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

In the Matter of	)	
	)	
Amendment of Part 101 of the	)	WT Docket No. 00-19
Commission's Rules to Streamline	)	
Processing of Microwave Applications in	)	
the Wireless Telecommunications Services	)	
	)	
Telecommunications Industry Association	)	
Petition for Rulemaking	)	RM-9418
	)	

To: The Commission

COMMENTS

FIXED WIRELESS COMMUNICATIONS COALITION

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SUMMARY

Emerging wireless technologies and essential public services depend upon fixed point-to-point terrestrial microwave radio service ("FS") operations. To support these operations, the Fixed Wireless Communications Coalition ("FWCC") urges the Commission to take the following actions in the captioned Memorandum Opinion and Order and Notice of Proposed Rule Making:

- Adopt the proposed 23 GHz Band (i.e., 21.2-23.6 GHz band) wideband and narrowband channelization.
- Adopt the proposed 23 GHz Band 1 bps/Hz spectrum efficiency plan, 0.001% frequency tolerance standard, and low-power limited coverage rules.
- Adopt standards permitting smaller diameter 23 GHz Band and 10 GHz Band (i.e., 10.55-10.68 GHz band) antennas.
- Change course and aggressively pursue an agreement with the National Telecommunications and Information Administration ("NTIA") to permit blanket 23 GHz Band conditional licensing.
- Update the Local Multipoint Distribution System ("LMDS") rules to relax measurement requirements for digital radio out-of-band emissions (based upon a recent Alcatel USA, Inc. letter ruling request) and to allow equipment self-verification.
- Pursue options other than auctions for FS bands to meet the Balanced Budget Act of 1997 mandate to reform the licensing process.
- Eliminate the unnecessary and spectrally inefficient restrictions against private carriers offering common carrier services directly and against private carriers offering excess capacity on their systems to common carriers for their common carrier traffic.
- Revise maximum 10 GHz Band EIRP to avoid problems with longer paths subject to rain outage.
- Initiate a rulemaking to establish rules for digital STL operations in support of HDTV deployment.

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COMMENTS

In the above-captioned Memorandum Opinion and Order and Notice of Proposed Rule Making, 15 FCC Rcd 3129 (2000) ("NPRM"), the Commission suggests several necessary rule changes to Part 101 that will support fixed point-to-point terrestrial microwave radio services ("FS").[1] These rule changes encourage better use of the 23

[1]The Part 101 rules were established in Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, Report and Order, WT Docket No. 94-148, 11 FCC Rcd 13449 (1996) ("Part 101 Order"). The rule changes proposed in the NPRM initially were set forth in a Petition for Rulemaking (RM-9418) ("Petition") filed by the Fixed Point-to-Point Communications Section, Wireless Telecommunications Division, Telecommunications Industry Association (the "TIA Fixed Section"). The 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. The TIA Fixed Section previously had joined with the National Spectrum Managers Association ("NSMA") to prepare and file the Petition for Rulemaking that led to the adoption of Part 101.

GHz Band (i.e., the 21.2-23.6 GHz band),[2] suggest improvements for FS use of the 10 GHz Band (i.e., 10.55-10.68 GHz band),[3] address necessary modifications to Local Multipoint Distribution Service ("LMDS") operations, and facilitate adoption of rules for broadcast operation so that the promise of High Definition Television ("HDTV") can be realized.[4]

Given the importance of the proposals in the NPRM, pursuant to Section 1.415 of the Commission's Rules,[5] the Fixed Wireless Communications Coalition ("FWCC"),[6] by its attorney, generally supports the Commission's proposals[7] in the NPRM. Specifically, the FWCC takes the following positions:

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[2]The 23 GHz Band is shared by federal government and non-governmental entities and is allocated for FS use. The 23 GHz Band is especially attractive for FS users because it is suitable for the medium or high-capacity, short range systems which serve as an essential backbone to evolving broadband technologies. Petition at 2. It also is a viable alternative to the 6 GHz, 11 GHz, and 18 GHz bands for FS users.

[3]The 10 GHz Band also is allocated for FS use. This band is suitable for medium or high capacity, short-haul FS systems, which are critical components of wireless networks.

[4]If HDTV is to emerge successfully, digital microwave studio-to-transmitter ("STL") links must be available, necessitating the Part 74 rule proposals made in the Petition.

[5]47 C.F.R. §1.415 (2000).

[6]The FWCC is a coalition of equipment manufacturers and users interested in FS communications. Its membership includes manufacturers of FS equipment, licensees of FS systems and their associations, and communications service providers and their associations. The FWCC members also are FS system users, including railroads, public utilities, petroleum and pipeline entities, public safety agencies, the broadcast industry and their respective associations, telecommunications carriers, landline and wireless, local, and interexchange carriers, and others. A list of FWCC members is attached as Appendix A.

[7]The NPRM was published in the Federal Register on June 20, 2000. 65 FR 38333 (June 20, 2000).

- 23 GHz Band frequency plan -- Supports adoption of the proposed 23 GHz Band frequency plan.

- 23 GHz Band operating criteria -- Supports adoption of the proposed 1 bps/Hz spectrum efficiency plan, 0.001% frequency tolerance standard, and low-power limited coverage rules for the 23 GHz Band; and recommends revising the footnote for the proposed changes to the frequency tolerance requirements in Section 101.107(a) so they apply equally to common carrier and private carrier FS licensees.

- 23 GHz Band duplex video surveillance systems -- Recommends that 23 GHz Band digital duplex (i.e., two (2) RF channels) video surveillance systems must be required to meet the Section 101.141(a) 1 bps/Hz spectrum efficiency rules, but that analog systems should be required to use a licensed video channel with necessary bandwidth instead of always using a 50 MHz channel.

- Antenna standards -- Supports adoption of the proposed antenna standards so 1-foot antennas could be used in the 23 GHz Band and 2-foot antennas could be used in the 10 GHz Band.

