

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YD/T 3711-2020

**Technical requirement of IMS based vehicle eCall system based
on public telecommunication network**

基于公众电信网的车载紧急报警系统 基于IMS的数据传输技术要求

(English Translation)

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1 Scope

This Standard specifies the technical requirements for IMS-based data transmission in the vehicle emergency call system based on the public telecommunication network, mainly including the call process of eCall, MSD transmission and update process, and the equipment functions and interface parameters involved in the LTE and IMS networks.

This Standard is applicable to VoLTE networks, terminal vehicle equipment, wireless subsystem equipment, MSC, EPC core network and IMS network system equipment that provide IMS-based vehicle emergency call services.

2 Normative References

The following documents are essential to the application of this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

YD/T 1522.5-2010 Technical requirements for session initiation protocol (SIP) - Part 5:

Session initiation protocol based on the unified IMS Technical requirements for emergency call services based on Voice over LTE (VoLET) 3GPPTS22.101 Technical specification group services and system aspects; service aspects;

service principles

3GPP TS23.167IMS (IP Multimedia Subsystem (IMS) emergency sessions) 3GPPTS 24.008 (Mobile radio interface layer 3 specification; Core network protocols;

Stage 3)

3GPPTS 24.301 (Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS);

Stage 3)

3GPP TS 26.071 (Mandatory speech CODEC speech processing functions; AMR speech Codec; General description) 3GPP TS 26.093 (Mandatory speech codec speech processing functions Adaptive Multi-Rate (AMR) speech codec; Source controlled rate operation) 3GPP TS 26.171 (Speech codec speech processing functions; Adaptive Multi-Rate -Wideband (AMR-WB) speech codec; General description) 3GPP TS 26.193 (Speech codec speech processing functions; Adaptive Multi-Rate -Wideband (AMR-WB)

speech codec; Source controlled rate operation) 3GPP TS 26.267 (eCall data transfer; In-band modem solution; General description) 3GPP TS 31.102 (Characteristics of the Universal Subscriber Identity Module (USIM) application) IETF RFC 8147 (Next-Generation Pan-European eCall) CEN EN 15722 (2011 Intelligent transport system - eSafety - eCall minimum set of data (MSD))

3.1 Terms and Definitions

For the purposes of this Document, the following terms and definitions apply.

3.1.1 Public safety answering point

A physical location that can receive public calls, such as a public safety answering station or an emergency command center/interaction platform.

3.1.2 ECall

An emergency call initiated manually or automatically from a vehicle (Circuit & Emergency Call or IMS Emergency Call) and carrying the emergency-related Minimum Set of Data (MSD).

3.1.3 Minimum set of data

The minimum set of data sent by a vehicle for rescue purposes, see CEN EN 15722 eCall minimum set of data.

3.1.4 Restrictive state

The user data is valid and available, and a cell has been selected. It is known that the cell cannot provide ordinary services, and only emergency services can be provided. At this time, the user is in a service state.

3.1.5 ECall only mode

Steps 4~5:

- a) If the IMS emergency call eSRVCC process is deployed: E-CSCF anchors the emergency call signaling to EATF, parses the eCall URN of the Request-URI in the emergency call request and the UE access location information in the P-Access-Network-Info header domain; and searches the E-CSCF built-in or external LRF based on this information to determine the number of the emergency call center PSAP; and routes the emergency call to the MGCF or ISBC; and then to the corresponding emergency call center PSAP.
- b) If the IMS emergency call eSRVCC process is not deployed: EATF network elements do not need to be deployed; and emergency call signaling does not need to pass through

EATF network elements. Other processes are the same as the IMS emergency call process with eSRVCC deployed.

Steps 6~9:

After receiving the INVITE request, the PSAP rings, responds to the 180 message, and passes it to the UE through the IMS core.

Step 10:

The PSAP goes off-hook and responds to the 200OK message. PSAP supports INVITE request to carry MSD information. In the returned 200OK, it carries the application/emergencyCallData.control type message body to confirm the receipt of MSD information.

Steps 11 ~ 13:

E-CSCF/P-CSCF/SBC forwards 200OK message to UE. UE confirms the successful transmission of MSD information based on 200OK information.

Steps 14 ~ 17:

UE responds with ACK and passes it to PSAP through IMS core.

eCall emergency call is established successfully, media channel is created successfully, and initial MSD transmission and confirmation are completed.

5.2.2 Transmit MSD to PSAP that does not support NG-eCall during session establishment

When the UE detects that packet services are available, but does not detect that the network supports NG-eCall and no circuit domain services are available, the UE can initiate a normal IMS-based emergency call. The specific process is shown in 3GPP TS 23.167.

When the UE detects that the network supports NG-eCall services, but the PSAP does not support NG-eCall, the UE shall transmit MSD in the manner specified in 7.7.2 of 3GPP TS F No --- If CS is available, access CS None a Indicated by the network NG-eCall capability in SIB1, see 6.4

5.5 ECall only mode

A terminal configured in eCallonly mode shall remain in the EMM-DEREGISTERED state.

The terminal UE shall reside in an available network cell; but shall avoid any mobility management and other signaling interactions with the network. The terminal UE may initiate mobility management and connection management procedures to establish, maintain and release an NG-eCall session or a session connected to a non-emergency MSISDN or URI configured by the UICC for testing and terminal reconfiguration purposes.