August 30, 2007

Via Electronic Filing

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

Re: Written Ex Parte Presentation in WT Docket No. 07-16 and WT Docket No. 07-30

Dear Ms. Dortch:

In meetings held by M2Z officials with various Commissioner Offices during the past two weeks including those of Commissioners Copps, Adelstein, McDowell and Tate, it came to our attention that the offices are considering the applicability of Section 7 of the Telecommunications Act to M2Z's proposed National Broadband Radio Service (NBRS) as proposed in M2Z's license application. The Commissioners and their staff discussed with M2Z officials whether M2Z's deployment of NBRS service using 2155-2175 MHz constituted either a "new service" or the use of "new technologies" that are subject to Section 7.

M2Z has exhaustively addressed the issue of Section 7's applicability to M2Z in the above-referenced dockets[1] and it believes that (i) the services it plans to provide as enumerated in its Application (a free and family friendly wireless broadband service subject to a variety of valuable and enforceable public interest obligations that have not been imposed previously on licensees in any other of the wireless services) and (iii) the technologies it plans to use to deliver such services---the combination of advanced antenna system (AAS),

[1] *See* Petition of M2Z Networks, Inc. for Forbearance Under 47 U.S.C. § 160(c) Concerning Application of Sections 1.945(b) and (c) of the Commission's Rules and Other Regulatory and Statutory Provisions, WT Docket No. 07-30 (filed Sept. 1, 2006); *See* Consolidated Opposition of M2Z Networks, Inc. to Petitions to Deny, WT Docket Nos. 07-16 & 07-30 at 23-27 (filed Mar. 26, 2007); *See* Consolidated Motion of M2Z Networks, Inc. to Dismiss Alternative Proposals, WT Docket Nos. 07-16 & 07-30 at 18-52 (filed Mar. 26, 2007); *See* Opposition of M2Z Networks, Inc. to NextWave Motion for Extension of Time and AT&T Comments at 4 (filed April 2,2007); *See* M2Z *Ex Parte* Letter WT Docket Nos. 07-16 & 07-30 (filed April 19-2007); *See* M2Z Networks, Inc. *Ex Parte* Response to Replies and Oppositions, WT Docket Nos. 07-16 & 07-30 at 18-23 (filed Apr. 16, 2007); *See* M2Z *Ex Parte* Letter, WT Docket Nos. 07-16 & 07-30 (filed Aug. 23, 2007) at 1; S*ee* M2Z Ex Parte Letter, WT Docket Nos. 07-16 & 07-30 (filed August 27,2007); s*ee also* M2Z Ex Parte Written Comments, WT Docket Nos. 07-16 & 07-30 (filed August 29, 2007).

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Orthogonal Frequency Division Multiple Access waveforms (OFDMA), and Time Division Duplexing (TDD) on unpaired spectrum---meet the definitions of "new service" and "a new technology" under Section 7. To the extent that the record needs to be clarified or supplemented on this particular issue, M2Z respectfully submits into the record the following:

- Attachment 1: a signed declaration from Dr. Paul Kolodzy PhD, former Director of the FCC's Spectrum Policy Task Force, and a well-known expert in wireless technologies and past and current FCC policies for promulgating new wireless services and technologies. Dr. Kolodzy provides his expert assessment that NBRS and the underlying technologies qualify as "new service" and "new technologies." Dr. Kolodzy's qualifications are included in his declaration.

- Attachment 2: background and links to generally available information describing the technologies M2Z plans to incorporate to operate its network.

- Attachment 3: a summary of NBRS (including service rules and binding public interest commitments) as contained in Appendix 2 of M2Z's license application.

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 other questions regarding this submission.

Sincerely,

Uzoma C. Onyeije
Vice President Regulatory Affairs

cc: Erika Olsen
Bruce Gottlieb
Renee Crittendon
Wayne Leighton
Angela Giancarlo

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Attachment 1
National Broadband Radio Service (NBRS) from the M2Z's License Application

Attachment 1
Declaration of Dr. Paul Kolodzy, Ph.D.

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
M2Z NETWORKS, INC.	)	
	)	
Application for License and Authority to Provide National Broadband Radio Service In the 2155-2175 MHz Band	)	WT Docket No. 07-16
	)	
Petition for Forbearance Under 47 U.S.C. § 160(c) Concerning Application of Sections 1.945(b) and (c) Of the Commission's Rules and Other Regulatory and Statutory Provisions	)	WT Docket No. 07-30

DECLARATION OF DR. PAUL KOLODZY

I, Dr. Paul Kolodzy, do hereby declare under penalty of perjury the following:

1. I am the Senior Technology Adviser for M2Z Networks, Inc. ("M2Z").

2. I am responsible for advising M2Z with respect to various regulatory and spectrum management policy issues relevant to the engineering and design of M2Z's nationwide wireless broadband Internet protocol ("IP") network. I am sufficiently qualified for such duties. I have 20 years of experience in technology development for advanced communications, networking, electronic warfare, and spectrum policy for government, private sector and academic groups. My experience in these fields is detailed below.

