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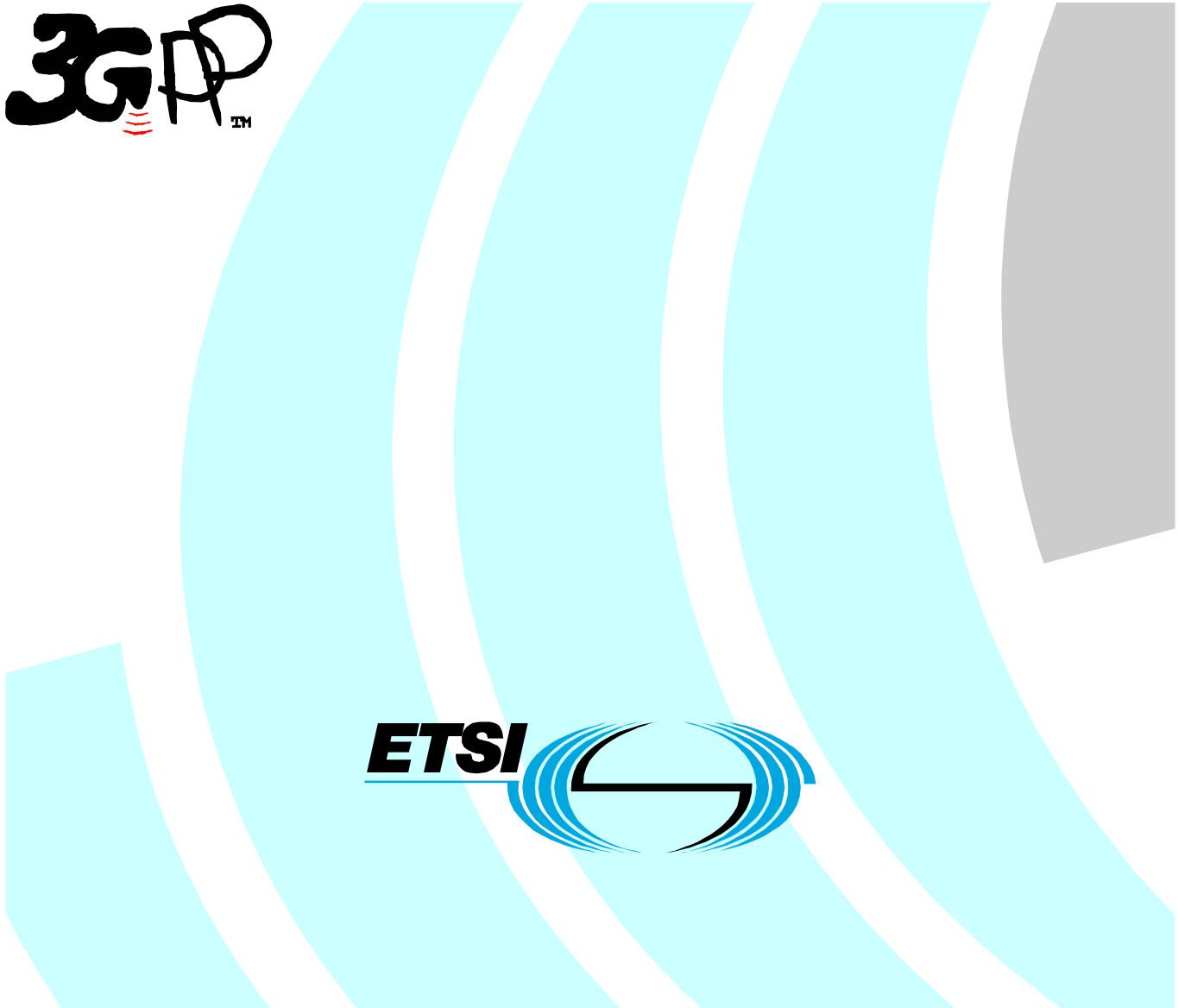
*Technical Specification*

## Universal Mobile Telecommunications System (UMTS); Broadcast/Multicast Control (BMC) (3GPP TS 25.324 version 3.7.0 Release 1999)



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# Foreword

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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

# 1 Scope

The present document provides the description of the Broadcast/Multicast Control Protocol (BMC). This protocol adapts broadcast and multicast services on the radio interface.

