "scalable address" limitation obvious. RIB at 99-100. But there is no evidence that the size of the address field in any of the EIA709.1 address formats scales based on the size and complexity of the network. EIA709.1 describes a 7-bit address in format #2 "for unicast message delivery and acknowledgements" and a 48-bit address in format #3 "to facilitate address assignment." As discussed above in the context of the Johnson prior art, this merely describes different address lengths in different message types used for different purposes. Accordingly, Respondents have failed to show that the address formats in EIA709.1 disclose a "scalable address" or render this limitation obvious.[31]

Dr. Madisetti identifies several reasons that a person of ordinary skill in the art would have been motivated to combine Mason with the address schemes disclosed in EIA709.1, relying on Mason's explicit reference to the LonTalk protocol, a predecessor to EIA709.1. RX-0536C at Q/A 484. Dr. Madisetti notes that the description of the LonTalk protocol in 1994 (RX-0331) is "substantively identical" to the EAI709.1 specification. *Id.* at Q/A 461. In particular, the same five address formats are depicted in the "LonTalk Protocol Data Unit Summary." RX-0331 at 112. SIPCO argues that EIA709.1 and LonTalk are not compatible with the CEBUS protocol

[31] The Patent Trial and Appeal Board (PTAB) of the USPTO addressed a similar "receiver address" limitation in a related SIPCO patent, finding that "EIA709.1 is scalable at least as to formats #2a, 2b, and #3." RX-0372 (IPR2016-01896, Final Written Decision (Mar. 21, 2018)) at 42-43. The PTAB's finding was based on a construction of "scalable address" that was "not limited to an address of a single unique receiver," however, and this construction was recently reversed by the Federal Circuit. *See supra*, n. 29.

disclosed in Mason, CIB at 79-80, but Mason explicitly states that "the claims are not restricted to embodiments of the invention in which the CEBus protocol is used. For example, the (LonTalk)-Talk protocol with RF may be employed." JX-0134 at 17:4-8. This is an explicit invitation to combine the teachings of Mason with the LonTalk/EIA709.1 protocol, and accordingly, I find that Respondents have shown that it would have been obvious for persons of ordinary skill in the art to make this combination.

As discussed above, however, the LonTalk/EIA709.1 protocol does not disclose or render obvious the "scalable address" limitation, and accordingly, the combination of Mason with LonTalk or EIA709.1 does not invalidate this claim.

(C) "a command code" and a "scalable message"

SIPCO disputes whether Mason discloses a "command indicator comprising a command code" and "a data value comprising a scalable message." CIB at 81. As discussed above in the context of the '708 patent, however, Mason explicitly teaches that the format of its communications "will adhere to the ANSI C12.18 standard protocol for meter communications." JX-0134 at 9:37-40. It is undisputed that C12.18 discloses command codes. *See* CIB at 134 ("Respondents also propose to import into Mason's packets an application layer command such as C12.18's 'write' command. Although it is a 'command code," C12.18's 'write' command would also be formatted into the message by Mason's RF node/collector 18, not a repeating utility meter."); *see also* JX-0147.0011-.0012 (listing application layer "<requests>"). Moreover, C12.18 teaches that packets are "variable" length." JX-0147 ("Default packet size is 64 bytes, although a larger size can be negotiated"). These disclosures are sufficient to render obvious the "command code" and "scalable message" limitations of the '893 patent.

For the reasons discussed above with respect to the "scalable address" limitation, however, Respondents have failed to show that claim 1 of the '893 patent is obvious in view of Mason in combination with the identified references.

ii. Claim 2

Mason discloses meters that comprise "an integral CEBUS RF transceiver" and a "set of analog transducers" used to detect a condition (*e.g.*, "reading of electrical energy, water flow and gas usage") being monitored by the meter, and output the sensed data from the transducer to the meter's CEBUS transceiver, meeting the limitations of claim 2. JX-0134 at 5:58-64, 16:40-65, Fig. 2; *see* RX-0536C (Madisetti DWS) at Q/A 538-39. There is no dispute that Mason discloses these limitations, but for the reasons discussed above with respect to claim 1, Respondents have failed to show that claim 2 is obvious in view of Mason in combination with the identified references.

iii. Claim 10

Mason discloses that its meters include a sensor that detects multiple conditions and outputs sensed data to the transceiver, with the ability to disconnect meters or use them for "automation." JX-0134 at 5:58-64, 16:40-65. Dr. Madisetti submits that these disclosures meet the limitations of claim 10. RX-0536C at Q/A 540-42. SIPCO disputes whether Mason discloses an "actuator" as required by claim 10, but as discussed above in the context of the '708 patent, Mason's "disconnect switch drive circuit" is an actuator that meets this limitation. Mason thus discloses these limitations, but for the reasons discussed above with respect to claim 1, Respondents have failed to show that claim 2 is obvious in view of Mason in combination with the identified references.

iv. Claim 19

Respondents contend that Mason renders claim 19 of the '893 patent obvious in combination with LonTalk/EIA709.1, Shuey, and C12.18. RIB at 103-05; RX-0536 (Madisetti DWS) at Q/A 543-56. The parties' arguments with respect to claim 19 are substantially identical to those discussed above in the context of claim 1. *See* CIB at 81-82; CX-1850C (Almeroth RWS) at Q/A 534-37. Accordingly, as discussed above, Respondents have failed to show that claim 19 is obvious in view of Mason in combination with the identified references because none of these references discloses the claimed "scalable address."

3. Obviousness-Type Double Patenting

Respondents contend that the asserted claims of the '893 patent are invalid for obviousness-type double patenting in view of claim 5 of U.S. Patent No. 7,650,425 (RX-0024, the "'425 patent"). RIB at 105-17. As an initial matter, SIPCO argues that the '425 patent cannot be relied upon for obviousness-type double patenting because this patent has been disclaimed. CIB at 83-85. The Federal Circuit has held, however, that patent owners cannot "avoid double patenting by disclaiming the earlier patent." *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 967-68 n.5 (Fed. Cir. 2001). The '425 patent names Thomas Petite as a co-inventor, is assigned to SIPCO, and there is no dispute that it has expired. RX-0024. Accordingly, the '425 patent may be the basis for obviousness-type double patenting with respect to the '893 patent.

Respondents admit, however, that "scalable address" of the '893 patent is not claimed in the '425 patent, which only recites a "to address." RIB at 109-110 (citing RX-0024 at claim 4). Respondents attempt to meet this limitation by relying on Dr. Madisetti's testimony that "a scalable address is, at most, an obvious variation of an address." RX-0536C at Q/A 813. As

discussed above in the context of Respondents' other invalidity contentions, however, Dr. Madisetti's testimony is not clear and convincing evidence that this limitation is obvious. Accordingly, none of the asserted claims are invalid for obviousness-type double patenting in view of the '425 patent.

4. Indefiniteness

Respondents contend that claim 10 of the '893 patent is invalid as indefinite because of the missing "first condition." RIB at 15-16. Dr. Madisetti submits that one of ordinary skill in the art "would not have been able to ascertain with reasonable certainty the meaning of 'second condition' and 'third condition' in Claim 10 because no condition (including no first condition) is recited in the relevant claims." RX-0536C at Q/A 1021. Dr. Almeroth disagrees with this opinion, submitting that "the claim language is clear and a person of ordinary skill in the art could readily understand the scope of the claim without difficulty." CX-1850C at Q/A 650. Dr. Almeroth further points to the claim language regarding the "second condition" (associated with a sensor) and the "third condition" (associated with an actuator) to explain how one of ordinary skill in the art would understand the scope of these limitations. *Id.* at Q/A 651. In addition, Dr. Almeroth identifies the disclosure of several sensors and actuators in the specification that would inform one of ordinary skill in the art regarding the meaning of the claimed conditions. *Id.* at Q/A 653 (citing '893 patent at 2:38-41, 3:53-56, 6:14-25, Fig. 2, Fig. 3, Fig. 4, Fig. 5). The specification of the '893 patent thus provides examples of at least three sensor and actuator conditions, and I find that this is sufficient "to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Accordingly, claim 10 of the '893 patent is not invalid for indefiniteness.

VI. DOMESTIC INDUSTRY

A. Background

As discussed above, SIPCO claims to satisfy the technical prong of the domestic industry requirement using the products of its licensee, Honeywell. [redacted]. JX-0184C at ¶¶ 2.1, 1.11, 1.19. 1.20. 1.22. The Honeywell license [redacted]. *Id.* at ¶¶1.7, 3.2, Ex. C. CIB at 48. SIPCO presents no investments by Honeywell with respect to the DI products.[32]

SIPCO asserts instead that its own licensing expenditures satisfy the economic prong under subparagraphs (A), (B), and (C) of section 337(a)(3). CIB at 147. It alleges that it has invested "millions of dollars within the United States in labor, facilities, and equipment to support its efforts to license SIPCO's intellectual property portfolio, thereby creating a domestic industry in licensing for each of the Asserted Patents." *Id.* at 153 (citing CX-0004C (Schoettelkotte DWS) at Q/A 52). With regard to the economic prong under subparagraph (A), SIPCO discusses the facilities it uses to conduct its licensing operations. CIB at 158-163. SIPCO asserts that since 2012, it has invested [redacted] which it argues is "significant for a small company licensing a small portfolio directed to wireless mesh networking." *Id.* at 161. In support of a domestic industry under subparagraph (B), SIPCO discusses the activities of the employees in its licensing operations. *Id.* at 163-174. SIPCO

[32] SIPCO identifies Honeywell customer service and training activities in its discussion of the technical prong, CIB at 48-49, but does not quantify any of Honeywell's investments.

claims to have invested more than [redacted] that SIPCO says is "significant and contributes significantly to the U.S. economy." *Id.* at 164. SIPCO asserts that since 2005 it has entered into licensing agreements covering at least one of the asserted patents with "roughly 100 companies" and has engaged in licensing discussions with "roughly" 100 additional companies. *Id.* at 157. SIPCO asserts that its expenses under subparagraph (C) satisfy the requirements of *Navigation Devices*. *Id.* at 176 ("[SIPCO's] activities and licenses have substantial connections to the United States, licensing, and the SIPCO Asserted Patents.").[33] Expenditures under subparagraph (C), SIPCO asserts, [redacted] *Id.* at 175.

Respondents object to the reliability and appropriateness of many of the calculations conducted by SIPCO's expert, Mr. Schoetellkotte. In addition, Respondents contend that SIPCO's activities under subparagraphs (A) and (B) are not "with respect to" an article protected by the asserted patents. RIB at 172. Respondents say SIPCO must allocate its expenditures to include only those amounts that are related to licensing the DI products. *Id.* In their reply brief, Respondents specifically point out that SIPCO relies on subparagraphs (A) and (B) "with no legal support and without identifying any 'protected article' related to its investments." RRB at 90.[34]

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[33] *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Prods. Containing Same,* Inv. No. 337-TA-694, Comm'n Op. (Aug. 8, 2011).

[34] SIPCO contends that Respondents waived the argument that its investments under subparagraphs (A) and (B) should be apportioned only to include expenditures pertaining to the DI Products. CRB at 65 (citing Ground Rule 8.2). Ground Rule 8.2 is a matter of adjudicative efficiency, not a reason to ignore the Commission's legal requirements.

The discussion below addresses SIPCO's asserted satisfaction of the economic prong under subparagraphs (A) and (B), concluding that SIPCO has failed to make the necessary evidentiary showing under those subparagraphs because it has not demonstrated that its asserted expenditures are allocable to the protected DI products. The discussion then addresses SIPCO's showing under subparagraph (C), concluding that SIPCO has failed to satisfy the economic prong under that provision for the same reason.

B. Section 337(a)(3)(A) and (B)

It is well established that an allocation of domestic industry expenditures as between expenses incurred in relation to the domestic industry product as opposed to unrelated expenditures is required under section 337(a)(3). Expenditures may be counted toward satisfaction of the domestic industry prong only "as long as those investments pertain to the complainant's industry with respect to the articles protected by the asserted IP rights." *Certain Television Sets, Television Receivers, Television Tuners, and Components Thereof,* Inv. No. 337-TA-910, Comm'n Op. at 68, 2015 WL 6755093, at *36 (Oct. 30, 2015); *accord, e.g., Certain Marine Sonar Imaging Devices, Including Downscan and Sidescan Devices, Prods. Containing the Same, and Components Thereof,* Inv. No. 337-TA-921, Comm'n Op. at 61 (Dec. 1, 2015) ("Navico's allocation methodology reasonably approximates the warranty and technical customer support expenditures relating to the LSS-1 product.") (citing *Certain Ground Fault Circuit Interrupters and Prods. Containing Same,* Inv. No. 337-TA-739, Comm'n Op. at 74-75, 79-81 (June 8, 2012)).

The issue here is whether SIPCO, which claims only its licensing expenditures to satisfy the economic prong, can dispense with the traditional requirement to demonstrate investments "with respect to the articles protected" under subparagraphs (A) and (B). 19 U.S.C.

§ 1337(a)(3). Respondents maintain that Commission precedent "does not allow a complainant to rely on naked licensing activities unrelated to a protected article" to satisfy the economic prong under these provisions. RRB at 92 (citing *Certain Solid State Storage Devices, Stacked Elecs. Components, & Prods. Containing Same,* Inv. No. 337-TA-1097, Comm'n Op. at 13-14).[35] For the reasons discussed below, I agree.

In *Solid State*, the Commission decided not only that a complainant could choose any one (or more) of subparagraphs (A), (B), and (C) of section 337(a)(3) to satisfy the economic prong, but further that a complainant could count its expenditures under any of those subparagraphs. 2018 WL 4300500, at *7-9. The expenditures incurred in *Solid State* were for research and development, an activity listed in subparagraph (C). *Id.* at *9. The issue was whether a complainant relying on research and development expenses could use subparagraphs (A) and (B) to satisfy the economic prong, thereby avoiding the "nexus" requirement in subparagraph (C), to demonstrate that such expenditures were incurred in exploitation of the asserted patent. *Id.* The Commission held that the complainant was relieved of its obligation to show a relationship between research and development activities and the asserted patent under subparagraph (C) when it elected to count its expenditures on articles protected by the patent under subparagraphs (A) and (B). *Id.* at *14, note 9.

Seeking to avail itself of the doctrine announced in *Solid State,* SIPCO argues that licensing expenditures, like expenses relating to research and development, may be counted under subparagraphs (A) and (B). Unlike the complainant in *Solid State,* however, SIPCO cannot show that its expenditures under (A) and (B) are related to the alleged domestic industry

[35] *Certain Solid State Storage Devices, Stacked Elecs. Components, & Prods. Containing Same ("Solid State"),* Inv. No. 337-TA-1097, Comm'n Op., 2018 WL 4300500 (June 29, 2018).

article. Under well-established Commission precedent, including the decision in *Solid State*, SIPCO's failure to allocate expenditures to the domestic industry article is fatal to its effort to satisfy the economic prong under subparagraphs (A) and (B).

Solid State makes explicit the requirement that, notwithstanding its holding that a complainant may count domestic industry expenses under any of the three subparagraphs of section 337(a)(3), a complainant under subparagraphs (A) and (B) still must adhere to the traditional, statute-based requirement to show that expenditures are "with respect to" an article protected by the patent. The Commission states: "The statutory text of section 337 . . . requires that the domestic investments in plant and equipment, and employment of labor or capital be "'with respect to the articles protected by the patent.'" *Solid State,* 2018 WL 4300500, at *5 (quoting 19 U.S.C. § 1337(a)(3)); *see also id.* at *7 (expenditures may be counted under subparagraphs (A) and (B) "so long as the asserted expenditures satisfy the plain language of the statutory text.") *Accord, Certain Robotic Vacuum Cleaning Devices and Components Thereof Such as Spare Parts,* No. 337-TA-1057, Comm'n Op., 2018 WL 4635821, at *7 (Aug. 1, 2018) (citing *Solid State*). The Commission makes clear that a complainant under subparagraphs (A) and (B) need not show exploitation of the patented technology, so long as "the plant and equipment expenses and the labor and capital expenses were attributable to the domestic industry products . . . ." *Solid State,* 2018 WL 4300500, at *8-9 (citing several cases where the complainants "made the necessary showing that their labor costs were sufficiently 'related to' the domestic industry products.'").[36]

[36] *See generally, Microsoft Corp. v. Int'l Trade Comm'n,* 731 F.3d 1354, 1362 (Fed. Cir. 2013) ("A company seeking section 337 protection must therefore provide evidence that its substantial domestic investment – *e.g.,* in research and development – relates to an actual article that practices the patent."). *See also, Certain Computers and Computer Peripheral Devices, and*

The principle that investments under subparagraphs (A) and (B) must be allocable to the domestic industry products permeates the Commission's opinion in *Solid State*. Thus, the Commission recognizes that only work performed in the office space devoted to engineering activities related to the asserted domestic industry product may be claimed under subparagraph (A), *see Solid State,* 2018 WL 4300500, at *10. *See also id.* at *11 (noting that the evidence must support a reliable allocation of investments as between expenditures related to the domestic industry products and other expenditures); *13 (noting that what "is required is the use of reasonable allocations for the purposes of establishing the economic prong of the domestic industry requirement") (citing *Certain NOR and NAND Flash Memory Devices and Prods. Containing Same,* Inv. No. 337-TA-560, Order No. 37, 2006 WL 3775919, at *2 (Nov. 17, 2006), not reviewed, Notice (Dec. 9, 2006)). The Commission explains that cognizable research and development expenditures under subparagraphs (A) and (B) are: "'costs in labor, capital, and other expenses it takes to conceive and bring to market a [product], in addition to the costs of refining products that are in the market and updating the operating software so that the [products] run optimally and provide the users with the best possible user experience.'" *Id.* at *8 (quoting *Marine Sonar,* Comm'n Op. at 58 n.28).

