CEPT ECC
Electronic Communications Committee

ECC Recommendation (17)04

Numbering and Connectivity for eCall

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
CEPT	Conference of European Postal and Telecommunications Administrations
ECC	Electronic Communications Committee
eSIM	embedded Subscriber Identity Module
eUICC	embedded Universal Integrated Circuit Card
EU	European Union
GNSS	Global Navigation Satellite System
IMSI	International Mobile Subscription Identity
IoT	Internet of Things
ITU	International Telecommunication Union
ITU TSB	Telecommunication Standardization Bureau
M2M	Machine-to-Machine
MSD	Minimum Set of Data
NG-eCall	Next Generation eCall
NNAI	Numbering, Naming, Addressing, and Identification
NPA	Numbering Plan Administrator
OEM	Original Equipment Manufacturer
PLMN	Public Land Mobile Network
SIM	Subscriber Identity Module
TPS eCall	Third Party Service eCall
URI	Uniform Resource Identifier
URN	Uniform Resource Name

INTRODUCTION

eCall[1] is a service designed for automotive vehicles to provide quick emergency response in case of a road accident or emergency, anywhere in the European Union. Its aim is to advance European citizens' protection and safety and to reduce fatalities caused by road accidents as well as related injuries and property loss.

In practice, an "eCall" is a 112 emergency communication that can be generated either manually by a vehicle's occupants, by pressing a dedicated eCall button, or automatically, via activation of in-vehicle sensors when a road accident occurs. When activated, the eCall in-vehicle system establishes a communication, including voice, towards the relevant Public Safety Answering Point (PSAP).

Furthermore a Minimum Set of Data (MSD) has been defined [1] and is sent to the PSAP. The MSD includes accurate location information (Global Navigation Satellite System (GNSS) coordinates) on the crash site, the triggering mode (automatic or manual), the vehicle identification number, a timestamp, as well as information on the vehicle's current position and, optionally, previous positions, which may assist in determining the vehicle's direction of travel. This way, with this information, that is valuable for emergency responders, they can reach the exact location as soon as possible.

eCall is regulated by specific EU legislation addressing the vehicles, the public electronic communications network and the PSAPs.

The eCall service may be implemented in two different ways [2]:

- The first is referred to as the 112-based eCall service where the 112-based in-vehicle system initiates an emergency communication directly to the most appropriate PSAP;
- The second is referred to as Third Party Services eCall (TPS eCall) where the TPS eCall in-vehicle system initiates a call (not via 112, but using a long E.164 number) to a third-party service centre (e.g. serviced by the car manufacturer). If the situation requires emergency assistance, the TPS service centre subsequently contacts the most appropriate PSAP using the relevant emergency number or other established communication channels.

TPS eCall services are based on agreements among the involved actors, including mobile network operators and PSAPs. 112-based eCall is mandatory while the implementation of TPS eCall is optional. In order to ensure continuity of the 112-based eCall service in all Member States throughout the lifetime of the vehicle and to guarantee that the 112-based eCall service is always automatically available, all new type approved M1 and N1 vehicles must be equipped with the 112-based eCall service, regardless of whether or not a vehicle owner opts for a TPS eCall service. When the vehicle is equipped with both a 112-based eCall system and a TPS eCall system, only one eCall system may be activated for a given emergency event. The vehicle may be configured to use one of the eCall systems as the default, however, the 112-based eCall system must always remain available and cannot be replaced by the TPS eCall system.

In order to provide the above-mentioned eCall functionalities, vehicles need facilities to communicate with the PSAP or the third-party service centre. This is carried out by means of mobile networks utilising Subscriber Identity Module (SIM) technology, whether in the form of physical SIM cards or embedded SIMs (eSIMs). Such SIM solutions may incorporate embedded Universal Integrated Circuit Card (eUICC functionality to facilitate remote SIM provisioning. Similar to other mobile connectivity services intended for voice calls, the SIM would be associated with E.164 telephone numbers (at least to facilitate call-back) and E.212 IMSI resources for subscriber authentication and management aspects.

To the extent national numbers are used for eCall, national numbering plan administrators (NPAs) and providers of electronic communications networks and/or services will need to cooperate closely so that a sustainable numbering solution can be implemented to ensure that the burden of providing numbering resources for eCall devices does not fall disproportionately on one, or a few, European countries. Issues around extra-territorial use of numbers and regulatory shopping (i.e. selecting the regulatory regime that is least demanding) need to be resolved in the context of a harmonised approach.

Considering that PSAPs, Original Equipment Manufacturers (OEMs) and mobile network operators have concerns regarding regulatory certainty on the use of numbers for eCall, this Recommendation provides

[1] For the purpose of this Recommendation, when referring to eCall, it also includes NG-eCall

guidance to CEPT administrations on how to address these concerns. This Recommendation also takes into account the use of eUICC technology[2] [7] for eCall.

Numbering related concerns with eCall also include roaming and so called permanent roaming issues in light of the EU Roaming Regulation [9] and life cycle management of numbering resources in the event of a vehicle being written off or reaching end of life naturally (number recycling).

