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DISSEMINATION LEVEL		
PU	Public	**X**
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

CONTENTS

1 INTRODUCTION

1.1 PROJECT SCOPE

The CHORIST project will propose solutions to increase rapidity and effectiveness of interventions following natural hazards and industrial accidents, in order to enhance citizens' safety and communications between rescue actors.

1.2 PURPOSE OF THE DOCUMENT

This document focuses on the Cell Broadcast messaging related to the use of one EU Message Identifier (MI), and focusses on the related Standards and Mobile Station (MS) activation aspects to the use of Cell Broadcasting, as part of a Public Warning System (PWS).

The document has been written to ad value to CHORIST SP3 plan WP31, which objectives are:

- To propose ways and methods to inform/guide the citizens involved in a crisis (social and regulation aspects…) in order to minimise the effect of the crisis.

The paper is not intended to describe the acceptance level of Citizen, however, some indications about Citizen's perspective will be given, which has some influence on the technology involved, based upon the inputs of the Cell Broadcast Forum (www.cellbroadcastforum.org), the Cell Broadcast citizen trials and reports, as done in The Netherlands (2006/2008) and the inputs of the CHORIST UAB (User Advisory Board) of the CHORIST consortium.

A number of CHORIST members are active in the Cell Broadcast Forum, the ITU and ETSI, where additional discussions and information exchange about this important topic has taken place - and still takes place - which might have benefit this paper.

1.3 DOCUMENT VERSIONS SHEET

Version	Date	Description, modifications, authors
0.1	15 - 04 - 2009	SPMM initial setup with members of Cell Broadcast Forum
0.2	20 - 05 - 2009	SPMM additions and some modifications
0.3	12 - 06 - 2009	SPMM typo's and review done
1.0	22 – 06 - 2009	Final document by SPMM (Wim van Setten), included process review and comments O2M (Peter Sanders)

Table 1 : Document versions sheet

2 REFERENCE DOCUMENTS, DEFINITIONS AND ABBREVIATIONS

2.1 REFERENCE DOCUMENTS

[1] 3GPP TS 23.041, 'Digital Cellular Telecommunications System (Phase 2)'; Technical Realisation of the Short Message Service Cell Broadcast (SMSCB), version 7.0.0

[2] 3GPP TS 23.038, 'Alphabets and language-specific information', V8.1.0

[3] ISO 639-1, 'Codes for the representation of names of languages'

[4] ETSI TR 102 444: 'Suitability of SMS and CBS for Emergency Messaging'.

[5] Cell Broadcast Forum "CBF-PUB(02)2R2.4", 'Handset requirement specification'

[6] 3GPP TR 22.968 V8.0.0 'Study for requirements for a Public Warning System (PWS) service

[7] (release 8)'

[8] Delft University 'Evaluation of the use of Cell Broadcast for citizens warning.'

[9] SP3.D55 'Lessons learned by TUD on Emergency Warnings'

[10] SP3.D7 'Personal Communication Networks Gateway technical specification'

[11] SP3.D16 'Multilingual aspects in public warning'

2.2 DEFINITION

3GPP	Third Generation Partnership Programme.
ATIS	Alliance for Telecommunications Industry Solutions
Broadcast	A transmission to multiple, unspecified recipients.
BTS configuration data	Coordinates and, optionally, geographical area that is covered.
Cell Broadcast area	Geographical area(s) to which messages are broadcast. Cell Broadcast areas may comprise one or more cells or entire PLMN. (See "Area")
Cell Broadcast message	Message sent from the MD through the CBC to the PLMN. (See "Message")
ETSI	"European Telecommunications Standards Institute".
ETSI-compliant BSC	BSC which complies with standards as defined by ETSI.
Message Dispatcher	Sends messages to the CBC.
MDS	Mobile Device Specification
MS	Mobile Station - the mobile handset.
OTA	Over-The-Air
PLMN-wide	The message code and/or update number must change in the next cell for the message to be new.
PWS	Public Warning System
QoS	Quality of Service
TIA	Telecommunications Industry Association

2.3 ABBREVIATION

3GPP	Third Generation Partnership Project
BSC	Base Station Controller
BTS	Base Transceiver Station
CB	Cell Broadcast
CBC	Cell Broadcast Centre
CBS	Cell Broadcast System
CID	Cell ID
ETSI	European Telecommunications Standard Institute
GSM	Global System for Mobile communications
LAC	Location Area Code
MCD	Message Creator & Dispatcher
MCC	Mobile Country Code
MNC	Mobile Network Code
PLMN	Public Land Mobile Network
SMS-CB	Short Message Service Cell Broadcast

3 EXECUTIVE SUMMARY

This document tries to find answers on:

how the possibilities are of using one European Alarm Message Identifier (MI) for Cell Broadcast messaging, some status information about how standards are being used specifically in relation with Mobile Stations and the related aspects for easy activation of Mobile Stations (MS).

Standards for GSM and UMTS are developed already years ago. With these, the standards for the networks are very ‘detailed’ described and at the same time the functions of the receivers (handsets) have been specified - in a more ‘open’ way.

Meaning that the handset manufacturers have great possibilities to make a unique handset experience, different from their competitors.

That open market mechanism has proven to work very well for developing new types of innovative handsets and innovative new telecom services. When EU Government Authorities like to have a predefined user experience, and when they want alert the citizen, this needs special attention and cooperation - both from the Telecom Industry in close cooperation with (EU) Governments – specifically in the area of handset behaviour.

At this moment Governments have very few possibilities to reach citizens in urgent situations, in a fast, predictable and adequate way. Especially in urgent emergency situations like (environmental) disasters, where the Government likes to inform citizens in a certain area to urge them to take action, in order to limit the risks and increase the way citizens can help themselves.

Mobile telecommunication has reached market levels of coverage and acceptance, especially in the rich European countries, which are well over 90%. At this moment GSM is the dominating telecom service, with UMTS as the next growing telecom service. GSM in most of the development countries is expected to stay the dominating telecom service in the years to come.

The telecom industry is working on new communication technologies and new standards, also on handsets level like the use of MBMS over 3G or the new generation technology LTE.

Are there standardisation activities which help handset behaviour for GSM and UMTS at this moment in time, or is the industry only interested in the ‘new’ technologies?

There is still some interest in advanced standardisation for GSM and UMTS supported handsets, pushed and lobbied by some individuals, but it is nowhere near the interest the Telecom Industry has for new technologies. It is very clear why that is: try to answer the question ‘where is the money’?

Although the same telecom industry has an obligation towards all their customers, to help them to live in a better, safer world.

Think of the tsunami disasters. When this happened, Indonesian scientists were already hours in advance aware that a tsunami would take place, but authorities had no solution to mass communicate the information, location specific in a fast and reliable way to citizen; both local citizen and tourists, losing thousands of lives.

Governments are thinking international, cross border because their citizens travel and cross borders. For instance almost 1% of the Swedish population was at the time of the tsunami travelling in that area.

