CERTAIN AMPLIFIER ASSEMBLIES AND PARTS THEREOF FROM JAPAN

Determination of the Commission in Investigation No. 731-TA-48 (Final) Under Section 735(b) of the Tariff Act of 1930, Together With the Information Obtained in the Investigation

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UNITED STATES INTERNATIONAL TRADE COMMISSION

COMMISSIONERS

Alfred E Eckes, Chairman
Paula Stern
Michael J Calhoun
Eugene J Frank
Veronica A Haggart

Kenneth R Mason, Secretary to the Commission

This report was prepared by:

Stephen Miller, Office of Investigations

Scott Baker, Office of Industries
William Fletcher, Office of Industries
Andrew Valiunas, Office of Economics
Jeffrey Neeley, Office of the General Counsel

Lynn Featherstone, Supervisory Investigator

Address all communications to
Office of the Secretary
United States International Trade Commission
Washington, DC 20436

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Note--Data which would disclose confidential operations of individual concerns may not be published and, therefore, have been deleted from this report. Deletions are indicated by asterisks.

UNITED STATES INTERNATIONAL TRADE COMMISSION Washington, D.C.

Investigation No. 731-TA-48 (Final)

CERTAIN AMPLIFIER ASSEMBLIES AND PARTS THEREOF FROM JAPAN

Determination

On the basis of the record 1/ developed in the subject investigation, the Commission determines, 2/ pursuant to section 735(b) of the Tariff Act of 1930 (19 U.S.C. § 1673d(b)), that an industry in the United States is materially injured by reason of imports from Japan of certain amplifier assemblies and parts thereof, 3/ provided for in item 685.29 of the Tariff Schedules of the United States, which are being, or are likely to be, sold in the United States at less than fair value (LTFV).

Background

The Commission instituted this investigation effective December 30, 1981, following a preliminary determination by the Department of Commerce that certain amplifier assemblies and parts thereof from Japan are being sold, or are likely to be sold, in the United States at LTFV. Notice of the institution of the Commission's investigation and of a public hearing to be held in connection therewith was given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, D.C., and by publishing the notice in the Federal Register on January 20, 1982 (47 F.R. 2946). The hearing was held in Washington, D.C., on May 20, 1982, and all persons who requested the opportunity were permitted to appear in person or by counsel.

¹/ The record is defined in sec. 207.2(i) of the Commission's Rules of Practice and Procedure (19 CFR § 207.2(i)).

^{2/} Commissioner Stern dissenting.

 $[\]overline{3}/$ For purposes of this investigation, these articles are radio-frequency power amplifier assemblies and components thereof, specifically designed for uplink transmission in the C, X, and Ku bands from fixed earth stations to communication satellites and having a power output of 1 kilowatt or more.

VIEWS OF CHAIRMAN ALFRED E. ECKES, AND COMMISSIONERS MICHAEL J. CALHOUN, EUGENE J. FRANK, AND VERONICA A. HAGGART

Introduction

We have determined that an industry in the United States is materially injured by reason of imports of certain amplifier assemblies and parts thereof from Japan, which are being sold at less than fair value. consideration of the conditions of trade, competition, and development regarding the domestic industry, we have focused particularly on those factors which determine the economic viability of a telecommunications-related industry. In such an industry, the ability to generate capital for continued research and development and the opportunity to gain developmental experience as the outgrowth of sales determine the producer's ability to compete in the marketplace. It is critically important that producers remain in the forefront regarding technological advances within the field. Our assessment of the impact of the less-than-fair-value (LTFV) imports on the domestic industry is that it has been materially injured because of the loss of contracts to such imports on the basis of significantly lower prices. loss of these sales to LTFV imports has denied the domestic industry needed capital for research and development and foreclosed the opportunity to gain practical and developmental experience which accompanies such sales.

The domestic industry

Section 771(4)(A) of the Tariff Act of 1930 defines the term "industry" as the "domestic producers as a whole of a like product or those producers whose collective output of the like product constitutes a major proportion of

the total domestic production of that product." 1/ "Like product" is defined as a product that is like, or in the absence of like, most similar in characteristics and uses with, the articles under investigation. 2/

The articles subject to this investigation are radio-frequency power amplifiers with a power rating of 1-kilowatt (kW) or more specially designed for transmission in the C, X, and Ku bands 3/ from fixed earth stations to communications satellites. The articles imported from Japan were made according to specifications in Communications Satellite Corporation (COMSAT) contracts ESOC 1263 and ESOC 1264. ESOC 1263 is a contract for nine klystron 3 kW amplifiers designed for use in the C band. ESOC 1264 is a contract for 20 traveling-wave-tube (TWT) 4/3-kW amplifiers designed for use in the C band. 5/ Both of these contracts were for amplifiers for sending signals to communications satellites and both were won by Nippon Electric Co. of America (NECAM), a subsidiary of Nippon Electric Co. of Japan (NEC).

^{1/ 19} U.S.C. 1677(4)(A).

^{2/ 19} U.S.C. 1677(10).

 $[\]overline{3}$ / Operating frequencies for radio transmitters are assigned by the Federal Communications Commission. Commercial satellite communications systems are assigned the C band (5.9-6.4 gigahertz (GHz)) and Ku band (12-14 GHz) frequencies, and military systems are assigned the X band (7.9-8.4 GHz).

^{4/} Both klystron and traveling-wave tubes provide the power amplification needed to transmit the signals to a satellite. The klystron and TWT amplifiers are somewhat different in terms of the manner in which they perform. The TWT amplifier is capable of sending signals over a much wider bandwidth than a klystron amplifier. As a result, the TWT amplifier does not need to be retuned and one amplifier can be used to send signals to several transponders on a satellite. Nevertheless, klystron and TWT amplifiers are essentially performing the same function, in that they amplify the signals for uplink transmission to a communications satellite. We therefore believe that klystron and TWT amplifiers are like in terms of the statute.

^{5/} The COMSAT contracts call for amplifiers designed to broadcast in the C band, which is the principal band in the United States for civilian satellite broadcasting. Amplifiers that broadcast to satellites on the X or Ku bands are essentially the same as C-band amplifiers except that radio-frequency components and the tubes are designed to broadcast on the appropriate wavelengths. Because this is only a minor variation, we are of the view that the C, X, and Ku band amplifiers are like in terms of the statute.

We find that the "like product" in this investigation includes klystron and TWT amplifiers of over 1 kW for use in the C, X, and Ku band specially designed for transmission from fixed earth stations to communications satellites. Amplifiers that have power ratings above 1 kW can be used to send all types of signals to communications satellites, including video signals. 6/ On this basis, we have concluded that only amplifiers above 1 kW should be considered like the 3-kW amplifiers involved in the two COMSAT contracts. 7/

Thus, for the purpose of assessing material injury, the relevant domestic industry consists of all firms that have produced the subject amplifiers within the period of investigation. The domestic producers of the like product are those portions of Aydin Corp., Varian Associates, Inc., MCL, Inc., LogiMetrics, Inc., and Comtech Telecommunications devoted to the production of the subject HPAs. 8/

Counsel for respondent NEC argued that the domestic industry should be broadened to include producers of amplifiers for use in a tropospheric scatter (troposcatter) system. Troposcatter systems utilize radio signals bounced off the troposphere, rather than being sent to a satellite and beamed back to earth. Transmission ranges extending from 400 to 600 miles are usual for the troposcatter systems whereas amplifiers for satellite transmission have a

^{6/} Report, p. A-3.

^{7/} It is our view that an amplifier with a linearizer, which is included in ESOC 1264, but not in ESOC 1263, is not significantly different in characteristics or uses from an amplifier without a linearizer. The purpose of a linearizer is to adjust for distortions in a signal as it passes through the amplifier. ESOC 1264 is the first COMSAT contract that has called for the use of this device. Although the linearizer may have a beneficial effect, the essential characteristics of the amplifier remain the same.

^{8/} Report, pp. A-7-9.

range of up to 38,000 miles. The troposcatter amplifiers generally use a different frequency and a narrower bandwidth than satellite amplifiers. 9/ A consultant for NEC testified that, if the definition of the industry is based upon use in the market, troposcatters would probably not be included in the domestic industry. 10/ He also indicated that troposcatter and satellite amplifiers are not interchangeable, and thus one could not plug a 10 kW troposcatter amplifier into a satellite system and have it work. 11/ In addition, there is uncontroverted testimony that a troposcatter amplifier could not have been substituted for the amplifiers purchased by COMSAT. 12/ Based on the record, we therefore find that troposcatter amplifiers are not like amplifiers for use with earth satellites.

Material Injury

Section 771(7) of the Tariff Act of 1930 directs the Commission to consider in making its determination, among other factors, (1) the volume of imports of the merchandise under investigation, (2) their impact on price, and (3) the consequent impact of the imports on the domestic industry. 13/ In assessing the impact on the domestic industry, we are further directed by section 771(4)(C)(iii) to evaluate all relevant economic factors which have a bearing on the state of the industry, including, but not limited to: production, sales, market share, profits, productivity, return on investments,

^{9/} Id., p. A-3.

 $[\]overline{10}/\overline{\text{Hearing Transcript}}$ (Transcript), p. 122.

^{11/} Id., p. 123.

^{12/} Id., p. 41.

^{13/ 19} U.S.C. 1677(7).

capacity utilization, cash flow, inventories, employment, wages, growth, ability to raise capital, and investment.

According to the Senate Finance Committee Report on the Trade Agreements
Act of 1979:

Neither the presence nor the absence of any factor listed in the bill can necessarily give decisive guidance with respect to whether an industry is materially injured, and the significance to be assigned to a particular factor is for the ITC [Commission] to decide. It is expected that in its investigation the Commission will continue to focus on the conditions of trade, competition, and development regarding the industry concerned. 14/

The consideration of the conditions of trade, competition, and development of the domestic industry in this investigation focuses our assessment on an industry that is highly competitive in terms of technological developments. Producers in this industry must maintain the ability to keep abreast of and contribute to technological advances. In order to do so, it is important that domestic producers be able to internally fund research and development and work closely with end users such as COMSAT.

In this investigation, we have found the pricing information, the profitability information, and the research and development figures to be particularly revealing as to the competitive condition of this industry. The loss of two contracts to LTFV imports has caused material injury to the domestic industry by its adverse effect on profitability, and ability to raise capital and to internally fund research and development. Further, the loss of the TWT contract (ESOC 1264) has had a particularly deleterious effect on the domestic industry's competitive position. The loss of the contract for these

^{14/} S. Rept. 96-249 (96th Cong., 1st Sess.) at 88.

amplifiers, which represent the latest in technology for such amplifiers means that the domestic industry has been precluded from obtaining vital practical and developmental experience.

The high-power amplifier (HPA) industry and market

As we mentioned above in our discussion of the products subject to this investigation, the domestic industry produces both klystron HPAs and TWT HPAs. HPAs are typically custom-made to specifications provided by the purchaser. Klystron HPAs, which have constituted the largest segment of the HPA market for many years, increasingly are being replaced by TWT amplifiers in higher-powered satellite systems. The TWT amplifier has the advantage of being "frequency-agile," i.e., it can address any of the satellite's transponders without having to be retuned. The TWT amplifier called for in ESOC 1264 represents an advancement in TWT technology use.

The HPA market has been characterized by very high growth rates, and that growth rate is expected to continue. In a study done for NEC by Arthur D. Little, Inc., the annual growth rate of satellite transponders to which satellite amplifiers broadcast will be 22 percent for C-band and 73 percent for Ku-band over the period 1982-85. The Arthur D. Little study states that these impressive growth rates do not seem unreasonable in the context of the 86 percent growth of satellite earth stations in 1981 alone. 15/ As satellite technology has become more developed in the United States and worldwide, the worldwide production and use of HPAs have soared. Producers must be able to

^{15/} Study of Supply Record and Markets (1979-1985) for Satellite Earth Station High Power Amplifiers, p. 19.

meet the demands of this dynamic market which requires the latest and most efficient technology. Therefore, it is imperative that domestic producers have the ability to fund research and development.

In the United States, the purchaser employing the latest technology in TWT HPAs is COMSAT, the acknowledged worldwide leader in the common carrier field. The particular technical features that distinguish the subject TWT HPAs as the forefront of technology are the high level of power involved, the wide bandwidth (500 MHz at C band), and the clarity of the final transmission. Thus, the awarding of a contract for TWT amplifiers by COMSAT has the effect of affording NEC, the winner of the bid, the opportunity to gain developmental and practical experience in the use of this technology and design improvements in the product for the future. At the same time, the loss of this opportunity places the domestic industry at a distinct competitive disadvantage with respect to growth opportunities that may arise out of utilization of these TWT amplifiers. When similar contracts are let in the future, NEC will hold a competitive advantage since that company will have the best and most recent experience with the technology.

Volume of imports

In 1981, the year in which the deliveries for ESOC 1263 and ESOC 1264 were made, market penetration (by quantity) of imports from Japan of klystron and TWT HPAs under investigation was a significant share of apparent consumption for klystron HPAs and almost all of apparent consumption for TWT HPAs. 16/ ESOC 1264 constituted 100 percent of apparent consumption of

^{16/} Report, pp. A-22 and A-23. Specific data on market penetration are confidential.

commercial TWT HPAs subject to this investigation in 1981. Because the commercial market has only one buyer, COMSAT, and the military market is effectively closed to foreign bidders, the capturing of the newest HPA market, namely the higher-power TWTs, is particularly significant, as we discuss below.

Impact on Pricing

It is difficult to compare HPAs on a one-to-one basis since there are no "off-the-shelf" units. HPAs are purchased for diverse needs requiring special features, which often result in variations in cost. Reliable price comparisons do exist for those HPAs meeting the specifications set forth in ESOC 1263 and ESOC 1264.

COMSAT's procurement activities are governed by the Communications

Satellite Procurement regulations (47 C.F.R. 25.151 et seq.). Those

regulations state that COMSAT will evaluate a supplier's proposal for

technical sufficiency as a first step, and then consider other factors in a

second step. In following those regulations with regard to the contracts at

issue here, COMSAT rated two domestic bids in response to both ESOC 1263 and

ESOC 1264 as technically responsive. After evaluating the technical aspects

of the bids submitted, COMSAT considered other factors, among which price was

an important consideration. 17/ The final bids of NEC on both ESOC 1263 and

ESOC 1264 were significantly below the bids of the domestic producers. 18/

No domestic contracts for commercial TWT HPAs have been let since 1980, and thus there is no information on price suppression with regard to that

 $[\]frac{17}{18}$ / Letter of General Counsel of COMSAT to the Commission of August 27, 1981. Report, p. A-27. The exact amount of the domestic bids is confidential.

segment of the industry. An adverse impact on prices has been felt in the klystron segment of the industry, however. The unit value of domestic bids showed a general downward trend from the amounts bid prior to the awarding of the COMSAT contracts. $\underline{19}$ / This price suppression has been evident in the klystron segment of the industry as domestic companies have been forced to lower their prices as a result of the loss of the TWT segment of the market to NEC. $\underline{20}$ /

The effect on the domestic industry

Domestic shipments of the klystron HPAs subject to this investigation showed an upward trend from 1978 to 1981. The domestic shipments of TWT HPAs have fallen dramatically since 1979, the last year before the award of the COMSAT contracts. 21/ The fact that employment has not increased at a time when the market for HPAs was expanding shows one aspect of the injury that the domestic industry has suffered. This industry depends upon highly educated and skilled scientists, engineers, and technicians for its labor. It is critically important that the industry maintain this labor force in order to remain in the forefront of technological advances within the field. There is information on the record that indicates the domestic industry's ability to retain the vital skilled labor force has been jeopardized by the loss of the two COMSAT contracts. 22/

^{19/} Id., p. A-26.

