

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of:)
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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)

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

To the Commission:

REPLY COMMENTS OF WORLDCOM, INC.

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SUMMARY

The comments filed in this proceeding clearly demonstrate that there is overwhelming support for maintaining the Commission's existing spectrum management policies for the 2150 – 2162 MHz and 2500 – 2690 MHz ("MMDS/ITFS") bands. These policies include the recent rulemaking and licensing decisions which were designed to facilitate the deployment of advanced two-way fixed wireless broadband access services to all Americans, especially those living and working in unserved and underserved areas of the country. WorldCom urges the Commission to conclude in its Final Report, to be released at the end of March, that no portion of the MMDS/ITFS bands should be re-allocated to accommodate mobile services.

The MMDS/ITFS bands are already used by educational and religious interests for vital educational purposes, and are being transformed by MMDS and ITFS licensees into the digital age by the deployment of new and innovative technologies to better serve existing users and new consumers of broadband services. Since the record demonstrates that there is ample spectrum elsewhere for 3G systems, and that spectrum at 1.7 GHz is universally preferred by the mobile services industry, there is no reason to disrupt the existing users of, and deployment plans for, the MMDS/ITFS bands. It is now time for the Commission to eliminate the cloud of uncertainty that currently hangs over the MMDS/ITFS industries by removing the MMDS/ITFS bands from active consideration in this proceeding.

There is virtually no support in the comments for re-allocating any portion of the 2500 – 2690 MHz ("2.5 GHz") MMDS/ITFS band for 3G services. **First**, it has been shown that any reduction in the spectrum available for MMDS/ITFS licensees will jeopardize the viability

of the services currently offered, as well as the advanced fixed wireless broadband services being deployed today. **Second**, commenters agree that the 2.5 GHz band cannot be shared or segmented with advanced mobile services. **Third**, commenters, including most mobile service providers and manufacturers, recognize that the use of the 2.5 GHz band for 3G systems will not promote global roaming or global spectrum harmonization. **Fourth**, there is overwhelming support for the 1.7 GHz band as the first choice for additional spectrum for 3G systems. The Industry Association Group Comments and attached Report state that a consensus was reached among those studying interference and sharing issues in the industry working groups, regarding how to resolve the critical sharing and relocation issues affecting the 1.7 GHz band.

For those few parties that support re-allocation of the 2.5 GHz band, their comments demonstrate a fundamental misunderstanding of the band, its complexities and the symbiotic relationships that are vital to the success of MMDS and ITFS providers and their subscribers. For example, Verizon Wireless has suggested that ITFS licensees be removed from the 2.5 GHz band and the remaining MMDS licensees be required to operate with less spectrum – a result it believes is justified because the 2.5 GHz band is no longer being used for its "originally contemplated purpose." However, as demonstrated in the HAI Study attached to the comments of The Wireless Communications Association International, Inc. ("WCA"), MMDS licensees cannot operate a commercially viable broadband system without access to all of the available spectrum in the MMDS/ITFS bands. Further, the MMDS/ITFS bands are being used precisely as the Commission "contemplated," and any attempt to remove ITFS licensees from the band or require MMDS licensees to operate with less spectrum will only jeopardize the symbiotic relationships that exist between MMDS and ITFS licensees – partnering relationships that the Commission recognizes as being critical to the success of both services. In addition,

commenters, like Verizon Wireless, who support the re-allocation of the 2.5 GHz band have not adequately addressed the myriad of issues associated with relocation of incumbent MMDS/ITFS licensees.

While many mobile industry commenters support re-allocation of the 2110 – 2150/2160 – 2165 MHz bands for 3G services, only a few recommend re-allocation of the 2150 – 2160/2162 MHz band used by MMDS operators (the "2.1 GHz MDS band"). Of these commenters, some suggest shifting MMDS/ITFS from the 2150 – 2162 MHz band up to the 2155 – 2165 MHz band. For a number of technical, operational and economic reasons, any decision to accommodate 3G services by re-allocating the 2.1 GHz MDS band would cripple the MMDS/ITFS industries and any decision to move MMDS licensees up in the 2.1 GHz band would raise serious problems.

Specifically, WorldCom and many other MMDS providers have access to, and are dependent on, the channels in the 2.1 GHz MDS band in virtually all of their markets for upstream two-way transmissions. These channels are particularly useful because of the superior propagation characteristics of the 2.1 GHz MDS band and because the frequency separation between the 2.1 GHz MDS band and the 2.5 GHz band allows for two-way MMDS/ITFS transmissions without using expensive filtering in the customer premises equipment ("CPE"), thereby creating significant cost savings for MMDS/ITFS operators and consumers. Re-allocation of the 2.1 GHz MDS band would severely disrupt WorldCom's current rollout plans.

There is no need to move MMDS operations out of the 2.1 GHz MDS band in order to accommodate 3G operations in the 2110 – 2150 MHz band. Preliminary engineering analysis indicates that 3G systems and MMDS/ITFS providers can co-exist in adjacent bands at 2.1 GHz with only a relatively modest guardband between them.