EU Governments who are serious about communicating alerts directly to citizens can do a lot to turn this existing situation around to the benefit of all citizens.

The good news is that the technology for GSM and UMTS is very reliable and well understood. So if Governments really know what they want - the telecom industry will follow and do what will be advised or requested.

A number of studies help Governments to be able to understand what they might want and to change this situation. Especially the 3GPP study 3GPP TR 22.968 V8.0.0 ‘Study for requirements for a Public Warning System (PWS) service (release 8)’ combines the work of many inputs for a reliable PWS.

Cell Broadcast communication

Government authorities have as current means of communications sirens and TV/radio channels.
Sirens do not always satisfy, because there is no information or operation perspective for the citizen and the coverage is limited. TV and radio communication is most of the time too limited to be used independently, because of the chance that too few citizens have switched on TV or radio during an unexpected early warning or a calamity.
There are a number of ways how location-specific public communication services can be supported.

Cell Broadcast (hereafter to shorten as CB) is considered as the communication channel with the most potential. CB is until now not often used, but is a **standard functionality within GSM and UMTS**.

The **promise of Cell Broadcast is location specific mass communication**, via a mobile handset, which more and more people have with them and with an increasing coverage of telecom use.

CB offers the possibility to send an emergency message to all mobile handsets located in a certain geographical area, within minutes and depending on the handset, combined with an alarm tone.

This happens in a manner which guarantees the privacy of the citizen, without using personal data of the recipients. Moreover it is independent of the network load so that it continues working also in communication intensive environments as well. Everyone in a certain area, who has her/his mobile telephone switched on and activated the correct CB Alarm channel, can receive an alert message. The impact of such a communication medium is according to expectations large, since the mobile telephone has a very personal character in contrast to other means of communication, including the old fixed telephone.

In the case the Cell Broadcast technology is used, warning messages can all be broadcast on a single channel (Message Identifier is the appropriate word here) in different languages or each language is assigned its own channel.

The organisational aspects using mobile Cell Broadcasting are considered a big challenge for the successful introduction of Cell Broadcast. Here is where ‘standards’ help in moving fast forward with added clear information to citizen. CB is only effective with complete citizen cooperation. This means that citizen must have handsets suitable for receiving CB Alarm messages and added to this; citizens must have their handsets switched on and with them 24 hours a day.

If and when citizens are travelling cross border, it should be easy to have the emergency Message Identifier (MI) on your mobile telephone switched on – the right MI at the right place.

Reality check:

Knowing that in the GSM and UMTS standards Cell Broadcast is well defined, including the use of handsets, is the telecom industry already delivering mobile handsets which works according to these already defined standards?

The reality check answer is: most do - as it should – as proven by testing >500 different handset models - but NOT 100%. The base CB function is available on more than 90% of all handset models, but certain CB functions which are also specified, like the use of an index channel, the use of language filters, binary messages, tones etc. are less supported, depending on the supplying vendor or models. The market leader Nokia is, in general, doing quite a good job with supporting the standard CB functions.

Having standards defined at the handset **receiver** level, it is not automatic that all handsets behave as they should, according to the defined standards, and in addition within the defined standards there is, for obvious ‘open market’ reasons, freedom of implementation by the industry, which might create additional confusion.

4 WHAT IS CELL BROADCAST?

Cell Broadcast (CB) is a mobile technology that allows messages (currently of up to 15 pages of up to 93 characters) to be broadcast to all mobile handsets and similar devices within a designated geographical area. The broadcast range can be varied, from a single cell to the entire network.

Cell Broadcast is designed for simultaneous delivery of messages to multiple users in a specified area. Whereas the Short Message Service (SMS) is a one-to-one and one-to-a-few service, Cell Broadcast is one-to-many geographically focused service.

It enables messages to be communicated to multiple mobile phone customers who are located within a given part of its network coverage area at the time the message is broadcast. Cell Broadcast is more akin to other mass distribution media such as teletext or Radio Data System (RDS).

4.1 INTRODUCTION

Cell Broadcast (CB) messaging is a mobile technology feature defined by the ETSI's GSM committee and is part of the GSM standard. It is also known as Short Message Service - Cell Broadcast (SMS-CB). Cell Broadcast is designed for simultaneous delivery of messages to multiple users in a specified area. Whereas the Short Message Service - Point to Point (SMS-PP) is a one-to-one and one-to-a-few service, Cell Broadcast is a one-to-many geographically focused messaging service. Cell Broadcast messaging is also supported by UMTS, as defined by 3GPP.

The CBS service is analogous to the Teletext service offered on television, in that like Teletext, it permits a number of unacknowledged general CBS messages to be broadcast to all receivers within a particular region. CBS messages are broadcast to defined geographical areas known as Cell Broadcast areas. These areas may comprise of one or more cells, or may comprise the entire PLMN.

Cell Broadcast messaging was technologically demonstrated in Paris for the first time, in 1997. By now almost all GSM phones and mobile operator base stations support the feature. Some mobile operators use Cell Broadcast for communicating the area code of the antenna cell to the mobile user (via channel 050), for nationwide or citywide alerting, weather reports, mass messaging, location based news, etc. Not all operators have the Cell Broadcast messaging function activated in their network yet.

Cell Broadcast is a technology that allows a text or binary message to be defined and distributed to all mobile terminals connected to a set of cells. Whereas SMS messages are sent point-to-point, Cell Broadcast messages are sent point-to-area. This means that one Cell Broadcast message can reach a huge number of terminals at once. In other words, Cell Broadcast messages are directed to radio cells, rather than to a specific terminal. A Cell Broadcast message is an unconfirmed push service, meaning that the originator of the message does not know who has received the message, allowing for services based on anonymity. Mobile telephone user manuals describe how the user can switch the receiving of Cell Broadcast messages on or off.

Cell Broadcast messaging has a number of features that make it particularly appropriate for emergency purposes:

It is already resident in most network infrastructure and in the mobile phones

It is not affected by traffic load; therefore, it will be usable during a disaster when load spikes tend to crash networks, as the 7 July 2005 London bombings showed. Another example was during the Tsunami catastrophe in Asia. Dialog GSM, an operator in Sri Lanka was able to provide ongoing emergency

information to its subscribers, to warn of incoming waves, to give news updates, to direct people to supply and distribution centres. Also it does not itself cause any significant load on the network, so would not add to the problem.

It is geo-scalable, so a message can reach hundreds of millions of people across continents within a short time.

It is also geo-specific, so government disaster managers can avoid panic and road jamming by telling people in each area whether they should evacuate or remain.

To explain Cell Broadcast in non technical terms: Cell Broadcast doesn't use the frequency space reserved for call setup, calls and data but a separate specially defined area. This area is divided into 65.000 channels, the channels from 0 to 999 can be switched on by the terminal user, from 999 to 65.000 can only be switched on via OTA (Over The Air activation) but all channels can be switched off by the user.