 $[\]overline{20}$ / Transcript, p. 21.

 $[\]overline{21}$ / Report, p. A-11. We note that shipments in this industry are responsive to the availability and timing of contracts.

^{22/} Post-hearing submissions for 1st quarter data of 1982. See also, Transcript, pp. 43-44.

Net sales of the domestic industry were up in 1981 from the 1979 and 1980 levels. However, much of the increase is a result of a substantial initial shipment pursuant to a 5-year contract entered into in 1978 between one company and the U.S. Army. 23/ Sales during the first quarter of 1982 were down from the same period in 1981. 24/

The ratio of net operating profit <u>before</u> taxes to net sales for the domestic industry fell from 6.1 percent in 1980 to 5.5 percent in 1981. <u>25/</u>
We note, however, that these profit levels are well below those for comparable industries that also require returns adequate to continue the research and development which keeps the industry competitive. For example, the median return on net sales <u>after</u> taxes for the electronic components and accessories industry was 7.6 percent in 1981. For the telephone communications industry, the median return <u>after</u> taxes was 13.4 percent in 1981. 26/

The inability to achieve an adequate profit has had a particularly detrimental effect on research and development expenditures. Research and development in the domestic industry must be internally generated, unlike in earlier years when the National Aeronautics and Space Administration (NASA) developed much of that technology used by the industry. According to Arthur D. Little, a consultant for NEC, the minimum level of research and development that is necessary to be a leader in technology is 5 percent of net sales. 27/

^{23/} Id., p. A-17.

^{24/} Post-hearing submissions of the domestic industry.

 $[\]frac{25}{}$ The profit figures for 1979 and 1980 were affected by the start-up costs for two companies.

 $[\]frac{26}{981}$ Selected Key Business Ratios of 125 Lines of Business, Dun & Bradstreet (1981), p. 7.

^{27/} Transcript, p. 139.

Although research and development expenditures increased during the period of 1979-81, they have remained below the 5 percent figure during this period. 28/

The adverse impact of LTFV imports on the domestic industry's ability to generate funds for research and development is injury of the most serious sort. The performance of this industry is determined in substantial part by its ability to fund research and development and to acquire experience in TWT technology through its sales. The loss of ESOC 1263 and 1264 and the concomitant loss of sales revenues have resulted in diminished funds for research and development.

Therefore, based upon information on the record, we determine that an industry in the United States is materially injured by reason of imports of certain amplifier assemblies and parts thereof from Japan, which are being sold at less than fair value.

^{28/} Report, p. A-18.

VIEWS OF COMMISSIONER PAULA STERN

Based on the record in this final investigation I determine that there is no material injury or threat of material injury by reason of imports of certain amplifier assemblies and parts thereof from Japan at less than fair value (LTFV). Maintaining the U.S. competitive position in telecommunications technology is a subject of considerable importance. While I agree with the majority that in these investigations the Commission should focus carefully on the conditions of trade, competition and development regarding the industry concerned, my analysis of the particular facts before us regarding the domestic high powered amplifier (HPA) industry differs in significant respects. I find the U.S. HPA industry to be healthy and within the meaning of the statute not threatened with material injury due to LTFV imports from Japan.

The Domestic Industry

I concur with the majority's definition of the scope of the industry, but emphasize that this definition restricts the Commission's assessment to high powered amplifiers (HPAs) alone and not to the tubes for HPAs. Producers of tubes are not a part of the industry subject to the investigation. 1/

 $[\]frac{1}{2}$ One domestic producer, Varian Associates, Inc. also produces tubes for HPAs. For the purposes of this investigation, however, only data regarding the company's performance on the HPA line is under consideration.

No Present Material Injury by LTFV Imports

Information provided to the Commission indicates that the domestic HPA industry enjoyed its best year for the period under investigation in 1981, the year in which all the HPAs from Japan were imported. Between 1980 and 1981 production, shipments, employment, sales, profits, capital expenditures and research and development all increased. 2/

I agree with the majority that our analysis of the effects of imports on telecommunications-related industries centers on information which is most likely to reveal the impact of imports on the domestic industry's ability to keep abreast of technological advances. My assessment, however, differs from that of the majority.

It has been argued that the imports from Japan in 1981 have restricted the domestic industry's efforts to continue research and development (R&D) and to gain experience in traveling wave tube (TWT) technology. The available data do not support this view. In quantity terms the domestic HPA industry increased its research and development expenditures in 1981 by over 100 percent over 1980 levels. As a percent of net sales, the industry's 1981 R&D expenditures were at their highest level for the period of the investigation. 3/

<u>2</u>! Report, pp. A-11, 14, 17, 18 and 24.

³_/ It is important to keep in mind that the industry subject to this investigation does not fund the R&D efforts on the tubes used in HPAs. The tubes, particularly TWT tubes, are the most technologically sophisticated component of HPAs. The klystron HPA tube was invented in the 1930s, and has been in commercial use since the early 1960s in satellite communications. The TWT HPA tube was developed in the 1950s and is currently coming into widespread commercial use.

Furthermore, domestic shipments of HPAs in 1981 increased from the high level achieved in 1980. In spite of the Nippon Electric Co. (NEC) success on the two COMSAT contracts, the domestic industry made sizeable sales of TWT amplifiers in 1981 4', and its 1981 sales of klystron HPAs were more than twice as high as sales in every other year covered by this investigation. 5' As shipments increased, employment also showed an increase from 1980 to 1981 in spite of a concern exprassed during this investigation that the domestic industry might not be able to maintain employees attracted to high technology assignments. The industry has continued to gain experience in both TWT and klystron technology.

The petitioner alleges that this industry has been hampered in its ability to attract capital. There is no data available to the Commission on the ability to attract capital. Information on capital expenditures shows that such expenditures were at their highest level in 1981 for the period of this investigation — roughly 54 percent above the 1979 level.

^{4/} The industry's domestic TWT HPA sales were made in the military market. TWT HPAs used by the military require the most sophisticated TWT technology.

⁵_/ Report, p. A-24.

Between 1979 and 1981 the industry's gross profit increased from \$1.1 million to \$2.6 million or nearly 150 percent. The increase in net operating profit from 1978 to 1981 was even more impressive. In 1978 net operating profit amounted to \$130,000; in 1981 it was \$716,000. This is a 450 percent increase. The record also shows that the ratio of net operating profit to net sales rose from 1.7 percent in 1979 6/ to 5.5 percent in 1981. The ratio of net operating profits before taxes to net sales in 1981 is down somewhat from the 1980 level of 6.1 percent. The Commission report points out, however, that the 1981 ratio includes profitability data on a large military contract at an unusually low profit. Excluding this military contract, for which imports did not compete, the industry's ratio of net operating profits before taxes to net sales in 1981 was 8.1 percent, a level which is roughly comparable to the median level for other electronic components and accessories industries. 7.

Arguments on price suppression are not compelling. Information reported in response to the Commission's inquiries concerning price suppression elicited examples of suppressed prices only in instances of competition among domestic competitors where NEC was not bidding. Further, the a'legations only apply to the commercial market for 1 to 3 kw klystron HPAs (which represents only about a fifth of the market of HPAs 1 kw and above). As I will discuss in greater detail below,

 $[\]frac{6}{}$ This depressed level is partially attributable to costs incurred by a domestic producer in establishing its microwave equipment operations.

^{7/} I hesitate to make such a contrast across industries but since this comparison is made by the majority, I feel compelled to discuss and contrast these figures. The industry's ratio of net operating profits to net sales is on a before-taxes basis. Available information on the median ratio of net operating profits to net sales for the electronic components and accessories industries is only available on an after-taxes basis. For 1981 this figure was 7.6 percent.

NEC has not bid on any U.S. HPA contracts in 18 months. Since

NEC has not participated in competition for contracts since the 1980

awards, any price suppression that may exist cannot be attributed to

it. Rather it must stem from domestic competition.

In sum, the 1981 data do not reveal a deterioration in the performance of the U.S. HPA industry or declines in R&D and investment. Benefitting from a growing market, the industry is performing well and has attracted a new entrant, Raytheon Corporation. The industry has been able to make the sales necessary to generate or attract new capital and to fund the necessary R&D to fuel its continued growth. The record of this investigation does not demonstrate material injury to the domestic HPA industry by reason of the LTFV imports from Japan.

No Threat of Material Injury by LTFV Imports

Standards

The majority has found present material injury by reason of imports of high powered amplifiers from Japan. 8/ In so doing, it rests its conclusion on the impact on the domestic industry of the loss of two contracts to Japan. Its analysis seems to imply a concern that because this is an advanced technology industry these sales

^{8/} In the preliminary investigation the Commission unanimously found on'y a reasonable indication that an industry in the United States is threatened with material injury.

will affect the <u>future</u> of the domestic industry. <u>9</u>/ In effect then, the majority's present material injury finding appears in part to address the question of threat, at least insofar as it is concerned with predicting the future of the domestic industry.

In my view, the Commission task in assessing the future of the domestic industry must rest fully on the standards and guidelines established by the statute, legislative history, and legal precedent. This legal framework applies to all industries — whether advanced technology in nature or not. In the U.S. there is a general concern that U.S. advanced technology industries are vulnerable to competition from Japan. The legal standards and guidelines for a finding of "threat" form the analytical framework which enables the Commission to identify objectively situations in which the future of a particular U.S. advanced technology industry is actually threatened by LTFV imports from Japan. When examined within this legal framework — the only one at the Commission's disposal — the case for future injury to the domestic HPA industry is negative.

_9/ Majority Opinion, pp. 9 and 11.

The leading precedent on the threat standard is Alberta Gas

Chemicals v. United States 10. In that case the Court of International

Trade reiterated that a Commission affirmative determination of likelihood of injury must be supported by substantial evidence. In Alberta Gas

Judge Newman cited the language in the House Ways and Means Committee

Report 11/ on the Trade Agreements Act of 1979 that there must be

"information showing that the threat is real and injury is imminent, not a mere supposition or conjecture," 12/ for the Commission to find threat of material injury. The Judge overturned the Commission's vote in Alberta Gas 13/ because he found that "the record before the Commission shows simply a mere possibility that injury might occur at some remote future time."

Findings

In the preliminary investigation I joined the majority in finding a reasonable indication of threat of material injury of the domestic HPA industry based on the increase in imports from Japan in 1981 and a belief

^{10/} 515 F. Supp. 780 (CIT 1981).

 $[\]underline{11}/$ There is comparable language as well in the Senate Report on the Trade Agreements Act of 1979, at 88-89. (S. Rep. No. 249, 96th Cong., 1st Sess.).

¹² / H.R. Rep. No. 317, 96th Cong., 1st Sess. 47 (1979).

^{13 /} The Commission voted in the affirmative by a vote of 3 to 2, Commissioners Stern and Alberger dissenting. (Methol Alcohol from Canada, Investigation AA1921-202 (1979)).

that if the increasebecame a trend then it might result in price suppression, poor financial performance and negative effects on investment, the ability to retain highly skilled personnel, and research and development plans.

The more complete information available in this final investigation indicates that the increase in imports in 1981 has not continued. NEC has not bid on any HPA contracts since late-1980 and has not delivered and is not scheduled to deliver a single HPA 1 $_{
m kW}$ or above during 1982.

The most tangible threat argument made by the majority in the preliminary case rested on the issue of the options portions of COMSAT contracts ESOC 1263 and ESOC 1264. Under these provisions petitioners argued that COMSAT may purchase up to sixty additional HPAs and spares, totalling some \$7 million. However, the Commission has learned from COMSAT officials that the possibility that these options will be exercised is remote at best. 14/

The petitioners' claims that NEC's entrance into the U.S. HPA market is a valuable beachhead from which NEC could capture the domestic market. However, NEC has been exporting smaller HPAs and satellite communications equipment to the U.S. since the mid-1960s, and there is no evidence that it

^{14/} Telephone conversation of June 22, 1982 between Stephen Miller, Commission investigator and Francois Giorgio, Senior Engineer, COMSAT.

dominates that market. COMSAT has been the only U.S. purchaser of the subject HPAs from NEC. As indicated above, NEC has neither won nor bid on any domestic contracts for the subject HPAs since the award of the COMSAT contracts in question. A well-founded case for future injury to the domestic industry would require knowledge of the number and value of future contracts that may be won by NEC beyond the end of this year. Absent such data, the Commission can only speculate on the future.

Furthermore, future Japanese participation in the U.S. market is limited by the fact that sales to the military effectively are closed to imports. 15/ Currently, this sheltered market accounts for nearly a quarter of all HPAs sold. And the military market for HPAs shows every indication of expanding substantially in coming years. Data provided by Arthur D. Little, Inc. for the respondent indicate that various branches of the military will require hundreds of units of the subject HPAs in the coming years. 16/

Therefore, I have determined that there is no real and imminent threat of material injury to the domestic HPA industry by reason of LTFV imports from Japan.

^{15/} Field notes of Stephen Miller, Staff Investigator, March 17, 1982.

¹⁶/ "Study of Supply Record and Markets (1979-1985) for Satellite Earth Station High Power Amplifiers," Arthur D. Little, Inc., pp. 46 and 51.

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

On July 24, 1981, the U.S. International Trade Commission and the U.S. Department of Commerce received a petition from Aydin Corp., Fort Washington, Pa., alleging that certain amplifier assemblies and parts thereof from Japan are being sold in the United States at less than fair value (LTFV). 1/ Accordingly, effective July 24, 1981, the Commission instituted a preliminary antidumping investigation under section 733(a) of the Tariff Act of 1930 (19 U.S.C. 1673b(a)) to determine whether there is a reasonable indication that an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports from Japan of certain amplifier assemblies and parts thereof provided for in item 685.29 of the Tariff Schedules of the United States (TSUS) which the petition alleges are being, or are likely to be, sold in the United States at LTFV. On September 16, 1981, the Commission unanimously determined that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports from Japan of such merchandise.

On December 24, 1981, the Department of Commerce preliminarily determined that there is reason to believe or suspect that certain amplifier assemblies and parts thereof are being sold in the United States at LTFV within the meaning of section 731 of the Tariff Act of 1930. Accordingly, the Commission instituted investigation No. 731-TA-48 (Final) under section 735(b) of the act, to determine whether an industry in the United States is materially injured or is threatened with material injury, or the establishment of an industry in the United States is materially retarded, by reason of imports of such merchandise. Notice of the institution of the Commission's investigation and of a public hearing to be held in connection therewith was duly given by posting copies of the notice in the Office of the Secretary, U.S. International Trade Commission, Washington, D.C., and by publishing the notice in the Federal Register of January 20, 1982 (47 F.R. 2946). 2/ The public hearing was held in Washington, D.C., on May 20, 1982. 3/ The Commission's vote in this investigation was held on June 22, 1982.

Overview

The first communications satellites were developed and tested by the National Aeronautics and Space Administration (NASA) in the early 1960's. NASA's lead in space exploration provided the initial research and development (R&D) resources necessary to determine the characteristics required in a satellite to function effectively in the space environment. A number of NASA-

^{1/} Aydin Corp. was joined by MCL, Inc., as copetitioner on July 29, 1981.

2/ A copy of the Commission's notice of the investigation and hearing are presented in app. A. A copy of the Commerce Department's final determination is presented in app. B.

^{3/} A list of the witnesses appearing at the public hearing is presented in app. C.

sponsored projects, particularly the launching of the Syncom II satellite, promoted the technological growth of the nascent communications satellite industry.

