BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules to	)	
Allocate Spectrum Below 3 GHz for Mobile and	)	ET Docket No. 00-258
Fixed Services to Support the Introduction of New	)	
Advanced Wireless Services, including Third	)	
Generation Wireless Systems	)	

To the Commission:

REPLY COMMENTS OF NUCENTRIX BROADBAND NETWORKS, INC.

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SUMMARY

The comments filed in this *Notice of Proposed Rulemaking* have established a compelling record upon which the Commission now must base its decision to allocate spectrum for 3G services. In approaching a prospective reallocation to 3G of any spectrum in the tentatively identified candidate bands, the Commission needed and sought specific answers from interested parties on myriad issues. Hundreds of parties have now provided their input through their comments. Although this proceeding has fostered contentious debate on many issues, consensus exists in two critical respects: (i) due to a host of technical, economic, legal, and public policy reasons, the MDS/ITFS band cannot be reallocated to 3G; and (ii) the overwhelming preference for accommodating 3G spectrum requests is the reallocation of the 1710-1850 MHz and 2110-2150 MHz bands.

The record, as established by the commenting parties, establishes overwhelming opposition to any reallocation of the MDS/ITFS band. ***First***, ITFS incumbents, such as the University of North Carolina and hundreds of other educational institutions, and MDS incumbents, such as WorldCom, Sprint, and Nucentrix, have unequivocally established that they must have access to the entire MDS/ITFS band in order to have a technically and economically viable system for providing fixed wireless broadband services in rural and urban areas. ***Second***, the MDS/ITFS community is unified with the prospective 3G operators, such as Verizon and equipment vendors, such as Motorola, Ericsson, and Cisco Systems, that sharing of this band, in whole or in part, is not a workable solution. ***Third***, commenters desiring the MDS/ITFS band could neither provide credible arguments for this added bandwidth nor suggest alternate spectrum for relocation. Although Ericsson proposed the 3.5 GHz band as an alternative, it failed to establish that the 3.5 GHz band provides reasonably

comparable spectrum or otherwise refute the Commission's prior conclusion or the other parties' well documented evidence that MDS/ITFS services cannot exist above 3 GHz. ***Fourth***, any reallocation of the MDS/ITFS band would directly interfere with, if not altogether halt, the deployment of broadband service to rural and underserved areas in contravention of the Congressional mandates to ensure rural deployment, as duly noted by the Public Utility Commission of Texas. ***Finally***, most commenters agree that the heavily encumbered nature of and the previously auctioned BTA rights for the MDS/ITFS spectrum would bar any prospective eviction of incumbents.

All of the disparate parties have resoundingly negated the Commission's question of whether or not it should further consider reallocation of the MDS/ITFS band. Therefore, the record compels the Commission to release this band from further consideration, conclude in its forthcoming Final Report on the MDS/ITFS band that it cannot be reallocated, and thereby remove the cloud hanging over this spectrum to allow the unfettered deployment of fixed wireless broadband services.

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Nucentrix Broadband Networks, Inc. ("Nucentrix") hereby submits its reply comments on the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.[1] The record is devoid of any credible evidence to support reallocation of the 2150-2162 MHz ("2.1 GHz") and 2500-2690 MHz ("2.5 GHz") bands (collectively, the "MDS/ITFS Bands").[2] Accordingly, the Commission should conclude in its forthcoming Final Report that the MDS/ITFS Bands are no longer viable

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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 Services, including Third Generation Wireless Systems, *Notice of Proposed Rulemaking*, FCC 00-455 (rel. January 5, 2001) ("NPRM").

2 Throughout these comments, references to "MDS" include both Multipoint Distribution Service ("MDS") and Multichannel Multipoint Distribution Service ("MMDS").

candidates for 3G reallocation. Such action will remove the cloud of regulatory uncertainty hanging over these bands and allow the unfettered deployment of fixed wireless broadband services.

I. THE OVERWHELMING RECORD IN THIS PROCEEDING AGAINST REALLOCATION OF THE MDS/ITFS BANDS COMPELS THE COMMISSION TO RELEASE THE BANDS FROM ANY FURTHER CONSIDERATION IN ORDER TO ALLOW UNFETTERED DEPLOYMENT OF FIXED BROADBAND SERVICES.

