

indefinitely and it must exempt PCS FS licensees from auctions for a limited period.³⁸ Second, as TIA recommends in Section IV, supra, the Commission must expand the class of 39 GHz band licensees and pending applicants entitled to avoid auctions if they meet applicable build-out requirements.

37 GHz Band -- The 37 GHz band will be used primarily for backhaul networks to support PCS and other wireless licensees.³⁹ Admission to the PCS market has been costly. Winning bidders have paid millions of dollars to become licensees. It would add insult to injury to force those same PCS licensees to re-enter the auction arena, spend precious time and additional funds bidding premium prices for support networks, and possibly still lose the contest for necessary complementary licenses.

Similarly, private FS users, which already have been evacuated from the 2 GHz band to clear spectrum for PCS, and which face increasing pressure to share their other bands,⁴⁰ should not be subjected to costly auctions for potential replacement spectrum. Permitting auction winners to decide how the 37 GHz band would be used increases the likelihood that commercial users will dominate and threatens the availability of essential public utility and public safety private services. Regardless of the fact that commercial providers may offer a broad array of voice and data communications services, they will not consistently meet the vital needs of private users which perform a series of widely varied and essential functions. Private users serve society in many ways, including energy production, transmission, and distribution; law enforcement; rail transportation; food processing; water treatment and delivery; and fire, prevention services. The unique needs of private radio users for unrestricted priority access, security, unusually shaped geographic coverage areas, and high reliability will not be met by many conventional

³⁸The Commission proposes 10-year license terms, with a renewal expectancy for licensees. NPRM at para. 97. With the sizeable investments necessary to capitalize wide area FS systems, and with the need to encourage operation of reliable, market-sensitive FS systems, TIA supports this proposal.

³⁹NPRM at para. 1.

⁴⁰See footnote 16, supra.

commercial providers. Thus, collection of short-lived auction revenues for the 37 GHz band is not a convincing reason to threaten the availability of such critical services.⁴¹

Fair treatment of PCS and private FS licensees still can be achieved. In the NPRM, the Commission proposes that, if competitive bidding is not adopted, specified channel blocks would be limited to broadband PCS licensees until shortly after the last broadband PCS license is issued.⁴² Such partitioning also should apply if auctions are used.

TIA recommends that the Commission reserve six (6) channel pairs in the 37 GHz band BTAs for PCS licensees until three (3) months after the last broadband PCS license is issued.⁴³ TIA also recommends that the Commission reserve a single channel pair in the 37 GHz band for private FS users indefinitely. While these PCS and private FS channel pairs are reserved, they would be licensed under conventional application procedures and would not be auctioned. The remaining 37 GHz band channels could be auctioned.

39 GHz Band -- In Section IV, supra, TIA proposes that the Commission lift its 39 GHz band application processing freeze so that more applicants could be licensed without being subjected to auctions. However, under TIA's proposal, a number of 39 GHz band licenses still would be auctioned.

After the Application Deadline (i.e., TIA's proposal to establish a deadline 60 days after release of the Report and Order in this proceeding for pending 39 GHz band applicants to file minor amendments

⁴¹Many private users of short-range microwave radios must be able to own and control their microwave communication infrastructure for reliability reasons. Many of these users provide critical services to the public and do not generate profits from their communication infrastructure. Besides private users' critical reliability requirements, which prevent leasing vital telecommunications links from outside suppliers, they could not afford the cost associated with such a scenario.

⁴²NPRM at para. 102.

⁴³Under the Commission's proposal, there would be four (4) unpaired 50 MHz channel blocks in the 37 GHz band. NPRM at para. 19. TIA supports adoption of this channel plan and urges the Commission to make these frequencies available for such services as simplex video networks. Given the anticipated low level of demand for these channels, conventional licensing and service-appropriate technical standards should apply.

removing frequency conflicts), the Commission will be able to identify service areas subject to auction. Any area not served by a grandfathered 39 GHz licensee would be auctionable. TIA recommends that the Commission define these auctionable areas so that they do not cross any BTA boundaries. Auctions also would be conducted for any grandfathered RSA where the licensee fails to meet applicable build-out requirements.

