

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

In the Matter of)	
)	
Amendment of Part 2 of the Commission's)	ET Docket No. 00-258
Rules to Allocate Spectrum Below 3 GHz)	
For Mobile and Fixed Services to Support)	
the Introduction of New Advanced Wireless)	
Services, including Third Generation)	
Wireless Systems)	
)	
Petition for Rulemaking of the Cellular)	RM-9920
Telecommunications Industry Association)	
Concerning Implementation of WRC-2000;)	
Review of Spectrum and Regulatory)	
Requirements for IMT-2000)	
)	
Amendment of the U.S. Table of Frequency)	RM-9911
Allocations to Designate the 2500-2520/)	
2670-2690 MHz Frequency Bands for the)	
Mobile-Satellite Service)	

To: The Commission

REPLY COMMENTS OF SPRINT CORPORATION

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SUMMARY

Sprint and the overwhelming majority of commenters in this proceeding adamantly oppose any effort to reduce the amount of spectrum at 2150-2162 MHz (“2.1 GHz band”) and the 2500-2690 MHz (“2.5 GHz band”) now being used by MDS and ITFS licensees to provide advanced fixed wireless services. Sprint and virtually all other commenters agree that interference concerns prevent sharing of this spectrum between 3G mobile services and the advanced fixed wireless services operating in the 2.1 and 2.5 GHz bands.

Contrary to wireless industry claims, the Commission cannot reallocate the 2.1 GHz band for 3G services. This spectrum is being used to provide advanced fixed wireless services to tens of thousands of residential and small business customers across the nation and MDS operators plan to initiate services in additional markets using the 2.1 GHz band for upstream (consumer to the Internet) communications. Because the 2.1 GHz band is being paired with spectrum separating upstream and downstream (Internet to consumer) communications in the 2.5 GHz band, use of the 2.1 GHz band promotes more efficient use of the 2.5 GHz band. Without this spectrum, the roll-out of important competitive broadband service will cease.

The mobile wireless industry also has not made the case for reallocating the 2.5 GHz band for 3G. Almost universally, the wireless industry and the equipment manufacturers indicate a strong preference for other spectrum. Moreover, numerous commenting parties, engineering studies and the Commission’s own findings show that neither segmentation of the band nor sharing of the band between fixed and mobile services is either technically or economically feasible. Those few entities that advocate

reallocation of the 2.5 GHz band base their views on serious misunderstandings of the interdependent operation of MDS/ITFS systems.

The overwhelming number of comments and letters filed by the educational community support the vital role that ITFS operators perform for students, schools and communities. Any reduction or change to ITFS spectrum would have a devastating impact on these services and the broadband expectations of the educational community. In sum, the record established in this proceeding fully supports the removal of the 2.1 and 2.5 GHz frequency bands from further consideration for reallocation to 3G services. The wireless industry proponents of 3G failed to demonstrate that this spectrum should be reallocated, and in fact, most have argued that other spectrum is more suitable for their spectrum requirements. Equipment manufacturers also expressed strong concerns about any reallocation of the 2.1 GHz and 2.5 GHz bands. The MDS/ITFS industry and the educational community vehemently opposed reallocation of the 2.1 and 2.5 GHz bands. The Commission should focus its efforts to locate additional advanced services spectrum in other frequency bands.

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Sprint Corporation ("Sprint") hereby submits its reply comments in response to the Notice of Proposed Rulemaking ("*NPRM*")¹ in the above-referenced proceeding.²

¹ *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, Notice of Proposed Rulemaking and Order, FCC No. 00-455 (Jan. 5, 2001) ("*NPRM*"). All comments cited to in these Reply Comments were filed in response to the *NPRM* on or around February 22, 2001 and will hereinafter be short cited.

² Certain commenting parties, including Cingular Wireless LLC ("Cingular") and the Cellular Telecommunications and Internet Ass'n ("CTIA") ask that the Commission lift the 45 MHz CMRS spectrum cap as part of its 3G proceeding. *See* Cingular Comments at 13-15 and CTIA Comments at 4-8. The Commission has issued *2000 Biennial Regulatory Review Spectrum Aggregation Limits for Commercial Mobile Radio Services*, Notice Of Proposed Rulemaking, WT Docket No. 01-14, FCC No. 01-28 (Jan. 23, 2001), specifically to address spectrum cap issues and its review is properly confined to that proceeding.

Sprint and the overwhelming majority of commenters in this proceeding adamantly oppose any Commission effort to reduce the amount of spectrum at 2150-2165 MHz (“2.1 GHz band”) and 2500-2690 MHz (“2.5 GHz band”) now available for the provision of advanced fixed wireless services. Comments filed by multipoint distribution service, multi-channel multipoint distribution service (collectively “MDS”) licensees, instructional television fixed service (“ITFS”) licensees and members of the educational community, and equipment manufacturers, overwhelmingly demonstrate that these bands are being used to provide competitive advanced fixed wireless services, including to many second and third tier markets, and to provide vitally important educational services. These commenters overwhelmingly oppose sharing of this spectrum between 3G mobile services and the advanced fixed wireless services already operating in the 2.1 and 2.5 GHz bands.