# 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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

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

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

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

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

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

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

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

[8] TIA/EIA-637-A: "TR45 – Short Message Service for Spread Spectrum Systems".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**CB message**: user data as transmitted from Cell Broadcast Centre to UE (BMC SDU)

**CB repetition period**: period after which a CB message should be broadcast again if more than one repetition are requested

**Number of Broadcast Requested**: number of broadcasts requested for a CB message. This number is infinite or finite

**DRX Schedule Period**: schedule period as optionally requested by the CBC (unit: seconds)

**Reserved CB Capacity**: percentage of the capacity reserved for CB messages with category HIGH on the allocated radio resources CTCH, FACH and S-CCPCH. This parameter can be set optionally by the CBC.

**CTCH Block Set**: subset of the transport block set of FACH on which the CTCH used for CBS is mapped uniquely

**CBS schedule period**: finite sequence of CTCH Block Sets of variable length in which scheduled CB messages are broadcast

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|---|---|
| AS | Access Stratum |
| BMC | Broadcast/Multicast Control |
| C-SAP | Control Service Access Point |
| CBC | Cell Broadcast Centre |
| CBS | Cell Broadcast Service |
| CTCH | Common Traffic Channel |
| CTCH-BS | CTCH Block Set |
| FACH | Forward Access Channel |
| IE | Information Element |
| kbps | kilo-bits per second |
| L1 | Layer 1 (physical layer) |
| L2 | Layer 2 (data link layer) |
| L3 | Layer 3 (network layer) |
| MAC | Medium Access Control |
| NAS | Non Access Stratum |
| NSAPI | Network layer Service Access Point |
| PDCP | Packet Data Convergence Protocol |
| RLC | Radio Link Control |
| RRC | Radio Resource Control |
| UE | User Equipment |

# 4 General

## 4.1 Model of BMC

Broadcast/Multicast Control (BMC) is a sublayer of L2 that exists in the User-Plane only. It is located above RLC. The L2/BMC sublayer is assumed as transparent for all services except broadcast/multicast.

Figure 4.1-1 shows the model of the L2/BMC sublayer within the UTRAN radio interface protocol architecture.

At the UTRAN side, the BMC sublayer shall consist of one BMC protocol entity per cell. Each BMC entity requires a single CTCH, which is provided by the MAC sublayer, through the RLC sublayer. The BMC requests the Unacknowledged Mode service of the RLC.

It is assumed that there is a function in the RNC above BMC that resolves the geographical area information of the CB message (or, if applicable, performs evaluation of a cell list) received from the Cell Broadcast Centre (CBC). A BMC protocol entity serves only those messages at BMC-SAP that are to be broadcast into a specified cell.

