

**BEFORE THE  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20554**

In the Matter of	)
	)
Proposed Amendments to the Service Rules	) PS Docket 13-87
Governing Public Safety Narrowband Operations	) WT Docket No. 96-86
In the 769-885/799-805 MHz Bands	) PS Docket No. 06-229
	) RM-11433
	) RM-11577

**COMMENTS OF THE P25 COMPLIANCE ASSESSMENT PROGRAM  
ADVISORY PANEL**

The P25 Compliance Assessment Program Advisory Panel (P25 CAP AP) respectfully files these comments with the Commission in support of public safety communications and the use and implementation of the P25 standard. Further, the P25 CAP AP herein provides the viewpoints of its members on specific feature sets and capabilities of 700 MHz P25 radios that, if consistently available to public safety users, will promote interoperable communications between users as needed. It is understood that the documentation of these feature sets and capabilities in these radios as they are submitted to the Commission for CAP certification Acceptance will provide assurance to the Commission, as well as the user community, that 700 MHz P25 radios can provide the capabilities necessary to meet critical interoperable communications within and between agencies. The P25 CAP AP looks forward to additional discussions on how to best promote interoperable communications in radios operating on the 700 MHz interoperability spectrum utilizing the P25 Common Air Interface.

### P25 Compliance Assessment Program Advisory Panel (P25 CAP AP)

The P25 Compliance Assessment Program Advisory Panel (P25 CAP AP) is an advisory panel formed by the Office of Interoperability and Compatibility (OIC) within the Science and Technology Directorate of the US Department of Homeland Security to help establish standards among digital two way land mobile radio communications products. The P25 CAP AP oversees the P25 CAP program and makes recommendations to OIC to promote the P25 standard in communications equipment within the public safety community.

The P25 CAP Advisory Panel will provide S&T's Office for Interoperability and Compatibility (OIC) with federal, state, local, tribal, and territorial perspectives on P25 portable, handheld, and vehicle-mounted radios and infrastructure equipment as used by public safety agencies.

The P25 CAP AP is made up of a number of P25 users and system administrators that determined the list of feature sets below best serve as a baseline interoperability criteria for a radio operating in the 700 MHz band utilizing the P25 conventional mode.

### P25 Compliance Assessment Program (P25 CAP)

The P25 CAP program tests communications equipment that claims to be compliant with P25 standards to ensure the equipment can work together regardless of supplier. The P25 CAP is a voluntary program that allows suppliers to formally demonstrate their products' compliance to P25 standards. Compliance testing is a formal, independent process that

concludes with official summary test reports and suppliers' declaration of compliance document being published by DHS-OIC on the [www.firstresponder.gov/p25cap](http://www.firstresponder.gov/p25cap) website.

The P25 CAP AP will provide the OIC with federal, state, local, tribal and territorial perspectives on portable, handheld, and vehicle mounted radios and infrastructure equipment. Through the P25 CAP AP, OIC can support the collective interest of public safety organizations that procure and implement P25 compliant equipment.

#### 700 MHz P25 Radios and Baseline Interoperable Conventional Capabilities

The establishment of the capabilities listed below in 700 MHz subscriber units that utilize the P25 mode of operation for conventional use of 700 MHz designated interoperability channels, per the Commission's rules, provide a baseline of interoperable capabilities for the equipment to meet to promote user based interoperability. These minimal feature sets and capabilities should be included in any declaration provided by manufacturers during CAP certification and in anticipation of the devices meeting full P25 CAP interoperability certification.

These feature sets provide a set of anticipated capabilities that can be used by the FCC to determine whether a specific 700 MHz radio is sufficiently interoperable and can perform in compliance with the Commission's rules when submitted for CAP certification. The P25 CAP AP feels the documentation of a radio that operates in the 700 MHz band with these interoperable feature sets and capabilities will facilitate interoperable communications between public safety users when operating in the

conventional mode of P25 utilizing the Common Air Interface on designated 700 MHz interoperability channels.

Lastly, the features sets outlined in this submittal are capabilities that radios operating in the 700 MHz band and operating in the conventional mode utilizing the P25 Common Air Interface should be capable of to promote interoperability. The fact that a device is capable of providing its user a specific capability should in no way infer that interoperability between multiple users from multiple agencies is automatically achieved simply by the capabilities inherent in the radio. Nothing could be further from the truth. Interoperable communications are the result of the use of sufficiently capable equipment utilized by users *in conjunction with* a healthy dialogue between participating agencies. While the functionality of a particular feature set might be inherent in both radios from users of disparate agencies, unless those agencies have coordinated with each other and determined consistent implementation techniques and parameters in their implementation, having common feature sets in radio equipment with provide little benefit to interoperability being achieved.

It has been proven that agencies that interoperability is achieved to a greater extent between agencies that incorporate a regular dialogue between users and system administrators from different agencies with the focus on ensuring interoperability exists between the agencies users. Only then can be the benefits and consistent technological capabilities inherent in the devices they utilize daily contribute to interoperability within their community.

The following capabilities and feature sets are identified in several documents for reference including the P25 Statement of Requirements, TSB-102.CABA Conventional Interoperability Tests and TIA 102.BAAD-A Conventional Procedures, Section 4.2.2:

1. EMERGENCY ALARM IN A CONVENTIONAL SYSTEM (CONVENTIONAL AND SIMPLEX) (P25 SOR 2.1.2.17) TIA 102.BAAD-A Conventional Procedures, Section 4.2.2.