Despite the overreaching claims of some members of the wireless industry, the comments did not demonstrate that the 2.1 GHz band and 2.5 GHz band are needed for deployment of 3G services. Several equipment manufacturers opposed allocation of the 2.5 GHz band for 3G services because of the existing roll-out of broadband fixed wireless services and because use of this spectrum will not further global harmonization or generate associated scale economies. The comments demonstrate that the full use of both the 2.1 and 2.5 GHz bands is necessary for the continued deployment of advanced fixed wireless services.

The comments demonstrate that neither segmentation nor sharing of this spectrum is feasible. As Sprint and others described in their comments, permitting 3G mobile operators to either share the 2.1 GHz and 2.5 GHz bands or replace existing fixed wireless operators would irreparably compromise multi-billion dollar investments to bring competitive advanced broadband wireless services to the mass market residential and small

business consumers in markets across the nation, including many second and third tier markets. Many of these markets have yet to benefit from any broadband services, let alone competition in the provision of advanced services.

Introduction

Given the tepid response from the wireless industry, the strong manufacturer concerns and the outpouring of concern from all segments of the educational community and the MDS industry protesting the reallocation of the 2.1 and 2.5 GHz bands to 3G services, the Commission should move quickly to affirm the continued use of the band for advanced fixed wireless services. Sprint urges the Commission to remove this spectrum from consideration in its *Final Report*. Removing the cloud that hangs over the 2.1 and 2.5 GHz bands will ensure that Sprint and other MDS operators and their educational partners can continue to roll out high-speed, broadband services to the mass market.³

As acknowledged by the Texas PUC,⁴ and the Commission,⁵ and even the CEO of Verizon Communications,⁶ the advanced fixed wireless services provided by Sprint and others are an important source of broadband competition that cannot afford to be lost. Thus, the Commission must act quickly to remove the 2.1 and 2.5 GHz bands from continued consideration for 3G allocation. By failing to do so, the Commission will be

³ See DCT Los Angeles (“DCT”) Comments at 5, IPWireless (“IPW”) Comments at 12, and Catholic Television Network (“CTN”) Comments at 25-27.

⁴ See Public Utility Commission of Texas (“Texas PUC”) Comments at 2.

⁵ In the *Interim Report*, the Commission noted that “[n]ationwide deployment of [fixed two-way] MDS systems will provide Americans with another option for high-speed access.” FCC Office of Engineering and Technology, Mass Media Bureau, Wireless Telecommunications Bureau and International Bureau, *Spectrum Study of the 2500-2690 MHz Band: The Potential for Accommodating Third Generation Mobile Systems*, Interim Report at 22 (Nov. 15, 2000) (“*Interim Report*”).

⁶ “Competition in broadband will consist of rival pathways to the home. Two such technologies already are available—cable modems and telephone digital subscriber lines. These will be joined in coming years by broadband fixed wireless and satellite connections. The primary objective of federal policymakers should be to encourage new investment and allow competition between these rival ‘last-mile’ technologies.” Ivan Seidenberg, *Stop Blocking the Broadband Revolution*, Wall Street Journal, Mar. 1, 2001, at A22.

acting to further the cable/DSL duopoly at the expense of MDS/ITFS advanced fixed wireless services.

I. The 2.1 GHz Band Cannot Be Allocated For 3G.

Commenters have failed to demonstrate that reallocation of the 2.1 GHz band is either feasible or in the public interest. In fact, comments filed by the MDS/ITFS industry and the equipment manufacturers support Sprint's contention that the 2.1 GHz band is necessary for the roll-out of advanced fixed wireless services.⁷

Sprint is using this band in *every* market in which it has rolled out its advanced fixed wireless services. It is currently using these channels to provide service to more than 25,000 residential and small business customers in Phoenix, Tucson, Detroit, Colorado Springs, Houston, San Jose, Oakland, Denver, Salt Lake City, Wichita, Melbourne, Fla., Oklahoma City and Fresno. As stated succinctly by Cisco in its comments, the 2.1 GHz band is "essential to facilitate the transition from video to complete broadband services."⁸ If Sprint loses access to these channels, it must cease providing service to customers, some of whom have no other broadband access and others of whom have a choice only between the cable/DSL duopoly. Without these channels, continued roll-out of advanced fixed wireless services is in jeopardy.

Removing the 2.1 GHz band from MDS also eliminates Sprint's ability to use separation spectrum in the 2.5 GHz band. As described in its comments, the channels

⁷ See Sprint Comments at 31-32.

