

May 8, 2007

*Via Electronic Filing*

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 Twelfth Street, S.W.  
Washington, DC 20554  
Re: WT Docket No. 06-150 PS Docket No. 06-229  
*Ex Parte*

Dear Ms. Dortch:

Pursuant to Section 1.1206(b)(2) of the Commission's Rules, this is to notify you that on Wednesday, May 7, 2008, I met with Commissioner Michael Copps and Bruce Gottlieb of his office, then with Ira Keltz and Salomon Satche of the Office of Engineering and Technology and then with Renée Crittendon of Commissioner Adelstein's office to discuss technology and engineering economic issues *vis-à-vis* implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band.

Attached are the talking points for the meetings referenced above.

Sincerely,

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*Former Chief Technologist  
Federal Communications Commission*

cc: Commissioner Copps  
Bruce Gottlieb  
Julius Knapp  
Ira Keltz  
Salomon Satche  
Renée Crittendon

Implementing a Nationwide, Broadband, Interoperable Public Safety  
Network in the 700 MHz Band.  
Talking Points

**KEY POLICY OBJECTIVES RAISED AT CONGRESSIONAL HEARING**

- I. Build the Future Network Capabilities Needed for the **Public Safety** Community and **Critical Infrastructure**/Services Industry
- II. Create **More Competition** in the Cellular Market
  - Major New Entrant (challenging w/ only D Block/PS Spectrum)
  - Roaming Alternatives for 2<sup>nd</sup>, 3<sup>rd</sup> Tier and Rural Players
- III. Create a **3<sup>rd</sup> Pipe** Alternative to DSL and Cable
  - *A TRUE PIPE DREAM - NOT FEASIBLE WITHOUT >100 MHz of Prime Spectrum Real Estate*

## **BUILD THE FUTURE NETWORK CAPABILITIES FOR PS COMMUNITY AND CII Providers**

I. Provide **Broadband Wireless Access**

II. Provide **Services** for the Public Safety

- Data services
  - Internet access to edge based IP applications
  - New peer-to-peer applications
- Voice Services
  - Cellular services for first responders
  - Mission Critical Voice Service (e.g. P25 defined services)
- Video Services

*(Today these are **very different** services)*

III. Provide **Interoperability** among public safety systems and services

*This is primarily a logical network problem, NOT an RF access problem. The Commission's R&O implied that this issue was to be solved but begged the question of how and by whom.*

The Commission's plan needs to articulate how each of these capabilities will be met by whom and with what resources and funding sources.

From a spectrum standpoint there are three business models that can be used, particularly *vis-à-vis* Broadband Wireless Access for PS/CII..

## **THREE BUSINESS MODELS FOR BROADBAND ACCESS FOR PS/CII**

### **I. Dedicated 700 MHz Network for Public Safety**

- Use all or part of 700 MHz Public Safety allocated spectrum for a dedicated shared broadband public safety network
- Make best use of existing non-700 MHz narrowband spectrum to obviate need and expense of building new 700 MHz narrowband trunked radio systems.
- Requires funding source for network build and on-going network operations
- Find firm to build and operate network on behalf of public safety community
- Develop model to handle governance, AAA, accounting, ...

*This is the model used in UK and other European Countries.*

### **II. Priority Services for Public Safety on Commercial Cellular Networks**

- Features and functions needed by public safety (many are being driven by enterprise needs, some will be specialized)
- Reliability, robustness, and availability needed (cellular networks in urban areas may be approaching or possibly surpassing PS narrowband trunked performance)
- Coverage (cellular networks fall far short of PS coverage)
  - Supplement cellular network build-out in existing spectrum?
  - Build “thin overlay” network in 700 MHz spectrum?
  - Use satellite network as universal “backstop network”?

*This is the model used in wireline network today. We do NOT build separate physical wireline networks for public safety, government agencies, etc. Some of these networks are very very reliable (e.g. Federal Reserve Network). So key question is: can wireless coverage and reliability under this model meet public safety needs?*

*This model may well be most cost effective model in the same way as in wireline world if the proper incentives and/or mandates can be found.*

### **III. Public Safety/D Block 700 MHz Partnership Model**

- Monopoly Wholesale Provider of Access, Monopoly MVNO provider of services
- Wholesale Provider of Access, Many System Integrators provide services

- Integrated Provider of Services

*The Monopoly Wholesale Provider of Access, Monopoly MVNO provider of services was the model used in the 2007 R&O and PSST Bid document.*

*For any of the models a critical question for economic viability is what capacity must be allocated under what circumstances to whom as that determines how much capacity the D Block licensee has to offer for commercial services to make business model work.*

- *Broadband wireless data access?*
- *Cellular service for public safety in lieu of purchasing services from today's cellular providers?*
- *Only public safety users of agencies entitled to 700 MHz spectrum by statute or all public safety and government workers (local, state, and federal) and CII users?*

## **PUBLIC SAFETY/D BLOCK PARTNERSHIP MODEL**

Key factors to analyze for a successful National Public Safety 700 MHz Network D Block/Partnership

**I. Services Model.** Proper definition of the services required and timing and the services *not* required

- Broadband Wireless Internet Access
  - Wholesale Transport?
  - Enablers for Retail Applications?
- Voice
  - Cellular Voice?
  - Mission Critical Public Safety Voice Services w/ Command and Control?
- Interoperability
  - For Internet transport
  - For Applications
  - For voice
    - In 700 Mhz broadband spectrum?
    - Across legacy systems and the 700 MHz BB spectrum (this is a BIG issue and NOT primarily a 700 MHz spectrum issue but the past rulemaking lacked clarity and was ambiguous on this crucial point)
    - Handset portability

**II. Business/Operational Model.** Business alignment between Public Safety at local/state level, PSST, and D Block licensee

- Role of transport provider
  - Single nationwide network?
  - Regional operators under centralized direction for compatibility and interoperability?
  - Wholesale provider and/or wholesale and retail service provider?

- Role of local agencies in choosing retail service providers
  - One MVNO provided by PSST and its agent is only purchaser of wholesale transport?
  - Many service providers and systems integrators that can purchase transport on behalf of local/state agencies as well as single nationwide “*uber* network”, i.e. the “Network of Networks model”?
  - Agent of PSST as technical advisor, business advisor and/or retail MVNO (orders of magnitude difference in financial size of agent under these models)?
- Eligible users/service for wholesale transport at most favorable rates
  - Emergency services or all services for eligible users?
  - Public safety agencies authorized by statute or all members of the “safety community” and other government agencies?.

### III. Cost Drivers

- Coverage requirements
  - Geographic coverage
  - Population coverage
  - Jurisdictional Coverage
  - Role of satellite in meeting ubiquity requirements (w/ acceptable quality)
    - For data?
    - For cellular quality voice?
    - For mission critical voice?
  - In-building requirements
  - Vehicular mobility requirements
  - Subscriber devices
    - Vehicular
    - Public safety “grade and power”

- Consumer type low power handhelds
- Availability of civil infrastructure and existing networks
  - Role of public safety owned or leased sites, particularly high site towers
  - Role of existing cellular networks
  - Role of utility networks
- Backhaul
- Robust, reliability, performance
  - Services requirement and/or
  - Network component requirements?
- Subscriber equipment – *the most important life cycle cost driver*
  - Commonality of equipment to achieve volume
  - Use of COTS equipment or components and chip sets
  - Role of multi-mode multi-band technology multi-function technology
    - Satellite?
    - Broadband data?
    - VoIP?
    - P25 functionality?