Because a pure licensing entity incurs no such expenditures, licensing entities seeking to use subparagraphs (A) and (B) to satisfy the economic prong have relied on the qualifying investments of their licensees with respect to the article that practices the asserted patent. "The Commission has consistently interpreted the statute as allowing a complainant to rely on the activities of its licensees in attempting to show the existence of a domestic industry." *Certain*

Components Thereof, and Prods. Containing Same, Inv. No. 337-TA-841, Comm'n Op. at 35-36 (Jan. 9, 2014) (noting that "all of the subparagraph (C) activities" are subject to the same requirements, with no "special treatment for licensors").

Optical Disc Drives, Components Thereof, and Prods. Containing the Same ("Optical Disc Drives"), Inv. No. 337-TA-897, Remand Comm'n Op. at 4, (Jan. 7, 2015). *See Certain Electronic Imaging Devices,* Inv. No. 337-TA-850, Comm'n Op. at 84-96 (Apr. 21, 2014) (finding a domestic industry under subparagraph (C) based on the significant investments in engineering, research, and development of the complainant's licensees); *Certain Variable Speed Wind Turbines and Components Thereof ("Wind Turbines"),* No. 337-TA-376, Remand Comm'n Op. at 7-8 (Oct. 27, 1997) (noting the consistent policy that a domestic inquiry under section 337 "is not limited to the activities of the patent owner, but also involves the activities of any licenses"). *See also,* 19 C.F.R. § 210.12(a)(6)(i), (a)(6)(ii), and (a)(9)(iv)).

SIPCO relies on its licensee's products to satisfy the technical prong of the domestic industry requirement, CIB at 60, note 8, but SIPCO presents no evidence of the licensee's expenditures with respect to the alleged domestic industry products. Instead, SIPCO presents only its own licensing expenditures. As discussed above, however, subparagraphs (A) and (B) require that expenses be incurred in relation to the domestic industry product. I have been directed to no authority for the proposition that a complainant can count its own licensing expenditures under subparagraphs (A) and (B), without tying those expenditures to a domestic industry product. Certainly, nothing in the *Solid State* decision would support that result.

SIPCO provides no legal or factual basis to discard the Commission's precedent under subparagraphs (A) and (B), particularly as the requirement to tie domestic industry activities to domestic industry articles has so recently been re-affirmed. *Solid State, supra.* As a result of the foregoing, unless SIPCO can meet the requirements of subparagraph (C), it cannot satisfy the economic prong.

C. Section 337(a)(3)(C)

Before the Commission's decision in *Certain Computers and Computer Peripheral Devices, and Components Thereof, and Prods. Containing Same ("Computers")*, Inv. No. 337-TA-841, Comm'n Op. (Jan. 9, 2014) the Commission had not required licensing entities to demonstrate the existence of an article practicing the patent. As the Commission stated: "Until now, and relying substantially upon the legislative history of the 1988 Act, our practice has been not to require a complainant to demonstrate for purposes of a licensing-based domestic industry the existence of protected articles practicing the asserted patents." *Id.* at 27-28. Before *Computers,* therefore, it was natural that licensing entities did not allocate their licensing expenditures to a domestic industry article, since there was no requirement under subparagraph (C) to show the existence of a domestic industry article.[37]

In the pre-*Computers* era, the legal principles governing the economic prong with respect to licensing under subparagraph 337(a)(3)(C) were those announced in *Certain Multimedia Display and Navigation Devices and Systems, Components Thereof, and Prods. Containing Same ("Navigation Devices")*, Inv. No. 337-TA-694 (Comm'n Op. Aug. 8, 2011). In *Navigation Devices*, the Commission held that complainants seeking to satisfy the economic prong by their investments in patent licensing under section (C) were required to satisfy three factors: (1) that the investment in licensing is "an investment in the exploitation of the asserted patent;" (2) that the investment relates to licensing, *i.e.*, "'A complainant must clearly link each activity to licensing efforts concerning the asserted patent;'" and (3) the investment must occur

[37] As explained by the Commission, "although there may have been protected articles actually practicing the asserted patents in our past investigations, such a showing was not mandatory. The decisions in these cases instead focused on whether the complainants' showing of licensing expenditures were tied sufficiently closely to the patents asserted in each investigation." *Computers,* Comm'n Op. at 28.

in the United States. *Navigation Devices,* Comm'n Op. at 7-8 (citing and quoting *Certain Coaxial Cable Connectors and Components Thereof and Prods. Containing Same,* Inv. No. 337-TA-650, Comm'n Op. at 50-51 (Apr. 14, 2010)).

Navigation Devices tested "the extent to which a complainant may rely on licensing activities directed to an entire patent portfolio to prove the existence of a domestic industry related to the asserted patents under section 337(a)(3)(C), that is, under the section which is premised on substantial investment in exploitation." *Navigation Devices,* Comm'n Op. at 8. In the context of this pre-*Computers* case, where the complainant was not required to demonstrate the existence of an article related to the patent, the Commission considered a number of possible ways to establish the necessary "nexus" between licensing activities related to a portfolio of patents and the patents at issue in the investigation. *Id.* at 8-13 ("case-by-case approach"). The impetus for engaging in this exercise was the "its" language in subparagraph 337(a)(3)(C). *Id.* at 7 ("First, the statute requires that the investment in licensing relate to 'its exploitation,' meaning an investment in the exploitation of the asserted patent").[38]

As set forth in *Navigation Devices* itself, however, a strong nexus to the asserted patent(s) is established "by definition" "if a licensee's product is 'an article protected by' the patent." *Navigation Devices,* Comm'n Op. at 10 (quoting 19 U.S.C. § 1337(a)(3)(C)). "For example, if a licensee's product is an 'article protected by' the patent then the license is by definition connected to that patent." *Id.* Based on this passage from the Commission's opinion, it would appear that a licensing entity establishes the requisite nexus under subparagraph (C) simply by

[38] The Commission deliberately left open the question of whether a licensing entity also is required to establish the technical prong by demonstrating there exists an article protected by the patent. *Navigation Devices,* Comm'n Op. at 7, note 3 ("This issue is beyond the scope of review in this investigation.").

showing that its licensee produced an article protected by the patent.[39] To the extent that SIPCO's license with Honeywell covers products that allegedly practice the asserted patents,[40] SIPCO thus satisfies the requirement to show a nexus between its licensing activity and the asserted patent(s). I find that SIPCO's evidence of the other two factors identified by the Commission in *Navigation Devices* – nexus to licensing and nexus to the United States – also is sufficient. *See* CX-0004C (Schoettelkotte DWS) at Q/A 101, 103, 107, 109, 111, 112, 290-292.[41] Hence, SIPCO has satisfied the requirements of *Navigation Devices*.

The remaining question derives from the Commission's addition of the technical prong requirement in its *Computers* decision.[42] This question does not relate to the nexus between licensing activities and the asserted patents, but to the appropriate allocation of SIPCO's licensing activities to the articles protected by the asserted patents. Since the requirement to allocate expenditures made "with respect to" a protected article stems from the preamble to 337(a)(3), which on its face applies to all three subparagraphs, it would appear that a licensing

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[39] The "other factors" listed by the Commission in *Navigation Devices*, *see* Comm'n Op. at 10, were useful to establish a nexus between the patent and domestic industry activities in the absence of a technical prong requirement, but they do not appear necessary to the domestic industry analysis post-*Computers* when, as the Commission states in *Navigation Devices*, the nexus is established "by definition."

[40] As discussed above in the context of the technical prong for each patent, SIPCO has shown that Honeywell products covered by the SIPCO-Honeywell license practice claims of the '708 patent, but has failed to show that such products practice claims of the '893 patent.

[41] Respondents quarrel with the allocation methodology concerning SIPCO's nexus to licensing, but they cannot seriously dispute that such a nexus exists. The evidence shows that licensing is SIPCO's entire reason for being.

[42] The Commission has made it clear that the nexus requirement is separate from and in addition to the requirement to satisfy the technical prong. *Computers,* Comm'n Op. at 27-28 and note 19. *See also, Solid State,* 2018 WL 4300500 at *9 ("subsection (C) 'additionally requires that the domestic investment constitute an exploitation of the asserted patent.'") (citing *Marine Sonar Imaging*, Comm'n Op. at 64, 65).

entity under subparagraph (C) must present evidence not only that a protected article exists, but that the entity's expenditures on licensing with respect to the protected article are substantial. The case law bears this out.

Recent Commission precedent has made no distinction between subparagraphs (A), (B), or (C) regarding this statutory language: "The economic prong of the domestic industry requirement is satisfied when it is determined that *sufficient economic activities and investments* set forth in subparagraphs (A), (B), or (C) of section 337(a)(3) have taken place or are taking place *with respect to the articles protected by the asserted patent.*") (emphasis added). *Certain Carburetors and Prods. Containing Such Carburetors ("Carburetors"),* Inv. No. 337-TA-1123, Comm'n Op., 2019 WL 5622443, at *5 (Oct. 28, 2019) (citing *Wind Turbines*, Comm'n Op. at 21)); *accord, Certain Earpiece Devices and Components Thereof ("Earpiece Devices"),* Inv. No. 337-TA-1121, Comm'n Op. at 18-19 (Nov. 8, 2019) (citing *Carburetors*). This requirement necessitates an appropriate allocation under each subsection to activities that relate to the protected articles. *Earpiece Devices* at 18 ("Bose needed to provide an allocation of its investments relevant to the subset of domestic industry products that practice the [] patent and to show that these investments are significant or substantial.")

Further supporting this conclusion is the Commission's rejection of an interpretation of subparagraph (C) that would "provide a special, and more lenient, test for licensing-based industries." *Computers,* Comm'n Op. at 35. "Additionally, special treatment for licensors is inconsistent with *InterDigital II,* which did not distinguish between licensing and non-licensing activity under subparagraph (C), but instead looked at all of the subparagraph (C) activities together." *Id.* at 35-36 (citing *InterDigital Commc'ns, LLC v. Int'l Trade Comm'n,* 707 F.3d 1295 (Fed. Cir. 2013)). Since the requirement to allocate expenditures with respect to the

domestic industry product applies to complainants relying on research and development expenditures under subparagraph (C), it follows that the same allocation requirement applies to licensing entities.[43] [E]vidence to 'substantiate the significance of [a complainant's] activities with respect to the [domestic industry articles protected by the asserted patent]" is required." *Carburetors,* 2019 WL 5622443 at *5 (quoting *Solid State,* Comm'n Op. at 33)).

As discussed above, SIPCO made no effort to allocate its licensing expenditures to the domestic industry articles that allegedly practice the asserted patents. SIPCO has pointed to no evidence in the record that would enable the factfinder to determine whether SIPCO's licensing activities with respect to the Honeywell products are substantial. Since it is SIPCO's burden to present evidence that it has devoted substantial resources to licensing activities with respect to the protected articles, and SIPCO has failed even to undertake to present that evidence, it cannot satisfy the economic prong under subparagraph (C).

Further, in the absence of an appropriate allocation of resources expended with respect to a protected article, it is not possible to determine the contextual significance of SIPCO's expenditures. "[I]nvestments must be viewed in their proper context." *Carburetors,* 2019 WL 5622443, at *10. *See id.* at *12 ("The Commission must assess the *relative* importance of the domestic activities.") (citing *Lelo Inc. v. Int'l Trade Comm'n,* 786 F.3d 879, 883 (Fed. Cir. 2015)). *See also, e.g., Solid State,* 2018 WL 4300500, at *18 (holding that significance must be "based on a proper contextual analysis in the relevant timeframe such as in context of [complainant's] operations, the marketplace, or the industry in question.") SIPCO cannot

[43] *Computers* states that the complainant could "have demonstrated the existence of a domestic industry by identifying protected articles that practice the [] patents and by relying on [its] own investments in the [] patents, specifically [its] investments in licensing." Comm'n Op. at 42-43. The Commission expressly notes that it did not reach the issue "whether the economic prong would have been met if articles had been shown." *Id.* at 43, note 33.

demonstrate that its investments with respect to the domestic industry articles are significant because (1) it has not presented any estimate of the amount of such investments; and (2) it has not presented any evidence with respect to the significance or substantiality of such investments in context. *Carburetors,* 2019 WL 5622443, at *9 (noting that complainant did "not use [] DI sales information, or any other information, to provide further context for its domestic industry investments."). For all these reasons, SIPCO has failed to satisfy the economic prong.

VII. REMEDY AND BONDING

A. Limited Exclusion Order

In the event the Commission finds a violation of section 337, SIPCO seeks a limited exclusion order ("LEO") directed to Respondents Emerson and Analog's infringing products. 19 U.S.C. § 1337(d). Section 1337(d) provides in pertinent part that if the Commission determines that there is a violation, "it shall direct that the articles concerned . . . be excluded from entry into the United States." 19 U.S.C. § 337(d)(1). The Commission has broad discretion to select the form, scope and extent of the remedy imposed for violation of section 337. *E.g., Hyundai Elecs. Indus. Co. v Int'l Trade Comm'n,* 899 F.2d 1204, 1208-09 (Fed. Cir. 1990).

Long-standing Commission precedent supports issuance of remedial orders extending to "all products covered by the patent claims as to which a violation has been found, rather than limiting its orders to only those specific models selected for the infringement analysis." *Certain Hardware Logic Emulation Systems and Components Thereof ("Hardware")*, Inv. No. 337-TA-383, Comm'n Op., 1998 WL 307240 at *9 (Mar. 1998) (citations omitted). This approach is consistent with the remedial purpose of the statute. "The central purpose of remedial orders is to ensure complete relief to the domestic industry," the Commission has stated, and an "exclusion order covering only specific models of an accused device could easily be circumvented, thereby

denying complete relief." *Id. Accord, Certain Graphics Systems, Components Thereof, and Consumer Products Containing the Same,* Inv. No. 337-TA-1044, Comm'n Op. at 66 (Sept. 18, 2018) ("The LEO is not limited to any particular GPU model, however, but also extends to cover other GPUs of the named respondents that infringe the asserted claims of the '506 patent.").

1. The Parties' Submissions

Emerson argues that any LEO should be limited to infringing articles and should exclude sales to current SIPCO licensees. Analog argues that any exclusion order should similarly be limited to "the violating products of named respondents," RIB at 195 (quoting *Kyocera Wireless Corp. v. Int'l Trade Comm'n,* 545 F.3d 1340, 1358 (Fed. Cir. 2008)). Analog says its chips are accused only of indirect infringement based on the use of WirelessHART software in accused Emerson products, and contends that a LEO should cover only chips that are (1) loaded with the accused software and (2) incorporated into the accused Emerson products.

Analog explains that its chips are blank when imported and that, after importation, they can be loaded with the accused WirelessHART software or with unaccused Smartmesh IP software. Further, Analog states that its chips are sold not only to Emerson but to others who are not accused of infringement or are current SIPCO licensees. Analog points to a license agreement that includes a covenant not to assert SIPCO's patents against the licensee's component suppliers, of which Analog is one. *See* JX-0208C, §2.2; JX-0026C (Wierzbicki Dep.) at 232:3-4 ("as a rule we have only licensed to end-use products").

Analog also maintains that an exclusion order should be "narrowly tailored in view of SIPCO's history of misleading conduct leading Analog to believe that SIPCO would not seek to enforce its patents against Analog's chips." RIB at 196. Analog says that "years before" this investigation, SIPCO rebuffed Analog's contacts, stating that SIPCO "does not license the

portfolio at the unfinished component or module level, but rather licensed to end-use products." RIB at 197.

