



800 MHz User Coalition Balanced Approach Technical Seminar

Presentation to
The Wireless Bureau and the
Office of Engineering and Technology

December 18, 2003

Balanced Approach

Proactive, Responsive, Accountable

- ◆ **Proactive** – numerous proposed rule changes and notification requirements to eliminate interference going forward.
- ◆ **Responsive** – addresses instances of reported interference in a very timely manner, using an enhanced version of Best Practices that ARE working. Requires the interference-causing party to eradicate the interference.
- ◆ **Accountable** – the interfering party will eliminate the interference at its own cost.

Proactive - Proposed Rule Changes

- ◆ Require Licensees in the 806-824/851-869 MHz band to calculate percentage degradation for land mobile systems by using the TSB-88 algorithm.
- ◆ Codify or amend the regulations as necessary to allow for external filtering and other added equipment to be used to reduce or eliminate interference.
- ◆ Adopt the “APCO Best Practices” recommendation to require that user receiver equipment in the 806-824/851-869 MHz band provide a minimum 75 dB intermodulation specification.
- ◆ Require licensees of “low-site” systems in the 806-824/851-869 MHz band to limit the ERP of base stations with an antenna height of 30 meters or less above ground to 100 watts/25 kHz channel.
- ◆ Establish adjacent channel spacing standards for use in coordinating non-EA channels.

Proactive – Notification Requirements and Coordination

- ◆ Any licensee wishing to install a new antenna in the 851-869 MHz band at height of less than 30 meters AGL shall notify co- and adjacent channel licensees and appropriate frequency coordinators 30 days in advance of installation and provide the following information:
 - Licensee Name
 - Point of Contact-Information: Name, address, telephone number, and e-mail address for technical person knowledgeable about site.
 - Site Coordinates
 - Certification: The licensee shall certify that it has performed an engineering analysis and has determined that its operation of that site is not predicted to cause co-channel or adjacent channel interference to other licensees in the 806-824/851-869 MHz Band within service areas that overlap a 5,000 foot radius around its transmitter site.

Responsive – Easy Reporting of Possible Incidents of Interference

- ◆ A 806-824/851-869 MHz licensee receiving interference may immediately notify any suspected interfering low-site system operator or operators of the problem by posting complaint to e-mail address to be operated by the licensees of low-site systems in this band.
- ◆ The Complainant shall identify:
 - Specific geographic location where interference is occurring;
 - FCC license information for the Complainant's system;
 - Point of Contact Information for the Complainant's system.

Responsive – Potential Interfering Parties Required to Act Quickly

- ◆ All licensees receiving notice of complaint via the website shall respond within two business days, and shall confirm whether they have systems operating within 5,000 feet of alleged site of interference.
- ◆ The potentially responsible contributors to the interference will coordinate an on-site analysis to take place within five business days.
 - On site analysis will take place at the area of interference;
 - All potentially responsible parties will be present to test for cause of interference.
- ◆ If an agreement between the parties is not reached within 60 calendar days after receipt of the written notice of interference, any affected party may submit the matter to the FCC for resolution.

Responsive - Testing for Cause of Interference

- ◆ Normalize site – check for correct operation of site as originally intended.
- ◆ Provide the following data at test time:
 - number of channels/frequencies
 - antenna tilt, azimuth, model
 - power levels
 - Control channel frequencies
- ◆ Test procedure – Complainant responsible for making test measurements while interfering party controls respective cell sites in the vicinity.
 - Check transmitter output power
 - Configure site(s) into worst case mode (all radios keyed up)
 - Evaluate all areas around site(s)
 - Troubleshoot interference causing mechanism with other carrier
 - Switch channels and then sites on and off in varying order.
- ◆ **Interfering party or parties is/are identified.**

Responsive – Steps Toward Eliminating Interference

- ◆ Must understand the interference mechanisms at work in each location.
- ◆ Develop a solution evaluation.
- ◆ Employ Enhanced Best Practices mitigation techniques, including:
 - Modification of radiation patterns,
 - Employing tighter beamwidth antenna,
 - Adjust antenna downtilt,
 - Reducing power,
 - Checking output power settings,
 - Verifying proper functioning equipment,
 - Employing quality combiner equipment,
 - Retune,
 - Other measures, as needed.

Responsive – Steps Toward Eliminating Interference

- ◆ If Best Practices do not resolve interference completely, interfering party will:
 - Swap channels on necessary basis, if that will address the problem;
 - Upgrade Public Safety equipment, if that will address the problem.
- ◆ Support re-tests after performing site interference modifications.

Responsive – Maintaining Beneficial Outcomes

- ◆ Ask for Final Verification Test.
- ◆ The resolution of the interference shall be documented and copies provided to each contributor and the complaining licensee.
- ◆ If mitigation of interference at a site requires that contributors make changes that can be easily reversed or substantially modified, then the contributor making the change shall continue to coordinate before making further changes to the site.

Accountable – Elimination of Interference is Funded

- ◆ The Complainant shall have a duty to cooperate in the implementation of the most cost-effective solution.
- ◆ The interfering party will pay to eliminate the interference.
 - No limit,
 - No cap.



GOING FORWARD . . .