VI. BUILD-OUT REQUIREMENTS FOR LICENSEES IN THE 37-40 GHz BAND MUST BE RELATED TO INDIVIDUAL SERVICE AREA CHARACTERISTICS

To expedite implementation of service in the 37-40 GHz band, and to preclude spectrum warehousing, the Commission proposes system build-out requirements.

The Communications Act requires [the Commission] to "include performance requirements, such as appropriate deadlines and penalties for performance failures, to ensure prompt delivery of service to rural areas, to prevent stockpiling or warehousing of spectrum by licensees or permittees, and to promote investment in and rapid deployment of new technologies and services."⁴⁴

While TIA generally supports imposing build-out requirements, it does not agree totally with the Commission's across-the-board, generic approach in the NPRM. Build-out requirements must be based upon service area population or population density.

A. Build-out Requirements Must Be Based Upon Service Area Population or Population Density.

It is essential that the Commission adopt build-out requirements for FS users in the 37-40 GHz band that are related to the individual characteristics of a licensee's particular BTA or other service area. If the service area is sparsely populated throughout, or if it contains a limited number of population centers, the build-out requirements should be more conservative than the build-out requirements for an urbanized or heavily populated service area. Otherwise, licensees in the less populated service area would be discriminated against because they would be required to fund construction and operating costs in a market where there is less potential for return than in the more populated service area. Risk of inadequate

⁴⁴NPRM at para. 98 (citing Section 309(j)(4)(B) of the Act).

service, or even loss of service, would be increased under generic, non-market-specific, build-out requirements. Furthermore, competitive wireless service entrepreneurs, such as CAPS or PCS licensees, need build-out requirements that would be flexible enough to vary from service area-to-service area.

Instead of imposing the identical build-out requirement for each BTA or service area, TIA proposes that the Commission establish criteria designed to maximize licensee flexibility and to correlate with individual service area characteristics. At a minimum, these criteria should include the service area population or population density.⁴⁵

B. Build-Out Requirements Must Be Adopted For Private FS Users.

Under TIA's proposal, private FS users would be assigned a single channel pair. These users would be subject to conventional licensing instead of auctions. TIA recommends subjecting these licensees to any build-out requirements generally applicable to FS users under Part 101.

**VII. INITIAL PERMISSIBLE USE OF 37-40 GHz BAND
MUST BE LIMITED TO FIXED POINT-TO-POINT LICENSEES**

In the NPRM, the Commission proposes establishing a "channeling plan and licensing and technical rules [only] for fixed point-to-point microwave operations."⁴⁶ However, the Commission also

request[s] comment on whether the 37 GHz band or a portion of it should be made available for a wider array of fixed services, such as point-to-multipoint systems; whether there is a requirement for mobile operations in the 37 GHz band and, if so, whether such operations should be on a co-primary or secondary basis to the point-to-point operations; and whether we have overestimated demand and, thus whether a portion of the band should be held in reserve for future services. If we decide to broaden the permissible use of these bands to include other fixed and/or mobile uses, we would not anticipate separately licensing such uses but rather including them within the uses permitted under our proposed BTA licenses. This would be accomplished by licensing this spectrum under the recently-adopted General Wireless Communications Service (GWCS) rules or the Licensed

⁴⁵In discussing build-out criteria for incumbent 39 GHz band licensees, the Commission suggests that "market size" is an appropriate standard. NPRM at para. 107.

⁴⁶NPRM at para. 1.

Millimeter Wave Service (LMWS) rules proposed in ET Docket No. 94-124⁴⁷

Given the scarcity of spectrum available for FS users, and given the history of other FS brands being overtaken by co-primary services,⁴⁸ TIA is concerned about broadening the permissible use of the 37-40 GHz band to include mobile uses. Intermixing FS with mobile services could cause serious interference and other system degradation problems.

A. Mobile Users Must Be Excluded From the 37-40 GHz Band.

Mobile and fixed users are like oil and water. Significant differences in operating characteristics would have to be resolved, which is particularly difficult because of the problems fixed systems have coordinating with mobile systems.⁴⁹ The potential for interference is too significant. Indeed, FS users already have surrendered the 2 GHz band for mobile PCS users.

