

*In the Matter of*

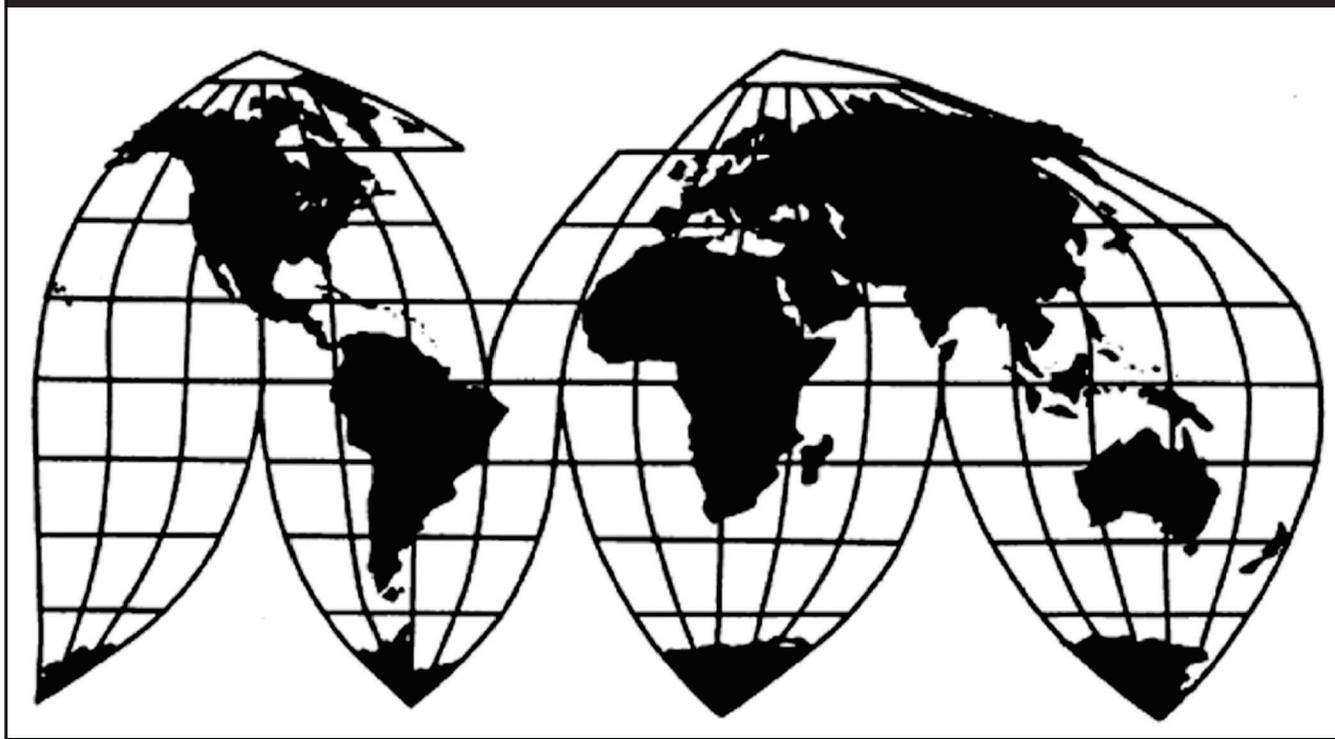
**CERTAIN INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME**

337-TA-1024

**Publication 5074**

**June 2020**

**U.S. International Trade Commission**



Washington, DC 20436

# **U.S. International Trade Commission**

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Washington, DC 20436**

# U.S. International Trade Commission

Washington, DC 20436  
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*In the Matter of*

## **CERTAIN INTEGRATED CIRCUITS WITH VOLTAGE REGULATORS AND PRODUCTS CONTAINING SAME**

337-TA-1024



**UNITED STATES INTERNATIONAL TRADE COMMISSION**  
**Washington, DC**

In the Matter of

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**NOTICE OF COMMISSION DETERMINATION NOT TO REVIEW AN INITIAL  
DETERMINATION TERMINATING THE INVESTIGATION FOR GOOD CAUSE;  
TERMINATION OF INVESTIGATION**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission (“Commission”) has determined not to review an initial determination (“ID”) (Order No. 59) that grants a joint motion to terminate this investigation for good cause. This investigation is terminated.

**FOR FURTHER INFORMATION CONTACT:** Ron Traud, Office of the General Counsel, U.S. International Trade Commission, 500 E Street S.W., Washington, DC 20436, telephone 202-205-3427. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street S.W., Washington, DC 20436, telephone 202-205-2000. General information concerning the Commission may also be obtained by accessing its Internet server at <https://www.usitc.gov>. The public record for this investigation may be viewed on the Commission’s electronic docket (“EDIS”) at <https://edis.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:** On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, California. 81 FR 71764 (Oct. 18, 2016). The complaint alleges violations of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. 1337 (“section 337”) based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of infringement of certain claims of U.S. Patent No. 8,233,250 (“the ’250 patent”). *Id.* The Commission’s notice of investigation named as respondents Intel Corporation of Santa Clara, California; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74 Ltd. of Haifa, Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, Texas; Dell

Technologies Inc. of Round Rock, Texas; HP Inc. of Palo Alto, California; and Hewlett Packard Enterprise Co. of Palo Alto, California (collectively, "Respondents"). *Id.* The Office of Unfair Import Investigations ("OUII") is participating in this investigation. *Id.*

On July 31, 2018, the Patent Trial and Appeal Board ("PTAB") issued final written decisions in inter partes review proceedings, finding all asserted claims of the '250 patent to be invalid. On August 16, 2018, Respondents filed an unopposed motion to stay this investigation pending appellate review of those decisions by the Federal Circuit. On August 31, 2018, the presiding administrative law judge ("ALJ") granted that motion. Order No. 55 (Aug. 31, 2018).

On December 23, 2019, R2 and Respondents filed a joint motion to terminate this investigation in its entirety for good cause in light of the Federal Circuit's November 13, 2019 decision affirming the PTAB's decision finding all asserted claims of the '250 patent unpatentable. OUII did not oppose the motion.

On January 10, 2020, the ALJ issued the subject ID (Order No. 59), which grants the motion. The ALJ found that the motion complies with Commission Rule 210.21(a) and that no extraordinary circumstances prohibit termination of the investigation. No petitions for review were filed.

The Commission has determined not to review the subject ID. This investigation is 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 part 210).

By order of the Commission.



Lisa R. Barton  
Secretary to the Commission

Issued: January 31, 2020

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **NOTICE** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **January 31, 2020**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

K. Kevin Chu, Esq.  
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**On Behalf of Respondents Intel Corporation, Dell Inc., HP  
Inc., and Hewlett Packard Enterprise Co.:**

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UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-1024**

**ORDER NO. 59: INITIAL DETERMINATION GRANTING JOINT MOTION TO  
TERMINATE THE INVESTIGATION FOR GOOD CAUSE**

(January 10, 2020)

On December 23, 2019, Complainant R2 Semiconductor, Inc. (“R2”) and Respondents Intel Corp., Dell Inc., and Hewlett Packard Enterprise Co. (collectively, “Respondents”) moved to terminate (1024-048) the Investigation in its entirety in light of the Federal Circuit’s November 13, 2019 decision affirming the Patent Trial and Appeal Board’s (“PTAB”) decision finding all asserted claims of U.S. Patent No. 8,233,250 (“250 patent”) unpatentable. The Commission Investigative Staff does not oppose. Mot. at 2.

R2 and Respondents assert that there is good cause to terminate this Investigation “because the PTAB’s July 31, 2018 FWDs found that all asserted claims of the patent-in-suit . . . are unpatentable, and the Federal Circuit has affirmed that decision in its entirety.” *Id.* at 1. The parties further submit that they “will each bear their own attorney’s fees and costs in the Investigation.” *Id.* at 2.

Commission Rule 210.21(a) provides, in relevant part:

[a]ny party may move at any time prior to the issuance of an initial determination on violation of section 337 of the Tariff Act of 1930 to terminate an investigation in whole or in part as to any or all respondents, on the basis of withdrawal of the complaint . . . or for good cause other than the grounds listed in paragraph (a)(2). . . A motion for termination of an investigation based on . . . good cause, shall contain a statement that there are no agreements, written or oral, express or implied

between the parties concerning the subject matter of the investigation . . . . The presiding administrative law judge may grant the motion in an initial determination upon such terms and conditions as he deems proper.

19 C.F.R. § 210.21(a)(1). The Commission has further stated that “in the absence of extraordinary circumstances, termination of the investigation will be granted to a complainant during the prehearing stage of an investigation.” *Certain Ultrafiltration Sys. and Components Thereof, Including Ultrafiltration Membranes*, Inv. No. 337-TA-107, Comm’n Action and Order at 2 (Mar. 11, 1982).

Having reviewed the pleading, the undersigned finds no extraordinary circumstances exist that would prevent the requested termination of this Investigation. The undersigned also finds that the parties have complied with the requirements of Commission Rule 210.21(a). *See Mot.* at 2 (stating “there are no agreements, written or oral, expressed or implied, between the parties concerning the subject matter of this Investigation.”).

Accordingly, it is the Initial Determination of the undersigned that the joint motion (1024-048) to terminate the Investigation for good cause be granted.

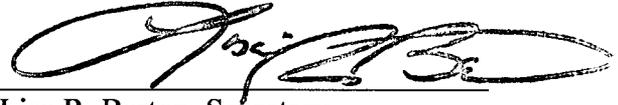
Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review of the Initial Determination pursuant to 19 C.F.R. § 210.43(a), or the Commission, pursuant to 19 C.F.R. § 210.44, orders a review of the Initial Determination or certain issues herein on its own motion.

**SO ORDERED.**

  
\_\_\_\_\_  
Charles E. Bullock  
Chief Administrative Law Judge

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the **ORDER NO. 59** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka** and the following parties as indicated, on 1/10/2020.



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

**On Behalf of Complainant R2 Semiconductor, Inc.:**

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**On Behalf of Respondents Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Co.:**

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**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**Washington, D.C.**

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-1024**

**ORDER NO. 57: GRANTING JOINT MOTION TO CONTINUE STAY OF  
INVESTIGATION PENDING APPELLATE REVIEW OF IPR  
FINAL WRITTEN DECISIONS INVALIDATING PATENT-IN-SUIT**

(July 29, 2019)

On July 26, 2019, Complainant R2 Semiconductor, Inc., Respondents Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Company, and the Commission Investigative Staff moved (1024-047) to continue the stay of this Investigation pending appellate review of the final written decisions (“FWDs”) issued by the Patent Trial and Appeal Board invalidating all asserted claims of the patent-in-suit, U.S. Patent No. 8,233,250.

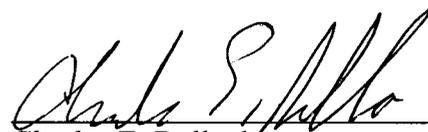
The parties all agree that a stay pending appellate review of the FWDs is appropriate in this Investigation. (Mot. at 2.) They explain that the parties completed all briefing in the appeal six weeks ago, and expect that oral argument at the Federal Circuit will be scheduled sometime between October 2019 and February 2020. (*Id.*) The parties state: “Given that the expected duration of the stay is likely now at least half complete, it is, if anything, even more sensible at this juncture to maintain the status quo in this Investigation and allow the Federal Circuit appeal to run its course.” (*Id.*)

As discussed above, the appeal is now in an advanced state. Furthermore, the undersigned is not aware of a change in circumstances that affects the factors that originally justified the stay.

(See Order No. 55 (Aug. 31, 2018).) The undersigned therefore agrees with the parties that continuing the stay is appropriate.

Accordingly, the joint motion (1024-047) to continue the stay of the Investigation pending resolution of any of the FWDs is hereby granted.

**SO ORDERED.**

  
\_\_\_\_\_  
Charles E. Bullock  
Chief Administrative Law Judge

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the **ORDER NO. 57** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka** and the following parties as indicated, on 7/18/2019.



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 INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME

Inv. No. 337-TA-1024

**ORDER NO. 51: CLARIFYING WHETHER “DISSIPATIVE ELEMENT”  
EXCLUDES FROM ITS SCOPE ORDINARY CONDUCTING  
WIRES**

(May 17, 2018)

On October 5, 2017, the undersigned issued Order No. 46 which granted-in-part Respondents Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Company’s (collectively, “Respondents”) Motion for Summary Determination. On October 16, 2017, Complainant R2 Semiconductor, Inc. (“R2”) petitioned for review of this decision. Respondents filed a contingent petition. Commission Investigative Staff (“Staff”) filed responses to each of R2’s petition and Respondents’ contingent petition. On February 20, 2018, the Commission issued its opinion. The Commission “adopt[ed] the *Markman* Order’s construction of dissipative element insofar as that construction is a ‘polysilicon resistor, thin [film] metallic resistors, or any other convenient resistive element.’” (Comm’n Op. at 10.) The Commission determined, however, that “the *Markman* Order erroneously concludes that the ‘dissipative element’ and the ‘charge-storage circuit’ must be different structures.” (*Id.*) The Commission also directed the undersigned “to consider and resolve one aspect of the ‘dissipative element’ construction discussed in the ID, *i.e.*, whether ‘dissipative element’ excludes from its scope ‘ordinary conducting wires.’” (*Id.* at 14.)

On March 7, 2018, the undersigned set a schedule for the parties to submit briefs addressing this issue. Pursuant to this schedule, the parties submitted opening briefs on March 23, 2018 and responsive briefs on April 13, 2018.<sup>1</sup>

On April 13, 2018, Respondents moved (1024-043) to strike the declaration of J. Stevenson Kenney, Ph.D. regarding the construction of “dissipative element” that was submitted with R2’s brief. Alternatively, Respondents requested that they be permitted to depose Dr. Kenney and submit additional declarations and evidence of their own. On April 25, 2018, Staff filed a response in support of Respondents’ motion. That same day, R2 filed an opposition. On April 30, 2018, Respondents moved for leave (1024-044) to file a reply. The undersigned denies Respondents’ motion to strike (1024-043) and grants its motion to file a reply (1043-044). Additionally, as explained *infra*, the undersigned did not rely on Dr. Kenney’s declaration and therefore finds it unnecessary to allow Respondents and Staff the opportunity to depose Dr. Kenney or submit their own declarations.

R2’s opening brief makes several arguments for why “ordinary conducting wires” are dissipative elements: (1) “[U]nder the Commission’s analysis, ‘convenient resistive elements’ must include ordinary conducting wires; (2) “[O]rdinary conducting wires” are “thin film metallic resistors”; and (3) “The intrinsic evidence does not exclude “ordinary conducting wires” from dissipative element. (CIB at 4, 5, 8.) R2 also argues that construing “dissipative element” to exclude “ordinary conducting wires” renders it indefinite. (*Id.* at 9.) Both Respondents and Staff disagree with R2.

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<sup>1</sup> For convenience, the briefs submitted by the parties are referred to hereafter as:

CIB	Complainant’s Initial Brief
CRB	Complainant’s Reply Brief
RIB	Respondent’s Initial Brief
RRB	Respondent’s Reply Brief

### **A. The Commission Opinion's Effect on "Ordinary Conducting Wires"**

R2 asserts that "[g]iven the guidance already provided by the Commission concerning the proper interpretation of 'dissipative element,' the issue now before the CALJ should not be in serious dispute – 'dissipative element' cannot be construed to exclude 'ordinary conducting wires.'" (CIB at 1.) R2 contends that "doing so would directly contradict the Commission's reasoning and claim construction that 'dissipative element' cannot exclude the separately claimed 'charge storage circuit.'" (*Id.*)

Respondents argue that the Commission's opinion is not dispositive of the issue. Respondents note that "if the implication of the Commission's decision is that ordinary conducting wires or any component can be the 'dissipative element,' the Commission would not have directed the CALJ to conduct further proceedings to decide this issue." (RRB at 5.)

Staff asserts that R2's interpretation of "dissipative element" "appears to have been adopted by the Commission." (SIB at 7.) Staff explains that the Commission opinion may be "read to require no specific resistive structure, (*i.e.*, that a convenient resistive element can be anything providing resistance)," and that, if so, "'dissipative element' has no practicable structural limitations and encompasses resistance from any or all of the existing circuit's structures including 'ordinary conducting wires.'" (*Id.* at 6.)

The undersigned agrees with Respondents that the Commission has not decided the issue. The Commission specifically remanded the Investigation to the undersigned to determine whether ordinary conducting wires could be dissipative elements. If the Commission intended its opinion to compel the conclusion that "ordinary conducting wires" are "dissipative elements," remand on this issue would have been unnecessary.

The undersigned also agrees with Respondents that the Commission's conclusion was based on its view that "the '250 patent discloses an embodiment in which a charge-storage circuit is specifically described as the 'dissipative element.'" (RRB at 6.) Thus, the undersigned does not read the Commission's opinion as holding that *any* structure having resistance can be a "dissipative element."

**B. Whether "Ordinary Conducting Wires" are "Thin Film Metallic Resistors"**

R2 argues that "[t]here can be no dispute that metal traces in an integrated circuit are 'thin film metallic resistors.'" (CIB at 8.) R2 further notes that the undersigned has already ruled that "R2 has introduced evidence that the wires of FIVR are thin film metallic resistors." (*Id.* (citing Order No. 46 at 4).)

Respondents argue that the intrinsic evidence "shows that ordinary wires cannot be the 'dissipative element.'" (RRB at 7.) Respondents also argue that R2's extrinsic evidence does not support its argument. (*Id.* at 7-8.)<sup>2</sup>

The undersigned finds that it is not necessary to determine whether "ordinary conducting wires" are "thin film metallic resistors" or other "convenient resistive elements."<sup>3</sup> Even if R2 can establish that a person of ordinary skill in the art would understand that ordinary conducting wires are thin film metallic resistors or other convenient resistive elements, the inquiry does not end. The issue here is whether, despite this understanding, a person of ordinary skill in the art would *also* understand that the '250 patent excludes "ordinary conducting wires" from the definition of "dissipative element."

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<sup>2</sup> Staff does not specifically address this argument.

<sup>3</sup> In Order No. 46, the undersigned stated: "The undersigned agrees with R2 that it has introduced evidence that the wires of FIVR are thin film metallic resistors." (Order No. 46 at 4.) This statement is not proof that the undersigned agrees with R2. Instead, it means that, for purposes of summary determination, R2 had introduced evidence sufficient to establish a dispute of fact.

### C. Whether the Intrinsic Evidence Demonstrates an Intent to Exclude “Ordinary Conducting Wires” From “Dissipative Element”

R2 argues that “[t]here is no basis in the intrinsic evidence” to exclude ordinary conducting wires from the definition of “dissipative element.” (CIB at 4.) According to R2, “[s]uch an exclusion from ‘dissipative element’ ‘would have only been proper if the patentee specifically defined the terms to include that exclusion, or disavowed their otherwise broad scope,’ which the ’250 patentee did not do.” (*Id.*) R2 notes that “the ’250 patent’s entire intrinsic record is devoid of the phrase ‘ordinary conducting wires,’ much less any discussion of how or why ‘dissipative element’ . . . would exclude ‘ordinary conducting wires.’” (*Id.* at 5.)

Respondents argue that “the ’250 patent distinguishes the prior art by claiming that what the invention adds is a dissipative element to a prior art circuit that already included ordinary conducting wires.” (RIB at 1.) Respondents explain: “Having distinguished prior art circuits that include ordinary conducting wires on the basis that they *lack* a ‘dissipative element,’ R2 may not now obtain a construction in which ordinary conducting wires *are* the allegedly inventive ‘dissipative element.’” (*Id.* at 10 (emphasis in original).) Respondents further argue that “the Patent Trial and Appeal Board (“the PTAB”) rejected R2’s proposal that ordinary conducting wires satisfy the ‘dissipative element’ limitation in co-pending *inter partes* review (“IPR”) proceedings.”<sup>4</sup> (*Id.* at 2.)

Staff argues that R2’s statements during the parallel IPR proceedings with respect to the ’250 patent demonstrate that the claimed “dissipative element” does not include “ordinary conducting wires.” (SIB at 10.) According to Staff, R2’s statements show “that a person of

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<sup>4</sup> The PTAB stated: “[B]ecause in reality nearly all electrical components dissipate some energy, we disagree with Patent Owner that the Specification discloses a corresponding structure that includes any component that dissipates energy, e.g., including a capacitor and a transmission line [*i.e.*, an ordinary conducting wire.]” (RIB Ex. A at 12.) As R2 notes, however, the PTAB reached a different construction of “dissipative element.” (CRB at 3.) For example, the PTAB decision found that “dissipative element” must be separate from the capacitive element. (RIB Ex. A at 12.) The undersigned therefore does not rely on the PTAB decision in reaching the conclusion that “ordinary conducting wires” are excluded from “dissipative element.”

