ETSI TS 102 900 V1.3.1 (2019-02)

Emergency Communications (EMTEL);
European Public Warning System (EU-ALERT)
using the Cell Broadcast Service

Reference

RTS/EMTEL-00045

Keywords

administration, CBS, emergency, PWS

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:
http://www.etsi.org/standards-search

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx

If you find errors in the present document, please send your comment to one of the following services:
https://portal.etsi.org/People/CommiteeSupportStaff.aspx

Contents

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

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

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The Netherlands have taken the lead in an EC funded project on "Cell Broadcast for Public Warning" having announced publicly that the Netherlands will implement such a service in 2010. A number of European countries have investigated the possibility of deploying a Public Warning Service in their own country and have given their support to the EC funded project.

The generic name for the European Public Warning System is EU-ALERT. The letters EU will be replaced by characters identifying a particular country (e.g. NL-ALERT signifying the Netherlands, UK-ALERT signifying the United Kingdom). Such a strategy will allow each country to configure their own Public Warning System to meet their specific national requirements whilst incorporating it within a common core specification agreed by all European countries. By this approach roaming will be supported and terminal behaviour will be uniform, irrespective of the country which the subscriber is roaming in.

1 Scope

The present document defines the system requirements for a European Public Warning Service using the Cell Broadcast Service [1] as a means of message distribution and delivery to User Equipment (UE).

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 referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 123 041: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Technical realization of Cell Broadcast Service (CBS) (3GPP TS 23.041)".

[2] ETSI TS 122 268: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Public Warning System (PWS) requirements (3GPP TS 22.268)".

[3] ETSI TS 102 182: "Emergency Communications (EMTEL); Requirements for communications from authorities/organizations to individuals, groups or the general public during emergencies".

[4] Void.

[5] ETSI TS 125 331: "Universal Mobile Telecommunications System (UMTS); Radio Resource Control (RRC); Protocol specification (3GPP TS 25.331)".

[6] ISO 3166-1: "Codes for the representation of names of countries and their subdivisions - Part 1: Country codes".

[7] ETSI TS 123 038: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Alphabets and language-specific information (3GPP TS 23.038)".

2.2 Informative 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 referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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] ETSI TR 102 444: "Emergency Communications (EMTEL); Analysis of the Short Message Service (SMS) and Cell Broadcast Service (CBS) for Emergency Messaging applications; Emergency Messaging; SMS and CBS".

[i.2] ETSI TR 122 968: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Study for requirements for a Public Warning System (PWS) service (3GPP TR 22.968)".

[i.3] ETSI TR 102 850: "Emergency Communications (EMTEL); Analysis of Mobile Device Functionality for PWS".

[i.4] EU Position Paper v5.1.

3 Definition of terms, symbols and abbreviations

3.1 Terms

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

amber alert: alert to seek help from citizens to find abducted children

EU-ALERT: generic term for the European Public Warning Service

NOTE: Specific Countries are identified by replacing the letters EU with the Country Identification letters in ISO 3166-1 [6]. E.g.:

- NL-ALERT: The national variant of EU-ALERT for the Netherlands.
- UK-ALERT: The national variant of EU-ALERT for the United Kingdom.
- FR-ALERT: The national variant of EU-ALERT for France.

message identifier: parameter in a Cell Broadcast message that is an indication of the topic

NOTE: A topic should be activated on the UE. The UE will only process messages with a Message Identifier that is in the topic list.

3.2 Symbols

Void.

