



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
ACQUISITION, LOGISTICS AND TECHNOLOGY
JOINT TACTICAL RADIO SYSTEM
Joint Program Office 1777 North Kent Street, Suite 2000
Arlington, Virginia 22209-2110

AUG 27 2003

REPLY TO
ATTENTION OF

Ser 015

SAAL-JR

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: JTRS POLICY 003; Joint Tactical Radio System (JTRS) Waveform Specification Standardization

1. References:

- (a) Software Communications Architecture Specification MSRC-5000SCA, Version 2.2, November 17, 2002;
- (b) JTRS Policy 002, API Policy Memorandum, June 24 2003

2. BACKGROUND.

2.1 The JTRS program was initiated in order to overcome the serious problem of non-interoperability among radios within the Services, across the Services, and between U.S. Forces and Allied and Coalition partners. Early analysis determined that this objective could best be accomplished through the use of a family of software defined radio systems and common, single implementations for each waveform (as defined in the JTRS ORD). It is essential that these common waveform implementations be developed such that they can be easily ported to any JTRS hardware configuration. This "portability" is to be achieved, in part, through the use of a standard Software Communication Architecture (SCA), reference (a), and standardized Application Program Interfaces (APIs), reference (b).

2.2 The JTRS Joint Program Office (JPO) is responsible for the acquisition of software waveforms to be utilized by all Department of Defense (DoD) JTRS radio sets as specified in the JTRS Operational Requirements Document (ORD), enclosure (1). ORD-defined JTRS waveforms require additional specification and configuration definition in order to develop and procure standard, interoperable, Software Communications Architecture (SCA) compliant products.

2.3 Waveforms procured to date have used available legacy radio system standards and/or specifications supplemented by information provided by multi-Service experts familiar with these legacy systems. This has afforded all stakeholders the opportunity to participate in the specification development process. Enclosure (2) lists all the JTRS waveforms, as defined by the Joint

Service working group, that are currently in development using various contracts under the auspices of the JPO and delineates the specifications, performance requirements and capabilities to which the various software waveform vendors are building. The ORD defined waveforms not included in Enclosure (2) are waveforms that are not currently in development. These will be acquired by the JPO as Service and cluster requirements dictate and resources are made available.

3. DEFINITIONS.

None

4. PURPOSE.

The purpose of this Waveform Policy Memorandum is to establish policy and procedures for standardization and configuration control of JTRS Waveform Specifications and associated development efforts.

5. APPLICABILITY.

This Waveform Policy Memorandum applies to all Service JTRS Acquisitions, Cluster Programs, JTRS JPO waveform development efforts, associated hardware/software developments, and all SCA compliant developments. Further, the policies described in this memorandum apply to all on-going acquisition programs regardless of their stage of development.

6. POLICY.

6.1 Proposed changes to enclosure (2) to a waveform standard or specification (including changes to existing legacy radios) shall be coordinated with all Services and the Joint Staff in order to evaluate operational impacts to legacy radio systems as well as impacts to existing and planned JTRS acquisitions. If a waveform functionality change is accepted and approved, it shall be incumbent upon the key stakeholders requiring that change to provide the necessary funding and documentation to the JPO to accomplish a software change to the existing JPO controlled base waveform. Additional changes (porting) and the cost to implement these changes in cluster systems shall be the responsibility of the respective Cluster Managers implementing the modified waveform.

6.2 The JTRS Configuration Management Plan will document this policy. Further, the process to be followed to request and approve a change to the JTRS waveforms will be documented in the JTRS JPO Configuration Management Process and Procedures Guide and made available on the JTRS JPO website.

7. ACQUISITION GUIDANCE AND ACTION.

7.1 Program managers or other entities requesting a waveform specification change shall submit a request, endorsed by their Service Acquisition Executive to the JTRS JPO using the process that will be posted to the JTRS website at <http://jtrs.army.mil> .

