Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of Amendment of Parts 2 and 15 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications	)	ET Docket No. 94-124
Petition of Sky Station International, Inc. for Amendment of the Commission's Rules to Establish Requirements for a Global Stratospheric Telecommunications Service in the 47.2-47.5 GHz and 47.9-48.2 GHz Frequency Bands	)	RM-8784

COMMENTS

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SUMMARY

In its Request to Establish New GSTS Service, Additional Comments, and Petition for Rulemaking, Sky Station International, Inc. ("SSI") proposes a new global stratospheric telecommunications service ("GSTS") in the 47 GHz band. To implement its GSTS, SSI seeks changes to both the Commission's rules and to international spectrum allocations through the 1997 World Radio Communications Conference ("WRC-97").

The Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association ("TIA"), generally supports introduction of new technologies, such as GSTS. However, TIA strongly urges the Commission and WRC-97 to resolve the following issues before adopting SSI's proposal:

- SSI's proposal should be established in the Commission's Rules and in the ITU Radio Regulations as a "new" service that would include not only stratospheric applications, but would be expanded to encompass different competitive airborne technologies.
- Any allocation for the new service must not adversely affect a separate TIA proposal for the exclusive allocation of the 48.5-51.4 and 55.2-58.2 GHz bands to the terrestrial fixed point-to-point microwave service.
- The amount of the spectrum allocated to the new service must be consistent with anticipated demand.
- A determination must be made if the new service should be considered primarily "fixed" and secondarily "mobile."

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To: The Commission

COMMENTS ON REQUEST TO ESTABLISH NEW GSTS SERVICE, ADDITIONAL COMMENTS AND PETITION FOR RULEMAKING

In the above-captioned Request to Establish New GSTS Service, Additional Comments and Petition for Rulemaking ("Request and Petition"), Sky Station International, Inc. ("SSI") seeks to create a new global stratospheric telecommunications service ("GSTS") in the 47.2-47.5 and 47.9-48.2 GHz bands. Pursuant to Section 1.415 of the Commission's Rules,[1] the Fixed Point-to-Point Communications

[1] 47 C.F.R. Section 1.415 (1996).

Section, Network Equipment Division of the Telecommunications Industry Association ("TIA"),[2] hereby comments on the Request and Petition.[3]

Specifically, SSI proposes using the millimeter wave technology in the bands above 40 GHz to provide worldwide telecommunications service. It would deploy sky station stratospheric platforms, ground control and switching centers, and mobile radio units.[4]

To implement this new service, SSI requests that the Commission establish a new GSTS in the 47 GHz band. It claims that no frequency reallocation would be required "since the entire 47.2-50.2 GHz band can be used for Fixed and Mobile Services on a national and international basis," but that "minor clarifications to the U.S. and international frequency allocations would be needed to minimize the potential for harmful interference."[5]

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[2]TIA is the principal industry association representing fixed point-to-point microwave radio manufacturers. TIA members serve, among others, companies, including telephone carriers, utilities, railroads, state and local governments, and cellular carriers, licensed by the Commission to use private and common carrier bands for provision of important and essential telecommunications services. TIA has completed its June 1994 "Telecommunications Systems Bulletin No. 10-F, Interference Criteria for Microwave Systems" ("Bulletin 10-F"), which prescribes standards for implementing the new channel plan for the bands above 3 GHz and for establishing criteria regarding 2 GHz band PCS-to-microwave interference protection. As part of its ongoing standard-setting process, TIA is updating Bulletin 10-F, and Bulletin 10-G is in draft. Furthermore, TIA, along with the National Spectrum Managers Association, was responsible for most of the technical rule proposals recently adopted by the Commission in its consolidation of Parts 21 and 94 into new Part 101. See Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, Report and Order, WT Dkt. No. 94-148 (FCC 96-51, released Feb. 29, 1996).

[3]On April 1, 1996, the Request and Petition was placed on Public Notice. Public Notice, Rep. No. 2127 (mimeo no. 62231).