There are, however, serious problems with the proposal of a few commenters that the Commission could combine the 2110 – 2150 MHz and 2160 – 2165 MHz bands by moving the MDS allocation from 2150 – 2160 MHz up to 2155 – 2165 MHz. **First**, the proposal ignores the fact that in 50 major markets, the MDS allocation is 12 MHz at 2150 – 2162 MHz. **Second**, the proposal would exacerbate interference issues between MDS operators and potential MSS operations by entirely eliminating the three to five MHz guardband that currently exists between the MDS allocation and the Mobile Satellite Service allocation. Moving up within the 2.1 GHz band would also present complex transition issues, particularly in light of the absolutely essential requirement that service to customers not be disrupted.

The record demonstrates that the 2.1 GHz MDS and 2.5 GHz MMDS/ITFS bands must not be re-allocated for 3G services. MMDS/ITFS licensees must have access to *all* of the spectrum allocated to these services in order to provide technically and economically viable services, especially to those areas currently unserved or underserved by other broadband technologies. Any reduction in spectrum, or displacement of licensees, would delay the provision of such services to the public and could cripple the MMDS/ITFS industries.

Rather than trying to choose one advanced wireless service over another, the Commission has the ability to accommodate both MMDS/ITFS and 3G services – a choice that makes sense economically and as a matter of public policy. The Commission has identified ample spectrum outside of the MMDS/ITFS frequency bands to meet the needs of 3G service providers. By accommodating 3G services outside of the MMDS/ITFS frequency bands, the Commission can preserve its policies promoting the advancement of competitive broadband wireless services to all Americans, while advancing its stated objective in this proceeding to bring new advanced mobile and fixed services to the public.

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ET Docket No. 00-258

To the Commission:

REPLY COMMENTS OF WORLDCOM, INC.

WorldCom, Inc. ("WorldCom") hereby submits these Reply Comments in response to the comments filed on the Commission's Notice of Proposed Rulemaking in this proceeding concerning the possible use of frequency bands below 3 GHz to support the introduction of advanced wireless services, including third generation ("3G") mobile wireless systems.¹ The comments filed in this proceeding clearly demonstrate that there is overwhelming support for maintaining the Commission's existing spectrum management policies for the 2150 – 2162 MHz and 2500 – 2690 MHz ("MMDS/ITFS") bands, which include the promotion of advanced two-way fixed wireless broadband access services to all Americans, especially those living and working in unserved and underserved areas of the country. This spectrum is already used by the educational and religious communities for vital educational purposes, and is being

¹ See *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 al.*, Notice of Proposed Rulemaking and Order, FCC 00-455 (rel. Jan. 5, 2001) ("*NPRM*").

transformed by MMDS and ITFS licensees into the digital age by the deployment of new and innovative technologies to better serve existing users and new consumers of broadband services.

The commenters, including virtually all of those representing the mobile service industry, also agree that the most desirable spectrum available for the future deployment of 3G systems is in the 1710 – 1850 MHz band. By contrast to the 2500 – 2690 MHz band ("2.5 GHz band"), the 1710 – 1850 MHz band offers, among other advantages, better propagation characteristics, lower development costs, and the greatest likelihood of achieving global spectrum harmonization and the manufacturing efficiencies that might result from such harmonization.

WorldCom urges the Commission to conclude in its Final Report to be released this month that no portion of the MMDS/ITFS bands should be re-allocated to accommodate mobile services. The Commission's long-standing policies promoting broadband deployment to all Americans, especially those located in unserved and underserved areas, would best be served by maintaining the Commission's carefully crafted two-way digital fixed wireless spectrum plans for the MMDS/ITFS frequency bands. Since the record demonstrates that there is ample spectrum available elsewhere for 3G systems, there is no reason to disrupt the existing users of, and deployment plans for, the MMDS/ITFS bands.

I. THERE IS OVERWHELMING SUPPORT FOR THE EXISTING SERVICES BEING PROVIDED, AND THE NEW SERVICES BEING DEPLOYED, BY MMDS/ITFS LICENSEES

A review of the comments leaves little doubt that there is considerable demand and support for the existing services being offered, and those advanced wireless services that are being deployed, by MMDS/ITFS licensees. Any disruption of these services clearly would not

be in the public interest. MMDS operators, such as WorldCom, Sprint Corporation ("Sprint") and Nucentrix Broadband Networks, Inc. ("Nucentrix"), as well as The Wireless Communications Association International, Inc. ("WCA") and others have shown that, in reliance upon several recent rulemaking and licensing decisions by the Commission, billions of dollars have already been invested to deploy advanced fixed wireless broadband services in the MMDS/ITFS bands, especially to those areas of the country currently unserved or underserved by other broadband technologies. The Commission must not jeopardize this significant investment by displacing one advanced wireless service being deployed today – MMDS/ITFS – with another – 3G – that is not yet being deployed and that could not operate in this spectrum band for many years.²

Like the MMDS providers, the ITFS community has clearly and unequivocally demonstrated their need both for ITFS and MMDS channels, and has expressed a strong view that the Commission not re-allocate any portion of the MMDS/ITFS frequency bands for other services. A large and diverse group of commenters, including those from rural and urban areas of the country, have demonstrated, in detail, that ITFS licensees are using their spectrum for vital educational purposes and that any re-allocation of this spectrum would greatly disrupt, if not terminate, the provision of these services. The American Federation of Teachers accurately sums up the position of hundreds of ITFS commenters in this proceeding:

For almost 40 years, ITFS license holders have supplied a wide range of distance learning opportunities to children and adults. . . .

