

## **800 MHz USER COALITION BALANCED APPROACH**

### **STATEMENT OF INTEREST**

This coalition of parties believes that there are better alternatives to solving the Public Safety interference problems in the 800 MHz band than the “Consensus Plan” filed on December 24, 2002. The participants in this coalition include entities from the electric, gas and water utilities, business and industrial users, non-Nextel EA General Category Auction licensees, incumbent SMR licensees operating on General Category channels, equipment manufacturers, and CMRS licensees. This group represents an even broader group of affected parties than the so-called “Consensus Parties,” and it is representative of the licensees that would suffer harm from the implementation of the “Consensus Parties” Plan.

The premise of the 800 MHz User Coalition approach is that something must be done in the near term to address interference that is more immediate, more effective, less disruptive and less costly than the “Consensus Plan.” Given that, according to the APCO database, only 1% of Public Safety systems reported interference incidents last year, the common sense approach is to focus first on mitigating those problems and preventing future interference, instead of jumping to a “solution” that would disrupt 100% of Public Safety systems, not to mention all other licensees in the 800 MHz band. The attached Statement of Principles and detailed action plan describe a concrete alternative to the “Consensus Plan” that relies on enhanced mitigation techniques that build upon, but go beyond, existing “best practices.” The proposed approach recognizes technical advances described in recent filings by equipment manufacturers that further improve the potential for a mitigation-oriented solution.

The 800 MHz User Coalition Balanced Approach offers a comprehensive alternative plan to resolve interference in the 800 MHz band that, at the same time, promotes spectrum efficiency and maximizes the future utility of the frequency band, without the inefficient, heavy-handed, command and control aspects of the “Consensus Plan.”

**800 MHz USER COALITION SIGNATORIES**

**Alamdea Power & Telecom  
ALLTEL Communications  
Ameren Corporation  
American Electric Power (AEP)  
American Public Power Association (APPA)  
Applied Technology Group, Inc.  
AT&T Wireless Services, Inc.  
CLC Repeater Co.  
Cellular Telecommunications & Internet Association (CTIA)  
Cherry Todd Electric Cooperative  
Cinergy Corporation  
Cingular Wireless  
City of Baltimore, Maryland  
City of Colorado Springs, Colorado  
Consumers Energy Co.  
Dominion Power  
Duke Energy  
Edison Electric Institute (EEI)  
Exelon Corporation  
Fresno Mobile Radio, Inc.  
Holy Cross Electric Association  
Kansas City Power & Light  
Mobile Relay Associates  
National Rural Electrical Cooperative Association (NRECA)  
Palomar Communications  
Peak Relay, Inc.  
Pinnacle West Capital Group  
Preferred Communication Systems  
Small Business in Telecommunications  
Southern Company/SouthernLINC  
Supreme Radio Communications, Inc.  
U.S. Cellular Corp.  
United Telecom Council (UTC)  
Verizon Wireless  
Western Wireless**

## **STATEMENT OF PRINCIPLES FOR ADDRESSING 800 MHZ INTERFERENCE**

### **Step 1: Solve interference through mandated mitigation using enhanced best practices.**

Immediate steps to improve mitigation techniques include:

- Licensees in the 800 MHz band should take pro-active steps to ensure that potential interference situations are identified and avoided, to the extent possible. Procedures to implement this approach are detailed in Attachment A.I.
- FCC should clarify and codify a policy that entities creating interference to licensees in the 806-824/851-869 MHz band should be responsible for mitigating the reported interference within 60 days of being contacted by the affected licensee, at the cost of the interfering licensee. This policy would apply even if the interfering licensee/equipment were operating consistent with current FCC rules while causing the interference. Procedures to implement this approach are detailed in Attachment A.II.
- Non-Public Safety 800 MHz licensees should provide engineering expertise and assistance to Public Safety. All incumbent licensees in the 800 MHz band should be full partners with other stakeholders in identifying incidents of interference and evaluating and implementing solutions. Interference may be caused by transmitter or receiver equipment.
- The APCO “Best Practices” recommendations should be enhanced and incorporated into the FCC’s Rules, and all licensees operating in the 800 MHz band, including Public Safety and private licensees, should be required to abide by these rules to minimize interference.
- The FCC should adopt modified technical rules to prevent future interference, incorporating many of the technical advances identified in filings by equipment manufacturers. (See Attachment B for further detail on these technical measures).
- The FCC should allow more flexibility in current user pool eligibility restrictions to allow private market agreements such as frequency swaps as a means of reducing and preventing interference.
- Mitigation techniques that address interference to incumbent systems should not come at the expense of non-interfering licensees, particularly Critical Infrastructure licensees. The function of Critical Infrastructure licensees is particularly vital in today’s atmosphere of heightened homeland security, and they should not be accorded secondary treatment.

