TSG-RAN Meeting #9
Oahu, HI, USA, 20 – 22 September 2000

RP-000360

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
R2-001669	agreed	25.324	005		Corrections	F	3.1.0	3.2.0

3GPP RAN WG2#15
Sophia Antipolis, France, 21 – 25 August, 2000

Document ***R2-001669***

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	**005**	Current Version:	3.1.0

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

For submission to:	**TSG-RAN #9**	for approval	**X**		strategic		*(for SMG*
list expected approval meeting # here ↑		for information			non-strategic		*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: (U)SIM ☐   ME **X**   UTRAN / Radio **X**   Core Network ☐
(at least one should be marked with an X)

Source:	TSG-RAN WG2		**Date:**	2000-08-23

Subject:	Corrections

Work item:	

Category: F   Correction   **X**   **Release:**   Phase 2   ☐
                    A   Corresponds to a correction in an earlier release   Release 96   ☐
(only one category   B   Addition of feature   Release 97   ☐
shall be marked   C   Functional modification of feature   Release 98   ☐
with an X)   D   Editorial modification   Release 99   **X**
                                                              Release 00   ☐

Reason for change:

The title of TS 25.324 is corrected.

The CTCH BS of the Schedule Message of the next schedule period is not detectable in a Schedule Message. A new Value for the Message Description Type IE is introduced to identify this.

TS 25.324 is checked against the June 2000 versions of TS 23.041 and TS 25.419 and brought into an consistent status. The Set DRX procedure under control of CBC is not requested in UMTS.

Further, editoral corrections are made (e.g. correction of references).

Clauses affected:

Coversheet, 2, 5, 6, 8.2.1.1.8, 8.2.2.3, 8.2.2.4, 8.2.2.5, 8.2.2.6, 8.2.2.7, 8.2.2.8, 8.2.2.9, 8.2.2.11, 8.2.2.12, 8.2.2.13, 9.2, 11.2, 11.3, 11.4, 11.9

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.

3G TS 25.324 V3.1.0 (2000-03)

Technical Specification

3rd Generation Partnership Project;
Technical Specification Group Radio Access Network;
~~Radio Interface for Broadcast/Multicast Services~~Broadcast/Multicast Control BMC
(Release 1999)

Keywords

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".

3GPP

[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: "Technical realisation of Cell Broadcast Service (CBS)".

5   Functions

The functions are specified in TS 25.301 [2]. They are:

-   Storage of Cell Broadcast Messages.

-   Traffic volume monitoring and radio resource request for CBS.

-   Scheduling of BMC messages.

-   Transmission of BMC messages to UE.

-   Delivery of Cell Broadcast messages to upper layer (NAS).

6   Services provided to Upper Layers

The BM-SAP provides a broadcast/multicast transmission service in the user plane on the radio interface for common user data in unacknowledged mode.

NOTE: This chapter depends on the specification of the CBC-RNC-interface protocol (TS 25.419 [5] under specification of RAN WG 3) and the requirements of the CB application and the underlying interfaces (TS 23.041 [3] under specification of T WG 2 SWG 3). RAN WG 2 has based its work on the available specifications.

The BMC sublayer interacts with other entities as illustrated in figure 1 of chapter 4. The interactions with the upper layer/U-plane and the RRC layer are specified in terms of primitives where the primitives represent the logical exchange of information and control between the BMC sublayer and higher layers. They do not specify or constrain implementations. The (adjacent) layers connect to each other through Service Access Points (SAPs).

Three types of primitives are used for this document, as follows:

-   **REQUEST:**
    This type is used when a higher layer is requesting a service from a lower layer.

-   **INDICATION:**
    This type is used by a lower layer providing a service to notify its higher layer of activities concerning that higher layer.

-   **CONFIRM:**
    This type is used by a lower layer providing the requested service to confirm to the higher layer that the activity has been completed.

The primitives defined below are for communications between upper layer and BMC, as well as RRC and BMC in the same protocol stack.

For the BMC sublayer two sets of primitives are defined.

- **Primitives between BMC and upper layer (U-plane):**

    BMC - Generic name - Type: Parameters.

- **Primitives between BMC and the RRC entity:**

    CBMC - Generic name - Type: Parameters.

8.2 Service Primitives between upper layer (U-plane) and BMC

8.2.1 Primitives

The primitives supported at BMC-SAP between BMC and upper layer (U-plane) are shown in Table 8.2.1-1.