The Communications Satellite Corp. (COMSAT), a privately owned company, 1/was established by Congress pursuant to the Communications Satellite Act of 1962 and given the mandate to participate in a global commercial satellite communications system in conjunction with other countries involved in the International Telecommunications Satellite Organization (INTELSAT). Currently, INTELSAT provides service for over two-thirds of the world's international transoceanic communications, with six operating satellites now in orbit around the earth.

Despite the entry of the private sector into the satellite communications field, NASA remained the primary source of technological innovations throughout the 1960's and into the early 1970's. NASA developed and launched six Application Technology Satellites and one Communications Technology Satellite. These satellites tested such innovations as communications to mobile receivers and TV broadcasting to small portable earth terminals. 1973, NASA scaled down its development program, because advances made in its earlier programs afforded the private sector an opportunity to assume a greater role in an industry in which the high-risk, high-cost primary research had been accomplished. The private sector introduced a number of subsequent innovations, including improved antenna design, increased number of circuits per satellite, frequency reuse, and demand-assignable access and time-division multiple access to satellites. NASA plans to reinstate its leading R&D role in developing the Ka frequency band 2/ in this decade, again with the intention of transferring its techno $\overline{1}$ ogical advances to the private sector by the 1990's.

Satellite communications were originally implemented to augment and replace undersea cable and short-wave radio as a means for transoceanic communications. The benefits derived from the use of satellite communications include greater reliability, lower cost installation, and greater capacity to handle voice transmissions, TV, and high-speed data signals. The satellites in this communications system are placed in geosynchronous orbit 22,300 miles above the Earth's equator, where they appear stationary with respect to transmitting and receiving stations on the ground (earth stations). An earth station in such a communications network can send transmissions to, and receive them from, other earth stations up to 8,000 miles away through a single satellite. Thus, in theory, the entire earth may be served by a satellite communications system incorporating three satellites equally spaced around the globe with the appropriate number of earth stations.

^{1/} Although privately owned, many of COMSAT's business operations, including its procurement regulations, are subject to oversight by the Federal Communications Commission. COMSAT has a 15-member board of directors, three of whom are nominated by the President and confirmed by the Senate; stockholders elect the remainder of the board members.

^{2/} Ka is a very high frequency band, the use of which will become increasingly important as lower frequency bands fill up with traffic. See A-2 fig. D-1 in app. D: Frequency bands.

The Product

Description and uses

The amplifier assemblies which are the subject of this investigation are high-power, radio-frequency amplifiers operating in the C, X, and Ku bands used in the "uplink" transmission of high-frequency, wide-bandwidth 1/ signals to satellites from fixed earth stations. They are distinguished from other amplifiers principally by their output power, wide range of operating frequencies, extremely low distortion across all frequencies of operation, high reliability, and the frequency bands for which they are designed. 2/ For the purposes of this report, such amplifier assemblies will be referred to as high-power amplifiers (HPA's). Only HPA's having a power rating of 1 kilowatt (kW) or more are included within the scope of the Commission's investigation, since amplifiers with power ratings less than 1 kW are generally not capable of transmitting all types of signals. The amplifiers which are the subject of the LTFV sales are for multipurpose applications.

Operating frequency ranges for radio transmitters are assigned by the Federal Communications Commission. Commercial satellite communications systems currently are assigned the so-called C band (5.9-6.4 gigahertz (GHz)) 3/ and the Ku band (12-14 GHz) frequencies; military systems are assigned the X band (7.9-8.4 GHz) frequencies.

Component parts in a typical satellite communications amplifier for uplink transmission include the main power amplifier (which uses either a klystron tube or a traveling wave tube (TWT)), an intermediate power amplifier (IPA), magnet (in the case of the klystron HPA), radio-frequency components, electrical components, cable, cabinets, and panels. The tube provides the power amplification which is required to transmit the signal to the satel-

^{1/} Bandwidth defines the limits of the frequency range over which a particular device will operate efficiently and without introducing excessive distortion. The bandwidth for the subject high-power amplifiers is at least 40 megahertz, the same as the range of a single transponder in the C band (see discussion on pg. A-4).

^{2/} Another type of communications system, the tropospheric scatter (troposcatter) system, employs amplifier assemblies with a similar technology. In the case of the troposcatter systems, however, the radio-frequency energy bounces off aberrations in the troposphere rather than being sent to a satellite and beamed back to earth. Transmission ranges extending from 200 to 600 miles are usual for the troposcatter systems, whereas amplifiers for satellite transmission have a range of up to 38,000 miles. The troposcatter transmitter generally utilizes much greater power, a different frequency band of operation, a more narrow bandwidth, and is generally a transportable system. The satellite amplifiers are generally designed for use in fixed earth stations, although some specialized military systems allow for transportability. Additionally, satellite and troposcatter amplifiers of comparable power ratings utilize different tubes and associated circuitry, different microwave components, and different power supplies. each case, the equipment necessary for satellite amplifiers is more complex and more expensive than the comparable equipment for troposcatter amplifiers.

^{3/} A GHz is 1 billion hertz; hertz is the international unit of frequency equal to 1 cycle per second.

lite. The required output is so high, however, that single-stage amplification is not sufficient, and a preamplifier, or IPA, is also necessary. The IPA may be either a vacuum tube or a solid-state device.

The output power of an HPA must be great enough to transmit a wide bandwidth signal to the satellite. In addition to the requirement for wide bandwidth capability is the requirement for amplification with extremely low distortion. Although moderate distortion is tolerable in some of the older transmission systems (e.g., voice telephone), such is not the case in satellite systems. The earth station should be capable of accepting any kind of signal (television, telephone, telemetry, facsimile, high-speed digital data, and so forth) for transmission, and it is important that the signal suffer as little damage (distortion) as possible during transmission. Such low distortion is difficult to achieve in wide bandwidth systems. Some users of TWT HPA's believe that signal distortion can be reduced by incorporating a device called a "linearizer" in the system. The linearizer is placed first in the amplification chain and produces the mirror image of the distortion expected to be produced by the TWT in the HPA. In other words, the linearizer predistorts the input signal so that when the signal passes through the HPA, the distortions are canceled. Linearizers are adjusted for the individual characteristics of the TWT in the HPA and therefore require recalibration whenever the tube is replaced. There are differences of opinion among producers and users of HPA's concerning the usefulness of linearizers, but a large contract that forms part of the basis for this investigation specified the inclusion of such a device.

As mentioned, two types of tubes are currently used in HPA's. Both perform basically the same function but are distinguished by different internal structures and different bandwidth capabilities. The TWT has a 500 megahertz (MHz) 1/ frequency bandwidth, the same as the C band. Therefore, it can address any of the satellite's 12 transponder 2/ frequencies without having to be tuned. The setting of a TWT HPA to a particular frequency is accomplished by adjusting the up converter. 3/ A klystron tube has a bandwidth of only 40 MHz (in C band operation) and must be mechanically retuned if a shift from one transponder (i.e., frequency) to another is dictated. Retuning a klystron HPA requires opening the HPA cabinet and having a technician manually adjust the tube. 4/ Although this process takes relatively little time, the earth station cannot transmit until the retuning process is completed. In situations requiring real-time communications (e.g., live television broadcasts), such an interruption of service cannot be afforded. Therefore, earth stations often maintain a standby HPA capable of assuming transmissions in case the on-line HPA fails or requires service. In systems where there are several HPA's transmitting to several transponders, the earth station requires a frequency-agile HPA as a reserve. The TWT HPA is

^{1/} A MHz is 1 million hertz.

^{2/} A transponder is a fixed-frequency device that receives the uplink transmission and sends it back to the earth-based receiver. Each transponder has a bandwidth of 40 MHz in the C band.

³/ An up converter is a device that converts the frequency of the original signal to a frequency in the desired band.

⁴/ Retuning is accomplished by changing the structure of the cavities in the 4-4 tube by mechanical means.

an inherently frequency-agile device and a klystron HPA's while not inherently frequency-agile, can be made somewhat more so when it includes a special remote control unit that can tune the klystron tube. This motor-driven unit is located inside the HPA cabinet and eliminates the need for the technician to open the cabinet and manually retune the tube. The tuning is not instantaneous; hence, some downtime occurs.

The HPA's generally fall into certain power ranges depending on design characteristics and intended use. Domestic producers generally manufacture klystron HPA's with power output ratings in the following ranges: 400-750 watts, 1-3.35 kW, and much larger models of 8-12 kW. Similarly, TWT HPA's are offered in ranges of 200-700 watts, 1-3 kW, and 8-12 kW. The increase in power output from the smaller to the larger amplifiers dictates significant changes in the size, construction, and price of the unit. The low wattage amplifiers may be only slightly larger than a home stereo receiver, whereas the high-wattage HPA's can occupy 3 or 4 cabinets, each with a 30-40 cubic foot capacity (see figures D-2, D-3, and D-4 in appendix D). The larger TWT HPA's utilize a TWT of different construction and employ more complex systems for heat dissipation, safety, noise abatement, and preamplification. Finally, the prices of the higher powered units are generally several times greater than those of the lower powered HPA's.

Many satellite communication amplifiers are manufactured to technical specifications prescribed by the users and therefore cannot be considered "off-the-shelf" items even though they are constructed of relatively standard components. Certain classes of amplifiers, however, are often manufactured in batches and kept in inventory. Those which tend to be produced in quantity are the 400-700 watt TWT HPA's and the 1-3.35 kW klystron amplifiers.

U.S. tariff treatment

The amplifier assemblies which are the subject of this investigation are dutiable under the provisions of item 685.29 of the TSUS. This item is a residual or "basket" category and includes a variety of merchandise, such as antennas, transmitters, and radio apparatus not elsewhere classified in the TSUS.

The column 1 (most-favored-nation) rate of duty for this item is 6 percent ad valorem. There is no preferential rate of duty for least developed developing countries (LDDC's) but merchandise imported from any beneficiary country entered under item 685.29 is eligible for duty-free treatment under

the Generalized System of Preferences (GSP). 1/ The column 2 (statutory) rate of duty is 35 percent ad valorem. 2/ The column 1 rate of duty has been in effect since January 1, 1972, and no staged reductions were scheduled under the Geneva (1979) Protocol to the General Agreement on Tariffs and Trade. The column 1 rate is applicable to imports from Japan.

Nature and Extent of Sales at LTFV

The Department of Commerce's final determination of sales at LTFV was based on a comparison of the United States price and the foreign market value of high-power microwave 3/ amplifier assemblies specifically designed for uplink transmission in the C, X, and Ku bands from fixed earth stations to communication satellites and having a power output of 1 kW or more. Nippon Electric Co. Ltd. (NEC), is the only known producer in Japan that exports the subject amplifiers to the United States. The Commerce investigation covers the HPA's sold by NEC in the period March 1, 1981, through August 31, 1981. Such HPA's were assembled, tested, and delivered between March and December 1981.

Commerce's final calculation of dumping margins was based on a comparison of the purchase price of the relevant merchandise, as defined in section 772(b) of the Tariff Act, and the constructed value of the foreign product, as defined in section 773(e) of the act. The constructed-value method of calculation was necessary because NEC recorded no separate sales of HPA's in the home market or to third countries. Although NEC sold complete earth stations of which HPA's are a part, the Department of Commerce was unable to gather the requisite data to establish comparability between these HPA's and the ones purchased in the United States.

^{1/} The rates of duty in rate of duty column 1 are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUS and developing countries which are granted preferential tariff treatment under the GSP or under the LDDC rate of duty column.

LDDC rates of duty are preferential rates reflecting the full U.S. Multilateral Trade Negotiation (MTN) concession rate for a particular item without staging and are applicable to products of the least developed developing countries designated in general headnote 3(d) of the TSUS which are not granted duty-free treatment under the GSP. If no rate of duty is provided in the LDDC column for a particular item, the rate of duty provided in column 1 applies.

The GSP, under title V of the Trade Act of 1974, provides duty-free treatment for specified eligible articles imported directly from designated beneficiary developing countries. GSP, implemented by Executive Order No. 11888 of Nov. 24, 1975, applies to merchandise imported on or after Jan. 1, 1976, and is scheduled to remain in effect until Jan. 4, 1985.

²/ The rates of duty in column 2 apply to imported products from those Communist countries and areas enumerated in general headnote 3(f) of the TSUS.

^{3/ &}quot;Microwave" is a term used rather loosely to signify radio waves in the frequency range from about 1000 megahertz (1 GHz) and above.

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Two sales made by NEC were the subject of Commerce's investigation; one for 9 3-kW klystron HPA's and the other for 20 3-kW TWT HPA's. During the final verification of foreign market value, Commerce found that information originally submitted by NEC varied substantially from the data gathered during its inspection of NEC's financial records. Hence, Commerce based its final determination on information obtained during its inspection of corporate records rather than data submitted by NEC in response to Commerce's questionnaire.

Commerce determined that the LTFV margin for TWT amplifiers was 25.4 percent, and the LTFV margin for klystron amplifiers, 41.4 percent. Additionally, components of HPA's, unless imported expressly for use in TWT HPA's, had LTFV margins of 41.4 percent. 1/

U.S. Market and Channels of Distribution

The U.S. market for HPA's can be divided into two principal segments: (1) end users such as COMSAT and the military, which purchase HPA's for use in their own earth stations, and (2) firms such as Scientific Atlanta Inc., Harris Corp., California Microwave, Inc., and Satellite Transmission Systems, Inc. (STS), which purchase HPA's for integration into complete earth station systems that are then sold to end users (turnkey operations).

These end users employ the subject HPA's in one of five significant systems: (1) the INTELSAT system, (2) domestic satellite communications within geographically large countries (DOMSAT), (3) regional domestic satellite communications, (4) military satellite communications, and (5) special-purpose satellite communications networks, such as those for communication with offshore oil platforms and maritime vessels. These special-purpose amplifiers tend to have a lower power rating than the HPA's included in the instant investigation.

U.S. Producers

There are four major producers of the subject HPA's in the United States: Aydin Corp., Varian Associates, Inc., MCL, Inc., and Comtech Telecommunications Corp. All of these firms make both klystron and TWT HPA's in the power range under consideration. Additionally, each of these firms produces HPA's as a significant product line.

Aydin Corp. makes klystron and TWT HPA's at its Aydin Microwave Division located in San Jose, Calif. Aydin Microwave was elevated to division status in 1979 and moved into a separate facility in 1980. Much of this facility is designed specifically for the production and testing of HPA's. Various equipment configurations were engineered to handle the special requirements of HPA manufacture dictated by the size of the HPA, the power required in production and testing, and the heat and noise generated. In addition to HPA's, Aydin Microwave also makes troposcatter equipment, solid-state ampli-

^{1/} For a more detailed description of the Commerce determination see 14:5 Federal Register notice (47 F.R. 22134) in app. B.

fiers, and microwave radio equipment in its San Jose plant. In satellite communications amplifier production, Aydin Microwave concentrates on the production of amplifiers of 200 watts and over. This is because the tube represents a substantial portion of the cost of a smaller amplifier, and Aydin must buy tubes from other firms since it doesn't make them. The tube represents a smaller share of the production cost in their larger amplifiers, which gives Aydin more flexibility in pricing.

Varian Associates, Inc., produces HPA's at its Microwave Equipment Operations (MEO). Elevated to division status in 1979, this facility is located in Santa Clara, Calif. The division produces a variety of satellite communications power amplifiers ranging from 20 watts to 12 kW. Varian also produces traveling wave and klystron tubes in a separate division facility located in Palo Alto, Calif. Varian is the sole domestic source of traveling wave and klystron tubes used in 3-kW HPA's that operate in the C band.