3. Most recently, I was the Director of the Center for Wireless Network Security (WiNSeC) at Stevens Institute of Technology. I was also the Senior Spectrum Policy Advisor at the Federal Communications Commission (FCC) and Director of the Spectrum Policy Task Force charged with developing the next generation spectrum policy.

4. Previously, I was Program Manager at the Defense Advanced Projects Agency (DARPA) in the Advanced Technology Office. There, I

managed Research and Development for communications programs developing generation-after-next capabilities.

5. Prior to DARPA, I was the Director of Signal Processing and Strategic Initiatives at Sanders (now BAE Systems), a premier electronic warfare company in the United States.

6. I began my career as the Group Leader and Staff Member at MIT Lincoln Laboratory, where I worked on Optical Systems for Laser Radars, Signal Processing, and Target Recognition for Acoustics, RF (SAR), and Optical signatures. I received a Ph.D. and M.S. in Chemical Engineering from Case Western Reserve University and a B.S. in Chemical Engineering from Purdue University

7. The information provided herein is to the best of my current knowledge and based on my expertise in the field.

8. M2Z is proposing a new service called National Broadband Radio Service (NBRS) consisting of the following characteristics using spectrum found in 2155-2175 MHz:

   a. provision a free nationwide broadband wireless Internet access service at a speed of at least 384 kbps;
   b. provide a family-friendly service via network-level filtering of obscene and indecent content for the free service;
   c. permit public safety entities direct secondary access to a broadband platform over to which they may attach an unlimited number of devices at no charge;
   d. allow any CPE manufacturer that complies with published specifications to make and certify a device connecting to the network; comply with stringent construction benchmarks (33%/3 years; 66%/5 years; 95%/10 years); and
   e. use the series of technical and service rules enumerated in its license application necessary for interference mitigation and proper transmission of the specified wireless signals.

9. M2Z is proposing to use 2155-2175 MHz spectrum band which has been reallocated by the FCC from its incumbent use to fixed and mobile advanced wireless services but for which the FCC has yet to implement specific service rules or specify a license assignment mechanism.

10. I have reviewed the M2Z service offering with respect to it being an offering that American consumers would perceive as a new service having a combination of technology, access, features, or functions that distinguishing it from existing services. The M2Z offering has

features, functions, and technology that characterize it as a new service.

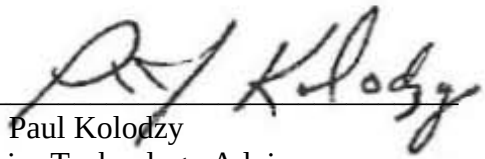
11. There are fixed wired, nationwide services with the feature of free internet access without recurring charges such as Copper.net, Juno, and NetZero. However, there are no services the offer both the feature of freedom and mobility of a nationwide broadband wireless network combined with free access. In addition, allowing public safety entities free access to the M2Z network is yet another new feature for a wireless broadband service and constitutes a new service for the public safety community.

12. There are nationwide content portals that include content filtering on an individual basis such as AOL. However, to my knowledge, there are no wireless broadband networks that provide a nationwide, ubiquitous, functionality for network based filtering of indecent content.

13. The M2Z service offering, as described above, includes a strict timeline for the build-out of the network as a condition of licensing. I believe that this is a distinguishing feature when compared with the license conditions for existing wireless broadband licensees.

14. M2Z's planned network relies upon the combination of three cutting edge technologies: time division duplexing ("TDD"), advanced antenna system technology ("AAS" or "smart antenna"), and Orthogonal Frequency Division Multiple Access waveforms ("OFDMA"). Based on my work with M2Z over the last 18 months, I have come to the conclusion that M2Z's proposed use of these technologies will provide significant improvement in spectral efficiencies and network capacity compared to most existing terrestrial wireless network in delivering high-quality wireless broadband service to fixed and nomadic points of presence.

15. The smart antenna technology incorporated to deliver NBRS will provide our nation a compelling demonstration of how paired frequency ("FDD") and unpaired frequency ("TDD") wireless networks can coexist in near spectral proximity. In my opinion, this development can enable many new and innovative uses of unpaired spectrum as has long been sought by the FCC.

Signature: 

Dr. Paul Kolodzy
Senior Technology Advisor
M2Z Networks, Inc.

1200 North 14th Street, Suite 600
Arlington, VA 22201

Date: August 30, 2007

ATTACHMENT 2

Brief summaries of generally available information (and related links) regarding new technologies M2Z is proposing to use in deploying NBRS.

