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| In the Matter of | ) | |
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| Petition for Rule Making of the Cellular | ) | |
| Telecommunications Industry Association | ) | File No. RM-9920 |
| Concerning Implementation of WRC-2000: | ) | |
| Review of Spectrum and Regulatory | ) | |
| Requirements for IMT-2000 | ) | |

**COMMENTS**

THE WIRELESS COMMUNICATIONS
ASSOCIATION INTERNATIONAL, INC.

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## EXECUTIVE SUMMARY

The Wireless Communications Association International, Inc. ("WCA") has an immediate and substantial interest in the Petition for Rulemaking filed by the Cellular Telecommunications Industry Association ("CTIA"), requesting that the Commission commence formal proceedings to consider allocating, *inter alia*, the 2500-2690 ("2.5 GHz") band for Third Generation ("3G" or "IMT-2000") mobile services. WCA is the primary advocate of the fixed wireless broadband industry on matters affecting the use of Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") spectrum in the 2.5 GHz band. CTIA's Petition thus implicates spectrum that is or will soon be deployed extensively for competitive MDS/ITFS-based fixed wireless broadband service, and which educators use extensively to provide a wide variety of distance learning services in large and small markets across the United States.

At a minimum, it is absolutely essential that the Commission's review of CTIA's Petition incorporate the fundamental spectrum allocation principles endorsed by the United States Government ("USG") and agreed to at this year's World Radiocommunication Conference in Istanbul ("WRC-2000"), particularly as they relate to protection of incumbents that already occupy the 2.5 GHz band. As the Commission is well aware, Multichannel Multipoint Distribution Service ("MMDS") operators have already invested billions of dollars toward acquiring MDS/ITFS spectrum rights, and are already using the 2.5 GHz band to deploy competitive fixed wireless broadband service in rural and otherwise underserved areas of the country. Indeed, the USG has recognized the importance of preserving the integrity of MDS/ITFS-based broadband and educational services, and thus neither the USG, WRC-2000 nor the Commission has ever advocated that MDS/ITFS incumbents in the 2.5 GHz band be displaced or otherwise be disadvantaged by any allocation of spectrum for IMT-2000. There is no public interest justification for the Commission to depart from that position here.

Furthermore, while WCA certainly does not oppose the initiation of technical studies to determine if spectrum may be allocated for IMT-2000 without harming incumbent users, no amount of study will change the fact that *sharing of the 2.5 GHz band is not possible and there is no comparable replacement spectrum available for MDS/ITFS incumbents.* While it is impossible to calculate the costs of migration where the precise replacement spectrum is unknown, there is no doubt that relocation of MDS/ITFS incumbents to higher, less desirable frequency bands would make it impossible for MMDS operators to serve those market segments that other broadband providers have chosen to ignore. In any case, no estimate of migration costs could fully account for the significant and irreparable opportunity costs caused by the uncertainty and delay that inevitably results from any relocation of existing users to new spectrum. There is little question that the mere threat of relocation could postpone the deployment of competitive fixed wireless broadband service to rural and otherwise underserved

areas, which is precisely the opposite of what Congress directed the Commission to do in Section 706(a) of the Telecommunications Act of 1996.

Accordingly, given the inestimable damage relocation would inflict on MDS/ITFS incumbents and users of MDS/ITFS-based fixed wireless broadband service, WCA urges the Commission to use the CTIA Petition as a platform for initiating the broadest possible inquiry into, among other things, (1) exactly how much spectrum is necessary to facilitate the provision of IMT-2000 services, (2) whether IMT-2000 already can be fully accommodated via existing mobile spectrum and/or other spectrum the Commission recently made or intends to make available for mobile services, and (3) whether global harmonization of IMT-2000 spectrum is as essential as CTIA appears to assume.

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## COMMENTS

The Wireless Communications Association International, Inc. ("WCA"), by its attorneys, hereby submits its initial comments with respect to the Petition for Rule Making ("Petition") filed by the Cellular Telecommunications Industry Association ("CTIA") asking the Commission to begin the process of designating additional spectrum for Third Generation ("3G" or "IMT-2000") mobile services.

