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Handset Functional Requirements for Civil ALARM messages

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"Reaching Millions in a Matter of Seconds"

Alignment of handset user experience

Issued by Cell Broadcast Forum

Content

Foreword

Cell Broadcast is perceived to be one of the most compelling solutions for alarming or alerting the general public with an ALARM Cell Broadcast message from Authorities, next to the existing ways of communication to citizens, like for instance sirens, radio and TV.

Cell Broadcast services have gained increased interest by Authorities for using Cell Broadcast for civil alarm functions to society and so saving human lives, since the last couple of years.

One of the key reasons is that more and more human beings do use mobile telephones and have mobile telephones with them, to be reached all the time, no matter where.

Authorities do find it more and more interesting to reach citizen on their mobile phone on a massive scale, fast and warn people in time and so saving lives.

A couple of countries already have implemented a Cell Broadcast services for alarming the public. In addition in some Western European countries extensive trials with Cell Broadcast Alarm services are underway for optimizing Early Warning alarm services to the public, via Mobile Cell Broadcasting. Members of the Cell Broadcast Forum are involved in the EU study for Communication to Citizen, specifically with Cell Broadcast, next to other channels of communication (www.chorist.eu) and members of the Cell Broadcast Forum also have been involved in the Dutch trials for Early Warning services, done by the Dutch Government.

The Cell Broadcast Forum has studied the behaviour of well over 500 (five hundred) different handset models for the receiving of Cell Broadcast messages in the period from 2005 – early 2007. In >95% of all handset models the Cell Broadcast receiving function has been found to be functioning well and are receiving the offered Cell Broadcast message according to the Standards.

The 3GPP standard deliberately leaves room for innovative implementations of Cell Broadcast by handset vendors.

Based on the lessons learned from Civil Alarm trials it became clear for the Cell Broadcast Forum that standardizing a few user functions would benefit an even higher acceptance level for the general public, saving lives easier.

This document services both the ITU and the handsets manufacturers.

It is the intention to offer this document also to the ITU for further study, as on the agenda on the 1st and 2nd of November 2007 in Geneva, Switzerland. The Cell Broadcast Forum identifies two key study items:

1: How to handle languages, now and in the present future.

2: Harmonizing the Message Identifiers.

1 Introduction

1.1 The challenge: Cell Broadcast for civil alarm

In most countries, Authorities have a legal obligation to inform and instruct their citizens in case of increased risks, crisis and disasters. Due to factors like international terrorism and the tsunami, there is an increased interest from Authorities for using more advanced tools than traditional tools like sirens or radio/TV which all have their limitations.

Cell Broadcast has been identified in several countries as a tool that can deliver suitable functionality to support Authorities in their legal obligation.

Handset vendors are invited to follow the (quite simple) recommendations written in this document, because it will increase the acceptance chances of Cell Broadcast by the public and so saving lives.

We are aware that Authoroties and Citizen are asking the handset vendors something that will have no short term effect on their bottom line. However, we trust that good corporate citizenship and the possibility to contribute to saving lives is a strong enough driver for the industry to give high priority to Cell Broadcast in general and more specific the requirements in this document.

1.2 Scope

This document proposes standards for the functionality of Cell Broadcast on handsets to align the user experience for Alarm purposes, in addition to and on top off, already existing GSM standards.

1.3 References to other CBF documents and activities

These requirements are an addition to the requirements as stated in the CB Forum’s Handset Requirements Specification

(www.cellbroadcastforum.org), which comply with standard specifications of 3GPP about Cell Broadcast, f.i.: 3GPP TS 23.038 and 3GPP TS 23.041 and with the ETSI-EMTEL document on Requirements for communications from authorities/organizations to individuals, groups or the general public during emergencies in ETSI TS 102 182.

1.4 Methodology

This document is based on the knowledge gained by the Cell Broadcast Forum (CBF) members in various civil alarm trials and in the CHORIST project (www.chorist.eu). Key contributors are also active in Ceasa-in (www.ceasa-int.org) and active member of the ITU organisation. In addition experts of The Netherlands Ministry of Interior and Nokia have contributed to this document.

The EU, specifically the Dutch Government, has conducted a public warning over Cell Broadcast trial during 2005, 2006 and 2007. In addition the EU is active since 2006 in CHORIST (www.chorist.eu) research for communication to citizens, in case of emergency, where Mobile Cell Broadcast is one of the communication channels between Government Authorities and Citizen.

1.5 Audience

The document has been written for the ITU, the Civil Alarm professionals and GSM professionals (specifically the handset vendor community) who want to understand better what the essential functionality in the behaviour of handsets is, to use cell broadcast for civil alarm purposes.

The documents is less technical, although it helps if the reader is somewhat familiar with the Cell Broadcast 3GPP specifications, like 3GPP TS 23.038, 3GPP TS 23.041 and the technical Cell Broadcast recommendations of the Cell Broadcast Forum (ref. version 2006).