7.2 The JTRS JPO point of contact for this subject is Jim Alexander, CDR USN, telephone 703-588-1054.

2 Encls

1. JTRS ORD Waveform Table
2. JTRS Waveform Specification Information


STEVEN A. MACLAIRD, Col, USAF
Program Director
JTRS Joint Program Office

DISTRIBUTION:

ASD(NII)

JTRS Cluster 1 PMO – (WIN-T)

JTRS Cluster 2 PMO – (SOCOM)

JTRS Cluster 3 PMO – (SPAWAR)

JTRS Cluster 4 PMO – (ESC/DIG)

JTRS Cluster 5 PMO – (WIN-T)

CF:

ASAALT

DASN/C4ISR

SAF/AQIC

HQMC C4

JTRS WAVEFORMS (By Priority: KPP / Threshold / Objective)

ID	KPP (K)	ID	THRESHOLD (T)	ID	OBJECTIVE (O)
W1	*SINCGARS ESIP (VHF-FM Military Tactical AJ)	W7	UHF SATCOM Military Protocol (184)	W30	MSS [Waveform Family]
W2	*HAVE QUICK II (UHF-AM/FM/PSK Military Tactical AJ)	W8	HF-ISB ALE	W32	BOWMAN (UK HF/UHF Military Tactical) [Waveform and Equipment Family]
W3	*UHF SATCOM Military (181-182-183 "DAMA")	W9	HF-SSB ALE AJ		
W4	*EPLRS	W10	Link-11 / TADIL-A		
W5	*WNW	W11	STANAG 5066 (HF Message Protocol)		
W6	*Link 16 / TADIL-J	W12	STANAG 4529 (HF NB Modem)		
		W13	VHF-FM – Military Tactical		
		W14	HF ATC Data Link		
		W15	VHF-AM ATC		
		W16	VHF-AM ATC Extended		
		W17	VHF/UHF-FM LMR: (Land Mobile Radio & Public Safety w/ Project-25 and TETRA) [Waveform Family]		
		W18	VHF ATC Data Link (NEXCOM)		
		W19	UHF-AM/FM/PSK Military Tactical		
		W20	Link-4A / TADIL-C		
		W21	Link-11B / TADIL-B		
		W22	SATURN (UHF PSK AJ NATO)		
		W23	STANAG 4193 Mode S Level 4/5		
		W24	DWTS (UHF PSK WB LOS)		
		W25	Soldier Radio & WLAN & Advanced Capability [Waveform Family]		
		W26	COBRA		
		W27	MUOS-CAI (UHF SATCOM Military Obj.)		
		W28	Cellular Radio & PCS [Waveform Family]		
		W29	Link 22 / NILE		
		W31	IBS-M		
		W32	BOWMAN (VHF)		

TABLE 4-2

DEVELOPMENTAL JTRS WAVEFORMS

Waveform Specification	Primary References
<p>Link 16</p> <p>CECOM A3285418, <i>Performance Specification, JTRS Software Waveform, Link 16</i>, 28 Sep 2001</p>	<ul style="list-style-type: none"> • <i>MIDS LVT-1 System Segment Specification</i>, 30 April 1999, with SCNs 1, 3, 11, 12 and IRs 121, 170 • As modified in A3285418, with changes to include: <ul style="list-style-type: none"> • Delete IJMS • Delete European-only requirements • Delete polling mode, communications modes 2 and 4 • Delete TACAN functionality • Revise spectrum transmission requirements • Note: an anticipated ECP will address other changes, including adding MIDS LVT-2 interfaces and functionality, revising spectrum transmission requirements, and adding frequency remapping capability
<p>UHF/VHF LOS</p> <p>CECOM 3285415 Rev 1.2, <i>Performance Specification for JTRS UHF LOS Waveforms</i>, 17 Oct 2001</p> <p>CECOM 3285425 Rev 8.0, <i>Performance Specification, JTRS Software Waveform, UHF LOS FM/PSK/CPM</i>, 6 Nov 2001</p> <p>CECOM A3285421 Rev 1a, <i>Waveform Specification, Tactical VHF FM</i>, 6 Nov 2001</p>	<p>UHF LOS AM</p> <ul style="list-style-type: none"> • MIL-STD-188-243, <i>Military Standard Interoperability and Performance Standards for Tactical Single Channel UHF Radio Communications</i> <p>UHF FM/PSK/CPM</p> <ul style="list-style-type: none"> • MIL-STD-188-181B, <i>Interoperability Standard for Dedicated 5-kHz and 25-kHz UHF Satellite Communications Channels with Change Notice 1</i> • MIL-STD-188-243, <i>Tactical Single Channel Ultra High Frequency (UHF) Radio Communications</i> <p>VHF FM</p> <ul style="list-style-type: none"> • MIL-STD-188-242, <i>Interoperability and Performance Standards for Tactical Single Channel Very High Frequency (VHF) Radio Equipment</i>