⁸ See Cisco Systems ("Cisco") Comments at 8. See also Wireless Communications Association International ("WCA") Comments at 40-44, Nucentrix Broadband Networks ("Nucentrix") Comments at 20-21 (over 94% of its pending applications are for channels MDS 1/2/2A), WorldCom Comments at 23, Ad Hoc MDS Alliance ("MDS Alliance") Comments at 4-6, Wireless One of North Carolina ("WONC") Comments at 9-10, Hubbard Trust, Wireless World and Centimeterwave Television ("Hubbard") Comments at 11, and National ITFS Association ("NIA") Comments at 22 n.36.

allocated for MDS in the 2.1 GHz band permit more efficient use of the spectrum.⁹

Because of the required separation between upstream and downstream transmissions, the channels in the 2.1 GHz band can be paired easily with spectrum in the 2.5 GHz band and naturally provide the necessary separation between upstream and downstream transmissions, allowing for efficient spectrum use.¹⁰

In addition, the 2.1 GHz band is licensed in Canada for fixed uses similar to MDS. Canada does not intend to reallocate this spectrum to 3G because it would “disrupt design and vendor selection activities” and would cause “licensees to make significant unforeseen expenses.”¹¹

In contrast, many of the parties who advocate use of 2.1 GHz for 3G services,¹² offer no suggestions as to where these channels could be relocated or how Sprint can continue to provide service to the more than 25,000 residential and small business customers receiving service over these channels.

Moreover, the suggestion to move channels MDS 1 and MDS 2/2A from 2150-2160/62 MHz to 2155-2165 MHz to allow for guardbands between 3G and MDS operations¹³ will only cause new guardband problems between MDS operations and Mobile Satellite Service (“MSS”) operators. The MDS and MSS guardband issue has been the subject of a multi-year proceeding that has yet to conclude. Requiring reallocation of channels MDS 1/2/2A to this spectrum might resolve the concerns of the 3G industry, but

⁹ See Sprint Comments at 31-32.

¹⁰ See WorldCom Comments at 24, WCA Comments at 41-42, Nucentrix Comments at 21, and WONC Comments at 10.

¹¹ See Radio Advisory Board of Canada (“RABC”) Comments at 14.

¹² See generally, e.g. Motorola Comments, Qualcomm Comments and Siemens Comments.

¹³ See AT&T Wireless Services (“AT&T”) Comments at 12 and Verizon Wireless (“Verizon”) Comments at 14-15.

it introduces other concerns to the MDS and MSS industries.¹⁴ Preliminary engineering analysis indicates that 3G systems and MDS/ITFS can co-exist in adjacent bands at 2.1 GHz with a relatively modest guardband between them. WCA expects to file soon in this proceeding a complete engineering analysis addressing this issue.

MDS 1/2/2A also cannot be moved to the 2.5 GHz band.¹⁵ As demonstrated in the *Interim Report*, the 2.5 GHz band already is constrained.¹⁶ The HAI Study demonstrates that a reduction in spectrum will harm broadband rollout.¹⁷ Any attempt to fit additional channels into an already constrained spectrum block will do nothing to replace the capacity lost through reallocation of 2.1 GHz. The net impact would be a loss of 10-12 MHz plus separation bandwidth of 42 MHz of spectrum that operators now rely upon and are using to provide service.

Cingular's suggestion that relocation of 2160-2165 MHz would be a simple process because the licensees located within that spectrum are all licensed as internal fixed links¹⁸ is simply wrong and proves that it has not investigated the existing use of channels MDS 1/2/2A. Had it done so, it would have recognized that these channels are not used as internal fixed links, but rather are integral to systems providing mass market services to the public.

Despite its claims of need for the spectrum at 2.1 GHz, the 3G industry has failed to demonstrate that its needs outweigh those of the MDS industry. In light of the

¹⁴ As described *supra*, these channels cannot be moved to a higher frequency band. *See also* MDS Alliance Comments at 6-7.

¹⁵ *See* Verizon Comments at 15.

¹⁶ Verizon also advocates taking the 2.5 GHz band away from MDS/ITFS. *See* Verizon Comments at 19-24.

¹⁷ *See generally* HAI Consulting, Inc., *MDS/MMDS/ITFS Two-Way Fixed Wireless Broadband Service: Spectrum Requirements and Business Case Analysis*, White Paper (Feb. 22, 2001) ("*HAI Study*") (attached to WCA Comments as Attachment B).

¹⁸ *See* Cingular Comments at 23.

availability of spectrum elsewhere for 3G services and the important advanced services already being provided in this spectrum by MDS operators the Commission can not justify reallocating this spectrum.

II. The Lack Of Support For Reallocating The 2.5 GHz Band Requires That The Commission Eliminate The Band From Consideration For 3G Services.

As demonstrated in Sprint's comments,¹⁹ and as overwhelmingly supported by the other comments filed in this proceeding, the Commission must not reallocate or segment the 2.5 GHz band. The competitive importance of existing advanced competitive services being provided in this spectrum outweigh the unsubstantiated, vague claims by the wireless industry that it needs *this* spectrum to provide 3G services, particularly when sufficient other spectrum is available for deployment of 3G services.

A. Commenters Did Not Substantiate A Need For The 2.5 GHz Band For 3G.

The comments do not demonstrate that the 2.5 GHz band is necessary for deployment of 3G services. Even those comments that suggest a future need for the spectrum only vaguely speculated about when the spectrum might be needed. Motorola concludes that "the band does not provide a near term 3G spectrum solution in the U.S." because of the incumbent uses of the band and because it is unlikely that 3G will be internationally deployed in this band for many years.²⁰ AT&T concedes that "propagation at this range is diminished compared to spectrum below 1850 MHz, which would necessitate the construction of additional sites to cover the same geographic area, thereby increasing 3G build-out costs."²¹ Cingular, AT&T, CTIA and Nortel all advocate use of

¹⁹ See Sprint Comments at 20-30.