Smart Antenna (AAS): http://en.wikipedia.org/wiki/Smart_Antennas

Summary: Smart antenna refers to a system of antenna arrays with smart signal processing algorithms that are used to identify spatial signal signature such as the direction of arrival (DOA) of the signal, and use it to calculate beamforming vectors, to track and locate the antenna beam on the target. Smart antennas have two main functions

> Direction of Arrival (DOA): The smart antenna system estimates the direction of arrival of the signal, using a variety of computationally intensive calculation methods.
>
> Beamforming is the method used to create the radiation pattern of the antenna array by adding constructively the phases of the signals in the direction of the targets desired, and nullifying interfering signals of other targets.

OFDMA: http://en.wikipedia.org/wiki/OFDMA

Summary: Orthogonal Frequency Division Multiple Access (**OFDMA**) is a multi-user version of the popular OFDM digital modulation scheme. Multiple access is achieved in OFDMA by assigning subsets of subcarriers to individual users as allowing simultaneous data rate transmission from several users. Different number of sub-carriers can be assigned to different users, in view to support differentiated Quality of Service which allows the network operator to control the data rate and error probability individually for each user.

TDD: http://en.wikipedia.org/wiki/Duplex_%28telecommunications%29

Summary: Time division duplex (**TDD**) is the application of time-division multiplexing to separate outward and return signals. It emulates full duplex communication over a half duplex communication link. TDD has a strong advantage in the case where the asymmetry of the uplink and downlink data speed is variable and enables effective use of new techniques such as beamforming.

ATTACHMENT 3
Description of NBRS found in M2Z's License Application Appendix 2

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In re:	)	
	)	
M2Z NETWORKS, INC.	)	File No.
	)	
Application for License and Authority to Provide National Broadband Radio Service in the 2155-2175 MHz Band	)	

APPENDIX 2

CONDITIONS FOR GRANT OF M2Z'S LICENSE AND OPERATION OF ITS NETWORK

CONDITIONS FOR GRANT OF M2Z'S LICENSE AND OPERATION OF ITS NETWORK

M2Z Network, Inc.'s license and its operations on 2155-2175 MHz band shall be conditioned on the following requirements:

1. Service Name and Definition

M2Z (hereinafter "NBRS Licensee" or "M2Z") shall provide National Broadband Radio Service. National Broadband Radio Service is a radio service provided under a single nationwide license on 20 MHz of spectrum in the 2155-2175 MHz band for the provision of fixed and portable broadband data services, without charge to end-users, on a network engineered to provide data rates of 384 kbps downstream and 128 kbps upstream.

2. Frequencies

M2Z shall provide the National Broadband Radio Service in the 2155-2175 MHz band on a primary basis.

3. Service Areas

The Service Area for National Broadband Radio Service in the 2155-2175 MHz band shall be nationwide. The nationwide service area consists of the fifty states, the District of Columbia,

American Samoa, Guam, Northern Mariana Islands, Puerto Rico and the United States Virgin Islands.

4. License Period

Initial authorizations and renewal terms for the National Broadband Radio Service shall be fifteen (15) years from the date of initial issuance or renewal.

5. Construction requirements; Criteria for comparative renewal proceedings.

M2Z shall commence the National Broadband Radio Service by placing a base station in operation in at least one Standard Metropolitan Statistical Area within 24 months of the Commission's grant of license authorization, and will comply with the following construction compliance benchmarks:

(a) *Third anniversary of license grant and commencement of operations:* will have constructed sufficient base stations to provide service to thirty-three percent (33%) of the U.S. population measured by counties.

(b) *Fifth anniversary of license grant and commencement of operations:* will have constructed sufficient base stations to provide service to sixty-six percent (66%) of the U.S. population measured by counties.

(c) *Tenth anniversary of license grant and commencement of operations:* will have constructed sufficient base stations to provide service to ninety-five percent (95%) of the U.S. population measured by counties.

(d) *At the filing of the renewal application*: will have constructed sufficient base stations to provide service to ninety-five percent (95%) of the U.S. population measured by counties.

6. Power limits

The following power limits shall apply to the 2155-2175 MHz bands:

(a) *Main, booster and base stations.*

(i) The maximum EIRP of a main, booster or base station shall not exceed 33 dBW + 10log(X/Y) dBW, where X is the actual channel width in MHz and Y is 6 MHz.

(ii) If a main or booster station sectorizes or otherwise uses one or more transmitting antennas with a non-omnidirectional horizontal plane radiation pattern, the maximum EIRP in dBW in a given direction shall be determined by the following formula: EIRP = 33 dBW + 10 log(X/Y) dBW + 10 log(360/beamwidth) dBW, where X is the actual channel width in MHz, Y is 6 MHz, and beamwidth is the total horizontal plane beamwidth of the individual transmitting antenna for the station or any sector measured at the half-power points.