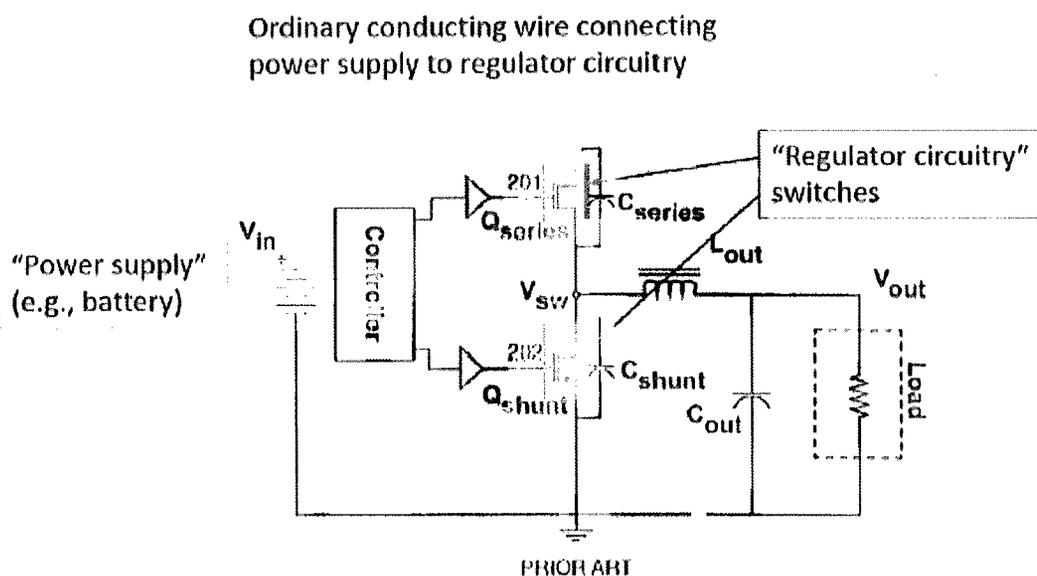
ordinary skill in the art would not consider a circuit's conducting wires, which the patent owner describes as causing voltage spikes, to be the solution to" the problem that the '250 patent is trying to solve. (*Id.* at 11.) Staff also asserts that other statements "show that the claimed dissipative element is a specifically selected circuit component, as opposed to ordinary conducting wires already existing in the circuit having the problem." (*Id.* at 12.)

Additionally, Staff argues that "the patent owner's express characterization of the invention as 'incorporating a dissipative element' requires that the claimed dissipative element is distinct from already existing parts of the circuits listed as causes of the voltage spike (*e.g.*, the conducting wires." (*Id.* at 13.) Staff notes: "There would be no 'incorporating' if the 'dissipative element' is already present and causing the voltage spike problem in the circuit." (*Id.*)

While the specification did not explicitly state whether or not ordinary conducting wires could be included in the definition of "dissipative element," the specification makes it clear to a person of ordinary skill in the art that ordinary conducting wires cannot be a dissipative element. First, the specification shows that a "dissipative element" is something that was not found in the prior art, but instead was added to improve the invention over the prior art. The specification describes the problems of the prior art including ringing which may "cause a loss in efficiency if the ringing is poorly timed with the opening or closing of one of the switches." ('250 patent at 17:24-26.) The specification explains: "It is therefore important to *incorporate* a dissipative element in the spike protection impedance . . . to minimize undesired ringing in the spike protection circuit." (*Id.* at 17:27-29 (emphasis added).)

The specification also depicts prior art systems as having ordinary conducting wires. For example, Figure 7 illustrates a prior art voltage regulator with a wire (shown in yellow)

connecting the regulator circuitry switches (shown in green) to the power supply (shown in orange):



(’250 patent at Fig. 7, 7:65-67 (annotations added by Respondents).) A person of ordinary skill in the art would also understand that all circuits – including prior art circuits – have wires. (See CIB at 6 (explaining that wires are one of the basic components of circuits and citing expert declarations and reports); RIB at 3 (“All circuits thus require wires in order to function.”).)

Taken together, these two pieces of information inform a person of ordinary skill in the art that ordinary conducting wires cannot be the dissipative element of the ’250 patent. The concept of a “dissipative element” of the ’250 patent must be referring to something other than ordinary wires present in prior art systems. It cannot refer to something circuits – including prior art circuits – already had.

The undersigned also agrees with Staff that R2 has disavowed “ordinary conducting wires” as the dissipative element. Statements made by a patent owner during the course of an IPR proceeding are considered intrinsic evidence for the purposes of claim construction. *Aylus*

*Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017) (“Because an IPR proceeding involves reexamination of an earlier administrative grant of a patent, it follows that statements made by a patent owner during an IPR proceeding can be considered during claim construction and relied upon to support a finding of prosecution disclaimer.”). In the co-pending IPR proceedings, R2 asserted that an “element” – such as a “dissipative element” has “terminals” that “allow it to be connected to the conducting path”, *i.e.*, the ordinary conducting wires. (RIB Ex. C at 25.) If the “dissipative element” must be connected to ordinary conducting wires, the “dissipative element” cannot be the wires itself.

Finally, R2 argues that the descriptions of other systems with the invention of the ’250 patent can be reconciled with its view that “ordinary conducting wires” are not excluded. R2 notes that the ’250 patent places additional limitations on “ordinary conducting wires” such that “there are limitations on both the placement and resistance value of the ‘dissipative element.’” (CIB at 13.) R2 explains: “All of the asserted independent claims require the dissipative element to be part of the ‘voltage spike protection circuitry for voltage-spike protecting the regulator circuitry.’” (*Id.*) Other independent claims add additional requirements, such as the requirement that the “dissipative element” has a value of resistance that is “based on” or “matches” a characteristic impedance of a lumped-element approximation of a specific transmission line. (*Id.*) According to R2, the claims would not cover “just any electrical component,” but only ordinary conducting wires that *also* meet these requirements. (*Id.*)

These arguments do not address the fact that the patent indicates that a “dissipative element” – separate and apart from the other claim limitations– is a structure that is incorporated into the invention and is distinct from already existing parts of the circuits. Furthermore, Staff argues that this interpretation “leaves the term ‘dissipative element’ lacking sufficient definite

structure” in contradiction to the *Markman* order which found that “dissipative element” was not a means-plus-function term. (SRB at 4.) The undersigned agrees with Staff.

#### **D. Indefiniteness**

R2 argues that construing “dissipative element” to exclude “ordinary conducting wires” renders it indefinite. (CIB at 9.) According to R2, “Respondents have failed to provide any guidance as to what constitutes ‘ordinary conducting wires,’ a term they introduced long after claim construction.” (*Id.* at 2.) R2 explains: “Not surprisingly, courts have found that a construction that requires a person of ordinary skill in the art to guess at what is ‘ordinary’ or ‘normal’ fails to meet this standard.” (*Id.* at 10 (citing *Artic Cat Inc. v. Bombadier Recreational Prods. Inc.*, No. 12-cv-02692, 2016 WL 6832623, at \*13-\*14 (D. Minn. Nov. 18, 2016).)

The undersigned acknowledges R2’s concerns regarding the use of the word “ordinary.” As Respondents have explained, however: “[O]rdinary conducting wires are simply the wires that facilitate the flow of current between components, as opposed to wires that have a particular structure to resist the flow of current, such as a snake-like structure.” (RRB at 10 (citing RX-1142C at Q/A 353, 366.)) The undersigned therefore adopts this understanding of the term “ordinary conducting wires.”

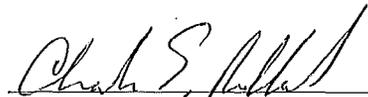
Accordingly, the undersigned concludes that “ordinary conducting wires, *i.e.*, wires that facilitate the flow of current between components, as opposed to wires that have a particular structure to resist the flow of current, such as a snake-like structure” are excluded from the construction of “dissipative element.”

The Commission previously instructed that “[i]f the ALJ maintains [the previous construction that “ordinary conducting wires” are excluded from “dissipative element”] and if any party requests, either party should be provided an opportunity to seek new, limited discovery

and/or submit additional evidence or revised expert opinions addressing that construction.” (Op. at 14.) The undersigned will be issuing a Notice requesting a proposed procedural schedule. If any party requests discovery, the proposed procedural schedule should include dates relating to such discovery.

Within seven days of the date of this document, the parties shall submit to the Office of the Administrative Law Judges a joint statement as to whether or not they seek to have any portion of this document deleted from the public version. If the parties do seek to have portions of this document deleted from the public version, they must submit to this office a copy of this document with red brackets indicating the portion or portions asserted to contain confidential business information. The submission may be made by email and/or hard copy by the aforementioned date and need not be filed with the Commission Secretary.

**SO ORDERED.**

  
\_\_\_\_\_  
Charles E. Bullock  
Chief Administrative Law Judge

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the **PUBLIC VERSION ORDER NO. 51** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka** and the following parties as indicated, on 5/24/2018.



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

**On Behalf of Complainant R2 Semiconductor, Inc.:**

K. Kevin Chu, Esq.  
**QUINN EMANUEL URQUHART & SULLIVAN, LLP**  
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**On Behalf of Respondents Intel Corporation, Dell Inc., HP  
Inc., and Hewlett Packard Enterprise Co.:**

Nina S. Tallon, Esq.  
**WILMER CUTLER PICKERING HALE AND DORR LLP**  
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UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**NOTICE OF COMMISSION DETERMINATION TO VACATE AN INITIAL  
DETERMINATION (INCLUDED IN ORDER NO. 46) AND REMAND THE  
INVESTIGATION TO THE ADMINISTRATIVE LAW JUDGE**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission (the "Commission") has determined to vacate an initial determination (the "ID") (included in Order No. 46) granting Respondents' motion for summary determination of non-infringement for all asserted claims of U.S. Patent No. 8,233,250, and has remanded the investigation to the presiding administrative law judge.

**FOR FURTHER INFORMATION CONTACT:** Ron Traud, Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone 202-205-3427. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone 202-205-2000. General information concerning the Commission may also be obtained by accessing its Internet server at <https://www.usitc.gov>. The public record for this investigation may be viewed on the Commission's electronic docket ("EDIS") at <https://edis.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:** On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, CA ("R2"). 81 FR 71764 (Oct. 18, 2016). The complaint alleges violations of section 337 based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of infringement of one or more of claims 1-4, 7-17, 20-26, 28, 29, and 31 of U.S. Patent No. 8,233,250 ("the '250 patent"). *Id.* The Commission's Notice of Investigation named as respondents Intel Corporation of Santa Clara, CA; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74, Ltd. of Haifa,

Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, TX; Dell Technologies Inc. of Round Rock, TX; HP Inc. of Palo Alto, CA; and Hewlett Packard Enterprise Co. of Palo Alto, CA (collectively, "Respondents"). *Id.* The Office of Unfair Import Investigations ("OUII") is also a party in this investigation. *Id.*

R2 later amended its complaint to add allegations of infringement of claims 5, 6, 18, 19, 27, and 30 of the '250 patent by the accused products. Order 14 (Feb. 9, 2017), *unreviewed*, Notice of Commission Determination Not to Review an Initial Determination Amending the Complaint and Notice of Investigation (Mar. 1, 2017); *also* 82 FR 12637 (Mar. 6, 2017). R2 later withdrew from the investigation its allegations regarding claim 16 of the '250 patent and its allegations against certain Intel and Dell entities. Order 30 (May 25, 2017), *unreviewed*, Notice of Commission Determination Partially Terminating the Investigation as to a Patent Claim and Certain Respondents, (June 14, 2017). Only claims 1-15 and 17-31 of the '250 patent remain at issue in this investigation.

On September 13, 2017, Respondents filed a motion for summary determination of noninfringement that the accused products do not infringe the asserted claims of the '250 patent. On October 5, 2017, the presiding administrative law judge ("ALJ") issued Order No. 46, which includes the ID, and grants Respondents' motion. On October 16, 2017, R2 filed a petition for review of the ID and Respondents filed a contingent petition for review of the ID, and on October 23, 2017, R2 and Respondents filed responses to the others' petitions. OUII did not file a petition, but filed separate responses to each of R2's petition and Respondents' contingent petition.

On November 21, 2017, the Commission determined to review the ID. Notice of Commission Determination to Review an Initial Determination (Included in Order No. 46), (Nov. 21, 2017). Having now examined the record of this investigation, including the ID and the submissions of the parties, the Commission has determined to vacate the ID and remand the investigation to the ALJ for further proceedings consistent with the contemporaneously-issued remand order and Commission opinion. The Commission has further determined that Respondents' contingent petition for review is improper for failing to allege any error in the ID. *See* 19 CFR 210.43(b).

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 part 210).

By order of the Commission.

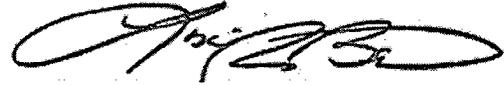


Lisa R. Barton  
Secretary to the Commission

Issued: February 20, 2018

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **NOTICE** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **February 20, 2018**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

K. Kevin Chu  
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**On Behalf of Intel Corporation, Dell Inc., HP Inc., and  
Hewlett Packard Enterprise Co.:**

Nina S. Tallon, Esq.  
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**UNITED STATES INTERNATIONAL TRADE COMMISSION**  
**Washington, D.C.**

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**ORDER**

On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, CA (“R2”). 81 Fed. Reg. 71764 (Oct. 18, 2016). The complaint alleges violations of section 337 based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of infringement of one or more of claims 1-4, 7-17, 20-26, 28, 29, and 31 of U.S. Patent No. 8,233,250 (“the ’250 patent”). *Id.* The Commission’s Notice of Investigation named as respondents Intel Corporation of Santa Clara, CA; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74, Ltd. of Haifa, Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, TX; Dell Technologies Inc. of Round Rock, TX; HP Inc. of Palo Alto, CA; and Hewlett Packard Enterprise Co. of Palo Alto, CA (collectively, “Respondents”). *Id.* The Office of Unfair Import Investigations (“OUII”) is also a party in this investigation. *Id.*

R2 later amended its complaint to add allegations of infringement of claims 5, 6, 18, 19, 27, and 30 of the ’250 patent by the accused products. Order 14 (Mar. 1, 2017), *unreviewed*, Comm’n Notice (Mar. 1, 2017); *also* 82 Fed. Reg. 12637 (Mar. 6, 2017). R2 later withdrew

from the investigation its allegations regarding claim 16 of the '250 patent and its allegations against certain Intel and Dell entities. Order 30 (May 25, 2017), *unreviewed*, Comm'n Notice (June 14, 2017). Only claims 1-15 and 17-31 of the '250 patent remain at issue in this investigation.

On September 13, 2017, Respondents filed a motion for summary determination that the accused products do not infringe the asserted claims of the '250 patent, either literally or under the doctrine of equivalents. On October 5, 2017, the presiding administrative law judge ("ALJ") issued Order No. 46, which includes an ID granting Respondents' motion. On October 16, 2017, R2 filed a petition for review of the ID and Respondents filed a contingent petition for review of the ID, and on October 23, 2017, R2 and Respondents filed responses to the others' petitions. OUII did not file a petition, but filed separate responses to each of R2's petition and Respondents' contingent petition.

On November 21, 2017, the Commission determined to review the ID. Notice of Commission Determination to Review an Initial Determination (Included in Order No. 46), (Nov. 21, 2017). Having examined the record of this investigation, including the ID and the submissions of the parties, the Commission has determined to vacate the ID and remand the investigation to the ALJ. In particular, and as explained more fully in the contemporaneously-issued Commission opinion, the Commission concludes that, contrary to the ALJ's claim construction, the claimed "voltage spike protecting circuitry for voltage-spike protecting the regulator circuitry" does not require the claimed dissipative element and charge-storage circuit to be separate structures. Also as explained more fully in the contemporaneously-issued Commission opinion, the ALJ is also to consider and resolve one aspect of the "dissipative element" construction discussed in the ID, *i.e.*, whether "dissipative element" excludes from its

scope “ordinary conducting wires.” Since R2 did not have an opportunity to brief this issue before the ALJ, the Commission declines to address that portion of the ID’s construction in its opinion. The Commission directs the ALJ to address this issue, as briefed by the parties<sup>1</sup> and in light of the Commission opinion, in the first instance. If the ALJ maintains that construction and if any party requests, either party should be provided an opportunity to seek new, limited discovery and/or submit additional evidence or revised expert opinions addressing that construction. The Commission also determines that Respondents’ contingent petition for review is improper because it fails to allege any error in the ID. *See* 19 C.F.R. § 210.43(b).

Upon consideration of this matter, the Commission hereby ORDERS that:

1. The ALJ’s grant of summary determination that the asserted claims of the ’250 are not infringed is vacated;
2. The investigation is remanded to the ALJ for continuation as to the ’250 patent;
3. Respondents’ contingent petition is denied as improper;
4. The ALJ shall issue an ID within 30 days of this Order setting a new target date as he deems necessary; and
5. This Order and notice thereof shall be served on the parties to this investigation.

By order of the Commission.



Lisa R. Barton  
Secretary to the Commission

Issued: February 20, 2018

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<sup>1</sup> *See, e.g.*, R2 Pet. at 28-41 and Repls. Rep. at 53-60. The ALJ may also consider any other materials he otherwise has discretion to consider.

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **February 20, 2018**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

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UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**COMMISSION OPINION**

On October 5, 2017, the presiding administrative law judge (“ALJ”) issued Order No. 46, including the subject ID (the “ID”), which grants Respondents’ motion for summary determination of non-infringement for all asserted claims of U.S. Patent No. 8,233,250 (“the ’250 patent”). The ID determines that there is no genuine issue as to any material fact supporting a finding that the accused products do not satisfy the “dissipative element” limitation of the asserted claims, and therefore, Respondents are entitled to a summary determination of no infringement as a matter of law. ID at 9-10. The Commission determined to review the ID, and on review the Commission has now determined to vacate the ID and remand the investigation to the ALJ.

**I. BACKGROUND**

**A. Procedural History**

On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, CA (“R2”). 81 Fed. Reg. 71764 (Oct. 18, 2016).

The complaint alleges violations of section 337 based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of

infringement of one or more of claims 1-4, 7-17, 20-26, 28, 29, and 31 of the '250 patent. *Id.*

The Commission's Notice of Investigation named as respondents Intel Corporation of Santa Clara, CA; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74, Ltd. of Haifa, Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, TX; Dell Technologies Inc. of Round Rock, TX; HP Inc. of Palo Alto, CA; and Hewlett Packard Enterprise Co. of Palo Alto, CA (collectively, "Respondents"). *Id.* The Office of Unfair Import Investigations ("OUII") is also a party in this investigation. *Id.*

On February 9, 2017, the ALJ issued Order No. 14, which granted R2's motion to amend its complaint to add allegations of infringement of claims 5, 6, 18, 19, 27, and 30 of the '250 patent by the accused products. Order 14 (Feb. 9, 2017), *unreviewed*, Comm'n Notice (Mar. 1, 2017); *also* 82 Fed. Reg. 12637 (Mar. 6, 2017). On March 1, 2017, the ALJ held a claim construction hearing. On July 7, 2017, the ALJ issued Order No. 36 (the "*Markman* Order"), construing all of the disputed terms of the '250 patent, including "dissipative element." The ALJ construed "dissipative element" to mean "polysilicon resistor, thin metallic resistors, or any other convenient resistive element, provided, however, that this component requires a separate structure from a charge-storage circuit." Order 36, at 14-15. On May 25, 2017, the ALJ granted R2's unopposed motion for partial termination withdrawing claim 16 of the '250 patent from the scope of the investigation as well as its allegations against certain Intel and Dell entities. Order 30 (May 25, 2017), *unreviewed*, Comm'n Notice (June 14, 2017). Only claims 1-15 and 17-31 remain at issue in this investigation.