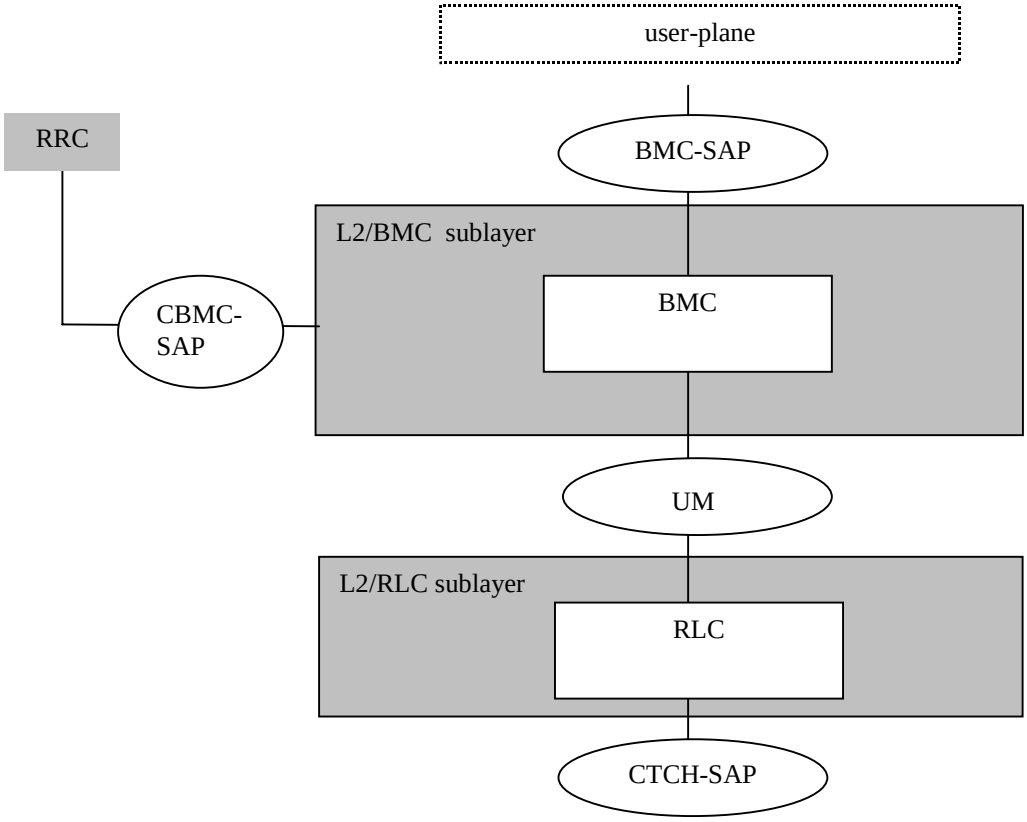


**Figure 4.1-1: BMC protocol model**

# 5 Functions

The functions are specified in [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.

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.

# 7 Services expected from RLC

The BMC uses the unacknowledged mode service of the RLC sublayer.

See [1] for details.

# 8 Elements for layer-to-layer communication

## 8.1 Service Primitives between RRC and BMC

### 8.1.1 Primitives

The primitives supported at CBMC-SAP between RRC and BMC are shown in Table 8.1.1-1.

**Table 8.1.1-1: Primitives between BMC and RRC**

| Generic Name | Parameters |
|---|---|
| CBMC-Measurement-IND | CB-Traffic-Volume |
| CBMC-Rx-IND | Action, DRX selection |
| CBMC-Config-REQ | CTCH configuration |

#### 8.1.1.1 CBMC-Measurement-IND

The CBMC-Measurement-IND primitive is used by BMC to indicate the CB traffic volume.

**Primitive Type**: indication.

**Parameters:**

CB-Traffic-Volume.

#### 8.1.1.2 CBMC-Rx-IND

The CBMC-Rx-IND primitive is used by BMC to indicate to RRC whether CB message reception shall start or stop and indicate when CB messages of interest are arriving in the next CBS schedule period.

**Primitive Type**: indication.

**Parameters:**

Action.

DRX selection.

#### 8.1.1.3 CBMC-Config-REQ

The CBMC-Config-REQ primitive is used by RRC to inform the BMC about the setting of the CTCH configuration.

**Primitive Type**: indication.

**Parameters:**

CTCH configuration.

### 8.1.2 Parameters

#### 8.1.2.1 CB-Traffic-Volume

Expected CTCH transmission rate [kbps].

Value set: 0,1,..,32.

#### 8.1.2.2 Action

Start CBS reception.

Stop CBS reception.

#### 8.1.2.3 DRX selection

List of absolute CTCH BS indices which are of interest and which should be received by Layer 1.

#### 8.1.2.4 CTCH configuration

Current CTCH-BS index, $1 \leq i \leq 256$.

FACH identification.

Transport Format Set of the allocated FACH (TB size, TBS size, TTI).

Reserved CTCH transmission rate [kbps]: 0,1,..,32.

# 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,<br>[, Old-Serial-Number],<br>New-Serial-Number,<br>Data-Coding-Scheme,<br>CB-Data ,<br>[Category],<br>Repetition-Period,<br>Number-of-Broadcasts-Requested |
| BMC-Data-IND | Message-ID,<br>Serial-Number,<br>Data-Coding-Scheme,<br>CB-Data |
| BMC-Data-CNF | Message-ID,<br>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,<br>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.

Broadcast Address.

#### 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 [3].

### 8.2.2.2 Serial Number

Part of the CB message identification describing variants of a CB message.
This parameter is described in [3].

### 8.2.2.3 Data-Coding-Scheme

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

### 8.2.2.4 CB-Data

CB information to be broadcast.

NOTE: The relation to GSM CBS pages can be found in [6] or [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 [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 [3].

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

### 8.2.2.7 Number-of-Broadcasts-Requested

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

This parameter is described in [3].

