3GPP TSG CT Plenary Meeting #28 **CP-050092**
1st – 3rd June 2005 Quebec, Canada.

Source: TSG CT WG4

Title: Corrections on Multimedia Broadcast and Multicast Service

Agenda item: 9.8

Document for: APPROVAL

Doc-2nd-Level	Spec	CR #	Rev	Rel	Tdoc Title	CAT	C_Version
C4-050863	29.060	532	2	Rel-6	Correction to charging information for MBMS	F	6.8.0
C4-050862	29.060	556		Rel-6	MBMS Session Duration	F	6.8.0

3GPP TSG-CT WG4 Meeting #27 **Tdoc N4-050862**

Cancun, Mexico, 25th to 29th April 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **556** ⌘ **rev** **-** ⌘ 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:	⌘	MBMS Session Duration
Source:	⌘	Ericsson
Work item code:	⌘	MBMS
Date:	⌘	28/04/2005
Category:	⌘	**F**
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:	⌘	GERAN2 has concluded on the importance for the mandatory presence of the MBMS Session Duration IE in the MBMS SESSION START REQUEST message, for the proper operation of both the mobile station and the GERAN. GERAN mobility procedures in MBMS allow a mobile station to request a session in a cell whilst the session duration timer inside the mobile station is running (this timer is based on the MBMS Session Duration). This allows for preventing a mobile station from indefinitely requesting a session that has already stopped. The MBMS Session Duration IE in the MBMS SESSION START REQUEST, will in TS 23.246 be set to be mandatory, according to agreement in SA2 (see LS, "Reply to LS on MBMS Session Duration IE", document C4-050721). In order to be in accordance with stage 2 requirements, the TS 29.060 specification needs to be updated accrdingly.
Summary of change:	⌘	In chapter 7.5A.2.5 MBMS Session Start Request, the MBMS Session Duration is changed from optional IE to mandatory IE.
Consequences if not approved:	⌘	Inconsistency between stage 2 and stage 3 for the specification of the MBMS SESSION START REQUEST message.

Clauses affected:	⌘	7.5A.2.5			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	23.246 CR149
		X /	Other core specifications		
		/ X	Test specifications		

	X	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.

Start of modifications

7.5A.2.5 MBMS Session Start Request

An MBMS Session Start Request message shall only ever be sent by the GGSN, and will be triggered by the BM-SC when it is ready to send data for the indicated MBMS service. An MBMS Session Start Request message may also be triggered by an Error Indication from an SGSN for broadcast mode. An MBMS Session Start Request shall trigger the SGSN to setup the necessary MBMS user plane resources and indicate to the RAN to setup the appropriate radio bearers.

The GGSN shall include a Recovery information element into the MBMS Session Start Request if the GGSN is in contact with the SGSN for the very first time or if the GGSN has restarted recently and the new Restart Counter value has not yet been indicated to the SGSN or if the GGSN has noticed that the path between itself and the SGSN has failed at some point and has deleted all the active PDP contexts, MBMS UE contexts and MBMS Bearer contexts associated with the SGSN as a result and the new Restart Counter value has not yet been indicated to the SGSN. The SGSN that receives a Recovery information element in the MBMS Session Start Request message element shall handle it in the same way as when receiving an Echo Response message. The Session Start Request message shall be considered as a valid activation request for the MBMS Bearer context included in the message.

The ~~optional~~ MBMS Session Duration information element indicates the estimated session duration of the MBMS service data transmission if available. This information is provided by the BM-SC.

The Tunnel Endpoint Identifier Control Plane field specifies an uplink Tunnel Endpoint Identifier for control plane messages that is chosen by the GGSN. The SGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent uplink control plane messages which are related to the MBMS Bearer context.

The GGSN shall include a GGSN Address for control plane, which may differ from that provided by the underlying network service (e.g. IP). The SGSN shall store the GGSN Address and use it when sending control plane messages on this GTP tunnel for the MBMS Bearer context.

The Tunnel Endpoint Identifier Control Plane and GGSN Address for Control Plane shall be included in Broadcast mode. In Multicast mode, the control plane tunnel has already been established at the MBMS Registration.

The End User Address information element contains the PDP type and IP Multicast PDP address of the MBMS service. The Access Point Name information element identifies the access point of packet data network that the GGSN requires to connect to receive the required MBMS service. The APN and End User Address information element shall uniquely identify the MBMS service.

The Quality of Service Profile information element shall be the QoS required from the MBMS bearer.