## I. STATEMENT OF INTEREST.

WCA is the trade association of the fixed wireless broadband industry. As the Commission is aware, WCA and its predecessors have served as the primary industry advocate for users of Multipoint Distribution Service ("MDS") and Instructional Fixed Television Service ("ITFS") spectrum since the mid-1970s, and have participated extensively in every Commission proceeding since involving MDS/ITFS spectrum, including, *inter alia*, the 2500-2690 MHz or 2.5 GHz band. WCA also played an active role in developing the United States government's position regarding IMT-2000 mobile services at the International Telecommunications Union's World Radiocommunication Conference in Istanbul ("WRC-2000"), and was a leading

proponent of the IMT-2000 proposal ultimately offered by the U.S. and agreed to at WRC-2000, *i.e.*, that the public interest would not be served by a mandatory, uniform global allocation of spectrum for IMT-2000, and that instead each national administration should have the flexibility to determine the specific frequency bands that will be made available in its country for IMT-2000 services, taking into account the needs of incumbent licensees. Presently, WCA's members include the operators of nearly all wireless communications systems operating in the 2.5 GHz band, MDS and ITFS licensees who provide spectrum for use in such systems, equipment and content suppliers, and consultants.[1/]

The spectrum allocation principles endorsed by the United States Government ("USG") and adopted at WRC-2000 specifically recognize that any reallocation of spectrum for IMT-2000 must acknowledge and protect incumbent licensees in the frequency bands identified as possible spectrum for IMT-2000, including the 2.5 GHz band. Indeed, the Commission is well aware that the 2.5 GHz band is already heavily utilized in the United States (as well as Canada and many other nations) by incumbent MDS and ITFS licensees, and that there is no comparable spectrum to which MDS/ITFS incumbents could be relocated. Thus, while WCA does not oppose further studies to determine the most efficient allocation of spectrum for IMT-2000, the fact remains that any attempt to reallocate the 2.5 GHz band for new IMT-2000 service providers exclusively or otherwise reduce the amount of spectrum available at 2.5 GHz for MDS/ITFS would thwart

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[1/] WCA members also include entities that provide or support the provision of fixed wireless broadband services using spectrum at 2.1 GHz, 2.3 GHz, 18 GHz, 24 GHz, 31 GHz and 38 GHz allocated generally to the MDS, Wireless Communications Service ("WCS"), Digital Electronic Message Service ("DEMS"), Local Multipoint Distribution Service ("LMDS") and Private Operational Fixed Service ("POFS").

the ongoing nationwide rollout of MDS/ITFS-based fixed wireless broadband service, and would inflict incalculable damage on the substantial number of schools and universities whose ITFS distance learning initiatives depend on unencumbered access to 2.5 GHz spectrum. There is no public interest justification for the Commission to invite that result.

CTIA correctly observes that the technical and legal issues posed by IMT-2000 are both substantial and complex, and require thorough study and analysis both by the Commission and private industry before a spectrum allocation plan for IMT-2000 can be put into effect.[2/] For example, there are significant questions as to whether the successful implementation of IMT-2000 in the United States even requires reallocation of any spectrum beyond that already available and/or designated for auction, and whether it is necessary or even possible to achieve global harmonization of spectrum allocated for IMT-2000 spectrum. WCA looks forward to participating in the Commission's review of these and other critical issues related to IMT-2000, and believes that the record will continue to demonstrate that the Commission can and should fully preserve the 2.5 GHz band for MDS/ITFS.

## II. DISCUSSION.

### *A. Any Reallocation of Spectrum for New IMT-2000 Service Providers Must Fully Acknowledge and Protect Incumbent MDS/ITFS Licensees in the 2.5 GHz Band.*

The USG has long acknowledged that its approach to spectrum allocation for IMT-2000 must be tempered by the need to recognize and protect incumbent MDS and ITFS licensees in

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[2/] *See, e.g.*, CTIA Petition at 7.

the 2.5 GHz band. An example of this is the U.S. Information Paper regarding WRC-2000 Agenda Item 1.6.1 that was distributed at CITEL's March 2000 meeting:

> In looking toward identification of spectrum for potential domestic use by advanced communications applications including IMT-2000, the United States must consider the investment of existing licensees, the impact on consumers and other users of existing services and the flexibility to authorize other systems based on national needs. . . *The United States uses the 2500-2690 MHz band for important fixed point-to-point and point-to-multipoint operations that provide video and telecommunications services to homes, schools, colleges, universities and businesses. These important existing uses present significant challenges to the United States as it examines their potential use by advanced mobile communications including IMT-2000.*[3/]

The U.S. position on the incumbency issue was subsequently reaffirmed in the USG's formal proposal for Agenda Item 1.6.1. Specifically, the USG identified a series of frequency bands at or below 2.5 GHz (including the 2483.5-2690 MHz band) for terrestrial or satellite IMT-2000 services. In so doing, however, the USG also proposed to amend footnote S5.388 to the ITU's International Table of Frequency Allocations, to "clearly identify and provide equal treatment of all bands for IMT-2000."[4/] In its explanatory statement, the USG summarized its position as follows:

> The United States realizes that it may not be possible for many administrations to make available the large amount of contiguous, globally-harmonized spectrum for use by IMT-2000 and other advanced communications applications. The difficulty arises from the need of many administrations to consider the investment of existing licensees, the impact on consumers and other users of existing services and the flexibility to authorize other systems based on national needs. Many administrations are currently studying the identified bands to determine their

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[3/] United States of America, Information Paper, Agenda Item 1.6.1., available at <http://www.fcc.org/wrc00/usdraft/usinfo_1-0601_1.doc> (footnotes omitted) (emphasis added).

[4/] *Id.* at 1 (emphasis added).

> availability for IMT-2000 and other advanced communication applications, the availability of comparable replacement spectrum to which current and emerging uses might migrate, and the costs of relocation as compared to the benefits of global harmonization of spectrum for IMT-2000 and other advanced communication applications. The [U.S.] proposal acknowledges the importance of these national studies, and calls for the adoption of Resolution YYY (WRC-2000) -- resolving that administrations expeditiously complete their studies and update ITU-R regarding their findings.[5]

Any doubts as to the wisdom of the USG's position were put to rest at the WRC-2000 conference in Istanbul, at which the USG's position on the incumbency issue was largely incorporated into the Final Acts of WRC-2000 and the ITU's International Table of Frequency Allocations. Specifically, the WRC recognized that a variety of services, including fixed (including point-to-multipoint distribution/communication systems) and mobile, are in operation or planned in the 2500-2690 MHz band, and that "studies of potential sharing and coordination between the satellite component of IMT-2000 and the terrestrial component of IMT-2000, mobile-satellite service applications and other high-density applications in other services such as point-to-multipoint communication/distribution systems in the bands 2500-2520 MHz and 2670-2690 MHz bands are not finished."[6] The WRC concluded by recommending that national administrations conduct studies "*that take into account the services currently using the bands or planning to use the bands* [identified for IMT-2000]. . . ."[7]

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[5] U.S. Proposals for the Work of the Conference, Proposal for Terrestrial and Satellite Components of IMT-2000, Addendum 3 to Document 12-E, World Radiocommunication Conference, Istanbul, May 8 - June 2, 2000.

[6] Provisional Final Acts of the World Radiocommunication Conference (WRC-2000), Resolution [COM5/26], at 1.

[7] *Id.*, Resolution [COM5/24] (WRC-2000), at 5 (emphasis added).

Simply stated, neither the USG, the WRC nor for that matter the Commission has ever advocated that MDS/ITFS incumbents in the 2.5 GHz band be displaced or otherwise be disadvantaged by any allocation of spectrum for IMT-2000, and the public interest demands that the Commission maintain that position here. Of critical importance is the fact that MDS/ITFS technology is ideally suited to narrow the "digital divide" between certain segments of American society that have ready access to broadband services and those that do not.[8] As noted in the Commission's *Fifth Annual Report* to Congress on competitive market conditions in the Commercial Mobile Services ("CMRS") industry:

> [MDS/ITFS] transmissions have a greater radius than upperband fixed wireless service, generally 35 miles versus three to five miles for upperband services. This is partly due to the fact that MMDS signals are less attenuated by rain and other severe weather conditions. MMDS's larger radius makes the service well-suited for not only residential customers, but customers in rural, underserved, and unserved areas as well.[9]