**Step 2: Initiate a review to assess progress and effects of Step 1 mitigation measures, and to evaluate longer-term measures that might prove necessary *if and only if* these mitigation techniques and rule changes do not adequately resolve interference.**

- The review should be coordinated by an independent agent, working with a steering committee including all affected stakeholders (a focused industry-Public Safety working group), and should build on /incorporate existing efforts.
- The review should be initiated immediately, and focus first on monitoring and evaluating the track record of the enhanced best practices approach in resolving interference concerns. It should, in addition, examine the nature and extent of any remaining interference problems that are not adequately resolved by the measures in Step 1, and develop concrete recommendations to fix them. The review should be comprehensive, and include recommendations on solutions to avoid specific problems (technical mitigation approaches beyond “Enhanced Best Practices”) as well as broader solutions if interference is not sufficiently mitigated.
- The review would involve the affected 800 MHz stakeholders contributing engineering expertise and assistance to Public Safety.
- The review should include recommendations on funding of any appropriate remediation measures. Remediation measures should be limited if initial mitigation techniques are as successful as anticipated.

## ATTACHMENT A

### PROPOSED PROCEDURES FOR INTERFERENCE MITIGATION IN 806-824/851-869 MHz BAND

#### I. Procedures to Identify and Avoid Incidences of Interference in the 806-824/851-869 MHz band.

- Any licensee wishing to install a new antenna in the 851-869 MHz band at height of less than 30 meters AGL (“low-site transmitters”) shall notify co- and adjacent channel licensees within the protected service contour (via filing at the FCC in ULS or an alternative database) and appropriate frequency coordinators 30 days in advance of the installation of the site providing 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 pursuant to generally accepted industry practices 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.

#### II. Procedures to Address Identified Interference Problems

- A 806-824/851-869 MHz licensee receiving interference will immediately notify any suspected interfering low-site system operator or operators of the problem by:
  - Posting the interference complaint to an e-mail address to be established and operated jointly 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.

- 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.
- On-site analysis: The Complainant shall contact the potentially responsible contributors to the interference to arrange for an on-site analysis to take place within five business days (or later at the discretion of the complaining entity). The Complainant and all potential contributors shall support the analysis effort.
- Mitigation steps:
  - When the analysis shows that one or more of the suspected interfering operators are actually interfering with the system in question, the contributors to the interference shall correct the interference per industry-standard mitigation techniques. 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 (e.g., changing of transmitter frequencies to avoid intermodulation (“IM”) product formation on a particular frequency, or a reduction in on-street power), then the contributor making the change shall continue to coordinate both with the other contributors and the complaining entity before making further changes to the site.
  - If the analysis finds that interference is caused by something other than the equipment belonging to potential contributor system operators (e.g., a bi-directional amplifier (“BDA”) installed by a third party, or “receiver-generated” IM interference), the owner of the equipment shall be responsible for mitigating the interference. The participants in the on-site analysis shall be responsible for notifying the equipment owner of this finding.
- The Complainant shall have a duty to cooperate in the implementation of the most cost-effective solution.
- 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. The FCC shall order appropriate steps to resolve interference in the most efficient manner, including by such means as specifying the transmitter power, antenna height or frequency, or requiring other changes in operation or equipment to correct the problem.

