TSG-RAN Meeting #10 *RP-000569*
Bangkok, Thailand, 6 - 8 December 2000

Title: **Agreed CRs to TS 25.324**

Source: **TSG-RAN WG2**

Agenda item: **5.2.3**

Doc-1st-	Status-	Spec	CR	Rev	Subject	Cat	Version	Versio
R2-002348	agreed	25.324	006	1	Correction to ANSI-41 Cell Broadcast Service	F	3.2.0	3.3.0

3GPP TSG RAN WG2 meeting #17
Sophia Antipolis, France, 14-17 November 2000

***Document* R2-002348**
e.g. for 3GPP use the format TP-99xxx or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.324 CR 006r1 Current Version: 3.2.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG-RAN #10 *list expected approval meeting # here ↑* for approval [X] / for information [ ] strategic [ ] / non-strategic [ ] *(for SMG Use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 2000-09-21

Subject: Correction of ANSI-41 Cell Broadcast Service

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[X]	**Release:**	Phase 2	[ ]
A	Corresponds to a correction in an earlier release	[ ]		Release 96	[ ]
B	Addition of feature	[ ]		Release 97	[ ]
C	Functional modification of feature	[ ]		Release 98	[ ]
D	Editorial modification	[ ]		Release 99	[X]
				Release 00	[ ]

Reason for change:

It is a R99 requirement to support ANSI-41 Cell Broadcast Service.

It is proposed to introduce a new BMC message "CBS41 Message" to support fully this requirement. This CR is related to CR 004 to TR 25.925 (R2-002217).

Other minor corrections are:
– Format change of Message ID IE in the Message Description IE (subclause 11.9)
– concatenation in RLC shall not be possible as described in TR 25.925
– some editoral corrections

Clauses affected: 2, 8.2.1.2.2, 9.1, 9.2, 9.4, 10.1, 10.2, 10.3, 10.4 (new), 11.1, 11.8, 11.9, 11.10 (new), 11.11 (new)

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] 3G TS 25.322: "RLC Protocol Specification".

[2] 3G TS 25.301: "Radio Interface Protocol Architecture".

[3] 3G TS 23.041: "Technical realisation of Cell Broadcast Service (CBS)".

[4] 3G TS 23.038: "Alphabets and Language".

[5] 3G TS 25.419: "UTRAN Iu interface: Service Area Broadcast Protocol SABP".

[6] 3G TS 25.925: "Radio Interface for Broadcast/Multicast Services".

[7] TIA/EIA-41-D: "Technical realisation of Cell Broadcast Service (CBS)".

[8] TIA/EIA-637-A: " TR45 – Short Message Service for Spread Spectrum Systems ~~Technical realisation of Cell Broadcast Service (CBS)~~".

8.2.1.2.2 BMC-Data41-IND

The BMC-Data-IND primitive is used to indicate received CB messages to upper layer (Transport Layer) if the source is ANSI-41 core network.

Primitive Type: indication.

Parameters:

Transport Layer Message.

Broadcast Address.

9 Procedures

9.1 BMC Message Broadcast

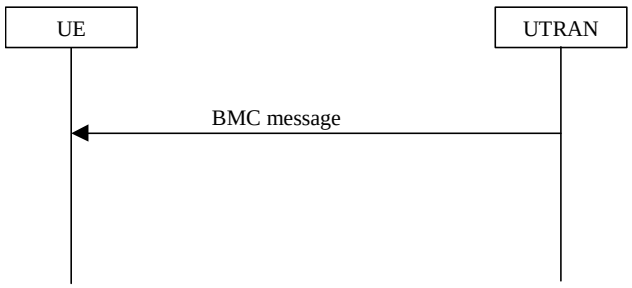

Figure 9.1-1: Procedure for broadcast of BMC messages

This procedure is used for broadcasting BMC messages from the network to UEs in a cell. A UE supporting Cell Broadcast Service (CBS) shall be capable to receive BMC messages in the Idle mode and in CELL_PCH and URA_PCH RRC-states of Connected mode.

~~Two~~ Three types of BMC messages are identified: CBS Message, CBS41 Message and Schedule Message.

9.2 Generation of Schedule message

NOTE: Principles and examples are described in 3G TR 25.925 [6].

This procedure calculates the CBS schedule periods and assigns BMC messages (i.e. CBS Messages, CBS41 Messages and Schedule Messages) to the CBS schedule periods and gives an indication which of the CTCH Block Sets containing part of or complete BMC messages has the status "new".

NOTE: The concatenation function of RLC shall not be applied.

