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October 6, 2008

Ex Parte - Errata

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*; *Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz and the 2175-2180 MHz Bands*, WT Docket No. 07-195 and WT Docket No. 04-356

Dear Ms. Dortch:

3G Americas LLC submits this letter to urge the Commission not to adopt its June 2008 proposal for the AWS-3 band, since test results show the strong likelihood of harmful interference, and the proposed allocation would undermine the long-standing goal of global harmonization of AWS spectrum. Rather, the Commission should allow down-link only operations in AWS-3 spectrum, consistent with the goal of a common band plan for the Americas.

3G Americas is the leading industry association representing the GSM family of technologies (GSM, EDGE, HSPA, and LTE) in the Americas and is primarily focused on providing technical advice to its members. 3G Americas has a broad membership of leading wireless operators and vendors facilitating the seamless deployment of the GSM family of technologies throughout the Western Hemisphere. The 3G Americas Board of Governors is comprised of technical representatives from Alcatel-Lucent, AT&T, Cable & Wireless, Ericsson, Gemalto, HP, Huawei, Motorola, Nortel Networks, Nokia, Research in Motion (RIM), Rogers, T-Mobile USA, Telcel, Telefónica, and Texas Instruments.

The Commission's Office of Engineering and Technology ("OET") submitted test data on September 13, 2008 into the record in this proceeding, following its observation of

empirical testing conducted in Boeing's EMC Laboratory in Seattle from September 3-5, 2008. The objective of those tests, which were open to the public,[1] was to assess potential interference from the Commission's proposed rules in the 2155 – 2180 MHz band to AWS-1 operations in the 2110 – 2155 MHz band. The data demonstrates that out-of-bound emission ("OOBE") interference from AWS-3 appears to be the dominant source of interference.[2] Simply put, AWS-1 filters cannot mitigate OOBE.[3] The test results therefore show that if the Commission adopted its proposed OOBE limit of 60+ 10 log P, it would not be sufficient to protect existing AWS-1 users from harmful interference from AWS-3 operations. Moreover, receiver overload interference would still threaten existing AWS-1 users' signals at or below the Commission's proposed power limit of 23 dBm/MHz. According to statistical analysis of the test data by Optimi Corp, 60% of AWS-1 calls would fail if an AWS-3 router was located in the same residence; 30% of calls would fail if an AWS-3 router was next door.[4]

M2Z's statement that the tests "showed no technical or interference problems" do not accord with the facts.[5] M2Z was also misleading when it stated that the United Nation's International Telecommunication Union ("ITU") has found that Time Division Duplexing (TDD) and Frequency Division Duplexing (FDD) can co-exist in the AWS bands without having to impose strict technical limits or sufficient guardbands.[6] M2Z invoked irrelevant reports from the United Kingdom's Office of Communications ("Ofcom") and the ITU[7] in support of its proposal to allow TDD mobile devices to operate in the AWS-3 band. However, M2Z has selectively taken pieces of the ITU report while ignoring important conclusions (e.g. limitations on transmit power and requirement to operate pico-cells). With these important conclusions, macro-networks will effectively require a guardband between FDD and TDD systems and limits on base station transmit power. Hence, these safeguards will limit the maximum power used for mobile station transmissions. Furthermore, the report references are simply inapplicable.[8] Some of the underlying assumptions in the Ofcom report are not realistic for networks deployed in North America. Also, although the ITU did issue a report, that "coexistence" Report was applicable to the 2600 MHz and adjacent bands,

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1 *See* Public Notice, Federal Communications Commission, DA 08-1995 (rel'd August 27, 2008).

2 *See* T-Mobile Ex Parte letter, WT Docket No. 07-195 (filed Sept. 30, 2008)("T-Mobile *Monte Carlo* Ex Parte"); *see also* M2Z Ex Parte Letter, WT Docket No. 07-195 (filed Sept. 23, 2008)("M2Z Ex Parte").

3 *See* T-Mobile Ex Parte Letter at 2, WT Docket No. 07-195 (filed Sept. 26, 2008) ("T-Mobile Ex Parte").

4 *See* T-Mobile *Monte Carlo* Ex Parte at 1.