² See Cisco Systems, Inc. Comments at 16 ("Cisco Comments") ("Cisco profoundly believes U.S. policy makers must allocate more spectrum for high speed Internet access. . . .But policy makers will not achieve this broadband imperative by switching spectrum from one high-speed use to another.").

The FCC recently has made it possible for ITFS to deliver more advanced wireless services. . .and many license holders are now investing in making the switch to these digital technologies. Disruption of current ITFS educational services and halting providers' plans to deliver more advanced services. . .would be a tremendous loss of an instructional resource and the financial investments made by many school districts, education institutions, and communities.³

The Commission must not jeopardize the economic and educational investment of these ITFS licensees by re-allocating any portion of the MMDS/ITFS frequency bands.

The ITFS comments also highlight the importance of the symbiotic relationship between MMDS and ITFS providers. This relationship is critical to the continued deployment of educational services, the modernization of ITFS systems and the deployment of two-way broadband wireless services to millions of Americans.⁴ Any decision to re-allocate the MMDS/ITFS frequency bands would jeopardize these vital relationships and the ability of both MMDS and ITFS licensees to provide much-needed educational and commercial broadband services.

³ American Federation of Teachers Comments at 1-2.

⁴ *See, e.g.*, Tarrant County College Comments at 3 ("Tarrant County College recently implemented new digital technology in broadcast operations with the financial and technical assistance of WorldCom Broadband Solutions. . . Together we are laying the foundation for all students in the 21st century to have equal access to the information and technology in a way that best provides to them educational content, so that they may achieve their own personal and educational goals."); University of Maryland Comments at 1 – 2 ("Reallocating the ITFS frequencies would also do away with the benefits accruing from the recent FCC ruling permitting the use of ITFS frequencies for high-speed two-way internet access. To provide this access [WorldCom] has leased from the University excess channel capacity on the University's ITFS channels. . . In exchange for the use of the excess channel capacity WorldCom will digitize the University's [Instructional Television] system so that the University will have double the capacity that it presently has, and will provide the University of Maryland with royalties.").

II. THERE IS VIRTUALLY NO SUPPORT FOR RE-ALLOCATING ANY PORTION OF THE 2.5 GHZ MMDS/ITFS BAND

For several compelling reasons, there is virtually no support for re-allocating any portion of the 2.5 GHz MMDS/ITFS band. **First**, any reduction in the spectrum available for MMDS/ITFS licensees will jeopardize the viability of the services currently offered, as well as the advanced fixed wireless broadband services being deployed today. **Second**, the 2.5 GHz band cannot be shared with, or segmented to accommodate, advanced mobile services. **Third**, the use of the 2.5 GHz band for 3G systems will not promote global roaming or global spectrum harmonization. **Fourth**, there is overwhelming support for the 1.7 GHz band as the first choice for 3G systems.

A. Re-allocating the 2.5 GHz Band Would Disrupt the Existing Services Being Provided, and the New Services Being Deployed, by MMDS and ITFS Providers

As scores of commenters observe, re-allocating any portion of the 2.5 GHz band will jeopardize the viability of the MMDS/ITFS services being offered, as well as those advanced broadband services currently being deployed in many markets, especially those markets unserved or underserved by other broadband technologies. Any re-allocation or reduction of the amount of spectrum available to MMDS/ITFS providers would, at a minimum, cause significant disruption to the deployment of these services, and, in all likelihood, destroy the business cases for deploying these services at all.⁵ As Cisco correctly points out:

⁵ See, e.g., WorldCom Comments at 16 – 21; WCA Comments at 32 ("A reduction in the amount of 2.1 and 2.5 GHz spectrum available to broadband system operators would effectively preclude the offering of service in many of the areas that are most in need."); Nucentrix Broadband Networks, Inc. Comments at 10 ("In many communities, loss of access to any spectrum available for advanced fixed wireless services would deprive residential customers,

(continued...)

Simply stated, the public would be disserved by any disruption of the ongoing deployment of this advanced wireless service simply to facilitate another. *Any* change in the 2500 – 2690 MHz band, whether a diminution or relocation of spectrum, would threaten the progress of broadband fixed wireless services and harm efforts to promote cross-platform broadband competition. What's more, residential and rural consumers – *precisely* those the Commission recently identified as most vulnerable to a lack of broadband access – would be disproportionately affected.⁶

Likewise, Nortel Networks Inc. ("Nortel Networks") concludes that re-allocation of the 2.5 GHz band "would ill serve the public interest" because:

[MMDS/ITFS] licensees have developed, and begun to implement, changes to their operations [in response to recent Commission decisions permitting two-way digital transmissions]. Likewise, manufacturers, such as Nortel Networks, have developed equipment. . . . An abrupt change. . . would negate much of the work that has already occurred, and would seriously disrupt the business plans of the incumbent licensees.⁷

Moreover, commenters recognize that re-allocation would pose insurmountable relocation issues for MMDS/ITFS licensees.⁸ As WorldCom and others observed in their

(...continued)

business users, and schools of their only hope for high-speed service."); Sprint Corporation Comments at 20; Cisco Comments at 9.

⁶ Cisco Comments at ii (emphasis in original). *See also* IPWireless Comments at 4 ("A key factor leading to IPWireless' selection of the 2.5 GHz band was the Commission's adoption of a series of orders over the past five years that have removed many of the longstanding regulatory restrictions on the use of this band, fostering the entrance of entrepreneurial companies and new technologies.").

