



October 2, 2008

**EX PARTE NOTICE**

*Electronic Filing*

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW, Room TW-A325  
Washington, D.C. 20554

Re: WT Docket No. 07-195  
WC Docket No. 08-171  
IB Docket No. 95-91  
WT Docket No. 07-293

Dear Ms. Dortch:

On October 1, 2008, Thomas Sugrue, Kathleen O'Brien Ham, and Sara Leibman of T-Mobile USA, Inc. ("T-Mobile") met with Angela Giancarlo, Chief of Staff to Commissioner Robert McDowell to discuss the Commission's upcoming order implementing the NET 911 Improvement Act and its AWS-3 rules. T-Mobile's comments were consistent with its previous filings in these dockets, as well as with the attached presentation.

Separately, T-Mobile was asked about comparisons between the WCS/SDARS and AWS-1/AWS-3 proceedings. T-Mobile noted differences between the two fact patterns associated with each matter and indicated willingness to provide more detail in the record to document those differences if needed.

Pursuant to section 1.1206(b) of the Commission's rules, an electronic copy of this letter is being filed.

Ms. Marlene H. Dortch  
October 2, 2008  
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Sincerely,

/s/Kathleen O'Brien Ham

Kathleen O'Brien Ham  
Vice President, Federal Regulatory Affairs  
T-Mobile USA, Inc.

cc: Angela Giancarlo

# AWS-3: Lab Testing, Simulations, and a Path Forward

October 1, 2008

# Overview

- T-Mobile is Making Wireless Broadband a Reality
- Testing at Boeing Facility with FCC and Other Parties
  - Lab tests demonstrated serious interference to AWS-1
  - Testing debunks M2Z's filter myth
- M2Z Analysis of the Boeing Tests Is Inaccurate
  - Used the incorrect receive signal levels;
  - Misunderstands that the adjacent channel testing was more forgiving to AWS-3;
  - Makes assertions about transmit powers that were *never* tested; and
  - Makes unfounded allegations about the T-Mobile AWS-1 network.
- Optimi's Monte Carlo Simulations (aka Probability Analysis)
  - When appropriate assumptions are used, the statistical (Monte Carlo) model demonstrates high likelihood of interference – contrary to M2Z's assertions
- Serious Legal and Policy Flaws in Proposal
  - Interference will impede availability of real wireless broadband
  - No notice of intent to impose interference on AWS-1
  - "Free broadband" is neither free nor broadband
- A Path Forward
  - Asymmetrical pairing of AWS-3 with J Block
  - Enables new entrant and others to bid

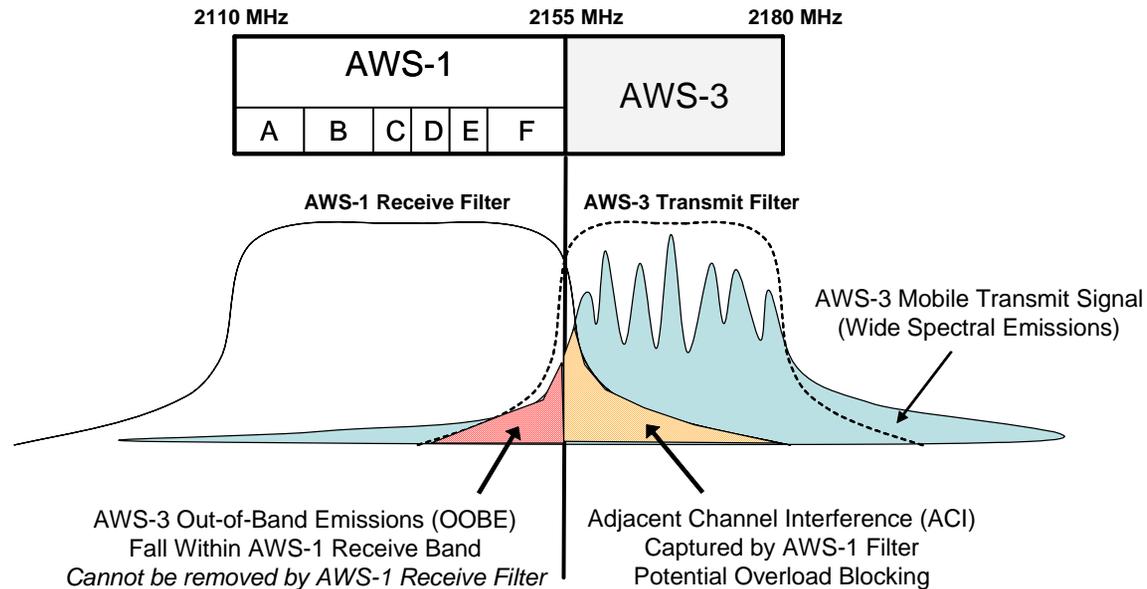
# T-Mobile is Making Wireless Broadband a Reality