A. Of All Channels Under Consideration in this Proceeding, the 2.5 GHz Band Received the Least Support for Reallocation.

The NPRM's identification of the 2.5 GHz band as a candidate for spectrum reallocation sparked a groundswell of opposition that is far greater than any support marshaled in favor of reallocating spectrum for 3G. With a few exceptions,[3] commenting parties uniformly oppose any full or partial reallocation of the 2.5 GHz band.

The fixed wireless operations in the 2.5 GHz band are essential to the fulfillment of state and national educational and broadband deployment mandates. As a result, parties normally unconcerned with day-to-day Commission spectrum management decisions filed vociferous opposition to reallocation of the 2.5 GHz band in this proceeding. These parties included several hundred educational institutions. The Public Utility Commission of Texas also warned that any hindrance the Commission may cause to fixed wireless operations in the 2.5 GHz band would directly conflict with

[3] *See* Section I.B, *infra* (explaining why Verizon, VoiceStream, and Ericsson have failed to enter into the record any credible argument which would support their claimed need for this additional spectrum).

Congressional mandates as embodied in the Telecommunications Act of 1996.[4] Finally, several Canadian wireless organizations voiced international opposition.[5]

From a technical perspective, the record shows that MDS/ITFS operators need access to all of the MDS/ITFS Bands in order to provide fixed wireless broadband and educational services.[6] The mobile wireless industry concedes that sharing of the ITFS/MDS Bands is not feasible.[7] Likewise, segmentation is not feasible, as many commenters recognize.[8] To segment the MDS/ITFS Bands

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4 *Comments of the Public Utility Commission of Texas* at 2.

5 *See Comments of the Radio Advisory Board of Canada*; *Comments of the Canadian Wireless Telecommunications Association*. Canada previously rejected requests by the mobile industry to reallocate MDS and MCS (Canada's counterpart to MDS/ITFS) for 3G.

6 *See* HAI Consulting, Inc. White Paper, *MMDS/ITFS Two-Way Fixed Wireless Broadband Service: Spectrum Requirements and Business Case Analysis*, attached to *Comments of the Wireless Communications Association International* (concluding that loss of any portion of the MDS/ITFS Bands would render fixed wireless service uneconomical); *Comments of Cisco Systems* at 6-8; *Comments of Sprint* at 20 ("any diminution of the spectrum to which [Sprint] enjoys access today would render its business plan useless"); *Comments of WorldCom* at 16 (noting that it needs access to all of the MDS/ITFS Bands in order to provide an economically viable two-way service, particularly in sparsely populated rural areas which can only be served by a supercell architecture); *Comments of the University of North Carolina* at 2, 5-6, 8 (commenting that it is essential to have all of the MDS/ITFS Bands in order to have a viable system). Although some commenters maintain that this bandwidth demand has never been documented (*See, e.g. Comments of AT&T Wireless*, at 13), the fact that MDS operators negotiated spectrum leases for additional capacity at added expense from hundreds of ITFS spectrum licensees and incorporated these channels into their most recent engineering plans, in fact, serves to document the demand. This is the hallmark of the efficient secondary market allocation of spectrum as noted by the Commission. *See Notice of Proposed Rulemaking*, WT Docket No. 00-230, FCC 00-402 (rel. Nov. 27, 2000). Indeed, prospective 3G operators have never documented the supposed insatiable consumer demand for 3G services to counter data concluding otherwise. *See* Section I.B, *infra*.

7 *Comments of Verizon Wireless* at 19; *Comments of AT&T Wireless Services* at 13; *Joint Comments of the Cellular Telecommunications & Internet Association, Telecommunications Industry Association, and Personal Communications Industry Association* at 1, 11; *Comments of Ericsson* at 15; *Comments of Motorola* at 13; *Comments of CelPlan Technologies, Inc.* at 2.