⁷ Nortel Networks Comments at 7.

⁸ Cisco Comments at 13 – 15 ("For example, if the 3700 MHz band were used for downstream transmissions, the base station would require complete re-design and reintegration of the transmit circuitry. The subscriber unit would require the same work on its receive circuitry. . . .New spectrum essentially means starting from scratch."); Nortel Networks Comments at 6.

comments, moving MMDS/ITFS licensees to another frequency band is not feasible for several reasons: suitable replacement spectrum has not been identified and the costs that would be incurred by relocating a mass-market service like MMDS, including the disruptions to existing customer relationships, cannot be compensated for.⁹

B. The 2.5 GHz Band Cannot Be Shared or Segmented

Commenters universally agree that sharing between mobile and advanced fixed wireless services is not possible in the MMDS/ITFS frequency bands.¹⁰ As WorldCom and others have documented, co-frequency/co-channel sharing between MMDS/ITFS and 3G systems is not technically feasible because very large separation distances would be required to avoid mutual interference.¹¹ For similar reasons, none of the major MMDS/ITFS providers,

⁹ See WorldCom Comments at 25 – 27. See also Nucentrix Comments at 15; Sprint Comments at 25.

¹⁰ See, e.g., Report of the Industry Association Group on Identification of Spectrum for 3G Services at 1 (attached to Industry Association Group Comments) ("With respect to the 2500 – 2690 MHz band, the Association Group agreed that co-channel sharing is not a feasible option with 3G services."); Verizon Wireless Comments at 19 ("In its Interim Report, the Commission determined that co-channel sharing in this band between 3G and incumbent ITFS/MDS systems is not possible. We agree with this conclusion."); AT&T Wireless Services, Inc. Comments at 13 ("AT&T Wireless Comments") ("Moreover, under the current use of the band, which employs a complicated channel plan and extensive leasing of ITFS frequencies, it is not apparent that the existing fixed and proposed IMT-2000 services would be able to share frequencies."); Ericsson Comments at 15 ("Ericsson does not expect sharing between current incumbent users and 3G systems to be feasible."); Motorola at 13.

¹¹ See WorldCom Comments at 21 – 23; George W. Harter, *Interference to 3G Systems from ITFS/MDS Systems Sharing the Same Frequencies* at 1 (attached to WCA Comments).

mobile service providers or mobile equipment manufacturers support so-called "flexible use" of the 2.5 GHz band.¹²

Many commenters have also recognized that band segmentation is simply not technically and/or economically feasible in the 2.5 GHz band.¹³ As the HAI Study attached to WCA's Comments confirms, MMDS/ITFS licensees must have access to *all* of the available spectrum allocated to their services in order to provide an economically viable fixed wireless broadband access service.¹⁴ Any reduction in available spectrum would at a minimum significantly delay the provision of such services to the public, and would likely cripple the MMDS/ITFS industries.

¹² See, e.g., AT&T Wireless Comments at 13 ("AT&T urges the Commission not to add a mobile application to this band."); Verizon Wireless Comments at 34 ("For the same reasons that spectrum leasing will not produce an efficient reallocation of the large amount of additional spectrum needed for the development of 3G services, neither will providing incumbents the flexibility to sell their licensed spectrum [to 3G service providers] produce an efficient result."); Sprint Comments at 16 ("The overwhelming evidence. . . demonstrates that the 2.1 GHz and 2.5 GHz bands cannot be opened to flexible use."); WorldCom Comments at 24; Cisco Comments at 10.

¹³ See Cisco Comments at 5 ("Any infringement of MDS/ITFS spectrum will dramatically affect the rollout, capacity, and ultimately viability, of these advanced wireless services."); *id.* at 9 ("Any band segmentation plan would increase costs, delay market entry and significantly affect the business case for residential and rural markets."). Indeed, Cisco observes that band segmentation could cause a rise in costs by \$5.19 billion in just the 100 largest markets (*i.e.*, Metropolitan Statistical Areas) over the first five years of deployment of broadband wireless services. *Id.* at 12.

¹⁴ WorldCom Comments at 16 – 18.

C. Use of the 2.5 GHz Band for 3G Systems Will Not Promote Global Roaming or Global Spectrum Harmonization

Both 3G vendors *and* 3G service providers recognize that use of the 2.5 GHz band for 3G systems will *not* promote global roaming or global spectrum harmonization. As Motorola, Inc. ("Motorola") states:

Motorola does not believe that [the 2500 – 2690 MHz band] offers the same advantages as the 1700 MHz bands. . . .[N]o country has yet implemented any commercial mobile services in the band and, in Motorola's opinion, it is unlikely that any country will deploy IMT-2000 services before 2007 at the earliest. Thus, the band does not offer the same near term potential for spectrum harmonization as does the 1710 – 1850 MHz band that is now widely used globally for 2nd generation systems.¹⁵

Accordingly, use of the 2.5 GHz band will not provide the manufacturing efficiencies deemed to be a benefit by those commenters seeking 3G spectrum harmonization. To the contrary, use of the 2.5 GHz band for 3G systems is likely to increase the cost of producing 3G handsets and providing advanced services since the band is not currently used anywhere in the world to