- Rapidly rolling out 3G service in AWS-1
- Launched in major markets (e.g., Houston, New York City, Minneapolis, Austin/San Antonio, Baltimore, Dallas, Las Vegas, New Jersey, Long Island, Boston, Providence and Phoenix) and will deploy in the top 25 markets in the U.S. in 4Q08
- 3G rollout in AWS-1 vital for competition and consumers

## Tests Confirm Interference Concerns

- Under the FCC's proposed rules, AWS-1 operations will suffer harmful interference due to OOB and receiver overload/blocking
- T-Mobile's AWS-1 customers would be unable to communicate within a large radius around an AWS-3 device transmitting at even moderate power levels
- Debilitating impacts include call set-up failures, degraded speech quality, degraded data throughput and dropped calls -- all evidence of serious quality and reliability degradation
- The interference would be a high probability event, occurring in many common situations
- The wireless industry -- other than M2Z -- concur
  - AT&T, CTIA, MetroPCS, Motorola, Nokia, Sony Ericsson, 3G Americas, Qualcomm, VZW

# Handset “Filters” Will Not Cure Interference



- Tests prove that the FCC's proposal would allow AWS-3 mobiles to create “out-of-band” interference to AWS-1 mobiles
- “Out-of-band” emissions from an AWS-3 mobile device are “in-band” as far as the AWS-1 device is concerned (red shaded area above), making significant portions of AWS-1 spectrum unusable

# M2Z's Analysis of Testing Is Inaccurate

- While recent ex parte filings of M2Z seem to agree that the Boeing tests were valid, many of their positions taken are incorrect based on their core misunderstanding of the tests themselves:
  - M2Z fails to comprehend what receive signal strengths were actually tested, confuses the signal strength of control channels, traffic channels and total power, and is just plain wrong when it argues that the received signal strengths for which T-Mobile seeks protection is inconsistent with the protected signal strengths under other Commission rules;
    - The Commission has previously found that the total received power to be protected for CDMA PCS devices was -96 dBm/1.25 MHz – very similar to the -97 dBm/3.84 MHz that T-Mobile has requested protection.
  - M2Z improperly characterizes the results of the tests in order to make their specious claims regarding the impact of WiFi and other low power devices on AWS-1 handsets;
  - M2Z fails to understand that the adjacent channel interference tests were completely valid and actually more forgiving to AWS-3 OOB levels than real-world standards and devices;
  - M2Z asserts conclusions about transmit power of AWS-3 mobile devices that do not exist and therefore have *never* been tested; and
  - M2Z argues inaccurately that the drive test data provided by T-Mobile was based on a “partially constructed” AWS-1 network.