On September 13, 2017, Respondents filed a motion for summary determination that the accused products do not infringe the asserted claims of the '250 patent, either literally or under

the doctrine of equivalents, on two grounds. Respondents argued that R2 had not shown the accused products satisfy (1) the “dissipative element” limitation of the asserted claims; and (2) the “based on” limitation of asserted claims 1-15 or 17-26, or the “matches” limitation of asserted claim 29. Mot. No. 1024-041. On September 25, 2017, R2 submitted its opposition brief. On October 5, 2017, the ALJ issued Order No. 46, which includes an ID granting Respondents’ motion as to the “dissipative element” limitation.<sup>1</sup>

On October 16, 2017, R2 filed a petition for review of the ID and Respondents filed a contingent petition for review of the ID, and on October 23, 2017, R2 and Respondents filed responses to the others’ petitions.<sup>2</sup> OUII did not file a petition, but filed separate responses to each of R2’s petition and Respondents’ contingent petition.<sup>3</sup> R2’s petition seeks review of the ID’s grant of a summary determination on the issue of non-infringement of the ’250 patent based on the dissipative element. R2’s petition also challenges the *Markman* Order’s construction of the term “dissipative element” to the extent that the construction includes the following requirement: “this component requires a separate structure from a charge-storage circuit.” R2’s petition further challenges the construction of “dissipative element” in the ID, which excludes from the scope of that term “ordinary conducting wires.” R2’s petition additionally argues that the ID errs by not providing it an opportunity to respond to a new construction of “dissipative element” included in the ID. Respondents filed a contingent petition, which asserts that “the Commission should not review the ID,” but offers only “an independent and alternative basis on

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<sup>1</sup> Order No. 46 also rejected Respondents’ motion for summary determination that R2 had not shown the “accused products” satisfy the “based on” limitation of asserted claims 1-15 or 17-26, or the “matches” limitation of asserted claim 29, finding there were genuine issues of material fact. ID at 10.

<sup>2</sup> R2’s petition and Respondents’ contingent petition are cited herein as R2 Pet. and Resps. Pet., respectively. The parties’ responses are cited herein as R2 Rep. and Resps. Rep., respectively.

<sup>3</sup> OUII’s response to R2’s petition is cited herein as OUII Rep. (R2).

which to affirm the [ALJ’s] finding of non-infringement, and thus no violation.” Resps. Pet. at 1-2.

On November 21, 2017, the Commission determined to review the ID. Notice of Commission Determination to Review an Initial Determination (Included in Order No. 46), (Nov. 21, 2017). For the reasons discussed below, the Commission now determines to vacate the ID and remand the investigation to the ALJ. The Commission also determines that Respondents’ contingent petition for review is improper because it fails to allege any error in the ID. *See* 19 C.F.R. § 210.43(b). Rather, Respondents argue that, if the Commission were to adopt a claim construction they proposed earlier in this investigation—a construction that they now concede was properly rejected by the ALJ—that construction would “provide[ ] an independent and alternative basis on which to affirm the [ALJ’s] finding of non-infringement, and thus no violation.” *See, e.g.*, Resps. Pet. at 1-2, 20-21 (stating that “[b]ecause there is no error in the CALJ’s construction of ‘dissipative element,’ or the CALJ’s summary determination ruling, there is no basis for Commission review of the CALJ’s ID.”).

## **B. The ’250 Patent and the Accused Products**

### **1. The ’250 Patent**

The ’250 patent, titled “Over Voltage Protection of Switching Converter,” issued on July 31, 2012, and is based on U.S. Application No. 12/646,451, filed December 23, 2009. The patent declares that “the described embodiments relate generally to power conversion. More particularly, the described embodiments relate to over voltage protection of a switching converter.” ’250 patent at 1:6-8. The claims of the ’250 patent are directed to voltage regulators and include “voltage spike protection circuitry for voltage-spike-protecting [a] regulator circuitry.” *See id.* at 20:30-24:16. Voltage regulators receive a voltage from a power supply and

then deliver a converted voltage to electronic devices. *See id.* at 1:12-24. Voltage regulators also enable the value of the voltage delivered to the electronic device to be independent of variations in the available power supply voltage or the load presented by the electronic device being powered. *See id.*

The invention of the '250 patent addresses the voltage spiking and ringing that is seen in switching voltage regulators. *See '250 patent* at 17:4-33. The '250 patent solves voltage spikes and ringing by using “voltage spike protection circuitry” that includes a “dissipative element” and a “charge-storage circuit.” *Id.* Figure 19 of the '250 patent, which depicts an embodiment of the “voltage spike protection circuitry,” is reproduced below.

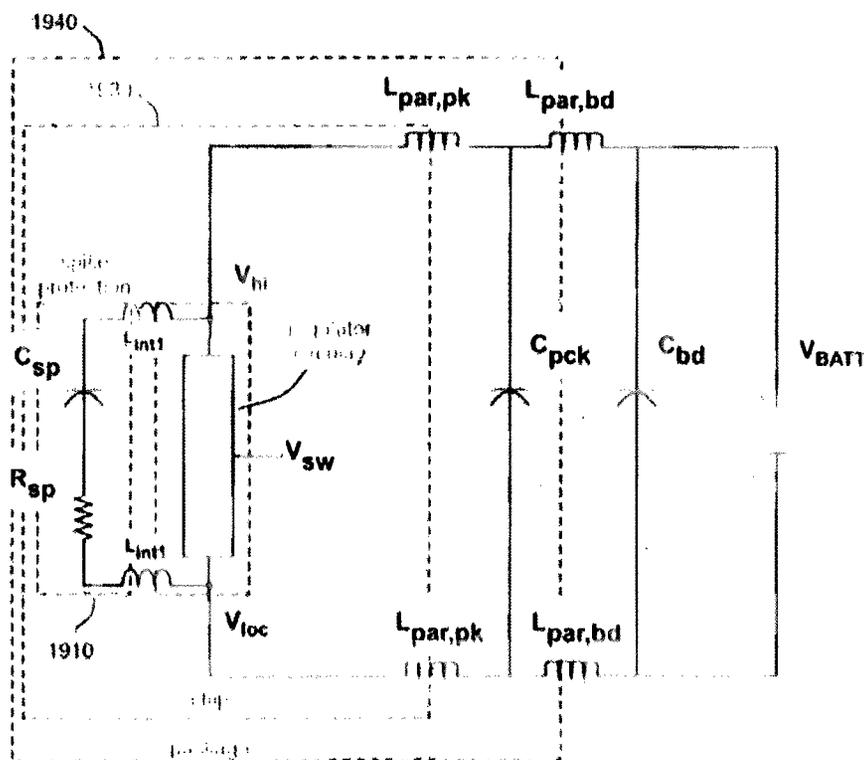


FIGURE 19

The “dissipative element” is identified as the zig-zag line labeled  $R_{sp}$ . See ’250 patent at 17:26-29 (“[A] dissipative element in the spike protection impedance, represented schematically by  $R_{sp}$ . . .”). The “charge-storage circuits include capacitive elements ( $C_{sp}$ ),” shown by the straight and curved lines labeled  $C_{sp}$ . ’250 patent at 16:58-59.

## 2. The Accused Products

The accused products are semiconductor chips designed and sold by Intel that include integrated voltage regulators. Intel calls its voltage regulators “Fully Integrated Voltage Regulators,” abbreviated by the parties as “FIVRs.” Other respondents allegedly incorporate Intel’s FIVR microprocessors into a variety of their computer products, including desktops, workstations, laptops, tablets, and servers. Regarding infringement of the dissipative element, R2 alleges two alternative theories:

## II. THE APPLICABLE LAW

### A. Summary Determination

Under Commission Rule 210.18(a), a “party may move with any necessary supporting affidavits for a summary determination in its favor upon all or any part of the issues to be determined in the investigation.” 19 C.F.R. § 210.18(a). “The determination sought by the moving party shall be rendered if pleadings and any depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a summary determination as a matter of law.” 19 C.F.R. § 210.18(b).

## B. Claim Construction

Claim construction focuses on the intrinsic evidence, which consists of the claims; the remainder of the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). The words of a claim “are generally given their ordinary and customary meaning,” which is “the meaning that term would have to a person of ordinary skill in the art” as of the date 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.* (citing *Innova/Purewater, Inc. v. Safari Water Filtration Sys., Inc.*, 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 necessary to examine the patent as a whole to determine the proper construction of the disputed terms. The claims provide substantial guidance, but they must be construed as part of “a fully integrated written instrument . . . consisting principally of a specification [and] must be read in view of the specification [which] is always highly relevant to the claim construction

analysis.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 978-79). The claims, in sum, cannot be removed “from the context from which they arose.” *Id.* at 1316.

### C. Infringement

Direct infringement is described in 35 U.S.C. § 271(a), which declares, “whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.” The complainant in a section 337 investigation bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Certain Flooring Prods.*, Inv. No. 337-TA-443, Comm’n Notice of Final Determination of No Violation of Section 337, 2002 WL 448690, at \*59, (Mar. 22, 2002); *Enercon GmbH v. Int’l Trade Comm’n*, 151 F.3d 1376 (Fed. Cir. 1998).

## III. COMMISSION DETERMINATION AS TO R2’S PETITION

### A. The ID and *Markman* Order

Claim 1 of the ’250 patent is reproduced below as representative of the asserted claims.

1. A voltage regulator, comprising:

regulator circuitry generating a regulated voltage from a first power supply and a second power supply;

voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry, comprising a *dissipative element* and a charge-storage circuit; wherein

a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with the regulator circuitry.

'250 patent at 20:31-42 (emphasis added). The *Markman* Order construes the disputed “dissipative element” claim term as a “polysilicon resistor; *thin [film]*<sup>4</sup> *metallic resistors*; or any other convenient resistive element, provided, however, that *this component requires a separate structure from a charge-storage circuit.*” Order 36 at 13-15 (emphasis added); *see also* ID at 1-2.<sup>5</sup>

The ID recognizes R2’s two infringement theories as

. The ID concludes that R2’s first infringement theory is foreclosed by the *Markman* Order’s claim construction, which requires that the dissipative element be a separate structure from the charge-storage circuit. *Id.*

As to R2’s second infringement theory, the ID agrees with R2 that “it has introduced evidence that the wires of FIVR are thin film metallic resistors,” declaring that “R2, and its expert, argue that *all* wires—even ordinary conducting wires—are thin film metallic resistors.” ID at 4. However, the ID then reconstrues “dissipative element” such that this term “excludes

<sup>4</sup> The ID notes that the omission of “film” from the *Markman* Order’s construction was unintentional. *See* ID at 2, n.2.

<sup>5</sup> The *Markman* Order agreed with R2 that the term “dissipative element” is not a means-plus-function claim term governed by 35 U.S.C. § 112(f). Order 36, at 10-13. Respondents concede that that conclusion was correct. *See, e.g.*, Resps. Rep. at 34 (“The [*Markman* Order’s] Construction of ‘Dissipative Element’ Was Correct.”); Resps. Pet. at 1 (“The [*Markman* Order’s] construction of the ‘dissipative element’ term is supported by the plain language of the claims and the ’250 patent specification. . . . Accordingly, the Commission should not review the ID.”). Thus, in view of the parties’ agreement, and consistent with the claim language and disclosures in the specification, the Commission adopts the *Markman* Order’s construction of dissipative element insofar as that construction is a “polysilicon resistor, thin [film] metallic resistors, or any other convenient resistive element.” *See* Order 36 at 13. R2 challenges only the separate structure portion of the ALJ’s construction, so the Commission does not address the agreed-upon portion further.

ordinary conducting wires as the dissipative element.” *Id.* at 7-9. The ID reasons that, “[w]hile the *Markman* order held that ‘thin film metallic resistors’ are dissipative elements, it did not specifically analyze whether ordinary conducting wires are excluded from this definition.” *Id.* at 7. The ID next finds that none of the evidence set forth in R2’s opposition to Respondents’ motion shows that the wires of the input of FIVR are anything but ordinary conducting wires. *Id.* at 5-6, 9. The ID additionally rejects R2’s infringement argument under the doctrine of equivalents. *Id.* at 9, n.10. Thus, the ID grants Respondents’ motion for summary determination of non-infringement. *Id.* at 9.

## **B. The Commission’s Analysis and Determination**

The Commission adopts the *Markman* Order’s construction of dissipative element insofar as that construction is a “polysilicon resistor, thin [film] metallic resistors, or any other convenient resistive element.” *See* Order 36 at 13. However, the Commission has determined that the *Markman* Order erroneously concludes that the “dissipative element” and the “charge-storage circuit” must be different structures. Because this separate structure aspect of the ID’s claim construction was the sole reason for the ID’s finding that there were no genuine issues of material fact as to R2’s first infringement theory, the investigation is remanded to the ALJ.<sup>6</sup>

The parties’ dispute boils down to whether a description in the specification of a “capacitor-only” embodiment (an embodiment where the dissipative element and the charge-storage circuit are included in a single structure) is a claimed or unclaimed embodiment of the voltage spike protection circuitry. There is no dispute that the capacitor-only embodiment is described in the specification as part of the invention. *See, e.g.*, R2 Pet. at 20; Resps. Rep. at 50; OUII Rep. (R2) at 14; *see also* ’250 patent at 16:46-51, 18:26-65. We conclude that this

<sup>6</sup> Additionally, as discussed below, this investigation is also remanded for further proceedings regarding R2’s second infringement theory.

embodiment is claimed. We first note that “where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276-78 (Fed. Cir. 2008). Here, Respondents point to no probative evidence to the contrary. *See* Resps. Rep. at 36-39. Rather, the evidence supports that the claims cover the single-structure embodiment.

The intrinsic evidence supports the construction that a single structure may include both the charge-storage circuit and the dissipative element. . For example, the specification declares,

*In an embodiment, the voltage spike protection circuitry is formed using the gate-to-channel capacitance of MOS structures. MOS structures are employed by this embodiment because they provide the highest capacitance per unit area typically available in a standard CMOS process. For an embodiment, at least one MOS structure includes the charge-storage circuit and **at least a portion of the dissipative element.** Other capacitor structures, such as parallel-plate metal-insulator-metal (MIM) capacitors, edge-defined capacitors, trench capacitors, or various columnar or pillar structures such as those well-known in the art for use in DRAM storage cells, can be used if they are available in a given process.*

'250 patent, at 18:26-30 (emphasis added). In the embodiments described above, the voltage spike protection circuitry is formed of a capacitor structure (such as a MOS structure), and that MOS structure includes the charge-storage circuit and at least a portion of the dissipative element. In the next paragraph, the specification declares,

*Dissipative elements  $R_{sp}$  can be incorporated in series with the capacitors. These dissipative elements can be realized as polysilicon resistors, thin film metallic resistors, or any other convenient resistive element. These dissipative elements can be realized as polysilicon resistors, thin film metallic resistors, or any other convenient resistive element. The equivalent series resistance associated with the capacitor structures varies depending on the process used and the approach employed for capacitor fabrication, and *in some cases may be sufficiently large that **additional** dissipative elements are not required.**

'250 patent at 18:61-65 (emphasis added). Read in context, this paragraph expounds on the previous paragraph, further describing the “at least a portion of the dissipative element” language. The statement that “equivalent series resistance associated with the capacitor structures . . . in some cases may be sufficiently large that *additional* dissipative elements are not required” conveys that the entire dissipative element can be a part of the capacitor.

This disclosure in the specification is consistent with the language of the claims. Dependent claim 5 recites: “The voltage regulator of claim 1, further comprising at least *one MOS structure, wherein the MOS structure comprises the charge-storage circuit and at least a portion of the dissipative element.*” (emphasis added). Thus, this claim requires “one MOS structure” that includes both the “charge-storage circuit and at least a portion of the dissipative element.” By use of “at least,” claim 5 encompasses embodiments in which the “one MOS structure” includes the entirety of the dissipative element. And, independent claim 1 must be broad enough to include the more specific claim restrictions found in dependent claim 5. *See, e.g., Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000). Thus, the independent claim phrase—“a dissipative element and a charge-storage circuit”—must allow for “one MOS structure” that includes both the charge-storage circuit and the dissipative element, *i.e.*, the capacitor-only embodiment.<sup>7</sup>

As noted previously, “where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *Oatey Co.*, 514 F.3d at 1276-78. And, because the claims mirror the specification and the specification includes a single-structure embodiment, the claims can be

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<sup>7</sup> A similar analysis applies regarding dependent claim 18. Claim 18 is analogous to claim 5, but depends from independent claim 13 instead of independent claim 1.

understood to cover a single-structure embodiment. Accordingly, the ID's contrary conclusion is an error.

Respondents argue that “[t]he claims expressly require a ‘dissipative element’ ‘*and*’ a separate ‘charge-storage circuit,” thus reasoning that the use of the word “and” requires separate structures for the dissipative element and the charge-storage circuit. *See, e.g.*, Resps. Rep. at 5. However, the use of “and” in the phrase “voltage spike protection circuitry . . . , comprising a dissipative element *and* a charge-storage circuit” does not necessarily require that the two elements be separate structures. *See, e.g., Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231-32 (Fed. Cir. 2011)) (rejecting the notion that distinct claim terms inherently require separate structures, and instead directing courts to look to the specification); *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1303 (Fed. Cir. 2011) (“The claims and the specifications indicate that the ‘needle holder’ and ‘retainer member’ need not be separately molded pieces.”). Rather, the specification must be consulted in determining the meaning of the claim term at issue. As the Federal Circuit has declared, “the 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.’” *Phillips*, 415 F.3d at 1315 (emphasis added) (quoting *Vitronics*, 90 F.3d at 1582). Here, as discussed above, the intrinsic evidence supports a construction that covers a single structure.

Respondents argue, without explanation, that the following language indicates that the dissipative element and the charge-storage circuit are separate components: “[A] value of *resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with the regulator circuitry.*” Resps. Rep. at 36; ‘250 patent at claim 1. However, contrary to Respondents’ conclusory argument, where the

intrinsic evidence compels such a conclusion, as is the case here, a single structure can have portions that have different properties or uses. For example, in *Retractable Technologies*, cited above, a single structure simultaneously was a “needle holder” and a “retainer member.” 653 F.3d at 1303.

Respondents additionally argue that a continuation of the ’250 patent application includes claims that do not recite a dissipative element (a purported capacitor-only embodiment) and therefore confirms that the claims of the ’250 patent do not cover a capacitor-only embodiment. Resps. Rep. at 39. This argument is not persuasive. It is common for a patentee to seek broader claims in a continuation application.

For the above reasons, this investigation is remanded to the ALJ for further proceedings consistent with this Opinion. On remand, the ALJ is to consider and resolve one aspect of the “dissipative element” construction discussed in the ID, *i.e.*, whether “dissipative element” excludes from its scope “ordinary conducting wires.” ID at 7. Since R2 did not have an opportunity to brief this issue before the ALJ, the Commission declines to address that portion of the ID’s construction in this opinion. The Commission directs the ALJ to address this issue, as briefed by the parties<sup>8</sup> and in light of this Commission opinion, in the first instance. If the ALJ maintains that construction and if any party requests, either party should be provided an opportunity to seek new, limited discovery and/or submit additional evidence or revised expert opinions addressing that construction.

By Order of the Commission.



Lisa R. Barton  
Secretary to the Commission

<sup>8</sup> See, e.g., R2 Pet. at 28-41 and Resps. Rep. at 53-60. The ALJ may also consider any other materials he otherwise has discretion to consider.

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **March 23, 2018**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

K. Kevin Chu  
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- Via Hand Delivery
- Via Express Delivery
- Via First Class Mail
- Other: \_\_\_\_\_

**On Behalf of Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Co.:**

Nina S. Tallon, Esq.  
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- Via Hand Delivery
- Via Express Delivery
- Via First Class Mail
- Other: \_\_\_\_\_

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**COMMISSION OPINION**

On October 5, 2017, the presiding administrative law judge (“ALJ”) issued Order No. 46, including the subject ID (the “ID”), which grants Respondents’ motion for summary determination of non-infringement for all asserted claims of U.S. Patent No. 8,233,250 (“the ’250 patent”). The ID determines that there is no genuine issue as to any material fact supporting a finding that the accused products do not satisfy the “dissipative element” limitation of the asserted claims, and therefore, Respondents are entitled to a summary determination of no infringement as a matter of law. ID at 9-10. The Commission determined to review the ID, and on review the Commission has now determined to vacate the ID and remand the investigation to the ALJ.

**I. BACKGROUND**

**A. Procedural History**

On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, CA (“R2”). 81 Fed. Reg. 71764 (Oct. 18, 2016).

