

Source: TSG CT WG1
Title: CRs on Rel-6 WI “MBMS” for TS s 24.008 and 44.065
Agenda item: 9.8
Document for: APPROVAL

This document contains 2 **CRs for Rel-6 WI “MBMS”**, that have been agreed by TSG CT WG1 meeting #38 and forwarded to TSG CT Plenary meeting #28 for approval.

TDoc #	Tdoc Title	Spec	CR #	Rev	CAT	C_Version	WI	Rel
C1-050693	Introduction of MBMS support indication to the UE	24.008	977	1	F	6.8.0	MBMS	Rel-6
C1-050787	Pre-defined Protocol control information compression types for MBMS	44.065	21	2	B	6.3.0	MBMS	Rel-6

CR-Form-v7.1

CHANGE REQUEST

⌘ **24.008 CR 977** ⌘ rev **1** ⌘ Current version: **6.8.0** ⌘

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

Title:	⌘ Introduction of MBMS support indication to the UE		
Source:	⌘ NTT DoCoMo, NEC technologies		
Work item code:	⌘ MBMS	Date:	⌘ 18/04/2005
Category:	⌘ F	Release:	⌘ Rel-6
	<p>Use <u>one</u> of the following categories:</p> <p>F (correction)</p> <p>A (corresponds to a correction in an earlier release)</p> <p>B (addition of feature),</p> <p>C (functional modification of feature)</p> <p>D (editorial modification)</p> <p>Detailed explanations of the above categories can be found in 3GPP TR 21.900.</p>		<p>Use <u>one</u> of the following releases:</p> <p>Ph2 (GSM Phase 2)</p> <p>R96 (Release 1996)</p> <p>R97 (Release 1997)</p> <p>R98 (Release 1998)</p> <p>R99 (Release 1999)</p> <p>Rel-4 (Release 4)</p> <p>Rel-5 (Release 5)</p> <p>Rel-6 (Release 6)</p> <p>Rel-7 (Release 7)</p>

Reason for change:	⌘ This is an alignment of the stage2 CR S2-050912 which was agreed in SA2 meeting #45. During Inter SGSN RA Update or SRNS Relocation procedure, the UE can optimize its behaviour by knowing whether the network supports MBMS services or not, by receiving a MBMS feature support indication (or the absence of it) from the SGSN. For instance, the MS would be able to request PDP context activation procedures in order to receive MBMS sessions. This feature indication is sent at the time of GPRS attach and Routing area updating procedures.
	It is proposed that the Network Feature Support IE, which already exists to indicate the availability of the LCS-MOLR capability, is enhanced to indicate the availability of MBMS support in the network. This IE is sent by the SGSN on every ATTACH ACCEPT and ROUTING AREA UPDATE ACCEPT messages if the network supports MBMS. When the MS becomes aware of MBMS non-support in the SGSN, the MS may inform its application about the non-availability of MBMS services.
Summary of change:	⌘ - Added text to indicate MBMS support indication is sent to the UE during GPRS attach and Routing area updating procedures ⌘ - GMM Network feature support IE is enhanced
Consequences if not approved:	⌘ - Misalignment with stage 2 CR ⌘ - The SGSN has no means to inform the UE about its MBMS capability.

Clauses affected:	⌘ 4.7.3, 4.7.5, 10.5.5.23
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Other specs affected:	⌘	<table border="1"><tr><td>Y</td><td>N</td></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr><tr><td></td><td>X</td></tr></table>	Y	N		X		X		X	Other core specifications	⌘	
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		Test specifications											
		O&M Specifications											
Other comments:	⌘												

How to create CRs using this form:

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- 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.

4.7.3 GPRS attach procedure

The GPRS attach procedure is used for two purposes:

- normal GPRS attach, performed by the MS to IMSI attach for GPRS services only. The normal GPRS attach procedure shall be used:
 - by GPRS MSs in MS operation mode C, independent of the network operation mode;
 - by GPRS MSs in MS operation modes A or B if the network operates in network operation mode II or III; and
 - by GPRS MSs in MS operation mode A, independent of the network operation mode, if a circuit-switched transaction is ongoing;
- combined GPRS attach procedure, used by GPRS MSs in MS operation modes A or B to attach the IMSI for GPRS and non-GPRS services provided that the network operates in network operation mode I.