Table 8.2.1-1: Primitives between BMC and upper layer

Legend: [ ]   optional parameters

Generic Name	Parameters
BMC-Data-REQ	Message-ID, [, Old-Serial-Number], New-Serial-Number, Data-Coding-Scheme, CB-Data , [Category], Repetition-Period, Number-of-Broadcasts-Requested
BMC-Data-IND	Message-ID, Serial-Number, Data-Coding-Scheme, CB-Data
BMC-Data-CNF	Message-ID, Serial-Number
BMC-Congestion-IND	
BMC-Normal-IND	
BMC-Activation-REQ	Message-ID (n times)
BMC-Deactivation-REQ	Message-ID (n times)
BMC-DRX-REQ	CB-DRX-Schedule-Period, Reserved-CB-Capacity
BMC-Error-IND	Cause
BMC-Data41-REQ	Transport Layer Message, Broadcast Address
BMC-Data41-IND	Transport Layer Message,
BMC-Error41-IND	Error Type

8.2.1.1 Primitives used in relation to UMTS Core Network

8.2.1.1.1 BMC-Data-REQ

The BMC-Data-REQ primitive is used by upper layer to request repeated transmission of CB messages.

Primitive Type: request.

Parameters:

    Message-ID;

    [Old-Serial-Number];

    New-Serial-Number;

Data-Coding-Scheme;

CB-Data;

[Category];

Repetition-Period;

Number-of-Broadcasts-Requested.

8.2.1.1.2 BMC-Data-IND

The BMC-Data-IND primitive is used to indicate received CB messages (i.e. CB Data) to upper layer.

Primitive Type: indication.

Parameters:

Message-ID;

Serial-Number;

Data-Coding-Scheme;

CB-Data.

8.2.1.1.3 BMC-Data-CNF

The BMC-Data-CNF primitive is used to indicate the complete broadcast of CB messages.

Primitive Type: confirmation.

Parameters:

Message-ID.

Serial-Number.

8.2.1.1.4 BMC-Congestion-IND

The BMC-Congestion-IND primitive is used to indicate to upper layer (BM-IWF) that the BMC entity is congested.

Primitive Type: indication.

Parameters: None.

8.2.1.1.5 BMC-Normal-IND

The BMC-Normal-IND primitive is used to indicate to upper layer (BM-IWF) that the BMC has recovered from a congestion situation and is operating normal.

Primitive Type: indication.

Parameters: None.

8.2.1.1.6 BMC-Activation-REQ

The BMC-Activation-REQ primitive is used to request CB message reception and to notify which CB messages are of interest and shall be delivered to the upper layer.

Primitive Type: request.

Parameters:

Message-ID (n times).

8.2.1.1.7 BMC-Deactivation-REQ

The BMC-Deactivation-REQ primitive is used to request stop of reception of listed CB messages. If no more CB messages are to be received, CB message reception shall stop.

Primitive Type: request.

Parameters:

Message-ID (n times).

8.2.1.1.8 BMC-DRX-REQ

The BMC-DRX-REQ primitive is used to command CBS discontinuous reception (CB DRX).

> Note: In UMTS, a Set DRX procedure is not requested for the CBC in TS 23.041. It is left to an O&M system to provide such a function or not.

Primitive Type: request.

Parameters:

CB-DRX-Schedule-Period.

Reserved-CB-Capacity.

8.2.1.1.9 BMC-Error-IND

The BMC-Error-IND primitive is used to indicate unsuccessful operations of the BMC entity requested.

Primitive Type: indication.

Parameters:

Cause.

8.2.1.2 Primitives used for ANSI-41 Core Network

8.2.1.2.1 BMC-Data41-REQ

The BMC-Data41-REQ primitive is used by upper layer (Transport Layer) to request repeated transmission of CBS messages if the source is ANSI-41 core network.

Primitive Type: request.

Parameters:

Transport Layer Message.

Broadcast Address.

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.

8.2.1.2.3 BMC-Error41-IND

The BMC-Error-IND primitive is used to report BMC Layer Error to the upper layer (Transport Layer) if the source is ANSI-41 core network.

Primitive Type: indication.

Parameters:

Error Type.

8.2.2 Parameters

8.2.2.1 Message-ID

Part of the CB message identification describing the source and type of a CB message.
This parameter is described in 3G TS 23.041.

8.2.2.2 Serial Number

Part of the CB message identification describing variants of a CB message.
This parameter is described in 3G TS 23.041.

8.2.2.3 Data-Coding-Scheme

Data coding scheme applied to the CB information.
This parameter is described in 3G TS 23.038 [4] and 3G TS 23.041 [3].