5 *See*, e.g., Grant Gross, *Firm: Wireless Carriers Trying to Block Free Broadband*, PC World, Sept. 23, 2008 http://www.pcworld.com/businesscenter/article/151397/firm_wireless_carriers_trying_to_block_free_broadband.html.

6 M2Z Networks, *FCC-Observed AWS-3 Testing Confirms that Free Broadband Service Will Coexist with Advanced Wireless Services; T-Mobile Requests Unreasonable Protection Levels that Would Restrict Even the Use of Microwave Ovens*, Market Watch, Sept. 23, 2008, http://www.marketwatch.com/news/story/fcc-observed-aws-3-testing-confirms-free/story.aspx?guid={84C8F155-F13D-433B-B1EB-2498E1DA67C5}&dist=hppr.

7 *See*, *e.g.*, Reply Comments of M2Z Networks, Inc. at 18, WT Docket No. 07-195 (filed Aug. 11, 2008); M2Z Ex Parte Letter at 1, WT Docket No. 07-195 (filed Aug. 12, 2008).

8 *See*, *e.g.*, Reply Comments of T-Mobile USA, Inc. at 20-28, WT Docket No. 07-195 (filed Aug. 11, 2008) ("T-Mobile Further Notice Reply Comments").

not the AWS bands at issue here.[9] Further, with regard to mobile terminal-to-mobile terminal interference – the interference with which 3G Americas members are concerned – the ITU found that it was possible that "geographically and spectrally close mobile" units would create severe interference with each other, and so "[s]tudies are therefore needed where non-uniform user densities are considered, which are more realistic in real systems in hot spot areas."[10]

The ITU also subsequently issued a Report, which examined selected alternatives to guard bands and increased geographic cell separation to mitigate interference to adjacent band FDD and TDD services located in the same geographic area.[11] This second, "mitigation" Report discussed two methods to reduce mobile-to-mobile interference: TDD power control and mobile handoff. First, the ITU remarked that TDD power control might be sufficient in some scenarios to solve interference concerns, but "when TDD and FDD terminals come very close to each other (less than a few metres)," power control may not be "sufficient to prevent outage in some parts of the cell (e.g. at the cell edge or indoors) or when the FDD mobile terminal suddenly starts transmitting."[12] In other words, as 3G Americas members have argued, TDD power control alone is insufficient, especially in hot spots – and the U.S. leads the world in deployment of broadband hot spots. Second, the ITU report said that mobile handoff "may function in some cases as a work around to interference," but that it should not be the predominate means to address interference and would represent "balance between the benefit achieved and the adverse system impacts that accrue" from the handoff.[13] Furthermore, in some cases there may not be another spectrum band to handoff to, such as where an operator has AWS spectrum in an area but does not have a license for other spectrum in the same area. Mobile hand-off is clearly not a generally applicable solution and even in the markets where it could work, it still reduces the value of the existing spectrum licenses and amounts to harmful interference if the operator is unable to use its spectrum resources.

Over the years, the Commission has been a model to independent regulators around the world for adopting policies based on sound engineering criteria. In the past, when interference has posed potential risk to incumbent operations, the Commission has reviewed the operational characteristics of the proposed service to determine whether interference is likely in real-world environments. It has also recognized that interference to handsets is more likely than interference to base stations, given that base stations are immobile and sizable enough to

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9 *See* ITU-R Report M. 2030, *Coexistence between IMT-2000 time division duplex and frequency division duplex terrestrial radio interface technologies around 2 600 MHz operating in adjacent bands and in the same geographical area* (2003).

10 *See id*. § 5 (MS-MS interference).

11 *See* ITU-R Report M.2045, *Mitigating techniques to address coexistence between IMT-2000 time division duplex and frequency division duplex radio interface technologies within the frequency range 2 500-2 690 MHz operating in adjacent bands and in the same geographical area* (2004).

12 *Id*. § 5.6.4.

13 *Id*. § 5.7.1.

protect through specialized antennas, reorientation, and installation of filters. Thus, the Commission has demonstrated over the years the importance of predictable regulation that ensures that entities that have paid for spectrum licenses can offer reliable wireless service to their mobile customers, regardless of subsequent petitions by later entrants. To further this track record, 3G Americas urges the Commission to modify its proposal for AWS-3 band.

