TSG-RAN Meeting #26 **RP-040476**
Athen, Greece, 08-10 December 2004 **Agenda item 7.3.3**

Source: **TSG-RAN WG2.**

Title: **CBS Related corrections: CRs to 25.324, 25.331 and 25.925 (R'99 onwards)**

The following CRs are in RP-040476:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level	Workitem
25.324	021	1	R99	Correction of BMC message bit order and IE coding	F	3.8.0	3.9.0	R2-042678	TEI
25.324	022	1	Rel-4	Correction of BMC message bit order and IE coding	A	4.4.0	4.5.0	R2-042679	TEI
25.324	023	1	Rel-5	Correction of BMC message bit order and IE coding	A	5.4.0	5.5.0	R2-042680	TEI
25.324	024	1	Rel-6	Correction of BMC message bit order and IE coding	A	6.1.0	6.2.0	R2-042681	TEI
25.331	2439	-	R99	Correction to maximum length of CTCH period	F	3.20.0	3.21.0	R2-042577	TEI
25.331	2440	-	Rel-4	Correction to maximum length of CTCH period	A	4.15.0	4.16.0	R2-042578	TEI
25.331	2441	-	Rel-5	Correction to maximum length of CTCH period	A	5.10.0	5.11.0	R2-042579	TEI
25.331	2442	-	Rel-6	Correction to maximum length of CTCH period	A	6.3.0	6.4.0	R2-042580	TEI
25.925	006	-	R99	UTRAN scheduling of CBS Schedule Periods	F	3.4.0	3.5.0	R2-042576	TEI

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042678

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.324** **CR** **021** ⌘**rev** **1** ⌘ Current version: **3.8.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction of BMC message bit order and IE coding
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘

1. The current text in TS25.324 on transmission bit order is not clear ("…bit 0 is the least significant bit and **is transmitted first**"). This text was introduced in CR011 (RP-020720) with the ambition to align the transmission bit order with TS23.041 and GSM. However, it is not clear that the existing text implies that BMC octets need to be swapped in UTRAN before submitted to RLC layer for transmission, and swapped in UE after having been delivered by RLC layer. This handling is different from other "users" of the UTRA Layer 1 and Layer 2 protocols. In order to avoid inter-operability problems, the transmission bit order is clarified.

2. Currently, the TS25.324 allows that a BMC Schedule message may indicate the start of the next-coming CBS Schedule period immediately after the BMC Schedule message itself. Obviously, some time for UE processing of the BMC Schedule Message must be encountered when scheduling the next-coming CBS Schedule period.

3. IE Offset to Begin CTCH Block Set Index
   In Table 11.6-1, the value range of this IE is indicated as Interger (1..255). Nothing is stated about value 0.

4. IE Length of CBS Schedule Period
   In Table 11.7-1, the value range of this IE is indicated as Interger (1..256). But since the IE is carried in an octet, the maximum value 256 cannot be coded.

Summary of change: ⌘

1. It is clarified that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [TS25.322].

2. Added that UE is not required to receive a CBS Schedule Period starting earlier than

		100ms after UE has received the complete BMC Schedule message. 3. Value 0 is set to be reserved. 4. The maximum value is changed from 256 to 255. Value 0 is set to be reserved. IE name corrected in semantics description. **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are incomplete, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Risk for UE-UTRAN inter-operability problems, leading to the impossibility of CBS to work.

Clauses affected:	⌘	10.1, 10.3, 11.6, 11.7			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ Other core specifications ☐ / ☐ Test specifications ☐ / ☐ O&M Specifications	⌘		
Other comments:	⌘				

How to create CRs using this form:

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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. This means that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [1].

<NEXT CHANGED SECTION>

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. UE is not required to start receiving a CBS Schedule Period earlier than 100ms after UE has received the complete BMC Schedule message.

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. 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".

<NEXT CHANGED SECTION>

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 first part of the current BMC Schedule Message. This IE is coded as the binary representation of the Offset to Begin CTCH BS Index. This IE is mapped onto a single octet. Value 0 is reserved.

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..2556)	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. This IE is coded as the binary representation of the Lengh of CBS Schedule PeriodMessage Type. This IE is mapped onto a single octet. Value 0 is reserved.