²⁰ See Motorola Comments at 19-20.

²¹ See AT&T Comments at 17.

2.5 GHz only if the 1755-1850 MHz band cannot be used.²² Lucent discourages use of the 2.5 GHz band because it would not promote global roaming, would impose challenges to the operation of multiband systems and would require significant changes in mobile equipment.²³ AT&T notes that Europe has indicated that it will not use 2.5 GHz for 3G services until 2008-2010.²⁴ Lucent notes that use of 2.5 GHz in Europe is not at all definite.²⁵ Qualcomm states that the frequencies above 2 GHz are unlikely to support roaming services outside of metropolitan areas for quite some time.²⁶ Siemens suggests the 1.7 GHz band paired with 1.8 GHz should serve as the core band.²⁷ Ericsson does not suggest use of the 2.5 GHz band before 2005-2008.²⁸ Qualcomm is silent on the use of the 2.5 GHz band.²⁹ In sum, the wireless industry has not provided the necessary support for reallocation of the 2.5 GHz band, and in fact, the evidence seems to indicate that 2.5 GHz is not now needed for 3G services, nor will it be in the future.

In addition, and perhaps more important, Canada (among other major countries) does not intend to use 2.5 GHz for 3G service.³⁰ Thus, U.S. use of the band for 3G will cause cross-border problems that will further delay implementation of 3G services. As described in Sprint's comments and as supported by the Radio Advisory Board of

²² See Cingular Comments at 15 (suggesting allocation of the 2.5 GHz band only if "clearing [the 1.7 GHz band] proves impractical"), 24 and AT&T Comments at 9, 16, Mary Greczyn, *Wireless Industry Eyes Military Spectrum As First Choice For 3G*, Comm. Daily, Feb. 14, 2001, at 1-2 (stating that 2.5 GHz is not its first choice for 3G), and Nortel Networks ("Nortel") Comments at 7 (stating that 1.7 GHz is the "superior alternative").

²³ See Lucent Technologies ("Lucent") Comments at 9.

²⁴ See AT&T Comments at 12-13.

²⁵ See Lucent Comments at 9.

²⁶ See Qualcomm Comments at 15.

²⁷ See Siemens Comments at 4.

²⁸ See Ericsson Comments at 5.

²⁹ See generally Qualcomm Comments.

³⁰ See RABC Comments at 11.

Canada,³¹ regional roaming in North America is a goal that can be achieved only if the Commission chooses to allocate the 1.7 GHz band for 3G services.

B. The Comments Confirm That Segmentation Will Not Produce Commercially Viable Results For Advanced Fixed Wireless Services.

The comments provide irrefutable support for Sprint's position that any segmentation of the 2.5 GHz band will make it economically infeasible for it to continue providing advanced fixed wireless services.³² As Sprint stated in its comments,³³ and as demonstrated by the HAI Study,³⁴ and MDS/ITFS industry comments,³⁵ any reduction in spectrum allocated to MDS/ITFS would leave advanced fixed wireless operators with only two choices, to provide service to fewer customers or to construct additional cell sites to reach the same number of customers. Equipment manufacturers, such as Cisco, support the HAI Study conclusion that coverage areas would be reduced by segmentation.³⁶ Either choice would substantially increase the costs to provide service and substantially decrease a provider's return, making the provision of service economically infeasible. Thus, such a result will force operators currently providing and expecting to provide advanced fixed

³¹ See RABC Comments at 6. See also Canadian Wireless Telecommunications Ass'n Comments at 2-5.

³² See Sprint Comments at 20-23. See e.g., Petroleum Communications ("PetroCom") Comments at 3, Nucentrix Comments at 10-12, WorldCom Comments at 18-21, WCA Comments at 32-40, Multi-Micro ("MMI") Comments at 3, Champion Industries ("CI") Comments at 3, Virginia Communications ("VCI") Comments at 3, Seniors Advocate ("Seniors") Comments at 3, SpectrumLink Networks ("SpectrumLink") Comments at 11-14, Red El Paso Partnership, Red Memphis F Partnership, Red New York E Partnership and Red Tucson E Partnership ("Red Partnerships") Comments at 5-7, WONC Comments at 1-2, K-12 Community ("K-12") Comments at 4-10, CTN Comments at 22-23, Network for Instructional TV ("NITV") Comments at 12, NIA Comments at 31, Eureka College and the Illinois Educators ("Illinois") Comments at 7-8, Education Service Center Region 9 and the Texas ITFS Community ("Texas") Comments at 10, Oklahoma State Regents for Higher Education and Oklahoma Educators ("Oklahoma") Comments at 7-8, and Illinois Institute of Technology ("IIT") Comments at 7-8.

³³ See Sprint Comments at 20-23.

³⁴ See generally HAI Study.

³⁵ See Nucentrix Comments at 10-12, WorldCom Comments at 18-21, WCA Comments at 33-44, and Cisco Comments at 9-12.