The complaint alleges violations of section 337 based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of

infringement of one or more of claims 1-4, 7-17, 20-26, 28, 29, and 31 of the '250 patent. *Id.*

The Commission's Notice of Investigation named as respondents Intel Corporation of Santa Clara, CA; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74, Ltd. of Haifa, Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, TX; Dell Technologies Inc. of Round Rock, TX; HP Inc. of Palo Alto, CA; and Hewlett Packard Enterprise Co. of Palo Alto, CA (collectively, "Respondents"). *Id.* The Office of Unfair Import Investigations ("OUII") is also a party in this investigation. *Id.*

On February 9, 2017, the ALJ issued Order No. 14, which granted R2's motion to amend its complaint to add allegations of infringement of claims 5, 6, 18, 19, 27, and 30 of the '250 patent by the accused products. Order 14 (Feb. 9, 2017), *unreviewed*, Comm'n Notice (Mar. 1, 2017); *also* 82 Fed. Reg. 12637 (Mar. 6, 2017). On March 1, 2017, the ALJ held a claim construction hearing. On July 7, 2017, the ALJ issued Order No. 36 (the "*Markman* Order"), construing all of the disputed terms of the '250 patent, including "dissipative element." The ALJ construed "dissipative element" to mean "polysilicon resistor, thin metallic resistors, or any other convenient resistive element, provided, however, that this component requires a separate structure from a charge-storage circuit." Order 36, at 14-15. On May 25, 2017, the ALJ granted R2's unopposed motion for partial termination withdrawing claim 16 of the '250 patent from the scope of the investigation as well as its allegations against certain Intel and Dell entities. Order 30 (May 25, 2017), *unreviewed*, Comm'n Notice (June 14, 2017). Only claims 1-15 and 17-31 remain at issue in this investigation.

On September 13, 2017, Respondents filed a motion for summary determination that the accused products do not infringe the asserted claims of the '250 patent, either literally or under

the doctrine of equivalents, on two grounds. Respondents argued that R2 had not shown the accused products satisfy (1) the “dissipative element” limitation of the asserted claims; and (2) the “based on” limitation of asserted claims 1-15 or 17-26, or the “matches” limitation of asserted claim 29. Mot. No. 1024-041. On September 25, 2017, R2 submitted its opposition brief. On October 5, 2017, the ALJ issued Order No. 46, which includes an ID granting Respondents’ motion as to the “dissipative element” limitation.<sup>1</sup>

On October 16, 2017, R2 filed a petition for review of the ID and Respondents filed a contingent petition for review of the ID, and on October 23, 2017, R2 and Respondents filed responses to the others’ petitions.<sup>2</sup> OUII did not file a petition, but filed separate responses to each of R2’s petition and Respondents’ contingent petition.<sup>3</sup> R2’s petition seeks review of the ID’s grant of a summary determination on the issue of non-infringement of the ’250 patent based on the dissipative element. R2’s petition also challenges the *Markman* Order’s construction of the term “dissipative element” to the extent that the construction includes the following requirement: “this component requires a separate structure from a charge-storage circuit.” R2’s petition further challenges the construction of “dissipative element” in the ID, which excludes from the scope of that term “ordinary conducting wires.” R2’s petition additionally argues that the ID errs by not providing it an opportunity to respond to a new construction of “dissipative element” included in the ID. Respondents filed a contingent petition, which asserts that “the Commission should not review the ID,” but offers only “an independent and alternative basis on

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<sup>1</sup> Order No. 46 also rejected Respondents’ motion for summary determination that R2 had not shown the “accused products” satisfy the “based on” limitation of asserted claims 1-15 or 17-26, or the “matches” limitation of asserted claim 29, finding there were genuine issues of material fact. ID at 10.

<sup>2</sup> R2’s petition and Respondents’ contingent petition are cited herein as R2 Pet. and Resps. Pet., respectively. The parties’ responses are cited herein as R2 Rep. and Resps. Rep., respectively.

<sup>3</sup> OUII’s response to R2’s petition is cited herein as OUII Rep. (R2).

which to affirm the [ALJ’s] finding of non-infringement, and thus no violation.” Resps. Pet. at 1-2.

On November 21, 2017, the Commission determined to review the ID. Notice of Commission Determination to Review an Initial Determination (Included in Order No. 46), (Nov. 21, 2017). For the reasons discussed below, the Commission now determines to vacate the ID and remand the investigation to the ALJ. The Commission also determines that Respondents’ contingent petition for review is improper because it fails to allege any error in the ID. *See* 19 C.F.R. § 210.43(b). Rather, Respondents argue that, if the Commission were to adopt a claim construction they proposed earlier in this investigation—a construction that they now concede was properly rejected by the ALJ—that construction would “provide[ ] an independent and alternative basis on which to affirm the [ALJ’s] finding of non-infringement, and thus no violation.” *See, e.g.*, Resps. Pet. at 1-2, 20-21 (stating that “[b]ecause there is no error in the CALJ’s construction of ‘dissipative element,’ or the CALJ’s summary determination ruling, there is no basis for Commission review of the CALJ’s ID.”).

## **B. The ’250 Patent and the Accused Products**

### **1. The ’250 Patent**

The ’250 patent, titled “Over Voltage Protection of Switching Converter,” issued on July 31, 2012, and is based on U.S. Application No. 12/646,451, filed December 23, 2009. The patent declares that “the described embodiments relate generally to power conversion. More particularly, the described embodiments relate to over voltage protection of a switching converter.” ’250 patent at 1:6-8. The claims of the ’250 patent are directed to voltage regulators and include “voltage spike protection circuitry for voltage-spike-protecting [a] regulator circuitry.” *See id.* at 20:30-24:16. Voltage regulators receive a voltage from a power supply and

then deliver a converted voltage to electronic devices. *See id.* at 1:12-24. Voltage regulators also enable the value of the voltage delivered to the electronic device to be independent of variations in the available power supply voltage or the load presented by the electronic device being powered. *See id.*

The invention of the '250 patent addresses the voltage spiking and ringing that is seen in switching voltage regulators. *See '250 patent* at 17:4-33. The '250 patent solves voltage spikes and ringing by using “voltage spike protection circuitry” that includes a “dissipative element” and a “charge-storage circuit.” *Id.* Figure 19 of the '250 patent, which depicts an embodiment of the “voltage spike protection circuitry,” is reproduced below.

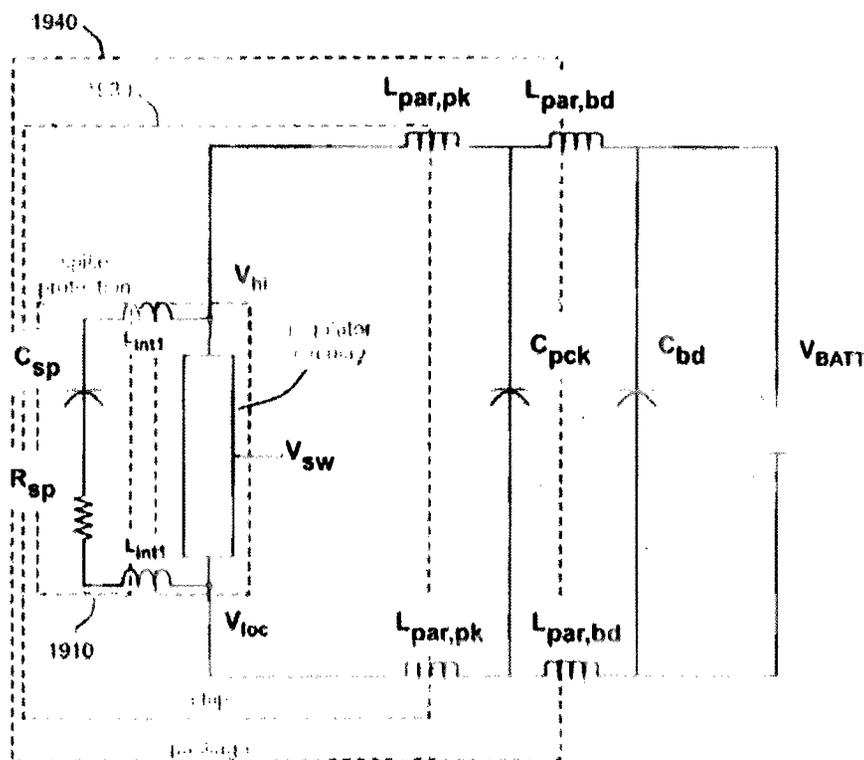


FIGURE 19

The “dissipative element” is identified as the zig-zag line labeled  $R_{sp}$ . See ’250 patent at 17:26-29 (“[A] dissipative element in the spike protection impedance, represented schematically by  $R_{sp}$ . . .”). The “charge-storage circuits include capacitive elements ( $C_{sp}$ ),” shown by the straight and curved lines labeled  $C_{sp}$ . ’250 patent at 16:58-59.

## 2. The Accused Products

The accused products are semiconductor chips designed and sold by Intel that include integrated voltage regulators. Intel calls its voltage regulators “Fully Integrated Voltage Regulators,” abbreviated by the parties as “FIVRs.” Other respondents allegedly incorporate Intel’s FIVR microprocessors into a variety of their computer products, including desktops, workstations, laptops, tablets, and servers. Regarding infringement of the dissipative element, R2 alleges two alternative theories:

## II. THE APPLICABLE LAW

### A. Summary Determination

Under Commission Rule 210.18(a), a “party may move with any necessary supporting affidavits for a summary determination in its favor upon all or any part of the issues to be determined in the investigation.” 19 C.F.R. § 210.18(a). “The determination sought by the moving party shall be rendered if pleadings and any depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a summary determination as a matter of law.” 19 C.F.R. § 210.18(b).

## B. Claim Construction

Claim construction focuses on the intrinsic evidence, which consists of the claims; the remainder of the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). The words of a claim “are generally given their ordinary and customary meaning,” which is “the meaning that term would have to a person of ordinary skill in the art” as of the date the patent application was filed. *Id.* at 1312-13 (quoting *Vitronics Corp. v. Conceptoronic, 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.* (citing *Innova/Purewater, Inc. v. Safari Water Filtration Sys., Inc.*, 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 necessary to examine the patent as a whole to determine the proper construction of the disputed terms. The claims provide substantial guidance, but they must be construed as part of “a fully integrated written instrument . . . consisting principally of a specification [and] must be read in view of the specification [which] is always highly relevant to the claim construction

analysis.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 978-79). The claims, in sum, cannot be removed “from the context from which they arose.” *Id.* at 1316.

### C. Infringement

Direct infringement is described in 35 U.S.C. § 271(a), which declares, “whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.” The complainant in a section 337 investigation bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. *Certain Flooring Prods.*, Inv. No. 337-TA-443, Comm’n Notice of Final Determination of No Violation of Section 337, 2002 WL 448690, at \*59, (Mar. 22, 2002); *Enercon GmbH v. Int’l Trade Comm’n*, 151 F.3d 1376 (Fed. Cir. 1998).

## III. COMMISSION DETERMINATION AS TO R2’S PETITION

### A. The ID and *Markman* Order

Claim 1 of the ’250 patent is reproduced below as representative of the asserted claims.

1. A voltage regulator, comprising:

regulator circuitry generating a regulated voltage from a first power supply and a second power supply;

voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry, comprising a *dissipative element* and a charge-storage circuit; wherein

a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with the regulator circuitry.

'250 patent at 20:31-42 (emphasis added). The *Markman* Order construes the disputed “dissipative element” claim term as a “polysilicon resistor; *thin [film]*<sup>4</sup> *metallic resistors*; or any other convenient resistive element, provided, however, that *this component requires a separate structure from a charge-storage circuit.*” Order 36 at 13-15 (emphasis added); *see also* ID at 1-2.<sup>5</sup>

The ID recognizes R2’s two infringement theories as

. The ID concludes that R2’s first infringement theory is foreclosed by the *Markman* Order’s claim construction, which requires that the dissipative element be a separate structure from the charge-storage circuit. *Id.*

As to R2’s second infringement theory, the ID agrees with R2 that “it has introduced evidence that the wires of FIVR are thin film metallic resistors,” declaring that “R2, and its expert, argue that *all* wires—even ordinary conducting wires—are thin film metallic resistors.” ID at 4. However, the ID then reconstrues “dissipative element” such that this term “excludes

<sup>4</sup> The ID notes that the omission of “film” from the *Markman* Order’s construction was unintentional. *See* ID at 2, n.2.

<sup>5</sup> The *Markman* Order agreed with R2 that the term “dissipative element” is not a means-plus-function claim term governed by 35 U.S.C. § 112(f). Order 36, at 10-13. Respondents concede that that conclusion was correct. *See, e.g.*, Resps. Rep. at 34 (“The [*Markman* Order’s] Construction of ‘Dissipative Element’ Was Correct.”); Resps. Pet. at 1 (“The [*Markman* Order’s] construction of the ‘dissipative element’ term is supported by the plain language of the claims and the ’250 patent specification. . . . Accordingly, the Commission should not review the ID.”). Thus, in view of the parties’ agreement, and consistent with the claim language and disclosures in the specification, the Commission adopts the *Markman* Order’s construction of dissipative element insofar as that construction is a “polysilicon resistor, thin [film] metallic resistors, or any other convenient resistive element.” *See* Order 36 at 13. R2 challenges only the separate structure portion of the ALJ’s construction, so the Commission does not address the agreed-upon portion further.

ordinary conducting wires as the dissipative element.” *Id.* at 7-9. The ID reasons that, “[w]hile the *Markman* order held that ‘thin film metallic resistors’ are dissipative elements, it did not specifically analyze whether ordinary conducting wires are excluded from this definition.” *Id.* at 7. The ID next finds that none of the evidence set forth in R2’s opposition to Respondents’ motion shows that the wires of the input of FIVR are anything but ordinary conducting wires. *Id.* at 5-6, 9. The ID additionally rejects R2’s infringement argument under the doctrine of equivalents. *Id.* at 9, n.10. Thus, the ID grants Respondents’ motion for summary determination of non-infringement. *Id.* at 9.

## **B. The Commission’s Analysis and Determination**

The Commission adopts the *Markman* Order’s construction of dissipative element insofar as that construction is a “polysilicon resistor, thin [film] metallic resistors, or any other convenient resistive element.” *See* Order 36 at 13. However, the Commission has determined that the *Markman* Order erroneously concludes that the “dissipative element” and the “charge-storage circuit” must be different structures. Because this separate structure aspect of the ID’s claim construction was the sole reason for the ID’s finding that there were no genuine issues of material fact as to R2’s first infringement theory, the investigation is remanded to the ALJ.<sup>6</sup>

The parties’ dispute boils down to whether a description in the specification of a “capacitor-only” embodiment (an embodiment where the dissipative element and the charge-storage circuit are included in a single structure) is a claimed or unclaimed embodiment of the voltage spike protection circuitry. There is no dispute that the capacitor-only embodiment is described in the specification as part of the invention. *See, e.g.*, R2 Pet. at 20; Resps. Rep. at 50; OUII Rep. (R2) at 14; *see also* ’250 patent at 16:46-51, 18:26-65. We conclude that this

<sup>6</sup> Additionally, as discussed below, this investigation is also remanded for further proceedings regarding R2’s second infringement theory.

embodiment is claimed. We first note that “where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276-78 (Fed. Cir. 2008). Here, Respondents point to no probative evidence to the contrary. *See* Resps. Rep. at 36-39. Rather, the evidence supports that the claims cover the single-structure embodiment.

The intrinsic evidence supports the construction that a single structure may include both the charge-storage circuit and the dissipative element. . For example, the specification declares,

*In an embodiment, the voltage spike protection circuitry is formed using the gate-to-channel capacitance of MOS structures. MOS structures are employed by this embodiment because they provide the highest capacitance per unit area typically available in a standard CMOS process. For an embodiment, at least one MOS structure includes the charge-storage circuit and **at least a portion of the dissipative element.** Other capacitor structures, such as parallel-plate metal-insulator-metal (MIM) capacitors, edge-defined capacitors, trench capacitors, or various columnar or pillar structures such as those well-known in the art for use in DRAM storage cells, can be used if they are available in a given process.*

'250 patent, at 18:26-30 (emphasis added). In the embodiments described above, the voltage spike protection circuitry is formed of a capacitor structure (such as a MOS structure), and that MOS structure includes the charge-storage circuit and at least a portion of the dissipative element. In the next paragraph, the specification declares,

*Dissipative elements  $R_{sp}$  can be incorporated in series with the capacitors. These dissipative elements can be realized as polysilicon resistors, thin film metallic resistors, or any other convenient resistive element. These dissipative elements can be realized as polysilicon resistors, thin film metallic resistors, or any other convenient resistive element. The equivalent series resistance associated with the capacitor structures varies depending on the process used and the approach employed for capacitor fabrication, and *in some cases may be sufficiently large that **additional** dissipative elements are not required.**

'250 patent at 18:61-65 (emphasis added). Read in context, this paragraph expounds on the previous paragraph, further describing the “at least a portion of the dissipative element” language. The statement that “equivalent series resistance associated with the capacitor structures . . . in some cases may be sufficiently large that *additional* dissipative elements are not required” conveys that the entire dissipative element can be a part of the capacitor.

This disclosure in the specification is consistent with the language of the claims. Dependent claim 5 recites: “The voltage regulator of claim 1, further comprising at least *one MOS structure, wherein the MOS structure comprises the charge-storage circuit and at least a portion of the dissipative element.*” (emphasis added). Thus, this claim requires “one MOS structure” that includes both the “charge-storage circuit and at least a portion of the dissipative element.” By use of “at least,” claim 5 encompasses embodiments in which the “one MOS structure” includes the entirety of the dissipative element. And, independent claim 1 must be broad enough to include the more specific claim restrictions found in dependent claim 5. *See, e.g., Dow Chem. Co. v. United States*, 226 F.3d 1334, 1341-42 (Fed. Cir. 2000). Thus, the independent claim phrase—“a dissipative element and a charge-storage circuit”—must allow for “one MOS structure” that includes both the charge-storage circuit and the dissipative element, *i.e.*, the capacitor-only embodiment.<sup>7</sup>

As noted previously, “where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence on the contrary.” *Oatey Co.*, 514 F.3d at 1276-78. And, because the claims mirror the specification and the specification includes a single-structure embodiment, the claims can be

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<sup>7</sup> A similar analysis applies regarding dependent claim 18. Claim 18 is analogous to claim 5, but depends from independent claim 13 instead of independent claim 1.

understood to cover a single-structure embodiment. Accordingly, the ID's contrary conclusion is an error.

Respondents argue that “[t]he claims expressly require a ‘dissipative element’ ‘*and*’ a separate ‘charge-storage circuit,” thus reasoning that the use of the word “and” requires separate structures for the dissipative element and the charge-storage circuit. *See, e.g.*, Resps. Rep. at 5. However, the use of “and” in the phrase “voltage spike protection circuitry . . . , comprising a dissipative element *and* a charge-storage circuit” does not necessarily require that the two elements be separate structures. *See, e.g., Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231-32 (Fed. Cir. 2011)) (rejecting the notion that distinct claim terms inherently require separate structures, and instead directing courts to look to the specification); *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1303 (Fed. Cir. 2011) (“The claims and the specifications indicate that the ‘needle holder’ and ‘retainer member’ need not be separately molded pieces.”). Rather, the specification must be consulted in determining the meaning of the claim term at issue. As the Federal Circuit has declared, “the 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.’” *Phillips*, 415 F.3d at 1315 (emphasis added) (quoting *Vitronics*, 90 F.3d at 1582). Here, as discussed above, the intrinsic evidence supports a construction that covers a single structure.

Respondents argue, without explanation, that the following language indicates that the dissipative element and the charge-storage circuit are separate components: “[A] value of *resistance of the dissipative element is based on* a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises *the charge-storage circuit* and a parasitic inductance associated with the regulator circuitry.” Resps. Rep. at 36; ’250 patent at claim 1. However, contrary to Respondents’ conclusory argument, where the

intrinsic evidence compels such a conclusion, as is the case here, a single structure can have portions that have different properties or uses. For example, in *Retractable Technologies*, cited above, a single structure simultaneously was a “needle holder” and a “retainer member.” 653 F.3d at 1303.

Respondents additionally argue that a continuation of the '250 patent application includes claims that do not recite a dissipative element (a purported capacitor-only embodiment) and therefore confirms that the claims of the '250 patent do not cover a capacitor-only embodiment. Resps. Rep. at 39. This argument is not persuasive. It is common for a patentee to seek broader claims in a continuation application.

For the above reasons, this investigation is remanded to the ALJ for further proceedings consistent with this Opinion. On remand, the ALJ is to consider and resolve one aspect of the “dissipative element” construction discussed in the ID, *i.e.*, whether “dissipative element” excludes from its scope “ordinary conducting wires.” ID at 7. Since R2 did not have an opportunity to brief this issue before the ALJ, the Commission declines to address that portion of the ID’s construction in this opinion. The Commission directs the ALJ to address this issue, as briefed by the parties<sup>8</sup> and in light of this Commission opinion, in the first instance. If the ALJ maintains that construction and if any party requests, either party should be provided an opportunity to seek new, limited discovery and/or submit additional evidence or revised expert opinions addressing that construction.