8 *Joint Comments of the Cellular Telecommunications & Internet Association, Telecommunications Industry Association, and Personal Communications Industry Association* at 11; *Comments of Cisco Systems* at 6, 8; *Comments of Sprint* at 20-23; *Comments of WorldCom* at 18-21; *Comments*

would diminish the utility of the remaining spectrum, if not ultimately destroy the educational and commercial services currently provided over this spectrum.[9] Therefore, the only way to accommodate 3G in this spectrum is to evict the incumbents and relocate them elsewhere. However, no comparable spectrum for relocating incumbents has been identified.[10] Although Ericsson, in passing, suggests that incumbents could be relocated to the 3.5 GHz band,[11] it fails to (i) contradict the conclusions of the Commission and other commenters that MDS/ITFS systems cannot operate above 3 GHz;[12] or (ii) establish that spectrum in the 3.5 GHz band is a reasonable substitute for the current MDS/ITFS Bands. Indeed, commenters noted that the Commission previously explored alternate spectrum to which the MDS/ITFS incumbents could be relocated and found none.[13] Significantly, the initiation

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of National ITFS Association at 29-31; *Comments of CelPlan Technologies, Inc.* at 2.

9 *Comments of the University of North Carolina* at 7; *Comments of the University of Maryland at College Park* at 1-2; *Comments of Richardson Independent School District* at 3-4; *Joint Comments of Education Service Center Region 9 and the Texas ITFS Educational Community* at 10-12; *Joint Comments of the Oklahoma State Regents for Higher Education & Oklahoma Educators* at 7-9; *Comments of Eureka College and the Illinois ITFS Educators* at 6-9; *Comments of Tarrant County College* at 5.

10 *Comments of WorldCom* at 25; *Comments of Sprint* at 25; *Joint Comments of Red El Paso F Partnership, et.al.* at 6.

11 *Comments of Ericsson* at 16, note 33.

12 *See Comments of the Wireless Communications Association International, Inc.* at 30-32; *Comments of Eureka College and the Illinois ITFS Educators* at 6-7; *Joint Comments of Education Service Center Region 9 and the Texas ITFS Educational Community* at 10; *Joint Comments of the Oklahoma State Regents for Higher Education & Oklahoma Educators* at 7. The Commission has also come to the same conclusion. *See* Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, *First Report and Order and Third Notice of Proposed Rulemaking*, 7 FCC Rcd 6886 at ¶ 17 (1992) ("there are no frequency allocations above 3 GHz that could readily support the requirements of MDS, which are wide-area and point-to-multipoint in nature").;

13 *Comments of Clearwire Technologies, Inc. a*t 2, 6; *Joint Comments of the Red El Paso F Partnership, et. al.*, at 6.

of 3G service does not depend upon the additional allocation of spectrum for 3G. As noted in their comments, AT&T and Sprint PCS already are converting their usage of PCS spectrum to 3G.[14]

The case for reallocation of the 2.5 GHz band for 3G is further diminished because it would frustrate the Congressional mandate to deliver advanced telecommunications services to rural areas. Mobile 3G service, with its limited speed of 144 kilobits/second, does not qualify for either the upstream or downstream component of advanced telecommunications service as defined by the Commission.[15] Indeed, as Michael Coyne, director of 3G networks for Ericsson cautioned: "Data rates at the suburban and rural edges of networks might not be much different from 2G. A critical issue is that propagation varies depending on frequency allocation."[16] Although 3G standards provide for bandwidth of up to 2 Mbps, such speed can only be provided through an in-building cell architecture having a maximum radius of merely 40 meters.[17] Even so, 3G billed on a metered basis (for time or information downloaded)[18] is certainly not a reasonably comparable substitute for the local dialup, unlimited broadband usage plans commonly available in urban areas.

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14 *Comments of AT&T Wireless Services, Inc.* at 4; *Comments of Sprint* at 36.

15 *Second Report on ATC* at ¶10.

16 Elizabeth V. Mooney, "Bear Stearns Panelists Warn Against Getting 3G Starry Eyed," *RCR*, Vol. 19, No. 46, at 2 (Nov. 13, 2000).

17 *Joint Comments of the Cellular Telecommunications & Internet Association, Telecommunications Industry Association, and Personal Communications Industry Association*, attaching *Characteristics of IMT 2000 Technology* at 6.

18 Ericsson anticipates that 3G usage may be billed based on the volume of information used or downloaded by the 3G user. *See* Ericsson, "Introduction to 3G," available at http://www.ericsson.com.au/3G .

