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

RECEIVED
SEP 24 1997
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
	)	
Routine Licensing of Large Numbers	)	RM-9005
of Small Antenna Earth Stations	)	
Operating in the Ka-Band	)	

To: The Commission

DOCKET FILE COPY ORIGINAL

OPPOSITION

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

DENIS COUILLARD, CHAIRMAN
ERIC SCHIMMEL, VICE PRESIDENT OF TIA
2500 Wilson Boulevard, Suite 300
Arlington, Virginia 22201
(703) 907-7700

Of Counsel:

Robert J. Miller
Gardere & Wynne, L.L.P.
1601 Elm Street, Suite 3000
Dallas, Texas 75201
(214) 999-3000

September 23, 1997

No. of Copies rec'd 0+4
List ABCDE JB

TABLE OF CONTENTS

SUMMARY i

IT IS UNCERTAIN WHETHER PETITIONERS WANT A RULEMAKING CONDUCTED AT THIS TIME TO PERMIT FS/FSS SHARING AND FSS EARTH STATION BLANKET LICENSING IN THE 18 GHz BAND 3

OPERATIONS BY FS USERS IN THE 18 GHz BAND MUST BE PROTECTED 6

CRITERIA FOR FS/FSS SHARING HAVE NOT BEEN, AND LIKELY WILL NOT BE, DEVELOPED 7

BLANKET LICENSING IN BANDS SHARED BETWEEN FS AND FSS USERS WILL NOT WORK 11

UNDER APPLICABLE COMMISSION RULES AND PRECEDENT, THE PETITION CANNOT BE GRANTED 14

CONCLUSION 15

SUMMARY

In the captioned Petition for Rulemaking ("Petition"), several geostationary orbit ("GSO") Fixed-Satellite Service ("FSS") licensees[1] requested that the Commission revise Part 25 to establish earth station blanket licensing procedures for FSS operations in the 17.7-18.8 GHz band (the "18 GHz Band"). The 18 GHz Band is allocated to terrestrial fixed point-to-point microwave service ("FS") users on a co-primary basis with FSS users.

Petitioners' proposal regarding earth station blanket licensing in the 18 GHz Band clearly will impact FS users:

- they will be unable to share spectrum with FSS users without experiencing harmful interference;
- there is a relatively high FSS receiver sensitivity to FS interference; and
- they will have intrinsic difficulty coordinating FSS earth stations sited at unreported locations.

Unless FSS earth station deployment involves only a limited number of facilities, or unless such deployment is strictly limited to rural areas, it is highly unlikely that FS will be able to co-exist with the proposed FSS in the 18 GHz Band. Any FSS operation in this band (and up to 19.7 GHz) must be delayed until sharing with existing and potential FS is proven feasible.

Thus, pursuant to Section 1.405 of the Commission's Rules,[2] the Fixed Point-to-Point Communications Section, Network Equipment Division of the Telecommunications Industry Association (the "Section"), hereby opposes grant of the Petition with respect to the proposed 18 GHz Band FS/FSS sharing and FSS earth station blanket licensing, for the following specific reasons:

- FS/FSS sharing will not work -- No evidence exists that sharing the 18 GHz band between FS and FSS users is achievable. Industry efforts to develop

---

[1]The petitioners are Lockheed Martin Corporation, AT&T Corp., Loral Space & Communications, Ltd., and GE American Communications, Inc. (collectively, the "Petitioners").

[2]47 C.F.R. §1.405 (1997).

sharing criteria have been unavailing and there is no indication that a solution can be attained. FSS downlinks will interfere with existing and new FS operations, which is dangerous given the fact that available spectrum to support FS is decreasing while demand is increasing. Current Part 25 interference protection criteria for FS systems in FS/FSS shared bands are not based upon FS needs. Moreover, the Commission requires that 18 GHz Band FSS users employ Part 101 standards to protect co-primary FS users. Unless such requisite viable criteria are adopted, if FSS/FS sharing in the 18 GHz Band is permitted, as proposed, existing FS users will not be able to provide reliable service and will not be able to implement new systems needed to meet emerging demand. This restriction would impact current FS users in the 18 GHz Band, including cellular and PCS cell interconnects, telephone system emergency restoration, temporary video links for broadcasters, entrance links into urban areas, and campus telecommunication interconnects. Most of these users are in urban areas, which are exactly the same areas "requiring" 18 GHz Band FSS earth terminals. These FSS earth terminals, as explained below, would retard deployment of necessary FS expansion in the 18 GHz Band because they would "freeze" out any future terrestrial expansion in the band.

The Section will continue its efforts at developing effective sharing criteria. Nevertheless, it is absolutely incumbent upon the Commission to force FSS user concessions as well. At a minimum, FSS users must be required to implement measures for protecting themselves from FS interference. They must prove actual need for the spectrum and they must employ minimum spectral efficiency standards. It is no longer appropriate or equitable for FS users to have the entire burden of protecting the carpetbagging FSS users.