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[8] MDS and ITFS stations in the 2.5 GHz band can achieve a coverage radius of up to 35 miles from a cell, thus facilitating provision of broadband service to a large geographic area with a relatively small number of cells. Conversely, because of the less favorable propagation characteristics at higher frequency bands (*e.g.*, 24 GHz, 28 GHz, or 39 GHz), path lengths are much shorter (in the case of LMDS at 28 GHz, for example, as little as two to three miles), which means that many more cells would be required to serve a given region. In turn, the high initial cost of constructing additional cells, coupled with the ongoing costs of operating and maintaining each cell and the higher costs of consumer premises equipment at higher frequencies, make it uneconomic to deploy high-frequency fixed wireless systems in low-density (and therefore, low-revenue) areas.

[9] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 - - Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services (Fifth Report)*, FCC 00-289, Appendix E at 8 (rel. Aug. 18, 2000) (the *"Fifth Annual CMRS Report"*).

To date, MMDS operators have invested billions of dollars toward acquiring MDS/ITFS spectrum rights for the purpose of providing competitive fixed wireless broadband service,[10] and the successful rollout of those services depends on the continued preservation of the 2.5 GHz band for MDS/ITFS.[11] For example, Sprint alone has invested over $1 billion dollars toward purchasing or leasing MDS/ITFS spectrum rights in 90 U.S. markets (comprising 30 million households and four million businesses),[12] and has already launched fixed wireless broadband service via MDS/ITFS in Phoenix and Tucson, Arizona, and has scheduled 10 to 20 additional markets for launch by the end of this year.[13] WorldCom too has invested over $1 billion to acquire MDS/ITFS spectrum rights in 160 U.S. markets comprising more than 31 million households, and is on track with market trials of its fixed wireless broadband service in Boston, Dallas, Baton Rouge, Memphis, and Jackson, MS, with plans to initiate commercial launch of service later this year.[14] In the recent MDS/ITFS two-way filing window, Sprint filed

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[10] *See, e.g., Fifth Annual CMRS Report*, Appendix E at 4-9 (discussing ongoing or planned deployments of MDS/ITFS-based fixed wireless broadband service).

[11] The Commission's licensing scheme for MDS involved the auctioning of a single MDS Basic Trading Area authorization for each geographic market, allowing the high bidder to utilize all available channels at both 2150-2162 MHz and 2500-2690 MHz. *See MDS BTA Report and Order*, 10 FCC Rcd at 9589, 9608-13 (1995).

[12] *See, e.g.*, Iler, "Sprint Broadband Speeds Ahead in Ariz.," *Multichannel News*, at 31 (July 3, 2000).

[13] *Id. See also* "MCI, Sprint Reveal Pact To Pave MDS Deployment," *CT Wireless* (July 10, 2000); "Fixing It Up," *tele.com*, at 30 (July 10, 2000); "Sprint Steams Ahead with MDS," *Kagan Broadband*, at 1 (June 28, 2000).

[14] *See, e.g., id.*; "MCI WorldCom Adds Dallas to 'Fixed Wireless' Service Trials," available at <http://www.wcom.com/about_the_company/press_release/display.phtml?R/20000405>; Goodman, "MCI WorldCom Plans Wireless Test," *Washington Post*, at E1 (March 28, 2000);

applications for two-way authority in 45 markets, which will provide it with the capability to initiate service to its first two million customers.[15] Similarly, WorldCom filed applications for two-way authority for over 60 markets, and Nucentrix Broadband Networks, Inc. (currently the largest provider of analog MDS-based multichannel video programming service in the United States) filed for 70 markets.[16] All totaled, it has been estimated that the number of fixed wireless broadband subscribers will increase to nearly 10 million by the year 2005, and that 70% of those subscribers will be served via MDS/ITFS. Moreover, the Commission cannot ignore the devastating impact that a displacement from or loss of spectrum at 2.5 GHz would have on ITFS licensees that are using the 2.5 GHz band to provide distance learning services and other educational opportunities in both large and small markets across the United States.[17]

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Moore, "WorldCom Focuses on Fixed Wireless," <http://dailynews.yahoo.com/h/ap/20000814/bs/WorldCom_broaband_1.html> (Aug. 14, 2000).