It also is quite probable that 3G services will never reach all rural business and residential customers due to technical and economic limitations.[19] In rural applications, the cell size is just over 6 miles in radius.[20] Thus, the cell size necessary to achieve comparable broadband speeds with 3G is so small that 3G deployment in rural areas is not feasible either economically or from a practical standpoint. Even under the industry's own optimistic assumptions, deployment is only projected to grow to 10% of rural areas by 2010.[21] As Verizon points out, the PCS band has not yet been fully deployed to bring 2G service to all areas.[22] Furthermore, the comments cast doubt on the intent of prospective 3G operators to deploy ubiquitous 3G coverage to include rural areas. Indeed, Verizon goes on to point out that a geographic segmentation of the 1755-1850 MHz band would be acceptable to allow 3G operators access to the lucrative urban markets while allowing the Department of Defense to continue using the spectrum in rural areas for its training operations.[23] This position is inconsistent with an intention to bring 3G service to rural areas.

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19 *Second Report on ATC* at ¶ 56; *See also Advanced Telecommunications in Rural America* at 28 ("...it must be remembered that fifteen years after cellular service was started in the United States, there are still rural areas where first generation cellular coverage is spotty or non-existent.")

20 *Joint Comments of the Cellular Telecommunications & Internet Association, Telecommunications Industry Association, and Personal Communications Industry Association,* attaching *Characteristics of IMT 2000 Technology* at 6.

21 *Id.* at 7.

22 *Comments of Verizon Wireless* at 5.

23 *Id.* at 8.

B. The Record is Devoid of Any Credible Argument or Meaningful Support for Reallocation of the 2.5 GHz band

The few commenters who support reallocating the 2.5 GHz band have failed to meet their burden of establishing a solid record upon which the Commission can grant their requests. The NPRM solicited comments on a host of issues concerning reallocation of the 2.5 GHz band. However, the few commenters advocating reallocation of the 2.5 GHz band merely provide conclusory statements or ignore the specific issues raised in the NPRM. These issues must be addressed before the Commission can consider their reallocation requests.

1. The Desire For a "Spectrum Grab" Does Not Support Reallocation of the 2.5 GHz Band.

In their comments, VoiceStream, Verizon, and Ericsson advocate a supplemental reallocation of all or part of the 2.5 GHz band. These commenters seem to be of the view that there can never be enough spectrum for 3G. However, they fail to establish a causal link between their projected demand for 3G services and the need for additional spectrum in the 2.5 GHz band. As noted by the National ITFS Association in its comments, the demand for additional spectrum can only be substantiated by showing that prospective 3G operators cannot meet the demand without additional spectrum.[24]

The requests of VoiceStream, Verizon, and Ericsson are suspect, particularly in light of a growing consensus that the consumer demand for broadband mobile Internet service may have been grossly overstated by 3G advocates.[25] It is becoming apparent that expectations regarding 3G may

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[24] *Comments of the National ITFS Association* at 16, 20.

[25] Peter J. Howe, *Palm Chief Calls 3G Systems Costly, Over-Hyped*, BOSTON GLOBE, February 23,

have been unrealistic, as evidenced at a gathering of the mobile wireless industry in Cannes, France last month.[26] Some 3G vendors are so enamoured with their 3G business plans that they ignore that consumer demand has not materialized. For example, Nokia is forging ahead with production of approximately 200 million wireless application protocol ("WAP") handsets for 2001, despite the fact that consumers only purchased 25 million WAP handsets in 2000 following projected demand that was overstated fivefold.[27] Likewise, the actual demand for 3G handsets and service is certain to fall short of anticipated projections due to the high cost of 3G handsets and service.[28] As Nicolas Negroponte, Director of MIT's media lab, has stated, despite the inherent deficiencies of 3G service, most consumers would not be able to afford to use it because the cost of providing the service would make it cost prohibitive.[29]

2001 (characterizing 3G as "a new technology few customers are clamoring for that would require phone companies to invest billions of dollars and consumers to pay thousands of dollars for new devices"); Eugene Wee, *Speed Bumps on the 3G Superhighway*, project eyeball.technology, January 11, 2001 ("Some people have speculated that 3G is being driven by technology rather than by the market…").