MCL, Inc., produces the subject HPA's at its plant located in La Grange, Ill. MCL also produces a variety of equipment, including satellite communications amplifiers that range from 50 watts to 3.35 kW, lower frequency microwave equipment, and electronic countermeasures equipment. MCL does not make klystron or traveling wave tubes, but purchases them from both domestic and foreign sources.

Comtech Telecommunications Corp. produces 3-kW klystron HPA's at its Comtech Labs Division facility in Hauppauge, N.Y. It does not produce the 3-kW TWT HPA of interest, but does make other lower power TWT satellite communications amplifiers, including some rated at 1 kW and above. Comtech is engaged principally in the design, development, manufacture, and installation of satellite communications earth stations, related receiving and transmitting subsystems, digital communications equipment, tropospheric scatter and terrestrial, line-of-sight microwave communications stations.

LogiMetrics, Inc., produces TWT HPA's for military applications at its facilities in Plainview, N.Y. LogiMetrics also manufactures radio frequency signal generators and test systems, but derives the majority of its revenue from * * *.

Another manufacturer that has sporadically produced HPA's of the type covered in the instant investigation (i.e., has produced less than * * * of the subject HPA's in the past four years) is Ford Aerospace & Communications Corp. Ford produced * * * HPA's of 1 kW or more during the past 4 years as a part of major systems for various applications. The company generally purchases the HPA's used in its communications systems.

The Commission requested information from 20 firms identified by counsel for NEC as potential manufacturers of the subject HPA's concerning their production of these items since 1978. The six firms identified above reported current production or intermittant production since 1978. Two additional firms reported production prior to 1978, but none since, and one firm indicated that it will produce the subject HPA's beginning in late 1983. The remaining firms have never produced the subject HPA's and expressed no interest in establishing such production capabilities.

U.S. Importers

NEC's U.S. subsidiary, NEC America (NECAM), began importing HPA's from its parent in 1979. However, the contracts between NECAM and COMSAT (Earth Stations Owners' Consortium (ESOC) 1263 and ESOC 1264), upon which final LTFV determinations were made, required delivery beginning in October 1981. All deliveries of the HPA's were made by December 1981, and certain additional components are scheduled for delivery by June 1982.

The only other known importer of the subject HPA's is Varian Associates, a domestic producer. Varian operates a division in Ontario, Canada, which manufactures 1-3 kW klystron HPA's in addition to its primary product lines of reflex and millimeter wave klystrons and TWT's for communications systems and physics experiments. Varian MEO provides all sales and distribution services for the Canadian division.

Foreign Producers

NEC produces a broad range of communications equipment, computers and industrial electronic systems, electron devices, home electronics products, and various electrical components for the world market. NEC currently operates 39 plants in Japan, supplemented by its overseas affiliates' 18 plants operating in 10 countries. NEC and its 33 consolidated companies employ about 65,000 persons worldwide.

In the satellite communications field, NEC produces a wide variety of equipment, including HPA's of the type under investigation, both traveling wave and klystron tubes, satellite antennas, low-noise amplifiers, signal-terminal equipment, and satellite transponders.

In Europe, major producers of satellite communications equipment including HPA's are Thomson-CSF in France (Thomson also makes linearizers and tubes), Siemens & AEG Telefunken in West Germany, Italtel and Satellite Telecommunications Systems, S.p.A., in Italy, and Marconi in the United Kingdom. These producers make HPA's for the Ku band, the satellite communications band employed in Europe, as their primary product line and manufacture components used in C band systems for certain international sales.

Varian Associates has a facility located in Canada that has been producing klystron HPA's; * * *.

The Question of Material Injury

U.S. production, capacity, and producers' inventories

Because HPA's are typically custom made to specifications provided by the purchaser, U.S. production and shipments are generally the same. 1/ Shipment data are provided in the following section.

¹/ See the petition of Aydin Corp., attachment A, sec. 3.

Information on U.S. productive capacity is not ascertainable, because production of these items basically involves the manufacture of circuit boards, assembly of components, and installation of wiring and purchased parts in multiproduct, multifunction workplaces. Production and related workers are typically highly skilled workers who are capable of manufacturing and assembling a variety of products used in the telecommunications sector of the economy. Given the flexibility of the facilities and labor that characterize the industry, as well as the tendency of orders for amplifier assemblies to come in bunches because of the procurement needs of consumers, production of these custom—made items generally fluctuates widely from year to year.

As stated earlier, it is not the general practice of firms in the industry to build a wide range of HPA's for inventory, although economies of scale sometimes dictate production of more amplifier assemblies than are called for in the firm's secured contracts. Although it is not unusual for * * * of the klystron HPA's with power ratings of 1-3 kW to be in inventory at any particular time, the types of TWT HPA's being provided COMSAT by NECAM have never been produced for inventory by the U.S. industry.

U.S. producers' domestic and export shipments

The Commission received usable data on the quantity and value of U.S. producers' shipments from five domestic producers of HPA's. These firms are believed to have accounted for nearly all shipments of these products by U.S. producers during 1978-81. Data on U.S. producers' domestic shipments of both klystron and TWT HPA's for 1978-81 are given in table 1.

The quantity and value of U.S. producers' domestic shipments fluctuated erratically among the various product groups of HPA's from 1978 to 1981. In general, shipments in the commercial market of klystron HPA's increased, whereas shipments of TWT HPA's decreased. Shipments in the military market were sporadic for klystron HPA's, with none recorded until 1980. Shipments of TWT HPA's in the 1-3-kW range for military applications increased from * * * to * * * units during the period. No shipments of the larger TWT HPA's for the military market were reported.

Four of the five domestic producers of HPA's which responded to Commission questionnaires export such items to earth-satellite ground stations throughout the world and consider export sales an important part of their total business. The quantity and value of such exports for 1978-81 are given in table 2.

Respondents' data on exports show lower power HPA's to the commercial sector representing the bulk of the total quantity and installed value of all exports from 1978 to 1981. Exports of HPA's were recorded in only three of the eight categories specified in the Commission's questionnaires. In terms of quantity and value, export shipments peaked in 1980, when * * * 1-3-kW TWT HPA's and * * * 1-3-kW klystron HPA's were shipped. The commercial market comprised the entirety of export shipments for the period 1978-81.

U.S. producers' domestic shipments, Table 1.--Certain amplifier assemblies and parts thereof by types, 1978-81

Above 3 kW 1 kW-3 kW Above 3 kW 1 kW-3 kW 1			Alystron HP	nra s			IWI HPA'S	A's	
1 kW-3 kW		Соппе	ercial	M1.	litary	Сошш	ercial	Milita	ary
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***		1 kW-3 kW	Above 3 kW	1 kW-3 kW	Above 3 kW	1 kW-3 kW	Above 3 kW	1 kW-3 kW .	Above 3 kW
*** *** *** *** *** *** *** *** *** **	·				ō	uantity			
Installed value (1,000 dollars)		* * * *	* * * * * * * * * * * * * * * * * * * *	* * * *	* * * *	* * * * *	* * * *	* * * *	* * * *
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***		* * * * *	* * * * * * * * * * * * * * * * * * * *	* * * *	* * * *	* * * * *	* * * * *	* * * * .	* * * *

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Table 2.--Certain amplifier assemblies and parts thereof: U.S. exports, by types, 1978-81

	Klystron H	PA's <u>1</u> / : H	TWT PA's 2/
Year	:	Commercial	
	1 kW-3 kW Al	bove 3 kW : 1	kW-3 kW
	•	tity (units)	
1978		*** :	***
1979		*** :	***
1980		*** :	***
1981	***:	*** :	***
	Installed va	lue (1,000 do	ollars)
1070		:	
1978		*** :	***
1979		*** :	***
1980		*** :	***
1981	***:	*** :	***
1/ Thomas was a second of the	:	:	

^{1/} There were no U.S. exports of military klystron HPA's.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commisssion.

On an aggregate basis, the klystron HPA product line for the commerical sector (which includes both domestic and export shipments by the U.S. producers) has been the largest segment of the HPA market over the last 4 years, accounting for 44.5 percent of total sales. The following tabulation presents the relative share of each of the four market segments to total HPA sales (on a value basis) during 1978-81:

Product line	Cumulative market share
	(<u>percent</u>)
Commercial klystron	44.5
Commercial TWT	26.5
Military klystron	
Military TWT	6.9

Overall, HPA's manufactured for the commercial sector constituted 71 percent of the value of total sales, and the military sector accounted for the remaining 29 percent.

 $[\]overline{2}/$ There were no U.S. exports of commercial TWT HPA's above 3 kW, and there were no such exports of military HPA's of 1-3 kW or above 3 kW.

U.S. imports

Data on imported HPA's are not reported separately in the official statistics of the U.S. Department of Commerce. Such imports are included in the data reported for all articles entered under TSUS item 685.29, which, in addition to the products that are the subject of this investigation, include such diverse items as antennas, transceivers, and transmitters.

All of the imports of the subject HPA's from Japan were entered in 1981. The remaining imports shown in table 3 are those shipped by Varian Canada, Inc., through Varian MEO. Varian accounted for all imports during 1978-80; both Varian Canada and NEC shipped HPA's to the United States in 1981.

Table 3.--Certain amplifier assemblies and parts thereof: U.S. imports for consumption, by types, 1978-81

Type	1978	: 1979	1980	1981
	:	Qua	ntity	
Klystron HPA's:	:	:	:	:
1-3 kW		: ***	: ***	: ***
Above 3 kW		: ***	: ***	: ***
Total	: ***	: ***	: ***	: ***
	:	:	:	:
TWT HPA's:	:	:	:	:
1-3 kW <u>1</u> /		: ***	: ***	: ***
Above 3 kW		: ***	: ***	: ***
Total	: ***	: ***	: ***	: ***
	:	:	:	:
Grand Total	: ***	: ***	: ***	: ***
	Instal	lled value	(1,000 do	llars)
Klystron HPA's:	•	:	•	:
1-3 kW	•	: ***	: ***	: ***
Above 3 kW	: ***	: ***	: ***	: ***
Total	: ***	: ***	: ***	: ***
TWT HPA's:	:	:	:	:
1-3 kW 1/		: ***	: ***	: ***
Above 3 kW		: ***	: ***	: ***
Total	: ***	: ***	: ***	: ***
Grand total	: ***	: ***	: ***	. ***
	•	•	•	•

^{1/} All of the imports reported for the 1-3-kW TWT HPA's are part of a contract won by NECAM to provide 20 such assemblies to COMSAT. Each amplifer assembly is a 3-kW TWT HPA.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Imports of the subject HPA's from Canada constituted the majority of overall imports on a quantity basis during 1978-81. Imports from Canada increased each year, with the exception of 1979, when imports were at their lowest level.

Total imports from Japan of the HPA's which are the subject of the investigation represent two contracts secured by NECAM from COMSAT in December 1980. The imports of klystron HPA's represent fulfillment by NECAM of COMSAT contract No. ESOC 1263, and the imports of the TWT HPA's represent fulfillment by NECAM of COMSAT contract No. ESOC 1264. Shipments from Japan of all the HPA's under these contracts began October 1, 1981, and were completed by December 19, 1981. Such imports represented * * * percent of the value of total imports in 1981. No additional HPA imports from Japan are scheduled for 1982, although ESOC 1264 provides COMSAT the option to purchase up to 40 additional TWT HPA's at the contract price until January 26, 1983. Similarly, ESOC 1263 allows COMSAT to procure up to 20 additional klystron HPA's at the contract price until January 26, 1983.

Employment and wages 1/

Employment data collected from five domestic producers of the subject HPA's are presented in table 4. Employment figures from Aydin Corp. were not available for 1979. Aydin's domestic shipments represented * * * percent of the total, by value, in that year.

Table 4.--Average number of employees, total and production and related workers, in U.S. establishments producing HPA's having a power rating of 1 kW and above and hours paid for the latter, 1980 and 1981

Item	1980	1981
Average employment:	:	
All persons:	965 :	951
Production and related workers pro- :	:	751
ducing:	:	
All products:	710 :	695
HPA's: Hours paid:	*** :	***
All persons1,000 hours:	1,919:	2,010
Production and related workers producing:	:	· •
HPA's1,000 hours:	*** :	***
<u> </u>	:	

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

^{1/} Data on employment and wages include all operations for Comtech, MCL, and LogiMetrics. Since Varian and Aydin have separate divisions in which all of the subject amplifiers are produced for their respective companies, only division information is included in this section. Both of these divisions were established in 1979.

Employment for all persons in these establishments and for production and related workers producing all products decreased slightly in 1981; the number of production and related workers producing HPA's increased. However, hours worked by all persons and hours worked by production and related workers producing HPA's each increased from 1980 to 1981. Production and related workers employed by the domestic HPA industry often engage in the production of a number of separate components and subassemblies for use in the telecommunications field. The average number of hours worked per week by such workers on the production of the subject HPA's fell from 37.2 in 1980 to 36.8 in 1981. Information on wages and benefits paid to these employee's are presented in table 5. Compensation figures were not available from Aydin Corp. for 1979. Aydin's domestic shipments represented * * * percent of the total, by value, in that year.

Table 5.--Wages and fringe benefits paid to employees in U.S. establishments producing HPA's having a power rating of 1 kW and above, 1980 and 1981

Item	1980	1981
Total wages paid to	•	
All employees1,000 dollars: Production and related workers pro-	17,643	18,801
ducing HPA's1,000 dollars: Total fringe benefits paid to	*** :	***
All employees: Production and related workers producing:	3,526:	3,884
HPA's1,000 dollars-:	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Both wages and fringe benefits paid to production and related workers engaged in the manufacture of the subject HPA's increased from 1980 to 1981. Hourly compensation (including wages and fringe benefits) for such workers increased from \$10.22 in 1980 to \$11.13 in 1981.

Financial experience of U.S. producers

The Commission received profit—and—loss data from five domestic producers of the subject HPA's. The data presented in table 6 show the U.S. producers' financial experience on all operations. The following tabulation presents the relative significance of sales of amplifier assemblies having a power rating of 1 kW and above to the overall net sales and to divisional sales, when applicable, of each domestic producer in 1981 (the companies are listed in order of size according to sales from overall operations) (in percent):

Firm	Share of overall sales	Share of divisional sales
***	***	***
***	***	***
***	***	***
***	***	***
***	***	***

Table 6.--Profit-and-loss experience of 5 U.S. producers on their overall operations, 1978-81

Net sales1,000 dollars: 471,0 Cost of goods solddo: 318,9 Gross profitdo: 152,0 General, selling, and : administrative expenses :	38 :	,	,		770 750
Cost of goods solddo: 318,9 Gross profitdo: 152,0 General, selling, and : administrative expenses :	38 :	,	,		770 750
Gross profitdo: 152,0 General, selling, and : administrative expenses :		364,262	. 476 0		778,758
General, selling, and : administrative expenses :	76 :		• 4/0 ₀ 0.	33:	551,341
administrative expenses :		170,560			227,417
	:	,	:	:	, /
	:		:	:	
1,000 dollars: 116,4	65 :	124,815	: 167,58	82 :	194,822
Net operating profit :	:		:		174,022
1,000 dollars: 35,6	11 :	45,745	: 45,48	87 •	32,595
Ratio of net operating :		,	:	•	32,333
profit to net sales :	•		•	•	
-	.6 :	8.6	•	.6 :	4.2
Number of firms reporting :	•	0.0	•	••••	4.2
net operating losses:	0:	1	•	1 .	0
not operating rooses .	٠.	1	•	1 :	U

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Aggregate net sales of all products by the five producers of HPA's show a steady increase from \$471 million in 1978 to \$779 million in 1981, representing an increase of 65 percent. Gross profits increased during 1978-81 by 50 percent. During this period, total operating expenses rose more rapidly than net sales, resulting in a decline of the ratio of net operating profit to net sales from 7.6 percent in 1978 to 4.2 percent in 1981.