- Sharing will impede FS expansion significantly -- Existing and potential FS users must be allowed to continue expanding systems in the same general area as FSS earth stations. Historically (e.g., in the 4 GHz band), when an earth station is located in a particular area, its high interference reduction requirements freeze the band from further development of FS in the same geographical area. FS intra-service station distances are substantially smaller than FS/FSS inter-service separation distances. The integrity of FS operating areas therefore will be severely and adversely affected by the large "holes" or "exclusion zones" required to protect FSS earth station receivers. Due to these system characteristics, without appropriate safeguards, FS facilities would be forced to be located outside such huge "exclusion zones." If FS users are required to navigate around these large "exclusion zones," their potential areas for expanding, especially in urban areas, are reduced significantly and associated services will become unavailable where demand is greatest.

- Blanket licensing is unacceptable -- Implementation of blanket licensing in shared bands is totally unacceptable. To share spectrum, careful frequency coordination between licensees from different services (i.e., FS and FSS) must be completed. Such inter-service coordination is impossible if one of the

services can have its facilities authorized under a blanket licensing procedure where specific locations are not specified. Sharing of earth stations in the same urban area is difficult at best when the locations of both users are known. Coordination is impossible if one of the users is unknown, which would be the case if FSS earth stations were to be authorized under a blanket license. If the earth terminal must be protected and its location is unknown, then the entire blanket area must be avoided, as well as an additional buffer zone outside that blanket area. The buffer zone (including the blanket area) could be over a hundred miles deep depending upon the characteristics of the earth terminals and the terrestrial systems. With the magnitude of anticipated 18 GHz Band FSS earth station facilities, especially under a blanket licensing scheme, FS users would be discriminated against because they would have great difficulty locating their facilities. Indeed, given their serious reservations concerning the feasibility of FSS/FS sharing, it is uncertain whether Petitioners even want a rulemaking at this time to institute blanket licensing in the 18 GHz Band.

- Grant of the Petition is premature and contrary to the public interest -- For the reasons set forth above, the Petition clearly does not warrant any further action. Indeed, even Petitioners have such serious reservations concerning FS/FSS sharing in the 18 Ghz Band that they initially recommended deferring this issue until further study could be conducted. Denial of the Petition would be consistent with applicable Commission precedent, which requires such action if the record does not support institution of a rulemaking or if serious technical issues exist that require further study before specific rules could be proposed.

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

In the Matter of	)	
	)	
	)	
Routine Licensing of Large Numbers	)	RM-9005
of Small Antenna Earth Stations	)	
Operating in the Ka-Band	)	

To: The Commission

OPPOSITION

In the above-captioned Petition for Rulemaking ("Petition"),[1] several geostationary orbit ("GSO") Fixed-Satellite Service ("FSS") licensees[2] requested that the Commission revise Part 25[3] of its rules regarding blanket licensing of earth stations in the 27.5-30.0 GHz uplink band ("28 GHz Band"). In addition, Petitioners raised the possibility of establishing earth station blanket licensing procedures for FSS operations in the 17.7-18.8 GHz downlink band (the "18 GHz Band"), but, due to their uncertainty over the feasibility of FSS and terrestrial fixed point-to-point microwave service ("FS") users sharing the band, they recommended deferring this proposal. However, the sole commenter on the Petition, Teledesic Corporation ("Teledesic"), urged the Commission to pursue 18

[1]The Petition initially appeared on Public Notice in January 1997. Public Notice, Rep. No. 2173 (Mimeo No. 71766, January 16, 1997). Since only a single party filed comments, the Commission recently requested further comments. Public Notice, Commission Requests Comment to Refresh Record on Proposals For Blanket Licensing of Satellite Earth Stations Operating In The 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands and Sharing Between Fixed Terrestrial and Satellite Services in the 17.7-19.7 GHz Frequency Bands, IN Rep. No. 97-27 (released September 5, 1997).

[2]The petitioners are Lockheed Martin Corporation, AT&T Corp., Loral Space & Communications, Ltd., and GE American Communications, Inc. (collectively, the "Petitioners").

[3]47 C.F.R. §§25.101 et seq. (1997).

GHz Band sharing and blanket licensing, and the Petitioners acquiesced to this approach in their Reply.

The 18 GHz Band is allocated to FS users on a co-primary basis with FSS users.[4] Petitioners' proposal regarding earth station blanket licensing in the 18 GHz Band clearly will impact existing and potential FS users: (i) because of their inability to share spectrum with FSS users without experiencing harmful interference; (ii) because there is a relatively high FSS receiver sensitivity to FS interference; and (iii) because there is intrinsic difficulty coordinating FSS earth stations sited at unreported locations. Unless FSS earth station deployment involves only a limited number of facilities, or unless such deployment is strictly limited to rural areas, it is highly unlikely that FS will be able to co-exist with the proposed FSS in the 18 GHz Band. Any FSS operation in this band (as well as up to 19.7 GHz) must be delayed until sharing with existing and potential FS in the band is proven feasible.

Thus, pursuant to Section 1.405 of the Commission's Rules,[5] the Fixed Point-to-Point Communications Section, Network Equipment Division, of the Telecommunications Industry Association (the "Section"),[6] hereby opposes grant of the Petition with respect to the proposed 18 GHz Band FS/FSS sharing and FSS earth station blanket licensing.