[26] *See* Kristin Ridley and Lucas van Grinsven, "Mobile Web Delays Darken Mobile Mood," *Reuters* (Feb. 23, 2001), available at http://dailynews.yahoo.com/h/nm/20010223/tc/telecoms_wireless_dc_1.html.

[27] *Id*.

[28] Arthur Chai, "Commentary: 3G Licenses in S'pore, what's all the excitement about?" *Singapore.CNET.com* (Oct. 23, 2000), available at http://singapore.cnet.com/news/2000/10/23/20001023l.html.

[29] Eugene Lacey, "Negroponte: '3G Will Not See the Light of Day,'" *ZD Net UK News* (Sept. 14, 2000), available at http://www.zdnet.co.uk/news/2000/36/ns-17861.html ; *See also* Lionel Simmington, "Europe Wire: October 3, 2000," *Australian Personal Computer, Newswire* (Sept. 28, 2000) (stating that the cost of 3G licenses and network construction will double current mobile service costs), available at http://www.newswire.com.au/apcweb/news.nsf/HTML/AllHeadlines/9EB51B9A3C560D08CA25696C0082570C.

VoiceStream, Verizon, Ericsson, and other proponents of reallocation of additional spectrum in the 2.5 GHz band must do more than simply make unsubstantiated claims for more spectrum. Such claims do not provide the Commission with any basis upon which it could hope to justify displacing thousands of incumbent licensees and threatening the fixed broadband and educational services provided in this band. 3G proponents had the opportunity to file comments backed up with technical, economic, and other support, but they failed to do so. Therefore, there is not a sufficient record upon which the Commission can grant their requests.

2. The United States Has Not Lost the "Great 3G Race."

Some parties would have the Commission believe that the United States' failure to be the first country to auction spectrum for 3G puts it far behind in the global race to provide 3G service.[30] Although some countries may have conducted 3G spectrum auctions before the United States, the cry that the United States will lose the "great 3G race" with severe economic and social implications is merely a scare tactic. At least one commenter notes that European countries will not have nationwide 3G networks until two years after the United States.[31] Sprint PCS, Verizon Wireless, and Leap Wireless have all announced commencement of 3G service in the United States this year.[32] The

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30 *See Comments of Verizon Wireless* at 6-7, 30 (stating "it is clear that the Commission will have to allocate substantial additional spectrum to 3G services in order to maintain U.S. leadership in the global telecommunications marketplace.")

31 *Comments of Motorola* at 10.

32 *Id.* at 9.

commenters also fail to note that the Commission just recently concluded a $17 billion auction of spectrum available for 3G use.[33]

3. The Approach to Accommodating 3G in Europe and Other Countries Cannot Dictate FCC Spectrum Decisions in the United States.

Verizon suggests that the approach other nations have taken in allocating 3G should guide the Commission's approach to accommodating 3G in the United States.[34] However, such an approach has little to offer the United States due to fundamental demographic and economic differences. Europe is densely populated with closely spaced urban communities, whereas the United States' urban centers are less dense and are scattered throughout a vast geographic area. In many countries that have allocated excessive amounts of spectrum for 3G, wireless services are actually *cheaper* than wireline services. The spectrum needs in these countries would understandably be higher than in the United States where wireline services are generally cheaper than wireless services.[35] In many of these foreign countries, Internet users connect over local telephone lines which are billed on a metered basis, unlike users in the United States who generally enjoy flat rate local calling plans and can choose from a number of inexpensive, unlimited access plans. Consequently, these users are more willing to accept a metered 3G service.

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33 *See* Public Notice, C and F Block Broadband PCS Auction Closes, DA 01-211 (rel. Jan. 29, 2001).

34 *Comments of Verizon Wireless* at 6-7.

35 Susan Rush, Editor, "And High-Speed Access for All," *Broadband Week Direct* (March 5, 2001) (In Japan, the high price of a local telephone call has hindered wireline Internet access.), available at http://www.broadbandweek.com/newsdirect/0103/direct010305.htm.