2. Discussion

Emerson's barebones argument is that a LEO should be directed "to only the Emerson Articles made by Respondents that have been proven to infringe a valid patent . . . ." RIB at 195. In support of this argument, Respondents cite *Kyocera,* but that case stands for the proposition that a LEO "must be limited to downstream articles manufactured by a person found to be violating the statute." 545 F.3d at 1359. If the Commission finds that Emerson has manufactured articles that violate section 337, all of its violating products should be excluded, consistent with long-standing Commission precedent. *See Hardware,* 1998 WL 307240 at *9 (burden of proof is on respondents to demonstrate that products should be excepted from an exclusion order)), *11 (noting that the Commission "frequently issues exclusion orders covering complex products," without examining the product and determining that the product is or is not subject to the exclusion order).

If the Commission finds a violation, I recommend that an exclusion order issue notwithstanding that some sales of accused products may ultimately be made to parties licensed to the SIPCO technology. Unless Respondents can establish at the time of importation that particular products are destined for parties licensed by SIPCO, there is no ground to except any infringing products from the LEO. Any other decision would deprive SIPCO of the full relief to which it is entitled.

Analog's argument that a standard LEO should not be issued against its products because it is accused only of indirect infringement has no merit. Any exclusion order will be directed to the products found to infringe, and SIPCO has accused Analog of indirect infringement based on

its sale of products to Emerson for importation. CIB at 39-47. The Commission has long held that, in its consideration of the scope of an exclusion order, "section 337 does not distinguish between direct, contributory, or induced infringement." *Hardware,* 1998 WL 307240 at *10.

Analog also requests a "narrowly tailored" LEO to reflect alleged representations made by SIPCO to licensees regarding non-assertion of its patents against suppliers of components. RIB at 196. There is no suggestion of how a LEO would be "tailored" to reflect this concern, however. Accordingly, I recommend that a LEO issue with respect to articles that may be determined by the Commission to infringe, without limitations regarding direct or indirect infringement, sales to licensees, or SIPCO's alleged representations.[44]

B. Cease and Desist Order

Section 337 provides that the Commission may issue a cease and desist order ("CDO") as a remedy for violation of Section 337. *See* 19 U.S.C. § 1337(f)(1). CDOs generally issue when respondents maintain commercially significant inventories of infringing goods in the United States. *E.g., Certain Automated Teller Machines, ATM Modules, Components Thereof, and Prods. Containing the Same,* Inv. No. 337-TA-972, Comm'n Op. at 28 (May 19, 2017) (citations omitted). The "well-established purpose of cease and desist orders is to ensure complete relief to complainants when infringing goods are held in inventory in the United States and, therefore, beyond the reach of an exclusion order." *Certain Condensers, Parts Thereof and Prods. Containing Same, Including Air Conditioners for Automobiles Condensers,* Inv. No. 337-TA-334 (Remand), Comm'n Op. at 27 (Sept. 10, 1997). The complainant bears the burden of proving

[44] Respondents have not indicated that a certification provision would address any of their concerns. *See generally, Certain Semiconductor Chips With Minimized Chip Package Size & Prods. Containing Same,* Inv. No. 337-TA-605, Comm'n Op., 2009 WL 2371550, at *38, (July 29, 2009) (discussing role of a certification provision).

that a respondent has a commercially significant inventory in the United States. *Certain Integrated Repeaters, Switches, Transceivers & Prods. Containing Same,* Inv. No. 337-TA-435, Comm'n Op., 2002 WL 31359028, at *14 (Aug. 16, 2002).

1. The Parties' Submissions

SIPCO asserts that Respondents or their "proxies" maintain commercially significant inventories of infringing products in the United States, and that a CDO is required to provide a complete remedy. CIB at 195. SIPCO cites evidence that Emerson tries to maintain "inventory of many of the Accused Products and/or related components that would support about [redacted] worth of manufacturing." *See* CX-0004C (Schoettelkotte WS) at Q/A 309. SIPCO asserts that Emerson maintains inventory of assemblies or subassemblies that enable the company to gather the necessary components and configure the final product in response to a customer's order. *Id.* SIPCO asserts that "Emerson has more than [redacted] that may be used to configure accused products in inventory in the United States, valued at more than [redacted]. *Id.* Additional products in Emerson's inventory push the total to nearly [redacted] with a value of about [redacted], according to SIPCO. *Id.*

SIPCO says Analog also maintains U.S. inventory to cover about [redacted]. CIB at 196 (citing JX-0028C (Simon Dep.) at 36:6-37:7, 45:20-46:11). Using the amount of inventory identified by Analog in discovery, SIPCO asserts that the value of Analog inventory in the U.S. is about [redacted]. CIB at 196-197 (citing JX-0038C at 16).

SIPCO argues further that a showing of commercially significant domestic inventory is not a statutory requirement. CIB at 197 (citing *Certain Digital Models, Digital Data, and Treatment Plans for Us in Making Incremental Dental Positioning Adjustment Appliances Made*

Therefrom, and Methods of Making the Same, Inv. No. 337-TA-833, Comm'n Op. at 147 (Apr. 10, 2014)). SIPCO asserts that a CDO is necessary to afford it complete relief.

Emerson maintains that SIPCO fails to carry its burden to show a commercially significant inventory of imported, infringing products. Emerson raises several objections: (1) that SIPCO has not identified the subset of imported, infringing products from among the stores of inventory identified; (2) that SIPCO's expert failed to analyze the commercial significance of the Emerson inventory; (3) that the level of inventory disclosed by Emerson's corporate representative is "aspirational," not actual; and (4) that any CDO should except "products provided to customers before the issuance of a LEO, such as maintenance, services and providing replacement parts." RIB at 197-198. Analog argues that its inventory is *de minimis* and "poses no risk of undercutting or bypassing any exclusion order" because much of the inventory will be sold to SIPCO's current licensees and any sales to Emerson will involve a re-importation of the products loaded with software. RIB at 198-99.

2. Discussion

SIPCO correctly points out that Emerson is in the best position to identify items in its inventory that are not imported or infringing. The responsibility to identify products that should not be counted as inventory cannot be shifted onto SIPCO without impeding the goal of making SIPCO whole for the Respondents' violative conduct. Emerson has made no attempt to identify non-infringing or non-imported inventory from the store of products identified by its corporate representative and in Emerson's own discovery responses. *See* CX-0004C (Schoettelkotte WS) at Q/A 303-313.

As noted above, Emerson contends that a CDO should exclude the sale of products for such purposes as maintenance and repair, but Emerson presents no evidence that substitute parts

a reasonable royalty. *Certain Table Saws Incorporating Active Injury Mitigation Tech. and Components Thereof,* Inv. No. 337-TA-965, Comm'n Op. at 13 (Feb. 1, 2017). However, "[w]here there is neither information on the price of the subject merchandise nor information which would allow one to determine a reasonable royalty, the Commission has set the bond at 100% of the entered value of the imported infringing products." *Certain Inkjet Ink Supplies & Components Thereof,* Inv. No. 337-TA-691, 2011 WL 7464367 (Nov. 2011) (citing *Certain Energy Drink Products*, Inv. No. 337-TA-678, Comm'n Op. on Remedy, the Public Interest, and Bonding (Sept. 8, 2010)). Complainants bear the burden of establishing the need for a bond, and the failure to carry that burden may result in no bond being imposed. *Certain Personal Data and Mobile Communication Devices and Related Software,* Inv. No. 337-TA-710, Comm'n Op. at 85 (Dec. 29, 2011).

1. The Parties' Submissions

Emerson says SIPCO has not met its burden to prove that a bond is necessary to prevent harm during the 60-day Presidential review period. Respondents point out that SIPCO has not attempted to calculate a price differential, and they assert that SIPCO's royalty rate for its entire portfolio of more than 60 patents does not reflect the value of the asserted patents. RX-0548C (Vander Veen WS) at Q/A 143. If it is determined that a bond is appropriate, Emerson proposes that SIPCO's royalty rates should be applied to the asserted patents pro rata, which would amount to a rate of 0.1% or 0.05%, depending on the number of patents for which a violation may be found. *Id.*

Analog maintains that because the dollar amount of its sales is low, any bond would be *de minimis*. Analog contends that there can be no competitive harm to SIPCO's licensing

program by dint of sale of Analog's chips because they are unfinished components that would not be licensed by SIPCO in any event. *See id.* at Q/A 144.

2. Discussion

Since SIPCO does not make or sell a product, there is no evidence of a price differential. SIPCO requests that a bond of 100% be imposed, but in the alternative, SIPCO proposes a bond rate in the amount that is consistent with its standard royalty rates, in particular, its portfolio license agreements with Honeywell and other licensees. CIB at 199.

I agree that SIPCO has not proposed an appropriate rate for a bond. SIPCO maintains that the strong nexus between the asserted patents and its licensing activities justifies imposing a bond that is based on the entire portfolio, but this contention is unsupported by any cited precedent and is unpersuasive. The bond is intended to protect a complainant from harm, not to provide a windfall, which would be the result if the bond were set without regard to the fact that only two of more than 60 patents in SIPCO's portfolio are at issue in this investigation.

Respondents' suggestion of a bond that is allocated pro rata based on whether the Commission were to find a violation involving one or two patents appears reasonable, absent any showing by SIPCO that the patents at issue would be more likely to generate revenue if protected during the 60-day period than other patents in the SIPCO portfolio. I recommend that if any bond is imposed, it be at the rate of 0.1% or 0.05% of entered value, depending on the number of patents with respect to which a violation may be found.

VIII. CONCLUSIONS OF LAW

Based on the foregoing, and the record as a whole, it is my final initial determination that there is no violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, in the importation into the United States, the sale for importation, and/or the sale within the United

States after importation of certain wireless mesh networking products and related components thereof, with respect to the '708 patent or the '893 patent.

This determination is based on the following conclusions of law:

1. The Commission has subject matter jurisdiction over this investigation, *in personam* jurisdiction over Respondents, and *in rem* jurisdiction over the accused wireless mesh networking products and related components thereof.

2. There has been an importation into the United States, sale for importation, or sale within the United States after importation of the accused products by the Respondents.

3. No accused products have been shown to infringe any claim of the '708 patent.

4. The technical prong of the domestic industry requirement has been satisfied with respect to claims 1, 2, and 10 of the '708 patent.

5. Claims 1, 2, 9, and 10 of the '708 patent have been shown to be invalid.

6. No accused products have been shown to infringe any claim of the '893 patent.

7. The technical prong of the domestic industry requirement has not been satisfied with respect to any claim of the '893 patent.

8. No claims of the '893 patent have been shown to be invalid.

9. The economic prong of the domestic industry requirement has not been satisfied with respect to any domestic industry product.

I hereby certify the record in this investigation to the Commission with my final initial determination. Pursuant to Commission Rule 210.38, the record further comprises the Complaint and exhibits thereto filed with the Secretary, and the exhibits attached to the parties' summary determination motions and the responses thereto. 19 C.F.R. § 210.38(a).

Pursuant to Commission Rule 210.42(c), this initial determination shall become the determination of the Commission 45 days after the service thereof, unless a party files a petition for review pursuant to Commission Rule 210.43(a), the Commission orders its own review pursuant to Commission Rule 210.44, or the Commission changes the effective date of the initial

determination. 19 C.F.R. § 210.42(h)(6).

This initial determination is being issued with a confidential designation pursuant to Commission Rule 210.5 and the protective order in this investigation. Within ten (10) days of the date of this initial determination, each party shall submit to the Administrative Law Judge a statement as to whether or not it seeks to have any portion of this document deleted from the public version. *See* 19 C.F.R. § 210.5(f). A party seeking to have a portion of this document deleted from the public version thereof must attach to its submission a copy of the document with red brackets indicating the portion(s) asserted to contain confidential business information.[45] The parties' submissions under this subsection shall not be filed with the Commission Secretary but shall be submitted by paper copy to the Administrative Law Judge and by e-mail to the Administrative Law Judge's attorney advisor.

SO ORDERED.

Dee Lord
Administrative Law Judge

[45] To avoid depriving the public of the basis for understanding the result and reasoning underlying the decision, redactions should be limited. Parties who submit excessive redactions may be required to provide an additional written statement, supported by declarations from individuals with personal knowledge, justifying each proposed redaction and specifically explaining why the information sought to be redacted meets the definition for confidential business information set forth in Commission Rule 201.6(a). 19 C.F.R. § 201.6(a).

CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF **Inv. No. 337-TA-1131**

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **INITIAL DETERMINATION** has been upon the following parties as indicated, on **February 10, 2020.**

Lisa R. Barton, Secretary
U.S. International Trade Commission
500 E Street, SW, Room 112
Washington, DC 20436

On Behalf of Complainants SIPCO LLC:

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of	
CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF	**Inv. No. 337-TA-1131**

ORDER NO. 26: *MARKMAN* ORDER

(August 13, 2019)

A *Markman* hearing was held in this investigation on February 26, 2019. Appearing were counsel for Complainant SIPCO LLC ("SIPCO") and counsel for Respondents Analog Devices, Inc., Linear Technology LLC, Emerson Electric Co., Emerson Process Management LLLP, Emerson Process Management Asia Pacific Private Ltd., Emerson Process Management Manufacturing (M) Sdn. Bhd., Fisher-Rosemount Systems, Inc., Rosemount Inc., and Rosemount Inc. (collectively, "Respondents"). In advance of the hearing, the parties filed initial and rebuttal *Markman* briefs.[1,2]

I. PROCEDURAL HISTORY

This investigation was instituted to determine whether there is a violation of section 337 of the Tariff Act of 1930, as amended, in the importation into the United States, the sale for

[1] SIPCO's initial and rebuttal briefs are referenced herein as "CIB" and "CRB" respectively. Respondents' initial and rebuttal briefs are referenced herein as "RIB" and "RRB," respectively.

[2] On July 25, 2019, Respondents filed a motion to supplement claim construction briefing. Motion Docket No. 1131-026. SIPCO filed an opposition on August 5, 2019, and Respondents filed a reply brief on August 8, 2019. Motion Docket No. 1131-026 is hereby GRANTED.

importation, or the sale within the United States after importation of certain wireless mesh networking products and related components thereof by reason of infringement of certain claims of U.S. Patent No. 6,914,893 (the "'893 patent"); U.S. Patent No. 7,103,511 (the "'511 patent); U.S. Patent No. 8,964,708 (the "'708 patent"); and U.S. Patent No. 9,439,126 (the "'126 patent"). Notice of Investigation (Sept. 5, 2018). The '126 patent was withdrawn from the investigation pursuant to Order No. 11 (Mar. 14, 2019), *not reviewed by* Comm'n Notice (Apr. 5, 2019), and Order No. 16 (June 21, 2019), *not reviewed by* Comm'n Notice (Ju. 12, 2019). Following termination of numerous claims, the remaining claims asserted are claims 1, 2, 10 and 19 of the '893 patent, claims 8-10, 44, 46-47, and 56-57 of the '511 patent, and claims 1, 2, 5, and 9-10 of the '708 patent.

II. LEGAL STANDARDS

A. General Claim Construction Principles

"The construction of claims is simply a way of elaborating the normally terse claim language[] in order to understand and explain, but not to change, the scope of the claims." *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (alterations in original) (quoting *Scripps Clinic v. Genentech, Inc.*, 927 F.2d 1565, 1580 (Fed. Cir. 1991)). "[O]nly those [claim] terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Claim construction focuses mainly on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-17 (Fed. Cir. 2005) (*en banc*). The words of a claim "'are generally given their ordinary and customary meaning,'" which is "the meaning that the term would have to a person of ordinary skill in art" as of the date that the patent application was filed. *Id.* at 1312-13

(quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)) (citations omitted). A person of ordinary skill in the art "is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* In some cases, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges." *Id.* at 1314. Often, however, "determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art." *Id.* "[T]he court looks to 'those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.'" *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). Those sources include "the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." *Id.*

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Id.* at 1312 (quoting *Innova*, 381 F.3d. at 1115)). "Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." *Id.* at 1314. For example, "the context in which a term is used in the asserted claim can be highly instructive," and "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term." *Id.*

"[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* at 1315 (quoting *Vitronics*, 90 F.3d at 1582). "The longstanding difficulty is the contrasting nature

of the axioms that (a) a claim must be read in view of the specification and (b) a court may not read a limitation into a claim from the specification." *Innova*, 381 F.3d at 1117.

In addition to the claims and the specification, the prosecution history should be examined if in evidence. "The prosecution history . . . consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Phillips*, 415 F.3d at 1317. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence "consists of all evidence external to the patent and the prosecution history, including inventor and expert testimony, dictionaries, and learned treatises." *Id.* at 1317. Extrinsic evidence is generally viewed "as less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.* at 1318. "The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is clearly at odds with the construction mandated by the intrinsic evidence." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999).

