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November 19, 1997

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FEDERAL COMMUNICATIONS COMMISSION
DEPARTMENT OF TRANSPORTATION

Ruth Milkman
Deputy Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W.
Washington, D.C. 20554

Re: 18 GHz NPRM issues

Dear Ms. Milkman:

On October 21, 1997, fixed point-to-point microwave radio service ("FS") users and manufacturers ("the Coalition") met with you and members of your staff regarding pending proposals in the 17.7-20.2 GHz ("18 GHz") band. Specifically, we discussed FS and Fixed Satellite-Service ("FSS") spectrum sharing issues and possible blanket licensing of FSS earth stations.

Over 40,000 licensed FS systems provide public safety and public utility services, promote deployment of wireless network interconnections, support distribution of broadcast auxiliary services, and facilitate provision of wireless cable television services. In addition, FS users rely upon the 18 GHz band as replacement spectrum for the 2, 6, and 11 GHz bands that have become unavailable due to congestion or required relocation. Thus, preserving the 18 GHz band, so that FS users can continue providing existing services and can expand their operations to meet increasing demand, is critical.

It is the Coalition's understanding that the Commission is contemplating institution of a rulemaking proceeding to address how the 18 GHz band could be used for FS and FSS systems. As we discussed at last month's meeting, it clearly is premature for the Commission to propose specific rules for 18 GHz band FSS systems. Serious questions exist regarding FS/FSS band sharing, FSS earth station blanket licensing, and band segmentation as spectrum management

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strategies. Complicating matters is the fact that inadequate information has been disclosed by FSS applicants regarding their proposed systems. Further study by the Fixed Point-to-Point Communications Section, Network Equipment Division, of the Telecommunications Industry Association ("TIA Fixed Section"), and representative FSS interests, thus is necessary.

In this regard, the TIA Fixed Section (TR 14) and the TIA Satellite Section (TR 34) have formed a Joint Working Group that has agreed to study 18 GHz band sharing. Moreover, the TIA Fixed Section and the National Spectrum Managers Association are forming a working group to address general FS/FSS band sharing issues.

Given the high degree of uncertainty regarding FSS use of the 18 GHz band, during our meeting, you invited the Coalition to submit the issues it would like to see addressed in the forthcoming rulemaking. Pursuant to your request, attached is a list of issues and questions that the Coalition urges the Commission to include in the Notice of Proposed Rulemaking because they are critical to preserving the 18 GHz band for FS users. In addition, attached is your requested list of examples when the Commission has relied upon the TIA Fixed Section, or upon other TIA Sections, with respect to addressing spectrum interference and sharing issues similar to those affecting the 18 GHz band.

The Coalition greatly appreciates the opportunity to submit these issues for your consideration. For your convenience, a current roster of the Coalition is provided. If you have any questions, please do not hesitate to contact me (214-999-4219), Nicole Batten (214-999-4709), or Eric Fishman (703-812-0400).

Sincerely,



Robert J. Miller

RJM/nsb
Attachments

cc (w/atts.): Dan Phythyon
Chief, Wireless Telecommunications Bureau

18 GHz Band **Specific Questions/Issues**

- How should the Commission protect existing 18 GHz band FS systems and ensure adequate 18 GHz band system expansion? Such protection is critical for FS users because the 18 GHz band will continue to be used increasingly for meeting multiple critical expanding needs, including: (i) wireless cell interconnects; (ii) corporate and governmental/public safety local traffic distribution; (iii) competitive local telecommunications service network infrastructure; and (iv) utility, railroad and petroleum operations. This band also is essential for broadcasters because it increasingly will be used to support HDTV, as well as current news gathering and other programming operations, since the 6-7 GHz and 11-12 GHz bands are becoming congested. Finally, it is important for wireless cable users because the band will continue to be used for dissemination of programming and new information services. In this connection, the Commission must prevent a recurrence of the experience encountered by FS users in the 4 GHz band, when the proliferation of C-Band satellite systems foreclosed their use of that spectrum (see below).

- To facilitate FS system growth, what consideration should be given to licensing and to locating FSS service link and MSS feeder link earth stations? Is FS/FSS sharing technically feasible? What inter-service (FS/FSS) coordination/interference criteria should the Commission employ to ensure FS system reliability? 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 has been located in a particular area, its high interference reduction requirements freeze the band from further FS development 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.

Recognizing these concerns, most parties commenting on the pending FSS users' blanket licensing proposal (RM-9005), including the petitioners themselves, have concurred that such an initiative in the 18 GHz band is premature and that the question of FS/FSS sharing in that band requires further study. Consequently, the Commission should require, as a prerequisite to designating spectrum for FSS in the 18 GHz band, a joint industry group investigation of the feasibility for spectrum sharing between FS and FSS users. This requirement would encourage all affected parties to join and contribute to the TIA TR 14/TR 34 Joint Working Group ("TIA-JWG"), which has been established by the Satellite Section and the Fixed Point-to-Point Section of TIA and which has agreed to study 18 GHz band FS/FSS sharing. In addition, the TIA Fixed Section and the National Spectrum Managers Association are forming a working group to address FS/FSS band sharing in general.

At this time, public information on the precise technical characteristics of the proposed myriad FSS systems remains virtually non-existent. To cure this problem, industry must work together and address these problems. The TIA-JWG will allow parties to share technical information about their systems and rapidly get a better understanding of issues involving FS/FSS use of the 18 GHz band. In the past, as detailed in the attachment, "Examples of the Commission's Historic Reliance On the Telecommunications Industry Association Regarding Issues of Spectrum Interference and Sharing," the Commission has relied upon the findings of industry groups to resolve complicated issues of spectrum interference and should continue to do so now.