From September 3-5, with OET observing, T-Mobile and other parties conducted laboratory testing designed to reproduce the technical parameters proposed in this proceeding's *Further Notice* and to reproduce T-Mobile's earlier testing, the data for which were already filed in this proceeding.[14] This was an important effort because, notwithstanding its advocacy over three years, M2Z has yet to build its own prototypes to test -- which certainly raises questions about its technical claims. To bring some technical clarity to these deliberations, T-Mobile therefore used a high-quality signal generator to simulate the interfering signals so that actual testing could be conducted. The results of those tests – supported by a number of 3G Americas member companies[15] – demonstrate that harmful interference will ensue to existing AWS-1 operations if the Commission adopts its proposed service and technical rules for the AWS-3 band.

In times of market uncertainty, the Commission should not be taking actions that undermine the value of existing investments, particularly when it is required to continue to rely on auctions as a means of assigning spectrum. As we have seen in recent days in other sectors, zero-money down payment programs tend not to result in sustainable economic programs for consumers. A "free" proposal is rarely really free for consumers, and may end up being more costly than services offered over spectrum unencumbered with unproven conditions. AWS-3 spectrum should certainly be used to promote wireless broadband competition, but a regulatory regime that results in interfering with and degrading service to users of adjacent providers distorts competition and disserves the public. Furthermore, the service envisioned by M2Z could just as well be delivered via an FDD approach using paired spectrum and, thus, completely avoid the interference that is likely to occur.

Uplink Operations in the AWS-3 Band Would Undermine International Harmonization of 3G Spectrum

Contrary to M2Z's claims, the ITU has, with U.S. support, attempted to harmonize 3G spectrum for well over a decade. The Commission has also been engaged for over 15 years in promoting the global harmonization of 3G spectrum use, particularly when, as here, there are so many U.S. consumers that will benefit from harmonized allocations for AWS. Both the ITU and the Organization of American States' Inter-American Telecommunication Commission ("CITEL") have recommended downlink-only use for the 2110-2170 MHz band. M2Z's proposal is inconsistent with this important international policy. U.S.

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[14] T-Mobile Ex Parte at 3.

[15] Joint Ex Parte Letter filed by AT&T, CTIA – The Wireless Association®, MetroPCS, Nokia, and T-Mobile USA, Inc., WT Docket No. 07-195 (filed Sept. 10, 2008).

consumers benefit from globally harmonized spectrum use through lower-priced devices and services, and innovative applications.

Since 1992, there has been an international effort, with U.S. support and participation from the Commission and other federal agencies, to develop and support a globally harmonized 3G band plan.[16] This global effort identified the 2110-2170 MHz band as a downlink-only band for 3G use. The ITU recommended that Administrations allocate the 2110-2170 MHz band as downlink-only and pair it with an uplink band at either 1920-1980 MHz or 1710-1770 MHz.[17] CITEL, the international body composed of spectrum managers for the Americas, including for the U.S., and charged with coordinating regional spectrum policy, has also endorsed this 3G band plan – with the 2110-2170 MHz band reserved for downlink-only use, paired with the 1710-1770 MHz uplink band.[18] These ITU and CITEL Recommendations are multilateral recommendations, which the Commission helped to develop.[19] They were specifically designed for use by U.S. carriers on an international basis.[20] Many governments in Latin America have allocated this band for downlink-only operations precisely because the United States supported the downlink-only allocation.[21]

Handsets, networks, and standards have been developed by carriers, manufacturers and standards-setting bodies in accordance with this globalized plan.[22] Deviating from it would harm U.S. consumers by increasing the cost of handsets and limiting the range of devices available in our market. This would be true both for devices used in the AWS-3 band, which would need to be equipped for uplink transmissions only in this country, and for AWS-1 devices, which need to be specially equipped to attempt to mitigate against harmful interference – an attempt, as T-Mobile and numerous other commenters have demonstrated, that would almost certainly prove unsuccessful. Carriers licensed for the AWS-1 band would have to devote more resources to network management. This needless increase in costs would be passed on to consumers in the former of higher prices for service as well as equipment. In addition, functionality in consumers' handsets would be circumscribed because these devices would not work internationally.