8.2.2.4 CB-Data

CB information to be broadcast.

NOTE: The relation to GSM CBS pages can be found in 3G TR 25.925 [6] or 3G TS 23.041 [3].

8.2.2.5 Category

Indicates the category (priority) of the CB message.
Values:
HIGH (CB message is to be broadcast at the earliest opportunity in the reserved CB capacity of the current CB DRX schedule period.
NORMAL (default) (CB messages to be broadcast according to the associated repetition period.
BACKGROUND (CB message to be broadcast in the CB capacity not occupied by HIGH or NORMAL CB messages within a CB DRX schedule period.

This parameter is described in 3G TS 23.041 [3].

8.2.2.6 Repetition-Period

Indicates the period of time after which broadcast of the CB message should be repeated.
This parameter is described in 3G TS 23.041 [3].

NOTE: For GSM, the repetition period is a multiple of 1.883 seconds (cf.3G TS 23.041 [3]).

8.2.2.7 Number-of-Broadcasts-Requested

Number of times a CB message is to be broadcast.
Values:
0   indefinitely.
n, $1 \le n \le 65535$ finite number of times to be broadcast.

This parameter is described in 3G TS 23.041 [3].

8.2.2.8 CB-DRX-Schedule-Period

Indication of the CB DRX schedule period length.
~~This parameter is described in 3G TS 23.041.~~

> ~~NOTE: When CBC is commanding a schedule period it has used the timing given in GSM 04.12. A conversion function is described in 3G TS 25.401 (ffs.).~~

8.2.2.9 Reserved-CB-Capacity

Indicates the capacity reserved for CB messages with Category = HIGH or new CB messages.
~~This parameter is described in 3G TS 23.041.~~

8.2.2.10 Cause

> CB message already stored.

> Old CB message not stored.

8.2.2.11 Transport Layer Message

This parameter is described in TIA/EIA-637-A [8].

8.2.2.12 Broadcast Address

This parameter is described in TIA/EIA-637-A [8].

8.2.2.13 Error Type

The error codes shall be SMS_CauseCode values as defined in the SMS_CauseCode Table in TIA/EIA-41-D [7].

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 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".

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.

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.

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

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~~, to be used when CBC has not set this parameter~~.

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
0, 3 .. 255	Reserved for future use (PDUs with this coding will be discarded by this version of the protocol)

11.2 Message ID

Table 11.2-1: Message ID IE

IE/Group name	Need	Multi	Type and reference	Semantics description
Message ID	MP		Bitstring(16) 3G TS 23.041 [3]	Identification of source and type of CBS message

11.3 Serial Number

Table 11.3-1: Serial Number IE

IE/Group Name	Need	Multi	Type and reference	Semantics description
Serial Number	MP		Bitstring(16) 3G TS 23.041 [3]	Identification of variations of a CBS message (part of the overall CBS message identification)

11.4 Data Coding Scheme

Table 11.4-1: Data Coding Scheme IE

IE/Group name	Need	Multi	Type and reference	Semantics description
Data Coding Scheme	MP		Bitstring(8) 3G TS 23.038 [4] 3G TS 23.041 [3]	Identification of the alphabet/coding and the language applied

11.5 CB Data

Table 11.5-1: CB Data IE

IE/Group name	Need	Multi	Type and reference	Semantics description
CB Data	MP		Bitstring(N*8) $N \geq 1$	Content of CBS message

NOTE: The number N is less than or equal to [1246] octets if a GSM CBS message is broadcast.

11.6 Offset to Begin CTCH Block Set Index

Table 11.6-1: Offset to Begin CTCH Block Set Index IE

IE/Group name	Need	Multi	Type and reference	Semantics description
Offset to Begin CTCH BS Index	MP		Integer (1..255)	Pointer to the first CTCH BS of the next CBS Schedule Period relative to the CTCH BS index of the current BMC Schedule Message

11.7   Length of CBS Schedule Period

Table 11.7-1: Length of CBS Schedule Period IE

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Length of CBS Schedule Period	MP		Integer (1..256)	Number of consecutive CTCH BS of the next CBS Schedule Period. Together with Offset to Begin CTCH BS Index it points to the end of the CBS schedule period.

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 $\quad$ First CTCH BS index of the CBS schedule period, $1 \leq B \leq 256$ E $\quad$ 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.
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
6 7 .. 255	Reserved for future use (IEs received with this value will be replaced by value 3 in Release 99)