



ATIS-1000628.2000(S2020)

Emergency Calling Service

AMERICAN NATIONAL STANDARD FOR TELECOMMUNICATIONS



---

As a leading technology and solutions development organization, ATIS brings together the top global ICT companies to advance the industry's most-pressing business priorities. Through ATIS committees and forums, nearly 200 companies address cloud services, device solutions, emergency services, M2M communications, cyber security, ehealth, network evolution, quality of service, billing support, operations, and more. These priorities follow a fast-track development lifecycle — from design and innovation through solutions that include standards, specifications, requirements, business use cases, software toolkits, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). ATIS is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of oneM2M, a member and major U.S. contributor to the International Telecommunication Union (ITU) Radio and Telecommunications sectors, and a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit < [www.atis.org](http://www.atis.org) >.

---

## AMERICAN NATIONAL STANDARD

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

---

## Notice of Disclaimer & Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES THAT ANY AND ALL USE OF OR RELIANCE UPON THE INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

<p>NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [<a href="http://www.atis.org/legal/patentinfo.asp">http://www.atis.org/legal/patentinfo.asp</a>] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.</p>
--

---

## ATIS-1000628.2000(S2020), *Emergency Calling Service*

Is an American National Standard developed by the **Signaling, Architecture, and Control (SAC)** Subcommittee under the **ATIS Packet Technologies and Systems Committee (PTSC)**.

*Published by*

**Alliance for Telecommunications Industry Solutions**  
**1200 G Street, NW, Suite 500**  
**Washington, DC 20005**

Copyright © 2020 by Alliance for Telecommunications Industry Solutions  
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher. For information contact ATIS at 202.628.6380. ATIS is online at < <http://www.atis.org> >.

**T1.628-2000(S2020)**

American National Standard  
for Telecommunications –  
**Emergency Calling Service**

Secretariat

**Alliance for Telecommunications Industry Solutions**

Approved May 19, 2000

**American National Standards Institute, Inc.**

# American National Standard

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

**CAUTION NOTICE:** This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

**Alliance for Telecommunications Industry Solutions  
1200 G. St., NW, Washington, D.C. 20005**

Copyright © 2020 by Alliance for Telecommunications Industry Solutions  
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the copyright holder.

Printed in the United States of America

## Contents

	Page
1 Scope, Purpose, and Application .....	1
2 Normative References.....	1
3 Definitions.....	2
4 Description of Emergency Calling Service .....	5
5 Functional Capabilities and Information Flows .....	12
6 Switching and Signaling Specification for ECS at the User-Network Interface.....	14
7 Switching and Signaling Specification for ECS at Interexchange Interfaces.....	28
8 Specification for Protocol Interworking .....	35

**Foreword** (This foreword is not part of American National Standard T1.628-2000.)

This standard specifies the protocol and procedures applicable for the support of Emergency Calling Service in an Integrated Services Digital Network (ISDN).

This standard was developed by Working Group T1S1.3 and T1S1.7 of Accredited Standards Committee T1 - Telecommunications.

Suggestions for improvement of this standard will be welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, T1 Secretariat, 1200 G Street NW, Suite 500, Washington, DC, 20005.

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee T1 - Telecommunications. Committee approval of the standard does not imply that all committee members voted for its approval. At the time it approved this standard, Accredited Standards Committee T1 had the following members:

- G. H. Peterson, T1 Chairman
- E. Raymond Hapeman, Vice-Chair
- J. A. Crandall, T1 Director
- Susan M. Carioti, T1 Disciplines
- Steven D. Barclay, T1 Secretary
- Selvam Rengasami, Technical Editor

<i>Organization Represented</i>	<i>Name of Representative</i>
<b>EXCHANGE CARRIERS</b>	
AT&T Wireless Services, Inc. ....	David Holmes
Bell Atlantic.....	Josephine Gallagher James F. Baskin (Alt.)
BellSouth Telecommunications, Inc. ....	Malcolm Threlkeld, Jr. John Spencer (Alt.)
Covad Communications Company.....	Ron Marquardt Richard Rawson (Alt.)
GTE Telephone Operations .....	Thomas Deaton Gary E. McAninch (Alt.)
ICG Communications .....	Raul Romero Aram Taylor (Alt.)
Northpoint Communications .....	Mark Peden Mike Borsetti (Alt.)
Rhythms .....	Rand Kennedy David Reilly (Alt.)
Rogers Cantel, Inc.....	Edward O'Leary Watson Zan (Alt.)
SBC Communications, Inc. ....	C. C. Bailey John E. Roquet (Alt.)
Sprint - Local Telecommunications Division.....	Leroy D. Kellogg
US WEST .....	James L. Eitel Darryl Debault (Alt.)
US Telephone Association (USTA) .....	Paul Hart Anthony Pupek (Alt.)
<b>INTEREXCHANGE CARRIERS</b>	
AT&T .....	Rick Canaday Doris S. Lebovits (Alt.)
Bell Canada.....	P. Norman Smith Joseph A. Zebarth (Alt.)
Comsat Corporation .....	Mark T. Neibert Prakash Chitre (Alt.)
General Communication, Inc. ....	Derek L. Welton C. R. Baugh (Alt.)
MCI Worldcom.....	Yi-Shang Shen J. Martin Carroll (Alt.)