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042679

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CHANGE REQUEST

⌘ **25.324** **CR** **022** ⌘**rev** **1** ⌘ Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction of BMC message bit order and IE coding
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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R98 (Release 1998)
R99 (Release 1999)
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Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘

1. The current text in TS25.324 on transmission bit order is not clear ("…bit 0 is the least significant bit and **is transmitted first**"). This text was introduced in CR011 (RP-020720) with the ambition to align the transmission bit order with TS23.041 and GSM. However, it is not clear that the existing text implies that BMC octets need to be swapped in UTRAN before submitted to RLC layer for transmission, and swapped in UE after having been delivered by RLC layer. This handling is different from other "users" of the UTRA Layer 1 and Layer 2 protocols. In order to avoid inter-operability problems, the transmission bit order is clarified.

2. Currently, the TS25.324 allows that a BMC Schedule message may indicate the start of the next-coming CBS Schedule period immediately after the BMC Schedule message itself. Obviously, some time for UE processing of the BMC Schedule Message must be encountered when scheduling the next-coming CBS Schedule period.

3. IE Offset to Begin CTCH Block Set Index
In Table 11.6-1, the value range of this IE is indicated as Interger (1..255). Nothing is stated about value 0.

4. IE Length of CBS Schedule Period
In Table 11.7-1, the value range of this IE is indicated as Interger (1..256). But since the IE is carried in an octet, the maximum value 256 cannot be coded.

Summary of change: ⌘

1. It is clarified that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [TS25.322].

2. Added that UE is not required to receive a CBS Schedule Period starting earlier than

		100ms after UE has received the complete BMC Schedule message. 3. Value 0 is set to be reserved. 4. The maximum value is changed from 256 to 255. Value 0 is set to be reserved. IE name corrected in semantics description. **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are incomplete, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Risk for UE-UTRAN inter-operability problems, leading to the impossibility of CBS to work.

Clauses affected:	⌘	10.1, 10.3, 11.6, 11.7			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ Other core specifications ☐ / ☐ Test specifications ☐ / ☐ O&M Specifications	⌘		
Other comments:	⌘				

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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.

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

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<NEXT CHANGED SECTION>

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. UE is not required to start receiving a CBS Schedule Period earlier than 100ms after UE has received the complete BMC Schedule message.

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Logical channel: CTCH.

Direction: UTRAN → UE.

Table 10. 3-1: Schedule Message

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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. 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".

<NEXT CHANGED SECTION>

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 first part of the current BMC Schedule Message. This IE is coded as the binary representation of the Offset to Begin CTCH BS Index. This IE is mapped onto a single octet. Value 0 is reserved.

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..2556)	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. This IE is coded as the binary representation of the Lengh of CBS Schedule PeriodMessage Type. This IE is mapped onto a single octet. Value 0 is reserved.

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042680

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CHANGE REQUEST

⌘ **25.324** **CR** **023** ⌘**rev** **1** ⌘ Current version: **5.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction of BMC message bit order and IE coding
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
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Rel-6 (Release 6)
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Reason for change: ⌘

1. The current text in TS25.324 on transmission bit order is not clear ("…bit 0 is the least significant bit and **is transmitted first**"). This text was introduced in CR011 (RP-020720) with the ambition to align the transmission bit order with TS23.041 and GSM. However, it is not clear that the existing text implies that BMC octets need to be swapped in UTRAN before submitted to RLC layer for transmission, and swapped in UE after having been delivered by RLC layer. This handling is different from other "users" of the UTRA Layer 1 and Layer 2 protocols. In order to avoid inter-operability problems, the transmission bit order is clarified.

2. Currently, the TS25.324 allows that a BMC Schedule message may indicate the start of the next-coming CBS Schedule period immediately after the BMC Schedule message itself. Obviously, some time for UE processing of the BMC Schedule Message must be encountered when scheduling the next-coming CBS Schedule period.

3. IE Offset to Begin CTCH Block Set Index
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In Table 11.7-1, the value range of this IE is indicated as Interger (1..256). But since the IE is carried in an octet, the maximum value 256 cannot be coded.