³⁶ See Cisco Comments at 11-12. See also WCA Comments at 32-42, WorldCom Comments at 26, and Nucentrix Comments at 10-11.

wireless services in this spectrum to exit the business,³⁷ leaving many customers without a broadband fixed provider, and others with a choice between only the cable/DSL broadband duopoly.

As Sprint described in its comments, the Commission has actively encouraged it and others to expend substantial financial and other resources to develop and provide advanced fixed wireless services in the 2.1 and 2.5 GHz bands.³⁸ Other MDS/ITFS licensees³⁹ and equipment manufacturers broadly agree that any reduction in MDS/ITFS spectrum would be an arbitrary departure from the established Commission policy. For example, Nortel and Clearwire note that reallocation of the 2.5 GHz band would erase the FCC's efforts to encourage the development of advanced fixed two-way systems.⁴⁰ Cisco and Clearwire also agree with Sprint, and the other MDS/ITFS commenters, that any change to the current allocation of the 2.5 GHz band would threaten the public interest benefits of broadband deployment, competition and advanced services to residential and rural customers.⁴¹ Moreover, the dramatic relocation requirements make segmentation an unworkable option.⁴² Relocation of the many transmitters and customer receivers used in the provision of MDS/ITFS services would be an incredibly expensive and time

³⁷ See generally *HAI Study*.

³⁸ See Sprint Comments at 4-6. See also WorldCom Comments at 2-3, WCA Comments at 16-19, 23-25, Nucentrix Comments at 4-5, Clearwire Technologies ("Clearwire") Comments at 5-6, CTN at 26, IPW Comments at 4, and Red Partnerships Comments at 4-5.

³⁹ See WCA Comments at 20, Nucentrix Comments at 16-19, and WorldCom Comments at 11-12.

⁴⁰ See Nortel Comments at 6-7 and Clearwire Comments at 2.

⁴¹ See e.g., Clearwire Comments at 3, 5, 6, WCA Comments at 25-27, Nucentrix Comments at 16-17, 26-30, WorldCom Comments at 5-6, 9-10, Texas PUC Comments at 2-3, Red Partnerships Comments at 5-6, SpectrumLink Comments at 4-8, Council of the Great City Schools ("Council") Comments at 6-11, American Ass'n of School Administrators ("AASA") Comments at 1-3, Educ. Community of the U.S. ("ECUS") Comments at 7-8, American Ass'n of Community Colleges and Ass'n of Community College Trustees ("AACC") Comments at 1-5, ITFS Spectrum Develop. Alliance ("ITFS Spectrum") Comments at 3-7, CTN Comments at 20-24, South Carolina Educ'l TV Comm'n ("SCETV") Comments at 3-5, and Northern Arizona Univ. Found. ("NAUF") Comments at 4-7. See generally Cisco Comments and K-12 Comments.

⁴² See K-12 Comments at 10-11, CTN Comments at 22-24, Illinois Comments at 7, Texas Comments at 10-11, IIT Comments at 12-14, Nortel Comments at 6, and Clearwire Comments at 2.

consuming process, assuming that the Commission could identify appropriate spectrum in which to relocate MDS/ITFS, which it has not, and could not, do. Cisco also agrees with Sprint that new equipment must be developed if a segmentation approach is adopted.⁴³ Investment in new equipment would substantially increase MDS/ITFS operation costs, and bring the current broadband roll-out to an abrupt halt.⁴⁴

Multiple MDS/ITFS entities and Cisco agree that band segmentation also will dismantle the interdependent, complicated relationship between MDS and ITFS.⁴⁵ Without these relationships, many vital educational services will cease, eventually disrupting the U.S. education system. Many new services that are eagerly anticipated by schools and students would become unavailable, and many existing educational services would be disrupted.⁴⁶

C. Commenters Are Unanimous That Co-Channel Sharing Between MDS/ITFS Fixed Services And 3G Mobile Services Is Not Feasible.

The comments filed by 3G proponents, trade associations and the MDS/ITFS industry support the Commission's conclusion in the *Interim Report* that sharing between MDS/ITFS fixed services and 3G mobile services is not feasible.⁴⁷ Thus, it is imperative

⁴³ See Cisco Comments at 10-11. See also Nucentrix Comments at 16 and WorldCom Comments at 26.

⁴⁴ See Cisco Comments at 9-12, Baypoint TV ("Baypoint") Comments at 6-7, Board of Regents of the University of Wisconsin and the State of Wisconsin Educational Communications Board ("Wisconsin") Comments at 4-5, San Jose State University ("SJSU") Comments at 2-3 and IIT Comments at 13-16. See generally San Diego State University Comments.

⁴⁵ See Comments of Cisco at 8 ("there is no single 'piece' of the 190 MHz that could be extracted for reallocation without severely upsetting the delicately interwoven co-existence among existing licensees"), WorldCom Comments at 16-19, NIA Comments at 9, K-12 Comments at 10-11, CTN Comments at 21-24, and Montgomery College Comments at 2.

⁴⁶ See e.g., K-12 Comments at 13-14, Council Comments at 3-5, ECUS Comments at 8, AACC Comments at 5, University of Minnesota Comments at 1, Pamlico Community College Comments at 2, and Western Oregon University Comments at 2.