<i>Organization Represented</i>	<i>Name of Representative</i>
Sprint - Long Distance Division .....	Thomas G. Croda James Lord (Alt.)
<b>MANUFACTURERS</b>	
3COM .....	Fred Lucas Richard L. Stuart (Alt.)
ADC Telecommunications, Inc. ....	Cliff Davidow
Airspan Communications Corporation .....	Douglas M. McCalister Chris Rogers (Alt.)
Alcatel USA, Inc. ....	Ken Biholar Bill Powell (Alt.)
Ascom Enterprise Networks .....	Z. Putnins
Aware, Inc. ....	Marcos Tzannes William Meyer (Alt.)
Broadcom Corporation .....	David C. Jones Aidan O'Rourke (Alt.)
Centillum Technology .....	Syed Abbas Guozhu Long (Alt.)
Ciena Corporation .....	Rajender Razdan Jerry Shrimpton (Alt.)
Cisco Systems .....	Dan Greene Chip Sharpe (Alt.)
Conexant Systems, Inc. ....	Quentin C. Cassen
Copper Mountain Networks .....	Joseph D. Markee John Reister (Alt.)
ECI Telecom, Inc. ....	Ron Murphy Todd Poole (Alt.)
Elastic Networks, Inc. ....	Patrick H. Stanley Jack Terry (Alt.)
Ericsson, Inc. ....	Linda Troy Stephen Hayes (Alt.)
Fujitsu America, Inc. ....	Kenneth T. Coit Hirohiko Yamamoto (Alt.)
General DataComm, Inc. ....	Frederick Cronin Mike McLoughlin (Alt.)
Globespan Semiconductor, Inc. ....	Massimo Sorbara Clete Gardenhour (Alt.)
Harris Corporation .....	Marlis Humphrey Tony Harb (Alt.)
Hekimian Laboratories .....	William H. Duncan
Hewlett-Packard .....	Karen Higginbottom
Hughes Network Systems, Inc. ....	Leonard Golding Enrique Laborde (Alt.)
Lucent Technologies .....	John H. Bobsin Dave R. Andersen (Alt.)
Marconi Communications .....	Mark Scott David K. Brown (Alt.)
Mayan Networks .....	Farooq Raza Kevin W. Williams (Alt.)
Megaxess/Atanet, Inc. ....	John Boal Mihnea Nemes (Alt.)
Motorola, Inc. ....	Ken Skurnack Dan Grossman (Alt.)
NEC America, Inc. ....	Donovan Nak Hajime Koto (Alt.)
Next Level Communications .....	Sabit Say Jeffrey Weber (Alt.)
Nokia Telecommunications, Inc. ....	Chris Wallace Walt Tamminen (Alt.)
Nortel Networks .....	Mel N. Woinsky Ed Eckert (Alt.)
Ok! America, Inc. ....	Henri Suyderhoud Hisao Fujikawa (Alt.)
Paradyne Corporation .....	Richard K. Smith Phil Kyees (Alt.)
Pirelli Optical Systems .....	John McDonough Luis Tondi-Resta (Alt.)