Note: OTA with CB is not straight forward, as information has to be stored on a specific location of the SIM card. There are a growing number of different Sims on the market (memory size) making it a difficult process for Operators to OTA activate the various Mobile Stations.

CBS messages are broadcast cyclically by the cell at a frequency and for a duration agreed with the information provider. The frequency at which CBS messages are repeatedly transmitted will be dependent on the information that they contain; for example, it is likely that dynamic information such as road traffic information, will require more frequent transmission than alarm weather information. The repetition period will also be affected by the desire for CBS messages to be received by high speed mobiles which rapidly traverse cells. Reception of CBS messages for a Mobile Station is not a requirement if it is connected in the CS domain, which means that if the citizens are using their phone for conversation, they will not receive CB messages.

A Cell Broadcast Entity (CBE) is a multi-user front-end that allows the definition and control of SMS-CB messages. A CBE can be located at the site of a content provider, for instance a Government Authority. This type of CBE can be quite complicated and is highly depending on the use of the Authority like security, authentication, planning of messages and management of the content creators. This special type of CBE is often called the Content Casting Centre (CCC), which acts as a broker to one, or multiple operator networks.

At the site of the operator a so-called Cell Broadcast Centre (CBC) is located. The CBC is the heart of the Cell Broadcast System and acts as a management server for all CBE clients. It takes care of the administration of all SMS-CB messages it receives from the CBEs and does the communication towards the GSM and UMTS network. The GSM and UMTS network itself takes care of delivering the SMS-CB messages to the mobile terminals.

4.2 CELL BROADCAST @ CHORIST

CHORIST SP3 partners Vodafone, one2many and SPMM have developed and installed an operational GSM Cell Broadcast demo and trial system, active both at the Vodafone research laboratory in Madrid and used on the life Vodafone GSM network in Barcelona area, for proof of concept. In addition CHORIST partner SPMM has been active (out of scope CHORIST) testing from a technology point of view the activation of over 500 different mobile handsets, receiving Cell Broadcast messages via a GSM mobile network. We will describe in general terms some findings of the behaviour of handsets, especially related to be compliant to the defined standards for handsets at this moment in time.

This has an added value in the discussion concerning the standard technology which could benefit the acceptance of Cell Broadcast for emergency warnings.

SPMM and one2many are also quite active in the international Cell Broadcast Forum (www.cellbroadcastforum.org) and this way supporting the discussions concerning the use and implementation of standards for Cell Broadcasting from the Forum to the ITU, 3GPP and ETSI organisations. SPMM is also member of the international CEASA-int organisation, the Cellular Emergency Alert Systems Association.

4.3 MERIT & SHORTCOMINGS OF CELL BROADCAST

The merits and shortcomings of Cell Broadcast are:

Merits:

It is a standard transport for GSM, UMTS and CDMA networks which is supported by producers of base equipment and terminals.

It solves the problem of mass content delivery to all network subscribers or to subscribers in a certain area.

It gives an opportunity of mass mailings, which imposes minimal load on the network, especially compared to P2P-traffic of SMS or USSD.

It provides simple localization of content which makes it possible to implement programs for promoting goods and services in a given geographic region at minimal expense.

Localization of content is provided in combination with correctly applied time parameters for the broadcast, which makes it possible to define the target audience for users of the information and more precisely calculate the results of promotion.

Shortcomings:

It could be complicated for the subscriber to manage the received content – he needs information on how to turn on one or another information channel on his handset.

Direct feedback is absent, which means that evaluation of the effectiveness of applying broadcast is indirect.

4.4 CB SERVICE LIMITATIONS (SOURCE : ETSI)

Within ETSI standardisation documents the following key CB service limitations are mentioned, with added some comments from CHORIST partners.

Handset

A Handset normally has to be specifically enabled by the subscriber to receive CBS messages. Once enabled, mobile manufacturer's report initially a considerable drain on battery life, although there are techniques in the specifications (DRX) to reduce this problem. Concerns have been raised by mobile manufacturers on the effectiveness of DRX, as any enabling of CBS, with or without DRX can reduce the "talk time" of their products, which is a key marketing differentiator. For this reason, Handsets are normally shipped with the Cell Broadcast feature switched off.
Note: The reason why the Cell Broadcast feature is switched off as delivered from the handset manufacturers is considered not important any more. The reason is that more and more additional functions like photo making, radio receiving, music playing, Bluetooth, UMTS and a full colour displays are standard features of the handset. Draining the batteries when switched on Cell Broadcast is not considered an important issue (ITU/EMTEL meeting October 2006) in that respect.

CBS Message delays

Message reception may be delayed due to the receiving MS being in poor radio coverage. The receiving MS may also fail to process a received CBS message if it is engaged in a voice or data call. However, as the normal use of CBS would be to repeatedly retransmit the message at pre-defined intervals then the MS has a reasonably high probability of receiving it eventually.

CBS Message cycle time

CBS has a finite capacity for broadcasting messages. Different commercial applications will require different cycle times for message repeats. If many applications require very short cycle times then it is likely that the expected QoS with regard to message repeats will not be met. Moreover, this could adversely impact on the cycle time for repeat Emergency CBS messages. Design considerations by implementers would need to be made to ensure that Emergency CBS messages receive the appropriate priority. Such matters lie outside the scope of 3GPP current specifications.

Spam

Spam is an ever present risk in any communications media. Uncontrolled access to PLMN's by irresponsible network operators could result in Spam CBS messages being sent. The impact on a subscriber could be that the MS gets into an overload situation that makes CBS unusable through too many messages being displayed. The mobile subscriber does however have the capability to disable CBS messages having specific CBS message identifiers.
Spam may also cause the CBS air interface bandwidth to become overloaded resulting in Emergency CBS messages being severely delayed. Provision may therefore be required in the BTS/BSC to suspend the transmission / retransmission of other CBS messages when an emergency CBS message is present.

Viruses

CBS does not require any executable environment within the MS for normal text message display. The risk of a virus being transmitted by CBS messages is therefore low to non existent. However, a CBS message may contain a URL to a site that could be the source of a virus problem and if the MS provides the capability to action a URL contained in a CBS Message then the risk of virus infection could be greatly increased.

4.5 HOW CELL BROADCAST FITS IN PWS

Cell Broadcast is considered a natural fit for a modern, state of art Public Warning System.
The Cell Broadcast Service allows broadcasting of messages to the mobile devices of a large number of citizens in a specific location within a few minutes, and instructs citizens on actions to take.

Due to the nature of broadcast a single message can reach all mobile phones in the specified areas, including those of roamers. The area can be as small as one cell and as big as the entire country. Messages can be repeated for those that enter the emergency area later or have missed previous messages.

The Cell Broadcast functionality must be enabled on the mobile phone and channels of interest (message identifier) must be activated. It is then possible to broadcast messages in various languages on different channels. Individual channels can be activated over the air.

Since a mobile phone can vibrate next to beep, the hearing impaired can also be warned. Text-to-speech conversion applications are available to warn the visual impaired.

