**3GPP TSG- Meeting #**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** | **2** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change 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](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | Missing capability to update the service requirement by an AF for an ongoing Multicast MBS Session | | | | | | | | |
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| ***Summary of change:*** | | Include Multicast session update procedure as detailed in TS 23.247 (clause 7.2.6), and default trigger for AF in the MB-SMF Triggers table | | | | | | | | |
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| ***Consequences if not approved:*** | | Charging support on MBS Session Update once the service is invoked by the AF | | | | | | | | |
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| ***Clauses affected:*** | | 5.2.1.2; 5.2.2.2.x | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **x** | Test specifications | | | |  | | |
| ***(show related CRs)*** | | **X** |  | O&M Specifications | | | | TS 32.291 CR 0560  TS 32.298 CR 1008 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | S5-241470 | | | | | | | | |

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| **First change** |

##### 5.2.2.2.x MBS Session Update Charging Procedure

The following figure 5.2.2.2.x-1 describes the charging procedure when there is a Multicast MBS Session Update procedure. Multicast MBS session update procedure is invoked by the AF to update the service requirement (result in multicast QoS parameters update and/or multicast QoS flow addition/removal) and/or MBS Service Area for an ongoing Multicast MBS session. The focus is to provide such information to CHF once the MBS Session state changes. This figure is based on TS 23.247 [9] figure 7.2.6-1.



**Figure 5.2.2.2.x-1: MBS Session update Charging Procedure**

Steps 1 to 2 per 3GPP TS 23.247 [9] Figure 7.2.6-1: Multicast MBS Session update Procedure,

2ch-a. The MB-SMF sends Charging Data Request [Update] to the CHF when the corresponding trigger is activated.

2ch-b. The CHF updates the CDR.

2ch-c. The CHF acknowledges by sending Charging Data Response [Update] to the MB-SMF.

Steps 3 to 12 per 3GPP TS 23.247 [9] Figure 7.2.6-1: Multicast MBS Session update Procedure.

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| **Second change** |

#### 5.2.1.2 Applicable Triggers in the MB-SMF

When a charging event is issued towards the CHF, it includes details such as MBS charging identifier and also containers identifying the volume count, with charging condition change information.

Each trigger condition (i.e. chargeable event) defined for the 5G converged charging functionality with the associated behaviours when met is specified in the present document and the basic trigger mechanism is specified in the TS 32.290 [4].

Two categories of chargeable events are identified:

- immediate report: chargeable events for which, when occurring, the current counts are closed and sent together with the charging data generated by the MB-SMF towards the CHF in a Charging Data Request. New counts are started by the MB-SMF.

- deferred report: chargeable events for which, when occurring, the current counts are closed and stored together with the charging data generated by the MB-SMF. The stored counts will be sent to the CHF in next a Charging Data Request. New counts are started by the MB-SMF.

When more than one trigger condition to be met at same time (i.e. time stamp of triggers is the same) for the same count in the MB-SMF, the MB-SMF reports the used unit container with these triggers.

When a MBS session starts, and the converged charging is activated, the MB-SMF invokes a Charging Data Request [Initial] towards the CHF to get authorization to start based on the default triggers. The MB-SMF is optionally provided in a Charging Data Response [Initial] to override the default triggers, with a set of chargeable event triggers to be enabled, and the associated category (i.e. immediate or deferred report).

The triggers remain active until they are updated or disabled by subsequent Charging Data Response [Update] from the CHF or the MBS session is terminated.

Table 5.2.1.2-1 summarizes the set of default trigger conditions and their category which shall be supported by the MB-SMF. For "immediate report" category, the table also provides the corresponding Charging Data Request [Initial, Update, Termination] message sent from MB-SMF towards the CHF.

Table 5.2.1.2-1: Default Trigger conditions in MB-SMF

| Trigger Conditions | Trigger level | Converged Charging default category | CHF allowed to change category | CHF allowed to enable and disable | Message when "immediate reporting" category |
| --- | --- | --- | --- | --- | --- |
| Start of MBS Session. | MBS session | Immediate | Not Applicable | Not Applicable | Charging Data Request [Initial] |
| **Change of Charging conditions** | | | | | Charging Data Request [Update] |
| Connection established with NG-RAN | MBS session | Deferred | Yes | Yes |
| Connection released with NG-RAN | MBS session | Deferred | Yes | Yes |
| Connection established with UPF | MBS session | Deferred | Yes | Yes |
| Tariff Time Change | MBS session | Deferred | Deferred | Yes |
| Connection released with UPF | MBS session | Deferred | Yes | Yes |
| Connection established with AF | MBS session | Deferred | Yes | Yes |
| **Quota management** | | | | |
| Time threshold reached | MBS session | Deferred | No | Yes |
| Time quota exhausted | MBS session | Deferred | No | Yes |
| **Limit per MBS session** | | | | |
| Expiry of data time limit per MBS session | MBS session | Immediate | No | Yes |
| Expiry of data volume limit per MBS session | MBS session | Immediate | No | Yes |
| Expiry of limit of number of charging condition changes | MBS session | Immediate | No | Yes |
| End of MBS session | MBS session | Immediate | No | No | Charging Data Request [Termination] |

For converged charging, the following details of chargeable events and corresponding actions in the MB-SMF are defined in Table 5.2.1.2-2:

Table 5.2.1.2-2: Chargeable events and their related actions in MB-SMF

| Chargeable event | Conditions | MB-SMF action |
| --- | --- | --- |
| Start of MBS session |  | Charging Data Request [Initial]. |
| Connection established with NG-RAN | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Connection released with NG-RAN | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Connection established with UPF | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Connection released with UPF | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Connection established with AF | If the corresponding trigger is enabled | Charging Data Request [Update] with a possible Service requirement change  Close the counts and start new counts with time stamps |
| Time threshold reached | If the corresponding trigger is enabled | Charging Data Request [Update] with a possible request quota  Close the counts and start new counts with time stamps |
| Time quota exhausted | If the corresponding trigger is enabled | Charging Data Request [Update] with a possible request quota  Close the counts and start new counts with time stamps |
| Expiry of data volume limit per MBS session | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Expiry of time limit per MBS session | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Expiry of a limit of number of charging condition changes per MBS session | If the corresponding trigger is enabled | Close the counts and start new counts with time stamps |
| Tariff Time Change | If the corresponding trigger is enabled | Charging Data Request [Update] with a possible request quota  Close the counts and start new counts with time stamps |
| End of MBS session |  | Charging Data Request [Termination]  Close the counts with time stamps |

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| **End of changes** |