4. Global Harmonization is a Myth.

Verizon suggests that the Commission reallocate the 2.5 GHz band to 3G in order to have global harmonization.[36] First, because of the great diversity in spectrum management policies from one country to the next, complete global harmonization is a practical impossibility. Second, as Motorola and Lucent note, no country has adopted the 2.5 GHz band for 3G.[37] As Lucent states:

> The 2.5 GHz band is not currently in operation anywhere in the world for commercial mobile radio services. This band is sufficiently far from the PCS and DCS 1800 bands that it would impose greater challenges to support the operation of multi-band terminals. This allocation would also require significant changes in equipment to enable successful deployment of advanced wireless systems. Furthermore, while the EU has indicated that it may allocate 2.5 GHz for UMTS in the 2005-2010 timeframe, such allocations are not guaranteed to occur as projected and will be dependent upon business and market considerations. Thus, because use of this 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 advanced wireless services.[38]

Furthermore, lack of global harmonization of existing 1G and 2G systems, and the failure to achieve economies of scale, have not caused harm to the mobile industry.[39] Even assuming global harmonization is possible, 3G handsets will necessarily be multi-band, multi-mode.[40] Currently

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36 *Comments of Verizon Wireless* at 31.

37 *Comments of Motorola* at 12; *Comments of Lucent Technologies* at 9.

38 *Comments of Lucent Technologies* at 9.

39 *Comments of Cingular Wireless* at 12.

40 *Comments of the Telecommunications Industry Association* at 12.

planned handsets for the cdma2000 1X standard will roam seamlessly between 1G, 2G, and 3G networks.[41] Therefore, global harmonization is not necessary for 3G deployment in the United States.

Global harmonization also depends on compatibility among networks of the same or different operators.[42] Even if harmonization among frequency allocations could be achieved, there is no guarantee that 3G operators will deploy the compatible networks that are necessary to facilitate global roaming.

5. Regional Spectrum Harmonization Should Take Priority over Global Harmonization.

Regional spectrum harmonization with Canada and Mexico should take priority over any attempt at global harmonization because it supports historical spectrum alignments with our cross-border neighbors, furthers commerce with our two largest trading partners, and supports the tri-party North American Free Trade Agreement. One party observes that Mexico and Canada comprise 52% of the United States' trade with its top 10 trading partners.[43] Indeed, U.S. mobile operators such as AT&T recognize that North American transparent roaming, particularly to Canada, is of greater demand than roaming elsewhere in the world, as it currently offers the service to its U.S. customer base with roaming plans tailored to frequent roamers to Canada.[44]

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41 *Comments of the CDMA Development Group, Inc.* at 8.

42 *Comments of Lucent Technologies* at 11.

43 *Comments of the Ad Hoc MDS Alliance* at 4.

44 *See* "AT&T Digital One Rate Explanation of Rates & Charges," available at http://www.attws.com/personal/buy/explanation.jsp?calling_plan=1&callingPlanName=AT%26amp%3BT+Digital+One+Rate+%28SM%29.

II. BECAUSE THE 2150-2162 MHZ BAND IS AN ESSENTIAL COMPONENT OF EVERY INTEGRATED MDS/ITFS NETWORK, THE COMMISSION CANNOT REALLOCATE THE MDS 1/2/2A CHANNELS WITHOUT COMPROMISING ALL ITFS EDUCATIONAL SERVICES AND FIXED WIRELESS BROADBAND SERVICES.

To the uninitiated, it might appear reasonable to reallocate the MDS 1/2/2A channels in the 2.1 GHz band because they are separated from the 2.5 GHz band. These parties fail to understand current and planned fixed wireless deployment in the MDS/ITFS Bands.[45]

Two key attributes of the MDS 1/2/2A channels make this channel block an integral component of a functional and efficient MDS/ITFS system. First, the MDS 1/2/2A channels, which may vary from a combined 10 to 12 MHz depending on the size of the market, serve as the initial vital uplink facility for most two-way MDS/ITFS systems. Indeed, the MDS/ITFS community uniformly engineered its two-way systems, as filed with the Commission in August 2000, to send upstream traffic over these frequencies.[46] WorldCom plans to use these two channels for upstream transmission in the initial launch of service in virtually every market.[47] In addition, Sprint is currently using these channels "in all of the markets where Sprint has already launched two-way service."[48]

As MDS/ITFS operators noted in their comments, confiscating this spectrum would require complete system reengineering, cause lengthy delays, and result in excessive costs in order to use

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[45] *See, e.g., Comments of Verizon Wireless* at 19-27 (incorrectly assumes operators are using MDS 1/2/2A for downstream transmissions rather than for upstream transmission as uniformly engineered in MDS/ITFS systems).