- 23 GHz Band conditional licensing -- Disagrees with the Commission and supports 23 GHz Band conditional licensing. The Commission and the National Telecommunications Information Administration ("NTIA") must accelerate their negotiations to achieve appropriate coordination procedures so 23 GHz Band conditional licensing could be implemented. However, if the Commission decides not to permit blanket 23 GHz Band conditional licensing, then, at a minimum, such licensing should be permissible for all operations in that band that do not exceed a 55 dBm effective radiated power ("ERP").

- LMDS -- As detailed in its April 12, 2000, letter to the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau ("WTB"), Alcatel USA, Inc. ("Alcatel") has requested a ruling that the 1 MHz bandwidth used to measure out-of-band emissions for digital radios under Section 101.111(a)(2)(ii) of the Commission's rules (including those used in the LMDS) is not required to include any of the authorized channel bandwidth being tested. This interpretation should be incorporated into the Commission's rules. It would promote increased FS frequency availability by optimizing spectrum efficiency, facilitating product development and preserving adequate safeguards against harmful

interference to protected operations. In addition, the FWCC supports the Commission's proposal to permit self-verification of LMDS radios because this change would expedite product marketing without compromising interference protection.

- Private carrier provision of common carrier services -- Supports elimination of any restrictions against private operational fixed service ("POFS") licensees making excess capacity available for common carrier services.

- 10 GHz Band EIRP -- Recommends revising the proposed maximum allowable equivalent isotropically radiated power ("EIRP") for the 10 GHz Band to avoid problems with longer paths (relocated from the 2 GHz band) which otherwise are affected by rain outage.

- Spectrum auctions -- Opposes auctioning FS frequencies because it is an inappropriate method for authorizing systems consisting of one or more RF links, for authorizing individual links to complete existing systems, and for authorizing systems in shared bands (i.e., FS and satellite).

- Part 74 FS digital standards -- Encourages the Commission to expedite action on adopting rules for digital transmissions over Part 74 broadcast FS facilities to support HDTV development.

It is well-established that FS networks are essential to support the national telecommunications infrastructure.[8] The FS support emerging wireless technologies and critical public services. Health and safety providers, local exchange carriers, cellular telephone companies, utilities, railroads, petroleum companies, financial institutions, and federal, state and local governments all rely upon FS networks to support their operations.

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[8] Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, Report and Order and Second Notice of Proposed Rule Making, 12 FCC Rcd 18600, 18607 (1997).

If adopted, the proposals in the NPRM, that are supported herein by the FWCC, would provide sufficient spectrum for public safety, utility and emergency broadband services and for accommodating anticipated growth in demand. In addition, these changes would establish uniform channelization and technical standards to ensure spectrally efficient, economical, and state-of-the-art equipment.

ADOPTION OF THE PROPOSED 23 GHz BAND FREQUENCY PLAN AND ASSOCIATED TECHNICAL STANDARDS IS IN THE PUBLIC INTEREST

The FS is the medium of choice for infrastructure to support wireless and other broadband services. It is the most reliable, cost-effective, flexible, and terrain-insensitive technology available. Additional spectrum, however, still is needed to continue providing such support.

The Commission, in the NPRM, recognizes this need by stating that the "lower frequency bands are significantly encumbered, particularly in urban areas, and the relocation of 2 GHz microwave licenses into the 6 GHz and 11 GHz bands has further burdened this spectrum."[9] With its ability to accommodate the needs of medium-capacity and high-capacity short-haul FS systems, the 23 GHz Band is a very attractive candidate for such expansion.

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[9] NPRM, 15 FCC Rcd at 3166.

Even though the 23 GHz Band offers significant potential for FS users, its availability has been restricted significantly. Excessive delay in the coordination and application process associated with government sharing, outmoded channel plans, and inappropriate operating criteria, have made this band unattractive for FS users. The proposals made in NPRM, as modified herein, will eliminate these unnecessary barriers to entry.[10]

A. 23 GHz Band Channel Plan

The 23 GHz Band is not channelized in the Commission's Rules. In its Petition, the TIA Fixed Section seeks to cure this problem by proposing a 50 MHz channel plan.[11] It would make wideband and narrowband channels available in the 23 GHz Band to provide optimal flexibility and efficiency.

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[10]In the Part 101 Order, the Commission established Section 101.4, which sets forth a transition plan whereby FS licenses in effect as of July 31, 1996, could continue operating under Part 21 or Part 94 after Part 101 became effective. Part 101 Order, 11 FCC Rcd at 13477-78. This "grandfathering" provision appropriately has been clarified in the NPRM to be effective "indefinitely." NPRM, 15 FCC Rcd at 3147. Similarly, for the proposed changes to the 23 GHz Band, the TIA Fixed Section recognized the need to minimize any adverse impact that the new rules would have on licensees of existing systems and on equipment manufacturers once they do become effective. Thus, it proposed that the Commission establish an 18-month transition period before manufacturers would be required to meet applicable new frequency tolerance, spectrum efficiency, or other standards. Petition at 16 n.23. In addition, the TIA Fixed Section proposed that, within 24 months after the rules become effective, users would be required to meet those new technical requirements for new installations. Id. The proposed new antenna standards would be effective when the new rules become effective. Id. Under this 24-month transition procedure, FS stations applied for or licensed by the end of the transition period would be grandfathered indefinitely under the current rules, provided that these systems do not cause harmful interference to other licensees. The Commission proposes adoption of this transition procedure. NPRM, 15 FCC Rcd at 3160 n.191. To ensure a smooth transition for FS users and for FS equipment manufacturers, the FWCC supports this approach.

[11]Petition at 16.