3.3 Abbreviations

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

5G NR	5G New Radio
CBS	Cell Broadcast Service
CMAS	Commercial Mobile Alert System
CMSP	Commercial Mobile Service Provider
ETWS	Earthquake and Tsunami Warning System
FCC	Federal Commission for Communications
GSM	General System for Mobile communication
IE	Information Element
IP	Internet Protocol
KPAS	Korean Public Alert System
LTE	Long Term Evolution
MI	Message Identifier
MMI	Man-Machine Interface
MMS	Multimedia Messaging Service
NR	New Radio
PWS	Public Warning System
SMS	Short Messaging Service
UE	User Equipment

UMTS	Universal Mobile Telecommunications System
URL	Unified Resource Locator
WEA	Wireless Emergency Alert
WG	Working Group

4 Background

4.0 General

For the public authorities, warning the population on the occurrence of a possible disaster is one of their responsibilities. They will use for this purpose all means of communication, in relation with the specific features of the disaster (e.g. the level of risks, it can be forecast or not; the coverage is limited or broad).

The mobile device Public Warning System (PWS) is in this view a complement to a whole set of communication media and should be taken in consideration by the authorities organizing the Civil Safety, in the frame of an overall scheme of population protection.

The characteristics of the mobile radio services and their rather extensive coverage from GSM to 5G New Radio (5G NR) technology make it a very relevant tool for addressing the population in real time with short notice, selecting the targeted area, broadcasting relevant information or advice. Additionally it can be assumed that the PWS service can be used not only for warning but also during the phases after the occurrence of the catastrophic event to distribute updated instructions to the affected population.

ETSI's Special Committee EMTEL's Technical Specification ETSI TS 102 182 [3] provides an overview of the requirements for communication from authorities/organizations to individuals, groups or the general public in all types of emergencies. It collects operational and organizational requirements as a basis for a common notification service, including targeting of the area to be notified. Although many of the requirements relate to national public policies and regulations, there are a number of service and technical aspects which are better dealt with on the European level to ensure harmonized access and services over Europe and service effectiveness through increased user awareness by using standardized solutions.

ETSI's Special Committee EMTEL's Technical Report ETSI TR 102 444 [i.1] contains an analysis of the use of CBS for broadcasting emergency messages.

3GPP WG SA1 conducted a study for requirements for PWS in ETSI TR 122 968 [i.2], where the EMTEL specification ETSI TS 102 182 [3], ETSI TR 102 444 [i.1], requirements from Japan for ETWS and requirements from the USA for CMAS were used as input.

From this study, 3GPP Working Group SA1 delivered a specification for PWS Requirements in ETSI TS 122 268 [2] which covers PWS in general, where ETWS, WEA/CMAS, EU-Alert and KPAS are regional adaptations of PWS.

The EC funded project on "Cell Broadcast for Public Warning" has provided the mechanism for Europe to reach a consensus on the requirements for a Public Warning Service - vital for harmonisation across European countries without which significant issues concerning roaming would arise.

The EC funded project "Cell Broadcast for Public Warning" was initiated by the Ministry of Interior and Kingdom Relations of the Netherlands. The purpose of the project was to share knowledge, experiences and to identify the need for standardization of (technical) requirements among the participating European countries.

A Position Paper has been created from the EC funded project [i.4].

Not only the EU project has concluded that Cell Broadcast would be the bearer technology best suited for the purpose of EU-Alert, but also ETWS and WEA/CMAS are based on the Cell Broadcast Service as specified in ETSI TS 123 041 [1]. The remainder of the present document assumes usage of the Cell Broadcast Service.

3GPP was provided with a consensus of European requirements as a basis for updating the 3GPP specifications to ensure that EU-Alert requirements are taken into consideration when placing terminals on the European market.

The clauses in the present document identify the key aspects from the EU Position Paper [i.4] and use the results from the analysis of mobile device functionality in ETSI TR 102 850 [i.3].

4.1 Importance of NL-Alert

NL-Alert has been implemented as the first Public Warning Service in Europe which is additional to existing services like siren systems, radio and/or television, Internet, SMS, and social media. The Netherlands Government strongly believes in a multi-channel approach to optimize the reach of the service among the population. However, now the service has matured (i.e. adopted by the general public and alert originators) NL-Alert will become the main national alert service.

All professionals involved in the design and implementation of NL-Alert should therefore be aware that people's lives may depend upon this service. The service should be robust, resilient, reliable and simple.