With a successful GPRS attach procedure a GMM context is established.

Subclause 4.7.3.1 describes the GPRS attach procedure to attach the IMSI only for GPRS services. The combined GPRS attach procedure used to attach the IMSI for both GPRS and non-GPRS services is described in subclause 4.7.3.2.

If an IMSI attach for non-GPRS services is requested and a GMM context exists, the routing area updating procedure shall be used as described in subclause 4.7.5.2.

To limit the number of subsequently rejected attach attempts, a GPRS attach attempt counter is introduced. The GPRS attach attempt counter shall be incremented as specified in subclause 4.7.3.1.5. Depending on the value of the GPRS attempt counter, specific actions shall be performed. The GPRS attach attempt counter shall be reset when:

- the MS is powered on;
- a SIM/USIM is inserted;
- a GPRS attach procedure is successfully completed;
- a combined GPRS attach procedure is completed for GPRS services only with cause #2, #16, #17 or #22; or
- a GPRS attach procedure is completed with cause #11, #12, #13 or #15,

and additionally when the MS is in substate ATTEMPTING-TO-ATTACH:

- expiry of timer T3302;
- a new routing area is entered; or
- an attach is triggered by CM sublayer requests.

The mobile equipment shall contain a list of "forbidden location areas for roaming", as well as a list of "forbidden location areas for regional provision of service". The handling of these lists is described in subclause 4.4.1; the same lists are used by GMM and MM procedures.

The Mobile Equipment shall contain a list of "equivalent PLMNs". The handling of this list is described in subclause 4.4.1, the same list is used by GMM and MM procedures.

In a shared network, the MS shall choose one of the PLMN identities as specified in 3GPP TS 23.122 [14]. The MS shall construct the Routing Area Identification of the cell from this chosen PLMN identity, and the LAC and the RAC received on the BCCH. The chosen PLMN identity shall be indicated to the RAN in the RRC INITIAL DIRECT TRANSFER message (see 3GPP TS 25.331 [23c]). Whenever an ATTACH REJECT message with the cause "PLMN not allowed" is received by the MS, the chosen PLMN identity shall be stored in the "forbidden PLMN list". Whenever an ATTACH REJECT message is received by the MS with the cause "Roaming not allowed in this location

area", "Location Area not allowed", or "No suitable cells in Location Area", the constructed RAI shall be stored in the suitable list.

The network informs the MS about the support of specific features, such as LCS-MOLR or MBMS, in the "Network feature support" Information Element. The information is either explicitly given by sending the "Network feature support" IE or implicitly by not sending it. The handling in the network is described in subclause 9.4.2.9. The MS may use the indication to inform the user about the availability of the appropriate services and it shall not request services that have not been indicated as available. [The indication for MBMS is defined in subclause "MBMS feature support indication" in 3GPP TS 23.246 \[106\].](#)

Second Change

4.7.5 Routing area updating procedure

This procedure is used for:

- normal routing area updating to update the registration of the actual routing area of an MS in the network. This procedure is used by GPRS MSs in MS operation mode C and by GPRS MSs in MS operation modes A or B that are IMSI attached for GPRS and non-GPRS services if the network operates in network operation mode II or III;
- combined routing area updating to update the registration of the actual routing and location area of an MS in the network. This procedure is used by GPRS MSs in MS operation modes A or B that are IMSI attached for GPRS and non-GPRS services provided that the network operates in network operation mode I;
- periodic routing area updating. This procedure is used by GPRS MSs in MS operation mode C and by GPRS MSs in MS operation modes A or B that are IMSI attached for GPRS or for GPRS and non-GPRS services independent of the network operation mode;
- IMSI attach for non-GPRS services when the MS is IMSI attached for GPRS services. This procedure is used by GPRS MSs in MS operation modes A or B, if the network operates in network operation mode I;
- in A/Gb mode, resuming GPRS services when the RR sublayer indicated a resumption failure after dedicated mode was left, see 3GPP TS 44.018 [84];
- in A/Gb mode, updating the network with the new MS Radio Access Capability IE when the content of the IE has changed;
- updating the network with the new DRX parameter IE when the content of the IE has changed;

NOTE 1: Such changes can be used e.g. when the MS activates a PDP context with service requirements that cannot be met with the current DRX parameter. As PDP context(s) are activated and deactivated, the GMM context will be updated with an appropriate DRX parameter;

- Iu mode to A/Gb mode and for A/Gb mode to Iu mode intersystem change, see subclause 4.7.1.7; or
- in Iu mode, to re-synchronize the PMM mode of MS and network after RRC connection release with cause "Directed signalling connection re-establishment", see subclause 4.7.2.5.