The FWCC supports the Commission's proposed adoption of this 23 GHz Band channel plan.[12] The TIA Fixed Section's proposed plan

> will make the [23 GHz Band] more efficient, and thus more attractive for short-haul [FS] users. [The] proposed plan, as a general matter, is based upon the current industry standard 50 MHz channel plan, but, given the availability of more spectrally efficient digital fixed microwave service radios, it also includes narrow and wideband channels to provide flexibility and to increase the number of potential users.[13]

A flexible 23 GHz Band channel plan is in the public interest. Such a plan would make the 23 GHz Band more attractive for the short-haul, high capacity FS systems that comprise the backbone of an evolving national wireless infrastructure. This feature is critical for continued growth of wireless Internet access and expansion of private microwave networks for voice and data transmission.

Having both wideband and narrowband channels would attract a broad range of users to the band. Pressure for spectrum would be decreased in the lower FS bands (i.e., 6, 11, and 18 GHz bands) so that they would have adequate capacity to meet demand by essential satellite and other carriers.

A seamless transition would occur because the proposed plan uses the existing standard 50 MHz channelization.[14] Maintenance of the 50 MHz channelization is

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[12] NPRM, 15 FCC Rcd at 3161.

[13] NPRM, 15 FCC Rcd at 3160-61 (footnotes omitted).

[14] A maximum authorized bandwidth of 100 MHz currently is specified for the 23 GHz Band. 47 C.F.R § 101.147(s) (2000). To be consistent with the proposed 23 GHz Band frequency plan,

important because it would allow users of existing 50 MHz radios to continue operating such equipment without disruption.[15]

B. Operating Criteria

In the NPRM, the Commission proposes adoption of several TIA Fixed Section rule change recommendations designed to facilitate efficient use of the 23 GHz Band. All these proposals are appropriate and must be included in Part 101.

1. Frequency Tolerance.

Under Section 101.107, the frequency tolerance specification for the 23 GHz Band is 0.03%. This specification assumes analog production and coordination based upon full 50 MHz channelization.[16]

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which defines channels up to 50 MHz in bandwidth, the TIA Fixed Section proposed reducing the maximum bandwidth from 100 MHz to 50 MHz. Petition at 17 n.26. The maximum bandwidth in the 38.6-40.0 GHz band (the "38 GHz Band") is also 50 MHz. Establishing the same 50 MHz maximum bandwidth in the 23 GHz Band and in the 38 GHz Band would allow radio manufacturers to use common hardware in the two bands, thereby increasing economies of scale and reducing costs for the microwave operator. There do not appear to be any existing systems licensed for more than 50 MHz of bandwidth in the 23 GHz Band. Therefore, no grandfathering provision for 100 MHz bandwidth channels was included in the TIA Fixed Section's proposed revisions to Section 101.109(c).

[15]It appears that the Commission incorrectly listed the maximum bandwidth as 50 kHz, instead of 50 MHz, in Appendix D, Section 101.109(c). NPRM, 15 FCC Rcd at 3203. This error must be corrected. In the NPRM, the Commission inquires how video surveillance systems should be channelized under the proposed 23 GHz band plan. Id., 15 FCC Rcd at 3161. A digital video surveillance system should be required to meet the same 1 bps/Hz spectrum efficiency rule that the Commission proposes should be included in Section 101.141 for the entire 23 GHz Band. Id., 15 FCC Rcd at 3162. However, an analog system should be licensed for the necessary bandwidth as defined in Part 2 of the Commission's rules instead of always using a 50 MHz channel. The control information could be carried on an FM subcarrier in the same channel. Alternatively, a second low capacity channel could be licensed for control functions. Otherwise, it would be a clear waste of limited spectrum to license a 50 MHz channel for control functions.

[16]Petition at 18.

The 0.03% frequency tolerance is outdated. Most FS radio manufacturers are licensing only digital radios in this band, which occupy at least 75% of the channel bandwidth. These radios only require a 0.001% frequency tolerance standard, as proposed by the TIA Fixed Section,[17] not the current relaxed 0.03% frequency tolerance protection standard. The existing standard is contrary to effective operation because, "for these digital radios, the 0.03% frequency tolerance specification would allow excessive frequency drift into adjacent channels if the band is divided into 50, 40, 30, 20, 10, 5 and 2.5 MHz channels, and this would cause spectrum inefficiency."[18]

Tightening the frequency tolerance standard to 0.001% would reduce consumer costs and increase manufacturer flexibility. Economies of scale could be realized because the 0.001% frequency tolerance also is used for other narrowband radio applications, particularly in the 18 GHz band.[19] The Commission thus should adopt the TIA Fixed Section's proposal, as reflected in the NPRM.[20]

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[17] Id., Appendix A at Section 5.

[18] NPRM, 15 FCC Rcd at 3161-62 (emphasis added).

[19] Petition at 19. Radio manufacturers not meeting this criterion would be protected. Under the proposed transition rules, they would have 18 months to modify their product (licensees would have 2 years). NPRM, 15 FCC Rcd at 3160 n.191. See footnote 10, supra.

[20] In the proposed rules (Appendix D), the Commission sets the frequency tolerance for the 19.7-27.5 GHz band at 0.001%. NPRM, 15 FCC Rcd at 3200-02. This frequency tolerance standard should apply to the 23 GHz Band. However, in footnote (4) to proposed Section 101.107, the Commission states that this tolerance applies to private users only (not common carriers). Id., 15 FCC Rcd at 3202. This footnote is currently in Part 101. In its Petition, the TIA Fixed Section proposed removing the footnote, since the maximum tolerance should apply to both common carriers and private users to avoid causing interference into adjacent narrowband channels. Petition at 18 n.27. The

2. Spectrum Efficiency.

The 23 GHz Band is without a spectrum efficiency requirement.[21] This situation is unacceptable because increased "very high bit rate applications in the 23 GHz Band carrying up to 155 Megabits per second of data traffic...will require spectrum efficiencies from 1 to 3 bit/second per Hertz (e.g., using 16 QAM modulation)."[22]

To cure this problem, the TIA Fixed Section proposed revising Section 101.141(a) to specify a 1 bps/Hz efficiency rate for the 23 GHz Band.[23] The FWCC supports adoption of this standard. The new standard "would ensure that all proposed

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Commission's footnote should be changed to grandfather existing common carrier systems. The Commission includes such a grandfathering provision for 23 GHz Band Low Power Limited Coverage systems in Part 101.147(s)(8)(ii). NPRM, 15 FCC Rcd at 3220. It likewise should confer the same "grandfathered" status to common carriers throughout the entire 23 GHz Band. In addition, in paragraph 45 of the NPRM (15 FCC Rcd at 3153), the Commission proposes various revisions to clarify and correct both the frequency tolerance table in Section 101.107(a) and the EIRP table in Section 101.113(a). The FWCC supports adoption of these changes.