<i>Organization Represented</i>	<i>Name of Representative</i>
PMC-Sierra, Inc. ....	Winston Mok
	Terence Lau (Alt.)
Qualcomm, Inc. ....	Mark Epstein
	Ed Tiedemann (Alt.)
Siemens Information and Communication Networks, Inc. ....	David E. Francisco
	Dennis Edinger (Alt.)
ST Microelectronics ....	Jean-J Raynal
	Roy Harvey (Alt.)
Symmetricom, Inc. ....	Kishan Sheno
	Phil Mann (Alt.)
Telecommunications Techniques ....	Bernard E. Worne
	Doug Holly (Alt.)
Tellabs Operations, Inc. ....	Jim Orme
	Tom Rarick (Alt.)
Texas Instruments ....	James T. Carlo
	Pete Chow (Alt.)
Transwitch Corporation ....	Jitender Vij
	Edwin Soltysiak (Alt.)
Westell Technologies, Inc. ....	George N. Pitsoulakis
	Bruce Kuhn (Alt.)
<b>GENERAL INTEREST</b>	
ABC, Inc. ....	Warner W. Johnston
Aerial Communications ....	George P. Lynch
	Rob Rowe (Alt.)
BellSouth Cellular Corporation ....	Don Zelmer
	Scott Fox (Alt.)
C.S.I. Telecommunications ....	Michael S. Newman
	William J. Buckley (Alt.)
Catapult Communication ....	Glenn Stewart
	Ken Bullis (Alt.)
CDMA Development Group ....	Sam Samra
	Jim Takach (Alt.)
Defense Information Systems Agency ....	Don Choi
Golden Bridge Technology, Inc. ....	Kouros Parsa
	Karin Zickermann (Alt.)
MediaOne Labs ....	Vasant Ramkumar
	Paul Hughes (Alt.)
Microcell Connexions ....	Marilyn Poirier
	Andrew Chow (Alt.)
National Communications System ....	Nicholas Andre
	F. McClelland (Alt.)
National Institute of Standards and Technology (NIST) ....	David Cypher
National Telecommunications and Information Administration/Institute for Telecommunication Sciences (NTIA/ITS) ....	Neal B. Seitz
Omnipoint Corporation ....	Gary K. Jones
	Mark Younge (Alt.)
Pacific Bell ....	David Williams
	Randolph Wohlert (Alt.)
Powertel, Inc. ....	Irfan Khan
Rural Utilities Service ....	Orren E. Cameron III
	Norberto Esteves (Alt.)
Telcordia Technologies ....	Rick Harrison
	Cliff Halevi (Alt.)

At the time this standard was approved, Technical Subcommittee T1S1 on Services, Architectures and Signaling had the following members:

W. R. Zeuch, Chairman  
 J. Hilton, Vice-Chairman  
 M. Geissinger, Secretary

<i>Organization Represented</i>	<i>Name of Representative</i>
ADC Telecommunications, Inc.....	Quan Jiang
Alcatel USA, Inc. ....	Richard McKinney (Alt.)
Ameritech.....	Jeff Copley
AT&T.....	Albert Azzam (Alt.)
Bell Atlantic .....	Mike Tisiker
Bell Canada .....	Don Mickel (Alt.)
BellSouth Telecommunications, Inc.....	Doris S. Lebovits
Cisco Systems, Inc. ....	John Keselica (Alt.)
C.S.I. Telecommunications .....	Dana Shillingburg
Compaq Computer Corporation.....	Michael Brusca (Alt.)
Cosat Corporation.....	Stewart Patch
Defense Information Systems Agency.....	P. Norman Smith (Alt.)
Ericsson, Inc. ....	Robert V. Epley
Fujitsu America, Inc. ....	David Whitney (Alt.)
General DataComm, Inc. ....	Dan Greene
GTE Telephone Operations .....	Sue Geyer (Alt.)
Harris Corporation.....	Michael S. Newman
Hekimian Laboratories .....	William J. Buckley (Alt.)
Hewlett-Packard.....	John L. Schantz
LG Sansys, Inc.....	Anantha Ramu (Alt.)
Lucent Technologies.....	Mark T. Neibert
Mayan Networks .....	Faris Faris (Alt.)
MCI Worldcom .....	Don Choi
MediaOne Labs.....	Ralph Liguori (Alt.)
Megaxess/Atanet, Inc. ....	Linda Troy
National Communications System.....	Bruce Northcote
National Telecommunications and Information Administration/Institute for Telecommunication Sciences (NTIA/ITS) .....	Kenneth T. Coit (Alt.)
NEC America, Inc. ....	Mike McLoughlin
Nokia Telecommunications, Inc. ....	Norman Epstein
Nortel Networks .....	John Rollins (Alt.)
	Marlis Humphrey
	Tony Harb (Alt.)
	William H. Duncan
	James G. Baker
	Hee Joung Lee
	Mark Hosford (Alt.)
	Robert B. Waller
	Wayne R. Zeuch (Alt.)
	Farooq Raza
	Santu Muller (Alt.)
	Yatendra Pathak
	Bernard Ku (Alt.)
	Sohan Grewal
	Jim Dahl (Alt.)
	John Boal
	Mihnea Nemes (Alt.)
	Nicholas Andre
	Dale Barr (Alt.)
	Randall S. Bloomfield
	Marcie Geissinger (Alt.)
	Kuei Y. Kou
	Donovan Nak (Alt.)
	Jean-Luc Bouthemy
	Walt Tamminen (Alt.)
	Mel N. Woinsky
	Lewis C. Robart (Alt.)

