October 1, 2008

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
12th Street Lobby, TW-A325
Washington, D.C. 20554

Re: ***Ex Parte Communication;*** **ET Docket Nos. 04-186 and 02-380; WT Docket Nos. 04-356 and 07-195**

Dear Ms. Dortch:

On September 30, 2008, Christopher Guttman-McCabe, Vice President, Paul Garnett, Assistant Vice President, and David Redl, Counsel, Regulatory Affairs, CTIA – The Wireless Association®, along with Charles Jackson, Jackson Telecom Consulting, Jeanine Poltronieri, AT&T, David Shively (via teleconference), AT&T, Grant Spellmeyer and Dan Rizzo (via teleconference), U.S. Cellular, Douglas Brandon, TerreStar Networks, Tom Dombrowsky, Wiley Rein LLP, George Wheeler, Holland & Knight, John Hunter, T-Mobile USA, Pablo Tapia (via teleconference), T-Mobile USA, Thomas Tycz, Goldberg, Godles, Wiener & Wright, Michael Lazarus (via teleconference), Paul Hastings Janofsky & Walker LLP, Mark Stachiw, Ed Chou and Ahmad Armand (via teleconference), MetroPCS, and David Urban, Comcast met with Julius Knapp, Bruce Romano, Patrick Forster, Ron Repasi, Ahmed Lahjouji, and Rashmi Doshi, of the FCC's Office of Engineering and Technology to express concerns about proposed rules for Advanced Wireless Service (AWS) 2 and 3 spectrum in the 1915-1920 MHz, 1995-2000 MHz, and 2155-2180 MHz bands. Specifically, the proposed rules would create frequent service interrupting interference to millions of consumers relying upon adjacent AWS-1 and Broadband PCS spectrum.

During the meeting, CTIA specifically expressed concern about the reliance by M2Z and others on a number of reports developed by the United Kingdom Office of Communications ("Ofcom") to resolve interference issues between the H Block (1915-1920/1995-2000 MHz) to PCS incumbents (1850-1910/1930-1990 MHz) and AWS-3 (2155-2180 MHz) to AWS-1 (1710-1755/2110-2155 MHz) and Mobile Satellite Service ("MSS") incumbents. There are significant differences in the assumptions used by Ofcom in reaching its conclusions about Frequency Division Duplex ("FDD") and Time Division Duplex ("TDD") technical coexistence and assumptions that would be appropriate for an analysis of FDD and TDD coexistence in the United States. More critically, Ofcom has clearly allowed potential licensees flexibility through the license auction process to: (1) plan and account for interference

in advance and (2) avoid adjacent band FDD to TDD situations through the auction process.

I. THE OFCOM REPORT FOUND INTERFERENCE TO BE SIGNIFICANT BETWEEN ADJACENT FDD AND TDD OPERATIONS.

Initially, CTIA would note that Ofcom found that:

> "We believe that there is a risk of significant 1st adjacent-block interference from TDD terminal stations towards FDD terminal stations, where the TDD terminal stations are served by high-power macro-cellular base stations, and where there is a high density of TDD terminal stations operating in the spatial vicinity of the FDD terminal stations."[1]

Ofcom has found that, even under assumptions that are extremely favorable to adjacent TDD and FDD operations, there is significant concern about unfettered mobile operations in adjacent bands. Indeed, Ofcom determined that there should be a "restricted" 5 MHz guard band between FDD and TDD operations to ensure that harmful interference would not be present in the 2.6 GHz allocation that it is proposing.[2]

CTIA notes that these beliefs are not simply held by the United States wireless industry. Ofcom notes that:

> "TDD terminal stations serviced by macro-cells and operating in the 1st adjacent 5 MHz block with respect to an FDD terminal station can cause a significant (albeit graceful) degradation in throughput."[3]

A 5 MHz "restricted" block will be mandated by Ofcom at every frequency boundary which separates a paired (FDD) block from an unpaired (TDD) block in the 2.6 GHz band.

As such, assertions by M2Z that the Ofcom efforts have "conclusively demonstrated to Ofcom that TDD and FDD coexistence in adjacent bands is easily manageable,"[4] even under the more favorable assumptions utilized by Ofcom, misconstrue the reality of the studies. Instead, Ofcom has found that

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[1] *See e.g.,* "On the impact of interference from TDD terminal stations to FDD terminal stations in the 2.6 GHz band" Office of Communications (U.K.), Report, at 18 (Apr. 21, 2008) ("Ofcom Report") *available at* http://www.ofcom.org.uk/consult/condocs/2ghzregsnotice/tech.pdf (last accessed Oct. 1, 2008).

[2] *Id.*

[3] *See* Ofcom Report at 14.

[4] *See* Reply Comments of M2Z Networks, Inc., WT Dkt. Nos. 07-195 & 04-356 Technical Appendices at 9 (filed Aug. 11, 2008).

there must be limits to TDD operations in bands adjacent to FDD operations and Ofcom has placed technical restrictions to mitigate interference effects.