[4]In addition to the Request and Petition, SSI has applied for authorization to provide GSTS. See March 20, 1996, Application of Sky Station International, Inc., File No. 96-SAT-P/LA-96 ("Application"). Public Notice, Rep. No. SPB-44 (mimeo no. 62579, released April 22, 1996). Furthermore, SSI has requested that the U.S. delegation to the 1997 World Radio Communications Conference ("WRC-97") support its proposal. See Sky Station International, Inc.'s April 5, 1996, IWG-1 Proposal to the Commission's WRC-97 Advisory Committee ("IWG-1 Proposal").

[5]Request and Petition at 11-12.

In proposing the GSTS, it appears that SSI does not consider it to be a "fixed" or a "mobile" service, per se, but instead considers it to be a new service. To achieve this classification, SSI proposes that the Commission and WRC-97 establish an entirely new service, within the ITU Radio Regulations and Commission rules, which could be used for fixed and mobile type applications.[6]

As detailed below, certain questions exist regarding SSI's proposal. TIA supports introduction and implementation of new technologies. Such efforts, however, must not come at the expense of spectrum available for fixed point-to-point microwave service ("FS") users.

In the Millimeter Wave Proceeding,[7] TIA proposes allocating spectrum for FS that could be impacted by SSI's proposed GSTS. Thus, before the Commission takes any action on SSI's Request and Petition, Application, or IWG-1 Proposal, the following issues must be resolved in a manner that protects FS users:

- Should SSI's proposal be established in the Commission's rules and in the ITU Radio Regulations as a "new" service that would include not only stratospheric applications, but would be expanded to encompass different competitive airborne technologies?

- What is the impact upon the separate TIA proposal in the Millimeter Wave Proceeding for the exclusive allocation of the 48.5-51.4 and 55.2-58.2 GHz bands to the terrestrial FS?

- With the touted re-use capabilities, does the new service require the entire amount of spectrum requested (i.e., 300 MHz + 300 MHz)?

- Is the new service indeed a "fixed" service?

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[6]See Request and Petition at 14; IWG-1 Proposal at 1. It also should be noted that, at the April 30, 1996, meeting of IWG-6, SSI stated that it considers GSTS primarily to be a fixed service, much like conventional terrestrial FS, and secondarily to be a mobile service.

[7]Amendment of Parts 2 and 15 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, Notice of Proposed Rule Making, 9 FCC Rcd 7078 (1994) ("Millimeter Wave Notice"); Amendment of Parts 2, 15, and 97 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, First Report and Order and Second Notice of Proposed Rule Making, ET Dkt. No. 94-124 (FCC 95-499, released Dec. 15, 1995) ("Millimeter Wave Order") (collectively, the Millimeter Wave Notice and the Millimeter Wave Order shall be referred to herein as the "Millimeter Wave Proceeding").

SSI'S PROPOSAL MUST BE CONSIDERED IN THE CONTEXT OF OTHER ONGOING SPECTRUM ALLOCATION PROCEEDINGS

In the Millimeter Wave Proceeding, the Commission is in the process of revising its rules so that the bands above 40 GHz could be used to support new technologies, including millimeter wave applications. An essential aspect of this proceeding is ensuring that the allocation is compatible with international allocations. SSI's proposal must be considered in the context of both domestic and international spectrum allocations.

A. Domestic Allocation Proceedings.

SSI's proposed GSTS is one example of potential new technologies that could use the bands above 40 GHz. TIA also is very much interested in these bands.

In its comments on the reallocation proposal in the Millimeter Wave Proceeding, TIA supported the Commission's goal of encouraging development and implementation of new technologies, but it demonstrated that inadequate spectrum is available for FS users to support PCS, other wireless networks, and emerging short-haul applications integral to the National Information Infrastructure. Thus, TIA recommended that the 48.5-51.4 and 55.2-58.2 GHz bands be reallocated exclusively for FS and that certain other changes be made to the Commission's proposal in the Millimeter Wave Notice so that contemplated commercial applications would be accommodated.[8]

B. International Proceedings.

To ensure that decisions made in the Millimeter Wave Proceeding support its efforts to provide global opportunities for U.S. equipment manufacturers and service providers, the Commission sought

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[8]See Comments of TIA in the Millimeter Wave Proceeding, filed January 30, 1995; Reply Comments filed March 1, 1995; Supplemental Comments filed July 28, 1995 (collectively referenced herein as "TIA Millimeter Wave Proceeding Comments").

further public comment regarding international harmonization of the bands above 40 GHz.[9] TIA supports this policy.

