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Emergency Communications (EMTEL);
Total Conversation Access to Emergency Services

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Foreword

This Technical Specification (TS) has been produced by ETSI Special Committee Emergency Communications (EMTEL).

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Modal verbs terminology

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Introduction

Total Conversation, as defined in Recommendation ITU-T F.703 [2], is a combination of three media in a conversation: video, Real-Time Text and audio and considered as a general multimedia conversational service. Internet-based Total Conversation services and terminals are deployed in a number of countries in Europe, and adopted for example by some persons with disabilities who need video for sign language communication or Real-Time Text for a text based conversation instead of or as complement to a voice conversation. The present document specifies how Total Conversation can be used for access to emergency services by emergency communications employing communication modalities suitable both for the Total Conversation Terminal user and PSAP call-taker. It provides opportunities to more rapid, reliable and confidence-creating resolution of the emergency cases compared to plain voice emergency communications.

The use of Total Conversation is of special interest for enabling access to emergency communications and make the communication more usable for those persons who may have little or no use of voice telephony because of disabilities related to hearing, speech or other human communication functions.

The present document is based on ETSI TR 103 170 [i.5].

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1 Scope

The present document defines conditions for using Total Conversation for emergency communications with more media than in the regular voice call. It addresses the answering of Public Safety Answering Points (PSAP) and the potential impact on features provided by PSAPs for handling Total Conversation. The present document also addresses functional requirements regarding the interface to the PSAP, the connection to external supporting services, the transferring and sharing of the communication between emergency communication organizations, the logging and recording at the PSAP, the PSAP call-back aspects and specific communication routing and location information provision aspects for Total Conversation. The present document refers to existing standards relevant for Total Conversation user terminals and serving networks to facilitate a Total Conversation emergency communication. The present document does not imply any requirements on user terminals in general to be Total Conversation terminals.

The service specified here is a solution for accessible emergency communications intended to address requirements in the European Electronic Communications Code [i.1] and the European Accessibility Act [i.2].

Due consideration is taken of related standardization (e.g. 3GPP™ and IETF) and work in other bodies (e.g. the European Emergency Number Association (EENA)).

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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[1] Recommendation ITU-T F.700: "Framework Recommendation for multimedia services".

[2] Recommendation ITU-T F.703: "Multimedia conversational services".

[3] Recommendation ITU-T G.114: "One-way transmission time".

[4] Void.

[5] Void.

[6] Void.

[7] Void.

[8] ITU-T H-series Supplement 1: "Application profile - Sign language and lip-reading real-time conversation using low bit rate video communication".

[9] Recommendation ITU-T T.140: "Protocol for multimedia application text conversation".

[10] ETSI TS 122 101: "Universal Mobile Telecommunications System (UMTS); Service aspects; Service principles (3GPP TS 22.101)".

[11] ETSI TS 122 173: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Core Network Subsystem (IMS) Multimedia Telephony Service and supplementary services; Stage 1 (3GPP TS 22.173)".

[12] ETSI TS 123 167:"Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Subsystem (IMS) emergency sessions (3GPP TS 23.167)".

[13] ETSI TS 126 114:"Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP Multimedia Subsystem (IMS); Multimedia telephony; Media handling and interaction (3GPP TS 26.114)".

[14] Void.

[15] ETSI ES 202 975: "Human Factors (HF); Requirements for relay services.

[16] IETF RFC 3261: "SIP: Session Initiation Protocol".

[17] IETF RFC 3264: "An Offer/Answer Model with Session Description Protocol (SDP)".

[18] Void.

[19] Void.

[20] IETF RFC 4103: "RTP Payload for Text Conversation".

[21] IETF RFC 8866: "SDP: Session Description Protocol".

[22] IETF RFC 5239: "A Framework for Centralized Conferencing".

[23] IETF RFC 5627: "Obtaining and Using Globally Routable User Agent URIs (GRUUs) in the Session Initiation Protocol (SIP)".

[24] IETF RFC 5764: "Datagram Transport Layer Security (DTLS) Extension to Establish Keys for the Secure Real-time Transport Protocol (SRTP)".

[25] Void.

[26] IETF RFC 6263: "Application Mechanism for Keeping Alive the NAT Mappings Associated with RTP / RTP Control Protocol (RTCP) Flows".

[27] IETF RFC 6442: "Location Conveyance for the Session Initiation Protocol".

[28] Void.

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NOTE: This is an informational IETF document collecting references to many standard track normative IETF documents of importance for Next Generation Emergency Communications and therefore considered relevant as normative reference.

[29] IETF RFC 6881: "Best Current Practice for Communications Services in Support of Emergency Calling (BCP 181)".

NOTE: This is an IETF Best Current Practice document collecting references to many standard track normative IETF documents of importance for Next Generation Emergency Communications.

