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

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FEDERAL COMMUNICATIONS COMMISSION
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In the Matter of

Amendment of Parts 25, 74, 78, 90,)
and 101 of the Commission's Rules)
to Facilitate Fixed Point-to-Point Terrestrial)
Microwave Radio Service Licensee Use of)
the 23 GHz and 10 GHz Bands and to)
Eliminate Certain Inconsistencies in)
Such Rules.)

RM No. 9418

To: The Commission

REPLY COMMENTS

In the captioned Petition for Rulemaking ("Petition"),¹ the Fixed Point-to-Point Communications Section, Wireless Communications Division, Telecommunications Industry Association (the "TIA Fixed Section")² proposed several needed changes to the 21.2-23.6 GHz band (the "23 GHz Band").³ These proposed changes are intended to increase available

¹The Petition appeared on the Commission's February 5, 1999, Public Notice, Rep. No. 2309.

²The Telecommunications Industry Association ("TIA") is the principal industry association representing all telecommunications equipment manufacturers, including manufacturers of FS equipment. Members of the TIA Fixed Section 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. Sometimes, a product-oriented division or a section of such a division within TIA will file in a proceeding expressing the views of only the members of that division or section. This pleading is only from the TIA Fixed Section.

³The 23 GHz Band is an untapped resource for FS users. It is allocated for FS use, is shared between non-government and government users, and is especially suitable for medium or high-capacity, short-range systems.

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spectrum for medium or high capacity, short range fixed point-to-point terrestrial microwave radio service ("FS") systems. The proposed changes include:

- increasing the scope of permissible conditional licensing in the 23 GHz Band;
- rechannelizing the 23 GHz Band and modifying spectrum efficiency/frequency tolerance criteria to make the band more accessible to FS providers;
- modifying antenna standards to encourage use of the 23 GHz Band by FS users, such as PCS operators; and
- updating and cleaning up specific sections of the Commission's rules for consistency purposes.

Several parties submitted comments on the Petition. Pursuant to Section 1.405 of the Commission's Rules,⁴ the TIA Fixed Section hereby replies to these comments.

Support for the TIA Fixed Section's proposal to make the 23 GHz Band more accessible for FS users is unanimous. With the exception of suggested minor revisions to the proposed antenna standards,⁵ no changes to the rules were promoted. Thus, the record strongly compels prompt grant of the Petition and its proposals, as revised by Andrew with respect to the antenna standards, in a formal rulemaking proceeding⁶ to ensure adequate spectrum for essential FS use.⁷

⁴47 C.F.R. § 1.405 (1999).

⁵See Andrew Corporation ("Andrew") Comments at 3.

⁶This rulemaking should be the contemplated Notice of Proposed Rulemaking under the Commission's Biennial Review authority to reevaluate the rules for Part 101 services. See Alcatel USA, Inc. ("Alcatel") Comments at 2 n.4.

⁷Increasing FS user access to the 23 GHz Band is critical. These users provide essential public health and safety services and support emerging wireless technologies.

THE RECORD JUSTIFIES PROMPT GRANT OF THE PETITION

All parties support grant of the Petition.⁸ For example, Digital Microwave Corporation ("DMC") declared that it

fully supports the petition. The proposals in that petition would restructure and would update the technical regulations governing the 23 GHz band and would promote the more efficient and effective use of the frequencies in that band. The proposals would also facilitate access to those frequencies by allowing the use of frequencies in the entire band by common carrier as well as by private microwave system applicants and by permitting conditional licensing. Rulemaking action looking towards adoption of TIA's proposals would be in the public interest. DMC urges the Commission to grant the petition and to institute a rulemaking proceeding as soon as possible to adopt the proposals therein.⁹

Similarly,

Andrew strongly supports TIA's efforts to make additional spectrum available for [FS] users. In Andrew's experience, a variety of factors have promoted the need for FS spectrum capacity. Among those factors are the proliferation of wireless communications networks which require short hop microwave links to interconnect with switching offices and the telephone network, the increased number of systems used for wireless internet access, and the expansion of private microwave networks for the transmission of voice and data traffic. Accordingly, Andrew believes, with TIA, that the 23 GHz and 10 GHz bands should be made capable of greater use by FS licensees.¹⁰

⁸In addition to the Part 101 changes proposed in the Petition, the TIA Fixed Section suggested other revisions to Part 74 for broadcast use. It proposed specific changes in the Television Broadcast Auxiliary Service to ensure that digital transmission technologies can be utilized fully. Both the Society of Broadcasting Engineers ("SBE") and Alcatel support this proposal. SBE Comments at 1-3; Alcatel Comments at 8-9.