¹⁵ Motorola Comments at 12. *See also* Lucent Technologies, Inc. Comments at 9 ("Lucent Comments") (stating that the "2.5 GHz band is not currently in operation anywhere in the world for commercial mobile radio services" and while the European Union has indicated that it may allocate the 2.5 GHz band for 3G systems in 5 to 10 years, "such allocations are not guaranteed to occur as projected. . . ." Lucent concludes that "because use of [the 2.5 GHz] band at this time would not promote global roaming or create global economies of scale, Lucent believes that it would be premature to employ the 2.5 GHz band for [3G]."); AT&T Wireless Comments at 16 ("There are a number of serious disadvantages associated with [using the 2.5 GHz band], . . . first and foremost of which is that it would not permit harmonization with existing European systems in the DCS 1800 band plan. Nor is it likely to be consistent with the plans that might be adopted by other countries in North and South America."); Qualcomm Incorporated Comments at 12; Nokia Comments at 3 – 4; Report of the Industry Association Group on Identification of Spectrum For 3G Services at 1 (Feb. 22, 2001) (attached to Industry Association Group Comments). Also, at least one 3G provider questions the necessity of spectrum harmonization at all. *See* Cingular Wireless Comments at 12.

provide mobile services and it is at a frequency range significantly higher than the spectrum being used for mobile services today.¹⁶

D. Commenters Overwhelmingly Support Use of the 1.7 GHz Band for 3G Services

Mobile service providers and mobile equipment manufacturers confirm a strong preference for using the 1.7 GHz band for 3G services.¹⁷ Indeed, commenters in the mobile service industry view the 1.7 GHz band, in some cases paired with the 2110 – 2150/2160 – 2165 MHz bands, as providing sufficient additional spectrum to support 3G services for the

¹⁶ See Lucent Comments at 9 ("[The 2.5 GHz band] is sufficiently far from the PCS and DCS 1800 bands that it would impose greater challenges to support the operation of multiband terminals. This allocation would also require significant changes in equipment to enable successful deployment of advanced wireless systems."); Motorola Comments at 20 ("[E]quipment spanning the 1700 and 2500 MHz bands is not used elsewhere in the world and would require substantial development costs to accomplish operating over such a large duplex spacing.").

¹⁷ See e.g., AT&T Wireless Comments at 2 ("AT&T supports the Commission's proposals to allocate the 1710 – 1755 MHz band. . .and the 1755 – 1850 MHz band for commercial mobile and fixed radio services."); Lucent Comments at 10 ("Lucent encourages the Commission to consider for adoption the 1710 – 1750/1805 – 1845 MHz band pairing for advanced wireless services and to leave a 5 MHz guard band to avoid interference to and from the PCS band."); Motorola Comments at i ("Motorola believes that the FCC should allocate the 1710 – 1850 MHz and 2110 – 2150/2160 – 2165 MHz bands for advanced terrestrial 3G services."); Nortel Networks Comments at 8 ("For technical and economic reasons described above, Nortel Networks urges the Commission to. . .rapidly make the 1710 – 1755 MHz and 1805 – 1850 MHz bands available for 3G services.").

foreseeable future.¹⁸ Of the handful of commenters even proposing any use of the 2.5 GHz band, the majority do not view the 2.5 GHz band as a first choice for near-term 3G deployment.¹⁹

The Industry Association Group Comments and attached Report provide additional reasons as to why the mobile community believes that 3G services can best be provided in the 1.7 GHz band. Specifically, a consensus was reached among those studying interference and sharing issues in the industry working groups, regarding how to resolve the critical sharing and relocation issues affecting the 1.7 GHz band:

Based on analysis to date, it appears that viable solutions exist that would allow use of most or all of the 1710 – 1850 MHz band for 3G services on either a shared basis with Federal operations or through relocation of Federal operations.²⁰

According to the Industry Association Group Report "it appears that all or most of the 1710 – 1850 MHz band can be made available for 3G services through a combination of geographic or

¹⁸ See, e.g., AT&T Wireless Comments at 11 ("Combining spectrum from [1755 – 1850 MHz] band with spectrum from the 1710 – 1755 MHz band would provide adequate spectrum for the growth of 3G services. . . ."); Motorola Comments at 11.

¹⁹ See Cingular Wireless Comments at ii ("If clearing the Federal Government bands proves impractical, the bulk of 3G spectrum could be accommodated by usage of the 2500 – 2690 MHz band. . . ."); AT&T Wireless at 9 ("[T]o the extent the reallocation of 1755 – 1850 MHz cannot be made, the Commission should reallocate some or all of the spectrum in the 2500 – 2690 MHz band.").