Summary of change: ⌘

1. It is clarified that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [TS25.322].

2. Added that UE is not required to receive a CBS Schedule Period starting earlier than

		100ms after UE has received the complete BMC Schedule message. 3. Value 0 is set to be reserved. 4. The maximum value is changed from 256 to 255. Value 0 is set to be reserved. IE name corrected in semantics description. **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are incomplete, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Risk for UE-UTRAN inter-operability problems, leading to the impossibility of CBS to work.

Clauses affected:	⌘	10.1, 10.3, 11.6, 11.7			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ Other core specifications ☐ / ☐ Test specifications ☐ / ☐ O&M Specifications	⌘		
Other comments:	⌘				

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<NEXT CHANGED SECTION>

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

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RLC-SAP: UM.

Logical channel: CTCH.

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Table 10. 3-1: Schedule Message

Information Element	Need	Multi	Type and reference	Semantics description
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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. 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".

<NEXT CHANGED SECTION>

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 first part of the current BMC Schedule Message. This IE is coded as the binary representation of the Offset to Begin CTCH BS Index. This IE is mapped onto a single octet. Value 0 is reserved.

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..2556)	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. This IE is coded as the binary representation of the Lengh of CBS Schedule PeriodMessage Type. This IE is mapped onto a single octet. Value 0 is reserved.

3GPP TSG-RAN WG2 Meeting #45
Yokohama, Japan, 15-19 November 2004

Tdoc ⌘R2-042681

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.324** **CR** **024** ⌘**rev** **1** ⌘ Current version: **6.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction of BMC message bit order and IE coding
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

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Reason for change: ⌘

1. The current text in TS25.324 on transmission bit order is not clear ("…bit 0 is the least significant bit and **is transmitted first**"). This text was introduced in CR011 (RP-020720) with the ambition to align the transmission bit order with TS23.041 and GSM. However, it is not clear that the existing text implies that BMC octets need to be swapped in UTRAN before submitted to RLC layer for transmission, and swapped in UE after having been delivered by RLC layer. This handling is different from other "users" of the UTRA Layer 1 and Layer 2 protocols. In order to avoid inter-operability problems, the transmission bit order is clarified.

2. Currently, the TS25.324 allows that a BMC Schedule message may indicate the start of the next-coming CBS Schedule period immediately after the BMC Schedule message itself. Obviously, some time for UE processing of the BMC Schedule Message must be encountered when scheduling the next-coming CBS Schedule period.

3. IE Offset to Begin CTCH Block Set Index
In Table 11.6-1, the value range of this IE is indicated as Interger (1..255). Nothing is stated about value 0.

4. IE Length of CBS Schedule Period
In Table 11.7-1, the value range of this IE is indicated as Interger (1..256). But since the IE is carried in an octet, the maximum value 256 cannot be coded.

Summary of change: ⌘

1. It is clarified that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [TS25.322].

2. Added that UE is not required to receive a CBS Schedule Period starting earlier than

		100ms after UE has received the complete BMC Schedule message. 3. Value 0 is set to be reserved. 4. The maximum value is changed from 256 to 255. Value 0 is set to be reserved. IE name corrected in semantics description. **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are incomplete, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Risk for UE-UTRAN inter-operability problems, leading to the impossibility of CBS to work.

Clauses affected:	⌘	10.1, 10.3, 11.6, 11.7			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ Other core specifications ☐ / ☐ Test specifications ☐ / ☐ O&M Specifications	⌘		
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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. This means that bit 0 of octet 1 is transmitted as the first (leftmost) bit in the Data field of the UMD PDU [1].

<NEXT CHANGED SECTION>

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. UE is not required to start receiving a CBS Schedule Period earlier than 100ms after UE has received the complete BMC Schedule message.

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. 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".

<NEXT CHANGED SECTION>

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 first part of the current BMC Schedule Message. This IE is coded as the binary representation of the Offset to Begin CTCH BS Index. This IE is mapped onto a single octet. Value 0 is reserved.

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..2556)	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. This IE is coded as the binary representation of the Lengh of CBS Schedule PeriodMessage Type. This IE is mapped onto a single octet. Value 0 is reserved.