4.2 Other countries supporting EU-Alert

After the Netherlands went live with NL-Alert, Lithuania went live a year later with LT-Alert and also Romania went live with RO-Alert. More European countries are considering implementation of EU-Alert in their country.

5 EU-Alert capabilities

5.1 Language

The need to support Public Warning Messages in various languages is necessary for the European Public Warning System because there are many European countries that share borders where there is a frequent and significant movement of mobile subscribers across those borders, i.e. a high instance of international roaming.

The EU Position Paper [i.4] identifies that emergency messages should be sent out to users in their own language but when not practicable, then in the language of the message originator.

It is impractical to determine the language of the user and so messages shall be sent out in the native language of the country originating the message and subject to national requirements, in any other language or languages that the originator chooses.

A CBS structure is required to accommodate the requirement to broadcast messages in multiple languages virtually simultaneously in order not to disadvantage any recipient of a message in a particular language.

ETSI TS 123 041 [1] contains an assignment of Message Identifiers for EU-Alert messages in the local language, which is the same range as for CMAS messages in English. This range of Message Identifiers shall be used when the national requirements demand that the UE receive and display the EU-Alert messages in local languages unconditionally.

A second Message Identifier range (defined by 3GPP in ETSI TS 123 041 [1]) shall be used for EU-Alert message broadcast in languages that require the UE to conditionally display the EU-Alert messages based on the pre-configured language settings in the UE (see clause 6.1.1). The Data Coding Scheme IE identifies the actual language of that EU-Alert. The UE shall use the language indicator of the Data Coding Scheme IE, as specified in ETSI TS 123 038 [7], to filter out the displaying of EU-Alert messages.

5.2 Message Types

5.2.0 General

EU-Alert has identified the need for the following types of messages, and it is subject to regulatory requirements if all levels or only a subset of the levels are used in a country:

- Alert messages to warn citizens of an imminent emergency situation
- Advisory messages of lesser urgency
- Amber alerts (child abduction alerts)
- Test messages

The Alert messages may have four levels of severity:

- EU-Alert level 1
- EU-Alert level 2
- EU-Alert level 3
- EU-Alert level 4

EU-Alert level 1 shall have no opt-out; levels 2, 3 and 4 shall allow opt-out by the user.

The Advisory messages have only one level:

- EU-Info

EU-Info messages shall not be associated with the dedicated alerting indication specified in clause 6.1.2.

NOTE: EU-Alert level 4 has been introduced in the current version of the present document as a comparable level with the WEA Public Safety Message which obsoletes the use of the EU-Info. EU-Info only exists for backwards compatibility reasons.

Depending on national requirements of a particular European country, Amber alerts may need to be broadcast as part of the EU-Alert service:

- EU-Amber

EU-Amber messages shall allow opt-in by the user.

The following message types have not been identified in the EU Position Paper [i.4], but are added for compatibility with CMAS:

- EU-Monthly Test
- EU-Test
- EU-Exercise
- EU-Reserved

EU-Monthly Test messages may be broadcast with a separate Message Identifier, but test messages may also be broadcast on a regular basis as an EU-Alert message to the general public. Test messages could for example be broadcast at the same time as the monthly test of the sirens is done. UEs may be made available with the capability of receiving EU-Monthly Test messages. The ability of a UE to receive and present EU-Monthly Test message is an optional capability.

EU-Test messages may be used for proficiency training of alert originators and public outreach, and shall allow opt-in by the user.

EU-Exercise messages are for further study.

EU-Reserved messages are reserved for national government- specific use.

All types of EU-Alert messages shall be associated with a dedicated alerting indication (see clause 6.1.2).

5.2.1 Message Identifiers

The use of CBS Message Identifiers defined in ETSI TS 123 041 [1] is one mechanism that would allow Message Types to be identified. Message Identifiers for EU-Alert are related to the level of the severity of the message and to the language.