²⁰ See Report of the Industry Association Group on Identification of Spectrum For 3G Services at 1 (Feb. 22, 2001) (attached to Industry Association Group Comments). By contrast, no consensus was reached by the 2.5 GHz working group except on the point that co-channel sharing between MMDS/ITFS and 3G services is not feasible.

time sharing with some of the incumbent services and relocation of incumbents when sharing is not feasible."²¹

III. THE FEW COMMENTERS SUPPORTING RE-ALLOCATION OF THE 2.5 GHZ BAND DISPLAY A FUNDAMENTAL MISUNDERSTANDING OF THE COMPLEXITIES OF THIS BAND

For those few parties that support re-allocation of the 2.5 GHz band, their comments demonstrate a fundamental misunderstanding of the band, its complexities and the symbiotic relationships that are vital to the success of MMDS and ITFS providers and their subscribers. For example, Verizon Wireless suggests that ITFS licensees simply be moved out of the 2.5 GHz band and the remaining MMDS licensees be required to operate with less spectrum.²² According to Verizon Wireless, this is justified because only a small portion of the 2.5 GHz band is being used in a manner contemplated by the Commission (*i.e.*, for "instructional purposes"), and MMDS operators can operate with less spectrum by applying greater frequency reuse.²³ Cingular Wireless LLC ("Cingular") makes similar arguments.²⁴

²¹ See Report of the Industry Association Group on Identification of Spectrum for 3G Services at ii. Cingular Wireless appears to be the only commenting party that believes that relocation of the 2.5 GHz band would be "dramatically simpler and easier to accomplish than the clearing of the 1.7 GHz government bands." Cingular Wireless Comments at 25. Cingular Wireless' assumptions about the 1.7 GHz band are flatly inconsistent with the Industry Association Group's Comments which conclude that relocation issues concerning the 1.7 GHz band can be overcome. See Report of the Industry Association Group on Identification of Spectrum for 3G Services at ii.

²² Verizon Wireless Comments at 27.

²³ *Id.*

²⁴ Cingular Wireless Comments at ii.

WorldCom's Comments, as well as the comments filed by others, directly refute these assertions. **First**, the MMDS/ITFS frequency bands *are* being used as contemplated by the Commission. Sharing, leasing and channel swapping are exactly what the Commission's rules contemplate for MMDS/ITFS licensees. Indeed, the Commission views these arrangements as integral to the success of both MMDS and ITFS licensees and the efficient use of MMDS/ITFS spectrum.²⁵ **Second**, as demonstrated in the HAI Study attached to the WCA Comments, in order to provide an economically viable fixed wireless broadband service, it is essential for MMDS/ITFS providers to have access to *all* of the available spectrum allocated to MMDS/ITFS licensees.²⁶ Any reduction in the available spectrum would reduce the capacity of the MMDS/ITFS service, thereby increasing the cost of providing service and destroying the business case for deploying services to most markets.²⁷ The Commission in its Interim Report

²⁵ See *Amendment of Parts 1, 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions (Report and Order on Reconsideration)*, 14 FCC Rcd 12764, 12766 (1999) ("[T]here is a history of cooperation between ITFS licensees and MDS operators, with MDS operators providing funding used by ITFS licensees for their educational mission in exchange for the extra channel capacity needed to make most MDS systems viable."). See also *Amendment of Parts 1, 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions (Report and Order)*, 13 FCC Rcd 19112, 19148 (1998) ("MDS and ITFS licensees have a long history of mutual cooperation in their operations. The realities of their operations compel such cooperation."); *Amendment of Part 74 of the Commission's Rules Governing Use of the Frequencies in the Instructional Television Fixed Service*, 9 FCC Rcd 3360, 3364 (1994).

²⁶ See also WorldCom Comments at 18 – 21. WorldCom and other MMDS providers have demonstrated how they use, and plan to use, MMDS/ITFS spectrum in an efficient manner. By contrast, WorldCom notes that Verizon Wireless has not made any showing that it uses its current mobile spectrum allocations in an efficient manner.

²⁷ *Id.*

acknowledged the significant difficulties that such a reduction in spectrum poses for MMDS/ITFS providers.²⁸

Verizon Wireless' simplistic proposal in this proceeding to reduce spectrum for fixed wireless broadband technologies is entirely inconsistent with the very recent statement of Ivan Seidenberg, President and co-CEO of Verizon Communications, that:

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.²⁹

WorldCom fully agrees that the government should encourage new investment in facilities-based last-mile technologies like fixed wireless broadband access. Thus, WorldCom is thoroughly perplexed as to why Verizon Wireless' comments to the Commission in this proceeding seek to take spectrum away from these very same fixed wireless broadband providers and thereby delay or disrupt their deployment of competitive, facilities-based "last mile" technologies.

Third, the assertion by Verizon Wireless that ITFS licensees can simply be pulled out of the 2.5 GHz band and placed elsewhere completely ignores the partnering relationships that are fundamental to MMDS/ITFS operations. MMDS and ITFS licensees have been sharing spectrum through long-term lease arrangements for many years in order to more efficiently use available channels in the 2.5 GHz band – an arrangement the Commission has long encouraged

²⁸ See *FCC Interim Report* at 61.

²⁹ *Stop Blocking the Broadband Revolution*, Wall Street Journal at A22 (March 1, 2001) (emphasis added).

and recognized as successful. ITFS licensees not only are dependent on MMDS operators for technical and financial support for distribution of educational programming, but also rely on MMDS licensees to upgrade their facilities with the latest technologies. ITFS licensees, in turn, provide MMDS providers with access to much needed spectrum in markets throughout the country.³⁰ With increased flexibility given to MMDS/ITFS licensees in 1998 to provide two-way digital broadband services, the Commission has facilitated even greater use of this spectrum. As recognized by WorldCom and others, a decision now to re-allocate any portion of the MMDS/ITFS frequency band clearly would be inconsistent with the Commission's prior rulemaking, policy and licensing actions.