Informing and training Citizen:
Warning citizens is not limited to the moment of the emergency itself. Citizens must be instructed what to do in case an emergency situation should ever occur. This could be done through door-to-door distribution of leaflets, and through radio and television messages, often just prior to test runs of the siren system.

When an emergency situation can be predicted, citizens shall be instructed what to do to prevent loss of lives and to mitigate property damage. Depending on the amount of time left before the emergency actually occurs, different means of warning can be chosen. The less time there is, the more important become the elements of real-time and location.

During the emergency and immediately after the emergency citizens should also be able to receive information, but network congestion is likely to occur in many types of networks.
In the aftermath of the emergency the elements of real-time and location may be less crucial, but the telecommunications infrastructure may have become damaged.

The public warning strategy prior to an actual emergency (no emergency predicted or foreseen) is considered to be outside the scope of this document, since the cellular network is unlikely to be used here. Instructing citizen on what actions to take in case of an emergency is probably done through radio, television, news paper articles or leaflets that are distributed door to door.

Government EU Authorities have started a 'sharing best practice' study about implementing Cell Broadcast for emergency warning and have made a number of useful papers. From the position paper of this study the five key statement points about the use of Cell Broadcast by Authorities:

1: Cell Broadcast has the potential to be an additional tool in the current set of tools to alert citizens.

2: The main role of Cell Broadcast is to distribute an initial alert and instructions. Other tools, like radio/television or internet, could follow this.

(Follow in this respect means that other channels of communication like radio, TV, internet are using their characteristics. The big difference is that the instant real-time coverage of a mobile telephone is by far the highest compared to these channels, at this time in history.)

3: It works via mobile phones, which the vast majority of citizens are carrying.

4: It has the ability to alert and instruct everyone in a country or smaller groups, based on their geographical location, within minutes.

5: Alternatives to Cell Broadcast do exist, however at present the supporting governments have not identified any that matches the capabilities of Cell Broadcast.

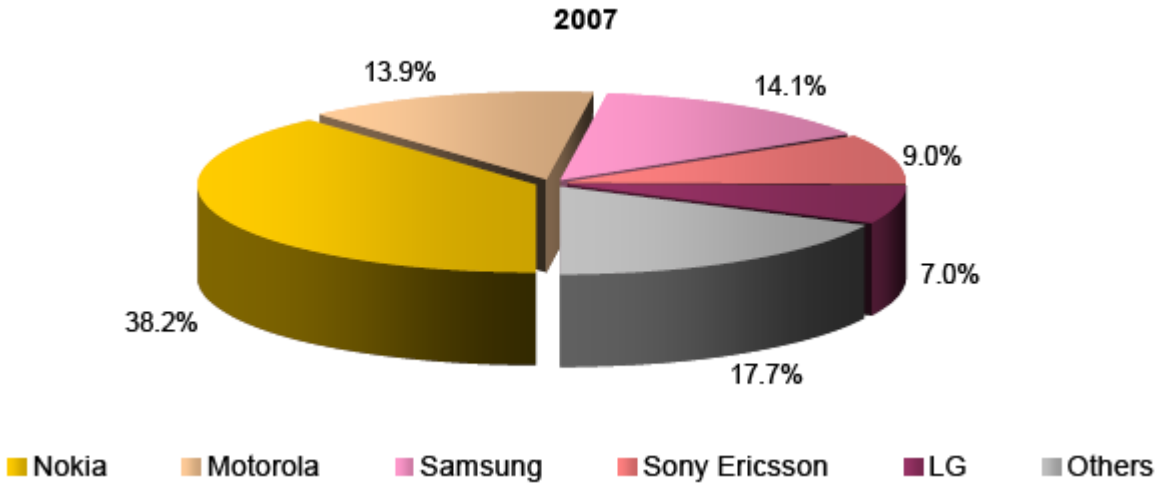
4.5.1 Market share global handsets vendors, shipments.

From the top 5 handset manufacturers world wide, Nokia is the dominating market leader.

(see stats below from the source report 'Company Websites' in 2008, confirmed by another source: Portio research report of 2008.)

Handset Vendor	Q1 2006	Q2 2006	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
Nokia	75.1	78.4	88.5	105.5	91.1	100.8	111.7	133.5
Motorola	46.1	51.9	53.7	65.7	45.4	35.5	37.2	40.9
Samsung	29.0	26.3	30.7	32.0	34.8	37.4	42.6	46.3
Sony Ericsson	13.3	15.7	19.8	26.0	21.8	24.9	25.9	30.8
LG	15.6	15.3	16.5	17.0	15.8	19.1	21.9	23.7

Source: Company Websites



Market share world wide, by top 5 handset manufacturers

The impact mobile phones have on the lives of citizen is still increasing:

In 1998 the mobile penetration word wide was roughly only 5%.

By 2008 the global mobile penetration is already grown to 55% of all citizens world wide.

It is expected that countries like China and India, which have in 2008 about 48% penetration (China) and 28% penetration (India) will be the fast growing areas for the next few years. Mobiles will continue to have a growing impact in the warning of citizen. (Source: Chetan Sharma Consulting)

According to the Portio research report of 2008: (see market shares diagram) in 2007 there are 5 dominating suppliers and Nokia dominated as the market leader in terms of numbers of handset shipped world wide. So following especially the behaviour of these handsets is of interest to CHORIST.

5 CELL BROADCAST STANDARDS & TECHNOLOGY

The technology of Cell Broadcast has been documented quite well and is part of the ETSI GSM and UMTS standard. In order to use Cell Broadcast for Citizen Alert it is important to harmonize this alert service over Europe and the rest of the World. In the last two years a number of initiatives have been started to move towards this Alert harmonization.

Also CHORIST partners SPMM and one2many have contributed in the last few years raising the awareness level within the ITU and ETSI organisations for Emergency Alert Services via Cell Broadcast, with the active support and cooperation of the Cell Broadcast Forum and with Ceasa-int. This has resulted in a number of initiatives.

ETSI: The European Telecommunications Standards Institute (ETSI) is an independent, non-profit organization, whose mission is to produce telecommunications standards for today and for the future. Based in Sophia Antipolis (France), the European Telecommunications Standards Institute (ETSI) is officially responsible for standardization of Information and Communication Technologies (ICT) within Europe. These technologies include telecommunications, broadcasting and related areas such as intelligent transportation and medical electronics. (http://www.etsi.org)

ITU: The ITU is the leading United Nations agency for information and communication technology. As the global focal point for governments and the private sector in developing telecommunication networks and services, ITU's role in helping the world communicate spans 3 core sectors: radio communications, standardization and development of ICT worldwide. ITU is based in Geneva, Switzerland, and its membership includes 191 Member States and more than 700 Sector Members and Associates. (www.itu.int)

Cell Broadcast Forum (CBF): is a non-profit Industry Association that supports the world standard for Cell Broadcast wireless information and telephony services on digital mobile phones and other wireless terminals.

