

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

In the Matter of)
) GEN Docket No. 02-135
Issues Related to the)
Commission's Spectrum policies)
)

**COMMENTS
OF THE OFFICE OF THE CHIEF TECHNOLOGY OFFICER,
GOVERNMENT OF THE DISTRICT OF COLUMBIA**

The Office of the Chief Technology Officer of the Government of the District of Columbia ("OCTO"), is pleased to comment the Public Notice ("Notice") in the captioned proceeding, DA 02-1311, released June 06, 2002.

OCTO is charged with upgrading the Public Safety Networks in the District of Columbia and therefore has strong interest in the outcome of this task force.

We wish to take this opportunity to offer our gratitude to Chairman Powell for initiating this information gathering effort. We anticipate that from this humble beginning, innovation in the technical, regulatory and administrative management of spectrum will develop, and allow the wireless industry to flourish.

In the aftermath of September 11, 2001, it is essential to Public Safety that their specific radio spectrum and associated regulatory issues receive prompt attention and be unburdened from commercial party interests and influence. It is critical that the Commission safeguard Public

Safety interests and be responsive to their needs while balancing and promoting Commercial interest requirements.

This is an extremely busy and exciting time for Public Safety and immediate constraints are impacting our ability to dedicate more time to answer to Chairman Powell's initiative. Public Safety today will file comments on the 4.9 GHz Notice for Proposal Rule Making (NPRM) today, July 8, 2002, and would have filed reply comments on July 9, 2002 on the 800 MHz band realignment had the reply period not have been extended. OCTO apologizes for not being more prolific in its response to the Chairman's requests due to these conflicting priorities, but as most Public Safety organizations, we are operating with minimal and limited resources. Therefore, we are often led to take care of the most pressing and urgent issues, without sometimes being able to afford the quality time that the communication of ideas and analysis of fundamental issues require.

Nevertheless, please find below a brief description of the specific issues we believe the FCC should address.

1. Market-Oriented Allocation and Assignment Policies

While we have opinions on these matters, we feel it most appropriate that commercial and business users comment on market-oriented proceedings. However, we strongly urge the FCC to maximize the value of the public's spectrum and to use the proceeds from auctions or other revenue sources to fund public safety communications requirements. Furthermore, we discourage the use of site licensing in any market-oriented band as we feel it may encourage

further encroachment into public safety spectrum and cause additional interference. Finally, any restructuring that includes public safety network and subscriber device modifications must be fully funded by any mechanism FCC identifies and mandates. Public Safety does not have the resources required for any restructuring proposals that require the most basic of band realignments.

2. Interference Protection

We encourage flexibility in allowing parties to resolve interference issues and disputes on their own. We encourage Commission technical resources define successful methods of resolving disputes that must be escalated as the Commission has certainly been involved in many disputes in the past. That being said, however, we first encourage segregating spectrum users into different bands to minimize potential interference points and facilitating frequency planning using like technologies, channel bandwidth, output power, and receiver performance. Any interference protection rules, especially those adopting more stringent receiver standards, must include economic factors in order for Public Safety to adopt those standards. Otherwise, any increased cost must be funded along with the modifications to FCC rules. We welcome the Commission's involvement in the economics of receiver performance to provide direction to our vendors. With our limited resources, it is extremely difficult to assess the economic impacts of any requested change in functionality or performance of our equipment, and therefore, we have limited negotiating leverage regarding receiver performance.

3. Spectral Efficiency:

We believe the FCC should facilitate and promote technologies that make the best use of the spectrum that also provide the lowest total cost of ownership. However, this effort should be strictly limited to promoting technologies and requiring certain spectral efficiencies – not forcing licensees to adopt a particular technology. FCC technology promotion that results in rulemaking could actually stifle spectral efficiency (e.g. newer technology may become available after standardization). In developing spectral efficiency requirements, the Commission needs to ensure that actual deployment scenarios are included and adequate spectrum efficiency indicators are estimated. In particular, when comparing two different technologies, spectrum efficiency should not be measured only as the throughput provided per spectrum unit, but should take into account as well a measure of how close frequencies assigned to a site could be reused geographically. For instance, a technology that allow 350kbps in a 150 kHz channel, has a 2.56 bps/Hz throughput, and seems more efficient than a technology that delivers 2Mbps in a 1.25MHz channel (1.6 bps/Hz throughput). However, if a technology has a reuse factor of N, only a nth of the spectrum is used at each site. In the previous case, assume these technologies have a respective frequency reuse of 7 (reuse the spectrum ever 7 site cluster) and 1 (reuse the spectrum in every site), the second technology is actually more efficient as the 2.56 bps/Hz throughput is only available for 1/7th the spectrum allocation equating to .366 bps/Hz.