Although "[c]laim terms are generally given their plain and ordinary meanings to one of skill in the art when read in the context of the specification and prosecution history," there are two instances in which a court will depart from the plain and ordinary meaning. *Hill-Rom Service, Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). The first is when a patentee

acts as its own lexicographer. *Id.* "To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term.'" *Thorner v. Sony Comput. Entm't Am.*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). The second is when the patentee disavows the full scope of the claim term. *Id.* Disavowal can be effectuated by language in the specification or the prosecution history. *See Phillips*, 415 F.3d at 1316-17. "In either case, the standard for disavowal is exacting, requiring clear and unequivocal evidence that the claimed invention includes or does not include a particular feature." *Poly-Am., L.P. v. API Indus., Inc.*, 839 F.3d 1131, 1136 (Fed. Cir. 2017).

B. Means-Plus-Function Claiming

Paragraph 6 of § 112 allows patentees to express an "element in a claim for a combination . . . as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof."[3] Thus, patentees can "express a claim limitation by reciting the function to be performed rather than by reciting structure for performing that function." *Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (*en banc*). If § 112(6) is invoked, the claim element "shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112(6).

C. Indefiniteness

"The Patent Act requires that a patent specification 'conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.'" *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014)

[3] Section 4(c) of the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), re-designated 35 U.S.C. § 112(6) as 35 U.S.C. § 112(f). Because the '893 patent has an effective filing date prior to September 16, 2012, the pre-AIA version of 35 U.S.C. § 112 is applicable. AIA, § 4(e).

(quoting 35 U.S.C. § 112, ¶ 2). "[T]he second paragraph of § 112 contains two requirements: first, [the claim] must set forth what the applicant regards as his invention, and second, it must do so with sufficient particularity and distinctness, *i.e.*, the claim must be sufficiently definite." *Allen Eng'g Corp. v. Bartell Indus., Inc,.* 299 F.3d 1336, 1349 (Fed. Cir. 2002) (citation and internal quotation marks omitted) (alteration in original). A claim does not satisfy the second requirement and is thereby indefinite "if read in light of the specification delineating the patent, and the prosecution history, [it] fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus*, 534 U.S. at 901. Indefiniteness is a question of law, subject to a determination of underlying facts. *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1343-44 (Fed. Cir. 2016). The party challenging the validity of a claim bears the burden of establishing indefiniteness. *Id.*

III. THE ASSERTED PATENTS

The three patents at issue are all directed to systems and methods for monitoring and controlling remote devices. They share the same inventor. '893 patent at cover; '511 patent at cover; '708 patent at cover. The '893 patent, entitled "System and Method for Monitoring and Controlling Remote Devices," issued on July 5, 2005, and through continuations and continuations-in-part claims priority to application no. 60/224,043, filed on August 9, 2000. '893 patent at cover.[4] The '511 patent, entitled "Wireless Communication Networks for Providing Remote Monitoring of Devices," issued on September 5, 2006, and through continuations-in-part claims priority to application no. 09/439,059, filed on Nov. 12, 1999, now Pat. No. 6,437,692. '511 patent at cover.[5] The '708 patent, entitled "Systems and Methods for

[4] The '893 patent is attached to SIPCO's initial brief as exhibit CXM-1.

[5] The '511 patent is attached to SIPCO's initial brief as exhibit CXM-2.

Monitoring and Controlling Remote Devices," issued on February 24, 2015, and through continuations and continuations-in-part claims priority to application no. 09/412,895, filed on Oct. 5, 1999, now U.S. Patent No. 6,218,953. '708 patent cover.[6]

A. Level of Ordinary Skill in the Art

The parties have agreed that a person of ordinary skill in the art ("POSITA") should have "a bachelor's degree in computer science, computer engineering, electrical engineering, or a related discipline, or equivalent experience, and would have approximately two years of experience with, or exposure to, the design and development of wireless communication network systems, including familiarity with protocols used there." RIB at 1 n.2.

B. The Patent Specifications

1. '893 patent specification

The '893 patent is directed to "a computerized system for monitoring and controlling remote devices by transmitting data between the remote systems and a gateway interface via a packet message protocol system." '893 patent at cover, 2:31-36. "The system comprises one or more remote sensors to be read and possibly one or more actuators to be remotely controlled." *Id.* at 2:37-39. The patent identifies Fig. 2 as a "monitoring/control system of the present invention." *Id.* at 3:4-5.

[6] The '708 patent is attached to SIPCO's initial brief as exhibit CXM-3.

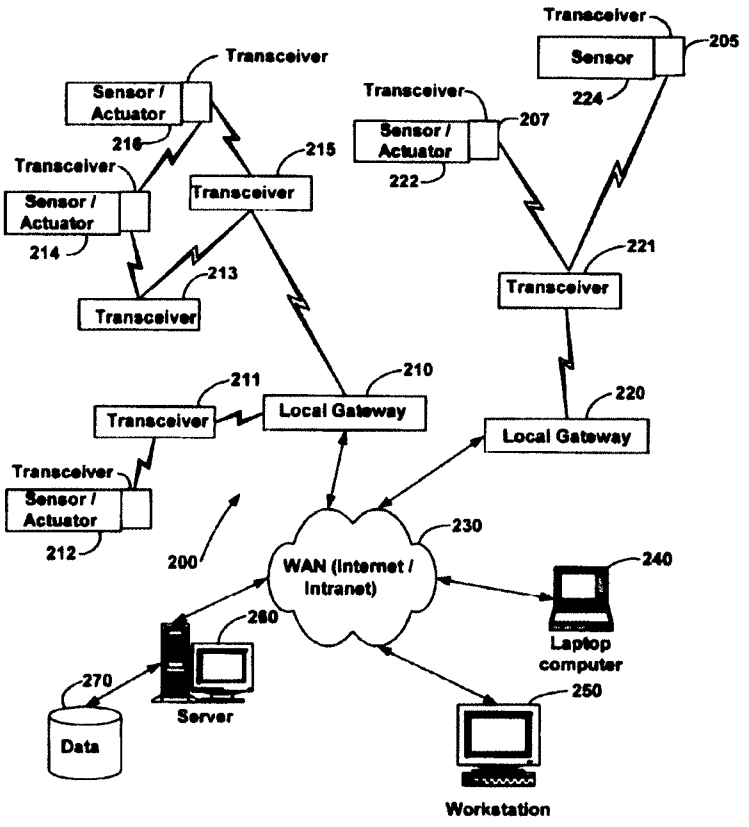
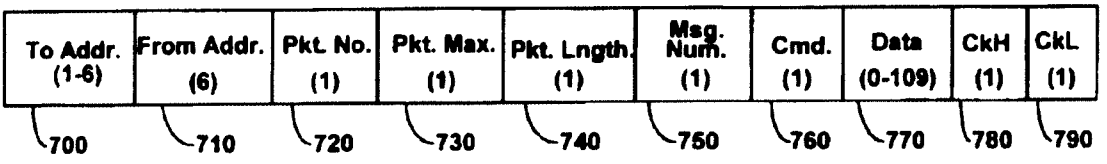


FIG. 2

Id. at Fig. 2. This figure depicts control system 200 comprising a plurality of stand-alone transceivers (211, 213, 215, 221), transceivers with integrated sensors and/or actuators (212, 214, 216, 222, 224), and local gateways (210, 220). *Id.* at 3:38-41, 4:23-28.

The specification further describes messages that are transmitted between local gateways and transceivers with a standard format, allowing each device in the system to communicate. *Id.* at 10:22-25. Figure 7 of the patent "illustrat[es] the message protocol of the present invention." *Id.* at 3:18-19.

FIG. 7 Message Structure



Id. at Fig. 7. This protocol includes a "to" address that indicates the intended recipient, a "from" address indicating the origin of the message, information about the size of the message, a command that can request data from the receiving device, a data section to transmit the requested data, and checksum sections to detect errors in the transmission. *Id.* at 10:25-11:35.

2. '511 patent specification

The '511 patent "may be viewed as a wireless communication network adapted for use in an automated monitoring system for monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network." '511 patent cover; 2:48-52. Figure 1 is "a block diagram illustrating an embodiment of an automated monitoring system according to" the invention. *Id.* at 3:43-45.

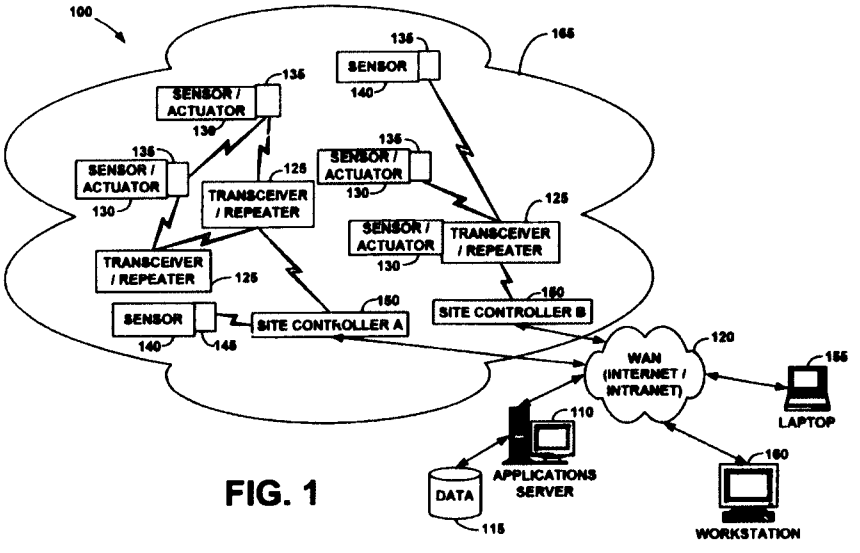


FIG. 1

The specification describes using a plurality of wireless transceivers to facilitate communication between remote devices and a host computer. *Id.* at 2:39-42. Each of the wireless transceivers is configured to receive a sensor data signal from one of the remote devices and transmit an original data message comprising a unique identifier and the sensor data signal. *Id.* at 2:55-60. Each of the wireless transceivers is also configured to receive an original data message transmitted by another wireless transceiver and transmit a repeated data message. *Id.* at 2:60-64. The specification further describes a site controller that communicates with at least one of the wireless transceivers and provides information related to the sensor data signal to the wide area network ("WAN") for delivery to the host computer. *Id.* at 2:66-3:6.

3. '708 patent specification

The '708 patent is directed to "a system for monitoring and controlling remote devices by transmitting data between the remote systems and a gateway interface via a packet message protocol system." *Id.* at cover; 2:39-42. The specification of the '708 patent is substantially similar to the specification of the '893 patent, and the figures are identical, including Figures 2 and 7 reproduced above.

C. Asserted Claims

1. '893 patent asserted claims

Claims 1 and 19 of the '893 patent are independent claims, and claims 2 and 10 depend directly from claim 1. Claim 1 recites:

> 1. A system for communicating commands and sensed data between remote devices, the system comprising:
>
> a plurality of transceivers, each transceiver being in communication with at least one other of the plurality of transceivers, wherein each transceiver has a unique address, wherein the unique address identifies an individual transceiver, wherein each transceiver is geographically remote from the other of the plurality of transceivers,

> wherein each transceiver communicates with each of the other transceivers via preformatted messages;
>
> a controller, connected to one of the plurality of transceivers, the controller being in communications with each of the plurality of transceivers via a controller transceiver, the controller communicating via preformatted messages;
>
> wherein the preformatted messages comprises at least one packet, wherein the packet comprises:
>
> a receiver address comprising a scalable address of the at least one of the intended receiving transceivers;
>
> sender address comprising the unique address of the sending transceiver;
>
> a command indicator comprising a command code;
>
> at least one data value comprising a scalable message; and
>
> an error detector comprising a redundancy check error detector; and
>
> wherein the controller sends preformatted command messages via the controller transceiver, and the plurality of transceivers send preformatted response messages.

'893 patent at 14:48-15:12. Claim 2 requires that the plurality of transceivers further comprise at least one integrated transceiver, where the integrated transceiver comprises: one of the plurality of transceivers and a sensor detecting a condition and outputting a sense data signal to the transceiver. *Id.* at 15:13-18. Claim 10 recites:

> The system of claim 1, wherein the plurality of transceivers further comprise at least one actuated transceiver, wherein the actuated transceiver comprises:
>
> one of the plurality of transceivers;
>
> a sensor detecting a second condition and outputting a sensed data signal to the transceiver; and
>
> an actuator controlling a third condition and receiving control signals from the transceiver.

'893 patent at 15:59-67.

Claim 19 recites:

> 19. A system for controlling geographically diverse devices from a central location, the system comprising:
>
> means for sending and receiving messages, wherein the sent messages contain commands and the received messages contain responses to the commands, wherein the message comprises at least one means for packeting a message;
>
> a plurality of means for communicating information, the communicating means comprising:
>
> means for receiving messages;
>
> means for preparing responses to the received message; and
>
> means for sending the response message:
>
> wherein each communicating means has a unique identifying address; and
>
> wherein the packeting means comprises
>
> means for identifying intended recipients;
>
> means for identifying the sender;
>
> means for indicating a command;
>
> means for data transfer; and
>
> means for indicating potential error.

'893 patent at 17:4-24.

2. '511 patent asserted claims

Claim 8 is independent, and claims 9 and 10 depend directly from claim 8. Claims 44, 46-47, and 56-57 were added by amendment pursuant to 35 U.S.C. § 307 on reexamination. Claim 44 is independent and the remaining asserted claims depend directly from claim 44. '511 patent Reexamination Certificate at 2:26-65, 3:9-25, 4:12-17. Claim 8 recites:

> 8. A wireless communication network adapted for use in an automated monitoring system for monitoring and controlling a plurality of remote

devices via a host computer connected to a wide area network, the wireless communication network comprising:

a plurality of wireless communication means having unique identifiers, each of the plurality of wireless communication means configured to receive a sensor data signal from one of the plurality of remote devices and transmit an original data message using a pre-defined wireless communication protocol, the original data message comprising the corresponding unique identifier and sensor data signal, and further configured to receive the original data message transmitted by one of the other wireless transceivers and transmit a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal and the corresponding unique identifier;

a means for receiving each of the original data messages and the repeated data messages;

a means for identifying, for each received message, the remote devices associated with the corresponding sensor data signal; and

a means for providing information related to the sensor data signal to the wide area network for delivery to the host computer.

'511 patent at 24:32-48.

Claim 9 requires "a plurality of repeating means having unique identifiers, each of the plurality of repeating means in communication with at least one of the plurality of wireless communications means and comprising a means for receiving the original data message transmitted by the at least one of the plurality of wireless transceivers and a means for transmitting a repeated data message using the predefined communication protocol, the repeated data message including the sensor data signal from the original data message and the unique identifier corresponding to the repeater." *Id.* at 24:49-60. Claim 10 requires "a means for providing a command message to one of the plurality of wireless communication means, wherein each of the wireless communication means further comprise a means for transmitting, in response to the command message, the original data message, wherein the original data message corresponds to the command message." *Id.* at 24:61-67.

Claim 44 recites:

> 44. The wireless communication network adapted for use in an automated monitoring system for monitoring and controlling a plurality of remote devices via a host computer connected to a wide area network, the wireless communication network comprising:
>
> a plurality of wireless transceivers comprising at least a first wireless transceiver and a second wireless transceiver;
>
> a site controller in communication with at least the second wireless transceiver,
>
> the first wireless transceiver having a first unique identifier, being configured to receive a first sensor data signal from a first remote device, and being configured to transmit a first original data message comprising the first unique identifier and the first sensor data signal;
>
> the second wireless transceiver having a second unique identifier, being configured to receive a second unique identified, being configured to receive a second sensor data signal from a second remote device, and is configured to transmit a second original data message comprising the second unique identifier and the second sensor data signal,
>
> the second wireless transceiver being further configured to receive the first original data message from the first wireless transceiver, and to transmit a first repeated upstream data message including the first unique identifier and the first sensor data signal,
>
> the first wireless transceiver being further configured to receive the second original data message from the second wireless transceiver, and to transmit a second repeated upstream data message including the second unique identifier and the second sensor data signal,
>
> the transmissions having a predefined wireless communication protocol, and
>
> the site controller being configured to: receive the data messages, identify each remote device associated with each sensor data signal in each received data message, and provide information related to each sensor data signal in each received data message to the wide area network for delivery to the host computer.

'511 patent reexamination certificate at 2:26-65. Claim 46 requires that the site controller be

> further configured to provide a command message to one of the plurality of wireless transceivers, each of the plurality of wireless transceivers being further configured to transmit, in response to the command

> message, a responsive original data message, wherein the responsive original data message corresponds to the command message.