This limited opposition to grant of the Petition is driven by several factors. As demonstrated herein:

---

[4]See Attachment 1, which includes a chart depicting frequency designations in the 18 GHz Band.

[5]47 C.F.R. §1.405 (1997).

[6]The Telecommunications Industry Association is the principal industry association representing all telecommunications equipment manufacturers, including manufacturers of FS equipment. Section 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.

- FS/FSS 18 GHz Band sharing will not work -- No evidence exists that sharing the 18 GHz band between FS and FSS users is achievable. FSS downlinks will interfere with existing and new FS operations. FS intra-service station distances are substantially smaller than FS/FSS inter-service separation distances. The integrity of FS operating areas therefore will be severely and adversely affected by the large "holes" or "exclusion zones" required to protect FSS earth station receivers. Current Part 25 interference protection criteria for FS systems in FS/FSS shared bands are not based upon FS needs. Requisite Part 101 criteria will not be used. Industry efforts to develop sharing criteria have been unavailing and there is no indication that a solution can be attained. Now is the time for the Commission to shift the burden away from FS users and to require that FSS users adopt their own safeguards against interference and to demonstrate actual need for their frequencies. Unless viable sharing criteria are adopted, if FSS/FS sharing in the 18 GHz Band is permitted, as proposed, existing FS users will not be able to provide reliable service and will not be able to implement new systems needed to meet emerging demand.

- Blanket licensing is unacceptable -- Implementation of blanket licensing in shared bands is totally unacceptable. To share spectrum, careful frequency coordination between licensees from different services (i.e., FS and FSS) must be completed. Such inter-service coordination is impossible if one of the services can have its facilities authorized under a blanket licensing procedure where specific locations are not identified. If the earth terminal must be protected and its location is unknown, then the entire blanket area must be avoided, as well as an additional buffer zone outside that blanket area. The buffer zone (including the blanket area) could be over a hundred miles deep depending upon the characteristics of the earth terminals and the terrestrial systems. Indeed, given their serious reservations concerning the feasibility of FSS/FS sharing, it is uncertain whether Petitioners even want a rulemaking at this time to institute blanket licensing in the 18 GHz Band.

IT IS UNCERTAIN WHETHER PETITIONERS WANT A RULEMAKING CONDUCTED AT THIS TIME TO PERMIT FS/FSS SHARING AND FSS EARTH STATION BLANKET LICENSING IN THE 18 GHz BAND

The primary initial focus of the Petition is the proposal to revise Part 25

> in order to provide for the routine licensing of large numbers of small antenna earth stations operating in the "28 GHz Band" or "Ka-Band" (this refers to the 27.5-30.0 GHz uplink frequency band) in the [GSO/FSS].[7]

However, Petitioners also address the 18 GHz Band:

[7]Petition at 1.

> [T]he Commission expects that GSO/FSS systems will be able to use the 17.7-18.8 GHz Band for some downlink operations on a shared, co-primary basis with the Fixed Services ("FS") also operating in this band. The Petitioners believe that further development of sharing criteria between the GSO/FSS and FS services in this band will facilitate the most efficient usage of this band by both services. Further, the licensing and registration process for GSO/FSS earth stations using the 17.7-18.8 GHz Band needs to be further developed to afford the GSO/FSS earth stations an appropriate level of protection. While the Petitioners support the development and adoption of sharing criteria and of licensing and registration procedures to offer protection for GSO/FSS earth stations and FS services operating in the 17.7-18.8 GHz Band, they recognize that the issues presented are unique to this band and will affect a broad group. Therefore, the Petitioners recommend that separate proceedings be initiated to deal with these issues.[8]

Although Petitioners correctly acknowledged that it is too soon for a rulemaking regarding 18 GHz Band FSS earth station blanket licensing, the only party commenting on the Petition, Teledesic, had other ideas:

> The Petitioners request a rulemaking to consider blanket licensing for FSS Earth stations in one downlink sub-band (19.7-20.2 GHz) and three uplink sub-bands (28.35-28.6 GHz, 29.25-29.5 GHz, and 29.5-30.0 GHz). Teledesic supports this request, but believes the Commission should simultaneously consider blanket licensing in the 17.7-18.8 GHz sub-band that will be used for geostationary downlinks, as well as the 18.8-19.3 GHz and 28.6-29.1 GHz sub-bands that will be used for non-geostationary downlinks and uplinks, respectively. As the Commission has noted, both geostationary and non-geostationary FSS systems are proposing the same types of services for these frequencies, and both types of systems project high-density deployment of Earth stations, which is the primary reason why the Commission should adopt blanket licensing. Furthermore, past Commission decisions establish that blanket licensing is appropriate for non-geostationary as well as geostationary systems. The Commission can therefore best use its administrative resources by considering all these similarly situated sub-bands in one proceeding.
>
> * * * * * *
>
> The Petitioners support the consideration of licensing procedures in the 17.7-18.8 GHz sub-band, although they apparently want the Commission to consider those frequencies at a later time. However, the protracted consideration of inter-service sharing issues in the 28 GHz Rulemaking and

[8]Petition at 7 (footnotes omitted and emphasis added).