TIA strongly objects to permitting mobile users to share this band with FS users because:

(i) mobile receiver selectivity characteristics are unacceptable; (ii) coordination is quite difficult between

⁴⁷NPRM at para. 13 (citation omitted). See also NPRM at para. 110 (Commission inquires if 39 GHz band should be opened to point-to-multipoint or mobile licensees). TIA also opposes holding any of the 37-40 GHz band in reserve because there clearly is a present need for this spectrum to relieve existing and anticipated congestion.

⁴⁸For example, FS users initially had primary status in the 4 GHz band. Satellite users then convinced the Commission to allow them into the 4 GHz band on a co-primary basis because they "promised" to deploy facilities on a limited, non-interfering basis. Once the door was open, satellite users proliferated the 4 GHz band and convinced the Commission to adopt technical standards favoring their operation over the co-primary FS users. As a result, satellite users have usurped the 4 GHz band so that it is unavailable to 2 GHz FS users which must relocate for PCS. Similarly, TIA has demonstrated in the Commission's proceedings leading up to WRC-95 that mobile users would foreclose FS operation if they became co-primary. See the May 15, 1995, Late Further Reply Comments on the Second Notice of Inquiry, Preparation for International Telecommunications World Radiocommunication Conferences, IC Dkt. No. 94-31, filed by various FS interests.

⁴⁹Among the issues that would need resolution are establishing criteria for: (i) mobile and FS power levels; (ii) FS systems using Automatic Transmitter Power Control; (iii) allowable maximum receiver threshold degradation limits for digital systems; (iv) acceptable levels of total accumulated noise for analog systems; (v) criteria for measuring interference into FS receivers from all mobile systems; and (vi) maintaining consistency with international standards.

fixed stations and mobile facilities; and (iii) international spectrum harmony would be disrupted (i.e., in Europe, this band is used only for FS) and manufacturing economies of scale would be frustrated.

B. Point-to-Multipoint Users Must Be Permitted Access to the 37-40 GHz Band, But Only After Appropriate Technical Rules Are Adopted.

TIA supports permitting point-to-multipoint licensees to use the 37-40 GHz band at a later date. These services complement FS, are a natural evolution of wide area-based point-to-point services, and provide beneficial public services.

Nevertheless, it is premature to open the 37-40 GHz band to point-to-multipoint users at this time. Specific technical rules must be adopted to ensure that point-to-multipoint equipment incorporates appropriate receiver selectivity and other necessary safeguards against interference to point-to-point users. TIA recommends that the Commission adopt the NPRM, with the changes proposed herein, and defer consideration of point-to-multipoint use of the 37-40 GHz band until TIA and other industry representatives develop such needed standards.

VIII. THE PROPOSED TECHNICAL RULES SHOULD BE ADOPTED, WITH CERTAIN REVISIONS

In the NPRM, the Commission proposes adopting minimal technical requirements. Specifically, it proposes rules related to: (i) technical operation; (ii) channelization; (iii) interference protection; and (iv) antennas. TIA, with minor exceptions, supports the Commission's proposal.

A. TIA Supports Adoption of Proposed Operational Rules.

The Commission proposes adopting "only those technical rules required to minimize interference between channel blocks and between service areas" if the 37-40 GHz bands are licensed pursuant to auctions.⁵⁰ Specifically, the Commission

propose[s] to generally employ the current Part 21 Rules, except that we decline to specify a maximum transmitter power or directional antenna standards. Additionally, we propose to allow a maximum EIRP of +55 dBW for operations

⁵⁰NPRM at para. 115.

in both the 37 and 39 GHz bands. This is consistent with our proposals in WT Docket No. 94-148. In that proceeding, we proposed to abolish the limitation on maximum transmitter power and to increase the maximum EIRP to +55 dBW for most microwave frequencies from 4 GHz to 40 GHz, including the 39 GHz band. This higher EIRP should allow for increased path reliability on long paths. Further, keeping our proposal consistent in both bands should allow for manufacturing efficiencies resulting from greater commonality in equipment. We also propose to adopt a 0.001% frequency tolerance for equipment operating in either the 37 GHz or the 39 GHz bands. We agree with TIA that this improvement in frequency stability would maximize the use of each channel block, is well within the current state-of-the-art at these frequencies, and can be achieved without significant cost. Furthermore, we propose to amend the bandwidth rule to clarify that, for channel block assignments, the authorized bandwidth is equivalent to an unpaired channel block assignment or to either half of a paired channel block assignment, e.g., 50 MHz, and to unambiguously specify that when adjacent channels are aggregated, equipment is permitted to operate over the full channel block aggregation without restriction.⁵¹

TIA supports adoption of the Commission's proposed operational rules. More importantly, TIA, as one of the principal parties in the Commission's proceeding to consolidate Parts 21 and 94 into Part 101, supports the Commission's commitment to "merge any rules adopted in this proceeding into Part 101 consistent with the rules adopted in that proceeding."⁵²

⁵¹NPRM at para. 115 (footnotes omitted).