⁴⁷ See AT&T Comments at 13, Verizon Comments at 19, the Cellular Telecommunications and Internet Ass'n, Telecommunications Industry Ass'n and Personal Communications Industry Ass'n ("CTIA/PCIA/TIA") Comments at the Report of the Industry Group for Identification of Spectrum for 3G Services at 11, Cisco Comments at 10, Motorola Comments at 13, CelPlan Comments at Considerations on Spectrum Sharing/Segmentation between ITFS/MDS and 3G Systems at 1-2, Clearwire Comments at 2, 7-8, PetroCom Footnote continues...

that the Commission abandon the option of co-channel sharing between MDS/ITFS and 3G.

D. The Few Parties That Advocate Use Of The 2.5 GHz Band For 3G Misstate The Effect Of A Reallocation On MDS/ITFS Operations.

Reallocation of MDS/ITFS spectrum, including the separation of MDS/ITFS frequencies is unworkable.⁴⁸ The Commission repeatedly has acknowledged and encouraged the existing interdependent relationship between MDS and ITFS.⁴⁹ The services have been interdependent from the time the Commission first permitted leasing of ITFS capacity to MDS operators as a way to develop and fund ITFS.⁵⁰ As the Commission described in the *Interim Report*,⁵¹ the services are so technically and economically interdependent that separation would likely mean the end of both, including the advanced fixed wireless services now being rolled out.

Verizon's suggestion that MDS operators bid for access to additional spectrum at auction⁵² conveniently overlooks the fact that MDS spectrum was auctioned in 1995. Auction winners won the rights to use any unused spectrum in both the 2.1 and 2.5 GHz

Comments at 4, SpectrumLink Comments at 10, WorldCom Comments at 21-22, WCA Comments at 26-29, Nucentrix Comments at 6-8, K-12 Comments at 6-7, ITFS Spectrum Comments at 4, CTN Comments at 19-20, NIA Comments at 31-32, Oklahoma Comments at 6, Illinois Comments at 6, Texas Comments at 9-10, and IIT Comments at 7-8. Cf. Ericsson Comments at 16-17.

⁴⁸ See Cingular Comments at 25 (suggesting that such separation is possible).

⁴⁹ See Sprint Comments at 4-6.

⁵⁰ See SkyCable TV of Madison ("SkyCable") Comments at 4, American Federation of Teachers ("AFT") Comments at 2, AASA Comments at 1, ECUS Comments at 8, CTN Comments at 17-20, NITV Comments at 9, NIA Comments at 9, SCETV Comments at 3-4, SJSU Comments at 2-3, Oklahoma Comments at 7-9, University of Colorado ("UC") Comments at 5-6, Illinois Comments at 7-9, Texas Comments at 12, ITFS Parties Comments at 5, and NAUF Comments at 5-6. See generally Council of the Great City Schools Comments, K-12 Comments, Association of Americas Public Television Stations ("APT") Comments, ITFS Spectrum Comments, San Diego County Superintendent ("SDCS") Comments, Richardson ISD Comments, Long Beach Unified School District ("Long Beach") Comments, University of Maryland ("UM") Comments, Black Hawk College ("Black Hawk") Comments, Tarrant County College ("Tarrant") Comments, and Henry County Comments.

⁵¹ *Interim Report* at 17, 24-25.

⁵² See Verizon Comments at 27.

bands, and rights to any unused ITFS spectrum.⁵³ Requiring MDS operators to bid again on spectrum they currently hold would be unprecedented. In addition, the spectrum that would be made available for 3G would be allocated for both fixed and mobile uses, which cannot coexist. Thus, unless all of the spectrum was awarded to entities wishing to provide advanced fixed wireless services, bidding in such an auction would be a useless exercise. As explained in a number of the comments, if the spectrum is shared so that ubiquitous fixed and mobile services are neighbors, neither system will work.⁵⁴

Despite their assertions, AT&T, Cingular and Verizon provided no evidence that MDS can operate in reduced spectrum.⁵⁵ Moreover, the HAI study provides credible, irrefutable evidence that Sprint's business plan requires access to the entire 2.1 and 2.5 GHz bands to provide commercially viable service.⁵⁶ Verizon and Cingular are, therefore, incorrect that more efficient MDS operations would reduce the amount of spectrum that MDS/ITFS operators need.⁵⁷

Cingular is wrong that relocation of MDS/ITFS licensees would be simpler than relocation of licensees in the 1755-1850 MHz band.⁵⁸ As amply demonstrated by MDS/ITFS licensees, there are unprecedented problems in relocating MDS/ITFS licensees. Specifically, relocation of MDS/ITFS licensees would require the Commission for the first time to relocate licensees that provide services directly to end users, rather than merely internal fixed links. Importantly, the current Commission relocation procedures do not

⁵³ See WCA Comments at 46-48, Nucentrix Comments at 12-14, WorldCom Comments at 10-12, and Hubbard Comments at 7-10.

⁵⁴ See *infra* at p. 11, n.40.

⁵⁵ See AT&T Comments at 13, Cingular Comments at 24 and Verizon Comments at 24, 26-27.