*This mandatory P25 feature provides a method for a user of a subscriber unit to notify a dispatcher of an emergency or distress situation without having to speak.*

2. EMERGENCY CALL WITH RESET FROM FIELD UNIT AND OPTIONAL CHANNEL REVERT

*This mandatory P25 feature (P25 SOR 2.1.2.25.1) sets the emergency bit on all voice transmissions from a subscriber unit to notify units operating on the same channel that the user has declared an emergency situation.*

3. SUBSCRIBER UNIT AND ACCESSORY MIL-SPEC REQUIREMENTS (SOR 1.3.3 thru 1.3.3.5 Mandatory)
4. GROUP CALLS IN A CONVENTIONAL SYSTEM (SOR 2.1.2.1 Mandatory)
5. PRIVATE CALLS IN A CONVENTIONAL SYSTEM (SOR 2.1.2.3 Mandatory)
6. THE THREE P25 STANDARD SQUELCH MODES MUST BE SUPPORTED: MONITOR, NORMAL SQUELCH, AND SELECTIVE SQUELCH IN STANDARD (SOR 2.1.2.30 MANDATORY)

*“Monitor Squelch” enables the receiver to unmute on any recognizable voice signal.*

*“Normal Squelch” enables the receiver to unmute on any voice signal that has the correct network access code (NAC)*

*“Selective” Squelch” enables the radio receiver to unmute only upon receiving a transmission with a NAC equal to the receivers NAC AND specifically address to the unit, either through the proper destination ID for an individual call or a proper talk-group ID for a talk group call.*

*This feature gives radio system administrators the flexibility to utilize the 700 MHz interoperability frequencies in a way that meets their needs.*

**7. SUBSCRIBERS MUST PROPERLY IMPLEMENT THE SPECIAL "RESERVED" CONVENTIONAL NAC AND TALKGROUP VALUES AS DEFINED BY THE P25 STANDARD AND CONSISTENT WITH TSB-102.CABA (MANDATORY)**

*\$293=the “default” NAC*

*\$F7E=a receiver set for this NAC will unsquelch on any NAC received*

*\$F7F=a receiver set for this NAC will pass all P25 signals & repeater transmitter will retransmit the received NAC. For repeater use only.*

**8. INCLUSION OF “NO CALL” TALK GROUP (\$0000) AND “ALL CALL” TALK GROUP (\$FFFF) IN P25 SUBSCRIBER RADIOS (SOR 2.1.2.34 Mandatory)**

*Subscriber radios shall support the two (2) special conventional “reserved” talkgroups of \$0000 “No Call” and \$FFFF “All Call”. Subscribers set for talkgroup \$0000 and using Selective Squelch shall only unmute on All Calls or individuals calls to their specific Unit ID. Subscribers set to any talkgroup with Selective Squelch shall always unmute for a received All Call. See TIA 102.BAAC-A CAI Reserved Values, Section 2.5*

9. SUBSCRIBERS NEED TO TRANSMIT AND RECEIVE THE APPROPRIATE STATUS SYMBOLS, AS DEFINED BY THE P25 STANDARD, TO INDICATE CHANNEL BUSY IN BOTH DIRECT AND REPEATER MODE, AS DESCRIBED IN TSB-102.CABA.

*The Status Symbols detailed by the P25 Standard provide a mechanism for subscribers to avoid transmitting while the frequency is occupied. P25 Status Symbols also allow subscribers on conventional repeater channels to know when the input channel is busy and inhibit transmit if programmed to do so. This “polite” operation based on Status Symbols is compatible with a repeater’s “hang time”.*

10. SUBSCRIBERS MUST BE COMPATIBLE WITH C4FM AND CQPSK MODULATION, AS DEFINED BY THE P25 STANDARD AND DESCRIBED IN TSB-102.CABA.

11. FIXED CONVENTIONAL REPEATERS MUST SUPPORT THE CORRECT/MATCHING NAC VOICE MESSAGE REPEAT (ALL SUBSCRIBER CALL TYPES, CLEAR & ENCRYPTED), SAME OUTPUT NAC AS OUTLINED IN TSB-102.CABA

12. FIXED CONVENTIONAL REPEATERS MUST SUPPORT THE CORRECT/MATCHING NAC VOICE MESSAGE REPEAT (ALL SUBSCRIBER CALL TYPES, CLEAR & ENCRYPTED), DIFFERENT OUTPUT NAC AS OUTLINED IN TSB-102.CABA

13. FIXED CONVENTIONAL REPEATERS MUST SUPPORT THE REJECTION (NO REPEAT) OF ALL INPUT TRANSMISSIONS WITH INCORRECT NAC AS OUTLINED IN TSB-102.CABA

14. FIXED CONVENTIONAL REPEATERS MUST SUPPORT THE CORRECT STATUS SYMBOL OPERATION INDICATING WHEN INPUT IS BUSY AS OUTLINED IN TSB-102.CABA

15. FIXED CONVENTIONAL REPEATERS MUST SUPPORT THE CORRECT IMPLEMENTATION OF SPECIAL RESERVED NAC VALUES \$293, \$F7E, AND \$F7F AS OUTLINED IN TSB-102.CABA

Note: To achieve maximum interoperability utilizing these feature sets and capabilities, certain features sets identified herein may require additional coordination and liaison with surrounding agencies regarding consistent implementation of radios to ensure consistent operation that can utilize these features in a multi-jurisdictional, multi-discipline interoperable environment.

The P25 CAP would like to thank the Federal Communications Commission for seeking input from the CAP on this important issue. We hope the information provided here leads to opportunities that improve interoperable capabilities between public safety agencies and users and assist them in their everyday mission to protect those they serve.

Regards

Stephen T. Devine, Executive Secretariat  
P25 Compliance Assessment Program Advisory Panel  
January 30, 2015