> elsewhere has already delayed the introduction of these new services far too long, and the technological headstart once enjoyed by U.S. operators has all but vanished. Both geostationary and non-geostationary proponents need to know as soon as possible what the licensing rules will be for Ka-band FSS Earth stations, so that they can move ahead with their plans to introduce interactive, broadband satellite services to the public. Since both geostationary and non-geostationary systems will compete in the delivery of these services, the Commission should consider licensing procedures for both types of systems at the earliest practicable date.
>
> * * * * * *
>
> Furthermore, the presence of terrestrial services in some portions of the Ka band need not delay the implementation of blanket licensing.[9]

Even though proposals regarding blanket licensing in the 18 GHz Band "raise different, and potentially more protracted, issues of inter-service sharing," Petitioners, in their Reply, nevertheless reluctantly decided not to oppose Teledesic's proposal that the requested rulemaking include the issue of 18 GHz Band FS/FSS sharing and blanket licensing for FSS earth stations.[10] However, it certainly is unclear whether the Petitioners really believe that such a rulemaking is appropriate at this time because they also request that "separate Industry Working Groups be formed as quickly as possible to address the unique sharing issues of each sub-band in a timely fashion . . . ."[11] Since Petitioners are not absolutely convinced that the rulemaking regarding the 18 GHz Band is appropriate, the Commission should not proceed.[12]

---

[9]Teledesic at 3-4 (footnotes omitted).

[10]Petitioners' Reply at 3.

[11]Petitioners' Reply at 3.

[12]The Section has serious doubts concerning the apparent need that certain FSS operators have to bulldoze and paralyze the 18 GHz Band with blanket licensing. Numerous press reports indicate that, contrary to this rush for blanket licensing, FSS operators have been slow in committing to build Ka-band satellites. "[I]f these [Ka-band FSS] organizations do not have a proper explanation of how the satellites will be funded - why bother with them?" Telcom Highlights International, Nov. 15, 1995, p.18. See also Communications Daily, Aug. 28, 1997, p.3 ("[FSS] operators slow to commit

OPERATIONS BY FS USERS IN THE 18 GHz BAND MUST BE PROTECTED

It is well-established that private and common carrier FS users provide essential telecommunications services. 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 the Personal Communications Service ("PCS"), rely upon FS users for spectrum to provide their services and 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. Indeed, FS users serve specific industrial, public safety, and commercial requirements of many companies and public agencies that constitute much of this nation's infrastructure and account for much of its economic well-being.

As detailed in Attachment 1, the 18 GHz Band currently has numerous FS users. Specific FS uses include cellular and PCS cell interconnects, telephone system emergency restoration, temporary video links for broadcasters, entrance links into urban areas, and campus telecommunication interconnects. Most of these users are in urban areas, which are exactly the same areas "requiring" 18 GHz Band FSS earth terminals. These FSS earth terminals, as explained below, not only would retard deployment of necessary FS expansion in the 18 GHz Band, but also would "freeze" out any future terrestrial expansion in this band. Under these circumstances, the Commission has no choice but to reject such a heavy-handed, one-sided approach to spectrum management.

---

to building Ka-band satellites").

Demand for FS is increasing on an exponential basis to support wireless and other emerging technologies. Unfortunately, available spectrum to support these FS is decreasing because of increased requirements for sharing to accommodate FSS and other services. In particular, use of all FS frequencies in the 18 GHz Band is being jeopardized by a proliferation of proposed satellite-based systems, and many of these satellite systems are incompatible with current and future FS usage of this band.[13] This acute shortage, as detailed below, will evolve into complete band paralysis if FS/FSS sharing and if FSS earth station blanket licensing in the 18 GHz Band are implemented.[14]

CRITERIA FOR FS/FSS SHARING HAVE NOT BEEN, AND LIKELY WILL NOT BE, DEVELOPED

The threshold issue that must be resolved, before the proposed rulemaking on 18 GHz Band FSS earth station blanket licensing can be instituted, is whether sharing with FS users is even practical. Based upon numerous industry studies,[15] and upon the record in myriad Commission proceedings,[16] such sharing will not work.

---

[13]Availability of the 18 GHz Band is being diminished as the result of the recent reallocation making FS co-primary 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). Exacerbating this problem is the Commission's recent decision to license Teledesic's 18 GHz NGSO/FSS operations, which will significantly decrease FS use of that band. Teledesic Corporation, Order and Authorization, 12 FCC Rcd 3154 (1997).

[14]See Attachment 2, which depicts current 18 GHz Band FS paths nationwide, including the path density in urban areas.

[15]See, e.g., Report of the Ad Hoc Millimeter Wave Group on U.S. Proposals For Agenda Item 1.9.6 of WRC-97, March 5, 1997, at §3.1.1.

