



June 5, 2008

Via Electronic Filing

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW, TW – A325
Washington, DC 20554

Re: WT Docket Nos. 07-195, 04-356, 07-16 and 07-30 – Notification of Oral Ex Parte Presentation

Dear Ms. Dortch:

On June 5, 2008, Dr. Paul J. Kolodzy of Kolodzy Consulting and the undersigned, on behalf of M2Z Networks, Inc. met with Mr. Julius Knapp, Mr. Ira Keltz, Mr. Jamison Prime, Mr. Patrick Forster, Mr. Michael Oros, Mr. Ahmed Lahjouji and Mr. Ronald Repasi from the Office of Engineering and Technology. M2Z discussed interference issues in the 2155-2180 MHz band. Specifically, we explained that:

- (1) The interference concerns of Verizon and T-Mobile appear to be an effort to correct an unreasonable business decision to deploy foreign filters that are not optimized for their FCC license assignments;
- (2) The commercial 700 MHz technical rules should be incorporated into this band. Mobile to mobile potential interference in AWS-3 also existed in the 700 MHz band before the Auction 73 licensees were assigned. This is because the Commission allowed both TDD and FDD technologies to be deployed in the 700 MHz band. It was unknown at the time of the auction neither who would obtain the spectrum nor which technology they would deploy. None of the auction participants raised concerns about this issue; and
- (3) The mutual interference concerns between AWS-3 and AWS-1 (mobile to mobile and base to base) make it an ideal case for the licensees to work out any interference concerns during deployment as often occurs with Commission licensees.

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Pursuant to Section 1.1206(b) of the Commission rules, an electronic copy of this letter is being filed. Please let me know if you have any questions regarding this submission.

Sincerely,

A handwritten signature in black ink, appearing to be 'Uzoma Onyeije', written in a cursive style. The signature is positioned above the printed name.

Uzoma Onyeije

cc: Mr. Julius Knapp, Mr. Ira Keltz, Mr. Jamison Prime, Mr. Patrick Forster,
Mr. Michael Oros, Mr. Ahmed Lahjouji and Mr. Ronald Repasi

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AWS-3 Interference Analysis

05 June 2008

Interference Analysis

- **Harmful interference is not an absolute. Harmful interference is associated with the Rights and Responsibilities of the particular band determined at allocation and assignment**
 - » Responsibilities – the technical rules associated with the band that is being licensed
 - » Rights – the protections afforded the band with respect to the spectral Neighborhood
- **Once the Rights and Responsibilities are determined, then a straightforward analysis with respect interference can be completed**

Rights and Responsibilities of AWS-1 and AWS-3

- **Right**

- » February 3, 2003 (FCC 03-16) – FCC indicates the potential for TDD operation in AWS-3
 - “We envision that this spectrum could be offered in equally sized paired blocks to support FDD or TDD applications, or a combination of these technologies.”
 - “[T]he 2155-2180 MHz band could be used to support TDD operations in a 15 megahertz portion and as relocation spectrum or MDS in the remaining 10 megahertz portion.”

- **Responsibility**

- » November 23, 2003 (FCC 03-251) – FCC allocates AWS-1 and allowed larger bands on edges to deal with potential of adjacent band interference on an internalized basis.
 - “Along with allowing licensees to tailor their acquisition of licenses to meet their individual business plans, our spectrum block arrangement provides licensees with maximum flexibility to resolve adjacent band interference issues and issues related to the relocation of existing licensees in the 1710-1755 and 2110-2155 MHz bands. By placing the larger 10 and 15 megahertz blocks at either end of the two bands, licensees in these segments will have sufficient bandwidth and maximum flexibility to resolve adjacent band interference concerns.”

Rights and Responsibilities of AWS-1 and AWS-3

- **Responsibility**

- » April 12, 2006 (FCC 06-047) – FCC asks AWS-1 bidders to conduct due-diligence before placing bids
 - “Potential bidders are reminded that they are solely responsible for investigating and evaluating all technical and marketplace factors that may have a bearing on the value of the AWS-1 licenses in this auction. **The FCC makes no representations or warranties about the use of this spectrum for particular services. Applicants should be aware that an FCC auction represents an opportunity to become an FCC licensee in the Advanced Wireless Services subject to certain conditions and regulations. An FCC auction does not constitute an endorsement by the FCC of any particular service, technology, or product, nor does an FCC license constitute a guarantee of business success.** Applicants should perform their individual due diligence before proceeding as they would with any new business venture”(emphasis in original).