Algorithms used for scheduling are implementation dependent and thus do not need to be specified. Some parameters may be set by CBC or O&M system.

CTCH Block Sets are indicated in a New Message Bitmap IE of BMC Schedule Message as new (bit position of a CTCH Block Set is set to value "1") when one of the following conditions is met:

The CTCH Block Set contains part of or a complete BMC message which
was either not sent during the previous CBS schedule period,
or sent unscheduled during the preceding CBS schedule period;
or, the CTCH Block Set is indicated as of free usage, reading advised,
or it contains the Schedule Message partly or complete of the following CBS schedule period,
or it contains a CBS41 Message partly or complete.

Other BMC messages sent in the same CBS schedule messages are indicated as "old" (bit position of CTCH Block Set containing this message partly or complete is set to value 0).

The indication "new" is set both for the first transmission of a BMC message in the CBS schedule period or a repetition of it within the CBS schedule period. For CBS41 Messages, repetition is not specified.

The input parameters of the scheduling procedure are set by CBC or RRC or by the O&M system for the BMC.

The CBC input parameters are:

CB messages (i.e. BMC SDUs),
Message Identifier per CB message,
Serial Number per CB message,
CB repetition period per CB message,
Number of Broadcast Requested per CB message.

The RRC input parameters are:

Sizes of CTCH Block Sets,
Timing of CTCH Block Set sequence.

The O&M (BMC) input parameters are:

DRX Schedule Period (cell related parameter) requested optionally,
Reserved CB Capacity (cell related parameter) requested optionally.

9.4 BMC message reception

The BMC entity on the UE side evaluates received BMC Schedule Messages and takes decisions which BMC messages should be received. The reception of a BMC message is indicated to RRC if the CTCH Block Sets carrying this BMC message are indicated as new. If the upper layer has requested reception of individual CB messages when in status "old", the reception of these BMC messages are also indicated to RRC.

If not otherwise requested by upper layers, only those CB messages received in BMC CBS Messages should be delivered to upper layers for which the Serial Number associated with the CB message has changed. This implies that the BMC has to store the last received Serial Number of each CB message activated by upper layers.

Every CBS41 Messages received by BMC shall be delivered to upper layer.

10 BMC Messages

10.1 General

A BMC message is equivalent with a BMC PDU. There are ~~two~~ three types of BMC messages defined, CBS messages~~,~~ and CBS41 messages, which carry cell broadcast data from higher layer, and *Schedule messages*, which provide information for support of Discontinuous Reception (DRX) of cell broadcast data at the UE.

BMC messages and information elements are specified using the tabular format methodology as specified in TR 25.921, and additional text is describing the encoding.

NOTE: In Release 99, only IEs marked as MP or CV in the "Need" column exists.

BMC messages (i.e. BMC PDUs) specified by tabular format consist of an ordered sequence IE1,..,IEn of information element fields.

Let $(A_{1,IE},..,A_{N,IE})$ be the bit string of an information element IE. $A_{1,IE}$ is equal to the leftmost bit of the information element field and $A_{N,IE}$ is equal to the rightmost bit of the information element field.

The bit string of a BMC message is defined as the concatenation $(A_{1,IE1},..,A_{N,IE1})$, …, $(A_{1,IEn},..,A_{N,IEn})$ of the bit strings of the IEs maintaining the sequence order.

10.2 BMC CBS Message

The CBS Message carries the cell broadcast data and the ~~identification and coding~~address information ~~of it.~~if the address information is based on GSM CBS.

RLC-SAP: UM;

Logical channel: CTCH;

Direction: UTRAN → UE.

Table 10.1-1: CBS Message

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Sec. 11.1	
Message ID	MP		Sec. 11.2	
Serial Number	MP		Sec. 11.3	
Data Coding Scheme	MP		Sec. 11.4	
CB Data	MP		Sec. 11.5	

10.3 BMC Schedule Message

The BMC Schedule Message describes for the succeeding CBS schedule period the time locations for each CBS Message and the location of the Schedule Message of the following CBS schedule period.

RLC-SAP: UM.

Logical channel: CTCH.

Direction: UTRAN → UE.

Table 10.~~2~~3-1: Schedule Message

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Sec. 11.1	
Offset to Begin CTCH BS index	MP		Sec. 11.6	
Length of CBS Scheduling Period	MP		Sec. 11.7	
New Message Bitmap	MP		Sec. 11.8	
Message Description	MP	1 to <Length of CBS Scheduling Period>	Sec. 11.9	Message Description IE is included for each new message (1 in the New message bitmap) as well as for each old message (0 in the New message bitmap). The i-th Message Description IE refers to the i-th bit in the New Message Bitmap IE.

