

ETSI/GSM

Released by: ETSI PT12

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Recommendation: GSM 03.41

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

List of contents:

1. Scope
  2. General description
  3. Message format on the BSS-MS interface
    - 3.1 General description
    - 3.2 Message Content
- Annex 1: Default alphabet and coding scheme

Original language: English

Number of pages: 6

## 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) Alphabet/Language Identifier is coded as two 4-bit fields. The first field (bits 0-3) indicates the alphabet and coding employed for user characters.

Default value = 0 (for alphabet given in annex 1)  
Other values reserved.

The table showing the default 7-bit coded alphabet is given in annex 1. The message then consists of 84 user characters.

The precise method of display of messages by an MS is for the operator to specify.

The second field (bits 4-7) indicates the language employed for the user characters:

0000 Preferred language of visited broadcast area

0000  
|  
Coded for other GSM languages  
|  
1111

(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.

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**RELEASE NOTE**

**Recommendation GSM 03.41**

**Technical Realization of Short Message Service -  
Cell Broadcast**

- previous released version : 3.2.0
- new released version : 3.3.0

**1. Reason for changes**

Changes agreed at GSM28 (Corfu) and GSM 29 (Saarbrücken) are included.

**2. Details of changes**

CR	Title	Sections modified	Ref GSM Doc
GSM 28 Correction	Default Alphabet	Anx 1	334/90
(Resulting in version 3.2.1)			
GSM 29 CR 03.41-4	Default Alphabet	Anx 1	4/91
(Resulting in version 3.3.0)			

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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	i	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	Å	k	å
1	1	0	0	12	ø	Ⓢ	,	<	L	Ö	l	ö
1	1	0	1	13	CR	æ	-	=	M	Ñ	m	ñ
1	1	1	0	14	Á	β	.	>	N	Ú	n	ú
1	1	1	1	15	á	É	/	?	O	Ş	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 appearance of the relevant characters specified in ISO 1073 and the relevant national standards.

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

*aa ab ac ad ae af ag*

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
  
- eighth 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  $(82 \times 8) / 7 = 93.7$ , that is 93 characters. The 5 remaining bits are set to zero as stated above.

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				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	i	P	ı	p
0	0	0	1	1	£	ı)	!	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	ı	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	ı)	+	;	K	Å	k	å
1	1	0	0	12	ø	⊗	,	<	L	Ö	l	ö
1	1	0	1	13	CR	æ	-	=	M	Ñ	m	ñ
1	1	1	0	14	Á	β	.	>	N	Ú	n	ú
1	1	1	1	15	á	É	/	?	O	Ş	o	ş

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

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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

- eighth 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

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