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CHANGE REQUEST

⌘ **25.331** **CR** **2439** ⌘ **rev** **-** ⌘ Current version: **3.k.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]
a

Title:	⌘	Correction to maximum length of CTCH period
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In procedure text and tabular semantics description, the maximum length of the "Period of CTCH Allocation" (N) is set to MaxSFN (4096). This value range is not possible to use in signalling (IE "CBS DRX Level 1 Information" in SIB5/6). According to value range in tabular description and ASN.1, the maximum size is 256.
Summary of change:	⌘	Procdure text and tabular semantics description is aligned to ASN.1 **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are inconsistent, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Inconsistency will remain in specfication.

Clauses affected:	⌘	8.5.16, 10.3.8.3			
Other specs affected:	⌘	Y / N [ ] [ ] Other core specifications [ ] [ ] Test specifications	⌘	25.925 CR 006.	

	O&M Specifications	
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.5.16 Configuration of CTCH occasions

The CTCH, carrying CBS data is mapped onto only one S-CCPCH. If more than one CTCH is defined, the first CTCH that is configured in the list of S-CCPCHs is the one that is used for CBS data.

The CTCH occasions are identified by the first radio frame of the TTI that can contain CTCH data. The CTCH occasions are fixed on the system frame number cycle 0 .. 4095 (i.e. no modulo calculation) and thus repeated cyclically.

The CTCH occasions are determined by a set of parameters.

M_{TTI}: number of radio frames within the TTI of the FACH used for CTCH

N: period of CTCH allocation on S-CCPCH, integer number of radio frames,
$M_{TTI} \leq N \leq$ ~~MaxSFN – K~~256, where N is a multiple of M_{TTI} (see [27] and [31]).

MaxSFN: maximum system frame number = 4095 (see [10]).

K: CBS frame offset, integer number of radio frames $0 \leq K \leq N-1$ where K is a multiple of M_{TTI} .

The CTCH occasions are calculated as follows:

SFN = (K + m N), m = 0, 1,..., M, with M chosen that K+MN ≤ MaxSFN.

The parameters N and K are broadcast as system information.

<NEXT CHANGED SECTION>

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq$ ~~4096~~ ~~K~~256, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

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CHANGE REQUEST

⌘ **25.331** **CR** **2440** ⌘ **rev** **-** ⌘ Current version: **4.f.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction to maximum length of CTCH period
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In procedure text and tabular semantics description, the maximum length of the "Period of CTCH Allocation" (N) is set to MaxSFN (4096). This value range is not possible to use in signalling (IE "CBS DRX Level 1 Information" in SIB5/6). According to value range in tabular description and ASN.1, the maximum size is 256.
Summary of change:	⌘	Procdure text and tabular semantics description is aligned to ASN.1 **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are inconsistent, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Inconsistency will remain in specfication.

Clauses affected:	⌘	8.5.16, 10.3.8.3			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	25.925 CR 006.
			Test specifications		

	O&M Specifications	
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.5.16 Configuration of CTCH occasions

The CTCH, carrying CBS data is mapped onto only one S-CCPCH. If more than one CTCH is defined, the first CTCH that is configured in the list of S-CCPCHs is the one that is used for CBS data.

The CTCH occasions are identified by the first radio frame of the TTI that can contain CTCH data. The CTCH occasions are fixed on the system frame number cycle 0 .. 4095 (i.e. no modulo calculation) and thus repeated cyclically.

The CTCH occasions are determined by a set of parameters.

M_{TTI}: number of radio frames within the TTI of the FACH used for CTCH

N: period of CTCH allocation on S-CCPCH, integer number of radio frames,
$M_{TTI} \leq N \leq$ ~~MaxSFN – K~~256, where N is a multiple of M_{TTI} (see [27] and [31]).

MaxSFN: maximum system frame number = 4095 (see [10]).

K: CBS frame offset, integer number of radio frames $0 \leq K \leq N-1$ where K is a multiple of M_{TTI} .

The CTCH occasions are calculated as follows:

SFN = (K + m N), m = 0, 1,..., M, with M chosen that K+MN ≤ MaxSFN.

The parameters N and K are broadcast as system information.