The primary goal of the Cell Broadcast Forum is to bring together companies from all segments of the wireless industry value chain to ensure product interoperability and growth of wireless market. Some members of the Cell Broadcast forum are also a member of ETSI-EMTEL. The workforce of the CBF, including members of SPMM, have been active in the last couple of years to harmonize the use of Cell Broadcast for Alert purposes, in the Cell Broadcast forum (www.cellbroadcastforum.org). Three workgroup leaders of the CBF are also member of the ETSI-EMTEL organisation and are active in the ITU.

The CBF produced for this purpose a couple of documents, for instance: on December 8, 2005 a paper: 'Cell Broadcast in Public Warning' and on October 17, 2006 an updated version of the 'Handset Requirements for Cell Broadcast ' has been produced.

CEASa: The Cellular Emergency Advisory Systems Association (CEASA) is a citizens action initiative, a not for profit group. (www.ceasa-int.org)

Originally formed in the US, the international branch creates a harmonised international channel coding scheme which enables international and cross border use of CB, in a multi lingual environment. It also co-ordinates the allocation of channels for international purposes such as maritime. There are other active moves in US, Canada, Australia, Switzerland and Germany. SPMM is member of this initiative.

ETSI-EMTEL:

For the harmonization and standard use of Alert Mobile Cell Broadcast the ETSI-EMTEL organisation has been established. CHORIST partners have been active to find the way to this organisation and cooperate with ETSI-EMTEL for Cell Broadcast standards.

ETSI-EMTEL is a Special Committee on Emergency Communications and is Producing and maintaining Standards for Emergency Communications. Emergency telecommunications covers all communication services, including voice and non-voice, data, location etc. The need for emergency telecommunications

includes many scenarios ranging from: a minor road traffic accident, for example to a major incident like a passenger train crash, a terrorist incident, a natural disaster (e.g. an Earthquake, Tsunami). Provision for emergency telecommunications is also a major requirement in disaster situations.

The main responsibilities of EMTEL are:

1: Act as a key coordinator in getting requirements on Emergency Communications, outside ETSI (i.e. from different stakeholders) and inside ETSI (i.e. ETSI Bodies).

2: Provide requirements on issues of network security, network integrity, network behaviour in emergency situations, and emergency telecommunications needs in networks

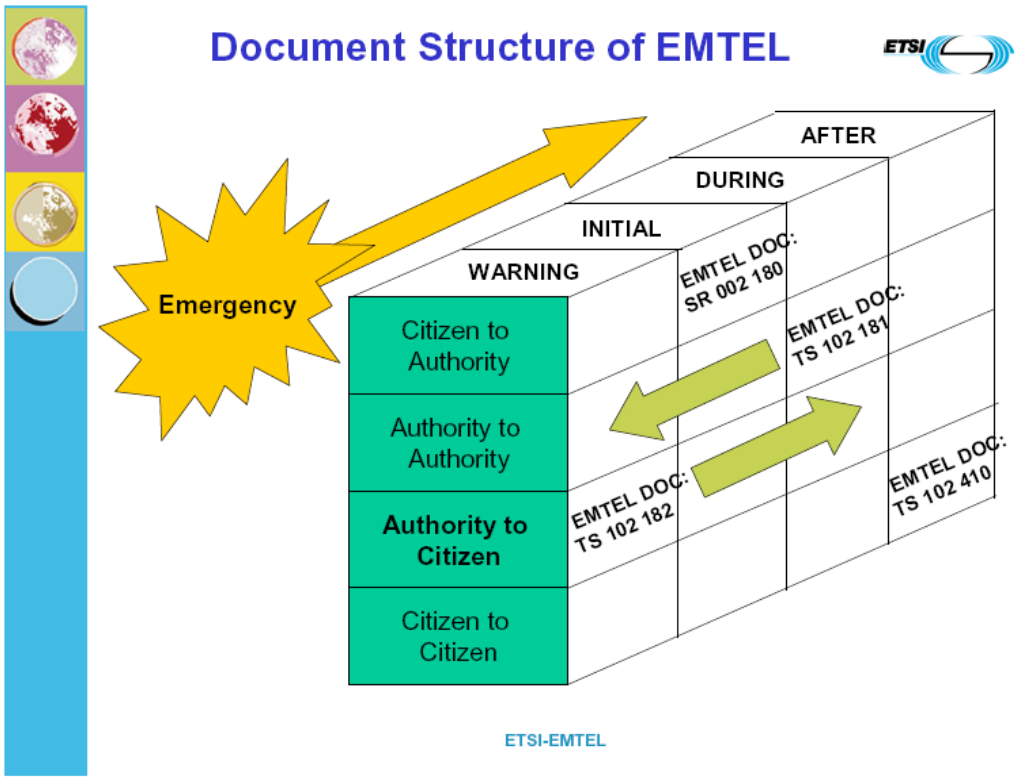
3: Co-ordinate the ETSI positions on EMTEL related issues

4: Be the Interface for emergency communications issues, between ETSI and CEC/EFTA, NATO, ITU groups, the CEPT ERO and relevant CEN and CENELEC committees

4: Collect user requirements to ensure: Communication of citizens with authorities; Communication from authorities to citizens; Communication between authorities and Communication amongst citizens

5: Generally agreed categories to be considered in the provision of emergency communications for practically all types of scenario, including communications resilience and network preparedness

ETSI-EMTEL has a full set of documents for emergency warnings, as follows (see picture):



The most important document for Cell Broadcast Alert purposes is the EMTEL DOC: TS102 182,

re-approved in September 2006: 'Requirements for communication from authorities to citizens during emergencies'. (Revised and up issued to a Technical Specification to include parameterisation of the alerting requirements.)

Another useful technical document is: EMTEL DOC: TR102 444: 'Suitability of SMS and CBS (Cell Broadcast Service) for Emergency Messaging', published in March 2006.

You can find the main standards on the EMTEL Status Report page (ETSI Portal):

http://portal.etsi.org/emtel/status.asp

Cell Broadcast harmonisation ITU:

CHORIST members are active within the ITU organisation. They have been communicating via the membership of the Cell Broadcast Forum to the ITU. As such a liaison paper for Alert services has been sent on request of the ITU, from the Cell Broadcast Forum.

The document focuses on the harmonization of Message Identifiers for Cell Broadcast emergency alerts. Especially for the roamers Message Identifiers have to be standardized. It should not be necessary for a traveller who crosses borders to consider which Message Identifier is in use in the country that is being visited. Through the Data Coding Scheme some 20 languages are supported (as described in 3GPP TS23.038).

From the network perspective it is also possible to use the Data Coding Scheme 00010000, where the first 3 characters of a message are two-character representation of the language encoded according to ISO 639, followed by a ‘CR’ character. The CR character is then followed by 90 characters of text.

(See CBF_ITU liaison statement, dated March 2007.)