[15] "Sprint Files For Two-Way MMDS Licenses In 45 Major Markets" (Aug. 22, 2000) (available at <http://www.sprint.com/Stemp/press/releases/200008/200008221040.html>).

[16] Nucentrix has announced plans to have MDS-based broadband systems operating in 20 markets by the end of 2001. *See* Smith, "Laying the New Broadband Foundation," *Wireless Week*, at 21 (Feb. 28, 2000).

[17] Today, approximately 1275 entities hold over 2175 different ITFS licenses, covering approximately 8000 ITFS channels. Over 70,000 locations serve as registered receive sites, and it is estimated that the number of actual locations at which ITFS programming is viewed may be many times that. ITFS stations are currently utilized for a wide variety of services, including the provision of formal telecourses (on the K-12, secondary and post-secondary levels) to schools, hospitals, workplaces and other places of learning; transmission of other educationally valuable programming (such as news, public affairs and similar material) into schools; provision of professional and worker training (such as for teachers, health professionals and public safety officers); and transmission of teleconferences for educational, training and administrative purposes. Furthermore, although ITFS spectrum is being used extensively today for the distribution of video distance learning materials, there is substantial enthusiasm within the educational community for utilizing ITFS capacity to provide schools with Internet access at

Notwithstanding the above, WCA does not oppose CTIA's call for technical studies to assess if existing spectrum could be utilized for deployment of IMT-2000 services without harming incumbent licensees.[18] However, no amount of technical analysis will change the fact that *sharing of the 2.5 GHz band is not technically possible and there is no comparable replacement spectrum available for MDS/ITFS incumbents.* Indeed, the Commission's staff has already indicated to WCA that any migration of MDS/ITFS incumbents would be to a substantially less desirable band - - at best in the 5 GHz range and at worst above 20 GHz. While it is impossible to calculate the costs of migration where the precise replacement spectrum is unknown, there is no doubt that bands at 5 GHz or above lack the superior propagation characteristics that make it economically possible for MDS/ITFS technology to serve those market segments that others have chosen to ignore. At higher frequencies, the cost of transmission and reception equipment will increase, far more equipment will be necessary as more cells are required, and with more cells the recurring costs of operating and maintaining the network will increase dramatically, effectively eliminating all of the economic efficiencies unique to fixed wireless service in the 2.5 GHz band.[19]

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speeds far in excess of that available with dial-up service.

[18] CTIA Petition at 11.

[19] Equally important, many of these same considerations will come into play if the Commission reduces the amount of spectrum available to MDS/ITFS at 2.5 GHz. The less spectrum available to an MDS/ITFS service provider, the fewer customers it will be able to serve without cellularizing its system in order to reuse spectrum. Because the costs of cellularization are substantial, any Commission-imposed reduction in bandwidth that forces unnecessary cellularization could jeopardize the ability of MDS/ITFS operators to bring broadband services into less populated areas of the country. That is, if the number of customers (and thus revenue)

Furthermore, no estimate of migration costs could fully account for the significant and irreparable opportunity costs caused by the uncertainty and delay that inevitably results from any relocation of existing users to new spectrum. Even were the Commission able to identify comparable replacement spectrum, at a minimum the relocation process would require the Commission to draft and issue a notice of proposed rulemaking; solicit and review comments, reply comments and *ex parte* presentations; draft and release an order identifying new spectrum for MDS/ITFS providers and explaining the rationale therefor; entertain petitions for reconsideration; and, potentially, defend any court appeals arising from its decision. Then, the MDS/ITFS industry would be required to develop a new generation of transmission and reception equipment – a process that invariably takes substantial time. On top of these delays, there might well be further delays caused by migration of existing users from any newly identified spectrum. There is little question that the burdens of this process and resulting delays in service deployment would deny the availability of broadband service to the rural and underserved market segments targeted by MDS/ITFS, and also place MDS/ITFS providers at an extreme disadvantage *vis-a-vis* incumbent cable operators and local exchange carriers who already have a head start in the deployment of broadband services.