[30] IETF RFC 9071: "RTP-Mixer Formatting of Multiparty Real-Time Text".

[31] ETSI TS 103 479: "Emergency Communications (EMTEL); Core elements for network independent access to emergency services".

[32] IETF RFC 7852: "Additional Data related to an Emergency Call".

[33] IETF RFC 8373: "Negotiating Human Language in Real-time Communications".

[34] ETSI EN 301 549: "Accessibility requirements for ICT products and services".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Directive 2018/1972/EC of the European Parliament and the Council of 11 December 2018 establishing the European Electronic Communications Code (EECC).

[i.2] Directive (EU) 2019/882 of the European Parliament and of the Council of 17 April 2019 on the accessibility requirements for products and services.

[i.3] ETSI EG 202 320: "Human Factors (HF); Duplex Universal Speech and Text (DUST) communications".

[i.4] ETSI TR 102 180: "Emergency Communications (EMTEL); Basis of requirements for communication of individuals with authorities/organizations in case of distress (emergency call handling)".

[i.5] ETSI TR 103 170: "Emergency Communications (EMTEL); Total Conversation Access to Emergency Services".

[i.6] IETF RFC 5012: "Requirements for Emergency Context Resolution with Internet Technologies".

[i.7] IETF RFC 5194: "Framework for Real-Time Text over IP Using the Session Initiation Protocol (SIP)".

[i.8] ETSI TR 103 708: "Human Factors (HF); Real-Time Text (RTT) in Multiparty Conference Calling".

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3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

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address: identifier of the destination of a communication containing only numbers, service URNs, or a wider range of characters depending on the rules established by the application service provider

application service provider: organization or entity that, via a serving network, provides application-layer services, which may include voice, video and text communication

assisting services: services invoked during a communication, assisting the user or the call-taker with specific tasks in the communication

NOTE: Such tasks can for example be language translations, relay service or expert advice.

emergency service communications system: ESInet and PSAPs together, including technology for both emergency communication handling and additional functions such as emergency communication distribution, emergency communication recording, logging, and connection to emergency communications queue

Emergency Services IP network (ESInet): Internet Protocol (IP) based communications network dedicated for emergency communications for public safety use

NOTE: An ESInet has an interface to the application service provider conveying emergency communications from users. The ESInet is a managed IP network that is used for emergency services communications, and can be shared by all public safety agencies in a region. It provides the IP transport infrastructure upon which independent application platforms and core services can be deployed. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form an IP-based internetwork. The term ESInet designates the network, not the services that ride on the network.

home environment: environment responsible for overall provision and control of the Personal Service Environment of its subscribers

IP Multimedia Subsystem (IMS): standardized Next Generation Networking (NGN) architecture for telecom operators that want to provide mobile and fixed multimedia services

modalities: methods for human expression and perception of communication

NOTE: Examples are written, signed and spoken languages, pictures, gestures, etc.

multi-party communication: real-time communication session with more than two participants where media sent from participants are distributed for presentation among the participants in the communication

personal service environment: environment containing personalized information defining how subscribed services are provided and presented towards the user

NOTE: Each subscriber of the Home Environment has her/his own Personal Service Environment. The Personal Service Environment is defined in terms of one or more User Profiles.

Public Safety Answering Point (PSAP): physical location where emergency communications are received under the responsibility of a public authority

Real-Time Text (RTT): form of text conversation in point to point situations or in multipoint conferencing where the text being entered is displayed in such a way that the communication is perceived by the user as being continuous

NOTE: This feature is often called RTT.

relay service: telecommunications service that enables users of different modes of communication e.g. text, sign, speech, to interact by providing conversion between the modes of communication, normally by a human operator

NOTE: A type of assisting service (definition from ETSI ES 202 975 [15]).

serving network: entity that provides the user with access to the services of the Home Environment

SIP: session control environment for communications, using the IETF RFC 3261 [16] and related protocols in the IP networks

NOTE: The above refers to an environment outside the scope of IMS.

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total conversation: bidirectional symmetric real-time transfer of motion video, Real-Time Text and voice between users in two or more locations

total conversation service: multimedia real time conversation service that provides bidirectional symmetric real time transfer of motion video, real time text and voice between users in two or more locations

total conversation terminal: user terminal capable of being used for Total Conversation

user: individual taking advantage of the Total Conversation service

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	Third Generation Partnership Project
BOM	Byte Order Mark
CRLF	Carriage Return, Line Feed
CS	Circuit Switched
EC	European Commission
EENA	European Emergency Number Association
EMTEL	Emergency Communications
ESInet	Emergency Services IP network
GRUU	Globally Routable User Agent URI
GTT	Global Text Telephony