# Accurate Simulation Confirms Test Results

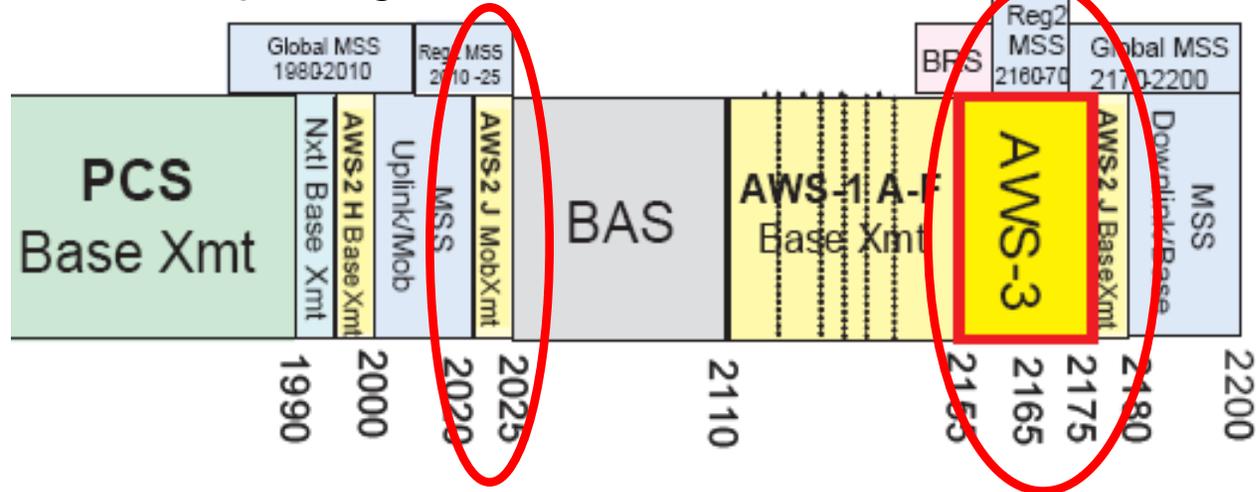
- Statistical analyses presented by M2Z did not incorporate many of the characteristics of real networks, such as uneven distribution of traffic (e.g., hotspots and busy hours) and indoor use
- When these are factored in, simulation demonstrates widespread and persistent call failures due to interference from AWS-3 devices
- Around one-fifth of cell sectors suffered capacity degradation worse than 10% due to AWS-3 interference
  - Home users experiencing 10.6% capacity loss
- Users with an AWS-3 router inside their homes had a 67% chance of lost calls when there was simultaneous AWS-3 transmission
- Users that had a neighbor with an AWS-3 router had a 28% chance of lost calls when the AWS-3 router was transmitting

# Serious Legal and Policy Flaws Remain

- AWS-1 licensees were never put on notice of potential interference from AWS-3
  - Contrary to M2Z's claims, it was the proponents of mobile operations in the AWS-3 band who were put on notice that that they must “conclusively demonstrate that portions of this spectrum could be used for [TDD] transmissions without causing interference to ... other licensees.”
- Demonstrated likely and debilitating interference to AWS-1 will cripple real wireless broadband competition just as it's getting started
- M2Z “free broadband” is not free and not broadband
  - Requires purchase of “not for free” PC and network device
  - By 2013, 768 Kbps will be the equivalent of dial-up service
- 56 companies concerned about impact of government subsidized “free service”
  - Opening spectrum to other options better promotes competition and broadband deployment overall

# Path Forward: Asymmetrical Pairing of AWS-3 Spectrum Is a Reasonable Alternative

- Asymmetrical pairing of AWS-3 downlink with J Block



- The AWS-3 downlink could be paired with J Block uplink/downlink
- Standards bodies have confirmed feasibility of asymmetrical pairing
- Eliminates TDD adjacent to AWS-1 FDD, along with associated interference
- Facilitates bi-directional use of the new bands
- Allows new entrants, including M2Z, to bid

# Conclusions

- Lab tests performed in an open forum
  - Tests evaluated interference at specification levels proposed in FCC FNPRM
  - Assessed Out-of-Band Emissions and Receiver Overload Interference
  - Performed with and without external filter on output of test equipment interference source
- Results again demonstrate harmful interference
  - Access failures and dropped calls in AWS-1 from AWS-3 interference
  - Consistent with prior tests performed by T-Mobile and observed by others
- Results also demonstrate that better AWS-1 receive filtering will not solve the problem
  - Tests performed on both high side and low side of AWS-1 band
  - On low side, AWS-1 handset receive filter rolls off at band edge
  - Tests show that harmful interference exists even with handset filter that rolls off at band edge
- Optimi's Monte Carlo accurate simulations demonstrated that AWS-3 interference would be a persistent and widespread problem for AWS-1
  - Around one-fifth of the sectors suffered capacity degradation worse than 10% due to AWS-3 interference
  - Users with an AWS-3 router inside their homes had a 67% chance of lost calls, and those with AWS-3 in neighbor homes had 28% chance of dropped calls when there was simultaneous AWS-3 transmission
- The AWS-3 band should be asymmetrically paired with the J Block uplink/downlink