6 MOBILE STATIONS FOR CELL BROADCAST

6.1 STANDARDS FOR MOBILE STATIONS

The Mobile Station (handset), when using Cell Broadcast message with GSM, 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 GSM 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 broadcast 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 additional reasons why various handsets on the market behave differently, when using Cell Broadcast functionalities.

6.2 STANDARDS FOR LANGUAGES

Data Coding Schemes (DCS) are defined in the 3GPP standard 3GPP TS 23.038, "Alphabets and language specific information".
The CBS Data Coding Scheme indicates the intended handling of the message at the mobile handset, the character set/coding, and the language (when applicable). This suggests that the DCS can also be used as a language identifier. The DCS is a parameter of the message, and can indicate which language is used for the message content. The following languages are specified in the standard: German, English, Italian, French, Spanish, Dutch, Swedish, Danish, Portuguese, Finnish, Norwegian, Greek, Turkish, Hungarian, Polish, Czech, Hebrew, Arabic, Russian, and Icelandic.
21 languages can be specified with the DCS, where some 150 are actually needed for all languages specified in ISO 639.
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.

It is usually possible to select a language in the menu of the Mobile Station where the Cell Broadcast function resides. Apart from selecting an actual language it is normally also possible to select 'all languages'. If a language is selected from the menu of the phone; only messages with that same DCS will be displayed.

Messages with another DCS will be discarded. This makes it possible to broadcast emergency alert messages in various languages with the same Message Identifier, for example all on MI 920.

Note: in the 3GPP standard 3GPP TS 22.268, Public Warning System Requirements contains the requirement that when a terminal has been configured to receive warning messages in the home network, and the user roams in another network which also offers public warning services (PWS), then the terminal shall also be able receive warning messages. A solution for this requirement shall be developed later in 2009/2010 timeframe.

7 MOBILE STATION WITH CB FUNCTIONS BEHAVIOUR

7.1 MS 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.

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.

It is believed that NOT ALL Mobile Stations support a language filter, although most of the leading Mobile Station – handset manufacturers have implemented this in a proper way, according to the defined standards.

When making an advice judgement based on the handsets which are available at this moment in time on the market, the use of a language filter is depending on the selection in a proper way by the handset user.

We found that most of the handsets in operation have selected the ‘right MI’ channel with CB ‘switched ON’, also have selected ‘All Languages on’.

When this is the case then the language filter is not in active operation. Meaning that if and when multiple languages are transmitted over the same MI channel, the user gets all messages.

The good news is that most handsets store received messages in memory, but it needs some handset user practice to read those messages. A recognizable tone added to the alarm MI channel would additionally help getting the message across to the user.
Most handsets have also a tone function and with the more advanced handsets it is possible to have a special alarm tone with it.

Note: Message Identifier 112 might be an obvious choice for most countries in Europe, but note that this is not recommended: A technical trial (source – CB trial The Netherlands in 2006/7 and Cell Broadcast Forum) has shown that using the 112 Message Identifier resulted in mass mobile calls to the 112 call centre. Citizens were puzzled about the message and in order to find answers, their obvious choice was to dial the 112 centre - just to find out that the centre was completely incapable of handling the mass amounts of calls – all at the same time.
It is therefore not recommended to use the 112 Message Identifier number, but instead use another MI number, not directly associated with inbound calls of emergency call centres.

7.2 MS BEHAVIOUR FOR MAX CB MESSAGE LENGTH

Message length of Cell Broadcast messages.

The length of a Cell Broadcast message can be up to 15 pages of 93 characters each, according to the defined standards, which specifies a maximum of 1395 characters for one Cell Broadcast message.

Using Cell Broadcast messaging is normally also the implementation of a periodic radio beacon, in the sense that a GSM or UMTS radio cell is transmitting continuous or periodic radio signals with the messaging information content, on a specific MI. Longer page messages are more vulnerable for radio noise (generated by cars/motors etc) interfering with the radio signal.

Repetition of messages increases the receiving of extreme long messages, to 100%. For Citizen Alerts the length of a text message of 1395 characters is probably too long from a human communication point of view. (ref: trials Cell Broadcast The Netherlands 2006-2007)

Best practice advice: It is strongly advised that in order to reach as many Citizens as possible a Citizen alarm CB message should be as short as possible. 'Shorter is better'.

7.3 MS BEHAVIOUR ACTIVATION

The standard Mobile Station description documents tell us that handset manufacturers should deliver their products with the CB function not activated, not on and leave it up to the user to use Cell Broadcast.

As an example that handset producers not blindly follow the standards, it is of interest to know that during tests we found a number of handsets were delivered as brand new, 'out of the box' experience, with the Cell Broadcast function switched 'on', and 'all channels on'.

A few examples of these Mobile Stations with the CB function selected 'on': (almost?) all Samsung Mobile Stations. But also models like the Motorola NTX200; Qtec; NEC 341, NEC 410 etc.

Maybe from a user perspective this is quite good, but it is different as defined in today's official standard.

The present standard, defined many years ago, has defined this because of the perceived battery power drainage, which maybe once was a problem. Not so much in today's modern multi function Mobile Stations.

It is quite clear to the Cell Broadcast Forum and members of the CHORIST research that this is old news, completely outdated information. In ETSI meetings this point of view has been confirmed already, but the 3GPP standard has not been changed officially, yet – work in progress.

From Mobile Station behaviour this means that all CB messages, over any MI channel, in any language used, will be received and displayed on these handsets – out of the box. Maybe very good - but not according to the standards defined.

Activation of CB function:

The description of the Cell Broadcast function in the handsets is not the same for the various handset manufacturers, making it difficult to give general instructions how to set a handset in the right mode.

One manufacturer calls this functions: CB Info service (Nokia), another calls it cb-services (Siemens) or region info (Sony–Ericsson) or info messages (Samsung) and yet another calls it Cell Broadcast (Motorola).

The activation of handsets is crucial in the receiving of Cell Broadcast messages.

During several trails done it has been clear that especially for the older generation, it seemed not so easy to activate the handset. To get this done takes a combined effort of communication. (ref: CB trial The Netherlands 2006 -2007): for instance a public website database with detailed MS activation for most popular models, additional e-mail assistance, a general flyer on paper, a Cell Broadcast activation service at phone shops of operators and/or other mobile communication vendors, or the full technical solution: Cell Broadcast activation via an OTA service.

It is also advised for final service implementation for mass communication to citizen to use a 'Cell Broadcast heartbeat message', a radio beacon signal at fixed times via a predefined MI. For instance a time indication signal on certain instances is believed to be useful. There are various ways how this could be implemented. (out of scope)

7.4 MS BEHAVIOUR INDEX CHANNEL

The Index feature could be used as a special type of message to the CBC's to inform the citizen user about the type of CBS services available – reference to the MI's being active.

Especially if and when citizens are nomadic, they can check what MI's are in use in a certain GEO area and very easily activate the MI which is of interest to them at that moment. So even if the harmonization of Citizen Alert MI is not to the level you might want, it is when using the index MI then quite possible to know which MI has to be selected - to be connected to the Citizen Alert information from local Authorities.