10.4 BMC CBS41 Message

The CBS41 Message carries the cell broadcast data and the address information if the address information is based on ANSI-41 CBS.

RLC-SAP: UM.

Logical channel: CTCH.

Direction: UTRAN → UE.

Table 10.4-1: CBS41 Message

Information Element	Need	Multi	Type and reference	Semantics description
Message Type	MP		Sec. 11.1	
Broadcast Address	MP		Sec. 11.10	
CB Data41	MP		Sec. 11.11	

11 Information Elements

11.1 Message Type

Table 11.1-1: Message Type IE

IE/Group name	Need	Multi	Type and reference	Semantics description
Message Type	MP		Enumerated (0 .. 255) Table 11.1-2	

Coding of Message Type

Table 11.1-2: Coding of Message Type IE

1	CBS Message
2	Schedule Message
3	CBS41 Message
0, ~~3~~ 4 .. 255	Reserved for future use (PDUs with this coding will be discarded by this version of the protocol)

11.8 New Message Bitmap

Table 11.8-1: New Message Bitmap IE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
New Message Bitmap	MP		Bitmap(N*8) N = <Length of CBS Schedule Period> div 8, if <Length of CBS Schedule Period>mod8 = 0 N = <Length of CBS Schedule Period> div 8 + 1, if <Length of CBS Schedule Period>mod8 ≠ 0 Table 11.8-2	Bitmap indicating CTCH BS which contains new CBS Messages completely or partly

Coding of New Message Bitmap.

Table 11.8-2: Coding of New Message Bitmap IE

CTCH BS index B	CTCH BS index B+1	CTCH BS index B+2	...					1
								2
								...
	...	CTCH BS index E-1	CTCH BS index E	0	0	0	0	n
Legend: B First CTCH BS index of the CBS schedule period, 1 ≤ B ≤ 256 E Last CTCH BS index of the CBS schedule period, E = B + Length of CBS Schedule Period – 1								

CTCH BS Index i:
Bit i of the New CBS Message Bitmap refers to the content of CTCH BS index i. Its meaning is as follows:

1 The CTCH BS index i contains a BMC Message partly or completely which
was either not sent during the previous schedule period,
or sent unscheduled during the preceding schedule period;
or, the CTCH BS is indicated as of free usage, reading advised;
or it contains the Schedule Message partly or complete of the following CBS schedule period,
or it contains a CBS41 Message partly or complete.
The value is 1 both for the first transmission of a given BMC message in the CBS schedule period or a repetition of it within the CBS schedule period.

0 The CTCH BS is such that value 1 is not suitable.

The length of the New Message Bitmap is given by the IE Length of CBS Schedule Period. If it is not a multiple of 8 the remaining bit positions are padded with "0".

11.9 Message Description

Table 11.9-1: Message Description IE

IE/Group Name	Need	Multi	Type and reference	Semantics description
Message Description Type	MP		Enumerated(0..255) Table 11.9-3	
Message ID	CV MDT1		Enumerated (0 .. 2^{16}-1) 3G TS 23.041 [3]	
Offset to CTCH BS index of first transmission	CV MDT2		Integer (0..255)	

Table 11.9-2: Conditions

Condition	Explanation
MDT1	If Message Description Type = 1 or 5 then: the CB-Message-Id IE is included
MDT2	If Message Description Type = 0 or 4 then: the Offset to CTCH BS index of first transmission IE is included pointing to the CTCH BS index where the BMC message is transmitted the first time within the schedule period.

Table 11.9-3: Encoding of Message Description Type

Value	Explanation
0	Repetition of new BMC message within schedule period
1	New message
2	Reading advised
3	Reading optional
4	Repetition of old BMC message within schedule period
5	Old message
6	Schedule message
7	CBS41 message
~~7~~8.. 255	Reserved for future use (IEs received with this value will be replaced by value 3 in Release 99)

11.10 Broadcast Address

Table 11.10-1: Data Coding Scheme IE

IE/Group name	Need	Multi	Type and reference	Semantics description
Broadcast Address	MP		Bitstring(40) TIA/EIA-637-A [8]	Address information for higher layer

11.11 CB Data41

Table 11.11-1: CB Data IE

IE/Group name	Need	Multi	Type and reference	Semantics description
CB Data41	MP		Bitstring(N*8) N ≥ 1 TIA/EIA-637-A [8]	Content of CBS message (ANSI-41)