With the introduction of eCall, responsibilities extend beyond numbering. National regulatory and other competent authorities must also ensure that the necessary arrangements are in place for mobile network operators to recognise eCalls and support their appropriate routing to the most appropriate PSAP. For circuit-switched based eCall (i.e. 2G/3G based PLMNs), identification is based on the eCall discriminator/eCall flag, as defined in Commission Recommendation 2011/750/EU [8] and supported by the EU-wide eCall framework established by Commission Delegated Regulation (EU) No 305/2013 [5], as amended by Commission Delegated Regulation (EU) 2024/1084 [6]. For NG-eCall over IMS-based packet-switched networks (e.g. 4G/5G based PLMNs), eCalls are identified by means of the applicable eCall service Uniform Resource Name (URN), in accordance with 3GPP TS 24.229 [10].

This Recommendation is concerned with the numbering and connectivity aspects of eCall and addresses both 112-based eCall and TPS eCall implementations. The generic term “eCall” refers to both implementations in this Recommendation (see footnote 1).

ECC RECOMMENDATION 17(04) OF 22 NOVEMBER 2017 ON NUMBERING AND CONNECTIVITY FOR eCALL, AMENDED 16 DECEMBER 2020 AND AMENDED 22 OCTOBER 2026

"The European Conference of Postal and Telecommunications Administrations,

considering

a) Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 [2] concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles;

b) Delegated Regulation (EU) 2024/1180 of 14 February 2024 amending Regulation (EU) 2015/758 of the European Parliament and of the Council as regards the standards relating to eCall [4];

c) Regulation (EU) 2022/612 of the European Parliament and of the Council of 6 April 2022 on roaming on public mobile communications networks within the Union (recast) [9];

d) ECC Recommendation (11)03 on Numbering and Addressing for Machine-to-Machine (M2M) Communications [11];

e) ECC Recommendation (16)02 on Extra-Territorial Use of E.164 Numbers – High Level Principles of Assignment and Use [12];

f) ECC Report 339 on eCall Call-back Functionality [13];

g) Commission Recommendation of 8 September 2011 on support for an EU-wide eCall service in electronic communication networks for the transmission of in-vehicle emergency calls based on 112 ('eCalls') – (2011/750/EU) [8];

h) that there is different treatment for the identification and routing to the most appropriate PSAP for eCalls depending on whether the eCall originates on a circuit-switched network or a packet-switched network;

i) that the numbering solution for eCall is independent of the chosen implementation of eCall;

j) that the implementation of eCall requires mobile connectivity, which is achieved via SIM/eSIM, typically equipped with eUICC technology, installed in the vehicle;

k) that the implementation requires E.164 and E.212 numbering resources;

l) that the E.164 and E.212 numbering resources for eCall may include (i) national resources or (ii) international Numbering, Naming, Addressing, and Identification (NNAI) resources (assigned by the Director of TSB (ITU)). National resources may include resources from "home" country (domestic use) or from another country (extra-territorial use or roaming);

m) that international NNAI resources (assigned by the Director of TSB (ITU)) or national resources from another country (extra-territorial use or roaming) could be used for eCall devices and these numbering resources need to be provisioned on electronic communications networks in Europe to facilitate call-back from the PSAP to the vehicle;

n) that the OEM may have signed an agreement with an operator to provide connectivity for eCall for the OEM's vehicles Europe-wide rather than having agreements on a country-by-country basis;

o) that when the numbering resources used for eCall are no longer needed e.g. once they are no longer in use or the associated vehicle connectivity service is terminated, they should be recovered and recycled;

p) notes contained in ITU Operational Bulletin 1155 [16] and in ITU TSB Circular 249 [17] on international numbers used for the European eCall service;

q) national sovereignty shall be respected, and the applicable laws and regulations of the involved countries shall always be complied with (e.g. authorisation regime, consumer protection and privacy laws);

recommends

that CEPT administrations, when considering numbering and connectivity aspects for eCall, should:

1. make available national numbering resources for eCall;

2. permit the extra-territorial use of their respective assigned national numbering resources for eCall;

3. permit the use of international NNAI resources (assigned by the Director of TSB (ITU)) or national numbering resources from another country (extra-territorial use or roaming) within the national territory for addressing eCall devices and encourage operators to provision these numbering resources in their networks to facilitate call-back from the PSAP to the vehicle Europe-wide;

4. where international E.164 numbering resources (assigned by the Director of TSB (ITU)) are used or national numbering resources from another country are used, assignees need to be aware of, and should make reasonable efforts to mitigate, the risk that such numbers may not always be diallable, economically feasible, and reachable via call-back from the PSAP to the vehicle Europe-wide;

5. be aware that, to assist with the implementation of this Recommendation, Annex 1 contains a list of assigned numbering ranges/ sub-ranges, reported by assignees, that are being used for eCall in Europe, and that this Annex will be updated periodically as required;

6. encourage all operators to notify the ECO of numbering ranges assigned to them which are used, or planned to be used, for eCall;

7. encourage all those operators involved in the conveyance of call-back from the PSAP to the vehicle to commit to charging reasonable tariffs at both wholesale (termination and transit) and retail levels for calls originating from PSAPs towards numbering ranges used for eCall;

8. in cooperation with mobile network operators and OEMs, encourage the use of over-the-air provisioning technology for eCall implementation;

9. encourage PSAPs to ensure that their connectivity provider does not block outgoing call-backs to numbering ranges used for eCall;

10. where there is a risk of exhaustion in national mobile numbering ranges, consider the use of existing E.164 national IoT/M2M numbering ranges or introduce a new dedicated eCall numbering range;

11. encourage that numbering resources used for eCall services are recovered and recycled when they are no longer needed."