<NEXT CHANGED SECTION>

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq$ ~~4096~~ ~~K~~256, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

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CHANGE REQUEST

⌘ **25.331** **CR** **2441** ⌘**rev** **-** ⌘ Current version: **5.a.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]
a

Title:	⌘	Correction to maximum length of CTCH period
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In procedure text and tabular semantics description, the maximum length of the "Period of CTCH Allocation" (N) is set to MaxSFN (4096). This value range is not possible to use in signalling (IE "CBS DRX Level 1 Information" in SIB5/6). According to value range in tabular description and ASN.1, the maximum size is 256.
Summary of change:	⌘	Procdure text and tabular semantics description is aligned to ASN.1 **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are inconsistent, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Inconsistency will remain in specfication.

Clauses affected:	⌘	8.5.16, 10.3.8.3			
Other specs affected:	⌘	Y / N [ ] [ ] Other core specifications [ ] [ ] Test specifications	⌘	25.925 CR 006.	

	O&M Specifications	
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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The CTCH occasions are determined by a set of parameters.

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$M_{TTI} \leq N \leq$ ~~MaxSFN – K~~256, where N is a multiple of M_{TTI} (see [27] and [31]).

MaxSFN: maximum system frame number = 4095 (see [10]).

K: CBS frame offset, integer number of radio frames $0 \leq K \leq N-1$ where K is a multiple of M_{TTI} .

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The parameters N and K are broadcast as system information.

<NEXT CHANGED SECTION>

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq$ ~~4096~~ ~~K~~256, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

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CHANGE REQUEST

⌘ **25.331** **CR** **2442** ⌘ **rev** **-** ⌘ Current version: **6.3.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	Correction to maximum length of CTCH period
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**A**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In procedure text and tabular semantics description, the maximum length of the "Period of CTCH Allocation" (N) is set to MaxSFN (4096). This value range is not possible to use in signalling (IE "CBS DRX Level 1 Information" in SIB5/6). According to value range in tabular description and ASN.1, the maximum size is 256.
Summary of change:	⌘	Procdure text and tabular semantics description is aligned to ASN.1 **Isolated Impact Analysis** Inconsistency in specification corrected: Cell Broadcast Service Isolated impact statement: Correction to a function where specifications are inconsistent, leading to misunderstanding of function. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Inconsistency will remain in specfication.

Clauses affected:	⌘	8.5.16, 10.3.8.3			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	25.925 CR 006.
			Test specifications		

	O&M Specifications	
Other comments:	⌘	

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N: period of CTCH allocation on S-CCPCH, integer number of radio frames,
$M_{TTI} \leq N \leq$ ~~MaxSFN – K~~256, where N is a multiple of M_{TTI} (see [27] and [31]).

MaxSFN: maximum system frame number = 4095 (see [10]).

K: CBS frame offset, integer number of radio frames $0 \leq K \leq N-1$ where K is a multiple of M_{TTI} .

The CTCH occasions are calculated as follows:

SFN = (K + m N), m = 0, 1,..., M, with M chosen that K+MN ≤ MaxSFN.

The parameters N and K are broadcast as system information.

<NEXT CHANGED SECTION>

10.3.8.3 CBS DRX Level 1 information

This information element contains the CBS discontinuous reception information to be broadcast for CBS DRX Level 1 calculations in the UE.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
Period of CTCH allocation (N)	MP		Integer (1..256)	$M_{TTI} \leq N \leq$ ~~4096~~ ~~K~~256, N multiple of M_{TTI}
CBS frame offset (K)	MP		Integer (0..255)	$0 \leq K \leq N-1$, K multiple of M_{TTI}

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CHANGE REQUEST

⌘ **25.925** **CR** **006** ⌘**rev** **-** ⌘ Current version: **3.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☒ Core Network ☐
a

Title:	⌘	UTRAN scheduling of CBS Schedule Periods
Source:	⌘	RAN WG2
Work item code:	⌘	TEI
Date:	⌘	15/11/2004
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*
Rel-7 *(Release 7)*

Reason for change: ⌘

1. Currently, specifications and technical reports for support of Cell Broadcast Services in UTRAN lacks information on how UTRAN should configure and schedule BMC messages, considering UE power consumption and processing time.
   It could be noted that similar information for GERAN is described in an informative annex in TS04.12 “Short Message Service Cell Broadcast (SMSCB) support on the mobile radio interface.
   To minimise UE power consumption for the Cell Broadcast service (CBS), it is important that UE is able to use and remain in DRX operation. Correct UE reception of BMC Schedule message is critical. The BMC Schedule message will often be segmented into several UMD PDUs. This increases the risk for failed UE reception in varying radio conditions.
   Currently, the TR does not indicate that transmission of unscheduled BMC Schedule messages is beneficial.