Id. at 3:9-16. Claim 47 requires the predefined communication protocol comprising a data packet, a sender address identifying the sender of the data packet, and a command indicator specifying a predefined command code. *Id.* at 3:17-25. Claim 56 requires the site controller be "configured to send a command message to the second wireless transceiver, the command message including a 'to address' portion, wherein the 'to address' portion indicates that the command message is directed toward all remote devices." *Id.* at 4:12-15. Claim 57 requires the site controller be "configured to send a command message to the second wireless transceiver, the command message controlling an actuator associated with the second remote device." *Id.* at 4:18-22.

3. '708 patent asserted claims

Of the asserted claims of the '708 patent, claim 1 is independent and the remaining claims depend directly from claim 1. Claim 1 recites:

> 1. A wireless communication device for use in a wireless communication system configured to communicate command and sensed data within the wireless communication systems, the wireless communication device comprising:
>
> a transceiver configured to send and receive wireless communications;
>
> and a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device; a command indicator comprising a command code; a data value comprising a message, wherein the controller is configured to receive a preformatted message from another wireless communication device, and based on a command code provided in the preformatted message, implement a certain function corresponding to the command code.

'708 patent at 14:6-23.

Claim 2 requires that "the transceiver comprise[] a unique transceiver address to distinguish the transceiver from other transceivers in the wireless communication system." *Id.* at 14:24-27. Claim 5 requires that "the command code of the preformatted message [be] concatenated to provide a receiving device with multiple command codes, the device configured to perform one or more functions corresponding to the command code in the preformatted message." *Id.* at 14: 33-38. Claim 9 requires that the command code "indicate[] a change in settings of an actuator associated with the wireless communication device." *Id.* at 14:46-48. Claim 10 requires that the command code indicate "a request for a ping response by the wireless communication device." *Id.* at 14:49-51.

IV. CLAIM CONSTRUCTION

The disputed terms with respect to each patent are addressed below.

A. The '893 patent

1. Claim 1 ("scalable address" and "receiver address . . .")

Claim Term	SIPCO's Proposed Construction	Respondents' Proposed Construction
"scalable address" ('893 Patent, Claim 1)	"Scalable address" should be construed as part of the larger phrase in which it appears; if construed alone, "scalable address" means "an address that has a variable size based on the size and complexity of the system"	"an address that has a variable size based on the size and complexity of the system," where scalability refers to a variation in the size that the address occupies within the frame or packet. The "address" that is "scalable" is not limited to a single scalable unique address of a transceiver.
"receiver address comprising a scalable address of the at least one of the intended receiving transceivers" ('893 Patent, Claim 1)	a receiver address that includes an address of at least one of the intended receiving transceivers that has a variable size based on the size and complexity of the system	an address indicating the intended recipient(s) for the message-not merely a repeater-comprising a scalable address of the at least one of the intended receiving transceivers

The parties agree that the words "scalable address" mean "an address that has a variable size based on the size and complexity of the system." CIB at 6; RIB at 7. SIPCO contends that

the principal dispute is which address must be scalable, the address of the receiving transceiver or an address field in a frame or packet. *Id.* Respondents argue that SIPCO is improperly trying to limit a "scalable address" to the address of an individual transceiver. SIPCO points to the "larger" phrase, "receiver address comprising a scalable address of the at least one of the intended receiving transceivers," to argue that the address of each intended receiving transceiver must be scalable. CIB at 6.

Respondents argue that SIPCO's construction would distort the term "scalable address." Respondents maintain that scaling describes the size that the address occupies within the frame or packet, and that the "address" that is "scalable" is not limited to a single scalable unique address of a transceiver. The specification describes an example of a "scalable address:"

> By way of example, the "to" address 700 can indicate a general message to all transceivers, to only the stand-alone transceivers, or to an individual integrated transceiver. In a six byte "to" address, the first byte indicates the transceiver type—to all transceivers, to some transceivers, or a specific transceiver. The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated). The "to" address 700 is scalable from one byte to six bytes depending upon the intended recipient(s).

'893 patent at 10:33-43. Respondents argue that in this embodiment the address scaling depends upon the number of receivers, and that SIPCO's proposed construction requires an address that varies for one specific transceiver, which would exclude this embodiment. RIB at 8.

Respondents also point out that the specification recites that the "to" address can indicate any of three sets of addressees, *id.* at 10:31-44, and this suggests that scalability does not limit the address to one specific transceiver. In addition, Respondents maintain, the specification links scalability to variation in the size that the address occupies within the frame or packet. *See id.* at 11:46-51 and Fig. 7 (showing that the "to Addr." can take between one and six bytes, depending on scalability).

The term submitted for construction, "scalable address," has an agreed meaning. No further construction is warranted at this time. *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1354-55 (Fed. Cir. 1998) (holding that courts cannot "under the rubric of claim construction, . . . give a claim whatever additional precision or specificity is necessary to facilitate a comparison between the claim and the accused product," but must instead "define[] the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction.").

With respect to the term "receiver address," the claim recites "a receiver address comprising a scalable address of the at least one of the intended receiving transceivers." '893 patent at 15:1-2. Similarly, the specification uses the phrase "intended recipient(s)" to refer to the destination: "The 'to' address 700 indicates the intended recipient of the packet . . . ." *Id.* at 10:31-36.

Respondents contend that the term "receiver address" refers solely to the ultimate destination, not to intermediaries to the ultimate destination, *i.e.*, repeaters. SIPCO argues that there is no support for such a limitation in the specification. SIPCO cites Figure 9, which refers to a "Repeater (Transceiver)" and a reference to additional command data "that may be used by the system to identify further transceivers to send the signal through on the way to the destination device." '893 patent at 12:24-27, Fig. 9.

I agree with SIPCO that Respondents' restriction on the term "receiver address" is not supported by the specification. As SIPCO points out, the specification indicates that each of the stand-alone transceivers and each of the integrated transceiver[s] "can receive an incoming RF transmission and transmit an outgoing signal." *Id.* at Fig.2; 4:24-28. Accordingly, the claim term "receiver address" is construed to mean a receiver address that includes an address of at

least one of the intended receiving transceivers that has a variable size based on the size and complexity of the system.

2. Claim 10 ("second condition" and "third condition")

Claim Term	SIPCO's Proposed Construction	Respondents' Proposed Construction
"second condition" ('893 Patent, Claim 10)	Plain and ordinary meaning; if construed, "one of a plurality of conditions"	Indefinite
"third condition" ('893 Patent, Claim 10)	Plain and ordinary meaning; if construed, "another of a plurality of conditions"	Indefinite

Claim 10 recites:

> The system of claim 1, wherein the plurality of transceivers further comprise at least one actuated transceiver, wherein the actuated transceiver comprises:
>
> one of the plurality of transceivers;
>
> a sensor detecting a second condition and outputting a sensed data signal to the transceiver; and
>
> an actuator controlling a third condition and receiving control signals from the transceiver.

'893 patent at 15:59-67.

Respondents point out that the claim language refers to a second condition and a first condition but neither claim 10 nor claim 1, from which it depends, recites a first condition or "conditions generally." RIB at 21. Respondents maintain that these claims are not susceptible to construction because they lack any antecedent bases and therefore do not provide sufficient notice as to what infringes the claim. SIPCO argues that these terms require no antecedent basis because they recite "a" second and "a" third condition, "which tells the reader that there is no previous recitation of these two conditions." CRB at 8. SIPCO maintains that this terminology

is "self-chosen lexicography," and that Respondents "theory [] that the *numerology* of these two claim limitations created a [*sic*] implied need for an antecedent basis" is "novel." *Id.* at 8-9.[7]

SIPCO cites to no evidence in the patent, the specification, or the file history that would indicate that the patentee was using his own lexicography when he recited "a second" condition and "a third" condition. The normal usage of those terms indicates the existence of "a first" condition. Thus, the claim requires three conditions. While the claim describes two of the conditions—the "second condition" and "third condition"—it is silent as to the remaining condition—the first condition. This raises questions that have not been adequately addressed by the parties. Does existence of an implied first condition necessarily render the claim indefinite? If not, why? If the claim is not indefinite, is the implied condition entitled to any patentable weight? In other words, would an accused product or invalidity reference have to satisfy the implied condition, as well as the explicit conditions? If so, what is the implied condition? What, if any, is the relationship between the claimed system and the implied condition? Because the parties have not addressed these questions fully, an indefiniteness determination cannot be made at this time.

3. Claim 19 (Means-Plus-Function Terms)

Claim 19 contains a number of number of means-plus-function terms. For several of these terms, the parties agree on the claimed functions, but dispute the corresponding structure.

a. "means for indicating potential error"

[redacted]	[redacted]	[redacted]
"means for indicating potential error"	**Function**: indicating potential error (agreed)	
	Structure: a field of a packet containing an error detector (such as elements CKH 780 and CKL	**Structure**: a field of the data packet containing the check sum error detector 780 and 790 and equivalents thereof

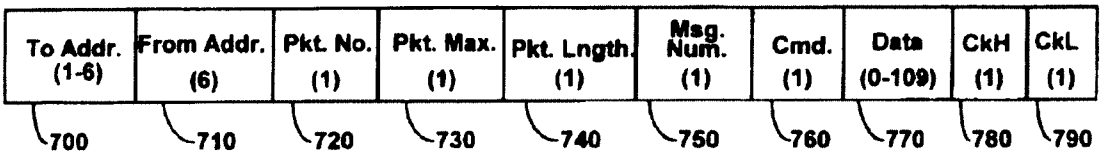
[7] Numerology is defined as "the study of the occult significance of numbers." https://www.merriam-webster.com/dictionary/numerology.

	790 or "CkH" or "CkL" fields shown in FIG. 9), and structural equivalents thereof	

The parties agree that the claimed function of the "means for indicating potential error" is to "indicat[e] potential error," but raise two disputes concerning the corresponding structure. The first dispute relates to the inclusion of the term "such as" in SIPCO's proposed definition. Respondents argue that SIPCO's use of the term "such as" reduces the disclosed structures—elements CKH 780 and CKL 790 or "CkH" or "CkL" fields shown in Figure 9—to examples of corresponding structure, thereby impermissibly broadening the definition of corresponding structure to include structures similar to the disclosed structures. SIPCO argues that it included the phrase "such as" to reflect that the corresponding structure included both the disclosed structure and "equivalents thereof" in accordance with § 112(6). After the *Markman* hearing, SIPCO revised its proposed construction to remove the "such as" language. Second Updated Joint List of Agreed-Upon and Disputed Claim Terms for Construction (July 3, 2019) at 5. Accordingly, this dispute has been resolved.

The second dispute relates to the omission of the "CkH" and "CkL" fields shown in Figure 9 of the '893 patent. While both proposed constructions identify elements CKH 780 and CKL 790, Respondents' proposed definition of corresponding structure omits the "CkH" or "CkL" fields shown in Figure 9. Figure 7, shown below, "illustrat[es] the message protocol of the present invention." '893 patent, 3:18-19.

FIG. 7 Message Structure



The CkH 780 and CkL 790 fields are the "checksum section" and are "used to detect errors in the transmission." *Id.* at 11:22-23. "[T]hree sample messages using the message protocol" of Figure 7 are shown in Figure 9. *Id.* at 3:21-22.

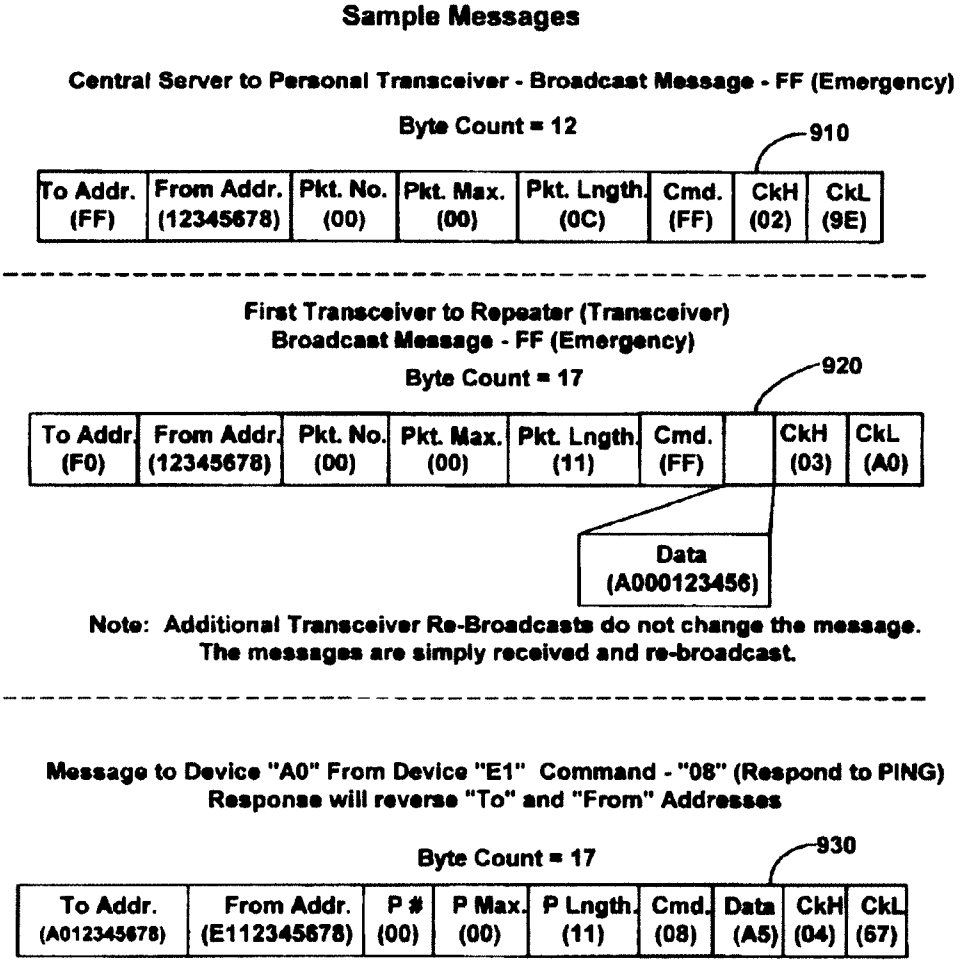


FIG. 9

As shown, the three messages (910, 920, and 930) have fields CkH (02, 03, and 04) and CkL (9E, A0, and 57). Although the messages are discussed in the patent, *id.* at 17:13-44, the discussion does not refer to or elaborate upon the CkH and CkL fields shown in Figure 9.

There is no dispute that the CKH 780 and CKL 790 fields shown in Figure 7 perform the claimed function of "indicating potential error." *Id.* at 3:21-22. Moreover, there is no dispute

that Figure 9's CkH and CkL fields are examples of the CKH 780 and CKL 790 fields shown in Figure 7. Tr. at 246:16-247:2 (counsel for SIPCO), 252:1-8 (counsel for Emerson). At the hearing, Respondents indicated that they would not oppose including Figure 9's CkH and CkL fields as examples of the CKH 780 and CKL 790, so long as it is "clear that [the disclosed structure] is limited to the structure disclosed in figure 7." Tr. at 252:1-8. Respondents' position is consistent with the specification's description of Figures 7 and 9. '893 patent at 3:21-22. Accordingly, with the understanding that the "CkH" and "CkL" fields shown in FIG. 9 are examples of checksum error detector 780 and 790 shown in Figure 7, I adopt Respondents proposed definition of the corresponding structure: a field of the data packet containing the check sumerror detector 780 and 790 (such as the "CkH" or "CkL" fields shown in FIG. 9) and equivalents thereof.

b. "means for sending and receiving messages"

"means for sending and receiving messages"	**Function:** sending and receiving messages (agreed)	
	Structure: a gateway (element 600), including an antenna (element 610) and a RF transceiver (element 615) and structural equivalents thereof	**Structure**: RF transceiver (which may include an antenna) and structural equivalents thereof

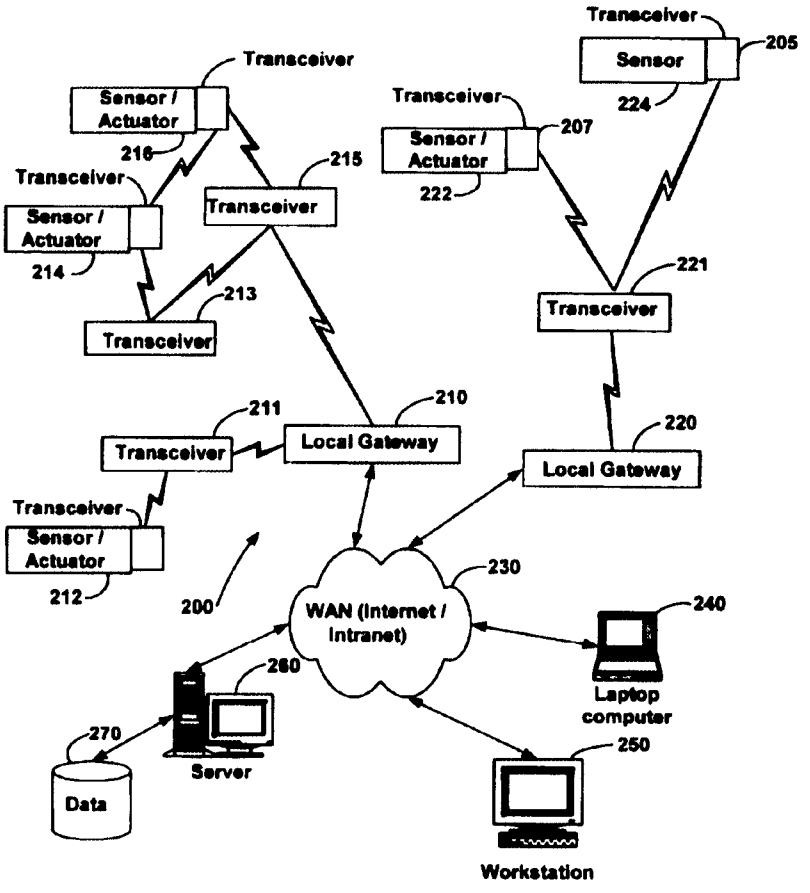
Claim 19 is directed to a "system for controlling geographically diverse devices from a central location." '893 patent at 17:4-5. The system comprises (1) a "means for sending or receiving messages" and (2) "a plurality of means for communicating information." *Id.* at 17:6-24. The parties agree that the claimed function of the "means for sending or receiving messages" is to "send[] and receiv[e] messages," but disagree on the corresponding structure. SIPCO argues that the disclosed structure consists of a local gateway, or more specifically, the local gateway's RF transceiver. In contrast, Respondents identify the disclosed structure as "RF

transceivers," thereby capturing RF transceivers that are not part of a gateway, as well as RF transceivers that are part of a gateway.