- **Responsibility**

- » May 5, 2006 – M2Z submits its application for use of AWS-3.
 - “M2Z’s planned network will make use of ... time division duplex (“TDD”), advanced antenna system (“AAS”) technology, and Orthogonal Frequency Division Multiple Access (“OFDMA”) waveforms .”

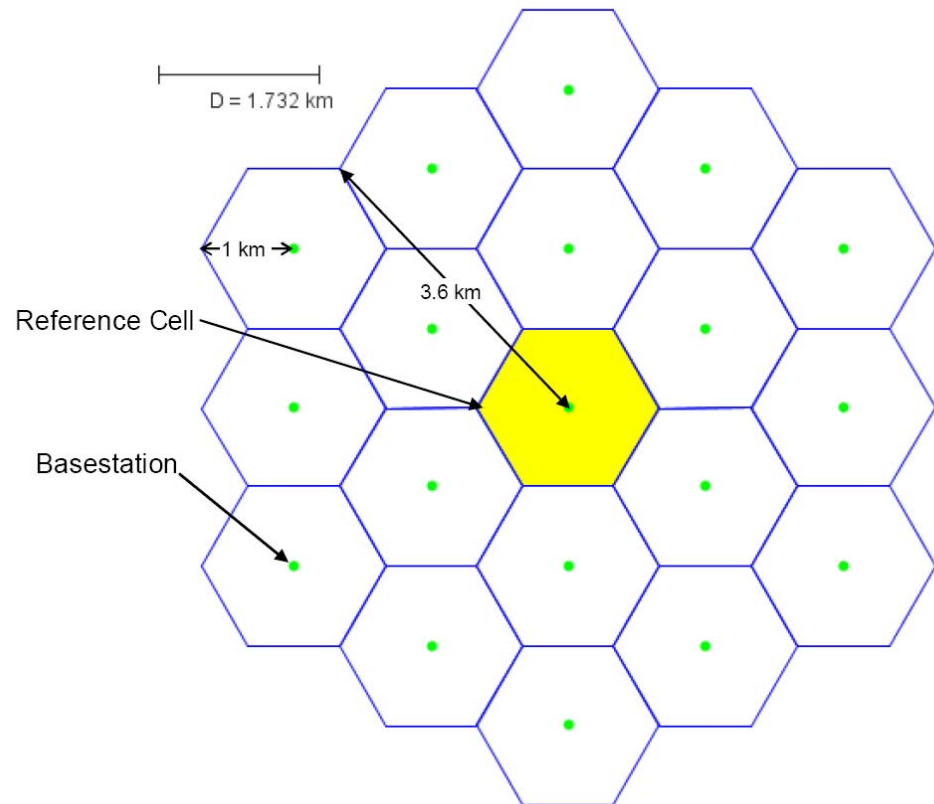
Rights and Responsibilities of AWS-1 and AWS-3

- **Right**

- » March 21, 2008 (FCC 08-85) FCC grants AWS-1 licensees additional power for base station transmission (*remember, this is after the auction*)
 - “We will allow PCS and AWS licensees employing bandwidths greater than 1 MHz to meet a base station power limit of 1640 watts/MHz EIRP.” As we stated in the *April 700 MHz Order*, this approach to defining power limits “will achieve a degree of technological neutrality by ensuring that all licensees regardless of technology will have enough power to operate a viable service.”

Interference Analysis – Impact to Network

- Analysis performed by Alion Science and Technology
- Used Seamcat Simulation tool developed by CEPT and Lucent to determine network impact of interference
- Used 1 km cells (to address higher density/ capacity limited operations)
- Used typical 19-cell configuration
- Addressed Worst-Case Spectral Configuration:
 - » Used AWS-1 reception using 2150-2155 MHz Sub-band
 - » Used AWS-3 transmission using 2155-2160 MHz Sub-band or closest allowed by OOB restrictions and filter characteristics



Impact of AWS-3 Technical Rules on AWS-1 and AWS-3 Capacity

AWS-3 Unilateral OOB Level	Useable BandWidth for AWS-3		AWS-1 Capacity Impact (at various AWS-1 BaseStation XMT levels)		
	20 MHz (2155-2175 MHz)	25 MHz (2155-2180 MHz)	BS XMT EIRP 49 dBm	BS XMT EIRP 59 dBm	BS XMT EIRP 69 dBm
43 + 10 log (P)	~19.5 MHz	~24.5 MHz	18.3%	4.1%	<0.1%
55 + 10 log (P)	~15.0 MHz	~20.0 MHz	4.4%	0.5%	<0.1%
60 + 10 log (P)	~13.0 MHz	~18.0 MHz	3.4%	0.1%	<0.1%