[16]In the recent DEMS reallocation decision, the Commission noted "subsequent developments, such as the availability of equipment to provide . . . service . . . have raised substantial questions concerning the feasibility of traditional coordination methods for DEMS and NGSO/FSS in the 18 GHz band." Amendment of the Commission's Rules to Relocate the Digital Electronic Message Service From the 18 GHz Band to the 24 GHz Band and to Allocate the 24 GHz Band for Fixed Service, 12 FCC Rcd 3471, 3474 (1997) ("DEMS Order"). The Commission also stated that, in a

First, sharing requires earth terminals to be protected. Both 18 GHz Band FS and FSS licensees typically will want to locate their earth station facilities so they serve the same urban area. Any urban FS system can cause interference to any urban FSS system within roughly plus or minus 45 degrees of the terrestrial transmission main beam. Under these typical conditions, if FSS earth stations are (or may be) present, no new FS system could be implemented since sharing is impossible. Consequently, future FS deployment effectively would cease and current users would be prevented from expanding their FS systems, in which they already have made a substantial investment. Such aborted FS development clearly is not in the public interest.

Second, Commission rules do not provide adequate protection from FSS interference to FS users. The current Part 25 interference protection criteria for FS systems in FSS/FS shared bands are not based upon any 18 GHz Band FS user needs. Furthermore, the Commission requires coordination between FS and FSS sharing the 17.7-19.7 GHz band pursuant to the requirements of Section 25.130(b) of its rules and under the procedures outlined in Section 101.103 of its rules.[17] Since neither the Petitioners, nor Teledesic, indicate that the requisite Part 101 criteria would be or could

---

future order, it will adopt permanent coordination procedures for non-DEMS fixed services in the 18 GHz and Government Earth Stations. DEMS Order, 12 FCC Rcd at 3476. See also 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 Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, First Report and Order and Fourth Notice of Proposed Rulemaking, 11 FCC Rcd 19005 (1996) ("LMDS Order"); Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band, Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, Notice of Proposed Rulemaking, IB Docket No. 97-95, RM-8811 (FCC 97-85, released March 24, 1997) ("Band Segmentation Rulemaking"). In the Band Segmentation Rulemaking (¶12), the Commission acknowledged the difficulties in FS/FSS co-primary band sharing and wisely concluded that segmentation is preferable.

[17] LMDS Order, 11 FCC Rcd at 19037-038.

be used, adequate FS-sensitive safeguards will not be implemented. This lack of protection dooms the 18 GHz sharing proposal.

Third, and most critically, sharing will impede FS expansion significantly. The FS users must be allowed to continue changing their system configurations to meet increased customer demands, including the ability to expand their systems in the same general area as FSS earth stations. Historically (e.g., in the 4 GHz band), when an earth station is located in a particular area, its high interference reduction requirements freeze the band from further development of FS in the same geographical area. Due to these system characteristics, without appropriate safeguards, huge "holes" or "exclusion zones" would be created, and FS facilities would be forced to locate outside such zones.[18]

Sharing of earth stations in the same urban area is difficult at best when the locations of both are known. Coordination is impossible if one of the users is unknown, which likely would be the case if FSS earth stations were to be authorized under a blanket license. With the magnitude of anticipated 18 GHz Band FSS earth station facilities, especially under a blanket licensing scheme, FS

---

[18]See Attachment 3, which depicts a typical FS transmitter exclusion zone. In the 18 GHz band, this "exclusion zone" could be 50-100 miles, depending upon the technical characteristics of the FS and FSS earth stations involved. See also note 21, infra. Based upon recent history, FS users justifiably fear that they will lose more spectrum. First, FS users are in the 18 GHz Band because they already have moved once to accommodate satellite users (i.e., out of the 12 GHz band for the Direct Broadcast Satellite service). Second, based upon their experience in the 4 GHz band, FS users could not accept sharing with satellite carriers. Historically, the 4 GHz band was allocated exclusively for FS. However, the Commission reallocated this band so that satellite earth stations could operate with FS on a co-primary basis. This reallocation had been predicated on satellite user representations that such sharing would work. Regrettably, it has not. A large number of licensed satellite earth stations have been installed over the years around existing 4 GHz microwave systems. Since earth stations are much more susceptible to interference than terrestrial microwave, it is almost impossible to coordinate new 4 GHz FS paths in many urban areas. Even in rural areas, the frequency coordination process can be expensive since it may require on-site inspections of earth stations and field measurements to determine local shielding. Thus, the 4 GHz band de facto has become unavailable for FS users. Without adequate safeguards, the same unacceptable scenario could materialize for 18 GHz Band FS users.

users would be discriminated against because it would be virtually impossible to engineer a new or changed FS facility.

Given the history of FS erosion in the 4 and 12 GHz bands, and consistent with their assault on other bands, the FSS industry is "sandbagging" the Commission and the public. They promote sharing because it provides them an opportunity to drive FS users out of shared bands, including the 18 GHz Band. However, when band sharing does not fit their needs, they oppose it and promote segmentation. For example, in a pending rulemaking concerning similar issues, contrary to its position regarding the 18 GHz Band, Teledesic indicts FS/FSS band sharing:

> [T]he prospect of multiple, ubiquitously deployed, and incompatible services [is unacceptable]. The traditional paradigm of satellite/terrestrial co-frequency operation -- by which a relatively small number of large, expensive terrestrial links were coordinated site by site with a relatively small number of large, expensive satellite earth stations -- [does] not fit these newer services and provide[s] no help in resolving the conflict.[19]

Teledesic and the rest of the FSS industry cannot have it both ways.