[46] *Comments of the Ad Hoc MDS Alliance* at 4-5.

[47] *Comments of WorldCom* at 24.

[48] *Comments of Sprint* at 31.

different spectrum for uplink transmission, if such spectrum is available at all.[49] Second, the band separation provided from the MDS/ITFS spectrum is essential to a two-way communications network and maximizes its spectral efficiency without the need for additional guard bands that otherwise could be used to carry data or voice traffic.

Many commenters also noted that confiscation of the MDS 1/2/2A channels would raise serious policy and legal issues concerning previously held auctions for this spectrum. Nucentrix acquired the overwhelming majority (90%) of its licenses for MDS 1/2/2A channels under its BTA ownership rights granted by the Commission in 1996 at auction. If the Commission disregards the spectrum rights it sold at auction, it is disregarding its legal obligation to deliver what it sold.[50] As the record correctly reflects, to do so would undermine the integrity of the auction process for any future spectrum auctions.[51]

III. THE OVERWHELMING MAJORITY OF COMMENTING PARTIES SUPPORT ACCOMMODATION OF 3G IN THE 1710-1850 MHZ AND 2110-2150 MHZ BANDS.

Of all the candidate bands the Commission has identified for potential allocation to 3G wireless services,[52] the overwhelming preference is for the 1710-1850 MHz and 2110-2150 MHz

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49 *Comments of WorldCom* at 23-24.

50 *Joint Comments of Hubbard Trust, Wireless World, L.L.C., and Centimeter Wave Television, Inc.* at 7-9.

51 *Comments of Sprint* at 25-26; *Comments of WorldCom* at 10-12; *Comments of Nucentrix Broadband Networks, Inc.* at 12-14.

52 Existing mobile frequencies: cellular, broadband Personal Communications Service ("PCS"), and Specialized Mobile Radio ("SMR"); and five additional frequency bands: 1710-1755 MHz; 1755-1850 MHz; 2110 –2150 MHz; 2160-2165 MHz; 2500-2690 MHz. *See NPRM* at ¶ 1.

bands.[53] The preference for (or lack of any objection to) these bands is found in the comments of a diverse group that have adverse or competing interests in the subject matter of this NPRM. These commenters include mobile operators[54] and their equipment vendors,[55] MDS operators[56] and their

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53 Although some commenters also support reallocation of the 2150-2165 MHz bands, this option is not feasible or necessary, as discussed in Section II, *supra*.

54 *Joint Comments of the Cellular Telecommunications & Internet Association, Telecommunications Industry Association, and Personal Communications Industry Association* attaching *Report of the Industry Association Group on Identification of Spectrum For 3G Services* at 1 (advocating the 1710-1850 MHz band); *Comments of AT&T Wireless Services, Inc.* at 2-3, 9, 11-12 14-15, Attachment at 1 (initially pairing 1710-1735 MHz with 1805-1830 MHz, followed by a second phase pairing 1735-1780 MHz with 2110-2150/2160-2165 MHz); *Comments of Verizon Wireless* at 9-13 (recommending immediate allocation of 1710-1755 MHz and 2110-2165 MHz bands followed by the allocation of the 1755-1850 MHz bands as soon as practical); Although VoiceStream and Verizon seem to have an insatiable demand for spectrum, they agree with the majority of commenters that the 1710-1850 MHz and 2110-2150 MHz bands should be reallocated to 3G. Indeed, Ivan Seidenberg, President and co-CEO of Verizon Communications recently stated that fixed wireless services are a critical facilities based broadband pipe for ensuring competition. The only way to reconcile this statement with Verizon's comments is to conclude that reallocation of the 2500-2690 MHz band is only a second choice because the lack of comparable spectrum for relocation below 3 GHz could seriously threaten the fixed wireless industry. *See* Ivan Seidenberg, "Stop Blocking the Broadband Revolution," *The Wall Street Journal* (March 1, 2001) at A22.