The routing area updating procedure shall also be used by a MS which is attached for GPRS services if a new PLMN is entered (see 3GPP TS 23.122 [14]).

Subclause 4.7.5.1 describes the routing area updating procedures for updating the routing area only. The combined routing area updating procedure used to update both the routing and location area is described in subclause 4.7.5.2.

The routing area updating procedure is always initiated by the MS. It is only invoked in state GMM-REGISTERED.

To limit the number of subsequently rejected routing area update attempts, a routing area updating attempt counter is introduced. The routing area updating attempt counter shall be incremented as specified in subclause 4.7.5.1.5.

Depending on the value of the routing area updating attempt counter, specific actions shall be performed. The routing area updating attempt counter shall be reset when:

- a GPRS attach procedure is successfully completed; or

- a routing area updating procedure is successfully completed;

and additionally when the MS is in substate ATTEMPTING-TO-UPDATE:

- a new routing area is entered;
- expiry of timer T3302; or
- at request from registration function.

The mobile equipment shall contain a list of "forbidden location areas for roaming", as well as a list of "forbidden location areas for regional provision of service". The handling of these lists is described in subclause 4.4.1.

The Mobile Equipment shall contain a list of "equivalent PLMNs". The handling of this list is described in subclause 4.4.1.

In a shared network, the MS shall choose one of the PLMN identities as specified in 3GPP TS 23.122 [14]. The MS shall construct the Routing Area Identification of the cell from this chosen PLMN identity, and the LAC and the RAC received on the BCCH. If the constructed RAI is different from the stored RAI, the MS shall initiate the routing area updating procedure. The chosen PLMN identity shall be indicated to the RAN in the RRC INITIAL DIRECT TRANSFER message (see 3GPP TS 25.331 [23c]). Whenever a ROUTING AREA UPDATING REJECT message with the cause "PLMN not allowed" is received by the MS, the chosen PLMN identity shall be stored in the "forbidden PLMN list". Whenever a ROUTING AREA UPDATING REJECT message is received by the MS with the cause "Roaming not allowed in this location area", "Location Area not allowed", or "No suitable cells in Location Area", the constructed RAI which triggered the routing area updating procedure shall be stored in the suitable list.

In A/Gb mode, user data transmission in the MS shall be suspended during the routing area updating procedure; user data reception shall be possible. User data transmission in the network may be suspended during the routing area updating procedure.

In Iu mode, user data transmission and reception in the MS shall not be suspended during the routing area updating procedure. User data transmission in the network shall not be suspended during the routing area updating procedure.

In Iu mode, when a ROUTING AREA UPDATE REQUEST is received by the SGSN over a new PS signalling connection while there is an ongoing PS signalling connection (network is already in mode PMM-CONNECTED) for this UE, the network shall progress the routing area update procedure as normal and release the previous PS signalling connection when the routing area update procedure has been accepted by the network.

NOTE 2: The re-establishment of the radio bearers of active PDP contexts is done as described in subclause "Service Request procedure".

The network informs the MS about the support of specific features, such as LCS-MOLR or MBMS, in the "Network feature support" Information Element. The information is either explicitly given by sending the "Network feature support" IE or implicitly by not sending it. The handling in the network is described in subclause 9.4.15.11. The MS may use the indication to inform the user about the availability of the appropriate services and it shall not request services that have not been indicated as available. [The indication for MBMS is defined in subclause "MBMS feature support indication" in 3GPP TS 23.246 \[106\].](#)

Third Change

10.5.5.23 Network feature support

The purpose of the *network feature support* information element is to indicate whether certain features are supported by the network. If this IE is not included then the respective features are not supported.

The *network feature support* is a type 1 information element.

The *network feature support* information element is coded as shown in figure 10.5.135c/3GPP TS 24.008 and table 10.5.153c/3GPP TS 24.008.