The Commission received profit-and-loss data from five domestic producers on their operations producing the subject HPA's. This information, shown in table 7, represents financial data from producers accounting for virtually all shipments of the subject HPA's in 1981.

Table 7	Profit-	and-loss	exper	ience	of .	5 U.S	. produ	ucers on	their
0	perations	producing	HPA's	s of	1 kW	and	above,	1979-81	

Item	1979	1980	1981
:		:	•
Net sales1,000 dollars:	7,535	: 8,588	: 1/ 13,086
Cost of goods sold:		:	: -
Materialsdo:	4,015	: 4,401	7,489
Labordo:	974	: 925	: 1,674
Depreciation and amortizationdo:	109	: 112	: 228
Otherdo:	1,372	: 1,440	: 1,107
Totaldo:	6,470	: 6,878	: 10,498
Gross profitdo:	1,065	: 1,710	: 2,588
General, administrative, and selling :	•	:	:
expensesdo:	935	: 1,190	: 1,872
Net operating profitdo:	130	: 520	: 716
Ratio of net operating profit to net :		:	:
salespercent:	1.7	: 6.1	: 5.5
Number of firms reporting net operating :		:	:
losses:	***	: ***	: ***
:		:	:

Source: Compiled from data submitted in response to questionnaires of the $\hbox{U.S.}$ International Trade Commission.

The depressed operating profits experienced by respondents in 1979 are attributable partly * * *. In general, domestic producers experienced growth in net sales, gross profit, and net operating profit before taxes during 1979-81. However, the ratio of net operating profit before taxes to net sales fell slightly from 6.1 percent in 1980 to 5.5 percent in 1981.

Capital expenditures

Investment in fixed assets employed in the production of the subject HPA's increased from * * * in 1979 to * * * in 1981, or by 53 percent. The ratios of net operating profit before taxes to such investment are listed in the following tabulation.

	Ratio of net operating
Investment	profit to investment
(1,000 dollars)	(percent)
***	***
***	***
***	***

Research and development expenditures

R&D expenditures increased substantially from 1979 to 1981, rising from * * * percent of net sales to * * * percent. R&D funds expended from 1979 to 1981 on development of the HPA's which are the subject of this investigation are given in the following tabulation:

		Ratio of expenditures
	Expenditures	to net sales
Year	(1,000 dollars)	(percent)
1979	***	***
1980	***	***
1981	***	***

The Question of Threat of Material Injury

Rate of increase of LTFV imports and market penetration

As part of its consideration of the question of threat of material injury, the Commission may examine the rate of increase, if any, of LTFV exports to the U.S. market and the rate of increase of the market penetration of such exports. In the present case, the HPA's which are the subject of this investigation were first imported from Japan in 1981, representing deliveries in fulfillment of two contracts awarded NECAM by COMSAT, the sole U.S. customer. However, options provided in these contracts (ESOC 1263 and ESOC 1264) allow COMSAT the opportunity to purchase up to 40 additional units of various merchandise at the contract price, subject to a 0.7-percent increase per month. The options expire January 26, 1983, and are potentially valued at as much as \$7.0 million. COMSAT has purchased * * * dollars' worth of options to date. A detailed description of the market penetration of the imports from Japan begins on page A-19 of this report.

Capacity of NEC to generate exports to the United States, and the availability of other export markets

NEC reported sales on overall operations of approximately \$4.8 billion for the fiscal year ending March 31, 1981, \$1.9 billion of which was in the communications systems and equipment segment of operations. In the area of satellite communications, NEC is a vertically integrated manufacturer of component parts (such as klystron and traveling wave tubes), antennas, amplifiers, satellites, and entire earth stations on a turnkey basis. NEC has contributed satellite communications equipment to more than 304 earth stations operating in over 70 countries around the world. Of the world's 242 INTELSAT earth stations, NEC-manufactured systems and components are being used in over half, making it the largest supplier of INTELSAT earth stations.

NEC manufactures HPA's of the type which are the subject of this investigation, both as identifiable products themselves and as part of completed earth stations. It also manufactures all of the major components ${}^{\rm Ag}{}^{\rm S}$ the HPA assemblies, including the tube and, when required, the linearizer.

According to an NEC sales publication, the company offers the amplifiers shown in the following tabulation:

Frequency	Tube	Output power
: 5.925-6.425 GHz: 5.925-6.425 GHz: 14.0-14.5 GHz: 5.925-6.425 GHz: 14.0-14.5 GHz: 14.0-14.5 GHz: 14.0-14.5 GHz:	TWT TWT TWT Klystron Klystron	: 700 W/1 kW, 400 W/700 W. 3 kW, 6 kW, 12 kW. 250 W, 1 kW, 3 kW. 20 W, 500 W. 400 W,1.5 kW/3 kW. 2 kW/3 kW.

NEC has supplied COMSAT with telecommunications equipment since 1967, although the sales in contracts ESOC 1263 and 1264 represent the first sales of HPA's in over 12 years. Since the INTELSAT system is global in scope, NEC, as well the U.S. manufacturers of HPA's, export significant quantities of these products. Although NEC has satellite communications equipment in place in over 70 countries, the United States represents the largest single market for its communications equipment and systems.

Competition in the international earth station market

As part of its consideration of the question of threat of material injury, the Commission asked purchasers of HPA's to detail their experiences in competing with NEC in the worldwide turnkey earth station market (see figure on pp. A-20 and A-21). A summary of the responses of U.S. manufacturers of earth stations follows.

Ford Aerospace: * * *.

Harris, COMSAT, and Satellite Transmission Systems: * * *.

Scientific Atlanta: * * *.

California Microwave: * * *.

Varian Associates: * * *.

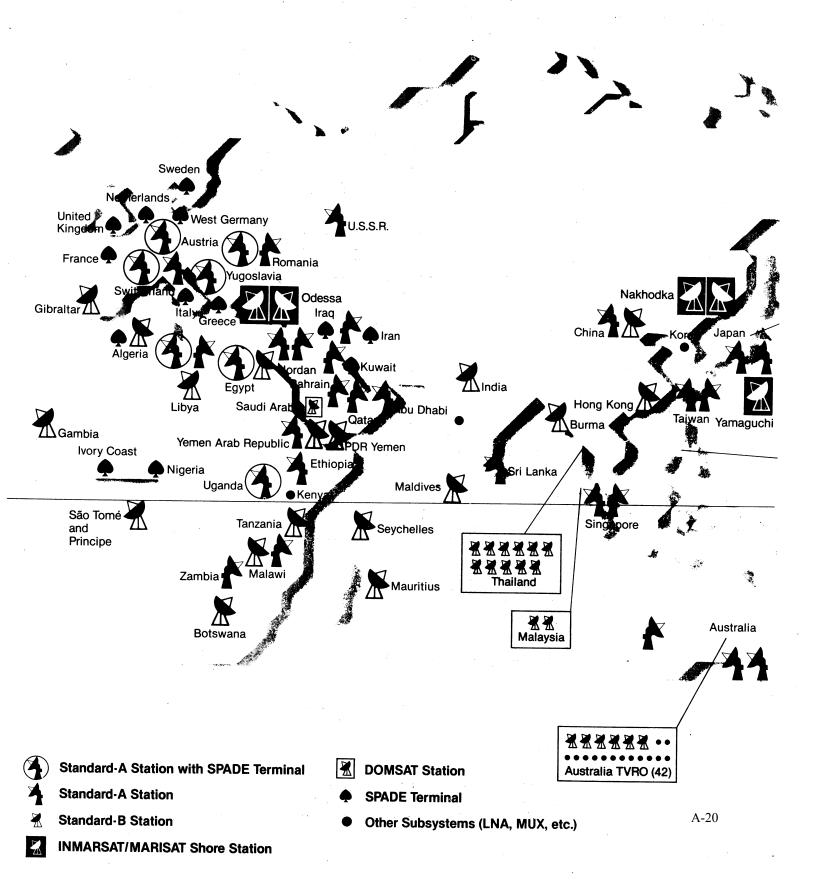
Comtech Telecommunications: * * *.

The Question of the Causal Relationship Between LTFV Imports and Alleged Material Injury or Threat Thereof

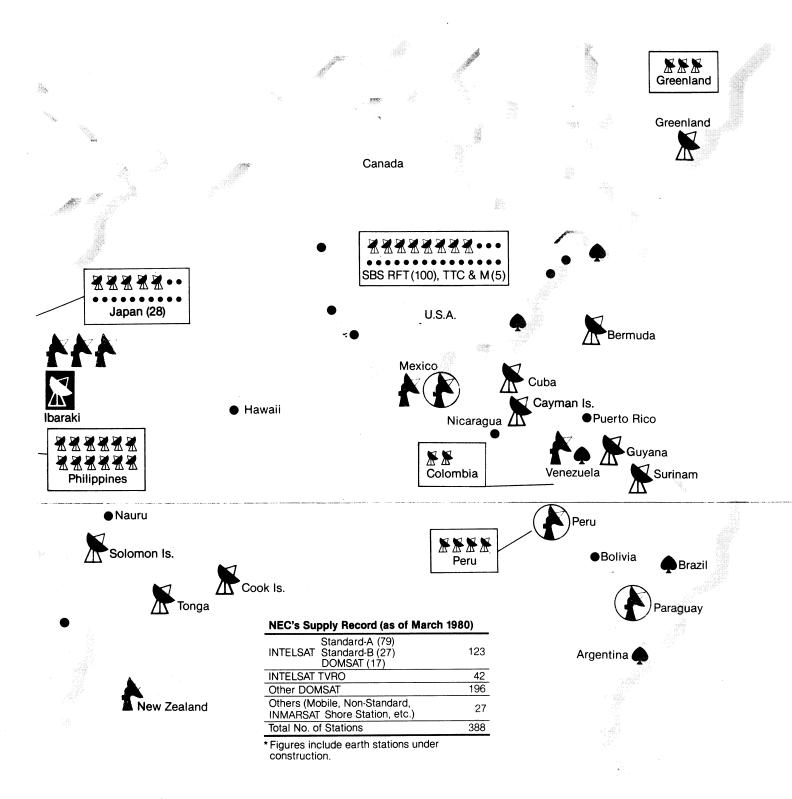
Market penetration

Data on the market penetration (by quantity) of imports of klystron and TWT HPA's having a power rating of 1 kW and above are presented in tables 8 and 9, respectively. As shown, imports from Japan occurred only in 19819, when

NEC's satellite communications installations, 1981



NEC's satellite communications installations, 1981--Continued



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Source: NEC Satellite Communications sales publication.

they accounted for * * * percent of apparent consumption of klystron HPA's and * * * percent of apparent consumption of TWT HPA's.

Table 8.--Certain amplifier assemblies compatible with klystron tubes having a power rating of 1 kW and above: U.S. producers' shipments, exports, imports for consumption, and apparent U.S. consumption, 1978-81

Type and year	Pro- ducers' shipments	Exports	: Imports : 1/:	Apparent con-sumption	:Ratio of : imports : to :apparent : con- :sumption
		U1	nits		: Percent
1-3 kW, Commerical:	:		•	:	:
1978	•	***	***	: ***	: **:
1979	•	***	***	: ***	: ***
1980	• """	***	***	: ***	: **
1981	: ***	***	***	: ***	* **
Above 3 kW, Commercial:	:		•	:	:
1978	•	***	***	: ***	: ***
1979	•	***	***	: ***	: **:
1980		***	***	: ***	: ***
1981	: ***	***	***	: ***	: ***
1-3 kW, Military:	: :	:	:	:	:
1978	•	***	***	: ***	: ***
1979	•	***	***	: ***	: ***
1980	•	***	***	: ***	* ***
1981	: *** :	***	***	: ***	. ***
Above 3 kW, Military:	:	:	•	:	•
1978	•	***	***	: ***	. ***
1979	: *** :	***	***	: ***	* ***
1980	: *** :	***	***	: ***	•
1981	: *** :	***	***	: ***	•
Total:	: :	•	!	•	•
1978	: ***:	***	***	. ***	• **
1979	: ***:	***	•	***	•
1980	: ***:	***	***	* ***	•
1981	: ***:	***	***	***	: ***
			,		

^{1/} All from Canada, except as noted.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Note.--All imports from Japan are shown in 1981, when * * * klystron HPA's were imported in fulfillment of COMSAT contract ESOC 1263. Such imports accounted for * * * percent of apparent consumption of 1-3-kW HPA's in the commercial market that year and * * * percent of total apparent consumption.

^{2/} Includes * * * HPA's from Japan.

Table 9.--Certain amplifier assemblies compatible with TWT's having a power rating of 1 kW and above: U.S. producers' shipments, exports, imports for consumption, and apparent U.S. consumption, 1978-81

Type and year	Pro- ducers' shipments	Exports	: : Imports : <u>1</u> / :	Apparent consumption	:Ratio of : imports : to :apparent :consump- : tion
1-3 kW, Commerical:		<u>U</u>	nits	:	: Percent
1978	: *** :	***	***	: ***	: ***
1979	•	***	***	: ***	: ***
1980	: *** ;	***	: ***	: ***	: ***
1981	: ***	***	***	: ***	: ***
Above 3 kW, Commercial:	: :		:	:	:
1978	•	***	: ***	: ***	: ***
1979	•	***	***	: ***	: ***
1980	•	***	: ***	: ***	: ***
1981	: *** :	***	: ***	: ***	: ***
1-3 kW, Military:	: :		:	:	:
1978	•	***	: ***	: ***	: ***
1979	•	***	: ***	: ***	: ***
1980	•	***	: ***	: ***	: ***
1981	: *** :	***	: ***	: ***	: ***
Above 3 kW, Military:	: :		:	:	:
1978	•	***	***	: ***	: ***
1979	: *** :	***	: ***	: ***	: ***
1980	: *** :	***	: ***	: ***	: ***
1981	: *** :	***	: ***	: ***	: ***
Total:	:		:	:	:
1978	: *** :	***	: ***	: ***	: ***
1979	: *** :	***	: ***	: ***	: ***
1980	: *** :	***	: ***	: ***	: ***
1981	: *** :	***	: ***	: ***	: ***
	<u> </u>		:	:	:

1/ All from Japan in fulfillment of COMSAT contract ESOC 1264.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The data presented in table 10 are, on a value basis, aggregate market penetration data for all HPA's subject to this investigation. As mentioned, imports from Japan occurred only in 1981 and in this year accounted for * * * percent of the value of apparent consumption.

Table 10.--Certain amplifier assemblies having a power rating of 1 kW and above: 1/ U.S. producers' shipments, exports, imports for consumption, and apparent U.S. consumption, 1978-81

Year	Pro- ducers' shipments	Exports	Imports			Apparent con-sumption	Ratio of imports to apparent consumption	
	· · · · · · · · · · · · · · · · · · ·		From Japan 000 do1	:	Total	: sumption :	From :	Total
	•		,000 001	·			Perc	ent
1978	***	***	***	:	***	* ***	***	* **
1979	***	***	***	:	***	***	***	
1980	***	***	***	:	***	: *** :	***	***
1981	***	***	***	:	***	: *** :	***	***
	:	:	•	:		: :		:

^{1/} Includes all HPA's shown in tables 8 and 9.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Imports of the subject klystron HPA's from Japan occurred only in 1981. In that year, such imports, accounted for * * * percent of total U.S. consumption of klystron HPA's on a value basis (table 11).