The handful of commenters supporting re-allocation of the 2.5 GHz band also do not seriously address the fundamental issues associated with relocation – *i.e.*, where to move MMDS/ITFS licensees and how to compensate them. This is hardly surprising because there is no comparable spectrum for MMDS/ITFS providers to relocate to and it is impossible to fully compensate these providers for the losses that would result from such a relocation.³¹

Ericsson suggests that licensees operating in the 2.5 GHz band be transitioned to 3.5 GHz.³² This alternative is unacceptable for a number of reasons, including: (1) the lack of adequate spectrum usable in that band; (2) the band's less desirable propagation characteristics; (3) the increased costs of deployment in that band -- equipment costs will rise and there will be a

³⁰ See WorldCom Comments at 12.

³¹ See *id.* at 25 – 27.

³² Ericsson Comments at 16.

need to deploy a greater number of cell sites; and (4) the delays in bringing fixed wireless broadband services to market.³³

Verizon Wireless' proposed solutions are similarly problematic. It suggests that if MMDS providers need more spectrum in the 2.5 GHz band after the Commission takes away the ITFS channels, they should bid on it at auction because the Commission "has indicated that any future spectrum it makes available for 3G services will be auctioned and available for mobile or fixed service."³⁴ This proposal makes little sense for at least three reasons. **First**, MMDS providers *already* purchased significant usage rights to this spectrum at auction (including certain exclusive rights to ITFS channels).³⁵ It would set a very bad precedent to now take away these spectrum rights and require MMDS providers to purchase those rights again at another auction. **Second**, MMDS providers lease much of this spectrum on a long term basis, and as such they already have a significant economic interest in the spectrum – an interest recognized by the Commission.³⁶ **Third**, Verizon Wireless' re-auction proposals are contradictory and

³³ See HAI Study at 8 – 9 (attached to WCA Comments). See also Cisco Comments at 15 ("Because of the propagation characteristics in the upper bands, a cell with a radius of approximately 20 miles in the MDS/ITFS band would shrink to less than a 14 mile radius at 3.7 GHz. The coverage remaining is less than half its original reach. . . . This reduction in coverage would have a dramatic effect on the ability of service providers in smaller markets and rural communities to bring broadband services to unserved areas.").

³⁴ Verizon Wireless Comments at 27.

³⁵ See WCA Comments at 45 – 48; WorldCom Comments at 11; Sprint Comments at 25.

³⁶ See *In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, FCC 00-402 at ¶ 86 (rel. Nov. 27, 2000); *Amendment of Parts 2, 21, 74 and 94 of the Commission's Rules and Regulations In Regard to Frequency Allocation to the Instructional Television Fixed Service, Multipoint Distribution Service and Private Operational Fixed Microwave Services*, 94 F.C.C.2d 1203, 1250 (1983) ("substantial benefits to the public may be derived from allowing ITFS licensees to use excess channel capacity either by directly utilizing it themselves or through leasing it to others").

unworkable as demonstrated by its adamant opposition to any allocation scheme that would permit contemporaneous mobile and fixed use of this spectrum.³⁷

Finally, the handful of commenters supporting re-allocation of the 2.5 GHz band appear to share a common goal: an insatiable appetite for more spectrum. The vast majority of 3G proponents seek an allocation of 160 MHz or less for 3G services.³⁸ By contrast, Verizon Wireless requests an allocation of 245 MHz of new spectrum for 3G services, and Ericsson requests close to 400 MHz over a period of 8 years and in two phases.³⁹ These requests are unreasonable, unsubstantiated and far in excess of what has been recommended, and supported, by most other mobile industry commenters.

IV. THE COMMISSION MUST NOT RE-ALLOCATE OR MOVE THE 2150 – 2162 MHZ MDS BAND

While many mobile industry commenters support re-allocation of the 2110 – 2150/2160 – 2165 MHz bands for 3G services, only a few recommend re-allocation of the 2150 – 2160/2162 MHz band used by MMDS operators. Of these commenters, some suggest shifting

³⁷ See Verizon Wireless Comments at 34 ("The NPRM also suggests that the Commission could simply make the current allocations more flexible thus allowing incumbents to, in essence, "sell" their newly acquired rights to 3G service providers. For the same reasons that spectrum leasing will not produce an efficient reallocation of the large amount of additional spectrum needed for the development of 3G services, neither will providing incumbents the flexibility to sell their licensed spectrum produce an efficient result.").

³⁸ AT&T Wireless believes that 140 MHz is sufficient for 3G services. AT&T Wireless Comments at 14 – 15. See Lucent Comments at 11 – 12 (proposing allocation options of 80 MHz or 110 MHz for 3G); Nortel Networks Comments at 3 ("Nortel Networks supports a phased approach that would immediately allocate 90 MHz of additional spectrum, with the balance to be allocated subsequently, based on a review of actual developments.").

³⁹ Ericsson Comments at 2. See also Voicestream Wireless Comments at 2.

MMDS/ITFS from the 2150 – 2162 MHz band (the "2.1 GHz MDS band") up to the 2155 – 2165 MHz band. For a number of technical, operational and economic reasons, any decision to accommodate 3G services by re-allocating the 2.1 GHz MDS band would cripple the MMDS/ITFS industries and any decision to move MMDS licensees up in the 2.1 GHz band would raise serious problems.