⁵⁶ See *generally HAI Study*. See also Clearwire Comments at 9, Nucentrix Comments at 11-12 (describing the incentives that exist for an operator to provide as efficient service as is possible), and WorldCom Comments at 16-21.

⁵⁷ See Verizon Comments at 27 and Cingular Comments at 24.

⁵⁸ See Cingular Comments at 25.

apply to services directly provided to end users.⁵⁹ Furthermore, the interdependent, complicated nature of MDS/ITFS operations,⁶⁰ the failure to identify relocation spectrum,⁶¹ and the massive number of transmitters that must be relocated all point to the folly of attempting a relocation of MDS/ITFS licensees.⁶²

Verizon's and TDSs' suggestions that MDS/ITFS services be provided over alternative media⁶³ is unworkable.⁶⁴ MDS/ITFS cannot provide the same services over alternative media because such operations would involve the same expense and delay presented by relocation to other frequency spectrum. It would defeat many of the advantages that operation in this spectrum currently provides, such as rapid, cost effective rollout to consumers in large rural service areas. If service over alternative wired media provided a solution, DSL and cable today would be providing advanced services to rural areas today.⁶⁵

⁵⁹ See WCA Comments at 50-52, WorldCom Comments at 26-27, Nucentrix Comments at 18-19, SpectrumLink Comments at 12-14, and Clearwire Comments at 8, 12. See generally Wisconsin Comments.

⁶⁰ See e.g., WCA Comments at 50-52, WorldCom Comments at 15-16, Nucentrix Comments at 19, 30-32, Clearwire Comments at 4, Cisco Comments at 9, MMI Comments at 3-5, CII Comments at 3-5, VCI Comments at 3-5, Seniors Comments at 3-5, WONC Comments at 7-8, Red Partnerships Comments at 6-7, Digital Broadcast Corporation ("DBC") Comments at 4-5, K-12 Comments, AASA Comments at 1-2, ECUS Comments at 8-10., ITFS Spectrum Comments at 5-7, CTN Comments at 17-19, 21-24, NITV Comments at 8-13, NIA Comments at 9-12, Oklahoma Comments at 7-9, UC Comments at 5-6, Wisconsin Comments at 4-5, Illinois Comments at 7-9, Texas Comments at 11-12, and ITFS Parties Comments at 5-6. See generally Long Beach Comments, UM Comments, Black Hawk Comments, Tarrant Comments, SJSU Comments, SDCS Comments, Richardson ISD Comments, and Henry County Comments.

⁶¹ See WorldCom Comments at 25, WCA Comments at 49, 53, Nucentrix Comments at 15, Clearwire Comments at 2, 6, 8, PetroCom Comments, SpectrumLink Comments at 12, Baypoint TV Comments at 6, Red Partnerships Comments at 6, NIA Comments at 11-12, Illinois Comments at 6-7, Texas Comments at 10, and Oklahoma Comments at 6-7.

⁶² Clearwire states that relocation of 124,000 transmitters and a million receivers would be impracticable. Clearwire Comments at 4, 8. See also WCA Comments at 50-51, n.132, Nucentrix Comments at 16-19, Nortel Comments at 6, and Wisconsin Comments at 4-5. Clearwire also observes that relocation would convey a lack of stability to investors. See Clearwire Comments at 2, 6, 8, Baypoint TV Comments at 7, Clearwire Comments at 11, and PetroCom Comments at 3.

⁶³ See Verizon Comments at 12-13 and Telephone and Data Systems ("TDS") Comments at 10.

⁶⁴ See NIA Comments at 27.

⁶⁵ See UC Comments and K-12 Comments at 12-13.

Ericsson's suggestion that MDS/ITFS licensees be relocated to 3.5 GHz also cannot be accomplished.⁶⁶ As the Commission has acknowledged MDS/ITFS cannot operate in spectrum above 3 GHz.⁶⁷ Moreover, in support of that conclusion, Cisco demonstrates that MDS/ITFS operation in 3700 MHz will not work.⁶⁸ The transition would take too long, be too expensive and would require equipment redesign. Not a single commenter demonstrated that comparable, available spectrum for MDS/ITFS exists and the Commission finally must concede that none does exist.⁶⁹

III. Loss Of ITFS Spectrum Will Harm Important Educational Services Assisted BY MDS.

The outpouring of comments from the educational community amply show that ITFS spectrum is being productively used. The spectrum is used and relied upon by schools and communities to provide vitally important educational services. In addition, the educational community is rolling out broadband services and is making plans for many additional uses of the advanced fixed wireless services that are and will be provided over ITFS spectrum.⁷⁰ Any reduction or change to this spectrum will be devastating to ITFS licensees, and the schools and students that depend on these services. Contrary to the

⁶⁶ See Ericsson Comments at 16.

⁶⁷ See WCA Comments at 30, SpectrumLink Comments at 12, MDS Alliance Comments at 6-7, Illinois Comments at 6-7, and Oklahoma Comments at 6-7. See generally Wisconsin Comments, Detroit Comments, and IIT Comments.

⁶⁸ See Cisco Comments at 13-15.