Note:

Please check the ECO Documentation Database https://docdb.cept.org for the up to date position on the implementation of this and other ECC Recommendations.

ANNEX 1: LIST OF NOTIFIED NUMBERING RANGES USED FOR eCall IN EUROPE

Table 1 contains a list of assigned number ranges (either national or international numbering ranges) used for eCall that have been notified to the ECC by the assignees.

This Annex provides a central reference point for all providers of electronic communications network and services in Europe seeking information on numbering ranges used for eCall. It is in the interest of assignees to make these notifications and maintain up-to-date information to fully support eCall call-back across all fixed and mobile networks throughout Europe.

This Annex will be updated periodically as required and published in the ECO Documentation Database (https://docdb.cept.org).

Table 1: List of Assigned number ranges

Number Type	Assigning Administrator	Number length	Number Range (CC+IC+SN) for international numbers or (CC+NDC+SN) for national numbers	This range is exclusively used for eCall	Assignee	More information
International numbers	ITU TSB	15 digits	+883 130 xxx xxx xxx	Yes/No	Orange	
International numbers	ITU TSB	15 digits	+882 39x xxx xxx xxx	Yes/No	Vodafone	
International numbers	ITU TSB	15 digits	+882 37x xxx xxx xxx	Yes/No	AT&T	
International numbers	ITU TSB	15 digits	+883 390 000010000 +883 390 999999999	Yes	Airnity	
International numbers	ITU TSB	15 digits	+882 28x xxx xxx xxx	No	Deutsche Telekom AG	
National numbers	Office for Communications Liechtenstein	12 digits	+423 651 000000-999999 +423 652 000000-999999 +423 653 000000-999999 +423 654 000000-999999	No	Cubic Aktiengesellschaft	
International numbers	ITU TSB	15 digits	+883 330 xxx xxx xxx	No	Cubic Telecom Limited	
International numbers	ITU TSB	15 digits	+882 47 000 000 0000 to +882 47 999 999 9999	No	TRANSATEL	

ANNEX 2: LIST OF REFERENCES

[1] CEN Standard EN-15722:2020 defines the common European Minimum Set of Data (MSD) which is sent to the PSAP for pan-European eCall

[2] Regulation (EU) 2015/758 of the European Parliament and of the Council of 29 April 2015 concerning type-approval requirements for the deployment of the eCall in-vehicle system based on the 112 service and amending Directive 2007/46/EC

[3] Decision No 585/2014/EU of the European Parliament and of the Council of 15 May 2014 on the deployment of the interoperable EU-wide eCall service

[4] Delegated Regulation (EU) 2024/1180 of 14 February 2024 amending Regulation (EU) 2015/758 of the European Parliament and of the Council as regards the standards relating to eCall

[5] Delegated Regulation (EU) No 305/2013 of 26 November 2012 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the harmonised provision for an interoperable EU-wide eCall

[6] Delegated Regulation (EU) 2024/1084 of 6 February 2024 amending Delegated Regulation (EU) No 305/2013 supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the harmonised provision for an interoperable EU-wide eCall

[7] GSMA Remote Provisioning Architecture for Embedded UICC Technical Specification: Version 4.3 (February 2023)

[8] Commission Recommendation 2011/750/EU of 8 September 2011 on support for an EU-wide eCall service in electronic communication networks for the transmission of in-vehicle emergency calls based on 112 (‘eCalls’)

[9] Regulation (EU) 2022/612 of the European Parliament and of the Council of 6 April 2022 on roaming on public mobile communications networks within the Union (recast)

[10] 3GPP TS 24.229 (V20.1.0, 2026-09): IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3

[11] ECC/REC/(11)03: “Numbering and Addressing for Machine-to-Machine (M2M) communications”, approved May 201, amended June 2023

[12] ECC/REC/(16)02: “Extraterritorial Use of E.164 Numbers - High level principles of assignment and use”, approved April 2016, amended June 2023

[13] ECC Report 339: “eCall Call-back Functionality”, approved June 2022

[14] Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast)Text with EEA relevance

[15] Delegated Regulation (EU) 2023/444 of 16 December 2022 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council with measures to ensure effective access to emergency services through emergency communications to the single European emergency number ‘112’

[16] ITU Operational Bulletin No. 1155 published on 01 September 2018, available here

[17] ITU TSB Circular No. 249 published on 12 May 2020, available here