By Order of the Commission.



Lisa R. Barton  
Secretary to the Commission

<sup>8</sup> See, e.g., R2 Pet. at 28-41 and Resps. Rep. at 53-60. The ALJ may also consider any other materials he otherwise has discretion to consider.

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **ORDER** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **March 23, 2018**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

K. Kevin Chu  
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**On Behalf of Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Co.:**

Nina S. Tallon, Esq.  
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UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS  
WITH VOLTAGE REGULATORS AND  
PRODUCTS CONTAINING SAME**

**Investigation No. 337-TA-1024**

**NOTICE OF COMMISSION DETERMINATION TO REVIEW AN INITIAL  
DETERMINATION (INCLUDED IN ORDER NO. 46)**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission (the "Commission") has determined to review an initial determination (the "ID") (included in Order No. 46) granting Respondents' motion for summary determination of non-infringement for all asserted claims of U.S. Patent No. 8,233,250.

**FOR FURTHER INFORMATION CONTACT:** Ron Traud, Office of the General Counsel, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone 202-205-3427. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street SW., Washington, DC 20436, telephone 202-205-2000. General information concerning the Commission may also be obtained by accessing its Internet server at <https://www.usitc.gov>. The public record for this investigation may be viewed on the Commission's electronic docket ("EDIS") at <https://edis.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:** On October 18, 2016, the Commission instituted this investigation based on a complaint filed by R2 Semiconductor, Inc. of Sunnyvale, CA ("R2"). 81 FR 71764 (Oct. 18, 2016). The complaint alleges violations of section 337 based upon the importation into the United States, the sale for importation, or the sale within the United States after importation of certain integrated circuits with voltage regulators and products containing the same by reason of infringement of one or more of claims 1-4, 7-17, 20-26, 28, 29, and 31 of U.S. Patent No. 8,233,250 ("the '250 patent"). *Id.* The Commission's Notice of Investigation named as respondents Intel Corporation of Santa Clara, CA; Intel Ireland Ltd. of Leixlip, Ireland; Intel Products Vietnam Co., Ltd. of Ho Chi Minh City, Vietnam; Intel Israel 74, Ltd. of Haifa, Israel; Intel Malaysia Sdn. Berhad of Penang, Malaysia; Intel China, Ltd. of Beijing, China; Dell, Inc. of Round Rock, TX; Dell Technologies Inc. of Round Rock, TX; HP Inc. of Palo Alto, CA;

and Hewlett Packard Enterprise Co. of Palo Alto, CA (collectively, "Respondents"). *Id.* The Office of Unfair Import Investigations ("OUII") is also a party in this investigation. *Id.*

R2 later amended its complaint to add allegations of infringement of claims 5, 6, 18, 19, 27, and 30 of the '250 patent by the accused products. Order 14 (Mar. 1, 2017), *unreviewed*, Notice of Commission Determination Not to Review an Initial Determination Amending the Complaint and Notice of Investigation (June 24, 2107). R2 later withdrew from the investigation its allegations regarding claim 16 of the '250 patent and its allegations against certain Intel and Dell entities. Order 30 (May 25, 2017), *unreviewed*, Notice of Commission Determination Partially Terminating the Investigation as to a Patent Claim and Certain Respondents, (June 14, 2017). Only claims 1-15 and 17-31 of the '250 patent remain.

On September 13, 2017, Respondents filed a motion for summary determination of noninfringement that the accused products do not infringe the asserted claims of the '250 patent. On October 5, 2017, the administrative law judge ("ALJ") issued Order No. 46, which includes the ID, and grants Respondents' motion. On October 16, 2017, R2 filed a petition for review of the ID and Respondents filed a contingent petition for review of the ID. On October 23, 2017, R2 and Respondents filed responses to the others' petitions. OUII did not file a petition, but did file separate responses to each of R2's petition and Respondents' contingent petition.

Having examined the record of this investigation, including the ID and the submissions of the parties, the Commission has determined to review the ID. No further written submissions are requested at this time.

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 part 210).

By order of the Commission.



Lisa R. Barton  
Secretary to the Commission

Issued: November 21, 2017

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the attached **NOTICE** has been served by hand upon the Commission Investigative Attorney, Monisha Deka, Esq., and the following parties as indicated, on **November 21, 2017**.



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

**On Behalf of Complainants R2 Semiconductor, Inc.:**

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**PUBLIC VERSION**

**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**Washington, D.C.**

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-1024**

**ORDER NO. 46: INITIAL DETERMINATION GRANTING-IN-PART  
RESPONDENTS' MOTION FOR SUMMARY DETERMINATION  
AND STAYING THE PROCEDURAL SCHEDULE**

(October 5, 2017)

On September 13, 2017, Respondents Intel Corporation, Dell Inc., HP Inc., and Hewlett Packard Enterprise Company (collectively, "Respondents") filed a motion for summary determination (1024-041) of non-infringement for all asserted claims of U.S. Patent No. 8,233,250 ("the '250 patent").<sup>1</sup> On September 25, 2017, Complainant R2 Semiconductor, Inc. ("R2") opposed the motion. The Commission Investigative Staff ("Staff") filed a response in support of Respondents' motion. On September 29, 2017, Respondents moved for leave (1024-042) to file a reply in support of their motion, which is hereby denied.

Each of the asserted claims of the '250 patent claims a particular configuration of "voltage spike protection circuitry" that includes a "charge-storage circuit" and a "dissipative element." ('250 Patent at 20:31-24:16 (claim 1-15, and 17-31).) The parties agree that a capacitor satisfies the "charge-storage circuit" requirement, but disagree as to whether the dissipative element requirement is met. (Mem. at 5; Opp at 6.) On July 7, 2017, the undersigned issued a *Markman* order construing "dissipative element" as "polysilicon resistor, thin [film]<sup>2</sup> metallic

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<sup>1</sup> The Commission Investigative Staff also filed its own motion of non-infringement of the '250 patent. (Mot. No. 1024-039.) Staff's motion is addressed in a separate order.

<sup>2</sup> The undersigned agrees with the parties that the omission of the word "film" from the construction was

resistors, or any other convenient resistive element, provided, however, that this component requires a separate structure from a charge-storage circuit.” (Order No. 36 at 14-15.)

Respondents’ motion arises as a result of the *Markman* Order. Respondents contend that, based on the undersigned’s construction, there is no genuine issue of material fact that the Accused Products do not satisfy the “dissipative element” limitation. (Mem. at 3-4.) Respondents also contend that R2 lacks evidence that the Accused Products meet the “based on” and “matches” claim limitations of claims 1, 13, and 26. (*Id.* at 4.)

**I. Relevant Law**

Commission Rule 210.18 governs summary determination, and states in relevant part:

The determination sought by the moving party shall be rendered if the pleadings and any depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a summary determination as a matter of law.

19 C.F.R. § 210.18(b) (2016); *see also Certain Digital Video Receivers and Hardware and Software Components Thereof*, Inv. No. 337-TA-1001, Order No. 26 at 2-3 (Nov. 29, 2016). In considering a motion for summary determination, the evidence “must be viewed in the light most favorable to the party opposing the motion with doubt resolved in favor of the nonmovant.” *Crown Operations Int’l, Ltd. v. Solutia, Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002); *Certain Lens-Fitted Film Packages*, Inv. No. 337-TA-406, 1998 WL 35230715, Order No. 7 at 3, at \*2 (July 10, 1998) (“[T]he administrative law judge must accept all evidence presented by the non-movant as true, must view all of the evidence in the light most favorable to the non-movant, and must draw all justifiable inferences in favor of the non-movant.”).

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unintentional. (Mem. at 6 n. 2; Opp. at 2 n. 2.) The construction is amended to include this omitted word.

## II. Dissipative Element Limitation

Respondents argue that R2 cannot establish that the Accused Products meet the “dissipative element” limitation. (Mem. at 15-26.) Prior to the issuance of the *Markman* Order, R2 asserted two theories of infringement: [REDACTED]

[REDACTED] (Opp. at 12, 13.) Because R2’s first infringement theory conflicts with the *Markman* Order, R2 must now rely on its second. (Mem. at 2.)

### A. Understanding of the Accused “Dissipative Element”

To establish that FIVR infringes, R2 must establish that “the metal trace resistors (or interconnects) of the on-die input decoupling network for each FIVR” are either thin film metallic resistors or “any other convenient resistive element.”<sup>5</sup> Respondents assert that R2 has not done so. (Mem. at 15.) According to Respondents, “R2’s infringement case is now constructed around one statement at question 87 of Dr. Kenney’s witness statement that wires in the abstract can be used to make thin film metallic resistors.” (*Id.* at 16 (citing CX-0005C at Q/A 87<sup>6</sup>)). Respondents note that [REDACTED]

[REDACTED] (*Id.*)

R2 disagrees that it lacks such evidence. It asserts that “the evidence establishes that the accused metal trace resistors (or interconnects) are ‘dissipative elements’ because they are thin

<sup>3</sup> R2 notes that the parties have used the terms “trace resistors,” “metal trace,” “interconnects,” “metal interconnects” somewhat interchangeably, while Respondents refer to these as “wires.” (Opp. at 6 n.4.)

<sup>4</sup> Respondents refer to the accused element as “wires on the input of FIVR.”

<sup>5</sup> R2 does not contend that the metal trace resistors (or interconnects) of the on-die input decoupling network for each FIVR are polysilicon resistors. (*See* Opp. at 9.)

<sup>6</sup> This exhibit is Exhibit 2 to Respondents’ Motion.

metallic resistors and convenient resistive elements that are separate structures from charge-storage circuits.” (Opp. at 11.) R2 points to testimony from Dr. Kenney that “[r]esistors created using traces, wire, and/or metal also satisfy the terms ‘dissipative element, ‘resistive element,’ or ‘resistor.’”. (CX-0005C at Q/A 86.) It notes that Dr. Kenney explains: “Resistors made using the metal layers or wires on an integrated circuit are thin film metallic resistors.” (*Id.* at Q/A 87.)

[REDACTED]

Staff agrees with Respondents that “R2’s evidence lacks a factual foundation to show that the accused products have a structure that is” a dissipative element, as construed in the *Markman* Order. (Staff Resp. at 6.) Staff explains that “R2 relies on a conclusory sentence in Dr. Kenney’s witness statement, and similar statements in his *Markman* declaration.” (*Id.* at 7.) Staff notes such statements are “not founded on an analysis of the actual accused products and structures therein.” (*Id.*) Rather, “there are no statements by Dr. Kenney that address a particular piece of metal in the accused products, nor address why a particular piece of metal is a resistor.” (*Id.* at 8.)

The undersigned agrees with R2 that it has introduced evidence that the wires of FIVR are thin film metallic resistors. R2, and its expert, argue that *all* wires – even ordinary conducting wires – are thin film metallic resistors. For example, Dr. Kenney testifies that “[r]esistors made using the metal layers or wires on an integrated circuit are thin film metallic resistors.” (CX-0005C at Q/A 87.) According to R2, this statement and similar statements “demonstrate that traces do not require specific dimensions and shapes to be resistors and that *all traces are*

resistors.” (Opp. at 27 (emphasis added)). As such, because the Accused Products undisputedly have wires, Dr. Kenney’s opinion would encompass the allegation that the accused products are thin film metallic resistors.

The undersigned finds, however, that R2 has not introduced any evidence to establish that the wires of the input of FIVR are anything more than ordinary conducting wires. R2 repeatedly cites to the same two statements from Dr. Kenney in its opposition: (1) “Resistors made using the metal layers or wires on an integrated circuit are thin film metallic resistors”; and (2) “Resistors created using traces, wire, and/or metal also satisfy the terms ‘dissipative element, ‘resistive element,’ or “resistor.” (Opp. at 6 n.4, 13 n.6, 14 n.14, 17, 18, 25, 31, 31-32 (citing CX-0005C at Q/A 86, 87).) Neither of these statements establish that the wires of the Accused Products are anything other than ordinary conducting wires. Nor do they indicate that the metal traces have some configuration, such as the snake-like structure cited by Dr. Kenney in his claim construction declaration, that would make them different than ordinary conducting wires. (CMRB at 4-5; CMRB Ex. 8.)

Notably, however, this assertion is not supported by testimony from Dr. Kenney and consists solely of attorney argument.<sup>7</sup> Thus, it is insufficient to establish that there is a dispute of material fact. *Johnson v. IVAC Corp.*, 885 F.2d 1574, 1581 (Fed. Cir. 1989) (“Attorneys’ argument is no substitute for evidence.”).

Nor do the documents cited by Dr. Kenney provide any evidence that the wires are something more than ordinary conducting wires.

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<sup>7</sup> [Redacted]

[REDACTED]

[REDACTED] The documents and accompanying testimony do not provide any further insight into whether or not Dr. Kenney views these as ordinary conducting wires or believes that they have a different configuration.

Accordingly, the undersigned finds that there is no genuine issue of material fact among the parties that the accused products contain ordinary wires.<sup>8</sup>

**B. Claim Construction**

Respondents assert that, by identifying ordinary conducting wires as the dissipative element, R2 runs afoul of the *Markman* Order. [REDACTED]

[REDACTED]

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<sup>8</sup> The undersigned notes that R2 would not be able to remedy this deficiency at the hearing. Per the Ground Rules and the undersigned's policies, a party is limited by the scope of its infringement contentions and opinions previously offered by its expert. (Ground Rule 10.5.6.) Because it did not provide such opinions previously, it would be prohibited from doing so at the hearing.

[REDACTED]

The *Markman* Order did not squarely address whether ordinary conducting wires can be the dissipative element of the '250 patent. While the *Markman* order held that “thin film metallic resistors” are dissipative elements, it did not specifically analyze whether ordinary conducting wires are excluded from this definition. Thus, the undersigned disagrees with both R2’s and Respondents’ characterization of the *Markman* Order. (Mem. at 24 (asserting that “R2’s infringement theory is directly contrary to the CALJ’s claim construction”); Opp at 8 (arguing that “[t]he CALJ has already rejected Respondents’ attempt to limit ‘dissipative element’ to a narrow definition of resistor that excludes metal trace resistors”).)

However, the evidence shows that the '250 patent does not contemplate ordinary conducting wires as the dissipative element. The specification explains that circuits containing only capacitors and ordinary conducting wires do not solve the problem presented in the prior art, due to the lack of a dissipative element. For example, Figure 7 illustrates a prior-art capacitor-only system. This prior art system includes both capacitors and ordinary conducting

<sup>9</sup> Staff does not address this argument in its brief.

wires connecting the capacitors. ('250 patent at Fig. 7, 7:65-67.) Thus, both the prior art system depicted in Figure 7 and the Accused Products have capacitors and ordinary conducting wires. As explained, *supra* in section II(A), R2 has not introduced any evidence to distinguish the wires shown in Figure 7 from the wires on the input of FIVR.

Other portions of the specification likewise show that the '250 patent did not contemplate ordinary conducting wires as a dissipative element. The specification describes a capacitor-only embodiment depicted as a circuit with both a capacitor and ordinary conducting wires. ('250 patent at 18:61-65.) The specification explains that this embodiment is one in which the “equivalent series resistance associated with the capacitor structures . . . may be sufficiently large that additional dissipative elements are not required.” (*Id.*) If the patent contemplated ordinary conducting wires as dissipative elements, one would expect the specification to say: “may be sufficiently large that additional dissipative elements *other than the wire* are not required.” The omission of the words indicates that the specification did not consider ordinary conducting wires to be “dissipative elements.”

Further, if R2 were correct that ordinary conducting wires could be the dissipative element of the '250 patent, the undersigned agrees with Respondents that the requirement of adding a dissipative element would be meaningless. Dr. Leeb explained:

All electrical components have some resistance. Wires have ESR, inductors have ESR, capacitors have ESR. As a result, if the ESR of components could be a dissipative element, as R2 proposes, every electrical component could be the claimed dissipative element. For example, although the patent describes the ‘dissipative element’ as a resistor, R2’s construction would potentially mean that an inductor could be the dissipative element, a wire could be the dissipative element, and any other component on the entire microprocessor could be the dissipative element.

(RMIB Leeb Decl. at ¶ 78.) Because all circuits – including prior art circuits – have ordinary conducting wires, there would be no need for the '250 patent to emphasize adding them to a

circuit. The concept of a “dissipative element” of the ’250 patent must therefore be referring to something else. It cannot refer to something circuits – including prior art circuits – already had.

Additionally, the patent emphasizes that the addition of a dissipative element to circuits was key to solving the problems of the prior art. (’250 patent at 17:26-29) (“It is therefore important to incorporate a dissipative element in the spike protection impedance . . . to minimize undesired ringing in the spike protection circuit. That is, the dissipative element damps ringing of a power supply to the regulator circuitry.”). This too shows that the patent clearly contemplates that the dissipative element be something additional to that which prior art circuits already had.

For the reasons set forth above, the undersigned finds that the ’250 patent excludes ordinary conducting wires as the dissipative element. The term “dissipative element” is found in every asserted claim of the ’250 patent. (’250 Patent at 20:30-24:16.) Because R2’s infringement theory relies on this premise that the ordinary conducting wires of the Accused Products are the dissipative element, the undersigned finds that there is no genuine issue of material fact as to literal infringement of the asserted claims.<sup>10</sup>

### **III. “Based On”/ “Matches”**

Independent claims 1, 13, and 26 require that “a value of resistance of the dissipative element” is based on or matches “a characteristic impedance of a lumped-element approximation of a transmission line.” (’250 patent at 20:31-22:27.) Respondents argue that R2 did not identify a value of the resistance and cannot therefore prove infringement of these claims. (Mem. at 28.)

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<sup>10</sup> Because the undersigned finds that the ’250 patent excludes ordinary conducting wires as dissipative elements, it is unnecessary to determine infringement under the doctrine of equivalents. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1345 (Fed. Cir. 2001) (“A particular structure can be deemed outside the reach of the doctrine of equivalents because that structure is clearly excluded from the claims whether the exclusion is express or implied.”) The undersigned notes, however, that R2 would not prevail on such a claim, even if it could proceed. Conclusory statements, without more, are insufficient for a party to meet its burden. *See, e.g., Kim v. ConAgra Foods*, 465 F.3d 1312, 1320 (Fed. Cir. 2006) (explaining that an expert’s conclusory testimony was insufficient to establish infringement).

[REDACTED]

The undersigned finds that this is enough to create a genuine issue of material fact. Although the evidence may not be the most reliable or persuasive, this is not a case in which the evidence is “so one-sided that one party must prevail as a matter of law.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 252 (1986). Because genuine issues of material facts would remain, summary determination on this ground would not be appropriate.

Accordingly, Respondents’ motion for summary determination (1024-041) of non-infringement for all asserted claims of U.S. Patent No. 8,233,250 is granted-in-part. In light of this finding, the procedural schedule in this Investigation is hereby stayed.

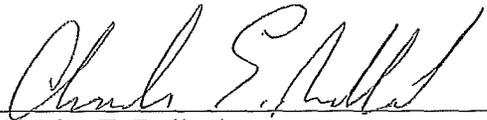
Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall be the determination of the Commission unless a party files a petition for review of the Initial Determination pursuant to 19 C.F.R. § 210.43(a), or the Commission, pursuant to 19 C.F.R. § 210.44, orders, on its own motion, a review of the Initial Determination or certain issues herein.

Within seven days of the date of this document, each party shall submit to the Office of the Administrative Law Judges a statement as to whether or not it seeks to have any portion of this document deleted from the public version. The parties’ submissions may be made by

facsimile and/or hard copy by the aforementioned date.

Any party seeking to have any portion of this document deleted from the public version thereof must submit to this office a copy of this document with red brackets indicating any portion asserted to contain confidential business information. The parties' submissions concerning the public version of this document need not be filed with the Commission Secretary.

**SO ORDERED.**

  
Charles E. Bullock  
Chief Administrative Law Judge

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the **PUBLIC VERSION ORDER NO. 46** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka** and the following parties as indicated, on 10/16/2017.