Before addressing the parties' dispute concerning the corresponding structure, the parties' agreed-upon definition of the claimed function must be addressed. *See, e.g., Baran v. Medical Device Technologies, Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010) ("In construing a means-plus-function claim, the district court must first determine the claimed function and then identify the corresponding structure in the written description of the patent that performs that function."). The claimed function is not sending and receiving messages in general, but sending and receiving specific types of messages. According to the claim language, the "means for sending or receiving messages" sends messages containing commands and receives messages containing responses to the commands. *Id.* at 17-6-8. Thus, the claimed function is sending messages containing commands and receiving messages containing responses to the commands.

1) The local gateway performs the claimed function.

The specification discloses the claimed function being performed by a gateway. Figure 2 "is a block diagram illustrating a monitoring/control system of the present invention." Stand-alone transceivers (211, 213, 215, and 221) act as relays between integrated transceivers (212, 214, 216, 222, and 224) and local gateways 210 and 220. *Id.* at 4:57-63. The local gateways transmit and receive information over WAN 230. *Id.* at 4:41-45. As such, the local gateway can provide information detected by the integrated transceivers to laptop computer 240, workstation 25, and server 260, and can communicate information, service requests, control signals, *etc.* to the remote integrated transceivers from server 260, laptop computer 240, and/or workstation 250 across WAN 230. *Id.* at 4:38-49.



The '893 patent describes the relationship between the local gateways and the stand-alone transceivers and integrated transceivers accordingly:

> With the exception of emergency messages, the local gateway 210 usually initiates communications with any remote transceivers (either stand-alone 211, 213, 215, 221 or integrated 212, 214, 216, 224). The remote transceivers then respond based upon the command received in the message.

Id. at 12:45-54. One type of command is a data request. *Id.* at 10:66-11:2. A remote integrated transceiver will respond to a command requesting data by providing a message containing the requested data. *Id.* at 12:63-67. Thus, local gateway 210 is clearly described as performing the claimed function of sending messages containing commands and receiving messages containing responses to the commands.

Figure 6 illustrates a local gateway in accordance with the invention.

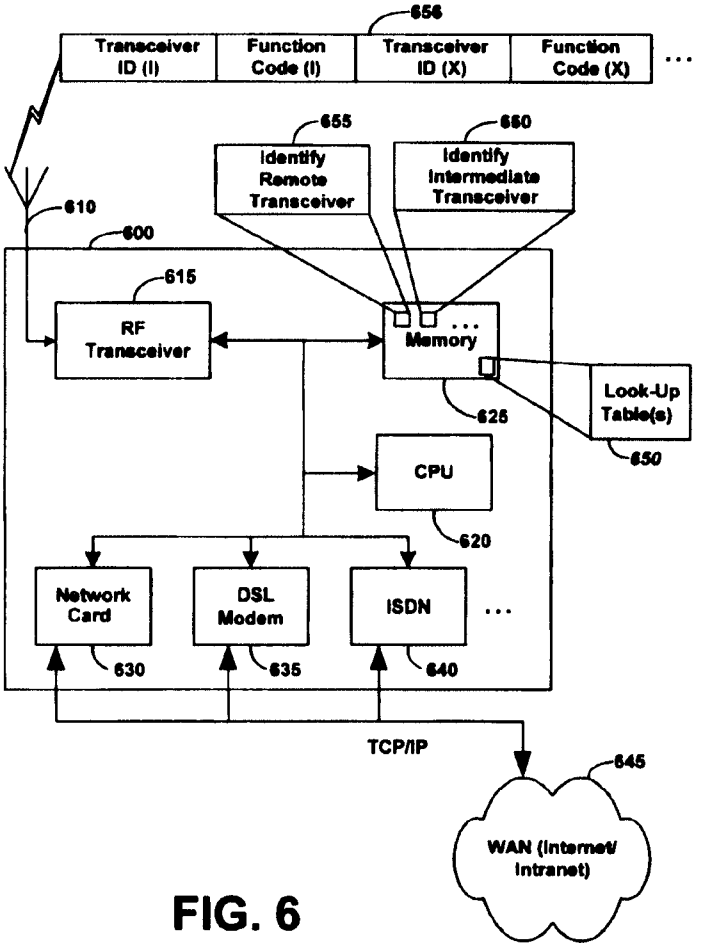


FIG. 6

As described by the '893 patent—consistent with SIPCO's identification of corresponding structure—local gateway 600 sends and receives messages through antenna 610 and RF transceiver 615. *See, e.g., id.* at 9:23-24.

2) The remote transceivers are not corresponding structure.

Viewing portions of the specification in isolation, it can be argued that the remote transceivers are corresponding structure to the "means for receiving and sending messages." Like the local gateway, the remote transmitters can send messages with commands and receive messages with responses to commands. Specifically, the stand-alone transceivers act as relays between the gateway and integrated transceivers. Accordingly, they send messages containing

commands that originated from the gateway to integrated transceivers and send messages containing responses to commands from the integrated transceiver to the gateways. The integrated transceiver can initiate messages with commands, in the form of emergency messages. *Id.* at 11:4-8 (identifying emergency messages as a command), 13:1-2 ("Emergency messages, preferably the only messages initiated by the integrated transceiver 212, 214, 216, 224."). An integrated transceiver sending an emergency message will receive a message from the gateway responding to the command, in the form of an acknowledgement. *Id.* at 13:16-17 ("In response to this emergency message, the local gateway 210 acknowledges during a silent period."), 13:21-26 ("Upon receipt of the local gateway 210 acknowledgement, the personal transceiver resets itself. If no acknowledgement is received within a predetermined time period, the personal transceiver continues to re-transmit the original emergency message until acknowledged by the local gateway 210 for a predetermined number of re-transmissions."). Interpreting the remote transceivers to be corresponding structure to the "means for sending and receiving messages" would be flawed as it is inconsistent with the claim language and the specification in its entirety. *See, e.g., Bubbe v. Harley-Davidson,* 250 F.3d 1369, 1379-80 (Fed. Cir. 2001) ("In construing terms used in patent claims, it is necessary to consider the specification as a whole, and to read all portions of the written description, if possible, in a manner that renders the patent internally consistent.").

Claim 19 requires two primary components: a "means for sending and receiving messages" and "a plurality of means for communicating information." As shown by the claim language and the specification, the remote transceivers correspond to the "plurality of means for communicating information," not the "means for sending and receiving." The claim language requires that each of the "plurality of means of communicating information" have a "unique

identifying address." *Id.* at 17:17-18. The specification describes the remote transceivers—not the gateway's transceiver—as having a unique address. For example, transceiver 340 shown in Figure 3 is an integrated transceiver and has a "unique transceiver address" to distinguish it from other remote transceivers in the system. *Id.* at 6:49-60; *see also, id.* at Abstract ("The remote sensor(s)/actuator(s) then interface with uniquely identified remote transceivers that transmit and/or receive data."), 2:39-41 (same), 6:38-42 ("In accordance with a preferred embodiment, each transceiver 324 may be configured with a unique transceiver identification 326 that uniquely identifies the RF transceiver 340.") The specification further teaches that the stand-alone transceivers have unique addresses. *Id.* at 10:39-42 ("The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated).").

The specification discusses why it is important the remote transceivers have unique addresses. It is possible for multiple stand-alone transceivers to pick-up and re-send a single transmission from an integrated transceiver. *Id.* at 5:29-30. Thus, the local gateway "may receive multiple versions of the same data transmission from an integrated transceiver but from different stand-alone transceivers." *Id.* at 5:30-32. Because the remote transceiver's unique address is incorporated into messages sent to the gateways, "duplicative transmissions (*e.g.*, transmissions duplicated to more than one gateway or to the same gateway) may be ignored or otherwise appropriately handled." *Id.* at 5:36-40.

Interpreting the "plurality of means for communicating information" to correspond to the remote transceivers is consistent with claim 19's dependent claims. *Laitram Corp. v. NEC Corp.*, 62 F.3d 1388, 1392 (Fed. Cir. 1995) ("Although each claim is an independent invention, dependent claims can aid in interpreting the scope of claims from which they depend."). Claim

21, which depends from claim 19 through intervening claim 20, requires the "plurality of means for communicating information" include "at least one means for integrated sensing and communicating," *i.e.*, at least one integrated transceiver. *Id.* at 17:34-43.

For the reasons set forth above, I find that the structure corresponding to the means "means for sending and receiving messages" is a gateway (element 600), including an antenna (element 610) and a RF transceiver (element 615), and structural equivalents thereof.

c. "means for communicating information"

Claim Term	SIPCO's Construction	Respondents' Construction
"means for communicating information"	**Function:** communicating information (agreed)	
	Structure: a RF transceiver (elements 340 or 500) including an antenna (elements 323 or 550), a transceiver controller (elements 328 or 530), and a power supply (a replaceable battery), and structural equivalents thereof.	**Structure**: RF transceiver (which may include an antenna and a transceiver controller) and structural equivalents thereof

As discussed above, claim 19 requires a plurality of means for communicating information. Respondents identify a generic RF transceiver as the corresponding structure without reference to the specification, while SIPCO identifies the corresponding structure as the transceivers disclosed in Figures 3 and 5 of the specification. Both proposed definitions of corresponding structure are flawed. Respondents' identification of generic RF transceivers without reference to the specification is inconsistent with the requirements of §112(6), which limits a means-plus-function element to "the corresponding structure . . . described in the specification and equivalents thereof." SIPCO's proposed definition is flawed because it improperly limits the corresponding structure to battery-powered integrated transceivers.

The only transceivers identified by SIPCO are those shown in Figures 3 and 5. In both of these embodiments, the transceivers are integrated with a sensor or actuator. *Id.* at 6:14-16

("Certain functional blocks of a transceiver 340 that may be integrated with sensor 310."), 7:54-55 ("FIG. 5 sets forth a block diagram of the transceiver 500 that is integrated with a sensor 510 and an actuator 520."). As explained below, however, the claimed "means for communicating information" corresponds to the stand-alone transceivers, as well as the integrated transceivers.

The claim language requires that the "means for communicating information" have (1) a unique identifying address, (2) a "means for receiving messages," (3) a "means for preparing responses to the received message," and (4) a "means for sending the response message." *Id.* at 17:11-18. As discussed above, both stand-alone transceivers and integrated transceivers have a unique identifying address. *Id.* at 10:39-42 ("The second byte can be the identification base, and bytes three through six can be used for the unique transceiver address (either stand-alone or integrated)."). Both stand-alone transceivers and integrated transceivers receive messages from the gateway, prepare responses to the messages, and send response messages. *Id.* at 12:51-54 ("In general, the local gateway 210 expects a response to all messages sent to any of the remote transceivers 211, 212, 213,214, 215, 216, 221, and 225."). For instance, the gateway could send a stand-alone transceiver a "ping" command. *Id.* at 11:4-8 (identifying ping request as a command), 12:28-33 ("The third message 930 illustrated in FIG. 9 illustrates how the message protocol of the present invention may be used to 'ping' a remote transceiver in order to determine transceiver health. In this manner, source unit 'E112345678' originates a ping request by sending command '08' to a transceiver identified as 'A012345678.'"). In response to a "ping" command, the stand-alone transceiver sends a ping message back to the gateway. *Id.* at 12:33-37. In order to do this, the stand-alone transceiver "revers[es] the 'to address' and the 'from address' of the command" and "send[s] a ping message back to the originating device." *Id.*

SIPCO's attempt to limit the corresponding structure to battery-powered transceivers also unduly excludes disclosed structure. SIPCO's only basis for limiting the disclosed structure to battery-powered transceivers is the '893 patent's teaching "that the various RF communication devices illustrated and described may be configured with a number of optional power supply configurations." *Id.* at 8:59-62. As examples of "optional power supply configurations," the patent notes that "a personal mobile transceiver may be powered by a replaceable battery" and a stand-alone RF transceiver/repeater may be powered by a replaceable battery that may be supplemented and or periodically charged via a solar panel." *Id.* at 8:62-66. Although the power source explicitly discussed in the patent is a replaceable battery, the patent indicates that the disclosed remote transceivers are not limited to transceivers powered by replaceable batteries. In particular, the patent teaches that the "power supply circuits . . . may differ from RF communication device to RF communication device depending upon the remote system monitored, the related actuators to be controlled, the environment, and the quality of service level required." *Id.* at 8:66-9:4. The patent further notes that because "[t]hose skilled in the art will appreciate and understand how to meet the power requirements of the various RF communication devices," "it is not necessary to further describe a power supply suitable for each RF communication device and each application in order to appreciate the concepts and teachings of the present invention." *Id.* at 9:4-9. In other words, according to the patent, the disclosed transceivers could use any type of power source.

Based on the foregoing, I find that the means for communicating information corresponds to the following structure: Remote transceivers 211, 212, 213, 214, 215, 216, 221, 224, 340, and 500 and structural equivalents thereof.

d. "means for receiving messages"/"means for preparing responses to the received message"/"means for sending the response message"

[redacted]	[redacted]	[redacted]
"means for receiving messages "	**Function:** receiving messages (agreed)	
	Structure: a RF transceiver (elements 340 or 500) including an antenna (elements 323 or 550), a transceiver controller (elements 328 or 530), and a power supply (a replaceable battery), and structural equivalents thereof.	**Structure**: RF transceiver (which may include an antenna and a transceiver controller) and structural equivalents thereof
"means for preparing responses to the received message"	**Function**: preparing responses to the received messages (agreed)	
	Structure: data controller (elements 324 or 535) and a power supply (a replaceable battery), and structural equivalents thereof	**Structure**: RF transceiver and data controller and structural equivalents thereof
"means for sending the response message"	**Function**: sending the response message (agreed)	
	Structure: a RF transceiver (elements 340 or 500) including an antenna (elements 323 or 550), a transceiver controller (elements 328 or 530), and a power supply (a replaceable battery), and structural equivalents thereof.	**Structure**: RF transceiver (which may include an antenna and a transceiver controller) and structural equivalents thereof

The claim language requires that the "means for communicating information" comprise (1) a "means for receiving messages," (2) a "means for preparing responses to the received message," and (3) a "means for sending the response message." *Id.* at 17:11-16. The parties' proposed constructions for these terms reflect their flawed constructions of "means for communicating information." Respondents identify the structure generically without reference to the specification, while SIPCO unduly limits the proposed construction to battery-powered integrated transceivers. As discussed above, the remote transceivers—stand-alone transceivers, as well as integrated transceivers—disclosed in the specification perform the claimed functions of receiving messages, preparing responses to the received messages, and sending response messages. In addition, there is no suggestion in the '893 patent that the disclosed remote transceivers are powered by replaceable batteries, only that they could be.