One of the primary reasons for TIA's proposal is that it moves toward harmonization with European spectrum allocations. Such conformity would improve access to global markets, which is essential for U.S. technologies and economic development. Export of U.S.-made telecommunications equipment, including FS systems, would increase. Innovation would be encouraged, which would help justify high costs incurred in developing millimeter wave equipment and other new technologies. Domestic manufacturers would remain competitive with overseas manufacturers. Equipment costs would be reduced.

In addition, the WRC-97 agenda contains an item on the "identification of suitable frequency bands above 30 GHz for use by the fixed services for high density applications."[10] The Commission is now well under way in its preparations for WRC-97 and is considering U.S. proposals for submission to that conference. For example, Agenda Item 1.9.6, which addresses fixed services above 30 GHz, already is under discussion in the "Informal Working Groups (IWGs)" established by the Commission's Advisory Committee on WRC-97.[11]

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[9]Public Notice, International Harmonization of Frequency Bands Above 40 GHz (DA 95-1415, released June 23, 1995).

[10]See Agenda Item 1.9.6-Agenda for the 1997 World Radio Communications Conference. Resolution GT PLEN-3, Final Acts of the World Radio Communications Conference (WRC-95), Geneva, 1995.

[11]See FCC Public Notices No. 61294 (Jan. 26, 1996) and unnumbered (Feb. 22, 1996), "Advisory Committee for the 1997 World Radio Communications Conference." TIA notes that SSI has taken the foregoing into account by associating its Request and Petition with the Millimeter Wave Proceeding and describing it as "additional comments." In a parallel action, SSI has introduced a proposal into the Commission's WRC-97 preparatory process. See SSI's IWG-1 Proposal.

TO ENCOURAGE DEVELOPMENT OF COMPETITIVE SERVICES, GSTS SHOULD BE EXPANDED TO ENCOMPASS ADDITIONAL AIRBORNE TECHNOLOGIES

SSI's proposed GSTS is limited to stratospheric telecommunications systems. While introduction of this new technology would serve the public interest, the allocation of valuable spectrum in the bands above 40 GHz should not be so narrow. Provision must be made so that other "airborne" technologies could take advantage of this spectrum.

To meet the needs of such other technologies, without compromising the integrity of GSTS and without diminishing the spectrum available for this new service, TIA herein proposes that the Commission and WRC-97 establish a "Global Airborne Telecommunications Service" ("GATS") instead of GSTS. Essentially, GATS would expand GSTS to include any service operating in the stratosphere or below,[12] but would exclude existing licensed airborne services such as the Aviation Services.

Availability of designated spectrum for emerging airborne technologies would serve the public interest. Expansion of the GSTS to the GATS would spur development of innovative new airborne services. Competition would increase with the existence of these new alternatives for local, national or international wireless telecommunications services.

Taking this approach to the SSI proposal is consistent with domestic and international spectrum allocation protocols. Although SSI refers to GSTS as a "service," TIA submits that it is more accurately characterized as a "system." The ITU allocates spectrum for "services" and not for "systems." The Commission follows the ITU. as Section 2.106 of its rules (the Table of Frequency Allocations) also makes U.S. national spectrum allocations by "services."[13] An analysis of the Request and Petition

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[12]SSI defines "stratosphere" to mean "[t]hat portion of the earth - space continuum which is between 20-80 kilometers above the earth's surface." IWG-1 Proposal at Attachment 1.

[13]47 C.F.R. §2.106 (1996).

demonstrates that SSI's objective is to establish an exclusive band for GSTS.[14] TIA suggests that it would be most difficult for the U.S. to convince the WRC-97 that an entirely new GSTS "service" needs to be introduced into the ITU Radio Regulations. However, expanding the GSTS to include other new airborne technologies in the generic GATS proposed herein would be consistent with allocation requirements under both Commission regulations and under the ITU's Radio Regulations.