1.6 Reader's guide

This document contains three main chapters:

Chapter 2: Functional requirements for handsets (for Civil Alarm and GSM professionals)

Chapter 3: Technical requirements for handsets (for GSM professionals)

Chapter 4: Handset message content handling requirements (for Civil Alarm and GSM professionals) - languages

1.7 Definitions and Abbreviations

3GPP	Third Generation Partnership Programme
DCS	Data Coding Scheme
MI	Message Identifier
MS	Mobile Station

2 Handset functional requirements

2.1 Introduction

This chapter lists the main functional requirements that a handset needs to support to be able to use Cell Broadcast for civil alarm.

2.2 Alarm Cell Broadcast messages, handset requirements

Management overview of the requirements.

1. Service activation settings: The factory setting of Cell Broadcast shall be set to "active", i.e. a CB message shall be received on the MI that is allocated for Alarm public warning.
   The actual setting of Cell Broadcast ("active" or "not active") should not be affected by turning the MS on or off, or if the battery is depleted or replaced.

2. Special Message Identifiers: The factory setting shall be one (1) Alarm Message Identifier number configured ‘ON’, for the receiving of Alarm messages.
   The Message Identifier 920 should be used for this Alarm purpose.[1]
   The actual setting of MI 920 should not be affected by turning the MS on or off, or if the battery is depleted or replaced.

3. Reception tone: Reception of a Cell Broadcast message (with parameters that indicate the message is to be presented on the display with Display Mode "normal") shall be indicated with a tone. However, the MS shall indicate the reception of an alarm message

[1] The MI 920 is selected, quite arbitrary, but with respect to the following: If used f.i. the response numbers 112 or 911, the response of citizen will be overwhelming, blocking all communication channels, as people might think that they have to make this call. The ITU is also recommending that Government related information channels should be in the MI range between 900 and 999 (ITU meeting).

by playing a tone that is specific for Alarm messages, such as a siren tone. This tone shall be activated even if the MS setting is set to silent mode, meeting mode, buzzing mode, etc.

3 Handset technical specifications 3GPP

3.1 Introduction

The handset - MS (Mobile Station) is responsible for recombination of the blocks received via the radio path to reconstitute the CBS message, as is defined in the 3GPP standards.

The precise method of handling Cell Broadcast messages is outside the scope of 3GPP specifications creating the possibility for handset manufacturers to develop innovative products. Of course, the drawback of this choice is that there are a lot of different ways how handsets handle the Cell Broadcast messages functions, or how to activate / de-activate the receiving of Cell Broadcast messages.

According to the 3GPP standard, it is assumed that a Mobile Station will:

1: Discard sequences transferred via the radio path which do not consist of consecutive blocks

2: Have the ability to discard CBS information which is not in a suitable data coding scheme

3: Have the ability to discard a CBS message which has a message identifier indicating that it is of subject matter which is not of interest to the MS

4: Have the ability to ignore repeat broadcasts of CBS messages already received (message has not changed since it was last broad-

cast i.e. sequence number has not changed within the message's indicated geographical area)

5: Have the ability to transfer a CBS message to an external device, when supported.

6: Enable the user to activate/deactivate CBS through MMI.

7: Enable the user to maintain a "search list" and receive CBS messages with a Message Identifier in the list while discarding CBS messages with a Message Identifier not in the list

8: Allow the user to enter the Message Identifier via MMI only for the 1.000 lowest MI’s

9: Be capable of receiving CBS messages consisting of up to 15 pages

10: OPTIONNALY: enter CBS DRX mode based upon received Schedule Messages

11: OPTIONALLY: skip reception of the remaining block(s) of a CBS message which do(es) not contain cell broadcast information

12: OPTIONALLY: read the extended channel

Note that in the handset specifications are three ‘Optional’ specifications, giving reasons why various handsets on the market behave differently, when using Cell Broadcast functionalities.

The CB Forum’s Handset Requirements Specification document (www.cellbroadcastforum.org) serves as a guideline how the above specifications could be implemented.

4 Handset content handling requirements (incl. languages)

4.1 Requirements on Message Code

This section deals with the parameter Message Code coded within a Cell Broadcast message with Display mode “normal”.

Number of Message Codes: The MS shall be capable of storing at least ten messages with different Message Codes on the same channel (MI). Including the Message Code of deleted messages.

4.2 Requirements on Data Coding Scheme

This section deals with the Data Coding Scheme coded within a Cell Broadcast message.

Handset behaviour for different languages: A solution through the Data Coding Scheme - DCS (see 3GPP TS23.038), requires just one message identifier (one channel like MI 920) to support most popular (21) different languages, which can be selected by the handset.

In the short term future it is believed that not all handsets will support this feature. As a result it is advised to Authorities to select one message in a defined area or region and not multiple, for the time being.
This part of the standard is perceived interesting for the longer term future, as this way even multiple languages can be used in the same area or region.

Language encoding: The MS shall support a language filter when the DCS language encoding (0001 0000) is used in combination with a language identifier where the first three characters of the message are a two-character representation of the language encoded according to ISO 639 [12], followed by a CR character.

This functionality could be used for additional languages, besides the already defined 21 languages.

Revision History

This Document is a joint effort of various individuals active in the Cell Broadcast Forum.

Versions of the document:

Revision	Date	Author	Comment
Version (07)02 R0.5	16/10/2007	CBF Workgroup Handsets	Second external revision. Abstract handset specifications for Alarm CB messages.