Table 11.--Certain amplifier assemblies compatible with klystron tubes having a power rating of 1 kW and above: U.S. producers' shipments, exports, imports for consumption, and apparent U.S. consumption, 1978-81

;	;		:		:	Ratio of		
	Pro-	·	Imp	orts	Apparent	imports to		
Year	ducers'	Exports	: •	٠	con-	apparent con-		
;	shipments	•	· <u> </u>		sumption	sumption		
:		:	: From	Total	: " :	From : Total		
		<u> </u>	: Japan	:	: :	Japan:		
•		<u>1,</u> (000 dolla	rs		Percent		
:	•	:	:	:	: :	:		
1978:	***	***	***	: ***	* *** :	*** : ***		
1979:	***	***	***	: ***	: *** :	*** : ***		
1980	***	***	***	: ***	: ***:	***		
1981	***	***	: ***	: ***	: *** :	***		
:	:	:	:	:	: :	:		

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Market penetration on a value basis for imports from Japan of TWT HPA's subject to this investigation is much more significant, as shown in table 12. Again, imports occurred only in 1981, when * * * units were imported by NECAM. On a value basis, these imports accounted for * * * percent of apparent U.S. consumption.

Table 12.—Certain amplifier assemblies compatible with TWT's having a power rating of 1 kW and above: U.S. producers' shipments, exports, imports for consumption, and apparent U.S. consumption, 1978-81

Year	Pro- ducers' shipments	Exports		por	ts	Apparent con-	Ratio impor apparer sumpt	ts to
		: 	From Japan	:	Total		From : Japan :	Total
		1,	,000 do1	lar	's	:	Perc	ent
1978	***	***	***	:	***	: *** :	***	***
1979	***	***		•	***	•	***	***
1980	***	***	***	•	***	•	***	
1701	***	***	***	:	***	: *** : : :	***	***

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Prices

HPA's are marketed by a competitive bidding process. Both end users and firms which offer turnkey stations will solicit bids from vendors when they have HPA requirements. After receiving the bids, the purchaser will choose one or two vendors and begin negotiations for a contract. Price, quality, and delivery date are usually important considerations in the selection of a vendor.

According to domestic industry sources, the market for HPA's and related equipment used in satellite communications differs from many markets in that the bids are first examined for their ability to meet the technical requirements of the contract. Next, ability to meet delivery schedules is considered, and only after these two criteria are met will final negotiations begin on the prices of the best qualified bidders. Thus, prices are an important final consideration. It should be noted that at the final negotiation stage, changes in equipment specifications can occur as purchaser and vendor more closely scrutinize the intended use of the HPA. It is not unusual for the final negotiated price to differ from the original bid price by 10 percent or more. It is, therefore, difficult to make price comparisons of seemingly comparable bids because of significant differences in design, features, and so forth.

It is also difficult to compare HPA's on a one-to-one basis since there are no "off-the-shelf" units. HPA's are purchased for diverse needs requiring special features, which often result in variations in cost. A "basic" 3-kW klystron HPA may be listed at about \$36,000, but with additional equipment (tube, linearizer, IPA, and so forth), may cost as much as \$74,000.

The Commission requested data from domestic producers, purchasers, and the sole importer on contract bids covering the period from January 1979A-26 December 1981. The data requested included the contract number, type of

amplifier, power rating, number of units, bids received, winning bids, and the date of contract. Responses were received from four domestic producers, eight purchasers, and the importer. Bid information on the COMSAT contracts is presented in table 13.

Table 13.--Certain amplifier assemblies and parts thereof: Bids tendered and won for COMSAT contracts ESOC 1263 and 1264, 1980

	: Bids ten			:	Margin	of
	responsi	ve company		:	under	selling
COMSAT	•	Final	Winning	:	by NI	ECAM
contract No. and bidding firm	: Original : bid :	negoti- ated bid	bid	: :	חומ	Final negoti-
ESOC 1263: 1/		1,000 dollai	's	:	Perc	ent
	:	:	:	:		:
Domestic producers:	•	:	:	:	;	;
Aydin	-	***	***	:	***	**
MCL	•	***	***	:	***	**
Varian	: ***	***	***	:	***	**
Importer:	:	:	:	:		
NECAM	: ***	***	***	:	***	**
7700 1064 04	:	:	:	:	:	
ESOC 1264: <u>2/</u>	:	:	}	:	:	
Domestic producers:	:	:	:	:	:	
Aydin		***	***	:	***	**
MCL	: 4/ ***	***	***	•	***	**
Varian	: 5 / ***	***	***	:	***	**
Importer:				:		~ ~
NECAM	: ***	***	***	:	***	**
1/ Contract for 0 2 lys	:	:		:	•	

^{1/} Contract for 9 3-kW klystron HPA's.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

* * *. In 1980, three domestic producers and NECAM bid on the two COMSAT contracts, ESOC 1263 and ESOC 1264, that were the subjects of the petitioners' complaint. Contract ESOC 1263 was for the design, fabrication, testing, and delivery of nine 3-kW klystron HPA's. Contract ESOC 1264 specified design, fabrication, testing, and delivery of 20 3-kW TWT HPA's. NECAM was awarded both contracts; its bids were from * * * to * * * percent below those tendered by the U.S. producers. * * *.

Only one domestic producer, * * *, submitted a comprehensive bid meeting all the specifications of COMSAT contract ESOC 1264, offering to supply 20 3-kW TWT HPA's for * * *. This offer was underbid by * * * percent by NECAM, which offered to supply the 20 TWT HPA's for * * *. * * *.

 $[\]overline{2}$ / Contract for 20 3-kW TWT HPA's.

 $[\]overline{3}$ / Price included transportation to the site.

 $[\]overline{4}$ / Price does not include transportation.

 $[\]overline{5}/$ Bid considered not competitive due to exclusion of requested items.

Price suppression in the domestic market

Aydin reported the information shown in table 14 as evidence of price suppression in the 3-kW klystron HPA 1/ market as a result of the LTFV sales by NECAM from a contract awarded in 1980. In each of the cited contracts, the equipment offered by competing bidders was considered technically comparable; thus, price allegedly became the determining factor in the award of the contracts. Aydin could only provide estimates for the winning bids, which were * * * below the figure Aydin quoted to the respective vendors.

Table 14:	Certain	amplifier	assemblies and parts	thereof: Bids
			3-kW klystron HPA's,	

Purchasers :	Contract date	: :	Number of units	:	Aydin's bid	:	Winning bidder	: Unit value : of Aydin's : bid
:		:		:	1,000	:		: 1,000
:		:		:	dollars	:		: dollars
Mitsubishi:	Octobor	:	6	:	***	:		:
incouplant :	1980	•	0	•	***	:	***	: ***
COMSAT:		•	9	•	***	•	***	: ***
:	1980	:	,	:		:		•
Harris:	May 1981	:	19	:	***	:	***	· : ***
American :	_	:		:		:		:
Satellite:	July 1981	:	11	:	***	:	***	: ***
Scientific :		:		:		:		:
Atlanta:			50	:	***	:	***	: ***
RCA Am:	•	:	10	:	***	:	***	: ***
Caballita .	1981	:		:		:		:
Satellite :		:		:		:		:
trans- : mission :		:		:		:		:
Systems:	November	•	20	•	***	:	***	
узсеща	1981	•	20	•	***	:	***	***
:	1,01	:		:		•		•

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

The unit value of Aydin's bids showed a general downward trend from the amount proffered prior to the COMSAT contract in late 1980 to a bid tendered in late 1981. Aydin's bid dropped during this period * * *. MCL and Varian reported similar instances of price suppression in the Commission's public hearing and to the Commission staff. 2/

^{1/} This was the only HPA subject to the investigation for which the domestic producers reported instances of price suppression. These HPA's accounted for * * * percent of total domestic shipments on a value basis.

2/ Transcript of the hearing, p. 90.

Lost sales

Three of the U.S. producers of HPA's which responded to the Commission's questionnaire cited COMSAT contracts ESOC 1263 and 1264 as instances of lost sales because of imports from Japan. Representatives of COMSAT were contacted by the Commission concerning these lost sales allegations, to which COMSAT has replied in writing. 1/

Effect of LTFV sales on the U.S. market

The Commission asked questionnaire respondents to detail the potential negative effects, if any, of imports from Japan on their U.S. production of HPA's. A summary of the responses of U.S. manufacturers is presented below.

Aydin Microwave Division: * * *

MCL: * * *.

Varian Associates: * * *.

Comtech Telecommunications: * * *.

APPENDIX A

U.S. INTERNATIONAL TRADE COMMISSION NOTICES OF INVESTIGATION

Federal Register / Vol. 47, No. 13 / Wednesday, January 20, 1982 / Notices

INTERNATIONAL TRADE COMMISSION

[Investigation No. 731-TA-48 (Final)]

Certain Amplifier Assemblies and Parts Thereof From Japan

AGENCY: International Trade Commission.

ACTION: Institution of final antidumping investigation.

SUMMARY: As a result of a preliminary determination by the United States Department of Commerce that there is a reasonable basis to believe or suspect that exports of high power microwave amplifiers and components thereof from Japan are being sold in the United States at less than fair value (LTFV) within the meaning of section 731 of the Tariff Act of 1930, as amended (the Act), the United States International Trade Commission hereby gives notice of the institution of investigation No. 731-TA-48 (Final) to determine whether an industry in the United States is materially injured, or is threatened with material injury, or the establishment of an industry in the United States is materially retarded by reason of imports of such merchandise. For purposes of this investigation, high power microwave amplifiers are radiofrequency power amplifier assemblies and components thereof, specifically designed for uplink transmission in the C, X, and Ku bands from fixed earth stations to communication satellites and having a power output of one kilowatt or more. These articles are currently classified under item 685.29 of the Tariff Schedules of the United States. This investigation will be conducted according to the provisions of part 207, subpart Č, of the Commission's Rules of Practice and Procedure (19 CFR, Part 207, 44 F.R. 76458).

FOR FURTHER INFORMATION CONTACT: Mr. Stephen Miller, Office of Investigations, U.S. International Trade Commission, Room 337, 701 E Street NW., Washington, DC 20436, telephone 202–523–0305.

SUPPLEMENTARY INFORMATION: On September 16, 1981, the Commission unenimously determined, on the basis of the information developed during the course of investigation No. 731–TA-48 (Preliminary), that there is a reasonable indication that an industry in the United States is threatened with material injury by reason of imports from Japan of certain amplifier assemblies and parts

thereof, which are alleged to be sold in the United States at LTFV. As a result of the Commission's affirmative preliminary determination, the Department of Commerce continued its investigation into the question of LTFV sales. Unless the investigation is extended, the final LTFV determination will be made by the Department of Commerce on or before March 9, 1982.

Staff report. A staff report containing preliminary findings of fact will be available to all interested parties on February 22, 1982.

Written submissions. Any person may submit to the Commission on or before March 26, 1982, a written statement of information pertinent to the subject matter of this investigation. A signed original and nineteen copies of such a statement must be filed at the office of the Secretary, U.S. International Trade Commission Building, 701 E Street NW., Washington, DC 20436.

Any business information which a submitter desires the Commission to treat as confidential shall be submitted separately and each sheet must be clearly marked at the top "Confidential Business Data." Confidential submissions must conform with the requirements of 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business data, will be available for public inspection.

Public hearing. The Commission will hold a public hearing in connection with. this investigation on March 16, 1982, in the Hearing Room of the U.S. International Trade Commission Building, 701 E Street NW., Washington. DC 20436. beginning at 10:00 a.m., e.s.t. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission not later than the close of business (5:15 p.m., e.s.t.) March 10, 1982. All persons desiring to appear at the hearing and make oral presentations must file prehearing statements and should attend a prehearing conference to be held at 11:00 a.m., e.s.t., March 1, 1982, in Room 117 at the U.S. International Trade Commission Building. Prehearing statements must be filed on or before March 10, 1982. For further information concerning the conduct of the investigation, hearing procedures, and rules of general applications, consult the Commission's Rules of Practice and Procedure, Part 207, subparts A and C (CFR 207), and Parts 201, subparts A through E (19 CFR

This notice is published pursuant to § 207.20 of the Commission's Rules of Practice and Procedure (19 CFR 207.20, 44 FR 76458).

By order of the Commission. Kenneth R. Mason.

Secretary.

Issued: January 13, 1982. [FR Doc. 82-1311 Filed 1-19-82: 8:45 am] BILLING CODE 7020-02-M

INTERNATIONAL TRADE COMMISSION

[Investigation No. 731-TA-48]

Certain Amplifier Assemblies and Parts Thereof From Japan

AGENCY: International Trade Commission.

ACTION: Change of Date of Public Hearing.

SUMMARY: Notice is hereby given that the public hearing to be held in connection with United States International Trade Commission investigation No. 731-TA-48 (Final), certain amplifier assemblies and parts thereof from Japan, will begin at 10:00 a.m., Thursday, May 20, 1982, in the Commission's Hearing Room, U.S. International Trade Commission Building, 701 E Street, NW., Washington, D.C. A hearing date of March 16, 1982, had previously been announced in the Commission's notice of institution of investigation as published in the Federal Register of January 20, 1982 (46 FR 2946). Requests to appear at the hearing should be filed in writing with the Secretary to the Commission not later than the close of business (5:15 p.m.) April 29, 1982. All persons desiring to appear at the hearing and make oral presentations must file prehearing statements and should attend a prehearing conference to be held at 10:00 a.m., e.d.t., on May 3, 1982, in Room 117 of the U.S. International Trade Commission Building. Prehearing statements must be filed on or before May 14, 1982. The Commission's final action, notification of the Department of Commerce, is similarly postponed until July 1, 1982. These changes are made pursuant to the Department of Commerce's granting of an extension of time to the exporter involved in this investigation (see 47 FR

For further information concerning the conduct of the investigation, hearing procedures, and rules of general application, consult the Commission's rules of practice and procedure, Part 207, subparts A and C (19 CFR Part 207), and Part 201, subparts A through E (19 CFR Part 201).

Issued: February 1, 1982.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FR Doc. 82–2915 Filed 2–3–82; 8:45 am] BILLING CODE 7020–02–M

APPENDIX B

U.S. DEPARTMENT OF COMMERCE NOTICE OF FINAL LTFV DETERMINATION

High Power Microwave Amplifiers and Components Thereof From Japan

AGENCY: International Trade Administration, Commerce.

ACTION: Notice of Final Determination of Sales at Less Than Fair Value.

SUMMARY: We have determined that radio-frequency power amplifier assemblies and components thereof ("HPA's") specifically designed for uplink transmission in the C, X and Ku bands from fixed earth stations to communications satellites and having a power output on one kilowatt or more are being, or are likely to be, sold in the United States at less than fair value. The U.S. International Trade Commission ("ITC") will determine within 45 days of the publication of this notice whether these imports are materially injuring, or threatening to materially injure, a U.S. industry.

EFFECTIVE DATE: May 21, 1982.

FOR FURTHER INFORMATION CONTACT: Steven Morrison, Office of Investigations, Import Administration, U.S. Department of Commerce, 14th Street and Constitution Avenue, NW., Washington, D.C. 20230 (202) 377–3965.

SUPPLEMENTARY INFORMATION:

Case History

On July 24, 1981, we received a petition in proper form from Aydin Corporation, Ft. Washington, Pennsylvania. MCL, Inc., of LaGrange, Illinois subsequently requested and was granted co-petitioner status. The petition alledged that HPA's from Japan were being sold in the United States at less then fair value and that such sales were materially injuring a U.S. industry. To support its allegations of less than fair value sales, the petitioner compared the purchase price of the goods in question with a value constructed from petitioner's costs. The petitioner also claimed that this case presented "critical circumstances" (19 U.S.C.