For the "means for receiving messages" and the "means for sending the response message," both parties agree that the disclosed structure corresponds to an RF transceiver. Consistent with the construction of "means for communicating information," I find that the structure for both of these limitations corresponds to the following structures disclosed in the specification: Remote transceivers 211, 212, 213, 214, 215, 216, 221, 224, 340, and 500 and structural equivalents thereof.

With regard to the structure corresponding to the "means for preparing responses to the received message," Respondents identify an RF transceiver and data controller, while SIPCO identifies the data controller shown in Figures 3 and 5. Although Respondents do not link the data controller in their definition to specific data controllers disclosed in the specification, the only relevant data controllers disclosed in the specification are those shown in Figures 3 and 5.[8] As discussed above, the transceivers shown in these figures are integrated with sensors or actuators. *Id.* at 6:14-16, 7:54-55. Defining the corresponding structure to require only data controllers shown in Figures 3 and 5, would improperly exclude stand-alone transceivers. Based on the foregoing, I find that the "means for preparing responses to the received message" corresponds to the following structure: Remote transceivers 211, 212, 213, 214, 215, 216, 221, 224, 340, and 500 and structural equivalents thereof.

[8] Although a data controller is shown in Figure 4 (element 425), the Figure 4 embodiment does not correspond to the "means for preparing responses to the received message" because it is a transmitter, not a transceiver. '893 patent at 3:10-12 ("FIG. 4 is a block diagram illustrating a transmitter in accordance with the present invention integrated with a sensor[.]"). Because a transmitter cannot receive messages, it cannot prepare responses to messages. *Id.* at 5:41-44 ("The advantage of integrating a transceiver, as opposed to a one-way transmitter, with the sensor is the transceiver's ability to receive incoming control signals and to transmit data signals upon demand.").

4. Claim 19 ("the message")

Claim Term	SIPCO's Proposed Construction	Respondents' Proposed Construction
"the message"	Plain and ordinary meaning; if construed: "each message"	Indefinite

Respondents claim that the term "the message" as used in the phrase "wherein the message comprises," '893 patent at 17:6-9, is indefinite because it has multiple potential antecedent bases. Respondents note that the term is singular but there is no single "message" referenced previously in claim 19. Respondents assert that the term could refer to one of the sent messages recited in claim 19, to one of the received messages recited in claim 19, or to both the sent and received messages. Dr. Akl declares that a POSITA would be unable to ascertain the meaning of the term "the message" because of this ambiguity. RIB Ex. 26 at ¶104. Respondents maintain that SIPCO's proposed construction, which inserts the word "each" before the word "message," either does not resolve the ambiguity or impermissibly rewrites the claim.

SIPCO argues that the term refers to each "message" in claim 19, and there is no ambiguity. SIPCO asserts the claim makes clear that "the message" comprises "a means for packeting the message," and that the disputed term "clearly refers to each message because both the command and response messages are packetized." CIB at 18. SIPCO cites the testimony of its expert, Dr. Almeroth, but does not point to any part of the specification or prosecution history supporting its interpretation. *See* CXM-7 (Almeroth Decl.) ¶ 32.

Respondents are correct that the term "the message" lacks an antecedent basis. This deficiency, however, does not necessarily render the claim indefinite. A claim is "invalid for indefiniteness if its language, when read in light of the specification and the prosecution history, 'fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention.'" *Media Rights Technologies, Inc. v. Capital One Financial Corp.*, 800 F.3d 1366,

1371 (Fed. Cir. 2015) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014)) (alteration in original). "Notably, a claim is indefinite if its language 'might mean several different things and no informed and confident choice is available among the contending definitions.'" *Id.* (quoting *Nautilus*, 572 U.S. at 912 n. 8). While the lack of an antecedent basis may render claim language indefinite, it does not do so "as long as the claim 'apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by [§ 112 ¶ 2].'" *In re Downing,* 754 Fed. Appx. 988, 996 (Fed. Cir. 2018) (nonprecedential) (quoting § 2173.05(e)) (alterations in original). For the reasons set forth below, I find that the lack of antecedent basis does not render the term "the message" indefinite.

Claim 19 is directed to a system with two primary components: (1) a "means for sending and receiving messages" and (2) "a plurality of means for communicating information." As discussed above, these terms are means-plus-function terms, wherein the "means for sending and receiving messages" corresponds to the local gateway disclosed in the specification and the "plurality of means for communicating information" corresponds to the remote transceivers. The term "the message" appears in a "wherein" clause describing the "means for sending and receiving messages." The "means for sending and receiving messages" is required to send "messages contain[ing] commands" ("sent messages") and receive "messages contain[ing] responses to commands" ("received messages"). '893 patent at 17:6-10. The "wherein" clause requires that "the message" have "at least one means for packeting a message," without indicating whether "the message" refers to one of the "sent messages," one of the "received messages," or both. As explained below, the "wherein" clause's requirement that "the message" have a "means for packeting a message" does not resolve the ambiguity. *Id.* at 17:8-10.

"Means for packeting a message" is a means-plus-function term. The parties agree that the claimed function is "packeting a message" and that the corresponding structure is the packet message protocol shown in Figures 7-9 of the patent and structural equivalents thereto. Second Updated Joint List of Agreed-Upon and Disputed Claim Terms for Construction (July 3, 2019) at 3. Figure 7 "illustrat[es] the message protocol of the present invention." '893 patent, 3:18-19.

FIG. 7 Message Structure

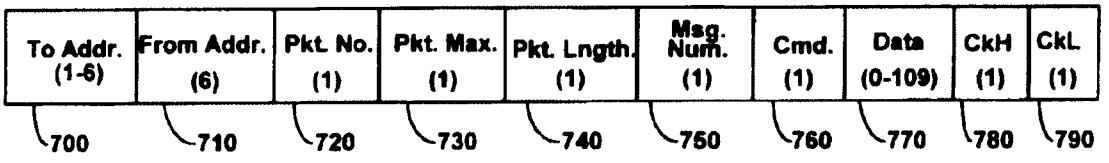


Figure 8 "is a table illustrating various 'to' addresses" that can be used in the Figure 7 embodiment, while Figure 9 "illustrates three sample messages using the message protocol" shown in Figure 7. *Id.* at 3:21-23. The specification teaches that "[f]or each of the remote devices to communicate, there needs to be a standard so that each device can understand the message." *Id.* at 10:22-24. Accordingly, "all messages" sent between a local gateway, on one hand, and the remote transceivers, on the other, have the format shown in Figure 7. *Id.* at 10:22-31. As a result, each message sent from a gateway to the remote transceivers and each message received by a gateway from the remote transceivers has a "means for packeting a message." Accordingly, because all of the messages sent between the gateway and the remote transceivers have a "means for packeting a message," the claim term "the message" could refer to one of the "sent messages," one of the "received messages," or both.

Although the claim's description of the "means for sending and receiving messages" does not resolve the identity of "the message," the claim's description of the "means for communicating information" does. The "means for communicating information" must have a

"means for preparing responses to the received message" and a "means for sending the response message" to the received message. *Id.* at 17:14-16. As indicated by "the received message" and "the response message," "the message" is one that the "means for communicating information" receives and to which it responds, *i.e.*, a message sent by the "means for sending and receiving messages" (local gateway) to the "plurality of a means for communicating information" (remote transceivers).

This interpretation is further supported by claim 22, which depends from claim 19 through intervening claims 20 and 21. *Id.* at 17:44-49. Claim 22 requires that the "preparing means" of claim 19's "means for communicating information" "evaluate[] the received message for the correct unique receiver address . . . and prepare[] the packets of the [response] message" and further requires that the "sending means" of claim 19's "means for communicating information" "send[] the [response] message." *Id.*

Based on the foregoing, I find that the term "the message" does not render claim 19 indefinite.

B. The '511 Patent

1. Claim 8 and 44 ("wide area network")

"wide area network" (claim 8, 44)	Plain and ordinary meaning; if construed, "a network, such as the Internet or an intranet, that is larger than a local area network"	Indefinite To the extent it can be construed: a network, such as the Internet, that spans geographically separate areas and is larger than a local area network

Respondents contend that the recitation of the term "wide area network" (WAN) in the preamble and elsewhere is indefinite because the patent provides no clear delineation between a WAN and a "local area network" (LAN). This lack of definition is important, Respondents

argue, because SIPCO disclaimed claim scope with respect to LANs during prosecution, distinguishing prior art on the basis that it "requires local transmission and not transmission over a wide area network." RIB Ex. 10 at 11. As a result, Respondents contend, the '511 patent does not cover use of LANs as opposed WANs and, without a clear demarcation between the two types of networks, a POSITA could not be reasonably certain of scope of the '511 patent. RIB at 11 (citing *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1359 (Fed. Cir. 2017)).

SIPCO agrees that a WAN must be larger than a LAN but contends that the term is not indefinite, citing a Commission decision noting the Internet as an example of a WAN. CRB at 10 (citing *Certain Printing and Imaging Devices and Components Thereof,* Inv. No. 337-TA-690, Comm'n Op., 2011 WL 7628059 (Nov. 1, 2011).[9] SIPCO also points to element 120 in Fig. 1 of the specification, which indicates that a WAN can be the internet or an intranet. In addition, SIPCO's expert, Dr. Almeroth offers his opinion that WAN is a "well-known term of art." CXM-7 (Almeroth Decl.) ¶ 38. Although Respondents' expert, Dr. Axl, agrees that WAN is a term of art, he offers his opinion that a POSITA "would not have been able to ascertain the scope of 'wide area network' as used in these claims with reasonable certainty." RIB, Ex. 26 (Axl Decl.) ¶¶ 149. In his opinion, "a POSITA would not have known exactly where the boundary lies between a WAN and a 'local area network' ('LAN')." *Id.* ¶ 144.

Based on the *Markman* record, I agree with Respondents that there is no intrinsic evidence that defines the boundaries of a WAN distinctly from a LAN. Although SIPCO maintains that a POSITA would know the difference, Dr. Almeroth concedes "there may be no clear-cut demarcation between a 'wide area network' and a 'local area network.'" *See* CXM-7

[9] The reference cited by SIPCO appears in the ALJ's decision, not the Commission's opinion. 2011 WL 7628059 at *143.

(Almeroth Decl.) ¶ 38.[10] SIPCO nevertheless insists that the term is not indefinite, based on Dr. Almeroth's testimony that a WAN "is a well-known term of art." CXM-7 at ¶ 38. A term of art is "a term that has a specialized meaning in a particular field or profession."[11] By definition, a term of art is not "what most people are familiar with." RIB at 29 (citing *Printing and Imaging*, Ivn. No. 337-TA-690). Merely recognizing, moreover, that WAN is a term of art does not end the claim construction analysis, because claim terms must be construed in the context of the patent's specification and prosecution history. *See AquaTex Industries, Inc. v. Techniche Solutions*, 419 F.3d 1374, 1380 (Fed. Cir. 2005) ("Where, as here, the disputed claim term is technical or a term of art, the best source for understanding it is the specification from which it arose, informed, as needed, by the prosecution history." (citing *Phillips*, 415 F.3d at 1315) (internal quotations removed)). A term is indefinite when the "phrase, when viewed in light of the specification and prosecution history, fails to 'inform those skilled in the art about the scope of the invention with reasonable certainty.'" *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1374 (Fed. Cir. 2014) (quoting *Nautilus*, 572 U.S. at 910).

As noted above, statements in the prosecution history of the '511 patent explicitly distinguish between a WAN and a LAN. In an effort to overcome an obviousness rejection, SIPCO told the patent office:

> Furthermore, Appellant submits that the '491 patent teaches away from using a WAN and corresponding wireless communication protocol. As mentioned above, the local system disclosed in the '491 patent is used to

[10] As stated by SIPCO counsel at hearing, Dr. Almeroth's entire quote is: "While there may not be any clear cut demarcation between a wide area network and a local area network, those skilled in the art are well aware of the term's meaning and that wide area network is larger than a local area network. The internet, for example is a WAN. It is also readily known that the wide area network can be constructed from an intranet (*e.g.* corporate intranet connecting multiple office of locations)." Tr. at 146:10-20.

[11] Retrieved from www.merriam-webster.com/dictionary/termofart.

> transmit physical characteristics of industrial machines from monitors 4 (inside a manufacturing plant) to command station 8 (also inside manufacturing plant) via repeaters 8. In other words, the system requires **local** transmission and not transmission over a **wide** area network. Therefore, Appellant respectfully submits that the Examiner establishes no motivation or suggestion to combine the '347 patent and the '491 patent such as to render obvious independent claim 1.

RIB Ex. 10 at 11.

SIPCO purports to recognize this distinction with its proposed construction describing a WAN as "larger than" a LAN, but this merely replaces one term of art (WAN) with another (LAN), and introduces a term of degree ("larger than"). Respondents' proposed alternative construction offers more specificity by requiring that a WAN span "geographically separate areas," but Dr. Almeroth declares this description to be ambiguous: "[A]lthough two computers on opposite ends of a large office building might be connected via a 'local area network,' they might be more 'geographically separate' than one's own smartphone and desk computer communicating over the Internet, *i.e.,* a WAN, even though they are mere feet from each other." CXM-7 at ¶ 38.[12] That is the point of Respondent's indefiniteness argument: there is no evidence in this record of a clear demarcation between a WAN and a LAN. SIPCO's response to Respondent's argument does not advance the analysis. "[T]he specification states," SIPCO asserts, "that a WAN can be the internet or intranet. While Respondents correctly note that an intranet could be a WAN or a LAN, an intranet that *is a WAN* is not a LAN." CRB at 10 (internal citation omitted).

[12] In *DataTreasuryCorp. v. Wells Fargo & Co., Inc.,* Civil Action Nos. 25-CV-291-293; 2:06-CV-72, 2009 WL 1393068 at * 51 (E.D. Tex. 2009), the patentee admitted similarly that "WANs are typically used to cover wider distances than LANs, but 'it is also common to use them when there is no geographical distance, as when two persons in the same room or building email each other or use instant-messaging that occurs over the Internet.'"

The intrinsic record for the '511 patent includes two statements regarding the meaning of WAN that are in tension: the figures in the specification describe a WAN as an "Internet/Intranet," but the prosecution history distinguishes a WAN from a "local system" providing "local transmission" that is "inside a manufacturing plant." *Compare* '511 patent, Figs. 1, 3, 4, 10, and 11 *with* RIB Ex. 10 at 11. It may be possible for one of ordinary skill in the art to reconcile these statements with the plain and ordinary meaning of WAN, but neither the parties nor their experts have done so. Significantly, both parties' experts agree that a POSITA would not be able to determine clearly where the boundary lies between a WAN and a LAN. *See* Tr. at 135. Although there appears to be general agreement that a WAN is understood to cover a larger geographical area than a LAN, the experts explain that geographical scope is not what distinguishes a LAN from a WAN. The word "larger," moreover, provides no definitional clarity. The conflicting interpretations for this term offered by SIPCO fall short of the "reasonable certainty" required by *Nautilus,* 572 U.S. at 910.

SIPCO cites several courts that have construed the term WAN in various contexts, but none of these courts addressed the issue of indefiniteness. The same '511 patent claim language was at issue in *SIPCO, LLC v. Amazon.com, Inc.*, where the court, having rejected the parties' attempts to define the term, concluded that it should be given its plain and ordinary meaning. Case No. 2:08-CV-359-JRG, 2012 WL 5195942, at *16 (E.D. Tex. 2012). The court also "note[d] its understanding that the plain and ordinary meaning of 'wide area network' does not include a local area network." *Id.*[13] SIPCO relies on this decision to support its argument that

[13] The court recognized that the "patentee's characterization of a 'wide area network' as something not local should be given effect.'" *Id.* at *16 (citing *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1381 (Fed. Cir. 2011) ("The patentee is bound by representations made and actions that were taken in order to obtain the patent.")).

WAN is a term of art that should be construed to have its plain and ordinary meaning, but *SIPCO v. Amazon* does not address the question of indefiniteness. As the Supreme Court held in *Nautilus*, "[i]t cannot be sufficient that a court can ascribe *some* meaning to a patent's claims." 572 U.S. at 911 (emphasis in original).[14] Although the court in *SIPCO v. Amazon* construed WAN to have its plain and ordinary meaning, the court was not able to articulate that meaning, and it did not address Respondents' argument that there is no clear demarcation between a WAN and a LAN.

