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Technical Realization of the Short Message Service -
Cell Broadcast

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1. Reason for changes

Change Request 03.41-7 agreed at SMG#1 (Lisbon) is included.

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Foreword

This second Final draft Interim European Telecommunication Standard (I-ETS) has been produced by the Special Mobile Group (SMG), a Technical Committee of the European Telecommunications Standards Institute (ETSI).

The final drafts dealing with the GSM system were adopted by vote in May 1991 but were not published. This was because amendments, agreed by ETSI TC-SMG at subsequent meetings, were made to some of the drafts. However, other drafts have not been amended since the first vote.

This updated draft is now considered to be stable enough for submission to second vote.

This I-ETS specifies the Short Message Service Cell Broadcast (SMSCB), Teleservice 23, message format on the Base Station System (BSS)/Mobile Station (MS) interface within the European digital cellular telecommunications system (phase 1).

Reference is made within this I-ETS to the following technical specifications (NOTE 1):

GSM 02.30 Man-machine interface of the Mobile Station.

GSM 04.12 Cell broadcast short message service support on mobile radio interface.

GSM 05.02 Multiplexing and multiple access on the radio path.

The above specifications, together with annex 1 of this standard, are normative.

NOTE 1: ETSI has constituted stable and consistent documents which give technical specifications for the implementation of the European digital cellular telecommunications system. Historically, these documents have been identified as "GSM recommendations".

Some of these recommendations may subsequently become Interim European Telecommunication Standards (I-ETSs) or European Telecommunication Standards (ETSs), whilst the others will be renamed ETSI-GSM Technical Specifications. These ETSI-GSM Technical Specifications are, for editorial reasons, still referred to as GSM recommendations in some current GSM documents.

The numbering and version control system used for ETSI-GSM Technical Specifications is the same as that used for GSM recommendations.

NOTE 2: Items in this draft indicated as not complete, or requiring further study or work, are not required for the Phase 1 implementation of the European digital cellular telecommunications system.

ETSI/GSM

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Date: February 1992

Recommendation: GSM 03.41

Title: TECHNICAL REALISATION OF THE SHORT MESSAGE SERVICE - CELL BROADCAST

List of contents:

Original language: English

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1. Scope

This recommendation describes the Short Message Service - Cell Broadcast (SMSCB). It defines the message formats over the BSS-MS interface for the Teleservice 23 as specified in GSM Rec 02.03.

2. General Description

SMSCB is a service in which short messages may be broadcast from a PLMN to MS's. SMSCB messages come from different sources (e.g. traffic reports, weather reports). The source and/or subject of the message is identified by a 2 octet message identifier in the SMSCB header. A sequence number in the SMSCB header enables the MS to determine when a new message of a given source/subject is available. An MS can read the header and then decide whether or not to read the rest of the message.

SMSCB messages are sent as pages of up to 82 octets. Reception of SMSCB by the MS is only possible in idle mode, and the service is designed so as to minimise the adverse impact on the operation of DRX in the MS. The geographical area over which each SMSCB message is transmitted is selected by the PLMN operator, by agreement with the provider of the information.

The timing of the messages is defined in GSM Rec 05.02. The Layer 3 support of the SMSCB is defined in GSM Rec 04.12.

3. Message Format on BTS-MS Interface

3.1 General Description

Each SMSCB message is a fixed block of 88 octets as coded in GSM 04.12. This is sent on the channel allocated as CBCH by GSM 05.02. The 88 octets of SMSCB information consist of a 6 octet header and 82 user octets.

3.2 Message Content

Octet No	1-2	Sequence Number
	3-4	Message Identifier
	5	Alphabet Identifier
	6	Page Parameter
	7- 88	Characters of Message

These octets are transmitted in order, starting with octet 1. The bits within these octets are numbered 0 to 7; bit 0 is the low order bit and is transmitted first.

The fields are used as follows:

(i) Sequence Number is a 16 bit integer which is incremented every time the message with a given message identifier is changed.

(ii) Message Identifier identifies the source and type of message. This is coded in binary. The following codes are reserved for pan-European harmonisation (the assignment of these codes to specific applications is outside the scope of this Recommendation):

octet 3 = 00000000 to 00000011, with
octet 4 = 00000000 to 11111111

These reserved codings shall be used with the alphabet identifier set to the default value to allow Europe-wide compatibility. They should be assigned in ascending order (ie. octet 3 = 00000000, octet 4 = 00000000 assigned first; octet 3 = 00000011, octet 4 = 11111111 assigned last).

All non-reserved codings (ie those not covered above) are open for use as specified by network operators. They should be assigned in descending order (ie. octet 3 = 11111111, octet 4 = 11111111 assigned first, octet 3 = 00000100, octet 4 = 00000000 assigned last).

(iii) Language group/language identifier is coded as two 4-bit fields. The first field (bits 0-3) indicates the language, within a language group, that is employed for the user characters.