- What consideration should be given to improving the spectrum use efficiency of FSS links? Given the competing needs of FS and FSS users, to protect existing 18 GHz band FS systems and their ability to expand as needed, the Commission's licensing procedures for FSS systems should be modified. These modifications should require the submission of more detailed information justifying the need for multiple earth stations and demonstrating how their spectrum coordination procedures protect existing and future FS operations. Due to the significant impact that their proposals could have on the FS, FSS applicants also should present a consensus deployment time table for entering the 18 GHz band, including estimates for securing financing, completing hardware construction, and commencing service. In particular, the Commission should request more details on the differences and similarities of all proposed FSS systems in the 18 GHz band and in other bands (such as 38 GHz) in terms of data bandwidth range to the end user, need for deployment, and potential subscriber base. Such data are particularly important because FSS systems are much less spectrally efficient than FS systems. Moreover, unlike FS users, which must demonstrate loading to justify additional frequencies, FSS users, which are seeking vast amounts of spectrum, are processed and frequency coordinated without regard to actual loading.
- How will the proposed satellite services co-exist with current and future terrestrial BAS technologies, especially since broadcasters are looking at using wideband digital microwave facilities in the 18 GHz band to support HDTV? With the increased usage in the 11 and 12 GHz bands, broadcasters will be looking to expand into the 18 GHz band. This band will be used because broadcasters could take advantage of new wideband digital microwave facilities for HDTV, STLs and other fixed links. It is important to study fully the sharing criteria, not only between FSS and existing analog technologies currently in use, but also between FSS and the new facilities planned for the 18 GHz band.
- Is 18 GHz band FSS earth station blanket licensing appropriate? The Commission must defer consideration of blanket licensing for FSS earth stations until sharing issues are resolved. 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 with 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 handicapped significantly because they would have great difficulty locating their facilities.

- How are Teledesic, Hughes Galaxy, Motorola Celestri, and Motorola Millennium proposing to use the 18 GHz band? The Commission must require that these and all other FSS operators justify filing for similar systems in their 38/50 GHz expansion band when they still are years away from 18/28 GHz band service.

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**Examples of the Commission's Historic Reliance
On the Telecommunications Industry Association
Regarding Issues of Spectrum Interference and Sharing**

1. The most recent example of the Commission's deference to the TIA Fixed Section's expertise is, of course, in the Commission's First Report and Order in the 2 GHz MSS proceeding. Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, First Report and Order and Further Notice of Proposed Rulemaking, 12 FCC Rcd 7388 (1997). In that ruling, the Commission observed that

MSS and FS industry groups are currently working under the auspices of TIA to resolve differences over sharing models and adopt a set of mutually agreed sharing criteria. We encourage these efforts, and will consider the product of these efforts for inclusion in our rules as the standard for evaluating the likelihood of unacceptable MSS/FS interference.

Id. See also 12 FCC Rcd at 7420: "The MSS and FS industries are currently developing interference standards under the good offices of TIA. We propose to adopt these standards, or their successors, in determining whether our sunset rules would apply to a given FS incumbent."

2. Last year, in its Part 101 Report and Order, the Commission recognized the contribution by TIA's Fixed Point-to-Point Microwave Engineering Committee (TIA TR14.11 Interference Criteria Engineering Subcommittee) and the National Spectrum Managers Association, which jointly developed criteria for Part 21 and Part 94 users and revised TIA Bulletin TSB 10-F, "Interference Criteria for Microwave Systems" ("TIA Bulletin 10-F"). 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, 11 FCC Rcd 13449, 13452 (1996). In addition, when it adopted Part 101, the Commission made TIA Bulletin 10 the default interference protection standard (47 C.F.R. §§101.105(b) and (c)).
3. The Commission has relied upon the TIA Fixed Section's expertise with respect to coordination and interference analyses performed in the 1850-1990 MHz band for PCS and fixed microwave systems. In this connection, the Commission specifically has recognized the contribution by the TIA Fixed Section in its development of technical standards in TIA Bulletin 10-F. Plan for Reallocated Spectrum, 11 FCC Rcd 17841, 17862 (1996); Amendment of the Commission's Rules to Establish New Personal Communications Services, Second Report and Order, 8 FCC Rcd 7700, 7762 n.116 (1993).
4. In the recent Above 37 GHz proceeding, the Commission did not expressly recognize the contribution of TIA, but did recognize the contribution of the AHMW Group. The TIA Fixed Section was an active participant in the AHMW Group. 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 Bands for Government Operations, Notice of Proposed Rulemaking, 12 FCC Rcd 10130, 10134 (1997).

5. Another recent example of the Commission's reliance on TIA's expertise can be found in the Part 88 rulemaking. In this proceeding, the Commission declined to establish specific procedures for the coordination of Private Land Mobile Radio ("PLMR") services. Instead, the Commission stated that it would look to TIA Working Group 8.8 ("WG 8.8"), which had been developing technical procedures for such a frequency coordination process. In this regard, the Commission noted that the TIA project represented "all facets of PLMR, including radio manufacturers, frequency coordinators and users." Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignments Policies of the Private Land Mobile Services, Second Report and Order, 6 Comm. Reg. (P&F) 730, 746 (1997). See also "Filing Freeze to be Lifted for Applications Under Part 90 for 12.5 KHz Offset Channels in the 421-430 MHz and 470-512 MHz Bands," Public Notice, DA 97-2006 (released September 23, 1997).

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18 GHz FS COALITION

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