After reviewing the petition, we determined it contained sufficient grounds to initiate an antidumping investigation. Therefore, we notified the U.S. International Trade Commission of our action and on August 17, 1981, we announced the initiation (46 FR 41542) and served the Nippon Electric Company, Ltd. ("NEC Ltd.") with a questionnaire in Tokyo on the same day. On September 16, 1981, the ITC published its preliminary finding that there was a reasonable indication that an industry in the United States was threatened with material injury by imports of HPA's from Japan (46 FR 46021).

Although the response was due on September 17, 1982, the respondent requested and received extensions of time to respond. The response was received on October 9, 1981. We conducted a verification of this response in the beginning of November, 1981. It revealed substantial variation in parts and materials costs from the data in the response to the Department of Commerce's questionnaire. Labor hours were not verified because they were estimates and NEC Ltd. could not support them by company records associated with the HPA's under investigation. (Since production had not been completed at the time that the original response was due, it was based on cost estimates by NEC Ltd.) At this first verification we requested revised submissions of parts and materials costs for both the Klystron and Traveling Wave Tube ("TWT") HPA's. On December 1, 1981, NEC Ltd. submitted a revised response on parts and materials costs for the TWT HPA's, but refused to supply a revision for the Klystron HPA's as we had requested.

On December 24, 1981, we preliminarily determined that HPA's from Japan are being sold in the United States at less then fair value and a notice of this determination was published on December 31, 1981 (46 FR 63364). In that determination we relied on the December 1, 1981 submission for TWT parts and materials, and the estimated labor hours from that response for both the TWT and Kystron HPA's

In the preliminary determination we stated that the petitioner had not alleged all the facts that were necessary to support a finding of critical circumstances according to the statute (19 U.S.C. 1673b), nor did it submit evidence pertaining to the omission. We therefore determined that critical circumstances did not exist. No new information has been submitted which would factually support a different determination on this matter.

On January 8, 1982 we sent NEC America, Inc. ("NECAM") a questionnaire. NECAM is a whollyowned subsidiary of NEC Ltd. They submitted a response on January 27, 1982. A verification was conducted in March, 1982 at both NECAM's corporate headquarters division in Melville, N.Y., and at the division in Fairfax, Virginia, which was directly responsible for the sale and liaison of the merchandise which is the subject of this investigation. NECAM submitted an amended response dated March 17, 1982, which changed estimated data in its original response to reflect actual cost experience in the intervening time.

A second verification of NEC Ltd. was conducted in March 1982, after the Department of Commerce had issued its preliminary determination. During this verification the Department discovered that the information submitted by NEC Ltd. varied greatly from the financial date in the company records. Information relied on in this final determination is based on the verified data from NEC Ltd.,'s records and not on NEC Ltd.'s submitted data. The labor hours supplied by NEC Ltd. were estimated and these estimates could not be verified from company records. Therefore, the Department has used the best information otherwise available which in this case is the verified information with the exception of the number of labor hours for assembly. With respect to assembly labor hours. the Department used the petitioner's labor hour estimates and adjusted for extra testing procedures and design costs.

The respondent submitted a request for postponement of the public hearing and for extension of time for the final determination. In a Federal Register notice dated January 25, 1982 (47 FR 3393), we postponed the public hearing until April 7, 1982, and the final determination until May 17, 1982.

Scope of Investigation

For purposes of this investigation, HPA's are radio-frequency power amplifier assemblies and components thereof specifically designed for uplink transmission in the C, X, and Ku bands from fixed earth stations to communication satellites and having a power output of one kilowatt or more. HPA's may be imported in subassembly form, as complete amplifiers, or as a component of higher level assemblies (generally earth stations). They are currently classified under item 685.29 of the Tariff Schedules of the United States.

Since NEC Ltd. is the only known manufacturer of all the HPA's that were exported from Japan to the United States during the period of investigation, we limited our investigation to that company. There were two distinct types of HPA's exported to the United States during the period: Klystron amplifiers, which include a Klystron output tube; and TWT amplifiers, which include a traveling wave output tube.

The period of this investigation of the HPA's sold by NEC Ltd. and NECAM in the period March 1, 1981 through August 31, 1981. These were manufactured, tested and delivered in the period March through December, 1981. These consisted of 9 Klystron

HPA's and 20 TWT HPA's sold to the Communications Satellite Corporation ("Comsat") under contracts ESOC-1263 and ESOC-1264 respectively.

Methodology for Fair Value Comparison

In making fair value comparisons, we compared United States price with foreign market value.

U.S. Price

To determine the United States price of the merchandise, we used purchase price, as defined in section 772(b) of the Tariff Act of 1930, as amended ("the Act"), because the merchandise was sold to an unrelated U.S. customer at a price agreed upon before it was imported into the United States. Adjustments were made by deducting charges specified under section 772(d) of the Act. These included the following expenses incurred in Japan: inland freight, airport usage, handling, airport storage, and cartage. Deductions for expenses of importation of this merchandise into the United States were made for storage, handling and related items incorporated into U.S. broker charges and U.S. inland freight.

Foreign Market Value

To arrive at the foreign market value of the merchandise, we used constructed value, as defined in section 773(e) of the Act, because there were no sales of HPA's in the home market or to third countries.

We constructed the foreign market value of HPA's by adding the material and fabrication costs, the normal general expenses of the manufacturer (which exceeded the statutory minimum), the proportional direct and general expenses of NECAM, which sold the HPA's under investigation (and other products) in the United States. letter of credit commissions and fees for discounting these letters of credit for advance payment, the statutory profit of 8% of the foreign market value except for packing, and the cost of packing. The fabrication costs were a composite of . data from the best information available, including the data in the petition, where applicable.

Finding of Less Than Fair Value Sales

Based on a comparison of purchase price to constructed value of both the Klystron HPA's and the TWT HPA's, we have found less than fair value margins for both products. The margins are:

25.4% TWT high power amplifiers.41.4% Klystron high power amplifiers.

41.4% For parts of high power amplifiers unless such parts are dedicated exclusively for use in

TWT high power amplifiers in which case the margin is 25.4%.

Since many parts of Klystron HPA's are interchangeable with TWT HPA's, the security deposit for HPA parts shall be the same as for Klystron HPA's, unless the importer can demonstrate that the parts are dedicated solely for use in TWT HPA's.

Issues

Major issues in this investigation are presented below.

Petitioner's Statement of Issues

Issue: Petitioner requests that an adjustment be made for license fees to be assessed under a technical know-how agreement between NEC Ltd., and a U.S. manufacturer, not a party to these proceedings, pertaining to certain Klystrons and TWT tubes.

DOC position: We confirmed the existence of such an agreement during verification. NEC Ltd. states that the tubes used in the Comsat contract did not come under the technical know-how agreement. NEC Ltd. stated that no royalties were due under the licensing agreement and that none would be paid for the tubes used in the Comsat HPA's. We called the U.S. manufacturer (licensor) and it confirmed that no royalties were due for the tubes used by NEC Ltd. for the Comsat HPA's. Therefore, we made no adjustment for the petitioner's claim for license fees.

Respondents' Statement of Issues

Issue: The respondent asserted that the expense incurred by NEC Ltd. for immediate payment of money sent to it from NECAM via a letter of credit with delayed payment terms was simply a short term method of financing its U.S. operations by the parent company, and therefore the Department should not add this expense to foreign market value of the HPA's. It said that there was not basis for treating these transactions differently than any other short term financing arrangement. It also argued that if the Department did add the letter of credit expense to the constructed value it should also subtract all interest expenses from the G. S & A calculation (to avoid double counting the same expense).

DOC position: The internal transfer of funds to NEC Ltd. was made by letter of credit and telegraphic transfer of funds. Such transfers were specifically required by the purchase order between NECAM and NEC Ltd. for Comsat contracts ESOC 1263 and ESOC 1264. These transfers of funds are not a general financing of the U.S. subsidiary. They are a specific arrangement directly applicable to the financing of the sale of

the specific merchandise which is the subject of this investigation.

NEC Ltd. did not establish the magnitude of the impact that such letter of credit interest charges had on G, S & A, if any. They did not document that such charges were included in their G, S & A. During the second verification of NEC Ltd. in March, 1982 financial information for the October through December, 1981 quarter was requested. NEC Ltd. did not provide it. Most of the expense for discounting these letters of credit associated with the Comsat contracts occurred during this quarter. Since NEC Ltd. has failed to establish to what extent, if any, the letter of credit interest charges are included in G, S & A, the Department has not made any adjustment to G, S & A for these interest charges even though it has added them to the foreign market value as a circumstance of sale adjustment.

Issue: The respondent asserted that the Department of Commerce erred in the calculation methodology for G, S & A expenses of NEC in the preliminary determination.

DOC position: In its original response, NEC Ltd. calculated its G, S & A expense as a percentage of "cost of sales". The Act. (19 U.S.C. 1677b(e)), indicates that G, S & A calculations should be expressed as a percentage of materials and fabrication or processing costs. At the time that the preliminary determination was made, we understood the term "cost of sales" as used by NEC Ltd. in its response to the Department's questionnaire to mean materials. fabrication and G, S & A. If this were the situation, then the G, S & A calculated by NEC Ltd. would have been understated. Based on an affidavit with supporting documentation and information obtained during the second verification of NEC Ltd., it has been determined that the term "cost of sales" as used by NEC Ltd. in the original response, did not include its G, S & A. Therefore, the calcuation of G, S & A has been revised as suggested by respondent.

Issue: The respondent argues that the G, S & A expense of one of seven groups within a division of NECAM was primarily responsible for all aspects of the Comsat contracts in the United States and that such expense should be apportioned over the division's entire sales in determining the total G, S & A as a percentage of sales should to the Comsat contracts.

DOC position: In its response to the Department's questionnaire, NECAM proposed that the contribution of the Radio and Transmission (R&T) division to NECAM's G, S & A be based on the

ratio of the R&T division's Administrative Group expenses divided by all of R&T division's sales. The Administrative Group is the one group (of seven) in the R&T division which markets and performs services for NEC Ltd. on the products under investigation. The Department's view is that it would not be a proper allocation method to use only Administrative Group expenses; rather they should be apportioned on the basis of expenses of the R&T Division. The entire R&T division had G, S & A expenses in connection with most of these sales, not included in the Administrative Group's expense. The Department has made its proration based on comparing expenses and sales from the same unit, namely the G, S & A expense of the entire R&T division. divided by the sales of the entire R&T division.

Issue: Respondent argues that the overall G, S & A expenses of NECAM's Headquarters division should not be allocated as overhead costs to the products under investigation. They state that the only involvement of NECAM's Headquarters in the sale of products under investigation are in terms of arranging shipping documentation and letters of credit. Respondent claims that the Department should prorate the time and related expenses of personnel involved in these activities to allocate G, S & A expenses of NECAM.

Alternatively, the respondent argues that the Department should use their internally formulated management fee for the NECAM G, S & A calculation. Their management fee is principally based on the amount of interest expenses incurred and the number of employees directly working on a contract.

DOC position: NECAM's expenses for operating in the United States include establishing policies, facilities, providing centralized functions such as accounting and financing, and general coordination with the parent company in Japan. In addition, the Headquarters division arranged for shipping and documentation distributions for the Comsat contracts.

We determined that the management fee by which the Headquarters division taxes its operating divisions is weighted to tax this expense based on outstanding interest expenses and the number of people involved in the activity. The Comsat merchandise was not subjected to this interest expense and had few people directly working on it. We have determined that a more reasonable method of allocating the cost of operating NECAM through its headquarters should be based on the value of the transactions which benefit

from this supervisory control. Therefore, we calculated G, S & A for Headquarters division as a percentage of total NECAM sales.

Issue: The respondent claims that commissions and service revenues should be added to total sales in apportioning NECAM Headquarters G, S & A expense.

DOC position: The proposed adjustment has no measureable effect on the dumping margins calculated, unless such margins are computed to two more decimal places of accuracy. We determined that we will not consider such as adjustment under section 773(f) of the Act, which allows us to disregard insignificant adjustments.

Issue: The respondent claims a conversion rate should be used other than the one used by the Department in its preliminary determination in calculating foreign market value. The respondent argued that the Department's regulations require such as adjustment under 19 CFR 353.56(b). That rule states in part: "Where prices under consideration are affected by temporary exchange rate fluctuations, no differences between prices being compared resulting solely from such exchange rate fluctuations will be taken into consideration."

DOC position: Based upon examination of the exchange rate data, we have determined that there were no temporary exchange rate fluctuations around the date of sale. Our selection of the date of contract to determine the rate of exchange is required by DOC's regulations. The rate of exchange used, as required by 19 CFR 353.56(a), is based on the date of sale (1 Yen = \$.004938).

Issue: The respondent has argued that a discount allowed for the Klystron HPA contract price should not be substracted entirely from the U.S. price for the equipment.

DOC position: During the first verification, it was determined that during final negotiations of the two contracts, NEC Ltd. granted a discount to Comsat which was entirely subtracted from the contract line price for "documentation" in the Klystron HPA contract. The discount was described as being based on the fact that NEC Ltd. was also awarded the TWT contract. For purposes of our calculation the discount was applied to the Klystron equipment price since there would have been no contract without the purchase of the equipment.

Issue: Respondent maintains that the price comparisons should include testing costs in addition to equipment costs.

DOC position: Based on verified representations by respondent, it was

determined that equipment and testing costs were combined and not able to be segregated on the books and financial records of NEC Ltd. Therefore, we added contract line items for equipment and for testing when calculating the U.S. price to make it comparable to the respondent's financial data used in determining foreign market value.

Issue: Respondent alleges that it is improper to subtract U.S. freight and U.S. broker charges from the line items for equipment.

DOC position: During the investigation, it was determined that the United States price for equipment included inland freight and charges relating to processing, handling and storage which constitute the brokerage fees. These charges were subtracted from the U.S. Price for equipment and testing as required by 19 U.S.C. 1677a to determine an ex factory comparison to the constructed value. The items indicated above, which were incorporated into the calcualtion of U.S. price, are not part of the separate contract line items for duty or intercontinental air freight in the two Comsat contracts. The determination of U.S. price is not adjusted for U.S. duty or intercontinental air freight.

Issue: Respondent alleges that the Klystron HPA packing costs were correctly stated in its questionnaire response. They argue that the verification report indicates that the packing costs as indicated in the response are reasonable and that no adjustment is warranted.

DOC position: NEC Ltd.'s response to the Department's questionnaire contained estimated packing costs for the Klystron and TWT HPA's in yen. The conversion from yen to dollars was miscalculated in the preliminary determination, but only for the Klystron HPA's. Although the same amounts in yen were used in both determinations. the dollar amount, after converting the currency, is higher in this final determination. The only change to packing costs from those used in the preliminary determination is to correctly calculate the dollar value of packing costs with respect to Klystron HPA's using the respondent's estimated costs in ven.

Verification

In accordance with section 776(a) of the Act, we verified the information A-36 used in making this determination. In a few instances the best information available was used for items which could not be verified from company books and records. We were granted access to the books and records of the foreign manufacturer. However the respondent, after the first verification, temporarily refused to give the Department custody of copies of records which we requested. We used standard verification procedures, including onsite inspection of the manufacturers' operations and examination of accounting records and randomly selected documents containing relevant information.