⁶⁹ See Sprint Comments at 25, WCA Comments at 49, 53, WorldCom Comments at 25, Nucentrix Comments at 15, PetroCom Comments at 3, Clearwire Comments at 2, 6, 8, and NIA Comments at 11-12.

⁷⁰ See e.g., NIA Comments at 13-16, NITV Comments at 13-16, K-12 Comments at 13-14, Council Comments at 4, AFT Comments at 3, EDUCAUSE Comments at 2, and Governors State University Comments at 2. See generally Fayetteville Technical Community College Comments and Guilford Technical Community College Comments.

statements made by Cingular and Verizon, relocation of ITFS licensees is not possible⁷¹ for the same reasons that relocation of MDS is not possible.⁷²

As demonstrated by the comments, the ITFS industry heavily relies on the MDS industry for the necessary resources to fund many educational programs, including distance learning.⁷³ Without access to ITFS spectrum, MDS would be forced to withdraw its support to ITFS entities, leaving ITFS entities without ready funding for distance learning and other services.⁷⁴ It bears repeating that the mutually beneficial relationship established between MDS and ITFS licensees is a direct result of Commission rules and policy that encouraged the ITFS community to lease spectrum in exchange for assistance with its educational programs.⁷⁵

Contrary to Verizon's assertion, MDS will be seriously harmed if ITFS loses rights to any amount of its currently allocated spectrum.⁷⁶ MDS licensees hold licenses themselves, and leases for commercial ITFS channels and, through the use of channel swapping arrangements, an ITFS station that is licensed on an ITFS channel may have its

⁷¹ See Cingular Comments at 24 and Verizon Comments at 26.

⁷² See *supra*.

⁷³ See WorldCom Comments at 15-16, WCA Comments at 36-37, Nucentrix Comments at 19, 30-32, MMI Comments at 5, CII Comments at 5, VCI Comments at 5, Seniors Comments at 5, DBC Comments at 5, WONC Comments at 8, IPW Comments at 12, K-12 Comments at 3, 5-6, AFT Comments at 2, AASA Comments at 1, ECUS Comments at 8-9, APTV Comments at 5, ITFS Spectrum Comments at 2-3, 6-7, CTN Comments at 22, NITV Comments at 9, NIA Comments at 9, SCETV Comments at 4, Wisconsin Comments at 2-3, Oklahoma Comments at 8-9, Illinois Comments at 8-9, Texas Comments at 12, ITFS Parties Comments at 4-6, NAUF Comments at 3-5, EDUCAUSE Comments at 2, and Chemeketa Community College Comments at 2. See generally Long Beach Comments, UM Comments, Black Hawk Comments, Tarrant Comments, SJSU Comments, SDCS Comments, Richardson ISD Comments, and Henry County Comments.

⁷⁴ *Id.*

⁷⁵ Verizon also asserts that because the 2.5 GHz band is no longer used predominately for instructional purposes, it should be reallocated. See Verizon Comments at 20. However, although the 2.5 GHz band was originally entirely allocated to ITFS, through the years, some of the spectrum has been reallocated to MDS. Again, Verizon is suggesting that spectrum should be reallocated because licensees have complied with Commission rules.

⁷⁶ See Verizon Comments at 26-27.

programming loaded on an MDS channel and vice versa. The relocation of ITFS would throw both ITFS and MDS service offerings into total disarray.

IV. The Comments Confirm That Reallocation Of The 2.5 GHz Band For 3G Services Will Not Ensure Global Harmonization.

The goal of global harmonization would not be assisted by reallocating the 2.1 and 2.5 GHz bands. Canada, one of United States' closest neighbors and largest trading partner, does not intend to use 2.5 GHz for 3G services.⁷⁷ That scenario alone creates a clear impediment to global harmonization. Motorola and Lucent agree that use of 2.5 GHz for 3G would impede global harmonization because other countries are not planning out to roll-out 3G services in that spectrum.⁷⁸ Any benefits that might accrue from harmonization will be lost if the 2.5 GHz band is allocated for 3G.

⁷⁷ See RABC Comments at 11.

⁷⁸ See Motorola Comments at 12 and Lucent Comments at 9, 11-12 ("1710-1750/1805-1845 MHz...would establish a globally harmonized frequency arrangement that would be used by both 2G and 3G systems").

Conclusion

Based on the overwhelming evidence presented in the comments filed in response to the *NPRM*, the Commission has no choice but to remove the 2.1 and 2.5 GHz bands from consideration for allocation to 3G, and should present this conclusion in the *Final Report*. Sharing and segmentation have been clearly demonstrated to be infeasible, both for technical and economic reasons. This spectrum is providing important competitive services to consumers, small businesses and schools and students, particularly those in second and third tier markets. Any change in the allocation of this spectrum will not just disrupt and delay the continued use and roll-out of advanced fixed wireless services, but will force Sprint to cease providing this service. The Commission must conclude that action to bring about such a result would not be in the public interest.

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I, Gwendolynne M. Chen, do hereby certify that I have on this 9th day of March, 2001, had copies of the foregoing "REPLY COMMENTS OF SPRINT CORPORATION" electronically delivered, to the following:

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