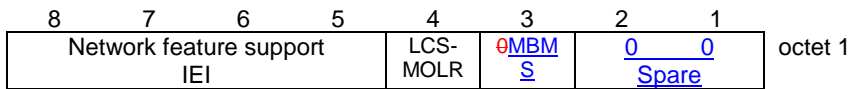


Figure 10.5.135c/3GPP TS 24.008: Network feature support information element

Table 10.5.153c/3GPP TS 24.008: Network feature support information element

Network feature support value (octet 1, bit 1 to 4)	
LCS-MOLR (1 bit field)	
Bit	
4	
0	LCS-MOLR via PS domain not supported
1	LCS-MOLR via PS domain supported
<u>MBMS (1 bit field)</u>	
Bit	
3	
0	<u>MBMS not supported</u>
1	<u>MBMS supported</u>
Bits 3 2 to 1 of octet 1 are spare and shall be coded all 0.	

CR-Form-v7.1

CHANGE REQUEST

⌘ **44.065 CR 21** ⌘ rev **2** ⌘ 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

Title:	⌘ Pre-defined Protocol control information compression types for MBMS		
Source:	⌘ NEC, Ericsson		
Work item code:	⌘ MBMS	Date:	⌘ 15/04/2005
Category:	⌘ B	Release:	⌘ Rel-6
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> 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:	⌘ The SGSN may operate Unidirectional RObust Header Compression (U-ROHC) for MBMS multicast data transfer. As a matter of fact it makes U-ROHC mandatory for MSs capable of MBMS. Furthermore MBMS data transfer from the SGSN to MSs being done in an unidirectional point-to-multipoint manner, the SGSN can not negotiate compression types with the peer MSs. TS 44.065 is updated for the specific case of MBMS where information about compression protocols are not negotiated but pre-defined
Summary of change:	⌘ One sub-clause is added and define the compression protocols and schemes that can be used for MBMS data transmission in GERAN A/Gb mode architecture.
Consequences if not approved:	⌘ ROHC can not be used for MBMS data transmission in GERAN A/Gb mode architecture.

Clauses affected:	⌘ 6.5 and new subclauses 6.5.5										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications Test specifications O&M Specifications	⌘
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***** FIRST CHANGE *****

6.5 Protocol control information compression

Protocol control information compression is an optional SNDCP feature except for Multimedia Broadcast/Multicast Service (MBMS) where the support of ROHC decompression is mandatory in the MS.

Negotiation of the supported algorithms and their parameters is carried out between MS and SGSN using the SNDCP XID parameters (see clause 8).

For MBMS, where no negotiation is possible, subclause 6.5.1 does not apply. Compression parameters are pre-configured as defined in subclause 6.5.5.

***** NEXT CHANGE *****

6.5.5 Pre-defined Protocol control information ROHC compression types for MBMS

An SGSN supporting compression for MBMS shall not negotiate compression information with the MSes. An MS which is capable of MBMS shall support pre-defined compression types and associated configuration information.

An SNDCP entity performing Robust Header Compression (ROHC) for MBMS data traffic shall use the following parameter values:

- Only Unidirectional mode (U-mode) as defined in RFC 3095 [12] shall be used.
- Only profiles for RTP/UDP/IP, UDP/IP and uncompressed as specified in RFC 3095 [12] shall be used.
- Applicable NSAPI = 1.
- MAX_CID set to 511 (i.e. 512 contexts are allowed).
- MAX_HEADER set to 168.

The SNDCP PCOMP values assigned to ROHC for MBMS are preconfigured to PCOMP = 0 which indicates that header compression is not used, PCOMP = 1: ROHC small-CIDs, and PCOMP = 2: ROHC large-CIDs.

MAX_CID, MAX_HEADER and PCOMP parameters are described in subclauses 6.5.4.1.2, 6.5.4.1.3 and 6.5.4.2, respectively.

If decompression fails, e.g. due to a cell change, the MS shall reconfigure and re-initialise the SNDCP entity, reusing the static part of the header decompressor context previously used. Also, after receiving an IR-DYN or IR packet (see RFC 3095 [12]), the MS shall re-initialise header decompression.

The compressor entity in the SGSN shall periodically transit to lower compression states in order for the decompressor entities in the MSes to synchronise with the compressor. For further details about this mechanism, please refer to RFC 3095 [12].

***** END OF THE CHANGES *****