- Use SEAMCAT Software – standard cellular capacity modeling tool developed by CEPT
- Model Parameters: 1 km cell radius; AWS-1 and AWS-3 XMT on adjacent channels; 5 MHz AWS-1 Signal
- AWS-1 Auction Technical Rules: 62 dBm EIRP; subsequent to Auction, power limits were raised to 72 dBm EIRP for AWS-1 F-Block

Summary

1. **AWS-1 licensees were informed before the AWS-1 auction that AWS-3 could be used for TDD operations**
2. **AWS-1 Band Plan provided additional spectrum for possible interference avoidance/mitigation, not more capacity**
3. **AWS-1 licensees were provided more transmission power AFTER the auction**
4. **Technical Rules should provide mechanism to enable licensees to address mutual interference issues:**
 1. Mobile-to-Mobile interference is statistical in nature
 2. Base-to-Base interference is continuous and non-varying.
5. **Impact of using AWS-1 emission rules in AWS-3 band appears to be low**
 1. Could be lower if different RF designs are used or if the AWS-1 licensees use the extra bandwidth that was provided for interference mitigation to afford even greater protection.
6. **Impact of more stringent AWS-3 emission rules (than for AWS-1, BRS, 700 MHz) will reduce the amount of usable spectrum to provide broadband service.**



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June 5, 2008

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 - 12th Street, SW, Room TW-A325
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Re: *Ex Parte* Presentation
WT Docket No. 04-356 – “H Block”
WT Docket No. 07-195 – “AWS-3”

Dear Ms. Dortch:

On June 4, 2008, I met separately with Renee Crittendon in Commissioner Adelstein’s office and Bruce Gottlieb in Commissioner Copps’ office to discuss the above-captioned proceedings. In both of those meetings, I discussed Verizon Wireless’ concerns about the potential for certain uses of the H Block and AWS-3 spectrum to cause significant harmful interference to existing PCS and AWS licensees, and urged the Commission to adopt rules to prevent such interference.

With regard to the H Block, I noted that mobile transmissions in the 1915-1920 MHz band had the potential to cause significant harmful interference to tens (if not hundreds) of millions of wireless devices operating in the 1930-1990 MHz band, as evidenced by the substantial testing and analysis submitted into the record by CTIA more than three years ago. Based on that testing and analysis, Verizon Wireless joined Sprint and Nextel in proposing both power and out-of-band emissions (OOBE) limits that would reduce the risk of interference. (*See Ex Parte filed Feb. 8, 2005*). Specifically, the three companies proposed that power in the 1915-1917 MHz band be limited to 30 dBm, that power in the 1917-1920 MHz band be limited to 6 dBm, and that OOBE into the 1930-2000 MHz band be limited to -76 dBm/MHz. On May 30, 2008, Sprint-Nextel filed an ex parte with the Commission reiterating its support for this proposal. No other party has opposed this compromise solution, and we urge its adoption.

Marlene H. Dortch
June 5, 2008
Page 2

With regard to AWS-3, I noted that mobile transmissions in some segments of the 2155-2180 MHz band had the potential to cause significant harmful interference to operations in the 2110-2155 MHz AWS-1 band. This interference problem is essentially the same as that affecting the H Block, but is more severe due to the lack of any guard band. I noted the considerable efforts made by the U.S. Government and industry over more than a decade to establish a global identification of the 2110-2170 MHz band for advanced wireless services, to secure an allocation of that spectrum for such uses in the U.S., and to promote the development of equipment based on such harmonized frequency arrangements. The harmonized use of spectrum around the world is a key driver in reducing the cost of equipment and in facilitating roaming from region to region, and was one of the principle reasons the U.S. Government made the decision to allocate this spectrum for AWS. That reasoning is still valid, and should not be abandoned now that the AWS band has been licensed and deployment is progressing. However, even if the Commission were to establish frequency arrangements that are unique to the U.S., forcing U.S. licensees to purchase equipment that is limited to a smaller U.S. market, that equipment would still be subject to significant interference from certain uses of the AWS-3 band. We urge the Commission to promote the continued development of AWS by establishing rules that will prevent harmful interference to AWS-1 licensees.

Pursuant to Section 1.1206(b)(2) of the Commission's Rules, an electronic copy of this letter is being filed for inclusion in the above-referenced docket. Please direct any question regarding this matter to the undersigned.

Respectfully submitted,

VERIZON WIRELESS

By: /s/ Donald C. Brittingham
Donald C. Brittingham
Director – Wireless / Spectrum Policy

cc: Renee Crittendon
Bruce Gottlieb