II. THE ASSUMPTIONS USED BY OFCOM ARE NOT APPLICABLE TO THE PCS AND AWS-1 NETWORKS IN THE UNITED STATES.

While Ofcom did find considerable concern about interference in the 5 MHz of spectrum between TDD and FDD operations, its reports relied upon network assumptions that are not relevant to PCS and AWS-1 networks. In particular:

> (1) Ofcom relies on test results where mobile receivers in the FDD spectrum have total received power largely above -80 dBm.[5] As T-Mobile and other wireless providers have demonstrated, total received power in the United States is much weaker for much of the PCS and AWS-1 markets. Should the Commission utilize the appropriate levels for total received power – namely -95 to -98 dBm – the Ofcom analysis would provide results that indicate that TDD power and out-of-band emissions ("OOBE") must be more significantly restricted.[6]
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> (2) The Ofcom studies assumed that both FDD and TDD operators were using packet-based technologies (namely HSPA, LTE or WiMAX) and did not study the effect on call setup, call drops or voice degradation.[7] In the United States, however, neither PCS nor AWS-1 voice communications today are packet-based technologies. Moreover, the harmful interference from H Block and AWS-3 operations would much more seriously affect voice communications than the same level of interference would affect data-only devices or networks. Ofcom also assumes that interference will only be present when the interferer and victim systems are transmitting at the same time – an assumption that is not appropriate when the victim is receiving continuous transmissions such as circuit switched voice and data.[8]
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> (3) The Ofcom studies failed to model radio reception within a home or apartment setting.[9] As AWS-3 proponents have argued that they

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[5] *See* Ofcom Report at 13, Figure 4 (receiver downlink power *begins* at -80 dBm).

[6] *See* Reply Comments of T-Mobile USA, Inc.; WT Dkt. Nos. 07-195 & 04-356 at 25 (filed Aug. 11, 2008) ("T-Mobile Reply"). *See also* Reply Comments of AT&T Inc.; WT Dkt. Nos. 07-195 & 04-356 at 9 (filed Aug. 11, 2008) ("AT&T Reply").

[7] It assumed that both the FDD and TDD terminal stations operate based on packet-based wireless technologies (e.g., HSPA, LTE, and WiMAX).

[8] *See* T-Mobile Reply at 25; AT&T Reply at 9.

[9] *See* Ofcom Report at 11 (noting that that model assumed a single FDD mobile surrounded by a uniform distribution of TDD mobiles).

will provide broadband service to consumers, logic dictates that such a service will be available within a home or apartment. As noted in point 1 above, in-home receive signal levels from PCS and AWS-1 operations will be much lower than an outdoor environment. Moreover, it is highly likely that, within a household or apartment complex, TDD and FDD devices will routinely come within close proximity. Under such circumstances, the wireless industry testing provided to the Commission has shown that damaging interference will occur.[10]

(4) Finally, Ofcom's analyses were based on FDD cells of 1000 meters.[11] A constant 1000 meter cell radius is not realistic for wireless networks used in the United States. In general, average wireless network operating areas are much larger than 1000 meters – even considering the smaller operating areas in urban clusters. A larger cell radius around a base station would necessarily lead to many more mobile receivers operating at much lower receive signal strengths than modeled by the Ofcom report.[12]

If these key assumptions were modified to match the United States environment, the Ofcom study would demonstrate harmful effects to PCS and AWS-1 incumbent operations that the wireless industry has documented through real-world testing – call setup failures, degraded voice communications and dropped calls under the Commission's proposed limits for transmit power and OOBE.

III. OFCOM HAS ADOPTED ITS RULES PROSPECTIVELY AND ALLOWED FOR BIDDERS TO AVOID TDD/FDD ADJACENCY THROUGH THE AUCTION PROCESS.

Many commenters in this proceeding have expressed concern about the impact of the Commission's ongoing H Block and AWS-3 proceedings on prior spectrum licensees' rights.[13] In the case of PCS incumbents, interference protection

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[10] *See* T-Mobile Reply at 26-27; AT&T Reply at 10. *See also Ex Parte Filing* of T-Mobile USA, Inc.; WT Dkt. Nos. 07-195 & 04-356 (filed Sept. 30, 2008) (providing a simulation analysis compiled by Optimi that demonstrates that home and apartment "collisions" are highly probable events).

[11] *See* Ofcom Report at 11 (noting that an FDD cell radius of 1 km is considered in the study).

[12] *See* AT&T Reply at 9.