Commercial operators have criticized public safety agencies for limited spectral efficiency. We would like to take the opportunity to point out that our use of our very limited spectrum is extremely efficient as only one channel is allocated to talk groups that might incorporate hundreds of users. In the case of cellular technology, this scenario would require hundreds of

channels – far more spectrum than is held by the District of Columbia in any band much less one band. In essence, public safety communications networks are very spectrally efficient for talk group voice communications. The Commission should then consider the average number of users communicating over a single channel to determine spectral efficiency. For example, if a public safety channel typically serves 100 active users (i.e. 100 users simultaneously communicating), its net spectral efficiency is 100 times its base spectral efficiency as a comparable commercial system would have required 100 channels for those 100 users.

4. Public Safety Communications:

Funding mechanisms are the most critical mechanisms the Commission can introduce to support improved public safety services. Today, limited agency resources result in low overall volume and significantly higher prices compared to like commercial equipment. A significant infusion of capital into the public safety industry will promote more interest among vendors, increased competition, improved network capabilities, and ultimately lower pricing and increased flexibility. This will in turn allow public safety agencies to deploy more sites, improve critical in-building coverage, and enhance spectral efficiency (using lower power and lower radiation centers).

Project 25 does not seem to have enhanced competition. To date, only a few vendors are providing Project 25 Phase I equipment. Other major vendors are forgoing Phase I for the Phase II standard still under development. We fear that standardization alone will not create a market where there is true competition. Instead, standardization will only accomplish

interoperability among those public safety agencies that choose to adopt the solution from a like vendor.

As a result, we feel both a large, one-time capital infusion into the public safety industry to attract major equipment providers to the public safety marketplace and ongoing funding to support technology refresh and to maintain their interest levels are required to force a paradigm shift in the cost structure for public safety communications networks. In support of the budgeting constraints impacting a community's ability to implement wireless innovations that could potentially save lives, public funding initiatives, similar to "911" fees should be considered exclusively for wireless initiatives.

5. Access to 700 MHz Spectrum:

Public Safety access to recently licensed, yet still encumbered, 700 MHz spectrum is essential for Public Safety to begin planning, designing and implementing enhanced technologies within this spectrum. Those technologies are necessary to further strengthen responsiveness and efficiency of Public Safety services. Current legislation provides an open end to when the 700 MHz spectrum will be available to Public Safety as the current incumbents, Television broadcasters, are authorized to use the spectrum until December 31 2006, or when 85% of their customers are converted to digital TV, whichever occurs the later.

We urge the Commission to enforce a firm deadline of December 31, 2006 for incumbent Television stations to complete the transition to digital TV, regardless of digital television penetration rate achieved at that time.

6. Interoperability:

By facilitating interoperability, the regulation provides the Public Safety one of the basic tools required to accomplish their mission. In addition in this area, the Commission has the opportunity to both enhance the Public Spectrum efficiency, and minimize the cost of deploying the required wireless technologies. To do so, we believe the FCC should:

- Investigate regulatory initiatives to promote spectrum and system sharing among Public Safety entities;
- Allow for greater flexibility of Public Safety spectrum use, in balance with regional interoperability requirements;
- Promote technology initiatives to encourage new entrants, and competition among manufacturers to ensure access to affordable technologies; tighten manufacturer equipment specifications to ensure reliable performance.

7. Additional Public Safety Radio Spectrum:

While future 700 MHz and 4.9GHz spectrum rule-making provides spectrum relief for Public Safety, new spectrum is yet unavailable, and in the case of 700 MHz, access is unforeseen into the future due to current legislative constraints. In addition, since the tragedy of Sept 11 2001 the necessity to heighten security levels at public places and events dramatically increased the need for Public Safety spectrum. As human lives directly depend on our ability to do so, we must remove barriers to spectrum for Public Safety. We also to ensure their long-term access to required spectrum for the future. Therefore, current initiatives, including the access to the 700 MHz band, the access to the 4.9GHz band, and the resolution of

interference caused by the convoluted spectrum allocation in the 800 MHz band, must be expedited.

CONCLUSION

We applaud this initiative from the FCC that allowed us to express our concerns and expectations regarding the spectrum usage as Public Safety. It is a unique opportunity offered to all wireless users and service providers-private or commercial, across the country, to contribute to the definition of spectrum management policies that actually address their very needs. In order to achieve this objective, OCTO is looking forward to participate in future FCC initiatives related to this proceeding.

Respectfully submitted,

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