Lisa R. Barton, Secretary  
U.S. International Trade Commission  
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**On Behalf of Complainant R2 Semiconductor, Inc.:**

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**PUBLIC VERSION**

**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**Washington, D.C.**

**In the Matter of**

**CERTAIN INTEGRATED CIRCUITS WITH  
VOLTAGE REGULATORS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-1024**

**ORDER 36: CONSTRUING THE TERMS OF THE ASSERTED CLAIMS OF  
THE PATENT AT ISSUE**

(July 7, 2017)

**PUBLIC VERSION**

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## PUBLIC VERSION

### I. INTRODUCTION

This Investigation was instituted by the Commission on October 18, 2016 to determine whether certain integrated circuits with voltage regulators and products containing same infringe U.S. Patent No. 8,233,250 (the “250 patent”). *See* 81 Fed. Reg. 71,764 (Oct. 18, 2016). The respondents are Intel Corporation, Dell, Inc., HP Inc., and Hewlett Packard Enterprise Co. (collectively, “Respondents”).<sup>1</sup>

Pursuant to Ground Rule 5A, a *Markman* hearing was held March 1, 2017 regarding the interpretation of certain terms of claims 1-15 and 17-31 of the patent at issue.<sup>2</sup> Prior to the hearing, Complainant R2 Semiconductor, Inc. (“R2”), Respondents, and the Commission Investigative Staff (“Staff”) met and conferred in an effort to reduce the number of disputed claim terms to a minimum. The parties also filed initial and reply claim construction briefs, wherein each party offered its construction for the claim terms in dispute, along with support for its proposed interpretation. After the hearing and pursuant to Order No. 5, the parties submitted an updated Joint Claim Construction Chart.<sup>3</sup>

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<sup>1</sup> Respondents Intel Ireland Ltd., Intel Products Vietnam Co., Ltd., Intel Israel 74 Ltd., Intel Malaysia Sdn. Berhad, Intel China, and Dell Technologies Inc. have been terminated from the Investigation. (*See* Order No. 30 (May 25, 2017); *see also* Notice of Comm’n Determination Partially Terminating the Investigation as to a Patent Claim and Certain Respondents (June 14, 2017).)

<sup>2</sup> After the *Markman* hearing, claim 16 was withdrawn from the Investigation. (*Id.*)

<sup>3</sup> For convenience, the briefs and chart submitted by the parties are referred to hereafter as:

CMIB	R2’s Initial <i>Markman</i> Brief
CMRB	R2’s Reply <i>Markman</i> Brief
RMIB	Respondents’ Initial <i>Markman</i> Brief
RMRB	Respondents’ Reply <i>Markman</i> Brief
SMIB	Staff’s Initial <i>Markman</i> Brief
SMRB	Staff’s Reply <i>Markman</i> Brief
JC	Updated Joint Proposed Claim Construction Chart

## II. IN GENERAL

The claim terms construed in this Order are done so for the purposes of this section 337 Investigation. Those terms not in dispute need not be construed. *See Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n*, 366 F.3d 1311, 1323 (Fed. Cir. 2004) (noting that the administrative law judge need only construe disputed claim terms).

## III. RELEVANT LAW

“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*) (internal citations omitted), *aff'd*, 517 U.S. 370 (1996). Claim construction is a “matter of law exclusively for the court.” *Id.* at 970-71. “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).

Claim construction focuses on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*); *see also Markman*, 52 F.3d at 979. As the Federal Circuit in *Phillips* explained, courts must analyze each of these components to determine the “ordinary and customary meaning of a claim term” as understood by a person of ordinary skill in the art at the time of the invention. 415 F.3d at 1313. “Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language.” *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001).

“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.’” *Phillips*, 415 F.3d at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). “Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claims terms.” *Id.* at 1314; see also *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001) (“In construing claims, the analytical focus must begin and remain centered on the language of the claims themselves, for it is that language that the patentee chose to use to ‘particularly point[ ] out and distinctly claim[ ] the subject matter which the patentee regards as his invention.’”). The context in which a term is used in an asserted claim can be “highly instructive.” *Phillips*, 415 F.3d at 1314. Additionally, other claims in the same patent, asserted or unasserted, may also provide guidance as to the meaning of a claim term. *Id.*

The 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 Corp. v. Conceptor, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Id.* at 1316. “In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Id.* As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323. In the end, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be . . . the correct construction.” *Id.* at

1316 (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

In addition to the claims and the specification, the prosecution history should be examined, if in evidence. *Id.* at 1317; *see also Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). The 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.” *Phillips*, 415 F.3d at 1317; *see also Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’”).

When the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence (*i.e.*, all evidence external to the patent and the prosecution history, including dictionaries, inventor testimony, expert testimony, and learned treatises) may be considered. *Phillips*, 415 F.3d at 1317. Extrinsic evidence is generally viewed as less reliable than the patent itself and its prosecution history in determining how to define claim terms. *Id.* at 1317. “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).

If, after a review of the intrinsic and extrinsic evidence, a claim term remains ambiguous, the claim should be construed so as to maintain its validity. *Phillips*, 415 F.3d at 1327. Claims, however, cannot be judicially rewritten in order to fulfill the axiom of preserving their validity. *See Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999). Thus, “if the only claim

construction that is consistent with the claim's language and the written description renders the claim invalid, then the axiom does not apply and the claim is simply invalid." *Id.*

A claim must also be definite. Pursuant to 35 U.S.C. § 112(b): "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or joint inventor regards as the invention." 35 U.S.C. § 112(b). In *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014), the Supreme Court held that § 112(b) requires "that a patent's claims, viewed in light of the specification and prosecution history inform those skilled in the art about the scope of the invention with reasonable certainty." (*Id.* at 2129.) A claim is required to "provide objective boundaries for those of skill in the art," and a claim term is indefinite if it "might mean several different things and no informed and confident choice is among the contending definitions." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014). A patent claim that is indefinite is invalid. 35 U.S.C. § 282(b)(3)(A).

#### **IV. LEVEL OF ORDINARY SKILL IN THE ART**

R2 submits that "a person of ordinary skill in the art at the time of the invention would have a Bachelor's of Science degree in electrical engineering and three years of work or research experience in the fields of power electronics and high-speed mixed-signal IC design, or a Master's degree in electrical engineering and two years of work or research experience in the fields of power electronics and high-speed mixed-signal IC design." (CMIB at 10 (citing Kenney Decl. at ¶ 28).)

Respondents did not propose a level of ordinary skill in the art in their briefs. Their expert, Dr. Steven Leeb, did however opine on the issue in his declaration. (*See* Leeb Decl. at ¶ 23.) Dr. Leeb believes that "a person of ordinary skill in the art for the '250 patent would have a

Bachelor of Science degree in Electrical Engineering and two years of graduate work or work experience in power electronics circuit design and chip design, or equivalent experience.” (*Id.*)

In Staff’s view, a person of ordinary skill in the art would have at least a Bachelor’s degree in Electrical Engineering and at least 2 years’ experience in the area of power electronics circuit design and/or equivalent graduate education in the field. (SMIB at 14.)

The undersigned finds R2’s proposal to best reflect the level of skill in the art at the time of the ’250 patent. Accordingly, the undersigned finds that one of ordinary skill in the art would have at least a Bachelor’s of Science degree in electrical engineering and three years of work or research experience in the fields of power electronics and circuit design, or a Master’s degree in electrical engineering and two years of work or research experience in the fields of power electronics and circuit design.

## V. THE ’250 PATENT

### A. Overview

The ’250 patent, entitled “Over Voltage Protection of Switching Converter,” issued on July 31, 2012 to Lawrence M. Burns and David Fisher. The ’250 patent is assigned to R2 Semiconductor, Inc. The ’250 patent generally relates to voltage spike protection for switching voltage regulators. (Am. Compl at ¶ 36; ’250 patent at Abstract.)

The ’250 patent has 31 claims. Claims 1-15 and 17-31 are at issue in this Investigation. The asserted claims read as follows (with the first instance of the disputed terms highlighted in **bold**):

1. A voltage regulator, comprising: regulator circuitry generating a regulated voltage from a first power supply and a second power supply; **voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry**, comprising a **dissipative element** and a **charge-storage circuit**; **wherein a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a**

**transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with the regulator circuitry.**

2. The voltage regulator of claim 1, wherein the parasitic inductance comprises an inductance associated with at least an integrated circuit package that includes the voltage regulator, and an integrated circuit that includes the voltage regulator.
3. The voltage regulator of claim 1, wherein the parasitic inductance comprises an inductance associated with a power supply of the regulator circuitry.
4. The voltage regulator of claim 1, wherein the dissipative element damps ringing of a power supply to the regulator circuitry.
5. The voltage regulator of claim 1, further comprising at least one MOS structure, wherein the MOS structure comprises the charge-storage circuit and at least a portion of the dissipative element.
6. The voltage regulator of claim 1, wherein charge-storage circuit comprises a plurality of MOS capacitors connected in series, wherein a voltage across each MOS capacitor is maintained below a predetermined threshold as determined by a maximum allowed DC voltage of each MOS capacitor.
7. The voltage regulator of claim 1, further comprising at least one switching element.
8. The voltage regulator of claim 7, wherein the dissipative element suppresses ringing of the regulated voltage during a switching period of the at least one switching element.
9. The voltage regulator of claim 7, wherein a value of resistance of the dissipative element is selected to prevent degradation of the at least one switching element.
10. The voltage regulator of claim 7, wherein the at least one switching element comprises a plurality of switching block segments.
11. The voltage regulator of claim 10, wherein at least a portion of the voltage spike protection circuitry is located between the plurality of switching block segments.
12. The voltage regulator of claim 10, wherein the charge-storage circuit comprises charge-storage circuit segments, and each charge-storage circuit segment of the spike protection circuit is physically closer to the switching block segment it protects than any other switching block segment.
13. A method of generating a regulated voltage, comprising: regulator circuitry generating a regulated voltage from an input voltage; **voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry**, wherein the voltage spike protection circuitry comprises a dissipative element and a charge-storage circuit; wherein a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-

element approximation of a transmission line, **wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with generation of the regulated voltage.**

14. The method of claim 13, wherein the parasitic inductance comprises an inductance associated with at least an integrated circuit package and an integrated circuit.
15. The method of claim 14, wherein the inductance comprises an inductance associated with a power supply to circuitry that generates the regulated voltage.
17. The method of claim 13, wherein a resistance of the dissipative element damps ringing of a power supply to circuitry that generates the regulated voltage.
18. The method of claim 13, wherein at least one MOS structure includes the charge-storage circuit and at least a portion of the dissipative element.
19. The method of claim 13, wherein the charge-storage circuit comprises a plurality of MOS capacitors connected in series, wherein a voltage across each MOS capacitor is maintained below a predetermined threshold as determined by a maximum allowed DC voltage of each MOS capacitor.
20. The method of claim 13, further comprising generating the regulated voltage through controlled closing and opening of at least one switch element.
21. The method of claim 20, wherein a value of resistance of the dissipative element is selected to suppress ringing of the regulated voltage during a switching period of the at least one switching element.
22. The method of claim 21, wherein at least one characteristic of the dissipative element is additionally selected to prevent degradation of the at least one switch element.
23. The method of claim 21, wherein at least one switch element is segmented into a plurality of switching block segments.
24. The method of claim 23, wherein at least a portion of the voltage spike protection circuitry is located between the plurality of switching block segments.
25. The method of claim 23, wherein each charge-storage circuit segment of the spike protection circuit is physically closer to the switching block segment it protects than any other switching block segment.
26. A method of generating a regulated voltage, comprising: regulator circuitry generating the regulated voltage through controlled closing and opening of a series switch element and shunt switch element, the series switch element being connected between a first voltage supply and a common node, and the shunt switch being connected between the common node and a second supply voltage, comprising; closing the series switch element

during a first period; closing the shunt switch element during a second period; wherein the series switch element and the shunt switch element form switching blocks, and each switching block comprises a plurality of switching block segments, and further comprising voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry, wherein the voltage spike protection circuitry comprising a dissipative element and a charge-storage circuit; wherein a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with the regulator circuitry.

27. A voltage regulator, comprising: regulator circuitry generating a regulated voltage from a first power supply and a second power supply; voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry, comprising a dissipative element and a charge-storage circuit; wherein the charge-storage circuit comprises a plurality of MOS capacitors connected in series, wherein a voltage across each MOS capacitor is maintained below a predetermined threshold as determined by a maximum allowed DC voltage of each MOS capacitor.
28. A voltage regulator, comprising: regulator circuitry generating a regulated voltage from a first power supply and a second power supply; voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry, comprising a dissipative element and a charge-storage circuit; at least one switching element, wherein the at least one switching element comprises a plurality of switching block segments; wherein the charge-storage circuit comprises charge-storage circuit segments, and each charge-storage circuit segment of the spike protection circuit is physically closer to the switching block segment it protects than any other switching block segment.
29. A voltage regulator, comprising: regulator circuitry generating a regulated voltage from a first power supply and a second power supply, the regulator circuitry comprising a series switch element and a shunt switch element connected between the first power supply and the second power supply, and a switching controller operative to generate a switching voltage through closing and opening of a series switch and a shunt switch as controlled by a series switch control signal and a shunt switch control signal; **voltage spike protection circuitry connected between the first power supply and the second power supply for voltage-spike-protecting the regulator circuitry**, the voltage spike protection circuitry comprising a dissipative element, an inductive element, and a capacitive element; **wherein the value of resistance of the dissipative element matches a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises a charge-storage circuit and a parasitic inductance associated with the regulator circuitry.**
30. A method of generating a regulated voltage, comprising: regulator circuitry generating a regulated voltage from an input voltage; voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry, wherein the voltage spike protection circuitry comprises a dissipative element and a charge-storage circuit; wherein the charge-storage circuit comprises a plurality of MOS capacitors connected in series, wherein a voltage

across each MOS capacitor is maintained below a predetermined threshold as determined by a maximum allowed DC voltage of each MOS capacitor.

31. A method of generating a regulated voltage, comprising: regulator circuitry generating a regulated voltage from an input voltage; voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry, wherein the voltage spike protection circuitry comprises a dissipative element and a charge-storage circuit; at least one switching element, wherein the at least one switching element comprises a plurality of switching block segments; wherein the charge-storage circuit comprises charge-storage circuit segments, and each charge-storage circuit segment of the spike protection circuit is physically closer to the switching block segment it protects than any other switching block segment.

**B. Claim Construction**

**1. Construction of the Disputed Claim Terms**

**a) “dissipative element”**

The disputed term appears in claims 1, 4, 5, 8, 9, 13, 17, 18, 21, 22, 26, 27, 28, 29, 30, and 31 of the '250 patent. (JC at 1.) The parties disagree on the proper claim construction and have proposed the following constructions.

	<b>R2</b>	<b>RESPONDENTS</b>	<b>STAFF</b>
<b>PROPOSED CONSTRUCTION</b>	Plain and ordinary meaning  Alternatively: “resistive element”	This term should be construed according to § 112(f): <ul style="list-style-type: none"> <li>• Function: “dissipating energy”</li> <li>• Structure: a “resistor”</li> </ul>	“Portion of circuit having a value of resistance ( <i>i.e.</i> a resistive element)”
<b>ALTERNATIVE CONSTRUCTION</b>	To the extent § 112(f): <ul style="list-style-type: none"> <li>• Function: “dissipating energy”</li> <li>• Structure: “resistive elements and equivalents thereof”</li> </ul>	To the extent not § 112(f): “resistor”	To the extent § 112(f): <ul style="list-style-type: none"> <li>• Function: “dissipating energy”</li> <li>• Structure: “These dissipative elements can be realized as polysilicon resistors, thin film metallic resistors, or any other convenient resistive element”</li> </ul>

(*Id.*)

R2 argues that the claims clearly contemplate that “dissipative element” is a circuit element that includes some resistance. R2 notes that all claims that include “dissipative element” are “comprising” claims, which are open-ended and include, but are not limited to, the structures disclosed therein. R2 asserts that the construction it and Staff propose is supported by the claim language, specification and the prosecution history. R2 also states that its claim construction is supported by the extrinsic evidence. (CMIB at 10-14.)

R2 asserts that Respondents’ proposed construction impermissibly seeks to import limitations into the claim and contradicts the intrinsic evidence. More specifically, R2 states that Respondents propose to limit “dissipative element” to “resistor,” which has the effect of reading out preferred embodiments that use “resistive elements.” R2 also argues that Respondents improperly attempt to further narrow the claims by excluding two types of resistance from “dissipative element:” the “equivalent series resistance” (“ESR”) of a capacitor, and a resistor using a wire or a trace. R2 states that Respondents’ interpretation of “resistor” to exclude the ESR and trace resistors contradicts the plain meaning of the term “resistor.” (*Id.* at 10-14.)

R2 states that “dissipative element” is not a means-plus-function limitation under 35 U.S.C. §112(f) because Respondents have not demonstrated that the claim term fails to recite sufficiently definite structure, or else recites function without reciting sufficient structure for performing that function. R2 asserts that “dissipative element” cites definite structure both through the claim language and the written description. R2 argues that, if the term “dissipative element” is determined to be a means-plus-function term, then the structure should be construed as “resistive elements and equivalents thereof.” (*Id.* at 14-24.) R2 asserts that “dissipative element” should not be construed to exclude trace resistors and capacitive ESR. R2 notes that

“dissipative element” and “charge-storage circuit” can be met by the same structure. (CMRB at 2-29.)

Respondents argue that “dissipative element” should be construed as a means-plus-function term under § 112(f). Respondents state that both the term “dissipative” and “element” are functional terms, and that the function of the term “dissipative element” is dissipating energy. Respondents note that the use of the term “element” in the claim term “dissipative element” does not add any specific structure for performing that function. (RMIB at 19-25.)

Respondents argue that R2’s construction is too broad and would inappropriately include any electrical component with an ESR. Respondents assert that R2’s proposed construction would render the term “dissipative element” meaningless. Respondents also assert that R2’s construction would improperly allow a capacitor to be both the charge-storage circuit and the dissipative element when the patent requires that they be separate items with separate functions. Respondents note that the portion of the specification relied upon by R2 merely states that in one potential embodiment, a capacitor can have sufficient “equivalent series resistance” such that a dissipative element is not necessary for the circuit. Respondents state that this embodiment is not claimed in the ’250 patent because the claims never recite a dissipative element without a separate charge-storage circuit. (*Id.* at 25-34.)

Respondents argue that Staff’s construction would improperly allow the term to cover all electrical components including the capacitor that the patent states is distinct from the dissipative element. With respect to Staff’s alternative means-plus-function proposal, Respondents agree that the structure includes resistors but disagrees with Staff’s proposal because the structure should be resistors, not just polysilicon and thin metallic resistors. Respondents state that Staff’s addition of the term “other convenient resistive element” does not connote structure and

therefore cannot be included within the corresponding structure of a means-plus-function term. (*Id.* at 34-36.)

Staff argues that there is no plain and ordinary meaning for “dissipative element.” (SMIB at 12 n.1.) Staff states that its proposed construction is supported by the prosecution history. Staff notes that a sufficient structure is discernable from the claims and in the specification to avoid the need to construe this claim term pursuant to § 112(f). Staff also argues that the same structure cannot satisfy the two separate claim limitations – “dissipative element” and “charge-storage circuit.” (*Id.* at 19-20.)

As an initial matter, the undersigned finds that this claim term has sufficient structure that is discernable from the claims and the specification. The specification clearly defines this claim term as follows:

These dissipative elements can be realized as polysilicon resistors, thin metallic resistors, or any other convenient resistive element.

(’250 patent at 18:59-61.)

While use of the term “element” can suggest a means-plus-function claim term under § 112(f), such is not the case here. The use of the phrases “polysilicon resistors” and “thin metallic resistors” gives definition and context to the term “any other convenient resistive element,” meaning that the latter class of components is similar to “polysilicon resistors” and “thin metallic resistors.” *See generally Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed Cir. 2015) (“The standard is whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.”)

The question now arises as to whether a capacitor, or more specifically a charge-storage circuit, can be both a charge-storage circuit and a dissipative element. The answer is no. The claims expressly require a dissipative element **and** a separate charge-storage circuit. *See Becton*,

*Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct components’ of the patented invention.”) (citation omitted); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404-05 (Fed. Cir. 1996) (concluding that where a claim provides for two separate elements, a “second portion” and a “return portion,” these two elements “logically cannot be one and the same.”) For example, claim 1 states, in part:

[V]oltage spike circuitry for voltage-spike-protecting the regular circuitry, comprising a **dissipative element and a charge-storage circuit**. . .

(’250 patent at claim 1 (emphasis added); *see also id.* at claims 13, 26-31.) The specification also describes the charge-storage circuit and the dissipative element as separate components. (*Id.* at Abstract, 7:15-18, 7:23-25, 7:40-42, 17:26-29, and 18:58-59.)

R2 cites to the specification in support of its argument that the dissipative element and the charge-storage circuit can be satisfied by the same structure: “The equivalent series resistance associated with the capacitor structures varies depending on the process used and the approach employed for capacitor fabrication, and in some cases may be sufficiently large that additional dissipative elements are not required.” (*Id.* at 18:61-65.) However, for all of the reasons stated above, R2 did not claim this capacitor-only embodiment in the ’250 patent because every claim that discusses a dissipative element requires that it be separate from the charge-storage circuit.