SIPCO also cites *Johnson Health Tech. Co. Ltd. v. Icon Health & Fitness, Inc.*, where the PTAB construed the term "wide area network interface" to mean "a communication link with a network of computers interconnected over a wide area, such as the Internet." Case No. IPR2014-00184, 2014 WL 2623463, at *5 (Pat Tr. & App. Bd., June 10, 2014). *Johnson*, however, construed the term WAN in the context of a skilled artisan's understanding that "the disclosure of a wide area network link [would] be different from a telephone line link." *Id.* If the distinction drawn by SIPCO during prosecution of the '511 patent was between a WAN and a "modem/telephone line," as in *Johnson,* there would be no indefiniteness issue. But that is not the case here, and the *Johnson* decision is not on point.

The terms WAN and LAN were both construed in *DataTreasury Corp. v. Wells Fargo & Co.*, Civil Action Nos. 2:05-CV-291-293; 2:06-CV-72, 2009 WL 1393068, at *49 (E.D. Tex. 2009). The court first concluded that the term LAN was used in its plain and ordinary sense. *Id.* at *50. Attempting to construe the meaning further, the court found all the proffered constructions "problematic." *Id.* One party's construction included the term "remote," which the court found inconsistent with the plain and ordinary meaning; the other party's construction

[14] *SIPCO v. Amazon* was decided in 2012, before the Supreme Court's 2014 *Nautilus* decision.

"improperly" restricted a LAN to a particular facility. *Id.* The court then construed the term LAN in the light of "practically unanimous" extrinsic sources to mean "'a communication network that connects computers and/or devices that are located within a short distance of each other, such as within an office, a building, or a university campus.'" *Id.*

The court then turned to the construction of the term wide area network and concluded that WAN also was used in the patent in its plain and ordinary sense. *Id.* at *51. The court again noted that the constructions proffered by both parties were problematic; the court again objected to DataTreasury's use of the term "remote," and noted that the defendants' construction "adds an ambiguous 'geographically distant' requirement." *Id.* In the end, the court opted, again in reliance on "practically unanimous" extrinsic sources,[15] to distinguish a WAN from a LAN "in terms of geographic coverage of the maximum distance between network nodes." *Id.* at *52. The court construed "'wide area network (wan)' to mean 'a communication network covering a larger geographical area than that served by a LAN that connects LANs, computers, and/or devices that may be separated by large distances. The Internet is an example of a WAN." *Id.*

The construction of the court in *DataTreasury* is better than either of the constructions proposed in the present investigation, but as argued by the parties in the *Markman* briefing, it is not clear what the meaning of "a larger geographical area" or "large distances" would be in the context of the '511 patent. Moreover, because the patent claims at issue in *DataTreasury* recited both a WAN and a LAN, these terms may have been more amenable to construction in relation to one another—an infringement analysis for that patent would entail the identification of both an accused LAN and an accused WAN meeting the limitations of the claim. In contrast, the '511 patent claims only describe a WAN, and the references to a LAN in the parties' proposed claim

[15] The parties have directed me to no such extrinsic evidence regarding the definition of WAN.

constructions are based solely on the patentee's statement in the prosecution history. An infringement analysis for the '511 patent would necessitate the comparison of an accused WAN with an abstract or hypothetical LAN—the characteristics of this WAN and LAN thus require a reasonable degree of clarity.

The supplemental materials submitted by SIPCO confirm that no such clarity can be achieved under the parties' proposed claim constructions. *See* SIPCO Supp. Claim Construction Brief (Aug. 5, 2019). In Dr. Almeroth's deposition testimony, he identifies numerous factors that he would consider to determine whether a network is a WAN or a LAN, including the kinds of protocols, routing, switching, and other technical considerations. SIPCO Supp. Ex. 2 (Almeroth Dep. Tr.) at 197-201. Another of SIPCO's experts, Dr. Roy, identifies physical area and the number of nodes and network elements as factors characterizing a WAN. SIPCO Supp. Ex. 3 (Roy Dep. Tr. at 165). A third SIPCO expert, Dr. Mir, identifies additional factors, including the security level, congestion, the type of wires and links, and the topology of the network. SIPCO Supp. Ex. 4 at 64-65. Mr. Petite, the inventor of the '511 patent, acknowledges that whether a network is a WAN or a LAN "[d]epends on the application," and he would ask, "[W]hat am I going to use it for?" SIPCO Supp. Ex. 5 at 301. SIPCO's witnesses do not identify any consistent list of criteria for distinguishing between a WAN and a LAN, indicating a lack of objective boundaries for these terms. The Federal Circuit has found claim terms indefinite in similar circumstances, where the scope of a claim "depends 'on the unpredictable vagaries of any one person's opinion.'" *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (quoting *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350 (Fed. Cir. 2005)).

SIPCO and its experts had an opportunity to provide a reasonably clear definition for "wide area network" but did not. I cannot adopt a construction that fails to inform a POSITA of the actual scope of the invention, particularly where the scope of the term at issue was explicitly discussed during the patent's prosecution. "Fuzziness" in a patent is acceptable, *see* Tr. at 160:20-25, but the lack of a reasonably clear definition of a term critical to the intended scope of a claim is not. The term "WAN" may be a term of art, but it is not a term of art whose meaning can be distinguished by a POSITA from the term "LAN" with reasonably clarity in the context of the '511 patent, as both parties' experts agree. The claims therefore fail "to inform, with reasonable certainty," those skilled in the art about the scope of the invention. *Nautilus, supra.* Accordingly, all asserted claims of the '511 patent are invalid for indefiniteness pursuant to 35 U.S.C. § 112, ¶ 2.

2. Additional Disputes

In light of the finding of indefiniteness with respect to "wide area network," the parties' remaining claim construction disputes regarding additional claim terms in the '511 patent are moot.[16]

[16] Because this order is being issued at a late stage of this investigation, the parties shall meet and confer to discuss how to proceed regarding the '511 patent. If the parties agree to proceed by way of a motion for summary determination, the court will entertain the motion out of time. *See, e.g., Certain Toner Cartridges and Components Thereof*, Inv. No. 337-TA-1106, Order No. 40 (Mar. 13, 2019) (parties agreed that summary determination was appropriate under the court's claim construction, allowing complainant to petition for review of the construction), *affirmed by* Comm'n Notice (May 20, 2019). If the parties are unable to reach agreement in advance of the hearing, the parties shall proceed with their cases with respect to the '511 patent, although the final initial determination will reflect the finding that the asserted claims are indefinite.

C. The '708 patent

1. Claim 1 ("remote wireless device")

SIPCO's Proposed Construction	Respondents' Proposed Construction
Plain and ordinary meaning; if "remote" needs to be construed, "located separately"	Plain and ordinary meaning of "remote" [wireless] device (*i.e.*, "[wireless] device that is located distant from the local gateway in the system")

Claim 1 recites, in pertinent part, "a controller configured to communicate with at least one other remote wireless device . . . the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device." '708 patent at 14:12-17. SIPCO maintains that a POSITA would understand that "while the word 'remote' connotes some separateness from the local gateway, it does not exclude such 'remote devices' from being located nearby the local gateway, for example, in a specific room or a portion of a controlled facility." CIB at 34 (citing '708 patent at 13:23-31); CXM-7 (Almeroth Decl.) at ¶¶47-48. SIPCO contends that Respondents' proposed construction "excludes such low-powered remote device embodiments that are within direct communication range of the site controller." *Id.*

SIPCO emphasizes that some remote devices communicate directly with the local gateway, transmitting a low-power RF signal, and that the specification notes that the "'limited transmission range . . . can be a desirable characteristic.'" CRB at 16 (quoting '708 patent at 3:35-42, 3:52-55)). SIPCO cites Figure 2 of the patent, which depicts remote devices "that all communicate directly with local gateways." *Id.* SIPCO notes a district court holding construing similar language from the '511 patent to mean that remote devices can be near a local gateway. *Id.* at 16-17 (citing CXM-8 at 8).

Respondents argue that the plain meaning of "remote" connotes a physical distance, in the context of the specification, "distant from a local gateway." RIB at 41. Respondents

maintain that the specification contemplates physical distance and that SIPCO is "reading 'remote' out of the term: two devices right next to each other are 'located separately,' but are not 'remote.'" *Id.* at 42. Respondents point to the portion of the specification describing "embodiments that do not utilize stand-alone transceivers, [in which] the transceivers will be configured to transmit at a high RF power level to effectively communicate with the control system local gateway." *Id.* (citing '708 patent at 4:25-49; 13:50-53). Respondents also contend that their construction is consistent with dictionary definitions. *Id.*

Although the specification may at times use the word "remote" in the sense of physically remote, the term "remote wireless device," as it is used in the claim, simply means a device that is in wireless communication with another device. *See* CXM-7 (Almeroth Decl. ¶¶ 35, 47-48). *Accord,* CXM-8 at 8 ("[T]he Court declines to adopt a definition of 'remote' requiring the device to be 'far removed."). I construe the term "remote wireless device" to mean a device that is in wireless communication with another device.

2. Claim 1 ("receiver address")

SIPCO's Proposed Construction	Respondents' Proposed Construction
Plain and ordinary meaning	identification of the intended recipient(s) for the message—not merely a repeater

Claim 1 recites, in pertinent part, "a controller configured to communicate with at least one other remote wireless device via the transceiver with a preformatted message, the controller further configured to format a message comprising a receiver address comprising an address of at least one remote wireless device." '708 patent at 14:12-18. SIPCO maintains that the meaning of the claim term is readily apparent and requires no construction. Respondents repeat the arguments made with respect to the same term in the '893 patent, again arguing that the intrinsic record "clarifies that a 'receiver address' identifies the intended recipient of a message," RIB at

28, 41, and asserting that SIPCO's construction improperly permits a "receiver address" to be "an intermediate device that repeats the message on the way to its ultimate destination." *Id.* at 41.

For the reasons set forth above with respect to the term "receiver address" in the '893 patent, I agree with SIPCO that the limitation proposed by Respondents is not supported by the patent specification.

3. Claims 5 and 10 ("the command code")

SIPCO's Proposed Construction	Respondents' Proposed Construction
Plain and ordinary meaning	Indefinite

Respondents initially contended that the term was indefinite across several claims because there were multiple antecedent bases for "command code." However, Respondents withdrew the dispute with respect to the terms "the command code" and "the preformatted message," *see infra,* in independent claim 1. CRB at 18-19. SIPCO maintains that under settled claim construction principles, these terms should have the same meaning in claims 5 and 10 that they do in independent claim 1. CRB at 19 (citing *Phillips,* 415 F.3d at 1314; *Eidos Display, LLC v. AU Optronics Corp.,* 779 F.3d 1360, 1366-67 (Fed. Cir. 2015)).

Respondents contend that "the command code" in claims 5 and 10 could refer to either (1) the code generated by the controller further configured to format a message comprising a command indicator comprising a command code or (2) a command code provided in the preformatted message sent by another wireless communications device. *Id.* Respondents contend that in claim 5, the command code that is concatenated could refer to one command code or more than one.

SIPCO maintains that the term is not indefinite, relying on the "last antecedent" doctrine. CIB at 37 (citing *Finisar Corp. v. DirecTV Group, Inc.,* 523 F.3d 1323, 1335-36 (Fed. Cir. 2008)). This doctrine provides: "Referential and qualifying words and phrases, where no

contrary intention appears, refer solely to the last antecedent, which consists of 'the last word, phrase, or clause that can be made an antecedent without impairing the meaning of the sentence.'" *Anhydrides & Chem., Inc. v. U.S.*, 130 F.3d 1481, 1483 (Fed. Cir. 1997) (quoting C. Dallas Sands, *2A Sutherland Statutory Construction,* 4th ed., § 47.33.))

I agree with SIPCO that the command code refers to a command code that is received by the controller of the device in claim 1. Claim 10 is not indefinite because it refers to "the command code" of claim 1, which has a plain and ordinary meaning. *See* CXM-7 (Almeroth Decl.) at ¶ 60 ("As can be seen from the plain language of the 'wherein . . .' clause, 'the command code' refers to a command code that is received by the controller of the wireless communication device of independent claim 1.")

4. Claim 5 ("the preformatted message")

SIPCO's Proposed Construction	Respondents' Proposed Construction
Plain and ordinary meaning	Indefinite

Claim 5 recites the wireless communication device of claim 1, "wherein the command code of the preformatted message are [sic] concatenated to provide a receiving device with multiple command codes, the device configured to perform one or more functions corresponding to the command code in the preformatted message." '708 patent at 14:33-38. As stated above, Respondents have withdrawn their contention of indefiniteness with respect to the term "the preformatted message" in claim 1. Respondents still allege, however, that the term "the preformatted message" in claim 5 of the '708 patent could refer either to (1) the preformatted message with which a controller is configured to communicate with at least one other remote wireless device via a transceiver, or (2) the preformatted message that a controller is configured to receive from another wireless communication device. RIB at 43.

In opposition to the (now withdrawn) allegation of indefiniteness with respect to claim 1, SIPCO invoked the last antecedent doctrine, arguing that "the preformatted message" in that claim refers to the second reference in claim 1 to a preformatted message. *See* CXM-7 (Almeroth Decl.) at ¶ 56 ("A person of ordinary skill in the art woul look to the structure of the claim itself and naturally read the 'wherein . . .' clause as a whole. Therefore, a person of ordinary skill in the art would naturally read 'the preformatted message' as referring to the last 'a preformatted message' recited in the claim, because the other 'a preformatted message' is part of a different claim limitation, and is removed from the 'wherein . . . " clause by several punctuation marks."). SIPCO argues in its responsive brief that the preformatted message has the same meaning in claim 5 that it has in claim 1. CRB at 19.

Respondents point out in their responsive brief that there is "no preformatted message prior to the use of the term in Claim 5." RRB at 20.

The antecedent basis doctrine cannot salvage claim 5 from indefiniteness because, using an analysis similar to Dr. Almeroth's, claim 1 is too far removed from claim 5 to permit a POSITA to determine with reasonable certainty which "preformatted message" is the antecedent. Accordingly, I find that claim 5 is indefinite.

5. Claim 10 ("by the wireless communication device")

SIPCO's Proposed Construction	Respondents' Proposed Construction
Plain and ordinary meaning	Indefinite

Claim 10 of the '708 patent requires: "The wireless communication device of claim 1, wherein the command code indicates a request for a ping response by the wireless communication device." '708 patent at 14:49-51. Respondents maintain that the term "could be interpreted as indicating either that the 'request' is sent 'by the wireless communication device' or that the requested 'ping response' is sent by the wireless communication device." RIB at 44

(citing RIB Ex. 26 (Akl Dec.) at ¶161). SIPCO responds that claim 10 depends from claim 1 and that the command code refers to the code received by the wireless communication device's controller, based on which the controller "'implement[s] a certain function.'" CIB at 39. On that basis, SIPCO argues that claim 10 means that the wireless communication device receives the command code and does not send it, and that the received command code requests the wireless communication device to implement the function of providing a ping response. *See* CXM-7 (Almeroth Decl.) at ¶ 61. SIPCO's reading comports with the plain meaning of the term as used in claim 10.

V. CONCLUSION

The disputed terms with respect to each patent are hereby construed as discussed above. Hereafter, the presentation of evidence at the evidentiary hearing and the parties' pre- and post-hearing briefing shall be governed by the constructions of the claim terms that have been adopted in this order.

This order is being issued with a confidential designation, and pursuant to Ground Rule 1.10, each party shall submit to the Administrative Law Judge a statement as to whether or not it seeks to have any portion of this order deleted from the public version within seven (7) days. See 19 C.F.R. § 210.5(f). A party seeking to have a portion of the order deleted from the public version thereof must attach to its submission a copy of the order with red brackets indicating the portion(s) asserted to contain confidential business information.[17] The parties' submissions

[17] Redactions should be limited to avoid depriving the public of the basis for understanding the result and reasoning underlying the decision. Parties who submit excessive redactions may be required to provide an additional written statement, supported by declarations from individuals with personal knowledge, justifying each proposed redaction and specifically explaining why the information sought to be redacted meets the definition for confidential business information set forth in Commission Rule 201.6(a). 19 C.F.R. § 201.6(a).

under this subsection need not be filed with the Commission Secretary but shall be submitted by paper copy to the Administrative Law Judge and by e-mail to the Administrative Law Judge's attorney advisor.

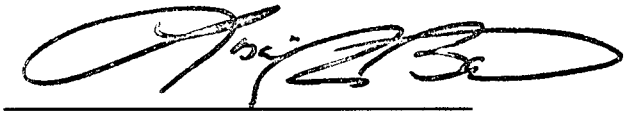
SO ORDERED.

Dee Lord
Administrative Law Judge

CERTAIN WIRELESS MESH NETWORKING PRODUCTS AND RELATED COMPONENTS THEREOF **Inv. No. 337-TA-1131**

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been upon the following parties as indicated, on **August 26, 2019.**



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