[21] Petition at 19.

[22] Id., Appendix A at Section 6.

[23] NPRM, 15 FCC Rcd at 3162. This proposed standard is also used for all frequency bands below 19.7 GHz and for DEMS operation in the 24 GHz (24.25-25.25 GHz) band. As discussed above, radios in the 18, 23, and 38 GHz bands use many common parts. Most manufacturers use 4-level frequency shift keying (4 FSK) or 4-level quadrature amplitude modulation (4 QAM) in their high frequency radio products. The radios are designed to meet the 1 bps/Hz spectrum efficiency requirement in the 18 GHz band. Radios using 4 QAM modulation will meet the spectrum efficiency requirement in the 23 GHz Band without modification. Radios using 4 FSK may be modified to meet the 1 bps/Hz efficiency rate by reducing the frequency deviation if they do not currently meet the requirement. Radios using 2 FSK or other simple modulation techniques may require more extensive equipment changes. The proposed rules include a transition period before the new standard is effective, providing manufacturers with time to make modifications to their equipment and users with the time to implement the new technology. See footnote 10, supra.

bandwidths are fully utilized and because the digital 18 GHz band radio models that likely would be retrofitted for 23 GHz Band operation are designed to this standard."[24]

3. Low Power Operation.

The TIA Fixed Section proposed designating an additional 200 MHz in the 23 GHz Band to relieve congestion for lower power, limited coverage systems.[25] The low power frequencies are used for surveillance and remote video monitoring.

In addition, the TIA Fixed Section proposed: (a) clarifying the maximum power standard from a 55 dBm ERP to a 55 dBm EIRP because EIRP (not ERP) is the appropriate measurement for fixed, rather than mobile, operations; (b) revising the frequency tolerance standard from 0.03% to 0.001% to ensure conformity for all shared services in the band; (c) deleting as outdated "special showings" if a license application requests a 50 MHz bandwidth channel or more than five (5) hops in tandem; (d) eliminating unique interference protection criteria because the standard for 23 GHz Band full power operation is adequate; and (e) permitting a 1-foot diameter antenna throughout the band.[26]

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[24] NPRM, 15 FCC Rcd at 3162.

[25] Id.

[26] Petition at 21-22.

Such changes are needed to support low-power 23 GHz Band operations. Accordingly, the FWCC agrees with the Commission[27] that all these revisions should be adopted.

THE COMMISSION MUST ADOPT THE PROPOSED 23 GHz BAND AND 10 GHz BAND ANTENNA STANDARD MODIFICATIONS

Antenna size must be reduced to meet the needs of the PCS and other wireless users deploying systems nationwide. The TIA Fixed Section proposed that the Commission amend its rules to allow smaller antennas in the 23 GHz Band and in the 10 GHz Band.[28] For the reasons set forth below, the FWCC encourages the Commission to adopt these proposals.

For the 23 GHz Band, a 0.46 meter (18-inch) diameter (or equivalent if non-circular antennas are employed) for Category A antennas or a 0.30 meter (1-foot) diameter (or equivalent if non-circular antennas are employed) for Category B antennas would be permitted instead of the current 0.61 meter (2-foot) minimum prescribed in Sections 101.115 and 101.147(s) of the Commission's rules.[29] Similarly, for the 10 GHz Band, a 0.61 (2-foot) diameter (or equivalent if non-circular antennas are employed) antenna, instead of the current minimum 1.22 meter (4-foot) diameter,

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[27] NPRM, 15 FCC Rcd at 3162-63.

[28] Petition at 22.

[29] NPRM, 15 FCC Rcd at 3164.

would be permitted.[30] Furthermore, the TIA Fixed Section proposed changes to the minimum antenna gain, maximum beamwidth and front-to-back ratios for these smaller-diameter antennas in the 23 GHz Band and 10 GHz Band. The Commission's rules should not restrict the use of non-circular antennas as long as the minimum gain, maximum beamwidth, front-to-back ratio and sidelobe requirements are fully met.

The proposed changes for the 23 GHz Band antenna standards, as the Commission acknowledges, "will accommodate ... an increased need for short (*i.e.*, one-to-two-miles) microcell interconnect and LMDS infrastructure link point-to-point microwave paths...."[31] Small diameter antennas further provide low profile, aesthetically pleasing installation that often is required in urban or campus systems and in residential areas. Furthermore, many other countries already have adopted regulations allowing 18-inch antennas for use in the 23 GHz Band. If the Commission amended its rules to allow 18-inch antennas in this band, it would permit antenna manufacturers to design common products in domestic and foreign markets. Use of

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[30] Id., 15 FCC Rcd at 3164-65. Point-to-point microwave is the preferred transmission medium when high reliability is required (e.g., 911 service), when leased lines are unavailable due to geographical constraints (e.g., mountainous terrain), and when leased lines are cost effective due to poor grade of service or lack of competition with the local exchange carrier. Need for these bands will become even more pronounced as cellular and PCS traffic levels increase and coverage areas expand. Regrettably, however, FS user access to the 10 GHz Band is being restricted by different services. The problems caused by this lack of spectrum are being exacerbated by existing antenna standards that significantly restrict short-haul FS user penetration into urban or other densely populated areas. Modification of these standards, to permit the smaller diameter antennas proposed in the Petition, will help make the 10/11 GHz Band a more suitable option for short-haul, high capacity FS applications.