Accordingly, for the reasons set forth above, the term “dissipative element” is construed to mean “*polysilicon resistor, thin metallic resistors, or any other convenient resistive element,*

*provided, however, that this component requires a separate structure from a charge-storage circuit.”<sup>4</sup>*

**b) “charge-storage circuit”<sup>5</sup>**

The disputed term appears in claims 1, 5, 6, 12, 13, 18, 19, 25, 26, 27, 28, 29, 30, and 31 of the ’250 patent. (JC at 1.) The parties disagree on the proper claim construction and have proposed the following constructions:

<b>R2</b>	<b>RESPONDENTS</b>	<b>STAFF</b>
Plain and ordinary meaning  Alternatively: “storage circuitry that includes a capacitive element”	“one or more capacitors”	“Storage circuitry that includes a capacitive element”

*(Id.)*

R2’s proposed construction is plain and ordinary meaning, which it submits is “storage circuitry that includes a capacitive element.” (CMIB at 24; Tr. at 126:7-10.) R2 contends that its construction, which is the same as Staff’s, stays true to the claim language. (*Id.* at 25-26.) R2 asserts that nothing in the intrinsic evidence limits the claimed “charge-storage circuit” to capacitors. For example, R2 cites to dependent claim 6, stating: “Dependent claim 6 . . . requires that the charge-storage circuit ‘comprises a plurality of MOS capacitors.’ Comparing claim 1 to claim 6 demonstrates that claim 1 is agnostic as to the type of capacitive element.” (*Id.* at 25.) R2 also asserts that the specification confirms that a “charge-storage circuit” is “storage circuitry that includes a capacitive element, and is not limited to capacitors.” (*Id.*)

R2 objects to Respondents’ proposed construction. Specifically, R2 asserts that Respondents’ construction contradicts the plain language of the claims by limiting “charge-

<sup>4</sup> Because this construction was not proposed by any of the parties, the undersigned recognizes that the parties may require additional discovery (and time) to address this construction. The undersigned encourages the parties to file a joint motion seeking to modify the procedural schedule, if necessary.

<sup>5</sup> The parties note that Respondents’ and Staff’s proposed constructions require the “dissipative element” and “charge-storage circuit” to be satisfied by separate structures. (JC at 1.) The undersigned has already addressed this issue in Section V.B.1.a., *supra*.

storage circuit” to only one or more capacitors. (CMIB at 26; CMRB at 31-32.) As noted above, R2 contends that claim 1 is agnostic as to the type of charge-storage circuit. (CMIB at 26.) It also argues that Respondents are improperly excluding charge-storage circuits that are not capacitors. (*Id.* (“By excluding any other component from being within the “charge-storage circuit,” Respondents contradict claims 6, 19, 27, and 30, which state that the “charge-storage circuit *comprises* a plurality of MOS capacitors.”).) R2 further asserts that the patentee never expressed a definition or disavowal that requires that the “charge-storage circuit” be limited to only capacitors. (*Id.* at 27.)

Respondents argue that their proposed construction is correct for at least three reasons. First, Respondents contend that the claim language confirms that the “charge-storage circuit” is one or more capacitors. (RMIB at 37; RMRB at 29-30.) They state: “The phrase ‘charge-storage’ indicates that the claimed circuit stores electrical charge. That is precisely the function of capacitors—to store electrical charge.” (RMIB at 37.) Second, they contend the specification repeatedly describes the charge-storage circuit as one or more capacitors. (RMIB at 38; RMRB at 31.) In fact, Respondents claim that the patent never describes the charge-storage circuit as anything other than a capacitor or group of capacitors. Lastly, they assert that the figures of the patent “uniformly” identify the “charge-storage circuit” as a capacitor. (RMIB at 38-39.) Thus, Respondents submit that their construction gives the term a definite scope that is consistent with the claims and the specification. (RMRB at 31.)

Respondents disagree with R2’s and Staff’s proposed construction. They assert that R2’s and Staff’s proposal would improperly allow the term to include any number of unidentified components in addition to the capacitive element and would thus leave the term “effectively unbounded.” (RMIB at 39-40; RMRB at 25-29, 31-32.)

Staff submits that a “charge-storage circuit” “would be understood as connected circuit elements that includes at least one capacitor.” (SMIB at 30; SMRB at 31.) Staff explains that “the specification describes that the spike protection circuitry ‘includes’ capacitive elements, but also describes the charge storage circuit as encompassing more than a capacitive element.” (*Id.*) Staff does not believe the intrinsic evidence supports limiting this term to capacitors, as proposed by Respondents; rather, in Staff’s view, a person of ordinary skill in the art would understand the term as encompassing storage circuitry that includes a capacitive element. (SMIB at 31; SMRB at 32.)

When construing claim terms, “[w]e generally give words of a claim their ordinary meaning in the context of the claim and the whole patent document.” *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123 (Fed. Cir. 2014); *see also Phillips*, 415 F.3d at 1312-17. This meaning controls unless the intrinsic evidence clearly indicates that the patentee meant to assign the term a different meaning. *See Bell Atl. Network Servs. v. Communications Group, Inc.*, 262 F.3d 1258, 1268 (Fed. Cir. 2001). In the instant case, the intrinsic evidence does not justify departing from the plain and ordinary meaning of the claim language, which the undersigned finds is “storage circuitry that includes a capacitive element.”

Respondents’ arguments in support of limiting the claimed “charge-storage circuit” to only capacitors are not persuasive.<sup>6</sup> As an initial matter, the claims use the transitional term “comprising,” which is open-ended and as such, the claims do not exclude additional, unrecited elements. *See, e.g., Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376 (Fed. Cir. 2004) (“[L]ike the term ‘comprising,’ the terms ‘containing’ and ‘mixture’ are open-ended.”); *Crystal*

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<sup>6</sup> The undersigned finds Respondents’ concern that adoption of R2’s and Staff’s proposed construction would result in “box-drawing exercises” to be unfounded. Their proposed construction is neither undefined nor boundless, especially in light of the undersigned’s determination that “charge-storage circuit” and “dissipative element” are two separate structures. The claim scope is clear – either the storage circuitry has a capacitive element or it does not.

*Semiconductor Corp. v. TriTech Microelecs. Int'l, Inc.*, 246 F.3d 1336, 1348 (Fed. Cir. 2001) (“When a patent claim uses the word ‘comprising’ as its transitional phrase, the use of ‘comprising’ creates a presumption that the body of the claim is open.”); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) (“Comprising” is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.). In other words, the ’250 patent claims can include additional components beyond the capacitors disclosed in each claim. The patentee also chose to use “charge-storage circuit” in some limitations and “capacitor” in others. (*Compare* claim 1 of the ’250 patent *with* claim 6.) In doing so, the patentee elected not to limit the claims in the manner proposed by Respondents. *See Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed.Cir.1999) (different words or phrases used in claims are presumed to indicate that the claims have different meanings and scope). Furthermore, the ’250 patent plainly states that the “charge-storage circuits **include** capacitive elements (C<sub>sp</sub>),” not that they are limited to only capacitive elements. (’250 patent at 16:58-59 (emphasis added).)

Accordingly, the undersigned hereby construes the term “charge-storage circuit” as **“storage circuitry that includes a capacitive element.”**

- c) “wherein a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with [the regulator circuitry/generation of the regulated voltage]”

The disputed term appears in claims 1, 13, and 26 of the '250 patent. (JC at 2.) The parties disagree on the proper claim construction and have proposed the following constructions:

R2	RESPONDENTS	STAFF
<p>Plain and ordinary meaning</p> <p><u>Alternatively:</u>  “wherein a value of resistance of the dissipative element is related to the characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with [the regulator circuitry/generation of the regulated voltage]”</p>	<p>Indefinite</p> <p><u>Alternatively:</u>  “wherein a value of resistance of the dissipative element is selected on the basis of the square root of the parasitic inductance of the package divided by the capacitance of the charge-storage circuit”</p>	<p>Indefinite as to the phrase “parasitic inductance associated with . . .” which is included in this larger phrase</p> <p><u>Alternatively:</u>  “The value of the dissipative element is selected based on (<i>i.e.</i>, found through) the . . . the parasitic inductance associated with [the regulator circuitry/generation of the regulated voltage]”*</p> <p>* “parasitic inductance associated with . . .” is indefinite</p>

(*Id.*)

R2 argues that each phrase in this term has a plain and ordinary meaning. (CMIB at 32-40.) With the exception of “dissipative element,” discussed *supra*, neither Respondents nor Staff dispute this.<sup>7</sup> Rather, the parties disagree as to the meaning of “based on” and “characteristic impedance” in the context of this phrase as a whole. (*See, e.g.*, RMRB at 40 (“Intel is not arguing that the term ‘based on’ standing alone and in any context is indefinite. Instead, it is the full claim phrase – requiring a value to be based on a mathematical equation that includes variable inputs . . . – that is indefinite.”)). These disputes are intertwined, as Respondents argument that

<sup>7</sup> Respondents and Staff assert that, in the context of this phrase, “parasitic inductance” is indefinite. Both Respondents and Staff agree, however, that parasitic inductance – outside of the context of this phrase – has a plain and ordinary meaning. (JC at 3.) This term is discussed separately *infra*.

“based on” renders the phrase indefinite is premised on its interpretation of “characteristic impedance.” (See, e.g. RMIB at 42 (“The claim phrase is indefinite because the patent never explains what it means for a value to be ‘based on’ the characteristic impedance equation . . .”).)

R2 argues that “‘based on’ has a plain and ordinary meaning” and that “[c]ourts have repeatedly found that ‘based on’ . . . does not require construction.” (CMIB at 33.) R2 asserts that the term is meant to “provide a broader, looser relationship between the value of resistance . . . and a characteristic impedance of a lumped-element approximation of a transmission line.” (*Id.* at 34.) Thus, according to R2, “the use of the phrase ‘based on’ ‘intends to capture a range of relationships rather than a specific one, which is widely accepted in patent law.’” (*Id.* at 35 (quoting *Via Vadis LLC v. Buffalo Ams., Inc.*, No. A-14-CV-808-LY, Order at 30 (Sept. 20, 2016 W.D. Tex).)

Respondents first argue that the claim term is indefinite because “[t]he patent never explains the metes and bounds of what constitutes a value of resistance that is ‘based on’ the characteristic impedance equation.” (RMIB at 43.) Respondents argue: “The patent states that in one embodiment the value of resistance of the dissipative element is ‘close to’ the characteristic impedance equation, in another embodiment, the value ‘matches’ the characteristic impedance equation, and in another embodiment, the value is ‘based on’ the equation.” (*Id.* at 43-44.) According to Respondents, “[a] value that is ‘based on’ the equation is thus something other than a value that ‘matches’ or is ‘close to’ the value obtained by using the equation – but the patent never explains what it is.” (*Id.* at 44.)

Alternatively, Respondents argue that “the limitation should be construed to at least require the use of the recited equation to select the value of resistance, *i.e.*, that the value is

“selected on the basis of” the equation. (*Id.* at 49.) Respondents assert that the recited equation can be found at column 17, lines 53-62 of the patent:

$$R_{sp} \approx \sqrt{\frac{L_{par,pk} + L_{par,pk}}{C_{sp}}}$$

As described in words, Respondents state that the equation is “the square root of the parasitic inductance of the package [ $L_{par,pk} + L_{par,pk}$ ] divided by the capacitance of the charge-storage circuit [ $C_{sp}$ ].” (JC at 2.) Respondents argue that this equation must be used because: (1) “otherwise, the ‘based on’ language would add nothing to the claims”; (2) “the prosecution history makes clear that the ‘based on’ claim language requires” the use of the equation; and (3) the specification explains that “the value of [the] dissipative element is selected based on a number of considerations” and then provides an example of the equation. (RIMB at 50-52.)

Staff argues that “portions of the ‘wherein clause’ would be understood by a person of skill in the art.” (SMIB at 33.) Staff submits that “the claims reciting ‘based on’ require an order of operation to determine a value of resistance for the claimed dissipative element.” (*Id.* at 43.) Staff explains that the value of resistance is based on the formula in the specification. (*Id.* at 44.) Staff argues that “if the term ‘based on’ was interpreted to only require a ‘relationship’ between a value of an existing dissipative element and the existing characteristic impedance, as opposed to an order of operation, then the portion of the claim that specifically defines the ‘transmission line’ as comprising ‘parasitic inductance’ would be rendered meaningless.” (*Id.*)

R2 disagrees that this term is indefinite. It states: “The objective boundaries of [this] claim limitation [is] clear. If the value of resistance of the dissipative element is based on or related to the claimed characteristic impedance, it is within the bounds of the claims. If the value of the resistance is not based on or related to the claimed characteristic impedance, it is outside

the scope of the claims.” (CMRB at 43.) R2 also explains that “[w]hether or not a value of resistance is based on the claim characteristic impedance is demonstrable and observable.” (*Id.*) R2 further disputes that characteristic impedance is limited to a specific equation, noting that Respondents’ argument “is a transparent attempt to limit the claims to an example [that] is neither a disclaimer nor a disavowal.” (*Id.* at 33.)

The undersigned agrees that the term “based on” is not indefinite. There is a “heavy presumption that a claim term carries its ordinary and customary meaning.” *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Here, the evidence shows that “based on” has a plain and ordinary meaning to a person of ordinary skill in the art. (Kenney Decl. at ¶¶ 57-58.) As R2’s expert, Dr. Kenney, explains: “In electronics, as in many other disciplines in everyday conversation, one will often relate two things, A and B, by saying “A is based on B.” This is also true for ‘values’ like the ‘value of resistance’ identified in the claims.” (*Id.* at ¶ 57.)

Respondents’ arguments as to why “is based on” is indefinite rest on the assumption that the value of resistance must be calculated using a specific equation. (*See, e.g.*, RMIB at 56 (“Specifically, the patent never explains what it means for a value to be ‘based on’ **the equation**, the scope of values that can be considered ‘based on’ **the equation**, or what values are ‘associated with’ the regulator circuitry such that they should be used in **the equation**.”) (emphasis added).) For example, in their rebuttal brief, two of the three reasons<sup>8</sup> that Respondents set forth for arguing the “based on” term is indefinite begin with the understanding that the use of the equation is required:

The “Based On a Characteristic Impedance” Limitation is indefinite for three reasons: (1) the patent does not explain what it means for a value of resistance to be ‘based on’ **the claimed characteristic impedance equation**; (2) **the claimed equation** requires a parasitic inductance ‘associated with’ the regulator circuitry,

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<sup>8</sup> The third reason – and parts of the second – actually relate to the claim term “parasitic inductance associated with the regulator” and are therefore more properly addressed when discussing that term. (RMRB at 33.)

but the patent never defines the scope of parasitic inductances that could be associated with the regulator circuitry...”

(RMRB at 33 (emphasis added).) Respondents do not meaningfully address whether “is based on” is indefinite if the undersigned determines that characteristic impedance is a property – not a measurement limited to a specific equation – and that resistance is either based on characteristic impedance or it is not.<sup>9</sup> For the reasons detailed below, the undersigned finds that the claim is not limited to the specific equation. Accordingly, there is not clear and convincing evidence in the record to rebut the finding that the patent is definite under R2’s interpretation of “based on.”

The evidence shows that the characteristic impedance is not limited to the specific equation set forth in the specification. In setting forth the equation at issue, the patent states: “**For one embodiment**, the optimal resistance value is typically close to that which matches the characteristic impedance of a lumped-element approximation to a transmission line. . . .” (’250 patent at 17:53-56.) The Federal Circuit has repeatedly held: “[I]t is improper to read limitations from a preferred embodiment described in the specification – even if it is the only embodiment – into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *GE Lighting Sols., Inc. v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Respondents have not introduced any evidence to suggest that the inventors intended to limit the claims to this specific equation.<sup>10</sup> Additionally, requiring the use of the equation would

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<sup>9</sup> During the *Markman* hearing, Respondents argued that resistance will always be related to characteristic impedance. (Tr. at 206:24-25 (“So by definition, if you change the inductance, you change the resistance you need.”).) Thus, R2’s definition “would capture all values, including the value of the dissipative element of the [prior art] Leyh reference.” (*Id.* at 207:6-8.) Respondents do not address this argument in their brief and dedicated little time to it at the hearing. Without a more thorough explanation, this cannot amount to clear and convincing evidence of indefiniteness. Respondents are, of course, permitted to argue that, in light of the undersigned’s construction, the patent is invalid in view of Leyh or other prior art.

<sup>10</sup> Respondents’ citations to the prosecution history are unavailing. Although the patentee did distinguish their invention over the prior art, this distinction was not based on a specific equation – in contrast to Respondents’ representations otherwise. (RMIB at 51 (stating that “R2 added the characteristic impedance equation to certain of the independent claims”).) Rather, the patentee noted that the prior art “fails to provide any suggestions of the values of resistance of any dissipative elements, and further fails to provide any suggestions of basing the value of a resistance on a characteristic impedance of a lumped-element approximation of a transmission line.” (RMIB Ex. 5 at

read out dependent claims. The equation specifies only the use of  $L_{\text{par,pk}}$ , which is the parasitic inductance of the package. Claim 2 requires that the “parasitic inductance comprises an inductance associated with at least an integrated circuit package that includes the voltage regulator, and an integrated circuit that includes the voltage regulator.” (’250 patent, cl. 2.) Thus, an additional parasitic inductance would need to be used, but the equation does not account for this. (See Kenney Decl. ¶ 81.)

Additionally, the extrinsic evidence shows that a person of ordinary skill in the art would not limit the value of resistance to the equation disclosed in the ’250 patent. Dr. Kenney explains that a person of ordinary skill in the art would understand that “[t]here is no single equation for the characteristic impedance of a lumped-element approximation.” (*Id.* at ¶ 77.) In support of this opinion, Dr. Kenney provides several examples of other equations that a person of ordinary skill in the art could use to determine the characteristic impedance of a lumped-element approximation. (*Id.* at ¶¶ 77-78.) Notably, Respondents’ expert, Dr. Leeb, does not say otherwise anywhere in his declaration. Dr. Leeb also acknowledged in his deposition there are other ways to model characteristic impedance. (CRMB Ex. 16 at 23:1-5.)

The undersigned is likewise not persuaded by Staff’s arguments. Staff notes that “if any relationship was acceptable, there would be no need to incorporate a parasitic inductance of the transmission line (*e.g.*, use the formula described in the specification).” (SMIB at 44.) As with Respondents’ arguments, this argument is premised on the belief that the use of the equation is required. Additionally, this argument does not take into account the fact that the equation relates to an unclaimed embodiment. The specification notes that the equation is used to determine the

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11.) This is far from a “clear disavowal” required to limit the characteristic impedance to a specific equation. See *Digital-Vending Servs. Int’l, LLC v. Univ. of Phoenix, Inc.*, 672 F.3d 1270, 1276 (Fed. Cir. 2012) (explaining that “it is particularly important not to limit claim scope based on statements made during prosecution absent a clear disavowal or contrary definition”).

*optimal* resistance and that the resistance “is typically close to that which matches” – not based on.

Accordingly, the undersigned hereby construes the term “wherein a value of resistance of the dissipative element is based on a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises the charge-storage circuit and a parasitic inductance associated with [the regulator circuitry/generation of the regulated voltage]” to have its plain and ordinary meaning.

- d) **“wherein the value of the dissipative element matches a characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises a charge-storage circuit and a parasitic inductance associated with the regulator circuitry”**

The disputed term appears in claim 29 of the '250 patent. (JC at 3.) The parties disagree on the proper claim construction and have proposed the following constructions:

R2	RESPONDENTS	STAFF
<p>Plain and ordinary meaning</p> <p><u>Alternatively:</u> “wherein a value of resistance of the dissipative element approximately equals the characteristic impedance of a lumped-element approximation of a transmission line, wherein a transmission line comprises a charge-storage circuit and a parasitic inductance associated with the regulator circuitry”</p>	<p>Indefinite</p> <p><u>Alternatively:</u> “wherein a value of resistance of the dissipative element is selected to be the same as the square root of the parasitic inductance of the package divided by the capacitance of the charge-storage circuit”</p>	<p>Indefinite as to the phrase “parasitic inductance associated with . . .” which is included in this larger phrase</p> <p><u>Alternatively:</u> “The value of the dissipative element approximately equals the . . . the parasitic inductance associated with the regulator circuitry”*</p> <p>*“parasitic inductance associated with . . .” is indefinite</p>

(*Id.*)

As with the limitation above, the parties dispute: (1) how to determine characteristic impedance; and (2) whether “matches,” when viewed within the context of the patent, renders the claim term indefinite. As explained *supra*, the undersigned finds that characteristic

impedance is not limited to a specific equation as Respondents contend. Thus, the only remaining dispute is with respect to “matches.”