The 2.1 GHz MDS band is critical to the success of MMDS/ITFS two-way services for at least three reasons. **First**, and most importantly, WorldCom and many other MMDS providers have access to these channels in virtually all of their markets. WorldCom owns these channels in 28 of the 30 markets where it plans to deploy service this year, and is dependent on these channels in virtually every market for upstream two-way transmissions. **Second**, these two channels are particularly useful for lower power upstream transmissions because of the superior propagation characteristics of the 2150 – 2162 MHz frequency band. **Third**, the frequency separation between the 2.1 GHz MDS band and the 2.5 GHz band allows for two-way MMDS/ITFS transmissions without using expensive filtering in the customer premises equipment ("CPE"), thereby creating significant cost savings for MMDS/ITFS operators and consumers.

Any re-allocation of the 2150 – 2162 MHz band would significantly affect WorldCom's current rollout plans. If these channels were re-allocated, the negative cost and schedule changes to CPE development and deployment would be immediate and severe. Moreover, the intangible loss of goodwill from delays and customer dissatisfaction would

irreparably harm WorldCom's MMDS business case. Other commenters have expressed similar concerns regarding any re-allocation of the 2.1 GHz MDS band.⁴⁰

There is no need to move MMDS operations out of the 2.1 GHz MDS band in order to accommodate 3G operations in the 2110 – 2150 MHz band. Verizon Wireless is plainly incorrect in its conclusory assertion that "continued operation of MDS in the 2150 – 2160 MHz band could preclude use of the *entire* 2110 – 2150 MHz and 2160 – 2165 MHz bands for future 3G use."⁴¹ Preliminary engineering analysis indicates that 3G systems and MMDS/ITFS providers can co-exist in adjacent bands at 2.1 GHz with only a relatively modest guardband between them. WCA will soon file in this proceeding a complete engineering analysis addressing this issue.

There are, however, serious problems with the proposal of a few commenters that the Commission could combine the 2110 – 2150 MHz and 2160 – 2165 MHz bands by moving the MDS allocation from 2150 – 2160 MHz up to 2155 – 2165 MHz.⁴² **First**, this proposal ignores the fact that in 50 major markets, the MDS allocation is 12 MHz at 2150 – 2162 MHz. To maintain this band, the Commission would have to move the 2.1 GHz MDS band to 2153 – 2165 MHz, or to 2155 – 2167 MHz. The latter proposal would overlap with the 2165 – 2200

⁴⁰ See, e.g., Sprint Comments at 31 ("Sprint strongly opposes the Commission's proposal to reallocate the previously auctioned 2.1 GHz band. . . ."); Nucentrix Comments at 20 ("While it may be tempting to view the 2.1 GHz band as a mere appendage that could be severed and removed from the much larger 2.5 GHz band with little or no adverse effect, in fact the opposite is true. The use of the 2.1 GHz band is essential to the success of two-way broadband services in the MDS/ITFS bands."); WCA Comments at 21.

⁴¹ Verizon Wireless Comments at 14 (emphasis in original).

⁴² See Motorola Comments at 17; AT&T Wireless Comments at 12; Verizon Wireless Comments at 15.

MHz band allocated to the Mobile Satellite Service ("MSS") for space-to-Earth downlinks.

Second, the proposal would exacerbate interference issues between MDS operators and potential MSS operations by entirely eliminating the three to five MHz guardband that currently exists between the top of the MDS allocation (at 2160 or 2162 MHz) and the bottom of the MSS downlink allocation (at 2165 MHz).

Moving up within the 2.1 GHz band would also present complex transition issues. Indeed, because of the channelization, sub-channelization and sectorization involved in fixed wireless broadband operations, and the absolutely essential requirement that service to customers not be disrupted, such a transition would be difficult. In particular, because of the likely overlap between the current 2150 – 2162 MHz band and any new 12 MHz band within 2.1 GHz, MMDS operators might not be able to operate simultaneously in both bands. As a consequence, MMDS operators may need additional spectrum during any transition period.

V. CONCLUSION

The record demonstrates that the 2.1 GHz MDS and 2.5 GHz MMDS/ITFS bands must not be re-allocated for 3G services. MMDS/ITFS licensees must have access to *all* of the spectrum allocated to these services in order to provide technically and economically viable services, especially to those areas currently unserved or underserved by other broadband technologies. Any reduction in spectrum, or displacement of licensees, would delay the provision of such services to the public and could cripple the MMDS/ITFS industries. It is now time for the Commission to eliminate the cloud of uncertainty that currently hangs over the MMDS/ITFS industries by removing the MMDS/ITFS bands from active consideration in this proceeding.

Rather than trying to choose one advanced wireless service over another, the Commission has the ability to accommodate both MMDS/ITFS and 3G services – a choice that makes sense economically and as a matter of public policy. The Commission has identified ample spectrum outside of the MMDS/ITFS frequency bands to meet the needs of 3G service providers. By accommodating 3G services outside of the MMDS/ITFS frequency bands, the Commission can preserve its policies promoting the advancement of competitive broadband wireless services to all Americans, while advancing its stated objective in this proceeding to bring new advanced mobile and fixed services to the public.

Respectfully submitted,

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I hereby certify that on this 9th day of March, 2001 a true and correct copy of the foregoing Reply Comments of WorldCom, Inc. was sent by hand to the following:

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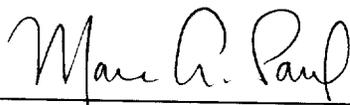
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