DEVELOPMENTAL JTRS WAVEFORMS

<p>Air Traffic Control</p> <p>CECOM A3285419 Rev 1.1, <i>Performance Specifications for the following JTRS Software Waveforms: VHF AM Voice, VHF AM, ATC VHF Data Link Mode 2, ATC VHF Data Link Mode 3</i>, 8 Nov 2001</p> <p>CECOM A3285425 Rev 1.1, <i>Performance Specification, JTRS Software Waveform, ATC HF Data Link</i>, 8 Nov 2001</p>	<p>AM Voice, VHF Data Link Mode 2, VHF Data Link Mode 3</p> <ul style="list-style-type: none"> • DAAB-84-C-F042, <i>AN/ARC-186 (V) VHF AM/FM Radio Set Installation and Acceptance Specification</i> • MIL-STD-188-242, <i>Interoperability and Performance Standards for Tactical Single Channel VHF Radio Equipment</i> • TSO-C37d, <i>VHF Radio Communications Transmitting Equipment Operating within the Radio Frequency Range 117.975-136.000 MHz</i> • TSO-C38d, <i>VHF Radio Communications Receiving Equipment Operating within the Radio Frequency Range 117.975-136.000 MHz</i> • RTCA/DO-186a, <i>MOPS for Airborne Radio Communications Equipment Operating within the Radio Frequency Range 117.975-137.000 MHz</i> • RTCA/DO-178B, <i>Software Considerations in Airborne Systems and Equipment and Equipment Certification, December 1, 1992</i> • RTCA/DO-224a, <i>Signal in Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications Including Capability with Digital Voice Technique</i> • EUROCAE ED-23B, <i>MOPS for Airborne Receiver-Transmitter Operating in the Frequency Range 118.975-136.975 MHz</i> • EUROCAE ED-92, <i>MOPS for Airborne VDL Mode-2 Transceiver</i> • ARINC 76-10, <i>Airborne VHF Communications Transceiver</i> • ARINC 750-3, <i>VHF Data Radio</i> <p>HF Data Link</p> <ul style="list-style-type: none"> • FAA TSO-C31d, <i>HF Radio Communications Transmitting Equipment Operating Radio Frequency Range 1.5-30 MHz</i> • FAA TSO-C32d, <i>HF Radio Communications Receiving Equipment Operating Radio Frequency Range 1.5-30 MHz</i> • RTCA/DO-265, <i>MOPS for Aeronautical Mobile HF Data Link (HFDL)</i> • RTCA/DO-178B, <i>Software Considerations in Airborne Systems and Equipment and Equipment Certification, December 1, 1992</i> • RTCA/DO-163, <i>Minimum Performance Standards-Airborne HF Radio Equipment</i> • ARINC 635-3, <i>HF Data Link Protocols</i> • ARINC 753-3, <i>HF Data Link System</i> • ARINC 714-6, <i>Mark 3 Airborne SELCAL System</i> • ARINC 719-5, <i>Airborne HF/SSB System</i>
<p>HAVEQUICK I/II</p> <p>CECOM 3285415 Rev 1.2, <i>Performance Specification for JTRS UHF LOS Waveforms</i>, 17 Oct 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-243, <i>Tactical Single Channel Ultra High Frequency (UHF) Radio Communications</i> • JIEO 9120A, <i>Technical Interface Specification for UHF SATURN Waveform (SECRET)</i> • SS103190, <i>Prime Item Development Specification HQIIA AN/URC-126(V) Console/Panel Mounted and Remote Mounted Radio Set (including classified sections)</i>
<p>SATURN</p> <p>CECOM 3285415 Rev 1.2, <i>Performance Specification for JTRS UHF LOS Waveforms</i>, 17 Oct 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-243, <i>Tactical Single Channel Ultra High Frequency (UHF) Radio Communications</i> • JIEO 9120A, <i>Technical Interface Specification for UHF SATURN Waveform (SECRET)</i> • SS103190, <i>Prime Item Development Specification HQIIA AN/URC-126(V) Console/Panel Mounted and Remote Mounted Radio Set (including classified sections)</i>