R2 asserted that “matches” should be given its plain and ordinary meaning, which is “approximately equals.” (CMIB at 35.) Staff agrees and submits that “a person of ordinary skill in the art would understand that some degree of variation would be understood in the field of circuit design.” (SMIB at 47.) Respondents disagree that “matches” means “approximately equals,” and instead contend that it means “the same as.” (RMIB at 64.)

The undersigned finds that “matches,” like based-on, has a plain and ordinary meaning to a person of ordinary skill in the art. Dr. Kenney states that “[m]atching, in the context of resistance or impedance, has a looser meaning aligned with ‘approximately equal.’” (*Id.* at ¶ 88.)

Dr. Kenney explains:

For example, ‘impedance matching’ is the practice of designing the input impedance of an electrical load or the output impedance of its corresponding signal source to maximize the power transfer or minimize signal reflection from the load. In other words, impedance matching does not require an exact matching, but rather, just one that tends to maximize power transfer or minimize reflections.

(*Id.*) Dr. Kenney also cites to two pieces of extrinsic evidence that support his conclusion. (*Id.*)

Respondents’ evidence to the contrary consists of a nontechnical dictionary. (RMIB Ex. 20 (Webster’s II New College Dictionary).) This dictionary does not necessarily provide a definition of “matches” to a person of ordinary skill in the art. Moreover, this definition seems to conflict with the patent itself. The equation provided in one embodiment in the patent for “matches” uses the symbol “ $\approx$ ,” which is commonly understood to mean “approximately equals.” (See, e.g., SMIB at 47.) Thus, the undersigned is not persuaded by Respondents’ arguments.

Accordingly, for the reasons stated above and for the reasons set forth for the previous term, the undersigned hereby construes the term “wherein a value of resistance of the dissipative element matches the characteristic impedance of a lumped-element approximation of a

transmission line, wherein the transmission line comprises a charge-storage circuit and a parasitic inductance associated with the regulator circuitry” to mean *“wherein a value of resistance of the dissipative element approximately equals the characteristic impedance of a lumped-element approximation of a transmission line, wherein the transmission line comprises a charge-storage circuit and a parasitic inductance associated with the regulator circuitry.”*

e) **“parasitic inductance associated with the regulator circuitry”**

The disputed term appears in claims 1, 13, 26, and 29 of the '250 patent. (JC at 3.) The parties disagree on the proper claim construction and have proposed the following constructions:

R2	RESPONDENTS	STAFF
“inductance located between the supply and the regulator circuitry”	Indefinite	Indefinite – While parasitic inductance is disclosed as “physical inductances present in any realistic packaged device,” the metes and bounds of the claim limitation “parasitic inductance associated with . . .” is ambiguous, especially in light of dependent claims 2 and 3
The parties agree that the term “parasitic inductance” standing alone means “undesired inductance that is inherent in circuitry”		

(*Id.*)

R2 argues that the patent “definitively explains that [this term] cover[s] the inductance located between the supply and regulator circuitry.” (CIMB at 44.) R2 contends that this argument is supported by the specification and Figures 18-20. (*Id.* at 44-47.)

Respondents argue that there are “many parasitic inductances that could potentially be associated with the regulator circuitry.” (RMIB at 60-61.) For example, Respondents explain that “each of the many capacitors, resistors, transistors, and wires in a circuit has a parasitic inductance. In addition, there can be parasitic inductances of the package, parasitic inductances

of the board, parasitic inductances in the on-chip circuitry, parasitic inductances of the switch circuitry, and many other types of parasitic inductances” (*Id.* at 47.) Respondents explain: “As a result, a person of ordinary skill in the art has no way of knowing what values” to which the claim refers. (*Id.* at 61.)

Staff agrees with Respondents. Staff argues that “the specification describes numerous sources of parasitic inductance” and that a person of ordinary skill in the art “would not know with reasonable certainty which sources she should incorporate and which sources she may neglect in determining a value of ‘parasitic inductance.’” (SIMB at 36.) Staff argues that if the claim term “is interpreted as encompassing a variable range of parasitic inductances present in a circuit, the invention would essentially claim any non-zero parasitic inductance values, and accordingly, any spike protection circuits having a non-zero value of resistance.” (*Id.* at 41.)

R2 argues that Respondents’ and Staff’s position “is premised on a factual error – namely, that the ‘associated with’ language prescribes a numeric value for the parasitic inductance.” (CMRB at 48.) “To the contrary, parasitic inductances, including the ones disclosed by the ’250 patent, are not modeled based on a numeric value – they are modeled based on the location of the electronic component associated with the inductance.” (*Id.* at 49.) R2 explains that, when viewed in that manner, “a person of ordinary skill reading the ’250 specification would be able to determine the boundary of the parasitic inductance required by the claims with reasonable certainty.” (*Id.* at 50.) R2 asserts that “the patentee’s lexicography in the specification expressly requires the ‘parasitic inductance’ of the claimed invention to be located between the power supply and the regulatory circuitry.” (*Id.*) “In other words, a person of ordinary skill would be able to definitely ascertain the scope of the parasitic inductance terms because he or

she would know that any parasitic inductance located between the power supply and the circuitry falls is covered by the claims as long as the other claim elements are satisfied.” (*Id.* at 50-51.)

The undersigned finds that this term is not indefinite. The specification explains: “In any practical implementation of a converter, the connections providing current from the supply (such as a battery) to the high side of the series switch are associated with a finite parasitic inductance  $L_{\text{par,hi}}$ .” (Kenney Decl. ¶ 92 (citing ’250 patent at 15:48-51.)) The patent defines  $L_{\text{par,hi}}$  as the “net result of several physical inductances present in any realistic packaged device, including the parasitic inductance of decoupling capacitors external to the package, the parasitic inductance of the traces and/or wirebonds connecting the supply leads or bumps to the contact pads on the integrated circuit containing the converter, and a typically smaller but still negligible contribution from traces on the converter IC itself.” (*Id.* (citing ’250 patent at 15:51-57.))<sup>11</sup> Each of these inductances – that of the decoupling capacitors, the traces and/or wirebonds, and the traces on the converter IC itself – are located between the supply and the regulatory circuitry. (*Id.* (citing to ’250 patent at Figs. 18-20).) As Dr. Kenney explains, a person of ordinary skill in the art would know to look at this portion of the specification because “[t]he claims of the ’250 patent address voltage spike protection, and the only parasitic inductance that contributes to a voltage spike in the ’250 patent is the inductance located between the supply and the regulator circuitry.” (*Id.* ¶ 92.)

Respondents argue that this section of the specification does not demonstrate that the parasitic inductance associated with the regulator circuitry is the “inductance located between the supply and regulator circuitry.” (RMRB at 42.) They explain this portion “simply means that certain connections (the connection providing current to one side of the series switch) have

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<sup>11</sup> This portion of the specification is not limited to any particular embodiment. (’250 patent at 15:48-51 (stating that “[i]n any practical implementation of a converter...”).)

parasitic inductance.” (*Id.* at 43.) Respondents similarly argue that “[t]he patent never states that any of the inductances that happen to be shown in [Figures 18-20] is ‘a parasitic inductance associated with’ the regulator circuitry.” (*Id.*) To establish that a claim term is indefinite, however, Respondents must introduce clear and convincing evidence that “its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 134 S. Ct. at 2124. Respondents do not introduce any testimony to establish how a person of ordinary skill in the art would understand the specification and Figures 18-20. (*See* RMRB at 42-44.) Without more, Respondents cannot meet this burden.

Respondents also argue that the figures in the patent “show parasitic inductances that are not between the supply and regulator circuitry. For example, Figure 19 shows parasitic inductances  $L_{int1}$  that are within the spike protection circuit.” (RMRB at 43.) R2 addresses this alleged error by noting that its definition was meant to include the endpoints. During the *Markman* hearing, R2 explained: “Our construction is meant to capture not only the inductances between the supply and the regulator circuitry, it’s also meant to capture the inductances at those two endpoints.” (Tr. at 204:24-205:2.) This understanding is confirmed by Dr. Kenney. (CRMB Ex. 15 at 194:4-15 (“So I would say that  $L_{int}$  is between the power supply and the switching circuitry.”).) The undersigned agrees that it is appropriate to include the endpoints within the construction so that the embodiments shown in Figure 19 are not excluded. *See Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008) (“We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification. . . . At least where claims can reasonably be interpreted to include a specific embodiment, it is incorrect to construe the claims to exclude that embodiment, absent probative evidence to the contrary.”).

The undersigned is likewise not persuaded by the argument that this term is indefinite because the claims state that “*a*” parasitic inductance should be used. Respondents argue that there are “many different parasitic inductances between the supply and the regulator circuitry.” (RMRB at 47-49; RMIB at 47.) Respondents make no attempt to quantify the amount, but specifically identify six. (RMRB at 47.) Respondents argue that a person of ordinary skill in the art would not know which of these parasitic inductances to use. (*Id.*) The undersigned finds that the use of the word “*a*” here simply means that if the value of resistance is based on or matches *any* of the parasitic inductances located between the supply and the regulatory circuitry, then the claim is satisfied.

The undersigned agrees with Respondents, however that “R2’s proposed construction is . . . flawed because it inexplicably eliminates the word ‘parasitic’ from the claim term.” (RMRB at 62.) The patent specifically uses the phrase “parasitic inductance.” A person of ordinary skill in the art would understand that “parasitic inductance” is narrower than “inductance.” (RMRB Ex. A at 187:17-20 (deposition of Dr. Kenney) (“Q: Are all inductances parasitic inductances? A: No. We generally prescribe the qualifier ‘parasitic’ to include something that is inherent in the physics of a structure.”).) Because “claims are interpreted with an eye toward giving effect to all terms in the claim,” *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006), the undersigned finds that the term “parasitic” is purposeful and should be included in the construction.

Accordingly, for the reasons stated above and for the previous term, the undersigned hereby construes the term “parasitic inductance associated with the regulator circuitry” to mean **“parasitic inductance located between the supply and the regulator circuitry.”** It is also the undersigned’s view that the endpoints are included in this definition.

f) “voltage spike protection circuitry” terms

The parties have agreed that these terms should be construed as a group, “even though the terms appear with slight variations in the apparatus and method claims.” (SMIB at 13; *see also* JC at 4.) They disagree on their construction and have proposed the following:

TERM	R2	RESPONDENTS	STAFF
“voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry” (claims 1, 27, 28)	“circuitry, on the same integrated circuit as the regulator circuitry, that protects from voltage excursions caused by inductance located between the supply and the regulator circuitry”	Plain meaning: “circuitry that protects the regulator circuitry from spikes in voltage”	“Circuitry for protecting the regulator circuitry from voltage spikes”
“voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry” (claims 13, 26, 30, 31)	“protecting the regulator circuitry from voltage excursions caused by inductance located between the supply and the regulator circuitry, with circuitry on the same integrated circuit as the regulator circuitry”	Plain meaning: “protecting the regulator circuitry from spikes in voltage, with voltage spike protection circuitry”	“protecting the regulator circuitry from voltage spikes with circuitry designed to perform this function”
“voltage spike protection circuitry connected between the first power supply and the second power supply for voltage-spike-protecting the regulator circuitry” (claim 29)	“circuitry, on the same integrated circuit as the regulator circuitry, that protects from voltage excursions caused by inductance located between the supply and the regulator circuitry”	Plain meaning: “circuitry connected between the first power supply and the second power supply that protects the regulator circuitry from spikes in voltage”	“Circuitry for protecting the regulator circuitry from voltage spikes”

(JC at 4.)

R2 asserts that the “voltage spike protection circuitry” terms have a specialized meaning in the context of the ’250 patent. (CMIB at 49 (citing Kenney Decl. ¶ 97) (arguing that these terms do not have a plain and ordinary meaning and therefore require construction); CMRB at 59-60.) It contends that the specification makes clear that “the voltage spike protection circuitry of the ’250 patent is *not* any circuitry that protects against voltage spikes, but rather a *specific configuration* of circuitry that: (1) protects the regulator circuitry from voltage excursions

caused by inductance located between the supply and the regulator circuitry; and (2) comprises circuitry on the same integrated circuit as the regulator circuitry.” (CMRB at 57 (emphasis in original).) According to R2, the patent expressly “disparages” prior art voltage regulators and spike protection circuitry as being “unreasonably large” and offchip, and teaches that “optimally” all components should be on a single semiconductor die. (CMIB at 52-57; CMRB at 63-65.) It further claims that “*every single* exemplary embodiment” places the voltage spike protection circuitry on the same integrated circuit as the regulator circuitry. (CMRB at 66 (emphasis original); *see also* CMIB at 54-55.)

R2 criticizes Respondents’ and Staff’s proposed constructions for parroting the words of the claim terms. (CMIB at 57; CMRB at 57-59.) It insists that “[o]ffering a construction that merely rearranges the words of the claims is neither correct nor helpful.” (CMRB at 57.)

Respondents assert that these terms should be given their plain meaning—*i.e.* circuitry that protects the regulator circuitry from spikes in voltage. (RMIB at 72-73; Tr. at 213:23-214:2 (“Intel, or Respondents, and the Staff have proposed a plain meaning construction that is that the voltage spike protection circuitry protects the regulator circuitry from voltage spikes.”).) They claim that their proposed construction is supported by the intrinsic evidence. (*Id.* at 73-76.) For example, Respondents contend that the claims expressly state that “voltage spike protection circuitry” is circuitry that protects the regulator circuitry from spikes in voltage. (*Id.* at 73.) They also contend the specification repeatedly states that the “voltage spike protection circuitry” protects the regulator circuitry from spikes in voltage. (*Id.* at 73-74.)

Respondents object to R2’s proposed construction, arguing that it improperly seeks to import two limitations from an embodiment into these claims terms – “first, that the ‘voltage spike protection circuitry’ must be on ‘the same integrated circuit as the regulator circuitry’; and

second, that the ‘voltage spike protection circuitry’ must protect against voltage spikes caused *only* by ‘inductance located between the supply and the regulator circuitry.’” (RMRB at 65 (emphasis original); *see also* RMIB at 76-77.) They note that none of the claims require the voltage spike protection circuit to be “located on the same integrated circuit” as the regulator circuitry. (RMIB at 76; RMRB at 65-67.) In addition, Respondents argue that the ’250 patent “does not support the contention that the relevant inductance is located only between the supply and regulator circuitry.” (RMRB at 68.)

Staff submits that a person of ordinary skill in the art would understand that these terms refer “generally to circuitry that protects the regulator circuitry (*i.e.* converter).” (SMIB at 49; SMRB at 45.) Staff explains that “the specification describes that voltage spikes at switches of switch mode converters was known in the art.” (*Id.*) Staff further notes that “the specification describes that ‘[i]t is desirable to have a method and apparatus for protecting switching elements of a converter from transient voltages to allow fast low-loss switching operations without degradation of reliability.’” (*Id.*)

In Staff’s view, R2 seeks to import limitations that are not expressly defined in the specification or the result of a clear disavowal. (SMIB at 49-50; SMRB at 45-46.) More specifically, Staff does not believe the intrinsic evidence requires the circuitry to be “on the same integrated circuit” or that the voltage excursions are “caused by inductance located between the supply and the regulator circuitry.” (SMIB at 49-50.)

R2 asserts that lexicography applies here. The undersigned disagrees. The standard for finding lexicography is exacting. *Thorner v. Sony Computer Entertainment America LLC*, 689 F.3d 1362, 1365 (Fed. Cir. 2012) (citing *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). To act as its own lexicographer, a patentee must “clearly set forth a

definition of the disputed claim term,” and “clearly express an intent to define the term.” *Id.* Contrary to R2’s assertion, the specification does not define these terms or include any indication that the patentee intended to limit the location of the “voltage spike protection circuitry” terms.<sup>12</sup> In fact, each of the specification excerpts it relies on for its “same integrated circuit” argument is only an “embodiment” or “example.” (See, e.g., ’250 patent at 10:42-43 (“FIG. 12 shows an *example* of a more detailed implementation of a voltage converter 300.”), 16:52-53 (“FIG. 19 shows an *example* of a voltage regulator that further includes a spike protection circuit 1910.”), 18:15-18 (“In the *exemplary* embodiment, for which simulation results are presented in FIG. 20, the switching circuitry and associated spike protection circuitry are partitioned into four segments, as discussed elsewhere.”), 19:35-39 (“An *example* is shown in FIG. 21, in which the switching circuitry (switching elements) 301 and 302 is partitioned into a number of switching block segments 2120, 2130, 2140, and so on, and associated with each segment are protection circuitry blocks, such as 2121 and 2122) (emphasis added).) As R2 should know, “it is improper to read limitations from a preferred embodiment described in the specification . . . into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited.” *Liebel-Flarsheim Co.*, 358 F.3d at 913.<sup>13</sup>

“Absent lexicography or disavowal, we do not depart from the plain meaning of the claims.” *Luminara Worldwide, LLC v. Liown Elecs. Co.*, 814 F.3d 1343, 1353 (Fed. Cir. 2016).

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<sup>12</sup> The undersigned notes that the patent uses the word “optimally” when discussing a single integrated circuit. (’250 patent at 6:66-7:3 (“Therefore, there exists a need for a DC-DC converter that is simultaneously compact (including *optimally* fabrication of all active and passive components *on a single semiconductor die*), low in cost, and highly efficient even at small ratios of output to supply voltage and low output current”).) Respondents are therefore correct when they state that the usage of the word “optimally” “necessarily also implies sub-‘optimal’ solutions in which the components are *not* all on a single integrated circuit.” (RMRB at 66 (emphasis original).)

<sup>13</sup> The undersigned finds that Respondents’ contention that the claimed voltage spike protection circuitry is not limited to inductance between the supply and regulator circuitry is more properly addressed in the definition of “parasitic inductance associated with the regulator circuitry.” As discussed *supra*, the undersigned construed this term as “parasitic inductance located between the supply and regulator circuitry.” Accordingly, a person of ordinary skill in the art would understand that the ’250 patent includes this limitation, without needing to import it into the “voltage spike protection circuitry” terms.

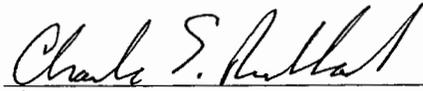
The undersigned agrees with Respondents and Staff that the plain meaning of these terms is circuitry that protects the regulator circuitry from spikes in voltage. First, the independent claims all refer to “voltage spike protection circuitry as circuitry for “voltage-spike protecting the regulator circuitry.” (See, e.g., ’250 patent at claims 1, 13, 26, 29, 29, 31.) Second, the specification repeatedly describes the “voltage spike protection circuitry” as protecting the regulator circuitry from spikes in voltage, thereby confirming that it is circuitry that protects the regulator circuitry from spikes in voltage. (*Id.* at Abstract, 7:11-42, 16:40-44, 18:24-25.)

Thus, for the reasons stated above, the undersigned hereby construes the term “voltage spike protection circuitry for voltage-spike-protecting the regulator circuitry” as “***circuitry that protects the regulators circuitry from spikes in voltage;***” the term “voltage-spike-protecting the regulator circuitry with voltage spike protection circuitry” as “***protecting the regulator circuitry from spikes in voltage with voltage spike protection circuitry;***” and the term “voltage spike protection circuitry connected between the first power supply and the second power supply for voltage-spike-protecting the regulator circuitry” as “***circuitry connected between the first power supply and the second power supply that protects the regulator circuitry from spikes in voltage.***”

Within seven days of the date of this document, each party shall submit to the Office of the Administrative Law Judges a statement as to whether or not it seeks to have any portion of this document deleted from the public version. The parties’ submissions may be made by facsimile and/or hard copy by the aforementioned date.

Any party seeking to have any portion of this document deleted from the public version thereof must submit to this office a copy of this document with red brackets indicating any portion asserted to contain confidential business information. The parties' submissions concerning the public version of this document need not be filed with the Commission Secretary.

**SO ORDERED.**



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Charles E. Bullock  
Chief Administrative Law Judge

**PUBLIC CERTIFICATE OF SERVICE**

I, Lisa R. Barton, hereby certify that the **PUBLIC VERSION ORDER NO. 36** has been served by hand upon the Commission Investigative Attorney, **Monisha Deka** and the following parties as indicated, on 7/13/2017.



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