ANSI/J-STD-036-C-2-2017
APPROVED: JUNE 19, 2017

JOINT STANDARD

Enhanced Wireless 9-1-1 Phase II

J-STD-036-C-2
(Addendum to ANSI/J-STD-036-C)

June 2017

Jointly developed by Telecommunications Industry Association
and Alliance for Telecommunications Industry Solutions

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Published by

©TELECOMMUNICATIONS INDUSTRY ASSOCIATION
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Arlington, VA 22201
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Revision History

Revision	Date	Remarks
Rev. 0	August 2000	Initial publication
Rev. 0 Addendum 1	December 2000	First addendum
Rev. A	March 2002	Publication of Revision A
Rev. A Addendum 1	March 2003	Addendum to Revision A
Rev. B	April 2005	Revision B
Erratum	December 2005	An erratum was published to correct the omission of the MEID parameter from several operations.
ANSI/J-STD-036-B	November 2006	Initial ANSI publication
ANSI/J-STD-036-C	September 2009	Support for cdma2000 Femto Cells
ANSI/J-STD-036-C-1	September 2013	New Class of Service Position Source indicators and associated Position Source codes
ANSI/J-STD-036-C-2	June, 2017	Add 6 handset and 5 hybrid position source codes for geodetic position reporting. Add 3 class of service codes for civic address reporting.

Foreword

This foreword is not part of this standard.

This Standard was prepared jointly by TIA TR-45.8 under the TIA Engineering Committee TR-45 and by the ATIS ELOC Task Force, comprised of the ATIS Wireless Technologies and Systems Committee (WTSC) and the Emergency Services Interconnection Forum (ESIF).

ANSI/J-STD-036-C-2[E] includes support for cdma2000 Femto Cells [TIA 1165].

ANSI/J-STD-036-C-2[E] defines new Handset, Hybrid and Class of Service Position Source values. It also corrects typographical errors.

This Standard contains eight annexes of which Annex C and Annex D are considered normative and part of this Standard. The remaining annexes are considered informative and not part of this Standard.

All text added in J-STD-036-C-1 is shown in dark blue.

All text added in J-STD-036-C-2 is shown in forest green.

All text deleted since J-STD-036-C is shown in ~~red struck-through text~~.

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Chapter 1: Overview

1 Introduction

1.1 Objective

This Standard defines the messaging required to support information transfer to identify and locate wireless emergency services callers.

1.2 Scope

This Standard provides a solution for the handling of Wireless Enhanced Emergency Calls for the FCC E911 Phase II mandate.

Carrier position reporting to emergency services systems, as mandated by the Federal Communication Commission (FCC) under docket 94-102 (including orders 96-264, 99-96 and 99-245) has been addressed by this Interim Standard without considering position reporting privacy restrictions that may be desirable for other position reporting services. For this reason, this Standard does not preclude these other service restrictions. Position reporting privacy restrictions are beyond the scope of this Standard, and are not addressed here.

1.3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. ANSI, ATIS and TIA maintain registers of currently valid national standards published by them.

Alliance for Telecommunications Industry Solutions (ATIS) standards:

ATIS-1000113	ATIS-1000113.2005: *Signalling System No. 7 (SS7) - Integrated Service Digital Network (ISDN) User Part*, 2005.
T1.114	T1.114-2004(R2009): *Signalling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP)*, 2004.
T1.628	T1.628-2000 (R2005): *Emergency Calling Service*, 2000.

Telecommunications Industry Association (TIA) standards:

CDMA	TIA/EIA/IS-2000.5-A; *Upper Layer (Layer 3) Signaling Standard for cdma2000 Spread Spectrum Systems*, 2000.

IS-801	TIA/EIA/IS-801-1: *Position Determination Service Standard for Dual-Mode Spread Spectrum Systems*, 2000.
SAMPS	ANSI/TIA/EIA-136-740: *TDMA Cellular/PCS System Assisted Mobile Positioning through Satellite (SAMPS)*, 2000.
ANSI-41	TIA-41-E: *Wireless Radiotelecommunications Intersystem Operations*, 2006.
	TIA/EIA-41-D: *Cellular Radiotelecommunications Intersystem Operations, 1997*.
TIA-1165	TIA-1165: *Network Aspects of Femtocell Support for 1xRTT Air Interface, TBD*.

Joint TIA/ATIS standards:

J-STD-034	J-STD-034: *Wireless Enhanced Emergency Services*, 1997.

World Geodetic System 1984 (WGS-84) standardizes latitude and longitude. WGS-84 is the standard for conversion between local systems, in this case national geodetics, and projection maps.

WGS-84	*World Geodetic System*, WGS-84. United States Department of Defense, MIL-STD-2401, 1984.
DMA TR 8350.2	Department of Defense - *World Geodetic System 1984 Technical Report (and supplements)*; Defense Mapping Agency, DMA TR 8350.2 Second Edition, 1991.

Abstract Syntax Notation one (ASN.1) specifications:

X.680	*Abstract Syntax Notation One (ASN.1): Specification of Basic Notation* (07/94).
X.680.1	*X.680 Amendment 1. Abstract Syntax Notation One (ASN.1): Specification of Basic Notation, Amendment 1: Rules of Extensibility* (04/95).
X.690	*ASN.1 Encoding Rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)* (07/94).