[31] Id., 15 FCC Rcd at 3164.

the 23 GHz Band by PCS providers and other broadband entrepreneurs would be encouraged.

Modification of the 10 GHz Band antenna standards would generate similar benefits. If 2-foot antennas are permitted in this band, rather than the 4-foot minimum diameter antennas now required, studies have shown that the 10 GHz Band would attract FS providers which do not have adequate access to the 18 GHz Band but still need paths longer than 2.3 miles.[32] This capacity is especially important to accommodate the increasing traffic between cell sites and switching centers.

Given the rapid deployment of wireless networks and the long lead time needed by manufacturers to modify their product, prompt action on these proposals is needed. Otherwise, the FS manufacturing industry would be at a significant disadvantage in selling equipment to domestic and overseas markets.

23 GHz BAND CONDITIONAL LICENSING MUST BE PROMOTED

Rapid deployment of FS paths is essential to ensure that broadband technologies reach the widest possible marketplace. In the highly competitive PCS and cellular industries, providers are under intense pressure to put their systems into operation as soon as possible to build market share and to generate the cash flow necessary to pay for infrastructure, operations, and auction costs.

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[32]Petition, App. A at Section 8.1.

Opening up the 23 GHz Band, with the channelization and operating rules proposed in the NPRM, will contribute significantly to expanding the reach of these technologies and services. Conditional licensing for 23 GHz Band FS users is equally essential to achieving these objectives because it enables more rapid delivery of microwave services to the marketplace.[33]

Despite these myriad public interest benefits, the Commission rejected 23 GHz Band conditional licensing.[34] This decision must be reversed and blanket 23 GHz Band conditional licensing must be implemented.

A. The Commission Should Permit Conditional Licensing for the Entire 23 GHz Band Using the TIA Fixed Section's Coordination Approach.

In the Petition, the TIA Fixed Section proposed that the Commission amend its rules to allow additional conditional licensing in the 23 GHz Band. The 23 GHz Band is allocated for both government and non-government use. Applicants for Commission licenses thus must have their proposals coordinated with NTIA.[35] This process takes too long. Permitting conditional licensing clearly would alleviate this problem. Not only will the proposed change help to relieve congestion and relocation difficulties of

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[33]See Reorganization and Revision of Part 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, Order, 13 FCC Rcd 4394, 4396 (Chief, WTB, and Chief, Office of Engineering and Technology, 1998) in which 10 GHz Band conditional licensing was permitted.

[34]NPRM, 15 FCC Rcd at 3158-60.

[35]The 23 GHz Band is shared with the Federal Government. Private sector use of this band must be frequency coordinated through the Frequency Assignment Subcommittee ("FAS") of NTIA's Interdepartment Radio Advisory Committee ("IRAC").

FS operators, but it also will allow them to avoid the undue delays experienced with the application process in this band without adversely affecting government operations.

Consistent with the federal government's increased commercialization of its spectrum management policies, the TIA Fixed Section recommended that the process track how private sector coordination is conducted.[36] Under this approach: (i) a commercial frequency coordinator would send a prior coordination notice ("PCN") to IRAC; (ii) the affected government agencies, through IRAC, would have 30 days to respond; and (iii) if no response is made, the proposal is deemed to be coordinated, an application can be filed and operation simultaneously could commence, but if interference problems are identified, they would have to be resolved before conditional licensing could be invoked.[37]

The Commission "decline[d] to propose any [rule] changes for conditional licensing in the 23 GHz Band."[38] It is now reluctant to move forward with this reasonable solution for accelerating FS user deployment and for making the 23 GHz

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[36]To further protect government operations, the TIA Fixed Section also proposed establishing specific circular areas around sensitive military and agency facilities where conditional licensing would not be permitted. Petition at 13.

[37]NPRM, 15 FCC Rcd at 3158-59. This procedure works well for private sector coordination between users from the same service (e.g., both FS users) and between users sharing the band (e.g., FS and FSS users). 47 C.F.R. § 101.103 (d)(2000). Further, it works well for coordination of federal government bands between different agency coordinators before submission to NTIA and to IRAC's FAS. See Petition at 12 n.18.

[38]NPRM, 15 FCC Rcd at 3158-60.

Band more accessible. All the Commission can muster in the NPRM is a weak promise that it "will continue to work toward an agreement."[39]

This approach is unacceptable. Negotiations with NTIA must be expedited to resolve any differences so that blanket 23 GHz Band conditional licensing can be implemented.[40]

B. Until Blanket 23 GHz Band Conditional Licensing Is Permitted, It Should Be Allowed On All Frequencies If the ERP Is Not Above 55 dBm.

Conditional licensing in the 23 GHz Band is permitted but only on an unjustifiably limited basis. The Commission has determined that such licensing should be permissible only on the four (4) low power frequencies listed in Section 101.147(s) and only if the FS user would not operate with an ERP[41] greater than 55 dBm pursuant to Section 101.147(s).[42] In the NPRM, due to apparent uncertainty among applicants "whether conditional operation is [permitted] anywhere in the 21.2-23.6 GHz band, or only on the four frequencies listed in Section 101.147(s) ... [the Commission

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[39] Id., 15 FCC Rcd at 3159-60.

[40] In the NPRM, the Commission proposes eliminating the requirement in Section 101.31(a)(3)-(5) that licensees provide certain technical information regarding their conditional operations. 15 FCC Rcd at 3152. It also proposes amending Section 101.31(b) to require that an application for authority to operate a fixed station at temporary locations must specify the precise geographic area within which the operation will be confined. Id. The FWCC supports both these proposals.

[41] The Commission appropriately proposes correcting its rules so that the maximum power standard is stated as EIRP, not ERP. NPRM, 15 FCC Rcd at 3163.