Several measures could be implemented by the FSS earth station operator to facilitate the reuse of the band by FS systems. However, there is no legal or financial motivation to induce this action. Thus, before blanket licensing even can be considered, the following actions should be imposed by the Commission to level the playing field for both FSS and FS users:

- The interference protection given a FSS earth station should never be greater than the interference protection it accepts upon initial coordination. This stops "Trojan Horse" earth stations accepting existing FS interference to enter an area and then enforce higher standards upon new potential users, thereby closing or "freezing out" the area to further FS use.

- Many methods are available to reduce interference to FSS earth stations, but most of these methods must be used at the earth station. FSS users should be forced to use the best frequency reuse techniques (e.g., large category A antennas and reduced power for short paths). If FSS users meet these

[19]Teledesic Comments on the Band Segmentation Rulemaking at 4.

> specified technical requirements, they should be allowed to coordinate a FS system successfully while exceeding satellite earth station interference objectives by a defined value (e.g., 50 dB). The FSS earth station operator would be obligated to take whatever actions are necessary to allow its system to operate properly. Such actions could include building burms or fences, using shrouded antennas, employing limited minimum look angles, or avoiding frequency blocks.[20]

Neither the Petitioners nor Teledesic offer any reassurance that these evils will be avoided. Nor do they indicate that the foregoing proposed safeguards for minimizing the threat to FS users would be employed. The burden is on the FSS industry to provide such assurances before further action can be taken.

BLANKET LICENSING IN BANDS SHARED BETWEEN FS AND FSS USERS WILL NOT WORK

While Petitioners, in their Reply, agree to pursue 18 GHz Band blanket licensing as part of the proposed rulemaking, they do not do so without reservation. Unlike Teledesic's rather disingenuous and parochial view towards FS/FSS band sharing, the Petitioners understand that such inter-service sharing is difficult enough to accomplish, and that blanket licensing would make such sharing even more problematic.

And, with good reason. Earth station terminals used in FS systems are very sensitive to external interference from sources such as FSS systems. They require protection from other microwave radios, which may be as far away as 107 miles.[21] To allow blanket licensing of co-

---

[20]FSS interests will say this approach unfairly burdens them. That is a distorted and parochial view. In point of fact, one (1) FSS earth system today will block many FS systems. It makes more sense to spend a little more money on a multimillion dollar FSS earth station than the relatively low-priced FS systems.

[21]See Attachment 4, ITU-R Document 4-9S/TEMP/29 (Rev. 1)-E. This working document involves the development of a recommendation for the determination of FS coordination areas associated with NGSO/FSS earth stations. It gives FS transmitter/FSS earth station receiver coordination distances varying from 53-107 miles for the 19 GHz band, depending upon the climatic zone involved. See also A-9 Chairman's Report, A9s/69, Att. 6, Part 2, Table 3 (June 23, 1997).

primary 18 GHz Band FSS earth station terminals would be the same as laying a mine field for potential new FS facilities. No business can afford to spend several thousand dollars for a FS facility only to find, after service begins, that the facility must be turned off because it interferes with an undocumented earth station. Protection against such undetected problems, provided by the frequency coordination process, is unavailable when blanket licensing is used.[22]

Consistent with its lack of understanding regarding FS operations, Teledesic attempts to sweep these intrinsic problems with inter-service sharing under the rug. It claims that "[t]here is ample precedent for blanket licensing of equipment even where spectrum is shared by different services and coordination is required."[23] To support this claim, Teledesic cites Commission decisions authorizing blanket licensing for the Radiodetermination Satellite Service ("RDSS") and the Specialized Mobile Radio ("SMR") service while still requiring frequency coordination.[24] These examples involve services operating under materially different technical criteria and thus are totally inapposite to FS/FSS band sharing.[25]

---

[22]Giving the FSS earth station secondary status does not solve the problem. Experience with private FS 4 GHz earth terminals for video reception shows that, if a user spends several thousand dollars setting up an earth station, it will not accept interference even if it has no legal right to protection. User complaints cause problems for both terrestrial users and the Commission. The proliferation of thousands of undocumented private 4 GHz earth terminals has been a significant factor in the inability of FS users to expand in the 4 GHz shared band.

[23]Teledesic at 4.

[24]Teledesic at 4.

[25]Teledesic's two examples are misleading. While the RDSS is co-primary with certain fixed services, it has low gain antennas and receivers with noise temperatures at 100,000 degrees Kelvin. The FSS earth stations proposed have noise temperatures of a few degrees Kelvin and antennas with 30 to 40 dB more gain. This makes the earth stations far more sensitive to interference. Also, the satellite and terrestrial terminals will be essentially co-located, unlike the services Teledesic references. Similarly, Teledesic's reliance upon SMR sharing makes no sense because it involves coordination between SMR licensees only, not between SMR licensees and fixed or any other inter-service licensees. Furthermore, under similar circumstances, the Commission has rejected blanket

Before FSS users are given carte blanche to enter and usurp the 18 GHz Band through blanket licensing, they must demonstrate a need for such a windfall. Such a demonstration, however, is not provided. First, the reasons given to support the need for blanket licensing do not justify the threat to FS operations that such a scheme would create. Second, blanket licensing would make it easier for FSS users to expand their operations, even though there is no showing that such unlimited expansion by FSS users has been justified.