2. In this TR25.925, the maximum length of the “Period of CTCH Allocation” (N) is set to MaxSFN (4096). This value range is not possible to use in signalling (IE “CBS DRX Level 1 Information” in SIB5/6), ref TS25.331. According to value range in TS25.331, the maximum size is 256.

Summary of change: ⌘

1. Added that a UTRAN can transmit unscheduled BMC Schedule messages.

2. The maximum length of the “Period of CTCH Allocation” (N) is changed to 256.

Isolated Impact Analysis
Function: Cell Broadcast Service

		Isolated impact statement: Correction to a function where specifications are incomplete, leading to misunderstanding of function, degraded service and decreased UE standby times. Would not affect implementations behaving like indicated in the CR, would affect implementations supporting the corrected functionality otherwise.
Consequences if not approved:	⌘	Degraded service performance and decreased UE standby times.

Clauses affected:	⌘	6.3.2.4, 6.3.6.4.1			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ Other core specifications ☐ / ☐ Test specifications ☐ / ☐ O&M Specifications	⌘	25.331 CRs 2439, 2440, 2441 and 2442.	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.3.2.4 CB message reception with DRX

Precondition:

Under normal condition BMC Schedule messages are received each time when they are sent. When a BMC Schedule Message is corrupted the BMC should read all BMC messages continuously until a new BMC Schedule Message is found.
RNC can broadcast unscheduled BMC Schedule messages (i.e., between DRX schedule periods), to inform UEs about the next DRX schedule period. This allows UEs to enter DRX mode faster, in case the BMC Schedule Message that was sent within the CBS Schedule Period is not received.