[42] See NPRM, 15 FCC Rcd at 3152-53. The Chief of the Commission's Licensing and Technical Analysis Branch, Public Safety and Private Wireless Division, has taken this position, in a July 13, 1999, letter to the TIA Fixed Section (Ref. No. PS & PWD-LTAB-655).

proposes amending] Section 101.31(b)(vii) to clarify that only the four frequencies listed in Section 101.147(s) are allocated for conditional operation."[43]

The Commission's interpretation is incorrect. It is inconsistent with the specific text of Section 101.31(b). Imposing this arbitrary limit on the use of conditional licensing, so that it is available only to 23 GHz Band low-power channels, unnecessarily restricts access by FS users.

By proposing to clarify that the scope of 23 GHz Band conditional licensing is limited to low power, private carrier operation, the Commission, in the NPRM, is not following the strict terms of Section 101.31(b). Specifically, Section 101.31(b)(1)(vii) of the Commission's rules provides that

> [a]n applicant for a new point-to-point microwave radio stations(s) or a modification of an existing station(s) in the . . . [23 GHz] band[] . . . may operate the proposed station(s) during the pendency of its applications(s) [sic] . . . if the applicant certifies that the following conditions are satisfied: . . . (vii) The filed application(s) does not propose to operate in the [23 GHz] band with an E.R.P. greater then 55 dBm pursuant to § 101.47(s).[44]

The Commission's policy of restricting conditional licensing in the 23 GHz Band only to the four (4) low power channel pairs assigned under Section 101.147(s) is unnecessary and is not contemplated under Part 101. There is no restriction in Part

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[43]NPRM, 15 FCC Rcd at 3152-53. In a July 13, 1999, letter to the TIA Fixed Section from the Chief, Public Safety and Private Wireless Division, WTB (Ref. 2000F/KHF), this issue was deferred for public comment as part of the NPRM. Moreover, the Commission made it clear that, "[w]ith regard to other frequencies in the band, applicants must follow normal processing and await the Commission obtaining clearance from NTIA before operating." NPRM, 15 FCC Rcd at 3152-53.

[44]47 C.F.R. § 101.31(b)(1)(vii) (2000) (emphasis added).

101 to prohibit an applicant, which proposes operation on any 23 GHz Band channel pair with an ERP at or below 55 dBm, from electing to use conditional licensing.

In the Part 101 Order, the Commission stated that it only would prohibit 23 GHz Band conditional licensing "for operations with an [ERP] greater than 55 dBm."[45] Under Section 101.31(b), 23 GHz Band conditional licensing is authorized upon application filing if the applicant certifies that certain conditions are satisfied.[46] One of these conditions is, if the applicant proposes a low power, limited coverage system, it must demonstrate compliance with the ERP requirement of Section 101.147(s).[47]

Conversely, there is no provision in Section 101.31(b) that expressly prohibits conditional licensing on the other 23 GHz Band frequencies designated for FS users if the 55 dBm ERP limit is not exceeded. If the applicant proposes 23 GHz Band operations other than the low power, limited coverage private carrier systems, there is no requirement that it must comply with Section 101.147(s) to be eligible for conditional licensing. As set forth in the Part 101 Order, however, the proposed system still cannot exceed 55 dBm ERP.

At a minimum, the Commission must reverse position and allow 23 GHz Band conditional licensing on all frequencies if the ERP does not exceed 55 dBm. This decision clearly would serve the public interest. Critical applications by many industry

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[45] Part 101 Order, 11 FCC Rcd at 13462-63.

[46] 47 C.F.R. § 101.31(b) (2000).

[47] 47 C.F.R. § 101.31(b)(1)(vii) (2000).

users would be supported. Access to the band would be expedited without any risk of harmful interference to government users because of the low ERP being used. Thus, if it does not allow across-the-board full-power 23 GHz Band conditional licensing, the FWCC respectfully requests that the Commission permit conditional licensing on any FS frequency in the 23 GHz Band provided the proposed system would operate with an ERP at or below 55 dBm.

LMDS TECHNICAL RULES MUST BE REVISED

Use of LMDS, to provide high-speed, sophisticated broadband wireless services, is increasing. In the NPRM, the Commission suggests various revisions to Part 101 technical rules that are intended to support LMDS as a viable platform for these services.[48]

A. Alcatel's Proposal Regarding Out-of-Band Emission Measurements Must Be Adopted.

In an April 12, 2000, letter to the Chief, Public Safety and Public Wireless Division, WTB, Alcatel proposed that Section 101.111(a)(2) should be interpreted to exclude frequencies inside the authorized bandwidth when measuring out-of-band emissions. This solution would meet LMDS radio equipment manufacturer requirements, would not necessitate a rule change, and would provide adequate safeguards against harmful interference. The FWCC supports adoption of Alcatel's

[48] NPRM, 15 FCC Rcd at 3156-58.

proposal and urges the Commission to include this proposal in the record of the NPRM and adopt it with all the other changes supported herein.

B. LMDS Transmitters Must Be Subject To Verification.

Under Section 101.139, LMDS point-to-multipoint transmitters must be certificated by the Commission prior to marketing.[49] In contrast, other Part 101 transmitters only are subject to the less burdensome self-verification procedures.[50]

The Commission proposes applying the verification procedures to LMDS transmitters.[51] The FWCC supports adoption of this proposal. No compelling reason exists to treat such equipment more stringently than the other Part 101 devices.[52]

FS SPECTRUM SHOULD NOT BE AUCTIONED

Under the Balanced Budget Act of 1997 ("Budget Act"),[53] the Commission is obligated to auction all mutually exclusive ("MX") partial license applications. In the NPRM, the Commission seeks comment on how it might modify Part 101 general

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[49]47 C.F.R. §101.139 (2000).

[50]Id.

[51]NPRM, 15 FCC Rcd at 3157-58.

[52]See Amendment of Parts 2, 15, 18, and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment, Report and Order, 13 FCC Rcd 11415, 11426 (1998). In this decision, the Commission adopted significant revisions to its equipment authorization rules, including making Part 101 point-to-point transmitters subject to self-verification procedures instead of the certification procedure.