DEVELOPMENTAL JTRS WAVEFORMS

<p>Link 4A/Link 11B</p> <p>CECOM A3285424 Rev 1.1, <i>Performance Specification, JTRS Software Waveform, Link 4A, TADIL C</i>, 8 Nov 2001</p> <p>CECOM A3285423 Rev 1.1, <i>Performance Specification, JTRS Software Waveform, Link 11B, TADIL B</i>, 8 Nov 2001</p>	<p>Link 4A</p> <ul style="list-style-type: none"> • MIL-STD-188-203, <i>Subsystem Design and Engineering Standards for Tactical Digital Information Link (TADIL) C</i> • STANAG 5504, <i>Tactical Data Link for the Control of Aircraft-Link 4</i> <p>Link 11B</p> <ul style="list-style-type: none"> • MIL-STD-188-212, <i>Subsystem Design and Engineering Standards for Tactical Digital Information Link (TADIL) B</i> • STANAG 5511, <i>Tactical Data Exchange – Link 11</i> • STANAG 5501, <i>Point-to-Point Digital Data Link – Link 11</i>
<p>HF</p> <p>CECOM A3285417 Ver 1.2, <i>Performance Specification for JTRS HF Functional Waveforms</i>, 2 Nov 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-110B, <i>Interoperability and Performance Standards for Data Modems</i> (Appendices are not mandatory and will not be implemented except as noted) • MIL-STD-188-110B, <i>Appendix C; HF Data Modem Waveforms for Data Rates above 2400 bps</i> • MIL-STD-188-141B, <i>Interoperability and Performance Standards for Medium and High Frequency Radio Systems</i> (Includes Appendix A- 2nd Generation ALE and Appendix B- Linking Protection; Appendix C. Third Generation ALE will not be implemented.) • MIL-STD-188-148A, <i>Interoperability Standard for Anti-Jam Communications in the High Frequency Band (Secret)</i> • STANAG 4285, <i>Characteristics of 1200/2400/3600 bps single tone modulator/demodulator for HF radio links</i> • STANAG 4529, <i>Characteristics of Single-Tone modulators/demodulators for Maritime HF Radio Links with 1240 Hz bandwidth</i> • STANAG 6066, <i>Profile for High Frequency (HF) Radio Data Communications</i>
<p>Link 11A</p> <p>CECOM A3285422 Rev 1.1, <i>Performance Specification, JTRS Software Waveform, Link 11, TADIL A</i>, 8 Nov 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-203-1A, <i>Interoperability and Performance Standards for Tactical Digital Information Link (TADIL) A</i> • STANAG 5511, <i>Tactical Data Exchange – Link 11</i>

DEVELOPMENTAL JTRS WAVEFORMS

<p>UHF SATCOM</p> <p>CECOM A3285420 Rev 10.0, <i>Performance Specification, JTRS Software Waveform, UHF SATCOM</i>, Nov 15 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-181B, <i>Interoperability Standard for Dedicated 5-kHz and 25-kHz UHF Satellite Communications Channels with Change Notice 1</i> • MIL-STD-188-182A, <i>Interoperability Standard for 5-kHz UHF DAMA Terminal Waveform</i> • MIL-STD-188-183A, <i>Interoperability Standard for 25-kHz UHF TDMA/DAMA Terminal Waveform</i> • MIL-STD-188-184, <i>Interoperability Standard for the Data Control Waveform</i> • MIL-STD-3005, <i>Analog-To-Digital Conversion of Voice By 2,400 Bits/Second Mixed Excitation Linear Prediction (MELP)</i> • DAMA-IDD-01-U-R1CO, <i>JMINI Interface Design Document</i> • • STANAG 4231, <i>Digital Interoperability between UHF Satellite Communication Terminals</i> • MIL-C-28883, <i>Military Specification for the ANDVT, AN/USC-43 (V)</i> • NSA NO. 87-01, <i>KGV-11 and KGV-11 (E2) Interface Specification</i> • NSA NO. 88-3, <i>NSA Performance and Interface Specification for the TSEC/KG-84A</i> • NSA NO. CSESD-14, <i>Communications Security Equipment System Document for TSEC/KY-57/58</i>
<p>EPLRS</p> <p>CECOM A3285414 Rev 1a, <i>Performance Specification, JTRS Software Waveform, EPLRS/SADL</i>, 6 Nov 2001</p>	<ul style="list-style-type: none"> • MIL-STD-188-114A, <i>Electrical Characteristics of Digital Interface Circuits, September 30, 1985</i> • CECOM A3209584, <i>Performance Specification Document for the EPLRS ADDSI RT</i> • CECOM A3275957, <i>Performance Specification Document for the EPLRS 1553B RT</i> • CECOM CDRL 4002VV-001A, <i>EPLRS System Technical Description</i> • ACCS-A3-407-008E, <i>Interface Specification for Army Data Distribution System Interface (ADDISI)</i>, 3 May 1998 • LCSE 9204 Rev C, <i>MIL-STD-1553 Multiplex Interface Control Document for EPLRS User Unit (EPUU)</i>, 25 Mar 1994 • Raytheon Document, <i>EPLRS/SADL Block 2 System Specification</i>, 10 October 2000
<p>WNW</p> <p>CECOM A3285412 ver 2.21, <i>JTRS Wideband Network Waveform Functional Description Document</i>, 29 Nov 2001</p>	<ul style="list-style-type: none"> • <i>JTRS Wideband Network Waveform Functional Description Document</i>, version 2.21, 29 November 2001