<i>Organization Represented</i>	<i>Name of Representative</i>
Oki America, Inc. ....	Henri Suyderhoud
	Hisao Fujikawa (Alt.)
Omnipoint Corporation .....	Albert H. Yuhan
	Gary K. Jones (Alt.)
Paradyne Corporation .....	Richard K. Smith
	Phil Kyees (Alt.)
Rhythms .....	Rand Kennedy
	David Reilly (Alt.)
SBC Communications, Inc.....	B. S. Sambasivan
	Clifton Campbell (Alt.)
Siemens Information and Communication Networks, Inc.....	Glenn F. Sisson
Sprint - Long Distance Division .....	James Lord
	Albert D. Du Ree (Alt.)
Tekelec, Inc. ....	Virgil Long
	Dan Bantukul (Alt.)
Telcordia Technologies .....	Selvan Rengasami
	Wesley Downum (Alt.)
Tellabs Operations, Inc.....	Jim Orme
	Mike Wurst (Alt.)
US WEST .....	Steve Showell
	James L. Eitel (Alt.)
US Telephone Association (USTA) .....	Vern Junkmann
	Donald G. Bender (Alt.)

Working Groups, T1S1.3 and T1S1.7 developed this standard. Over the course of its development, the following individuals participated in the Working Groups' discussions and made significant contributions to the standard:

Wesley Downum, Working Group Chair T1S1.3	D. Benadetto
Greg Ratta, Working Group Chair T1S1.7	J. Bond-Harris
S. Patch, T1S1.3 ISUP Convenor	D. Greene
S. Rengasami, Editor	J. Hilton
	P. McCalmont
	N. Sandesara
	C. Smedberg
	D. Vander Meiden
	D. Whiteford

---

# American National Standard for Telecommunications -

## Emergency Calling Service

### 1 Scope, purpose, and application

#### 1.1 Scope and purpose

This standard specifies the capabilities required to support the passing of location and callback information associated with the calling user to a Public Safety Answering Point (PSAP) attendant, to provide network routing and transfer features associated with emergency service calls, and to deliver control indications (e.g., flashing display) to the PSAP attendant. Emergency Calling Service (ECS) allows emergency service calls to be completed through the network to an appropriate emergency service attendant, and to provide the PSAP attendant with location information (if available) regarding the calling user.

ECS also provides for priority routing of the call within the network so that even in times of network congestion, emergency calls should be able to complete to a PSAP attendant. It also allows for the transport and identification of emergency service calls without the use of dedicated facilities. In addition, the network provides additional capabilities (e.g. the transfer of location information) when the attendant conferences with, or transfers the call to, any other attendant in the emergency serving area.

Capabilities needed for supporting E9-1-1 Call Hold and Ringback are described in Clauses 4 and 5. However, there is no DSS1 or SS7 support for these capabilities at this time.

Finally, this document provides for the delivery of location information to a PSAP over a DSS1 interface. In addition, receipt of location information for calls originating from a DSS1 interface is addressed. An ECS call may originate from a wireline or wireless user.

#### 1.2 Application

This standard is intended to supplement the basic call procedures described in:

- *American National Standard for Telecommunications - Signalling System no. 7 (SS7) - Integrated Services Digital Network (ISDN) user part*, T1.113.
- *American National Standard for Telecommunications - Integrated Services Digital Networks (ISDN) - Layer 3 Signaling Specification for Circuit Switched Bearer Services for Digital Subscriber Signaling System Number 1 (DSS1)*, T1.607.

ECS is applicable only to the speech and 3.1-kHz audio information transfer capabilities identified in T1.113 and T1.607.

### 2 Normative references

The following listed standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

T1.113-1995, *Telecommunications - Signalling system no. 7 (SS7) - Integrated Services Digital Network (ISDN) user part*<sup>1),2)</sup>

---

<sup>1)</sup> This standard is currently undergoing the revision process. Please contact the secretariat for more information.

<sup>2)</sup> For electronic copies of some standards, visit ANSI's Electronic Standards Store (ESS) at [www.ansi.org](http://www.ansi.org). For printed versions of all these standards, contact Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112-5704, (800) 854-7179.