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16 *See* M2Z Ex Parte (2160-2165 first identified in 1992 as part of the Commission's *Emerging Technologies* proceeding).

17 Frequency arrangements for implementation of the terrestrial component of International MobileTelecommunications-2000 (IMT-2000) in the bands 806-960 MHz, 1710-2025 MHz, 2110-2200 MHz and 2500-2690 MHz, Recommendation ITU-R M.1036-3, Table 2 and Sec. 6.1.4.2 (2007).

18 *See* CITEL, XXI Meeting of Permanent Consultative Committee III: Radiocommunications, *Final Report*, OEA/Ser.I/XVII 4.3, PCC.3/doc.2371/02 rev.2 (July 25, 2002) (recommending pairing the mobile transmit band 1710-1770 with the global base transmit band at 2110-2170 MHz).

19 Reply Comments of 3G Americas at 4-6, WT Docket No. 07-195 (filed Aug. 11, 2008) ("3G Americas Further Notice Reply Comments").

20 *Id.*

21 *See* 3G Americas Ex Parte Letter at 2, WT Docket No. 07-195 (filed June 25, 2008).

22 Comments of CTIA – the Wireless Association® at 48, WT Docket No. 07-195 (filed June 25, 2008) ("CTIA Further Notice Comments"); Comments of Ericsson Inc. and Sony Ericsson Mobile Communications (USA) Inc. at 7, WT Docket No. 07-195 (filed June 25, 2008) ("Ericsson Further Notice Comments").

More broadly, M2Z's proposal for uplink transmissions in the AWS-3 band, in the face of a contrary international plan, would harm the economic competitiveness of the American wireless industry because the industry would not be able to take advantage of scope and scale economies in manufacturing devices or partnering on services to sell to the rest of the world. While this threat has been raised by numerous commenters,[23] M2Z has failed to address these issues. Simply put, the risk of creating a wireless island is simply too great for the Commission to ignore.

Downlink-Only Is the Best Technical Option for the AWS-3 Band

The vast majority of commenters in this proceeding have come to the same conclusion as international regulators – downlink-only is the best technical approach for the AWS-3 band. It avoids the adjacent band interference problems caused by uplink transmissions that have been widely discussed in this proceeding. It would allow carriers and manufacturers to take advantage of global economies of scale, lowering costs for consumers. U.S. consumers would be able to use their wireless devices on a global basis. In addition, when paired with other spectrum, downlink-only operations in the AWS-3 band would create opportunities for asymmetric pairing in support of data-intensive, high-bandwidth applications that provide for a more dynamic network and improved user experience.[24]

Conclusion

For the sake of American consumers and economic competitiveness, we respectfully urge the Commission to follow the harmonized plan it helped develop for the rest of the world and adopt a downlink-only approach for the AWS-3 band. A common band plan for the Americas would not only serve the public interest by delivering to the U.S. consumer economies of scale and scope, but it would continue the Commission's tradition of predictable spectrum policy and encourage broader participation in future spectrum auctions.

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[23] *See* CTIA Further Notice Comments at 47-49; Ericsson Further Notice Comments at 7-10; Comments of Nokia Inc. and Nokia Siemens Networks at 506, WT Docket No. 07-195 (filed June 25, 2008); T-Mobile Further Notice Reply Comments at 27-28; 3G Americas Further Notice Reply Comments at 2-6.

[24] *See* Comments of T-Mobile USA, Inc. at 7, 23-24, WT Docket No. 07-195 (filed June 25, 2008); Comments of AT&T Inc. at 24-25, WT Docket No. 07-195 (filed June 25, 2008); Ericsson Further Notice Comments at 10-12; Comments of MetroPCS Communications, Inc. at 11-14, WT Docket No. 07-195 (filed June 25, 2008); Comments of Motorola, Inc. at 5-7, WT Docket No. 07-195 (filed June 25, 2008); Comments of SpectrumCo LLC at 6-7, WT Docket No. 07-195 (filed June 25, 2008).

Pursuant to Section 1.1206 of the Commission's Rules, this letter is being electronically filed with your office.

Respectfully submitted,

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