DEVELOPMENTAL JTRS WAVEFORMS

<p>SINCGARS</p> <p><i>Performance Specification, JTRS Software Waveform, SINCGARS ESIP with MIL-STD-188-220, Rev 1D (11 Apr 2002)</i></p>	<p>SINCGARS</p> <ul style="list-style-type: none"> • MIL-STD-188-241-1, <i>SINCGARS Waveform Specification</i>, February 10, 1989, (SECRET) • MIL-STD-188-241-2, <i>Interoperability/Performance Standard for Tactical Single Channel Very High Frequency (VHF) Radio Equipment</i>, September 24, 1999, (SECRET) • MIL-STD-188-241-2 Appendix B, <i>Interoperability/Performance Standard for Tactical Single Channel Very High Frequency (VHF) Radio Equipment</i>, September 24, 1999, (SECRET) • ITT Document <i>ECCM Waveform Specification, SINCGARS System Improvement Program (RT-1523C(C)/U), Single Channel and Frequency Hop</i>, August 1, 1995, (SECRET) • MIL-STD-188-220B, <i>Interoperability Standard For Digital Message Transfer Device Subsystems</i> • ITT-AC/D A3214186, <i>System Engineering Document for the Ground Radio SINCGARS System Improvement Program (SIP and ASIP)</i>, January 24, 2000 • ITT-AC/D 31745/BD01-4, <i>Aircraft SINCGARS AN/ARC-201D(V) Airborne SIP Installation and Acceptance Test Specification</i>, October 13, 1999 <p>INC</p> <ul style="list-style-type: none"> • ITT Document, <i>System Requirement Specification (SRS) for the Internet Controller (INC) Tactical Internet Division and Below (TIDB)</i>, v2.03, January 29, 2001
<p>IFF/Mode S</p> <p><i>JTRS Waveform Performance Spec, IFF and ATCRBS with Mode S, Rev 1C, 11 April 2002</i></p>	<ul style="list-style-type: none"> • DoD AIMS 97-900, <i>Performance/Design and Qualification Requirements; Mode 4 Input/Output Data</i> • DoD AIMS 03-1000, <i>Performance/Design and Qualification Requirements Technical Standard for the ATCRBS/IFF/MARK XII Electronic Identification System and Military Mode S</i> • STANAG 4193(PT1), <i>Technical Characteristics of IFF MK XA and MK XII Interrogators and Transponders - Part 1: General Description of the System</i> • STANAG 4193(PT2), <i>Technical Characteristics of IFF MK XA and MK XII Interrogators and Transponders - Part 2: Performance in the Presence of Electronic Countermeasures</i> [Secret] • STANAG 4193(PT3), <i>Technical Characteristics of IFF MK XA and MK XII Interrogators and Transponders - Part 3: IFF Installed System Characteristics</i> • STANAG 4193(PT3), <i>Technical Characteristics of IFF MK XA and MK XII Interrogators and Transponders - Part 4: Technical Characteristics of Mode S in Military Interrogators and Transponders</i>
<p>COBRA</p> <p><i>JTRS Waveform Performance Spec, COBRA, Rev 1B, 11 April 2002</i></p>	<ul style="list-style-type: none"> • <i>Signal Architecture Standard for the Collection of Broadcasts From Remote Assets (COBRA)</i>, Release 2.01, 02 August 2000, (SECRET)
<p>APCO 25</p> <p><i>JTRS Waveform Performance Spec, VHF/UHF FM Public Service, APCO 25, Land Mobile Radio, Rev 1B, 23 April 2002</i></p>	<p>APCO Project 25 VHF and UHF FM Public Service Subscriber Waveform</p> <ul style="list-style-type: none"> • TIA/EIA TSB-102.A, <i>APCO Project 25 System and Standards Definition</i>, November 1995 • TIA/EIA-102.BAAA, <i>Project 25 FDMA Common Air Interface</i>, May 1998; <i>Addendum 1</i>, September 1999 • TIA/EIA TSB-102.BAAB-A, <i>APCO Project 25 Common Air Interface Conformance Test</i>, August 1995; <i>Addendum 1</i>, April 1999 • TIA/EIA-102.BAAC, <i>Project 25 Common Air Interface Reserved Values</i>, June 2001 • TIA/EIA TSB-102.BAAD, <i>APCO Project 25 Common Air Interface Operational Description for Conventional Channels</i>, October 1994