Index has the structure of a tree. It can thus have sub parts which are called sub indexes. A sub index can be embedded in the same index message as its parent ("embedded sub index") or it can physically be in a separate index message ("child sub index"). Every index message has a unique message identifier.

Available CB services are introduced in the index. This means that their message identifier and name are stated.

There are handset manufacturers which do support this feature in a very clear and reliable way. For instance (almost) all NOKIA handsets behave according to expectations. In fact, NOKIA is the role model how to implement in a very nice way the index messaging function – as defined in the standards. The index channel can be used as a very quick way to select the appropriate MI channel.

The good news is that 100% of all tested Mobile Stations (source: CB trial in The Netherlands 2006-7) done with 44 different models, mix market leaders and smaller vendors and old and new models, receive the index message.

However, during the technical tests, it became clear that there are many Mobile Stations / handsets on the market from various Mobile Station manufacturers which display the index message on the MS as a ''normal'' message and not making use of the obvious easy way to activate MI's, directly coupled to this index message. Only 27% of all tested Mobile Stations gave the possibility to activate /de-activate an MI, direct from the index message, without going to the normal user interface menu.

The standard as it is now gives (probably) to much freedom how to implement and use the index channel message.

In the meanwhile, using the index channel messaging should be done with great care. For instance it is recommended not to use, at this point in time, the sub indexes.

7.5 MS BEHAVIOUR RECOMMANDATION FOR PWS USE

A recent 3GPP study (Release 8 15 3GPP TR 22.968 V8.0.0 - 2008-03) has specified how the user interface **in the future** should behave for receiving messages from a Public Warning System (PWS):

The warning notification delivered to the user's terminal should be understood by the user with minimal knowledge of the UE. The 3GPP PWS standards should therefore provide generic guidelines for UI aspects.

If PWS reception is activated on the UE, these guidelines could include e.g.:

- A designated acoustic/visual signal dedicated to PWS
- Terminal behaviour when a warning notification is received in IDLE mode. An example can for instance be;
- The terminal is set to ringing mode (if previously being in silent mode)
- Speaker is set to highest volume (PWS warning notification dependent)
- The vibrator is being activated
- The warning notification is automatically played out (PWS warning notification dependent)
- The warning message should stay on regardless of user settings until the message indication is acknowledged by the user.

- Terminal behaviour when a warning notification is received in ACTIVE mode
- It should be possible for users to configure the behaviour of a terminal when having ongoing communication.

The configurable part should concern at least volume adjustment. Note that different regulatory requirements might exist with regards to pre-emption of ongoing calls.

- Terminal capability for user operation when/ after a warning notification is received. An example can for instance is;
- The acoustic/ visual signal can be suppressed by users' manual operation (e.g. by pushing keys)
- After the signal is suppressed by manual operation, it should be possible to suppress duplicate notifications received later. A duplicate is a repetition of a previous notification as determined by a parameter such as a Message ID.

- PWS should support users with special needs e.g. deaf, blind, elderly people and children.
An example terminal capability can for instance be;
- Terminal behaviour (e.g. specified ring tone, vibration) can help these users understand emergency events easily. In order to improve the user experience and simplify user education a single special notification tone and/or vibration cadence is desirable.

- It should be possible to store the received Warning Notifications in the UE and access them at a later time.
- It should be possible for the user to review the message at a later time.
- The Warning Notification should be presented to the user

7.5.1 Defined work in progress – MS standardisation issues

During the proof of concept demonstrations of CHORIST, mainly at Vodafone research in Madrid and at the Civil Protection Service in Barcelona, in addition to the work of the operational CB trials being done in The Netherlands, there is ‘work in progress’ defined, to make it easier for Governments and Operators to use Cell Broadcast as a reliable and dominating alarm communication channel, able to trigger the other communication to citizen alert channels.

In order to have the ideal, optimised handset for Cell Broadcast Alerts, prepared for receiving a Citizen Alert, with a clear tone, handsets have to be prepared for this by the user, or –

the 3GPP specifications have to be modified with a predefined CB channel number for Alerts and a combining Alert tone, more specific: ETSI-EMTEL defines the requirements and 3GPP workgroup CT1 is the responsible entity to get this done.

A: Alert Channel:

Use a harmonized predefined channel of Citizen Alert. In exchange of ideas between ITU, the Cell Broadcast Forum and Ceasa-int, for the time being the channel number 920 has been ADVISED to use as this standard channel. Work has to be done to change this with 3GPP workgroup CT1.

B: A CB siren tone:

To alert people it is strongly recommended to use a defined siren tone as a private siren warning tone.

Tuning the new generation handsets:

The new generations of handsets have advanced software on board. If this is the case, for instance with Java, Symbian or Microsoft as operating system, then it is very well possible to tune the handset to optimal use for Citizen Alerts via Cell Broadcast messaging.

These handsets can be modified to have a predefined siren tone when a Cell Broadcast signal as an Alert message on channel 920, has been received.

When there is not yet an official 3GPP standard it is very well possible to make this receiving software available on the website, free to download, per model. This makes it also possible as a way to OTA (Over The Air) activates the Cell Broadcast receiving mode for Citizen Alerts.

For disabled deaf people it is possible to select a handset with vibration and light signals, when and if a Citizen Alert Cell Broadcast message has been received.

For disabled blind people it is possible to select a handset with the combination of a siren tone, coupled with a text – speech application.

7.5.2 Defined work in progress – for PWS use

The basic statement is: ‘Learning by doing’.

In ‘learning by doing’ the following advice is given to take into account during one of the next steps, using information gathering from a technology point of view:

- Have up-to-date PLMN lists, at least ones a week and do a trace function log to monitor the availability of the cells in respect to the PLMN lists. Display the findings in the GIS map for CB messaging managers and report after each message sent the cells where the alarm message has been transmitted, based upon this info
- Use an advanced systems and components monitoring software tool, in order to get proactive information about the used technical value chain, including the monitoring function and trend analyses
- Install a permanent test system in order to test additional connections, without disturbing the Operational CB network
- Actively work on the standards committees of ETSI / HF (Human Factors) via the Cell Broadcast Forum, in order to accept requirements for emergency warnings on the handset level (f.i. a harmonised EU alert tone and channel number).
- To work with the handset manufacturers to communicate about the behaviour of their handsets on the use of Cell Broadcast, after performed tests
- Have an up-to-date handset web service database for Citizen how to activate, de-activate, handsets
- Include the 3G handset users: For 3G handsets develop and test software in MS, Java and Symbian, to be downloaded for a specific handset, with the software function on receiving Cell Broadcast messaging via GSM.
- For deaf people: recommend (test !) proper handsets which can vibrate and gives lights when receiving a Cell Broadcast emergency warning message.
- For blind people: recommend (test !) proper handsets which can vibrate and can do text – speech when receiving a Cell Broadcast emergency message.