SSI'S REQUEST FOR 600 MHz TO ACCOMMODATE GSTS MUST BE EVALUATED

SSI requests 600 MHz for its GSTS. However, it does not document the need for this much spectrum. Rather, in the Request and Petition, SSI states that "GSTS licensees will need a minimum amount of 10 + 10 MHz spectrum in order to develop a technically and economically viable system."[15] With its touted re-use capabilities, it is unclear why SSI asks for 30 times this amount of spectrum.

Absent any proof that SSI needs 600 MHz for GSTS, or that this amount of spectrum would be needed to accommodate additional airborne technologies, the Commission must proceed carefully. The demand for FS spectrum is great, even in the millimeter wave bands. Public health and safety users depend upon reliable and available FS frequencies for delivery of their services to the public. Local exchange carriers and new Competitive Access Providers, cellular telephone companies, utilities, railroads, petroleum companies, financial institutions, and federal, state and local governments use FS to support their network operations. Emerging wireless telecommunications, especially PCS, will rely upon FS users for spectrum to provide their services and will rely upon FS facilities in other bands to support their operations. These FS users frequently are the cornerstone of supervisory and operational programs designed to deliver essential products and services to the public. Thus, FS users serve specific industrial,

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[14]Request and Petition at 14-15. See also IWG-1 Proposal at 1.

[15]Request and Petition at 20.

public safety, and commercial requirements of many companies and public agencies that constitute much of this nation's infrastructure.

Unfortunately, as demand for these essential FS services increases, available spectrum does not. First, FS users have been required to clear the 2 GHz band for PCS and to relocate in bands above 3 GHz.[16] The bands designated for the relocating 2 GHz FS users, primarily the 6 and 11 GHz bands, already are quite congested, and no relief is in sight.[17] The short-haul, wideband characteristics of the above 40 GHz band will make this spectrum quite useful for the microwave backbone of emerging PCS, cellular, SMR and other wireless networks.

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[16]Redevelopment of Spectrum to Encourage Innovation In the Use of New Telecommunications Technologies, Second Report and Order, ET Docket No. 92-9, 8 FCC Rcd 6495, 6519-20 (1993), modified, Memorandum Opinion and Order, 9 FCC Rcd 1943 (1994).

[17]These bands could become largely unusable since the upper 6 and 18 GHz bands recently were reallocated at WRC-95 so that FS users are co-primary with non-geostationery ("NGSO") mobile-satellite service ("MSS") feeder links. Final Acts of the World Radiocommunication Conference (WRC-95), Geneva, 1995 at Article 55. Needed relief from this spectrum congestion is not provided in other recent Commission allocation decisions. Conditions for FS users will deteriorate further if the Commission's proposal to reallocate portions of the 2 GHz band for MSS service links are adopted, because further relocations of the FS incumbents would be required. Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, Notice of Proposed Rule Making, 10 FCC Rcd 3230, 3232 (1995). Newly available spectrum in the 4 GHz band from the federal government will not be allocated so that this band is feasible as a substitute for the FS users being migrated off the 2 GHz band. Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, First Report and Order and Second Notice of Proposed Rule Making, 10 FCC Rcd 4769 (1995). Availability of the 18 GHz band could be diminished as the result of the recent reallocation resulting in it being shared with government users. Amendment of Part 2 of the Commission's Rules to Allocate Spectrum for the Fixed-Satellite Service in the 17.8-20.2 GHz Band for Government Use, Memorandum Opinion and Order, 10 FCC Rcd 9931 (1995). Current plans to use the 18.8-19.3 GHz band for NGSO fixed satellite service are likely to decrease FS use of that band. Both the 23 GHz and 26 GHz bands are becoming much less available to FS users due to restrictive demands of Inter-Satellite Link and Data Relay Satellite Services. A currently pending proposal to channelize the 27.5-29.5 GHz band for the co-primary FS users is unlikely to be adopted because the Commission recently proposed reallocating the 28 GHz band only for LMDS systems, Fixed Satellite Service and MSS system feeder links. See Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, Third Notice of Proposed Rulemaking, 11 FCC Rcd 53 (1995).