DEVELOPMENTAL JTRS WAVEFORMS

- TIA/EIA-102.BABA, *Project 25 Vocoder Description*, May 1998
 - TIA/EIA-102.BABB, *Project 25 Vocoder Mean Opinion Score Conformance Test*, May 1999
 - TIA/EIA-102.BABC, *Project 25 Vocoder Reference Test*, April 1999
 - TIA/EIA-102.CAAA, *Digital C4FM/CQPSK Transceiver Measurement Methods*, June 1999
 - TIA/EIA-102.CAAB, *Land Mobile Radio Transceiver Performance Recommendations, Project 25 – Digital Radio Technology, C4FM/CQPSK Modulation*, 3 November 2000
 - TIA/EIA TSB-102.AABA, *APCO Project 25 Trunking Overview*, April 1995
 - TIA/EIA-102.AABB, *Project 25 Trunking Control Channel Formats*, May 2000
 - TIA/EIA-102.AABC, *Project 25 Trunking Control Channel Messages, May 2000; Addendum 1 -, Subnetwork Dependent Convergence Protocol (SNDP) Trunking Control Channel Messages*, September 2001
 - TIA/EIA TSB-102.AABF, *APCO Project 25 Link Control Word Formats and Messages*, May 1996
 - TIA/EIA TSB-102.AABG, *APCO Project 25 Conventional Control Messages*, July 1996
 - TIA/EIA TSB-102.AABD, *Project 25 Trunking Procedures*, October 1997
 - TIA/EIA TSB-102.BACC, *Inter-RF Subsystem Interface Overview -New Technology Standards Project- Digital Radio Technical Standards*, December 1996
 - TIA/EIA TSB-102.BACA, *Inter-RF Subsystem Interface Messages Definition-New Technology Standards Project – Digital Radio Technical Standards* December 1996
 - TIA/EIA-102.BADA, *Telephone Interconnect Requirements and Definitions (Voice Service)*, March 2000
 - TIA/EIA-102BAEA, *Project 25 Data Overview*, March 2000
 - TIA/EIA-102.BAEB, *Project 25 Packet Data Specification*, March 2000; *Addendum 1, Subnetwork Dependent Convergence Protocol (SNDP) – New Technology Standards Project – Digital Radio Technical Standards*, October 2001
 - TIA/EIA-102.BAEC, *Project 25 Circuit Data Specification*, June 2000
 - TIA/EIA-102.BAEE, *Project 25 Radio Control Protocol*, March 2000
 - TIA/EIA TSB-102.BAFA-A, *Project 25 Network Management Interface Overview*, July 1999
 - TIA/EIA TSB-102.AAAB, *APCO Project 25 Security Services Overview*, January 1996
 - TIA/EIA-102.AAAA-A, *Project 25 DES Encryption Protocol*, February 2001
 - TIA/EIA-102.AAAC, *Conformance Test for the Project 25 DES Encryption Protocol*, February 2001
 - TIA/EIA-102.AACA *APCO Project 25 Over-The-Air-Rekeying (OTAR) Protocol*, April 2001
 - TIA/EIA TSB-102.AACB, *Over-The-Air-Rekeying (OTAR) Operational Description – New Technology Standards Project – Digital Radio Technical Standards*, January 1997
 - TIA/EIA TSB-102.AACC, *Conformance Tests for the Project 25 Over-The-Air-Rekeying (OTAR) Protocol*, February 1997
- APCO Project 25 VHF and UHF FM Public Service Repeater Waveform – Contract option has not been exercised
 APCO Project 25 VHF and UHF FM Public Service Base Station Waveform – Contract option has not been exercised