The rationale proffered for blanket licensing is that FSS systems "project high-density deployment of Earth stations . . . "[26] This attempted justification is inadequate because it does not take into account the significant use of the 18 GHz Band by existing FS users or the impact which blanket licensing of FSS stations would have on existing and projected FS operations. The high-density nature of FSS earth station deployment simply is incompatible with transmitters from another service operating in the same geographic areas. Those proposing FSS systems were aware from the start of the significant 18 GHz Band usage by the FS. With so many FS operations being relocated from lower bands to make room for PCS and Mobile-Satellite Service users, FSS users knew that the 18 GHz Band had become particularly important. The burden is clearly on the FSS interests. They have no excuse for entering an already heavily occupied band, where planning and system development for operations are ongoing, and expecting that the growing FS would accept disruptions.

---

licensing due to inherent coordination difficulties. Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act - Competitive Bidding, Memorandum and Order on Reconsideration, 10 FCC Rcd 13821 (1995). See also Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, Report and Order, 9 FCC Rcd 5936 (1994) (blanket licensing adopted only if inter-service coordination actually could be conducted).

[26]Teledesic at 3.

Expectations of high density earth station facilities also are undocumented. In fact, at this time, there has been no empirical showing that FSS users need all the spectrum in the 18 GHz Band they are requesting.[27] Absent such justification, the Commission must not jeopardize essential, existing FS operations.[28]

UNDER APPLICABLE COMMISSION RULES AND PRECEDENT, THE PETITION CANNOT BE GRANTED

Pursuant to Section 0.251 of its rules, the Commission can deny a rulemaking petition if it does "not warrant [further] consideration . . . ."[29] Furthermore, under Section 1.407 of its rules, the Commission cannot grant a rulemaking petition unless the petitioner "discloses sufficient reasons in support of the action requested . . . ."[30] For the reasons set forth above, the Petition clearly does not warrant any further action. Denial of the Petition would be consistent with applicable Commission precedent, which requires such action if the record does not support institution of a

---

[27]See note 12, supra regarding the marked lack of actual Ka-band satellite construction activity.

[28]Existing 18 GHz Band FS users must have a minimum transmitter efficiency of 1 bps/Hz before initiating operation. This minimum efficiency rate also should be imposed on any other new service that would operate co-primary with FS. New FSS systems should be treated on the same basis. They should be licensed for a portion of the total spectrum authorized (e.g., a satellite channel of 50 or 100 MHz). The FSS users should be allowed to use more spectrum only when they have demonstrated full utilization of the original spectrum block/channel. Satellite users should change how they demonstrate a need for additional spectrum. Merely asking for more spectrum, as they have done in the past, no longer should be acceptable. Rather, spectrum management procedures should be imposed on the FSS industry. These procedures should incorporate traditional spectrum management criteria, but they also should be customized to take into account the unique needs of the satellite industry in the higher bands. As a condition to having earth station blanket licensing for FSS in the 18 GHz Band, FSS users should be required to demonstrate they have reviewed use of their operations in all other bands where similar services could be provided; to employ spectrum management tools, which are appropriate for the particular frequency band, to increase available capacity; to document demand for additional spectrum; and to show that there still are inadequate frequencies to meet these needs.

[29]47 C.F.R. §0.251 (1997). See also WWHT, Inc. v. FCC, 656 F.2d 807, 818 (D.C. Cir. 1981).

[30]47 C.F.R. §1.407 (1997).

rulemaking or if serious technical issues exist that require further study before rules could be proposed.[31]

CONCLUSION

Petitioners had it right the first time. They correctly acknowledged, in the Petition, that the severe problems associated with 18 GHz Band FS/FSS sharing and FSS blanket licensing needed to be addressed by industry before a rulemaking even could be considered. The Section concurs.

Herein, the Section has demonstrated why Petitioners' initial approach is the most prudent. Sharing the 18 GHz Band between FS and FSS users will not work because of the proposed magnitude in area and density of FSS earth station deployment. There are no potential solutions that might eliminate or minimize this problem. Blanket licensing would have a disastrous impact upon FS users because of their consequential inability to coordinate with co-primary FSS users. This inability to coordinate systems will, in effect, close off the 18 GHz Band to a whole host of essential existing and potential FS. Furthermore, there has been no showing either by the Petitioners or by Teledesic that the need for the 18 GHz Band outweighs the existing, significant services that FS users

[31]See, e.g., Amendment of C-Band Satellite Orbital Spacing Policies to Increase Satellite Video Service to the Home, 7 FCC Rcd 456, 461 (1992); Signal Carriage Rules-STV, 77 F.C.C.2d 523 (1980).

provide on this band. Thus, the Section urges the Commission to delay any action on the Petition with respect to 18 GHz Band FS/FSS sharing or FSS blanket licensing.