8 POSITION PAPER CB AS A TOOL FOR CIVIL ALERT

This additional Position Paper has been written by:

Partner and Participating countries of the EU project “Cell Broadcast for public warning - Sharing Knowledge and experiences and identification and standardisation of (technical) requirements”, referred to throughout as the ‘supporting governments’.

This project is funded by the European Commission, Directorate-General Justice, Freedom and Security and initiated by the Ministry of Interior and Kingdom Relations of the Netherlands. The United Kingdom, Poland, Hungary, Germany and Sweden are partners in the project.
Source dated: March 2009.

Note: This Position Paper is included in this CHORIST report, because of the many contributions CHORIST partners one2many and SPMM have done to this study group, exchanging information in the most open way from the CHORIST project and related Cell Broadcast Forum expertise, to the participating members and because the content of this Position Paper is fully supported by the CHORIST partners SPMM and one2many, active in CHORIST SP3 Communication to Citizen and the Cell Broadcast Forum.

DISCLAIMER
Support of this position paper does not imply that a country has taken or will take a firm decision to implement Cell Broadcast for civil alert.
Purpose of this paper is to describe the common position of the supporting governments towards the possible use of cell
broadcast for civil alert applications. The paper aims to provide direction for the mobile telecommunications (standardisation) industry and the European Commission.

Target audience
Mobile telecommunications standardisation bodies working on (handset) standards
Mobile handset vendors and manufacturers
Mobile network providers and operators
The European Commission
Version control:
Version 5 includes comments from the attendants of the workshops on User Interface organized in London (UK) on the 16th and 17th of December 2008, Procurement organized in Amsterdam (NL) on 28th and 29th of January 2009 and Best Practices in Warsaw (PL), 4th and 5th of March 2009.
This paper is not a static document, but will be adjusted according to new insights and agreements.

Introductory Note
This position paper is a product of the EU project “Cell Broadcast for public warning - Sharing knowledge and experiences and identification and standardisation of (technical) requirements,” funded by the European Commission, Directorate-General Justice, Freedom and Security. The aim of the project is to share knowledge on the use of Cell Broadcast as a tool for civil alert, compile functional requirements and explore the possibility of cross border trials. The paper aims to provide direction for the mobile telecommunications (standardisation) industry and the European Commission.

8.1 BACKGROUND

The supporting governments have many tools available to alert their citizens in case of disasters, risks and crises.

These tools vary from sirens, radio/television, dedicated telecommunications infrastructures and cars with megaphones.

These tools are no longer fully sufficient for various reasons, like:

- An increased awareness of risks in societies.
- Citizens expect their national government to provide them services at levels they receive from commercial service providers and expect them to use modern and readily available tools, like the internet and mobile phones.
- The general strategy in case of crisis is to maximise the level of self-support of citizens.
- This requires the provision of a service to alert and instruct which is not effectively supported by existing tools.
- The consequences of globalisation make it necessary to look for uniform methods of communication to the public, on a European level.

There are various reasons to look into cell broadcast as a tool for civil alert. These reasons include:

- A specific capability gap that currently exists, for example a need to transmit messages in different languages concurrently
- A desire to exploit the opportunity that recent technological developments present
- To enhance capability, for example increased usage of mobile phones enables the development of more effective and efficient warning methods
- The financial incentives – a cell broadcasting service may be cheaper to maintain, for example in comparison with the maintenance of a national siren system, and therefore a good addition to the existing alerting tools.
- Furthermore, Cell Broadcast can fulfil a certain requirement, which existing tools cannot in terms of mass warning, informing and alerting.
- The introduction of Cell Broadcasting has strong political support - ministers are committed to using technology to improve the efficiency, choice, and personalisation of public services.

As all warning methods are vulnerable to disruption, an ‘extra tool in the toolkit’ would increase the overall resilience of the warning and informing capability of the supporting governments.

1. Cell Broadcast has the potential to be an additional tool in the current set of tools to alert citizens.
2. The main role of Cell Broadcast is to distribute an initial alert and instructions. Other tools, like radio/television or internet, could follow this.
3. It works via mobile phones, which the vast majority of citizens are carrying.
4. It has the ability to alert and instruct everyone in a country or smaller groups, based on their geographical location, within minutes.
5. Alternatives to Cell Broadcast do exist, however at present the supporting governments have not identified any that match the capabilities of cell broadcast.

8.2 THE MAIN ISSUE TO BE SOLVED

Cell Broadcast as a standardised tool for warning in Europe would help warn visitors in a country, tourists and guest workers. The mobility of people in Europe is high, especially during holiday periods. Therefore, agreement is required on the use of different languages and the possibility of one standardised alert tone in EU member states.

Although Cell Broadcast is an old standard, the supporting governments may be the first users of Cell Broadcast as a mass application in Europe. Co-operation is therefore needed to maximise learning.

Mobile network operators, many of which operate in more than one EU country, have to support this initiative.

In order to make a cell broadcast alert service as accessible and user-friendly as possible for citizens, work on the handset support for Cell Broadcast is required. Since the handset industry is a global industry, these needs to be addressed on an EU level.

Due to the limited use of Cell Broadcast in GSM, the support for Cell Broadcast on UMTS networks and handsets are low on the agenda of the industry. Co-operation is required to get this on the agenda of the industry, for UMTS and next generation technologies.

EUROPEAN CO-OPERATION IS OF UTMOST IMPORTANCE TO ADDRESS THESE ISSUES

What the supporting governments want to be able to offer their citizens:

1: Alert messages broadcast over a specific geographic area.

2: A seamless service, even when travelling.

3: Handsets which support at least the following Cell Broadcast features for civil alert:

- Receive alert messages accompanied by a special ring tone, preferably an EU standardised ring tone;
- Various alert levels, e.g. local, regional and national level;
- Sending out emergency messages to users, preferably in their own language, but when not practicable, then in the language of the message originator;
- Alert messages received are displayed immediately on the handset display, even during a voice call;
- Ability to store messages;
- A simple user interface that enables the user to switch the alert service on or off.
- The possibility to send a message accompanied by an ‘all clear’ tone, to inform citizens that the crisis has ended, is a topic for further study.
- The possibility to make use of pictograms in cell broadcast messages to inform citizens on the type of crisis and possibly on the type of action that is required, is a topic for further study.

8.3 SUPPORT REQUIRED FROM THE EUROPEAN COMMISSION

Next to the generous support received from the DG JLS for the European project on Cell Broadcast and the contacts with the MIC of DG Environment and the DG Communication, the supporting Governments require the following:

- Support towards standardisation bodies to standardise a set of requirements for a civil alert service via Cell Broadcast.

- Support towards the mobile infrastructure and equipment vendors to implement the requirements.
- Support towards the European mobile telecommunications service providers to support Cell Broadcast initiatives against reasonable conditions.
- Support towards the standardisation of one EU ring tone.
- Support required from the mobile telecommunications industry
- Handset Vendors to implement the standards for civil alert