⁹DMC Comments at 1-2. See also Harris Corporation - Microwave Division ("Harris") Comments at 1-2; AirTouch Communications, Inc. ("AirTouch") Comments at 4.

¹⁰Andrew Comments at 2-3.

Moreover, Teledesic LLC ("Teledesic"), a satellite carrier, characterizes the Petition as a "serious, responsible spectrum proposal which . . . ought generally to be supported."¹¹

The TIA Fixed Section proposed that the Commission make the 23 GHz Band more accessible to FS users by adopting changes to how licensees operate. Specifically, it proposed a flexible channel plan, modifying frequency tolerance and spectrum efficiency requirements, and revising Section 101.147(s) of the Commission's Rules to update the requirements for low power, limited coverage systems.¹²

DMC, Harris and Alcatel all strongly support these proposals. Efficiency would be increased. Flexibility would be enhanced by use of narrow and wideband channels. Use of more spectrum-efficient digital radios would be permitted.¹³

One of the primary proposals to increase 23 GHz Band access is relaxing the conditional licensing requirements.¹⁴ Prompt deployment would be available under this proposal, while safeguards against harmful interference would exist. No objections were made. Indeed, DMC strongly advocates adopting this proposal:

DMC wishes to highlight and to express its strong support for TIA's proposal for conditional licensing in the 23 GHz band. Conditional operation is not permitted in that band, except for low power systems operated pursuant to Section 101.147(s) of the Commission's Rules, primarily because the band is shared with the federal government. TIA proposes direct coordination of 23 GHz applications with federal agencies and the designation of specific geographic exclusion areas (where sensitive government systems using 23 GHz frequencies operate)

¹¹Teledesic Comments at 1. It recognizes that development of the 23 GHz Band for FS use must be supported because band segmentation, rather than co-frequency sharing, is preferable. Id. at 2-3.

¹²Petition at 15-22.

¹³Harris Comments at 3-5; DMC Comments at 3-5; Alcatel Comments at 6-9.

¹⁴DMC Comments at 5-6. See also Harris Comments at 5-6.

as the means for accommodating interim operations in that band under conditional licenses. Direct coordination with the federal agencies would certainly reduce delays, but such procedure would require the cooperation of the federal agencies involved. If that cooperation would be forthcoming, DMC would support the proposal. Otherwise, DMC would recommend, as an alternative, adoption by the Commission of procedures whereby the relevant technical data of 23 GHz applications are transmitted electronically to NTIA by the Commission as soon as the application is filed and that data are then passed by NTIA to the various interested federal agencies, also electronically and without delay, with the objective of having a response no later than within thirty days. If no objections are raised within such a pre-designated period, the applicant would be notified and would be advised that interim conditional operation of the proposed system may begin.¹⁵

THE PROPOSALS REGARDING CHANGES TO ANTENNA SPECIFICATIONS MUST BE REVISED

In the Petition, the TIA Fixed Section proposed modifying antenna standards for 23 GHz Band, as well as for 10.55-10.68 GHz band ("10 GHz Band"), systems. These changes, which involve reducing the minimum antenna diameter and associated technical specifications, were proposed to facilitate FS user access to those bands for operation of short-distance microwave paths.¹⁶

Specifically, in addition to recommending reductions in antenna size, the TIA Fixed Section proposed:

23 GHz Band

- Changing the minimum antenna gain from 38 dBi to 33.5 dBi. Several U.S. antenna manufacturers recommend this revision so it conforms with international standards.
- Changing the maximum beamwidth from 2.2 to 3.3 degrees.
- Retaining the same front-to-back ratios as the current Category A and Category B radiation standards, tightening the Category B front-to-back

¹⁵DMC Comments at 5. See also Harris Comments at 5-6.

¹⁶Petition at Appendix A, Section 8.

ratio (as proposed in the revised Section 101.115(c) chart), and reducing the sidelobe suppression requirements to allow smaller antennas.