### 8.2.2.8 CB-DRX-Schedule-Period

Indication of the CB DRX schedule period length.

#### 8.2.2.9 Reserved-CB-Capacity

Indicates the capacity reserved for CB messages with Category = HIGH or new CB messages.

#### 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 [8].

#### 8.2.2.12 Broadcast Address

This parameter is described in [8].

#### 8.2.2.13 Error Type

The error codes shall be SMS_CauseCode values as defined in the SMS_CauseCode Table in [7].

# 9 Procedures

## 9.1 BMC Message Broadcast

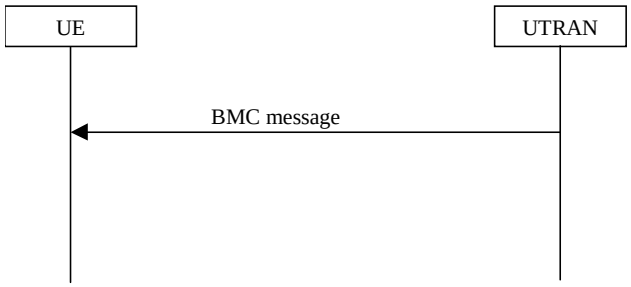


**Figure 9.1-1: Procedure for broadcast of BMC messages**

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.

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 [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 a part of or a 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.

## 9.3 Traffic volume measurement

The BMC entity on the network side predicts periodically the expected amount of CBS traffic volume (unit: kbps) that is needed for transmission of CB messages currently and indicates this to RRC.

The algorithms used for traffic volume prediction are implementation dependent and thus do not need to be specified. Some parameters may be set by O&M system. The algorithms depend on the chosen algorithms for CB message scheduling (cf. subclause 9.2).

## 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 Message 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 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: 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.

The octet string of a BMC message is defined as the concatenation of the octets of the IEs maintaining the sequence order. The bits within an octet are numbered 0 to 7; bit 0 is the least significant bit and is transmitted first. The octets are transmitted in order of increasing octet number, i.e. starting with octet 1.

## 10.2 BMC CBS Message

The CBS Message carries the cell broadcast data and the address information if the address information is based on GSM CBS.

RLC-SAP: UM;

Logical channel: CTCH;

Direction: UTRAN → UE.

**Table 10.2-1: 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. 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.<br>The multiplicity for the IE "Message Description" does not require an additional length indication in the encoded message. The multiplicity shall be derived from the IE "Length of CBS Scheduling Period". |

## 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)<br>Table 11.1-2 | This IE is coded as the binary representation of the Message Type. This IE is mapped onto a single octet. |

Coding of Message Type

**Table 11.1-2: Coding of Message Type IE**

| | |
|---|---|
| 1 | CBS Message |
| 2 | Schedule Message |
| 3 | CBS41 Message |
| 0, 4.. 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 | | Octet string (2) | Identification of source and type of CBS message. The first octet contains octet 1 of the equivalent IE defined in and encoded according to [3] and so on. |

## 11.3 Serial Number

**Table 11.3-1: Serial Number IE**

| IE/Group Name | Need | Multi | Type and reference | Semantics description |
|---|---|---|---|---|
| Serial Number | MP | | Octet string (2) | Identification of variations of a CBS message (part of the overall CBS message identification). The first octet contains octet 1 of the equivalent IE defined in and encoded according to [3] and so on. |

## 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) | Identification of the alphabet/coding and the language applied. This IE is encoded according to [4]. |

# 11.5 CB Data

**Table 11.5-1: CB Data IE**

| IE/Group name | Need | Multi | Type and reference | Semantics description |
|---|---|---|---|---|
| CB Data | MP | | Octet string (N)<br>N ≥ 1 | Content of CBS message. The first octet contains octet 1 of the equivalent IE defined in and encoded according to [4] and so on.<br>NOTE: This IE contains the CB Data as received in the SABP with the length indicator of the PER aligned bit string as received on SABP being removed. |

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<br>(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<br>This IE is coded as the binary representation of the Offset to Begin CTCH BS Index. This IE is mapped onto a single octet. |

# 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<br>(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.<br>This IE is coded as the binary representation of the Message Type. This IE is mapped onto a single octet. |