55 *Comments of Ericsson* at 5 (proposing portions of the 1.7 GHz and 2.1 GHz bands as the first phase of a four phase reallocation); *Comments of Motorola, Inc.* at i, 2, 11-18 (supporting reallocation of the 1710-1850 MHz and 2110-2150/2160-2165 MHz bands); *Comments of Qualcomm Incorporated* at 13 (recognizing that the 1.7 GHz and 2.1 GHz bands are good candidate bands for reallocation to 3G); *Comments of Nortel Networks, Inc.* at 2, 5-6 (advocating the immediate allocation of only 90 MHz of spectrum consisting of the 1710-1755 MHz and 1805-1850 MHz bands); *Comments of Lucent Technologies, Inc.* at 12-14 (recommending the pairing of the 1710-1750 MHz band with the 1805-1845 MHz band or, in the alternative, pairing two smaller sets of bands – the 1710-1735 MHz band with the 1805-1830 MHz band; and the 1735 MHz-1765 MHz band with the 2110-2140 MHz band); *Comments of the Siemens Corporation* at 4, 29, 35 (primarily recommends pairing 1710-1755 MHz with 1805-1850; also supports usage of 2110-2150/2160-2165 MHz on an unpaired basis).

56 Comments filed by MDS operators generally support the reallocation of candidate bands other than ITFS/MDS. *See Comments of WorldCom, Inc.*; *Comments of Sprint Corporation*; *Comments of Nucentrix Broadband Networks, Inc.; Comments of the Ad Hod MDS Alliance; Joint Comments of Red El Paso F Partnership, et.al.*; *Joint Comments of Hubbard Trust, et. al.*; *Comments of IP Wireless, Inc*.

equipment vendors,[57] ITFS licensees,[58] one state public utility commission,[59] and international organizations.[60] Although the commenters approached the complex and multifaceted issues in this proceeding from differing perspectives, they all fundamentally concluded that the 1710-1850 MHz and 2110-2150 MHz bands are the most viable candidates for reallocation to 3G.

The United States is not the first country to face the issue of adopting spectrum for 3G services. Other countries that have allocated spectrum for 3G have concluded that 3G belongs in the 1710-1850 MHz band. Lucent noted in its comments that other CITEL administrations found that this band is the only band in North or South America available for 3G.[61] In addition, Motorola points out that the 1710-1850 MHz band is globally used for 2G systems which can be upgraded to 3G services, and many countries and mobile operators are bringing 3G to market in this manner.[62] The fact that equipment is currently available in the global market for utilizing this spectrum makes this band even more compelling for 3G reallocation in the United States.

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57 *See Comments of Cisco Systems, Inc.*at 2-3 (specifically opposes the 2500-2690 MHz band, but did not voice any objection to the 1710-1850 MHz and 2110-2150 MHz bands).

58 *Comments of the National ITFS* Association at 23; *Comments of the Catholic Television Network* at 24; Comments *of the University of North Carolina* at 8. *Joint Comments of Education Service Center Region 9 and the Texas ITFS Educational Community* at 13; *Joint Comments of Oklahoma State Regents for Higher Education & Oklahoma Educators* at 9-10.

59 *Comments of the Public Utility Commission of Texas* at 2-3 (recognizing the need to encourage the evolution of 3G services in spectrum reallocation, but not at the expense of fixed wireless services).

60 *Comments of the Radio Advisory Board of Canada* at 2, 12, 15; *Comments of the Canadian Wireless Telecommunications Association* at 2-3, 5.

61 *Comments of Lucent* at 11.

62 *Comments of Motorola* at i, 13.

IV. CONCLUSION

For all the foregoing reasons, Nucentrix respectfully requests that the Commission (i) refrain from reallocating the MDS/ITFS Bands to 3G, and (ii) conclude in its forthcoming Final Report on the MDS/ITFS Bands that these bands are no longer a viable candidate band for reallocation to 3G. Only by following this course can the Commission maintain the sanctity of its commitments to the MDS/ITFS community which is actively involved in solving the information technology gap, honor its Congressional mandates to facilitate rural broadband deployment, maintain the integrity of its spectrum management and auction policies, and avoid the protracted legal disputes that would otherwise ensue.

Respectfully submitted,

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