The MBMS Service Type bit of the Common Flags information element contains explicit information whether the MBMS session is for multicast service or for broadcast service. This information is provided by the BM-SC. If the MBMS Service Type bit of the Common Flags information element is set to 0, then the MBMS session is for multicast service. If the MBMS Service Type bit of the Common Flags information element is set to 1, then the MBMS session is for broadcast service.

The Temporary Mobile Group Identity information element shall be the TMGI allocated by the BM-SC.

The MBMS Service Area information element indicates the area over which the MBMS service has to be distributed. This information is provided by the BM-SC.

The MBMS Session Identifier shall be forwarded to the SGSN if it is provided by the BM-SC.

The MBMS 2G/3G Indicator is provided by the BM-SC and informs the SGSN whether the MBMS Session Start Request message shall be forwarded to the BSCs and/or the RNCs.

The optional Private Extension contains vendor or operator specific information.

Table 7.5A.2.5: Information Elements in an MBMS Session Start Request

Information element	Presence requirement	Reference
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
End User Address	Mandatory	7.7.27
Access Point Name	Mandatory	7.7.30
GGSN Address for Control Plane	Conditional	GSN Address 7.7.32
Quality of Service Profile	Mandatory	7.7.34
Common Flags	Mandatory	7.7.48
Temporary Mobile Group Identity (TMGI)	Mandatory	7.7.56
MBMS Session Duration	Mandatory~~Optional~~	7.7.59
MBMS Service Area	Mandatory	7.7.60
MBMS Session Identifier	Optional	7.7.65
MBMS 2G/3G Indicator	Mandatory	7.7.66
Private Extension	Optional	7.7.46

End of modifications

3GPP TSG-CT WG4 Meeting #27 **C4-050863**
Cancun, Mexico. 25th to 29th April 2005.

CR-Form-v7.1

CHANGE REQUEST

⌘ **29.060** **CR** **532** ⌘ **rev** **2** ⌘ 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:	⌘	Correction to charging information for MBMS
Source:	⌘	Vodafone
Work item code:	⌘	MBMS
Date:	⌘	15/04/2005
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Extra information elements were added to the Create PDP Context Request message and the Update PDP Context Request message to allow for flow based charging to be performed in the GGSN. However, subscriber charging for MBMS is not charged at the GPRS layer and therefore SA2 decided in CR 23.246-145r1 (S2-050888) that the same information needs to be passed to the BM-SC during the MBMS UE Context activation procedure, which is separate from the PDP Context activation and previously overlooked.
Summary of change:	⌘	Adds parameter transfer of IMEI(SV), RAT Type, User Location Information and MS Time Zone from SGSN to GGSN (and subsequently to the BM-SC in associated CT3 CR) where possible along the same principles as those implemented for 3GPP TS 23.060. IMEI(SV) is transported only at MBMBS UE Context Activation is expected to be used for accounting/trace purposes only.
Consequences if not approved:	⌘	Specific information will be missing from the BM-SC that is responsible for the service level charging according to the MBMS stage 2.

Clauses affected:	⌘	7.5A.1.5, 7.5A.1.7

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		CR 23.246-145
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	CAMEL Charging Charateristics are not included in this CR as CAMEL interactions do not apply to MBMS.

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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.

****** First Modified Section ******

7.5A MBMS Messages

The MBMS messages defined here are control plane messages that are used in accordance with 3GPP TS 23.246 [26]. These are further categorised into control plane messages related to UE specific MBMS signalling, and control plane messages related to MBMS service specific signalling.

7.5A.1 UE Specific MBMS Messages

. . .

7.5A.1.5 Create MBMS Context Request

A Create MBMS Context Request shall be sent from an SGSN node to a GGSN node as part of the MBMS Context Activation procedure. After sending the Create MBMS Context Request message, the SGSN marks the MBMS UE context as 'waiting for response'. A valid request creates a MBMS UE Context within the SGSN and GGSN, (see 3GPP TS 23.246 [26]). Furthermore, a valid request creates a GTP tunnel in the GTP-C plane, however no GTP-U tunnel is created at this step.

The Tunnel Endpoint Identifier Control Plane field specifies a downlink Tunnel Endpoint Identifier for control plane messages which is chosen by the SGSN. The GGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent downlink control plane messages which are related to the requested MBMS UE context.

The MSISDN of the MS is passed to the GGSN inside the Create MBMS Context Request; This additional information can be used when a secure access to a remote application residing on a server is needed. The GGSN would be in fact able to provide the user identity (i.e. the MSISDN) to the remote application server, providing it with the level of trust granted to users through successfully performing the GPRS authentication procedures, without having to re-authenticate the user at the application level.