[53]Balanced Budget Act of 1997, Pub. L. No. 105-33, 111 Stat. 251.

licensing to ensure that it satisfies this requirement.[54] As demonstrated below, however, it would be a serious mistake to use auctions for licensing FS links.

The FWCC recognizes that reinventing the licensing process in frequency bands above 2 GHz will be a difficult task for the Commission. To fulfill Congress' mandate in the Budget Act that spectrum should be licensed so that services are available to meet the ever increasing demands for existing and for new services, a revised licensing process clearly is necessary. However, the FWCC does not consider the Commission's suggested Options I-III, as set forth in the NPRM, to be the answer.

Market forces alone cannot protect FS and other users against interference from competing and potentially incompatible services. This is one of the fundamental reasons that spectrum management bureaus have been established throughout the world over the past 50 years. To prevent inefficient use of the spectrum by incompatible services and to provide minimum R&D investment certainties to radio equipment manufacturers (resulting in lower product costs to the users), the current level of coordination flexibility must be retained. This level of flexibility only can be assured in the absence of auctioned spectrum.

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[54] NPRM, 15 FCC Rcd at 3166-68. Specifically, the Commission proffers four (4) options for addressing the auction requirement with respect to the FS: Option I - license Part 101 microwave spectrum based upon an appropriate channelization plan and geographic service area through use of auctions to choose among MX applications (similar to approach in 38 GHz Band); Option II - relocate licensees so that spectrum is clear for licensing by auction, provided that a "home" for the displaced licensees could be located (similar to 2 GHz band PCS); Option III - identify certain bands where incumbents could retain co-primary status and other bands where incumbents would have secondary status (similar to 31 GHz band LMDS licensing); and Option IV - retain current approach, utilizing various channelization plans and site-by-site licensing, but using auctions to resolve MX applications. Id.

- **Option I. Competitive Bidding.** The FWCC believes that, since the bands above 2 GHz are heavily used by the FS and in many cases are shared with the FSS, any form of competitive bidding for the remaining available spectrum would have the following negative results:

  (a) The remaining available spectrum would be extremely difficult to coordinate for other than additional incremental FS systems.

  (b) Growth for incumbents would be capped. Existing licensees would be denied the opportunity to realize the expected value of their investment in infrastructure unless they were to be able to lease spectrum from the successful bidder. However, this alternative unfairly would put the incumbent at the mercy of the successful bidder.

  (c) Existing well-defined coordination rules, which have been developed over a long period of time to maximize spectrum use, would be replaced by local agreements to accommodate band sharing between the auction winner and the incumbent. Given the technical differences between these licensees and the likely absence of effective Commission standards for such sharing, spectrum inefficiency would increase.

  (d) Band plans and technical parameters for use of the auctioned spectrum could change at the whim of the new licensee. A great level of uncertainty for FS equipment manufacturers in these shared bands thus would be generated. Since FS equipment design and development requires stable standards, any changes would require time to develop new standards which would be necessary to protect the incumbent systems from harmful interference.

  (e) Most FS bands are shared with FSS users, which are not subject to auctions. Thus, imposing auction requirements on FS users in these shared bands would be inequitable.

- **Option II. Band Clearing.** The FWCC recognizes, based on the experience gained from the PCS relocation, that, where alternative spectrum with similar propagation properties is readily available, this Option could be attractive. However, it is well known that there is no

such new spectrum available. Therefore, Option II is not viable and should not be considered.

- **Option III. Combination Competitive Bidding and Traditional Licensing on a Geographical and Spectrum Segmentation Basis**. Based upon the Commission's examples describing this Option III, the FWCC agrees that the frequency sharing difficulties and the administration of such a regime would present some very difficult problems. These problems would have to be addressed and solved before such an option could be considered. All the points outlined above with respect to the lack of merit for Option I also apply to Option III.

PRIVATE CARRIERS MUST BE PERMITTED TO HAVE THEIR EXCESS CAPACITY USED FOR COMMON CARRIER SERVICES

Pursuant to Section 101.603(b)(1) of the Commission's rules,[55] POFS carriers are prohibited from offering common carrier services and from leasing excess capacity on their systems to common carriers for their common carrier traffic.[56] This same restriction does not apply to common carriers, as they are permitted to use their transmitters for non-common carrier activities.[57]

In the NPRM, the Commission seeks comment on "whether [it] should eliminate the rule prohibiting stations licensed as private systems from offering common carrier

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[55] 47 C.F.R. § 101.603(b)(1) (2000).

[56] NPRM, 15 FCC Rcd at 3149.

[57] Part 101 Order, 11 FCC Rcd at 13465-66.

communications services."[58] The FWCC strongly supports complete elimination of this restriction.[59]

When the Commission decided to permit common carriers to provide non-common carrier services, it reasoned that

> Licensees who operate common carrier stations will be able to provide private services at the same location without having to construct duplicative facilities. This action will promote economic efficiencies by reducing construction and operating costs associated with operating separate facilities.[60]

This rationale applies with equal force to POFS licensees using their excess capacity for common carrier services. With increased deployment of digital operations and the corresponding improvements in transmission techniques and rates, POFS licensees have more than enough excess capacity to serve their needs while earning revenues from other sources.

Moreover, the existing restriction defeats spectrum efficiency. Unless POFS licensees are given the opportunity to use their excess capacity for provision of common carrier services, such valuable and needed spectrum would be unavailable. Demands by common carriers and users of such services unnecessarily would be

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[58] NPRM, 15 FCC Rcd at 3150.

[59] *The FWCC supports the Commission's proposal in paragraph 48 of the* NPRM (15 FCC Rcd at 3154) to codify its earlier decision in the Part 101 Order that a POFS licensee can change to a common carrier by filing appropriate tariff information under Part 61 and by filing a Form 601 license application (without a filing fee).