## ATTACHMENT B

### TECHNICAL RULE MODIFICATIONS

- The following technical rules, in addition to the requirement, described above, that interfering licensees correct their interference, should be adopted as part of the effort to resolve interference through improved mitigation techniques. The FCC should:
  - Require licensees in the 800 MHz band to comply with the procedures outlined in Attachment A, i.e.:
    - Notify co- and adjacent channel licensees within the protected service contour (via filing at the FCC in ULS) and appropriate authorized 800/900 MHz frequency coordinators 30 days in advance of initiating transmissions from a new “low site transmitter”.
    - Respond to interference complaints within two business days and resolve interference expeditiously through industry-standard mitigation techniques.
  - Require Licensees in the 806-824/851-869 MHz band to calculate percentage degradation for land mobile systems by using the TSB-88 algorithm. While the TSB-88 algorithm was developed to address interference issues associated with land mobile refarming, the methodology could be used at 800 MHz to evaluate co-channel and adjacent-channel systems. Implementing the use of TSB-88 could address potential interference from digital operations on channels directly adjacent to proposed facilities. Frequency coordinators in the band must decide on mileage criteria that would necessitate evaluation of adjacent-channel facilities. Absent a current recommendation from 800 MHz frequency coordinators, a 70-mile radius is proposed.
  - 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.
    - “Low sites” may be defined similarly to the “cellular” definition offered by the Consensus Plan, *i.e.*: sites: 1) that are included within a system with five or more overlapping sites with handoff capability; 2) with twenty or more operating frequencies; and 3) with antennas at a height of up to 30 meters above ground.
  - All base station operations in the 806-824/851-869 MHz band should be subject to a single rules section concerning emission restrictions. The requirements of 47 CFR 90.543 – Emissions limitations, including the ACCP

Tables addressing adjacent channel and OOB levels (excepting subparagraph (e)) for 12.5 kHz or wider operations, should, at an appropriate future date, replace the current rules sections dealing with emission masks for various portions of the band, modified as necessary to accommodate bandwidths currently not included in the ACCP Tables. To implement this standard, 47 CFR 90.691- Emission mask for EA-based systems, and 47 CFR 90.669 - Emission limits for MTA licensees, should be modified to conform to the above standard. This, coupled with ERP restrictions, would significantly reduce the possibility of interference between and to noise-limited systems operating in the vicinity of low sites.

- The combination of low-site ERP restrictions, the adoption of the ACCP attenuation requirements of 47 CFR 90.543, and the use of TSB-88 for adjacent channel separation, coupled with the removal of eligibility barriers to permit “frequency swapping” and other measures to allow operators to reduce or eliminate interference, will eliminate the need for the creation of a “guard band” as described in the PWC Plan, Appendix F, Section 4.1.2. As has been stated previously, the “sliding scale” of protection for frequencies in the proposed guard band might not significantly impact low-power campus systems, but would have a devastating impact on wide-area users currently licensed and operating in the proposed guard band, as well as the many non-public safety incumbent systems that would be required to retune to the 859-861 MHz portion of the band under the PWC proposal.
- Establish adjacent channel spacing standards for use in coordinating non-EA channels, to facilitate the ability of frequency coordinators to review the spacing of channels adjacent to the frequency under consideration, as well as the co-channel spacing, during the coordination process.
- Any interference that should remain after the implementation of the above measures could be resolved through “Enhanced Best Practices” measures such as careful design or redesign of antenna systems, filters, and other non-transmitter-specific remedies. Under this proposal, manufacturers would be able to produce equipment usable across the entire band, maintaining economies of scale, encouraging manufacturer involvement and innovation and benefiting the 800 MHz market in general.
  - Motorola, for example, is testing the use of switchable attenuators in portable receivers to reduce the strength of signals entering the receiver in strong signal areas that would otherwise result in non-linear operation of the low noise amplifier and mixer, creating intermodulation interference.<sup>2</sup>
  - Motorola is also testing software-controlled tunable filters in their portable receivers that retune the filter based on received signal

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<sup>2</sup> See Letter to Edmond Thomas, Chief, OET, from Steve Sharkey, Motorola, May 6, 2003.

strength, allowing the portable to operate correctly in the presence of strong CMRS signals. Further, Motorola has written that “All of the deployed dual-band XTS 2500 and XTS 5000 model radios (which began shipping in 4<sup>th</sup> quarter 2001) are physically capable of implementing this solution, but will require additional software.”<sup>3</sup>

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<sup>3</sup> *Id.*