The IMSI information element together with the Enhanced NSAPI information element uniquely identifies the MBMS UE context to be created.

The End User Address information element contains the PDP type and IP Multicast PDP address that the UE requires to be activated. The SGSN shall include either the UE provided APN, a subscribed APN or an SGSN selected APN in the message. The Access Point Name information element identifies the access point of packet data network that the UE requires to connect to receive the required MBMS service. The Selection Mode information element shall indicate the origin of the APN in the message. The APN and End User Address information element shall uniquely identify the MBMS service.

The SGSN shall include an SGSN Address for control plane, which may differ from that provided by the underlying network service (e.g. IP). If the GGSN is IPv6 capable, the IPv4/IPv6 capable SGSN shall include IPv6 addresses in the field SGSN Address for signalling. Otherwise, it shall include IPv4 addresses in this field. The GGSN shall store the SGSN Address and use them when sending control plane on this GTP tunnel for the UE.

The SGSN shall include a Recovery information element into the Create MBMS Context Request if the SGSN is in contact with the GGSN for the very first time or if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN or if the SGSN has noticed that the path between itself and the GGSN has failed at some point and has deleted all the active PDP contexts, MBMS UE contexts and MBMS Bearer contexts associated with the GGSN as a result and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN that receives a Recovery information element in the Create MBMS Context Request message element shall handle it in the same way as when receiving an Echo Response message. The Create MBMS Context Request message shall be considered as a valid activation request for the MBMS UE context included in the message.

The SGSN shall include Trace Reference, Trace Type, Trigger Id, OMC Identity and Additional Trace Info in the message if GGSN trace is activated in the GGSN. The SGSN shall copy Trace Reference, Trace Type, and OMC Identity from the trace request received from the HLR or OMC and the Trace Activity Control shall be set to Trace Activation.

For more detailed description of Trace Session activation/deactivation procedures see 3GPP TS 32.422 [31]

For SGSN and GGSN trace record description see 3GPP TS 32.423 [32]

The SGSN shall include the Routeing Area Identity (RAI) of the SGSN where the UE is registered. The MCC and MNC components shall be populated with the MCC and MNC, respectively, of the SGSN where the UE is registered. The LAC and RAC components shall be populated by the SGSN with the LAC and RAC, respectively, of where the UE is located at the time of the MBMS Context invocation.

The SGSN shall include the User Location Information IE, MS Time Zone IE, RAT Type IE and the IMEI(SV) IE if they are available (see sub-clause 15.1.1a of 3GPP TS 23.060 [4] for more information). If the User Location Information IE is included then the SGSN shall include the CGI or SAI in the 'Geographic Location' field depending on whether the MS is in a cell or a service area respectively.

The optional Private Extension contains vendor or operator specific information.

The MBMS Protocol Configuration Options (MBMS PCO) information element may be included in the request when the MS provides the GGSN with MBMS specific parameters. The SGSN includes this IE in the Create MBMS Context Request if the associated Activate MBMS Context Request from the MS includes MBMS protocol configuration options. The SGSN shall copy the content of this IE transparently from the content of the MBMS PCO IE in the Activate MBMS Context Request message.

Table 7.5A.5: Information Elements in a Create MBMS Context Request

Information element	Presence requirement	Reference
IMSI	Conditional	7.7.2
Routeing Area Identity (RAI)	Mandatory	7.7.3
Recovery	Optional	7.7.11
Selection mode	Conditional	7.7.12
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Trace Reference	Optional	7.7.24
Trace Type	Optional	7.7.25
End User Address	Mandatory	7.7.27
Access Point Name	Mandatory	7.7.30
SGSN Address for signalling	Mandatory	GSN Address 7.7.32
MSISDN	Conditional	7.7.33
Trigger Id	Optional	7.7.41
OMC Identity	Optional	7.7.42
RAT Type	Optional	7.7.50
User Location Information	Optional	7.7.51
MS Time Zone	Optional	7.7.52
IMEI(SV)	Optional	7.7.53
MBMS Protocol Configuration Options	Optional	7.7.58
Additonal Trace Info	Optional	7.7.62
Enhanced NSAPI	Mandatory	7.7.67
Private Extension	Optional	7.7.46

****** Last Modified Section ******

7.5A.1.7 Update MBMS Context Request

An Update MBMS Context Request message shall be sent from a SGSN to a GGSN as part of the GPRS Inter SGSN Routeing Update procedure or to redistribute contexts due to load sharing. The message shall be sent by the new SGSN at the Inter SGSN Routeing Update procedure. The GGSN shall update the MBMS UE context fields accordingly.