[60] Part 101 Order, 11 FCC Rcd at 13466.

stymied. Such an arbitrary limitation is not in the public interest and must be removed.[61]

ADOPTION OF PROPOSED RULES FOR 10 GHz BAND OPERATIONS AND PART 74 DIGITAL TRANSMISSIONS ALSO WOULD SERVE THE PUBLIC INTEREST

The TIA Fixed Section, in its Petition, made other proposals that, if adopted, would serve the public interest. It recommended revising the maximum allowable EIRP for the 10 GHz Band to avoid problems with longer paths and it proposed revisions to Part 74 so that broadcast support operations can utilize digital technologies more readily.

In the NPRM, however, neither proposal is included. The Commission proposes a revision to the 10 GHz Band EIRP that would make it harder, rather than easier, for long-haul FS users to operate.[62] This revision must be changed as set forth herein. The Commission also defers any proposals to modify Part 74 until a later proceeding,[63] but such delay is unacceptable.

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[61]The FWCC supports the Commission's proposal to permit "grandfathering of [POFS] systems providing common carrier service for their connecting facilities, or for CMRS providers that were formerly private land mobile radio service providers" if it decides to "retain the general prohibition against POFS carriage of common carrier traffic ...." NPRM, 15 FCC Rcd at 3150-51.

[62]NPRM, 15 FCC Rcd at 3153.

[63]Id., 15 FCC Rcd at 3158 n.172.

A. The EIRP for the 10.60-10.68 GHz Band Should Be Modified.

The Commission proposes reducing the Maximum Allowable EIRP for the 10.6-10.68 GHz band from +55 dBW to +40 dBW, stating that this is required by Part 2.106, US footnote 265.[64] Since most systems in this segment of the 10 GHz Band are bi-directional, this change effectively would reduce the EIRP limit for the entire 10.55-10.68 GHz band to +40 dB.

This lower EIRP limit would restrict the maximum antenna size and make the band difficult to use for long paths relocated from the 2 GHz band. Thus, more power would be required in the 10 GHz Band to compensate since the band is affected by rain outage.

The +40 dBW maximum EIRP would limit the maximum antenna size to a 6 foot diameter in this example. If the Commission wants to limit the EIRP, it should change the maximum EIRP for the 10 GHz Band in Section 101.113(a) from 55 dBw to 45 dBW. This change would allow up to a 10 foot diameter dish at each station. Antenna sizes of 10 foot will provide adequate system gain for most FS applications in the 10 GHz band.

As an alternative, the following footnote should be added to the EIRP limit for the 10.55-10.68 GHz band in Section 101.113(a):

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[64] Id., 15 FCC Rcd at 3153.

> Transmitters licensed after [effective date] shall not exceed an EIRP limit of 40 dBW. ATPC power reduction may be used to meet the 40 dBW EIRP limit for transmitters with an EIRP between 40 dBW and 55 dBW.

This alternative rule change would maintain the current 55 dBW EIRP limit, but would require systems to reduce their power to the 40 dBW level using Automatic Transmit Power Control ("ATPC"). Transmitters would only exceed the 40 dBW level during short periods of multipath or rain fading.

B. The Commission Promptly Should Initiate A Rulemaking to Revise Part 74.

The TIA Fixed Section proposed that the Commission make specific changes in the Television Broadcast Auxiliary Service to ensure that digital transmission technologies can be utilized fully.[65] After the two (2) year delay in acting on the Petition, the Commission has decided to defer action on this proposal even longer by stating that it would establish a separate proceeding at some undetermined future date.[66]

This delay is intolerable. It is critical that technical standards be prescribed to ensure the reliability of all digital paths. Specific technical rules in this service, such as digital modulation, maximum EIRP for short paths, and ATPC, will support and promote HDTV over microwave paths.

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[65]Petition at 26-27.

[66]NPRM, 15 FCC Rcd at 3158 n.172.

Under current Part 74 rules, television broadcasters cannot install an STL in the 6.875-7.125 GHz and 12.7-13.25 GHz bands using digital modulation. The rules only permit analog modulation.

Broadcasters, therefore, are unable to install new digital radios to carry HDTV. If broadcasters cannot get digital television signals from the studio to the transmitter, they cannot provide digital television service.

This problem is not speculative. Certain broadcasters at the forefront of providing HDTV have been frustrated because the Commission will not grant applications for digital STL links. Anything but prompt action on this proposal threatens a successful HDTV roll-out. Thus, the Commission must act immediately and issue a Notice of Proposed Rulemaking proposing revisions to Part 74 that permit digital modulation.

CONCLUSION

The NPRM includes several important proposals for FS users. Access to the 23 GHz Band would be increased if the proposals are adopted that would make conditional licensing more readily available, that would incorporate channelization and operating criteria based upon current digital technology and that would establish consistent rules for FS users. To complement the increased vitality of the 23 GHz Band and to increase user flexibility, changes proposed in the NPRM must be made to the rules for FS operation in the 10 GHz Band. Specific rules for growth technologies, such as LMDS and HDTV, also should be adopted to facilitate their deployment.

For the foregoing reasons, it is imperative to implement these new rules. Thus, the FWCC requests that the Commission expeditiously take this important step.

Respectfully submitted,

THE FIXED WIRELESS COMMUNICATIONS COALITION

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July 19, 2000

APPENDIX A

FIXED WIRELESS COMMUNICATIONS COALITION

The Fixed Wireless Communications Coalition ("FWCC")was formed by FS users and suppliers to assure that adequate spectrum resources are available for current and future FS communications. Such action is necessary because spectrum allocation and re-allocation actions currently under consideration at the Commission require these interests to speak with a common voice. Additionally, the FWCC works for a regulatory climate both at the Commission and the ITU that permits the manufacture, operation, and use of FS systems.

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Association of Public-Safety Communications Officials
United Telecom Council (UTC)
National Association of Broadcasters
National Cable Television Association
Independent Cable Telecommunications Association
American Petroleum Institute
Wireless Communications Association
Personal Communications Industry Association
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