Other services might readily question the desirability of allocating additional spectrum for fixed communications. Given the shortage of available FS spectrum, TIA feels strongly that the Commission must make every effort, in responding to the Request and Petition, to avoid an adverse impact on pending proposals for terrestrial FS.

SPECTRUM ISSUES NEED TO BE RESOLVED

TIA appreciates SSI's effort to select spectrum for the GSTS which would avoid interference with other interested parties in the Millimeter Wave Proceeding. SSI correctly recognizes that there is an effort to establish a common world-wide band for point-to-point microwave communications starting at 48.5 GHz.[18]

SSI seeks to avoid sharing of spectrum between GSTS and broadcast-satellite service ("BSS") feeder links. It proposes deleting these feeder links from the 47.2-47.5 GHz and 47.9-48.2 GHz bands and modifying ITU Radio Regulation Footnote 901 to permit priority use of the remainder of the 47.2-50.2 GHz band for BSS.[19]

In the Millimeter Wave Proceeding, TIA proposed establishing a new FS allocation in the 48.5-51.4 GHz band.[20] Thus, the 48.2-49.2 GHz spectrum range proposed for SSI's GSTS would overlap TIA's proposal. However, as a result of a December 15, 1995, Resolution adopted by the Space Frequency Coordination Group,[21] TIA is reconsidering its recommendation on the precise location of its proposed millimetric radio band.

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[18]Request and Petition at 14 n.18.

[19]Specifically, SSI urges that ITU MOD RR Footnote 901 be amended to declare that "[a]dministrations are urged to take all practical steps to reserve the band 47.5-47.9 GHz and 48.2-49.2 GHz for feeder links for the broadcasting-satellite service operating in the band 40.5-42.5 GHz." IWG-1 Proposal at 1.

[20]See TIA Millimeter Wave Proceeding Comments.

[21]See December 15, 1995, Space Frequency Coordination Group, Resolution 14-4R1, "Protection of Earth Exploration Satellite Passive Sensors in the Frequency Band 50.2-66 GHz."

Specifically, TIA is evaluating a new 49.2-50.2/50.4-51.4 GHz allocation that meets Space Sensor requirements. Furthermore, to promote international harmonization of this new millimetric band, TIA is considering the new 49.2-50.2/50.4-51.4 GHz allocation because it is consistent with evolving European allocations.

Adoption of SSI's proposal, as revised herein to include the GATS, must not divert the Commission from allocating the other bands above 40 GHz identified by TIA for FS. High frequency bands (i.e., above 20 GHz) will be used to provide the latest in radio technologies (i.e., MMIC, super high frequency, solid state equipments and phase-array antennas). Export of these products must be encouraged. Allocation of the bands above 40 GHz for FS, as proposed by TIA, would support this public interest goal.

The foregoing indicates the "ripple effect" that arises when spectrum allocations are altered. This matter needs to be resolved prior to the Commission acting on SSI's Request and Petition or making a firm proposal concerning GSTS to WRC-97.

CONCLUSION

It is well-established that U.S. microwave radio manufacturers are both pioneers and leaders in the growing market of fixed radio links above 20 GHz. Thus, TIA supports the introduction of new technologies that would fully exploit the bands above 40 GHz. In concept, it does not oppose the services proposed by SSI.

Nevertheless, certain issues must be resolved before the Commission can adopt the Request and Petition and before it can support SSI's IWG-1 Proposal before WRC-97. These issues include stimulating competition by expanding SSI's GSTS to include other new airborne telecommunications technologies in the GATS proposed herein; identifying how much spectrum is needed for the new service; reconciling SSI's proposal with the acute need for FS spectrum in the bands above 40 GHz; and

ascertaining if GSTS is, in fact, a "fixed" service. TIA welcomes the opportunity to assist the Commission in this effort.

Respectfully submitted,

FIXED POINT-TO-POINT COMMUNICATIONS SECTION, NETWORK EQUIPMENT DIVISION OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

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April 30, 1996

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Comments on Request to Establish New GSTS Service, Additional Comments and Petition for Rulemaking will be mailed via first class mail, postage prepaid, to the following parties on the 1st day of May, 1996.

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