# 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 | | Octet string (N)<br><br>if "Length of CBS Schedule Period" mod 8 = 0 then N = "Length of CBS Schedule Period" div 8, else N = "Length of CBS Schedule Period" div 8 + 1.<br>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**

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Bit |
|---|---|---|---|---|---|---|---|---|
| CTCH BS index B | CTCH BS index B+1 | CTCH BS index B+2 | ... | | | | | Octet 1 |
| | | | | | | | | Octet 2 |
| | | | | | | | | ... |
| | ... | CTCH BS index E-1 | CTCH BS index E | 0 | 0 | 0 | 0 | Octet n |
| Legend: B First CTCH BS index of the CBS schedule period, 1 ≤ B ≤ 256<br>E Last CTCH BS index of the CBS schedule period,<br>E = B + Length of CBS Schedule Period – 1 | | | | | | | | |

CTCH BS Index i:
Each bit of the New CBS Message Bitmap refers to the content of CTCH BS index i, i=B,...,E. 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)<br><br>Table 11.9-3 | This IE is coded as the binary representation of the Message Description Type. This IE is mapped onto a single octet. |
| Message ID | CV MDT1 | | Octet string (2) | This IE is coded as the binary representation of the Message ID. The first octet contains octet 1 of the equivalent IE defined in and encoded according to [3] and so on. |
| Offset to CTCH BS index of first transmission | CV MDT2 | | Integer (0..255) | This IE is coded as the binary representation of the Offset to CTCH BS index of first transmission. This IE is mapped onto a single octet. |

**Table 11.9-2: Conditions**

| Condition | Explanation |
|---|---|
| MDT1 | If Message Description Type = 1 or 5 then:<br>the CB-Message-Id IE is included |
| MDT2 | If Message Description Type = 0 or 4 then:<br>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 (repetition of a message sent in a previous schedule period) |
| 6 | Schedule message |
| 7 | CBS41 message |
| 8 | no message |
| 9.. 255 | Reserved for future use<br>(IEs received with this value will be replaced by value 3) |

## 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 | | Octet string (5) | Address information for higher layer. The first octet contains octet 1 of the equivalent IE defined in and encoded according to [8] and so on. |

## 11.11 CB Data41

**Table 11.11-1: CB Data IE**

| IE/Group name | Need | Multi | Type and reference | Semantics description |
|---|---|---|---|---|
| CB Data41 | MP | | Octet string (N)<br>$N \geq 1$ | Content of CBS message (ANSI-41). The first octet contains octet 1 of the equivalent IE defined in and encoded according to [8] and so on. |

# Annex A (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| 12/1999 | RP-06 | RP-99647 | - | | Approved at TSG-RAN #6 and placed under Change Control | - | 3.0.0 |
| 03/2000 | RP-07 | RP-000042 | 001 | | Miscellaneous corrections | 3.0.0 | 3.1.0 |
| | RP-07 | RP-000042 | 002 | 2 | Correction of messages and bit ordering | 3.0.0 | 3.1.0 |
| 09/2000 | RP-09 | RP-000360 | 005 | | Corrections | 3.1.0 | 3.2.0 |
| 12/2000 | RP-10 | RP-000569 | 006 | 1 | Correction to ANSI-41 Cell Broadcast Service | 3.2.0 | 3.3.0 |
| 03/2001 | RP-11 | RP-010028 | 007 | | Corrections | 3.3.0 | 3.4.0 |
| 06/2002 | RP-16 | RP-020329 | 008 | 1 | Clarification on BMC message encoding | 3.4.0 | 3.5.0 |
| 12/2002 | RP-18 | RP-020720 | 011 | 1 | Bit order in BMC messages | 3.5.0 | 3.6.0 |
| 03/2003 | RP-19 | RP-030102 | 014 | 1 | Maximum size of BMC PDU | 3.6.0 | 3.7.0 |

# History

| Document history | | |
|---|---|---|
| V3.0.0 | January 2000 | Publication |
| V3.1.0 | March 2000 | Publication |
| V3.2.0 | September 2000 | Publication |
| V3.3.0 | December 2000 | Publication |
| V3.4.0 | March 2001 | Publication |
| V3.5.0 | June 2002 | Publication |
| V3.6.0 | December 2002 | Publication |
| V3.7.0 | March 2003 | Publication |