⁵²NPRM at footnote 1. These 37-40 GHz band licensees need the freedom to select the most cost-effective equipment for their networks. Thus, TIA agrees with the Commission that generally there should not be any minimum equivalent digital efficiency requirements (i.e., 1 bps/Hz) imposed upon 37-40 GHz band licensees. Taking this "hands off" approach also would permit existing licensees to retain their current equipment. However, for the single pair of 37 GHz band channels that TIA recommends be assigned to private FS users, the 1 bps/Hz standard should be applied because it would optimize spectral efficiency over a limited number of frequencies, especially if the Government is able to share this band, as TIA proposes in Section IX, infra.

B. TIA Generally Supports the Commission's Proposed Channelization Plan for the 37-40 GHz Band.

Transmit/Receive Spacing -- The 39 GHz band currently is channelized for 50 MHz channel blocks with a 700 MHz separation between transmit and receive frequencies ("TR spacing").⁵³ This same channel plan is proposed for the 37 GHz band.⁵⁴

TIA supports the proposed channelization and TR spacing for the 37 GHz band and the retention of this plan for the 39 GHz band. TIA understands the Commission's query with regard to different transmit/receive separations such as 200, 400 and 800 MHz. However, TIA believes that the slight spectrum advantage gained in the 37 GHz band by adopting one of these alternative approaches would be far outweighed by the disadvantage resulting from dissimilar equipment requirements between the 37 GHz and 39 GHz bands. TIA recommends that the transmit/receive separation remain at 700 MHz for the 37 GHz band. Manufacturers would be able to achieve economy of scale benefits realized from like equipment requirements in both bands and thereby would be able to offer better economies to end users.

Channel Grid -- In the NPRM, the Commission

propose[s] to allow licensees to subdivide their channel blocks in the 37 GHz band as they so choose. We decline to propose subchannels that are restricted to 1.25 MHz increments because we believe that, due to the relatively short propagation distances at these frequencies, the lack of a subchannelization plan is unlikely to cause any significant coordination problems in this band.⁵⁵

To provide licensees with needed flexibility, promote availability of cost-effective equipment, and preserve essential spectrum efficiency, TIA concurs with the Commission's proposal to forego prescribing any specific band subchannelization.

⁵³NPRM at para. 4.

⁵⁴NPRM at para. 19.

⁵⁵NPRM at para. 20.

C. Licensees Must Be Given Flexibility To Select Antennas.

The Commission generally proposes that 37-40 GHz band licensees be permitted to use Standard B antennas, which are less expensive and easier to implement than Standard A antennas.⁵⁶ However, the Commission also proposes that "[i]f a BTA licensee is prevented from providing communications in its service area because a licensee of a grandfathered link is using Standard B antennas, we propose to require that a Standard A antenna be installed within six months of the matter being brought to the Commission's attention or else that link cease transmissions."⁵⁷ TIA supports this approach, but recommends that it be applied to all situations where interference to an adjacent service area might occur due to the use of a Standard B antenna.

IX. THE COMMISSION'S PROPOSALS FOR SHARING THE 37-40 GHz BAND WITH THE GOVERNMENT ARE UNFAIR AND MUST BE REVISED

In the NPRM, the Commission proposes criteria for coordinating between Government and non-Government users on the 37 GHz band. It also inquires if Government space research services could be co-primary with non-Government operations in the 37-38 GHz band. For the reasons set forth below, TIA opposes both sharing proposals.

A. Government Band Sharing Must Be Limited and Must Be Conducted Pursuant to Private Sector Prior Coordination Procedures.

Under Part 2 of the Commission's Rules, the 37 GHz band is allocated on a co-primary basis between Government fixed and non-Government point-to-point operations.⁵⁸ Once the 37 GHz band is licensed for FS users, the Commission proposes that non-Government and Government users be made subject to identical coordination criteria and priorities:

⁵⁶NPRM at para. 116.