In sum, MMDS operators are already well positioned to offer broadband services to rural and other underserved areas at a cost that is substantially lower than that associated with other

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that can be derived per cell is reduced because less spectrum is available per cell, the economic viability of fixed wireless broadband service to underserved segments of the marketplace is inevitably reduced.

broadband technologies, and in fact are already in the process of bringing that service to American consumers. The Commission thus should not countenance any spectrum allocation proposal in this proceeding that would reverse the dramatic gains achieved by MDS/ITFS for the benefit of IMT-2000 services that can be provided over currently-allocated spectrum.

### *B. The Commission Should Conduct the Broadest Possible Inquiry Into Whether Reallocation of Existing Spectrum is Necessary to Facilitate Deployment of IMT-2000 Services.*

At bottom, those who contend that the Commission should reallocate the 2.5 GHz band for IMT-2000 rely on two fundamental assumptions: (1) that existing mobile spectrum is insufficient to accommodate the spectral needs of IMT-2000; and (2) the Commission's allocation of spectrum for IMT-2000 should harmonize U.S. IMT-2000 frequency bands with those of the rest of the world.[20] However, any claims of spectrum shortage should be weighed against the fact that the Commission will, for example, soon consider allocating a total of 90

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[20] These are the primary arguments offered by The Satellite Industry Association ("SIA") in support of their contemporaneous Petition for Rulemaking requesting that the Commission reallocate portions of the 2.5 GHz band to the Mobile Satellite Service. *See* Petition for Rulemaking of The Satellite Industry Association re: Amendment of the U.S. Table of Frequency Allocations to Designate the 2500-2520/2670-2690 MHz Frequency Bands for the Mobile-Satellite Service, RM-9911 (filed Apr. 28, 2000). In a simultaneous filing under separate cover, WCA has opposed SIA's Petition for many of the same reasons set forth herein.

MHz for an Advanced Mobile Fixed Communications Service ("AMFCS"),[21] and will soon auction 30 MHz of flexible use spectrum in the 700 MHz band.[22]

Moreover, the Commission should be highly skeptical of any contention that the putative benefits of global harmonization for IMT-2000 outweigh the public interest benefits of preserving competitive fixed wireless broadband service in the 2.5 GHz band. It is by no means clear that global harmonization for IMT-2000 will be possible, nor is it clear that it is even necessary for IMT-2000 to be deployed successfully. Already, global harmonization notwithstanding, Canada, Mexico and a number of other countries (*e.g.*, Argentina, Brazil, China, Morocco, Peru, Russia and Venezuela) have recognized the unique public interest benefits of fixed wireless broadband service in the 2.5 GHz band, and thus have allocated the 2.5 GHz band for MDS/ITFS-like fixed broadband services.[23] Thus, while some in Europe and elsewhere have advocated the use of the 2.5 GHz band for IMT-2000, it is inevitable that

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[21] *Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium*, 14 FCC Rcd 19868, 19878 (1999). Specifically, the Commission will propose allocating 50 MHz at 1710-1755 MHz and 2160-2165 MHz for the AMFCS. The Commission would complete the full 90 MHz allocation by designating the 2110-2150 MHz band for the Fixed and Mobile Service.

[22] *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules (First Report and Order)*, 15 FCC Rcd 476 (2000) (subsequent history omitted).

[23] *See, e.g.*, "Brazil - Multichannels Signals Project: Opportunities," *International Market Insight Trade Inquiries* (Feb. 2, 2000) (discussing auction of MDS frequencies in Brazil); "Inukshuk Internet and Partners Granted Licenses to Operate Multipoint Communications Systems in the 2,500 MHz Range - A Giant Step for High-Speed Wireless Telecommunications," *Inukshuk Internet Inc. Press Release* (Mar. 24, 2000) (discussing award of 12 MDS licenses in Canada to Inukshuk Internet Inc., covering approximately 29 million persons).

manufacturers will have to accommodate IMT-2000 in multiple bands, and that multiband handsets will be necessary to facilitate global roaming. Indeed, multiband handsets already are a staple of the PCS marketplace, and can be manufactured at only marginal increased cost compared to single band sets.[24] Moreover, as the Commission recognized in its recent *Notice of Inquiry* in OET Docket No. 00-47, software defined radio technology may soon moot this entire discussion.[25]