Final Determination

Based on our investigation and in accordance with section 735(a) of the Act, we have reached a final determination that HPA's from Japan are being, or are likely to be, sold in the United States at less than fair value within the meaning of section 731 of the Act.

Continuation of Suspension of Liquidation

The liquidation of all entries, or withdrawals from warehouse, for consumption of this merchandise will continue to be suspended. The U.S. Customs Service will continue to require posting of a cash deposit, bond, or other security in the amounts listed below, expressed as a percentage of the F.O.B. value of the high power microwave amplifiers from Japan for transmission in the C, X, or Ku bands as follows:

25.4% TWT high power amplifiers.
41.4% Klystron high power
amplifiers.

41.4% for parts of high power amplifiers unless such parts are dedicated exclusively for use in TWT high power amplifiers, in which case the rate is 25.4%

ITC Notification

We are notifying the ITC and making available to it all non-privileged and nonconfidential information relating to this investigation. We will allow the ITC access to all privileged and confidential information in our files, provided it confirms that it will not disclose such information, either publicly or under an administrative protective order, without the written consent of the Deputy Assistant Secretary for Import Administration. If the ITC determines that material injury or threat of material injury does not exist, this proceeding will be terminated and all securities posted as a result of the suspension of liquidation will be refunded or cancelled. If, however, the ITC determines that such injury does exist, we will isssue an antidumping order, directing Customs officers to assess an antidumping duty on all HPA's from Japan entered, or withdrawn from warehouse, for consumptrion after the

suspension of liquidation, equal to the amount by which the foreign market value of the merchandise exceeds the United States price. This determination is being published pursuant to section 735(d) of the Act (19 U.S.C. 1673d(d)). Gary N. Horlick,

Acting Assistant Secretary for Trade Administration.

May 17, 1982. [FR Doc. 82-14913 Filed 5-20-82; 845 am] BILLING CODE 3516-25-85

APPENDIX C

WITNESSES AT THE COMMISSION'S HEARING

CALENDAR OF PUBLIC HEARING

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject

: Certain Amplifier Assemblies and Parts

Thereof from Japan

Inv. No.

: 731-TA-48 (Final)

Date and time: May 20, 1982 - 10:00 a.m., e.d.t.

Sessions were held in connection with the investigation in the Hearing Room of the United States International Trade Commission, 701 E Street, N.W., in Washington.

In support of the petition:

Brownstein, Zeidman and Schomer--Counsel Washington, D.C. on behalf of

Aydin Corporation and MCL, Inc.

Robert Morgan, President, MCL, Inc.

Robert Moyes, President, Aydin Microwave Division, Aydin Corporation

Edward M. Kaitz, Economic Consultant

David M.F. Lambert) - OF COUNSEL Keith L. Baker

In opposition to the petition:

Coudert Brothers--Counsel Washington, D.C.
on behalf of

Nippon Electric Company, Ltd. and NEC America, Inc.

Arthur D. Little, Inc., Cambridge, Massachusetts

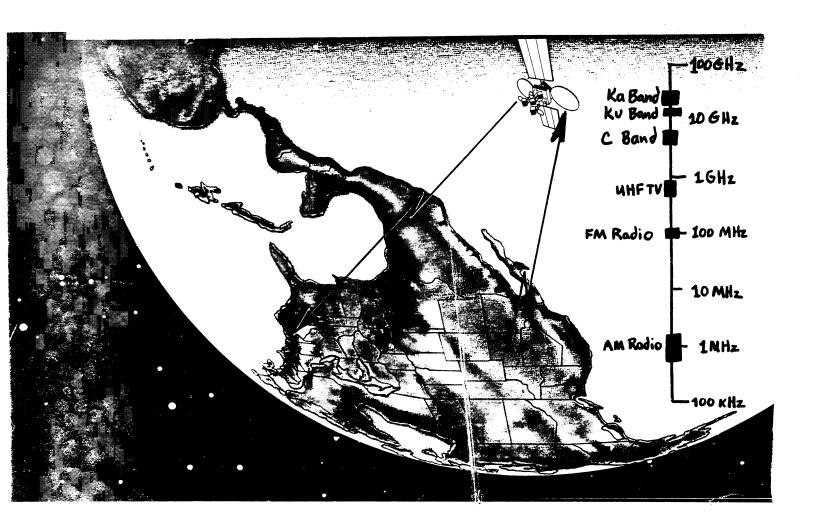
Harvey L. Pastan

Samuel J. Mehlman

Milo G. Coerper)
James R. Breckenridge)--OF COUNSEL
Jeffrey Leow)

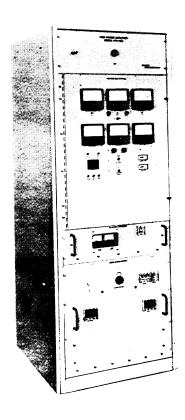
APPENDIX D TECHNICAL ILLUSTRATIONS

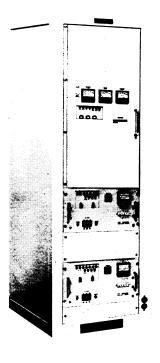
Figure D-1: Frequency bands.



Source: NASA Publication: "30/20 GHZ, Satellite Communications Program," October, 1980.

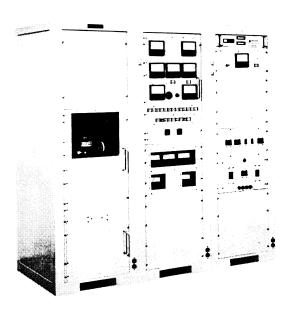
Figure D-2: Various high-power amplifiers (domestically produced).





3-kW klystron HPA for use in the C band, manufactured by Comtech.

1 kW TWT HPA for use in the C band, manufactured by Aydin.

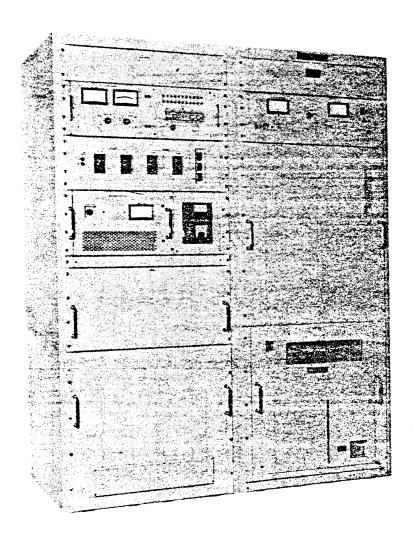


A-45

 $3-kW\ TWT\ HPA$ for use in the C band, manufactured by Aydin.

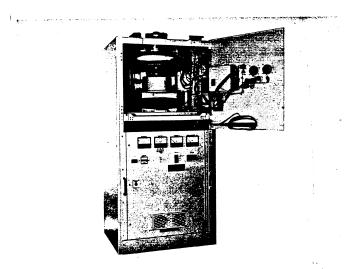
Sources: Aydin and Comtech sales brochures.

Figure D-3: 3-kW TWT HPA manufactured by NEC for use in the C band.

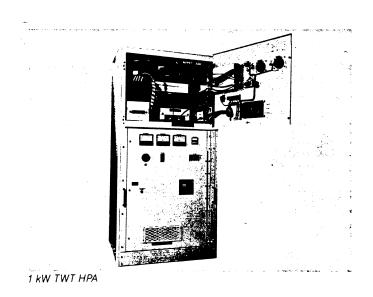


Source: NEC sales brochure.

Figure D-4: HPA's manufactured by NEC.







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APPENDIX E

LETTER TO THE COMMISSION FROM COMSAT



Lawrence M. DeVore Vice President and General Counsel

August 27, 1981

Mr. Kenneth R. Mason, Secretary U.S. International Trade Commission 701 E. Street, N.W. Washington, D.C.

Attention: Pat McGrath

Re: COMSAT Contracts ESOC-1263 and 1264

Dear Mr. Mason:

Communications Satellite Corporation (COMSAT) is in receipt of your August 20, 1981 letter to Mr. William Berman concerning COMSAT's Contracts ESOC-1263 and 1264. Inasmuch as these contracts involve the procurement of equipment by the World Systems Division of COMSAT, I have been asked by Mr. Berman to respond to your letter.

It is my understanding that your office is currently conducting an investigation under Section 731 of the Trade Agreements Act of 1979 to determine if a U.S. industry is materially injured or threatened with material injury by reason of imports of certain amplifier assemblies from Japan that are allegedly being sold at less than fair value. You have asked that COMSAT provide you with information regarding the factors which were considered by COMSAT in making its decision to purchase the Japanese amplifier assemblies, including whether price or other factors were of prime consideration. In order to assist the Commission in its investigation, the following background facts are provided.

COMSAT was created by an act of Congress (Communications Satellite Act of 1962, as amended, 47 USC Section 701

et. seq. ["the Act"]) and was designated as the U.S. representative for participation in the International Telecommunications Satellite Organization ("INTELSAT").

COMSAT's procurement activities are subject to and governed by the Communications Satellite Procurement Regulations (47 CFR 25.151) which were promulgated by the Federal Communications Commission (FCC) pursuant to Section. 401 of the Act. As a common carrier, COMSAT's rates are subject to review by the FCC. The rates COMSAT charges for its services are reflective of its costs. As a result, cost, schedule and technical acceptability are major factors in COMSAT's procurement evaluations.

The FCC Procurement Regulations, a copy of which is enclosed, are designed to insure effective competition in the procurement by the Corporation of apparatus, equipment, and services required for the establishment and operation of the communications satellite system and satellite terminal stations. Consistent with these Regulations, COMSAT does not discriminate between suppliers, foreign or domestic, except that pursuant to Section 25.176 of the Procurement Regulations, special consideration is to be afforded small business concerns.

Under Section 25.174 of the Procurement Regulations, an award of a negotiated contract must be made to the person or firm whose proposal is most advantageous to the Corporation on the basis of the criteria established, price and other factors considered. Both referenced contracts were negotiated awards to NEC America, Inc. (NEC). The factors which COMSAT considered in the award of these contracts will be discussed below.

CONTRACT ESOC-1263

Contract ESOC-1263 covers the design, fabrication and testing of nine (9) three-kilowatt Klystron high-powered amplifiers (HPA) to be delivered to the Earth Station Ownership Consortium's (ESOC) Brewster and Andover earth stations. COMSAT is manager of the Consortium's earth The RFP was issued September 29, 1980, to stations. thirteen (13) companies. Proposals were received from NEC and two domestic companies by the due date of October 29, 1980. One late proposal was submitted by a third domestic supplier. The technical proposals were evaluated against pre-established criteria which covered HPA performance characteristics, power supplies, electromechanical considerations, controls, indicators and protection features, cooling system, testing, documentation, and spares. Each $^{\mathrm{A-51}}$ bidder took some exceptions to COMSAT's technical specification. One domestic supplier, the late bidder, made a proposal that was rated technically unacceptable and was

eliminated from further consideration. For this bidder, then, price was not a prime consideration. The other three proposals were judged technically responsive. It is worth noting, however, that NEC's proposal was rated technically superior to the other bidders by a relatively wide margin.

Another factor which COMSAT considered during the evaluation process was the schedule each bidder proposed. The RFP required delivery in 8.5 months after notice to proceed with the work. NEC and one domestic supplier proposed to meet COMSAT's schedule. The remaining responsive domestic supplier proposed delivery in 9.25 months. This variation to the delivery schedule was considered a significant exception to the RFP.

The final factor which COMSAT considered was the price each responsive bidder proposed. One domestic supplier was eliminated from further consideration since, along with its delivery schedule problem mentioned above, its price proposal was 28.5% higher than the low bidder, NEC, and 26.8% higher than the other domestic bidder. Since the price difference between the NEC proposal and the next lowest bidder was only 2.9%, COMSAT determined that it was in the Consortium's best interests to negotiate with both firms.

Negotiations were held with NEC and one domestic supplier in December 1980. In both cases, a mutually acceptable statement of work and specification were agreed upon. At the conclusion of the negotiations, a technical determination was made that both proposals were essentially equal and both proposals would meet the scheduled delivery date. It should be noted that while NEC's price remained relatively the same, the domestic bidder's price increased 16.4% during negotiations. Since all other factors were equal, COMSAT decided that it was in ESOC's best interests to award the Contract ESOC-1263 to the lowest responsive bidder, NEC.

CONTRACT ESOC-1264

Contract ESOC-1264 covers the design, fabrication and testing of twenty (20) three-kilowatt TWT HPAs to be delivered to various ESOC earth stations.

The RFP was issued on September 29, 1980 to thirteen (13) companies. Proposals were received from NEC and two domestic companies by the deadline date of October 31, 1980. One domestic supplier submitted a late proposal. The technical proposals were evaluated against pre-established criteria, which included HPA performance characteristics, power supplies, electromechanical characteristics, controls, indicators and protection features, cooling system, linearizer, testing, documentation, and spares. One domestic company (the late bidder), was disqualified. For the

disqualified domestic company, price was not a prime consideration. All other proposals were judged technically acceptable, but there was a significant disparity between the technical rating each bidder received. NEC's proposal was considered technically superior to the other bids by a relatively wide margin, since its design appeared to be very effective in terms of simplicity and anticipated reliability. Moreover, NEC's proposal to use either a NEC TWT Tube or a Varian TWT Tube promised greater flexibility for COMSAT with respect to the final amplifier. Finally, NEC's proposal to use an all solid-state-RF driver stage promised the the best reliability of all the bidders.

The proposal of the domestic bidder who finished second to NEC in the technical evaluation did not meet COMSAT's stringent specification for current waveform distortion and power. In addition, its vacuum tube regulator was criticized by the evaluation group on the grounds that thermionic devices have a finite lifetime and are prone to sudden failure. At the same time, this bidder could not provide a solid-state driver with sufficient power to operate its HPA. Its proposed use of a vacuum tube RF driver TWT was unacceptable since, in COMSAT's experience these devices have a higher incidence of traffic interruptions. Finally, unlike NEC, this bidder did not propose an alternate source for the TWT Tubes.

The third place domestic bidder's proposal was seriously flawed with incorrect assumptions and errors. It was COMSAT's determination that this proposal would require significant design assistance by COMSAT in order to make its their equipment compatible to the RFP. It is for this reason that the proposal was considered only marginally acceptable.

Upon completion of the technical evaluation, COMSAT reviewed the schedule each responsive bidder proposed. NEC and the third place domestic bidder agreed to meet COMSAT's delivery schedule of eight to twelve months from notice to proceed with the work. However, the second place domestic supplier promised delivery nine to sixteen months after notice.

The final factor which COMSAT considered during the evaluation process was the price each bidder proposed. NEC was the low bidder. The price proposals submitted by the two domestic bidders who met the techinical requirements were 39.45% and 40.47% higher than the NEC bid. In light of this fact, and the fact that NEC was rated technically $^{\rm A-53}$ superior and agreed to meet the delivery schedule, a determination was made that it was in the best interest of the ESOC that negotiations should proceed with NEC.

Negotiations were held with NEC in December of 1980. NEC's proposed design was discussed in detail and the Statement of Work was agreed upon. At the conclusion of the negotiations, COMSAT awarded Contract ESOC-1264 to NEC.

I might note in conclusion that a complaint was submitted by Aydin to the FCC concerning the referenced procurements. The FCC staff concluded that COMSAT's procurement complied with the FCC's Rules. (See attached letter of William F. Adler.)

We hope that the foregoing material will assist the Commission in its investigation of this matter.

Respectfully submitted,

COMMUNICATIONS SATELLITE CORPORATION

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Lawrence M. DeVore

Vice President and General Counsel

World Systems Division

GLE/jp