⁵⁷NPRM at para. 116.

⁵⁸47 C.F.R. Section 2.106 (1996); NPRM at para. 120.

[W]e propose to share the band on a first-come, first-served basis as follows. Commission licensees would be required to protect incumbent operations when they build out their system. Any new Government fixed operations would be coordinated on a link-by-link basis with the affected Commission licensees through our existing Government/non-Government coordination process. In order for us to process a coordination request, we are proposing to require that our licensees maintain a computer-readable database with the coordinates of their sites, frequencies (occupied bandwidth) assigned to their sites, EIRP, and other needed information for all of their links. We believe that the current and anticipated low usage of this band by Government users makes this coordination process feasible.⁵⁹

Sharing between non-Government and Government users historically has been quite difficult for the private sector. Prior coordination for non-Government frequencies typically is completed in a matter of days, while coordination between non-Government and Government users typically takes weeks or even months. The Commission's proposal, to require that its licensees maintain a computer-readable database, should be expanded to require that the Government revise its coordination procedures to conform with private sector procedures.

Without this level playing field, non-Government user access to these bands could be limited unnecessarily. This disparity would be unfair to those private sector licensees which had to pay for access to the band. Payment for a license should entitle the licensee to preferential treatment.

Based upon empirical evidence, TIA is quite concerned that sharing the 37 GHz band with Government users would impede service implementation by non-Government licensees. TIA, however, also recognizes that Government users might need access to this band. Thus, to protect private sector users, which have a demonstrated acute need for spectrum, while accommodating Government users, TIA proposes that the Commission restrict Government licensee access to the 37 GHz band. Specifically, TIA recommends: (i) limiting Government use of this band to the single channel pair TIA proposes for private

⁵⁹NPRM at para. 120 (footnote omitted).

FS users in the 37 GHz band; and (ii) permitting such access only if the Government users meet the applicable prior coordination procedures in Part 101.⁶⁰

B. Sharing With Government Space Research Users Must Not Be Approved.

In response to a NTIA request, the Commission also solicits comment on the acceptability of allocating "the 37-38 GHz band . . . to the space research (space-to-Earth) service for Government use on a co-primary basis with the fixed and mobile services."⁶¹ TIA opposes this proposal.

Sharing criteria for this band, including the power flux-density,⁶² proposed by the Commission in the NPRM, are inappropriate for co-primary FS operations. The Commission's proposed criteria significantly exceed applicable international standards (*i.e.*, ITU-R 758). If the Commission's criteria for sharing are used, private sector licensees would suffer material degradation to path performance.

CONCLUSION

TIA supports prompt adoption of rules that would open the 37-40 GHz band to FS users. Accomplishing this goal is quite complicated. Many potential and existing users of this band would be affected.

The Commission must be sensitive to the needs of PCS licensees and private FS users that require 37 GHz spectrum to support their networks. Thus, TIA urges the Commission to exempt PCS licensees from auctions for a limited period and private FS users from auctions indefinitely.

New applicants and existing 39 GHz licensees, including CAPS, must be afforded adequate flexibility to build their systems consistent with market factors. The current application freeze must be rescinded.

⁶⁰See Part 101 Order at paras. 62-65.

⁶¹NPRM at para. 14.

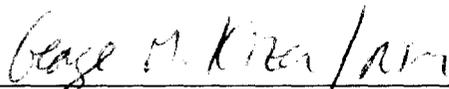
⁶²See NPRM at footnote 24.

Build-out requirements for the 37-40 GHz band must be based upon service area population or population density. Service areas for all users of the 37-40 GHz band (i.e., CAPS, PCS, cellular, SMR) must be made compatible.

Access to the 37-40 GHz band will provide a valuable resource to FS users, which have lost spectrum to PCS. It is time that FS user needs be protected. The technical rules proposed in the NPRM must be adopted and integrated into the new Part 101. Mobile users must be kept out of the band. Point-to-multipoint users must be allowed into the band at a later date after appropriate technical safeguards are adopted. Government users could share a portion of the band, but only if their coordination procedures conform to private sector procedures. Space research uses should not be permitted.

Respectfully submitted,

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