Accordingly, in view of the above, WCA submits that the Commission's initial inquiry into allocation of spectrum for IMT-2000 should at a minimum include the following questions:

- What is the projected demand for IMT-2000 in the United States, *and what is the basis for those projections?* To what extent does demand for IMT-2000 depend on factors such as market size, demographics and geographic location? Will demand for IMT-2000 be immediate, or will it mature over an extended period of time as IMT-2000 services are introduced to the public? To what extent will the projected demand for IMT-2000 be addressed by other terrestrial broadband technologies (*e.g.*, fixed wireless, cable modem, DSL, satellite)?

- How will the mobile industry's transition to IMT-2000 be accomplished? For example, to what extent will carriers choose to take an incremental approach and upgrade to a high-speed 2.5G technology, as opposed to waiting until 3G is available? To what extent are mobile carriers able to deploy "near-3G" services with their existing spectrum?[26]

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[24] *See, e.g.*, Rupley, "Calling the Web: Smart Phones Get Smarter," *PC Magazine* (Dec. 14, 1999) (noting that Qualcomm, Samsung, Touchpoint and Neopoint all offer dual-band phones that can access the Internet).

[25] *See Inquiry Regarding Software Defined Radios,* ET Docket No. 00-47, at ¶ 3 (rel. March 21, 2000).

[26] Sprint PCS, for example, has already introduced its "Enhanced Internet Connection" service, which permits business customers to access the Internet using an Internet-ready Sprint PCS telephone as a wireless modem. The new access system offers speeds comparable to a 56.6 kpbs

- What are the various IMT-2000 technologies, and what are the spectral requirements of each? Which IMT-2000 technologies are expected to predominate in the marketplace?

- To what extent are equipment manufacturers developing equipment for IMT-2000? How long will IMT-2000 systems remain in the trial and development stage?

- Taking the above into consideration, how much spectrum will be required for introduction of IMT-2000 in the United States, given the projected demand for the service over time? How much spectrum will be required immediately? Will the amount of required spectrum vary across individual markets? If so, how much?

- Is there any reason why the Commission's allocation and auction of additional spectrum for mobile services (*e.g.*, AMFCS, 700 MHz) will not fully satisfy any purported need for additional spectrum for IMT-2000? To what extent will the purported need for additional IMT-2000 spectrum be rendered moot by the use of multiband handsets or other technological developments (*e.g.*, software-defined radio)?

- What is the projected time frame between commencement of Commission proceedings to allocate spectrum for IMT-2000 and actual deployment of the service? How much longer will this period be if incumbent licensees must be relocated to other spectrum to accommodate IMT-2000 service providers?

- To the extent that IMT-2000 proponents advocate relocation of incumbents, how will that relocation be accomplished, how long will it take, what will it cost, and is there even comparable spectrum available? How much existing wireless service will be lost or interrupted as a result of relocation, and how many consumers will be affected? To what extent, if at all, will the introduction of IMT-2000 compensate for the loss of existing wireless service to the public?

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landline dial-up connection. *See* "Sprint PCS Expands Wireless Web For Businesses," *Reuters* (Aug. 23, 2000) (available at <http://biz.yahoo.com/rf/000823/n23250279.html>).

## III. CONCLUSION.

Again, WCA wishes to emphasize that it supports the Commission's efforts to facilitate the deployment of IMT-2000. However, as set forth above and in WCA's contemporaneous comments on the separate Petition for Rulemaking filed by The Satellite Industry Association,[27] those efforts must be consistent with the USG's overriding recognition that any allocation of spectrum for IMT-2000 should accommodate and protect incumbent licensees in the 2.5 GHz band.

Respectfully submitted,

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[27] *See* n.20 *supra*.

## CERTIFICATE OF SERVICE

I, Andrew Kreig, hereby certify that I have on this 28th day of August, 2000, cause copies of the foregoing Comments to be served by depositing a copy with the United States Postal Service, first class postage prepaid addressed as follows:

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