The Enhanced NSAPI information element together with the Tunnel Endpoint Identifier in the GTP header unambiguously identifies a MBMS UE Context in the GGSN.

The IMSI shall be included if the message is sent during an Inter SGSN change when changing the GTP version from GTP v0 to GTP v1; this is required, as the TEID in the header of the message is set to all zeros in this case.

The Tunnel Endpoint Identifier Control Plane field specifies a downlink Tunnel Endpoint Identifier Control Plane messages which is chosen by the SGSN. The GGSN shall include this Tunnel Endpoint Identifier in the GTP header of all subsequent downlink control plane messages that are related to the requested PDP context.

The SGSN shall include an SGSN Address for control plane, which may differ from that provided by the underlying network service (e.g. IP).

If an IPv4/IPv6 capable SGSN received IPv4 GGSN addresses from the old SGSN, it shall include IPv4 addresses in the fields SGSN Address for Control Plane and IPv6 addresses in the fields Alternative SGSN Address for Control Plane. Otherwise, an IPv4/IPv6 capable SGSN shall use only SGSN IPv6 addresses if it has GGSN IPv6 addresses available. If the GGSN supports IPv6 below GTP, it shall store and use the IPv6 SGSN addresses for communication with the SGSN and ignore the IPv4 SGSN addresses. If the GGSN supports only IPv4 below GTP, it shall store and use the IPv4 SGSN addresses for communication with the SGSN and ignore the IPv6 SGSN addresses. When active contexts are being redistributed due to load sharing, G-PDUs that are in transit across the Gn-interface are in an undetermined state and may be lost.

The SGSN shall include a Recovery information element into the Update MBMS Context Request if the SGSN is in contact with the GGSN for the very first time or if the SGSN has restarted recently and the new Restart Counter value has not yet been indicated to the GGSN or if the SGSN has noticed that the path between itself and the GGSN has failed at some point and has deleted all the active PDP contexts, MBMS UE contexts and MBMS Bearer contexts associated with the GGSN as a result and the new Restart Counter value has not yet been indicated to the GGSN. The GGSN that receives a Recovery information element in the Update MBMS Context Request message element shall handle it in the same way as when receiving an Echo Response message. The Update PDP Context Request message shall be considered as a valid update request for the MBMS UE context indicated in the message.

The SGSN shall include Trace Reference, Trace Type, Trigger Id, OMC Identity and Additional Trace Info in the message if GGSN trace is activated while the MBMS UE context is active. The SGSN shall copy Trace Reference, Trace Type, OMC Identity and Additional Trace Info from the trace request received from the HLR or OMC and the Trace Activity Control shall be set to Trace Activation.

If SGSN deactivates the Trace Session to GGSN, the SGSN shall include the Additional Trace Info in the message and the Trace Activity Control shall be set to Trace Deactivation.

For more detailed description of Trace Session activation/deactivation procedures see 3GPP TS 32.422 [31]

For SGSN and GGSN trace record description see 3GPP TS 32.423 [32].

The SGSN shall include the Routeing Area Identity (RAI) of the SGSN where the UE is registered. The MCC and MNC components shall be populated with the MCC and MNC, respectively, of the SGSN where the UE is registered. The LAC and RAC components shall be populated by the SGSN with the value of 'FFFE' and 'FF', respectively.

The SGSN shall include the User Location Information IE, RAT Type IE and MS Time Zone IE if they are available (see sub-clause 15.1.1a of 3GPP TS 23.060 [4] for more information). If the User Location Information IE is included then the SGSN shall include the CGI or SAI in the 'Geographic Location' field depending on whether the MS is in a cell or a service area respectively.

The optional Private Extension contains vendor or operator specific information.

Table 7.5A.7: Information Elements in an Update MBMS Context Request

Information element	Presence requirement	Reference
IMSI	Conditional	7.7.2
Routeing Area Identity (RAI)	Mandatory	7.7.3
Recovery	Optional	7.7.11
Tunnel Endpoint Identifier Control Plane	Conditional	7.7.14
Trace Reference	Optional	7.7.24
Trace Type	Optional	7.7.25
SGSN Address for Control Plane	Mandatory	GSN Address 7.7.32
Alternative SGSN Address for Control Plane	Conditional	GSN Address 7.7.32
Trigger Id	Optional	7.7.41
OMC Identity	Optional	7.7.42
RAT Type	Optional	7.7.50
User Location Information	Optional	7.7.51
MS Time Zone	Optional	7.7.52
Additional Trace Info	Optional	7.7.62
Enhanced NSAPI	Mandatory	7.7.67
Private Extension	Optional	7.7.46