National Emergency Number Association (NENA) Recommended Standards:

NENA-02-010	*NENA Recommended Formats & Protocols for Data Exchange*, May 1999.

European Telecommunications Standards Institute (ETSI) standards:

GSM 02.71	Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Service description; Stage 1. 1998.
GSM 03.71	Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Functional Description; Stage 2. 1998.

GSM 04.08 Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification. 1998.

GSM 04.31 Digital cellular telecommunications system (Phase 2+); Location service (LCS); Mobile Station (MS) – Serving Mobile Location Center (SMLC); Radio Resource LCS Protocol (RRLP). 1998.

GSM 04.71 Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 location services specification; Formats and coding. 1998.

GSM 08.08 Digital cellular telecommunications system (Phase 2+); Mobile Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification. 1998.

GSM 09.02 Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification. 1998.

GSM 09.08 "Digital cellular telecommunications system (Phase 2+); Application of the Base Station System Application Part (BSSAP) on the E-interface". 1998.

GSM 09.31 "Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)". 1998.

3GPP Specifications:

TS 22.071 *Location Services (LCS); Service description;Stage 1*. 3GPP. 2003

TS 23.271 *Functional Stage 2 Description of LCS*. 3GPP. 2003.

TS 24.008 *Mobile radio interface layer 3 specification; Core Network Protocols - Stage 3* 3GPP. 2003

TS 25.305 *Stage 2 functional specification of User Equipment (UE) positioning in UTRAN*, 3GPP, 2004.

TS 25.331 *Radio Resource Control (RRC) protocol specification*, 3GPP, 2004.

TS 25.413 UTRAN Iu interface RANAP signalling, 3GPP, 2004.

TS 25.453 *UTRAN Iupc interface Positioning Calculation Application Part (PCAP) signaling*, 3GPP, 2004.

TS 43.059 *Functional stage 2 description of Location Services (LCS) in GERAN*, 3GPP, 2004.

TS 44.018 *Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol, 3GPP, 2004.*

TS 29.002 *Mobile Application Part (MAP) Specification*. 3GPP. 2003.

TS 44.031	*Mobile Station (MS) - Serving Mobile Location Centre (SMLC) Radio Resource LCS Protocol (RRLP)*. 3GPP. 2003.
TS 44.071	*Location Services (LCS); Mobile radio interface layer 3 Location Services (LCS) specification*. 3GPP. 2003
TS 48.008	*Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification.* 3GPP. 2003
TS 49.008	*Application of the Base Station System Application Part (BSSAP) on the E-interface*. 3GPP. 2003
TS 49.031	*Location Services (LCS); Base Station System Application Part LCS Extension (BSSAP-LE)*. 3GPP. 2003

International Telecommunication Union Telecommunication Standardization Sector (ITU-T):

Q.762	ITU-T Recommendation Q.762, *Signalling System No. 7 - ISDN user part general functions of messages and signals*, 2000.
Q.763	ITU-T Recommendation Q.763, *Signalling System No. 7 - ISDN user part formats and codes*, 2000.

US Federal Communications Commission:

R&O-1	*Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems: Report and Order and Notice of Further Rulemaking*, FCC, 1996.
R&O-3	*Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems: Third Report and Order*, FCC, 1999.
FCC 03-262	FCC 03-262, CC Docket No. 94-102, RM-8143, Memorandum and Order, *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Non-Initialized Phones*, October 21, 2003.

IETF:

SCTP	RFC 2960: *Stream Control Transmission Protocol*, IETF, October 2000.
TCP	RFC 793: *Transmission Control Protocol*, IETF, September 1981.
IP	RFC 791: *Internet Protocol*, IETF, September 1981.
M3UA	RFC 3332: *Signaling System 7 (SS7) Message Transfer Part 3 (MTP3) – User Adaptation Layer (M3UA)*, IETF, September 2002.

National Institute of Standards and Technology:

SHA-1 FIPS 180-1, *Secure Hash Algorithm*, 1995.

2 Definitions and Acronyms

AOA: Angle of Arrival

AFLT: Advanced Forward Link Trilateration.

AGPS: Assisted GPS.

ALI: Automatic Location Identification.

ANI: Automatic Number Identification.

BSC: Base Station Controller.

BSS: Base Station Subsystem.

BSSMAP: Base Station System Management Application Part.

BTS: Base Transceiver Station.

Callback#: An emergency services callback number.

CAMA: Centralized Automatic Message Accounting.

CAS: Call Associated Signaling.

CGL: Calling Geodetic Location.

CgPN: Calling Party Number.

CM: Connection Management.

CPE: Customer Premises Equipment.

CPSMC: CDMAPSMMCount Parameter.

CPSML: CDMAPSMMList Parameter.

CRDB: Coordinate Routing Database.

CTRPT: CallTerminationReport INVOKE.

ctrpt: CallTerminationReport RETURN RESULT.

CTRT: Call Termination Report Timer.

EFLT: Enhanced Forward Link Trilateration.

EACC: Emergency Area Congestion Control

ECAR: Emergency Call Attempt Reporting

ELID: Emergency Location Information Delivery.

E-MF: Enhanced MF (20 digit signaling).

ESID: Emergency Subscriber Information Delivery

Emergency Services Call (ESC): A call requiring connection to a Public Safety Answering Point (PSAP). The digits 9-1-1 require this treatment in the United States.