10 GHz Band

- Changing minimum antenna gain from 38 dBi to 33.5 dBi. This proposed minimum gain is consistent with the Commission's recent recommendations regarding directional antennas.
- Changing maximum beamwidth from 3.4 to 3.5 degrees so that there would be a uniform beamwidth for all 10 GHz Band systems.
- Changing radiation standards for Category A and Category B to the same standards that applied for the 10 GHz band before June 1, 1997. However, the front-to-back ratio for Category B channels should be tightened, as proposed in the revised Section 101.115(c) Antenna Standards chart. These new radiation standards would permit use of a shrouded 2-foot high performance antenna to meet Category A specifications and an unshrouded 4-foot standard antenna to meet Category B specifications.¹⁷

Support for these proposals was evident in the comments. AirTouch agreed with the proposed 10 GHz Band antenna modifications.¹⁸ Both DMC and Harris also agreed with the changes for the 23 GHz Band:

[T]he 23 GHz [Band] will be increasingly used to interconnect cell sites in urban areas or in campus-type systems, where the antennas would more than likely be mounted on rooftops, monopoles, and other structure that cannot support large microwave dishes. Large microwave dishes also raise aesthetic and other issues and engender oppositions. The smaller antennas proposed by TIA would make them more acceptable and practical to use while providing sufficient path reliability. Accordingly, Harris recommends adoption of TIA's proposal to change the minimum antenna gain in the 23 GHz band to 34 dBi; the maximum bandwidth to 3.0 degrees, to retain the same front-to-back ratio as the current category A and category B standards, and reduce the sidelobe suppression requirements as appropriate.¹⁹

¹⁷Id.

¹⁸AirTouch Comments at 2-3.

¹⁹Harris Comments at 4. See also DMC Comments at 4.

Andrew is concerned because some of its antennas are 1.5 foot in diameter, which would result in non-conformance with certain of the proposed standards.²⁰ Consequently, Andrew proposes the following changes to the sidelobe suppression standards for the first break point (5° to 10° from the main beam):

Antenna Standards	TIA Petition	Andrew
10 GHz - Cat. A	20 dB	18 dB
10 GHz - Cat. B	20 dB	17 dB
23 GHz - Cat. A	20 dB	18 dB
23 GHz - Cat. B	17 dB	17 dB

These proposed revisions are acceptable and should be adopted. They are relatively minor and will allow Andrew and other antenna manufacturers to market their product. Moreover, given international standards, these changes would make marketing overseas easier, thereby reducing costs and making FS more competitive.

RESTRICTIONS ON USE OF 23 GHz BAND ARE UNNECESSARY

Teledesic supports the Petition. However, it questions the claims therein that making the 23 GHz Band more accessible are needed due to existing and potential restrictions on FS use of the 18 GHz Band.²¹ In particular, Teledesic cautions against allowing 18 GHz Band FS users to relocate to the 23 GHz Band before demonstrating that there is no alternative in their current band and it cautions against overly-permissive use of 23 GHz Band conditional licensing.²²

²⁰Andrew Comments at 2.

²¹Teledesic Comments at 3-4.

²²Id.

Teledesic's concerns are not warranted. The proposed rule changes open up the 23 GHz Band for potential relocation, which should increase availability of the 18 GHz Band for satellite use.

Moreover, Teledesic's proposal could adversely impact FS user access to the 23 GHz Band for short-haul systems. However, an alternative band will be required on other paths due to frequency congestion in the 18 GHz Band. It is impossible to know, without a detailed path design and frequency analysis, whether a particular path can remain in the 18 GHz Band or whether the FS user should relocate to the 10 GHz Band or the 23 GHz Band.²³

Without the proposed rule changes, the 23 GHz Band will not be a practical relocation band. The new channel plan, frequency tolerance, and spectrum efficiency rules will promote more efficient use of the band and prevent the 23 GHz Band from "filling up" prematurely.

CONCLUSION

A compelling need exists for increased spectrum to support FS. With the ever-growing loss of FS spectrum to emerging technologies, it is critical that use of other available bands be encouraged.

²³Teledesic's approach to either relocate all paths within the 18 GHz Band or relocate all paths to the 23 GHz Band will not work. Each path must be analyzed on a case-by-case basis, considering path length, terrain clearance, rain region, frequency availability, and system reliability factors.

Utilization of the 23 GHz Band is a viable solution for FS users if conditional licensing is more readily available, if the 23 GHz Band is made more accessible to FS users, and if consistent rules for FS users are adopted. Thus, the Petition must be granted and a formal rulemaking including the proposals therein must be established.

Respectfully submitted,

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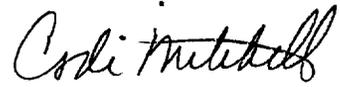
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