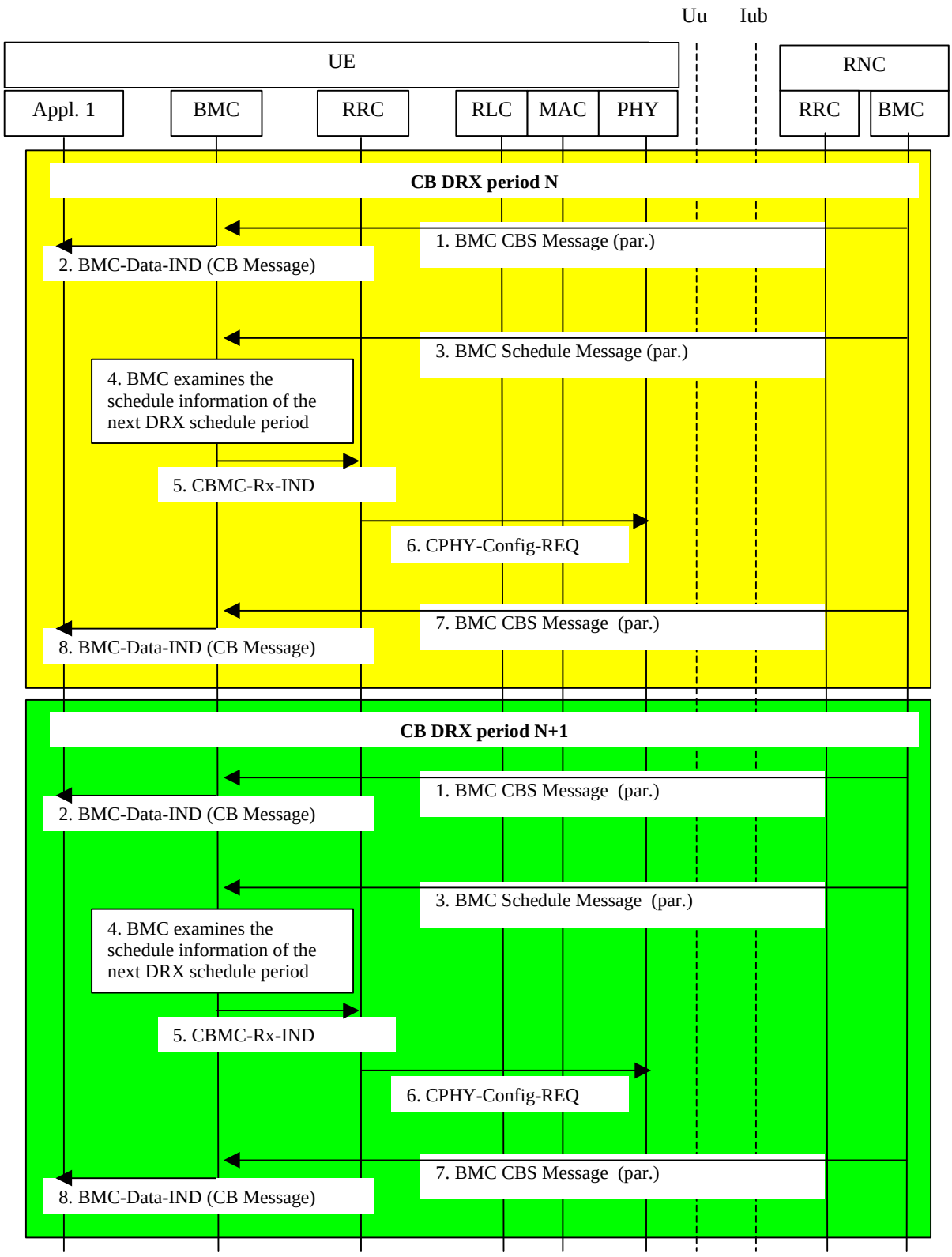

Figure 6.7: Example of Message Flow for CB message reception with DRX

The example sequence for CB message reception with DRX is described as follows (numbering refers to message numbering in the figure):

1, 2. UE receives only those BMC messages for which reception is configured. The BMC should still check whether a CB message contained in a BMC message should be indicated to upper layer or not. A CB message is indicated to upper layer, if it is the first time a CB message with an activated Message ID is received or if the CB message is already received but the Serial Number has changed.

3...6. The reception of BMC Schedule messages is always configured by the UE when CB message reception is activated (see 6.3.2.3). The BMC evaluates the BMC Schedule message and indicates to RRC at which time intervals of the next DRX period the BMC CBS message reception should be configured (primitive CBMC-Rx-IND). The RRC configures upon this information the PHY layer (primitive CPHY-Config-REQ).

7, 8. The BMC Schedule message is not the last one within the CB DRX period; other CBS Messages may follow.

<NEXT CHANGED SECTION>

6.3.6.4.1 Level 1 scheduling: Scheduling on FACH regarding logical channel CTCH

The Level 2 scheduling requires that certain radio frame intervals [SFN=k, SFN=l] are known on L1 where CB messages could be transmitted. The length of these intervals is given by TTI/10 ms, where TTI is the transmission time interval of the FACH carrying the CTCH. Remember that for R99 only one CTCH is created and this CTCH is mapped to only one FACH with fixed TB size and fixed TTI.

The Level 1 scheduling can be dynamic or static. Static means that the CTCH is mapped on a regular basis, dynamic means that it varies over the time. In Release 99 only a static method is required. An algorithm to determine the CTCH allocated radio resources can be defined as follows:

M_{TTI}: number of radio frames in the TTI of the FACH used for CTCH.

N: period of CTCH allocation on S-CCPCH, integer number of radio frames,
$M_{TTI} \le N \le$ ~~MaxSFN – K~~256, where N is a multiple of M_{TTI} (cf. [22] and [23]).

MaxSFN: maximum system frame number = 4096 (cf. [18]).

K: CBS frame offset, integer number of radio frames $0 \le K \le N-1$ where K is a multiple of M_{TTI}.

When no CTCH traffic is broadcast, this can be indicated with N := 0.

N and K shall be broadcast as system information (cf. subclause 6.2.5.1).

Example: N = 6, K = 2, M_{TTI} = 2

On the S-CCPCH the TTIs allocated for CTCH transmission are periodically repeated with period N.
The first CTCH allocated TTI within each SFN cycle [0 .. MaxSFN-1] is positioned with an offset K.

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
		CTCH	**CTCH**					**CTCH**	**CTCH**					**CTCH**	**CTCH**		

Figure 6.12: Example of CBS DRX cycle