[13] *See e.g.* Comments of AT&T, WT Docket No. 07-195 (filed July 25, 2008); Comments of Nokia and Nokia Siemens Networks, WT Docket No. 07-195 (filed July 25, 2008); Comments of U.S. Cellular, WT Docket No. 07-195 (filed July 25, 2008); Comments of T-Mobile USA, WT Docket No. 07-195 (filed July 25, 2008); Comments of Ericsson Inc. and Sony Ericsson Mobile Communications (USA) Inc., WT Docket No. 07-195 (filed July 25, 2008); Comments of Motorola, WT Docket No. 07-195 (filed July 25, 2008); Comments of the Hearing Loss Association of America, WT Docket No. 07-195 (filed Aug. 7, 2008); Comments of SpectrumCo LLC, WT Docket No. 07-195 (filed July 25, 2008); Comments of New ICO Satellite Service GP, WT Docket No. 07-195 (filed July 25, 2008);

rights have been in place since at least 1994 while AWS-1 incumbents have had clear protection rights defined by the Commission since 2006. The proceedings before the Commission seek to greatly undermine those long-standing interference protection rights – protection that is extended to well over 200 million customers in the marketplace today. Any change from the Commission's long-standing first-in-time, first-in-right interference protection policies would be a significant departure from the established principle that new users of spectrum must not impede or interfere with existing uses that serve the public interest. CTIA strongly urges the Commission to carefully balance the rights of these existing customers against the rights of new entrants to obtain spectrum.

Rather than promulgating rules that entrap existing incumbents in technical rules that may present insurmountable interference concerns for their particular business case, Ofcom will enable the auction process dictate the outcome of FDD/TDD adjacency. In particular, license auction winners in Britain's 2.6 GHz band that are concerned with potential FDD/TDD interference can choose to select a frequency band removed from the interference.[14] Moreover, no incumbent licensees adjacent to the 2.6 GHz spectrum bands will be adversely affected by the Ofcom 2.6 GHz decision.

To contrast the United States situation with the United Kingdom 2.6 GHz allocation more starkly, AWS licensees were not "on notice" of the fact that adjacent operations in the 2155-2175 MHz band could limit the utility of portions of the spectrum. Quite the contrary, the Commission's AWS-1 proceeding specifically stated that that the Commission "could" revisit the use of TDD if proponents could "*conclusively demonstrate* that portions of this spectrum could be used for such transmission *without causing interference* to Federal government users or other licensees."[15]

Similarly, at the time PCS licensees acquired their licenses, they lacked notice of potential H Block interference arising from a reallocation of that spectrum. Importantly, when the broadband PCS spectrum was auctioned, the band comprising the 1915-1920 MHz portion of the H Block was allocated as an "unlicensed PCS" band.[16] Not only were unlicensed PCS devices very low power, those devices were authorized under Part 15 of the Commission's rules and therefore could not cause interference to, or claim interference protection from, licensed PCS systems in the adjacent spectrum. Since the FCC's 1994 PCS order indicated that the FCC was

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Comments of TerreStar Networks, Inc., WT Docket No. 07-195 (filed July 25, 2008); Comments of PCIA – The Wireless Infrastructure Association, WT Docket No. 07-195 (filed July 25, 2008); Comments of MetroPCS Communications Inc., WT Docket No. 07-195 (filed July 25, 2008); Comments of Verizon Wireless, WT Docket No. 07-195 (filed Jan. 14, 2007).

[14] *See* Ofcom Letter at 2.

[15] *AWS-1 Service Rules Order* at ¶ 46 (emphasis added).

[16] *See Amendment of the Commission's Rules to Establish New Personal Communications Services*, 9 FCC Rcd 4957 (1994) (revising PCS allocation to pre-auction format, with 1850-1910 MHz/1930-1990 MHz for licensed PCS and 1910-1930 MHz band for unlicensed PCS).

looking for additional spectrum to allocate to unlicensed PCS, there was absolutely no notice that the unlicensed allocation could be replaced with potentially interfering licensed operations with significantly greater authorized power.[17]

Should the Commission proceed along this path, the Commission would thus risk the integrity of its auction processes generally. If the Commission is free to sell spectrum, and then to adopt rules undermining the stated purpose of a band, the lack of certainty would clearly present a risk that capital markets would not be able to reliably assess foreseeable risks associated with future auctions and with investment in existing spectrum assets. The net result would be seriously depressed auction valuations and the failure to obtain the full value of the spectrum for the American public.

[17] *Id.*, 9 FCC Rcd at 4991 (committing to instituting further proceedings to meet the long term spectrum needs of unlicensed PCS).

IV. CONCLUSION.

The Commission cannot rely entirely upon the Ofcom studies as a direct comparison to the situations present in the PCS and AWS spectrum bands. In particular, network topology and configurations are vastly different, assumptions about the technical characteristics of the FDD and TDD networks are different, and Ofcom did not model or study home and apartment scenarios that are likely to be prevalent in the United States market. In short, Ofcom's framework for investigation of TDD/FDD coexistence must be modified to consider the realities of the United States wireless market. Moreover, Ofcom has provided for separation between TDD and FDD operations and has not attempted to force incumbent FDD license holders to accept adjacent TDD operations. Rather, Ofcom's allocation process and analysis is forward-looking and allows parties to avoid any interference through the auction process.

Pursuant to Section 1.1206 of the Commission's Rules, this letter and a presentation used during the meeting are being electronically filed with your office. If you have any questions regarding this submission, please contact the undersigned.

Sincerely,

/s/ Christopher Guttman-McCabe

Christopher Guttman-McCabe

Attachment

cc: Julius Knapp
Bruce Romano
Ron Repasi
Ahmed Lahjouji
Patrick Forster
Rashmi Doshi