The second field (bits 4-7) indicates the language group. An alphabet is assigned to each language group, and is used for all languages within a group. More than one language group can be assigned to a single alphabet.

The allocation of language groups, language identifies and alphabets is as follows:

Language group	Language identifier	Language	Alphabet
0000	0000	German	Default (see annex 1)
	0001	English	
	0010	Italian	
	0011	French	
	0100	Spanish	
	0101	Dutch	
	0110	Swedish	
	0111	Danish	
	1000	Portuguese	
	1001	Finnish	
	1010	Norwegian	
	1011	Greek	
	1100	Turkish	
	1101	Reserved for European languages	
	1110	Reserved for European languages	
	1111	Reserved for European languages	
0001	xxxx	Reserved for European languages	Default (see annex 1)
0010	xxxx	Reserved for European languages	
0011	xxxx	Reserved for European languages	
0100	xxxx	Reserved for European languages	

All other values reserved.

The table showing the default 7-bit coded alphabet is given in annex 1. The message then consists of 93 user characters.

(iv) The page parameter is coded as two 4-bit fields. The first field (bits 0-3) indicates the total number of pages in the message and the second field (bits 4-7) indicates the

page within that sequence. The coding starts at 0001, with 0000 reserved.

(v) Characters of the message

In the case of messages shorter than 93 user characters, packing characters (NUL) shall be inserted to bring the total number of characters up to 93 . To maintain an integral number of octets, 5 packing "0" bits are transmitted at the end of the message.

ANNEX 1

DEFAULT ALPHABET AND CODING SCHEME

The default 7-bits coded alphabet for SMC-CB is the following:

				b7	0	0	0	0	1	1	1	1
				b6	0	0	1	1	0	0	1	1
				b5	0	1	0	1	0	1	0	1
b4	b3	b2	b1		0	1	2	3	4	5	6	7
0	0	0	0	0	@	Δ	SP	0	¡	P	¿	p
0	0	0	1	1	£	1)	!	1	A	Q	a	q
0	0	1	0	2	$	Φ	"	2	B	R	b	r
0	0	1	1	3	¥	Γ	#	3	C	S	c	s
0	1	0	0	4	è	Λ	¤	4	D	T	d	t
0	1	0	1	5	é	Ω	%	5	E	U	e	u
0	1	1	0	6	ù	Π	&	6	F	V	f	v
0	1	1	1	7	ì	Ψ	'	7	G	W	g	w
1	0	0	0	8	ò	Σ	(	8	H	X	h	x
1	0	0	1	9	Ç	Θ	)	9	I	Y	i	y
1	0	1	0	10	LF	Ξ	*	:	J	Z	j	z
1	0	1	1	11	Ø	1)	+	;	K	Ä	k	ä
1	1	0	0	12	ø	Æ	,	<	L	Ö	l	ö
1	1	0	1	13	CR	æ	-	=	M	Ñ	m	ñ
1	1	1	0	14	Å	ß	.	>	N	Ü	n	ü
1	1	1	1	15	å	É	/	?	O	§	o	à

Note 1: The characters marked "1)" are not used but are displayed as a space.

Note 2: The characters of this set, when displayed, should approximate to the appearence of the relevant characters specified in ISO 1073 and the relevant national standards.

If a character number α is noted in the following way:

$\alpha a\ \alpha b\ \alpha c\ \alpha d\ \alpha e\ \alpha f\ \alpha g$

the packing of the 7-bits characters in octets is done by completing the octets with zeros on the left.
For examples, packing:

- one character in one octet:

bits number:	7	6	5	4	3	2	1	0
	0	1a	1b	1c	1d	1e	1f	1g

- two characters in two octets:

bits number:	7	6	5	4	3	2	1	0
	2g	1a	1b	1c	1d	1e	1f	1g
	0	0	2a	2b	2c	2d	2e	2f

- three characters in three octets:

bits number:	7	6	5	4	3	2	1	0
	2g	1a	1b	1c	1d	1e	1f	1g
	3f	3g	2a	2b	2c	2d	2e	2f
	0	0	0	3a	3b	3c	3d	3e

- eigth characters in seven octets:

bits number:	7	6	5	4	3	2	1	0
	2g	1a	1b	1c	1d	1e	1f	1g
	3f	3g	2a	2b	2c	2d	2e	2f
	4e	4f	4g	3a	3b	3c	3d	3e
	5d	5e	5f	5g	4a	4b	4c	4d
	6c	6d	6e	6f	6g	5a	5b	5c
	7b	7c	7d	7e	7f	7g	6a	6b
	8a	8b	8c	8d	8e	8f	8g	7a

The bit number zero is always transmitted first.

Therefore, in 82 octets, it is possible to pack (82x8)/7 = 93.7, that is 93 characters. The 5 remaining bits are set to zero as stated above.

Document history		
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