Respectfully submitted,

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

By: Denis Couillard / ESM

DENIS COUILLARD, CHAIRMAN
ERIC SCHIMMEL, VICE PRESIDENT OF TIA
2500 Wilson Boulevard, Suite 300
Arlington, Virginia 22201
(703) 907-7700

Of Counsel:

By: Robert J. Miller

Robert J. Miller
Gardere & Wynne, L.L.P.
1601 Elm Street, Suite 3000
Dallas, Texas 75201
(214) 999-3000

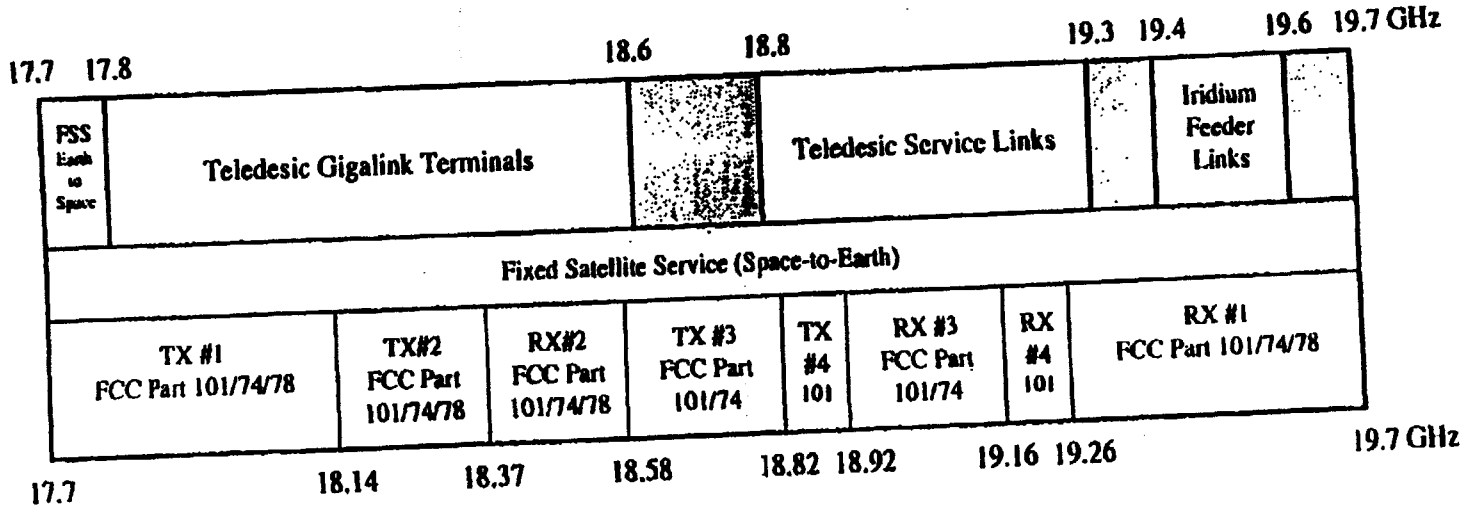
September 23, 1997

305755/gw03

ATTACHMENT 1

17.7 - 19.7 GHz Frequency Band

Fixed Service and Satellite Allocations



Band Segment	Channel Bandwidths	Fixed Service Allocations
TX/RX#1	10/20/40/80/220 MHz	Part 101 Common Carrier Fixed Point-to-Point Microwave Service Part 101 Private Operational Fixed Point-to-Point Microwave Service Part 74 Television Broadcast Auxiliary Part 78 Cable Television Relay Service (CARS)
TX/RX#2	6 MHz	Part 101 Common Carrier Fixed Point-to-Point Microwave Service Part 101 Private Operational Fixed Point-to-Point Microwave Service Part 74 Television Broadcast Auxiliary Part 78 Cable Television Relay Service (CARS)
TX/RX#3	5/10 MHz	Part 101 Common Carrier Fixed Point-to-Point Microwave Service Part 101 Private Operational Fixed Point-to-Point Microwave Service Part 74 Television Broadcast Auxiliary Part 74 Aural Broadcast Auxiliary
TX/RX#4	10 MHz	Part 101 Digital Electronic Messaging Service (DEMS)

Fixed Service Use of the 18 GHz Band

Frequency Range (GHz)		Number of Frequencies	Notes
17.70	18.14	1,303	Point-to-Point Microwave 10 and 40 MHz bandwidths
18.14	18.37	21,167	Point-to-Multipoint Microwave 6 MHz bandwidths
18.37	18.58	10,276	Point-to-Multipoint Microwave 6 MHz bandwidths
18.58	18.82	1,494	Point-to-Point Microwave 5 and 10 MHz bandwidths
18.82	18.92	695	DEMS
18.92	19.16	1,276	Point-to-Point Microwave 5 and 10 MHz bandwidths
19.16	19.26	693	DEMS
19.26	19.70	1,222	Point-to-Point Microwave 10 and 40 MHz bandwidths
17.70	19.70	38,126	Total Frequencies

Source: FCC Frequency Data Base (http://www.fcc.gov)

ATTACHMENT 2