(b) *User stations.* All user stations are limited to 2.0 watts transmitter output power.

7. Emission limits

For operations in the 2155–2175 MHz band, the power of any emissions outside the NBRS Licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts.

(a) *For fixed and temporary fixed digital stations.* The attenuation for fixed and temporary fixed digital stations shall be not less than 43 + 10 log (P) dB, unless a documented harmful interference complaint is received from an adjacent channel licensee. Provided that the complaint cannot be mutually resolved between the parties, both licensees of existing and new systems shall reduce their out-of-band emissions by at least 67 + 10 log (P) dB measured at 3 MHz from their channel's edges.

(b*) For user stations*. The attenuation factor for user stations shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 3 MHz from the channel edges.

8. Relocation of Incumbents

(a) *Relocation of fixed microwave service licensees.* Incumbent fixed microwave service licensees in the 2160-2175 MHz band shall be relocated pursuant to the procedures established by the Commission in the Ninth Report and Order on Advanced Wireless Services. *See 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 Wireless Services, including Third Generation Wireless Systems*, Ninth Report and Order, FCC 06-45, ¶¶ 55-63 (Rel. Apr. 21, 2006) ("*AWS 9th R&O*").

(b) *Relocation of fixed BRS licensees.* Incumbent BRS licensees in the 2150-2162 MHz band shall be relocated pursuant to the procedures established by the Commission in the Ninth Report and Order on Advanced Wireless Services. *See AWS 9th R&O* at ¶¶ 11-63.

9. Protection of Incumbents

(a) *Protection of Part 101 operations*. Prior to initiating operations from any base or fixed station, the NBRS Licensee must coordinate its frequency usage with co-channel and adjacent channel incumbent Part 101 fixed-point-to-point microwave licensees operating in the 2110-2155 MHz band. Coordination shall be conducted in accordance with the provisions of Section 24.237 of this chapter.

(b) *Protection of Part 21 operations.* Prior to initiating operations from any base or fixed station, the NBRS Licensee must coordinate its frequency usage with co-channel and

adjacent channel incumbent Part 21 BRS licensees operating in the 2150-2162 MHz band. In the event that the NBRS Licensee and BRS licensees cannot reach agreement in coordinating their facilities, either licensee may seek the assistance of the Commission, and the Commission may then, at its discretion, impose requirements on either or both parties.

10. Public Interest and Other Obligations of M2Z

(a) *Basic service.* The NBRS Licensee shall make available National Broadband Radio Service at engineered data rates of 384 kbps download and 128 kbps upload speeds free of airtime or service charges. The NBRS Licensee may condition service provision on the use of customer premises equipment that is certified by the NBRS Licensee to operate in the band according to its specifications and other relevant Commission regulations.

(b) *Service to Public Safety Entities*. The NBRS Licensee shall serve any public safety organization in the U.S. willing to utilize NBRS , without limit to the number of devices, and without airtime or service charges, provided that the NBRS Licensee has constructed its network and makes service generally available in the public safety agencies' service area. The NBRS Licensee shall provide any public safety entity that registers with service of up to 384 kbps download and 128 kbps upload speeds. Such service may be conditioned on the use of a gateway device certified by the NBRS Licensee to operate in the band according to its specifications and other relevant Commission regulations.

(c) *Fees on Premium Services*. The NBRS Licensee may make available "Premium Services" on a subscription basis, in which event it shall pay to the U.S. Treasury, on an annual basis, a voluntary usage fee of 5% of the gross revenues derived from such Premium Service.

(d) *Interference Protection*. The NBRS Licensee shall protect incumbent licensees from harmful interference from its operations until the incumbents' operations are relocated in accordance with applicable Commission rules.

(e) *Limiting Indecent Content*. The NBRS Licensee shall include, with its National Broadband Radio Service, automatic, default blocking of access to pornographic, obscene, and/or indecent material. Such default blocking shall be based on technology and processes readily available in the marketplace. The NBRS Licensee may disable this blocking capability for National Broadband Radio Service or "Premium Service" customers who provide M2Z with appropriate proof that they are of the age of majority. *See, e.g.,* 47 C.F.R. § 64.201. The NBRS Licensee shall be permitted to disconnect any end user from its service for any violation of its service agreement, this condition or the Commission's regulations.

(f) *Commercial Mobile Radio Service.* M2Z is subject to regulation as Commercial Mobile Service under Section 332 of the Communications Act of 1934, 47 U.S.C. § 332, and as a Commercial Mobile Radio Service as defined in Section 20.9 of the Commission's rules. *See* 47 C.F.R. § 20.9.