**3GPP SA4 117-E meeting** ***S4-220123***

**E-meeting, February 14th – 23rd, 2022**

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| *CR-Form-v12.0* |
| **PSEUDO CHANGE REQUEST** |
|  |
|  | **TS 26.502** | **CR** | **–** | **rev** | **–** | **Current version:** | **1.0.0** |  |
|  |
| *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:***  | pCR to TS 26.502 support of interworking with LTE MBMS |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon, BBC |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5MBUSA |  | ***Date:*** | 2022-02-08 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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)*. |  |
|  |  |
| ***Reason for change:*** | In SA2 TS 23.247, the MBSF and MBSTF shall be used when interworking with LTE MBMS at 5GC is required and the MBSF functionality related to service and MBS data handling (e.g. encoding) is to be determined with SA WG4. Therefore, it’s better to add support of interworking with LTE MBMS for MBSF. |
|  |  |
| ***Summary of change:*** | Add a NOTE to clairfy that the interworking with LTE MBMS is already supported by MBSF without any additional work.  |
|  |  |
| ***Consequences if not approved:*** | Support of interworking with LTE MBMS is missing.  |
|  |  |
| ***Clauses affected:*** | 2, 4.1, A |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  |  |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

First change

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

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

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System architecture for the 5G System (5GS)".

[3] 3GPP TS 23.502: "Procedures for the 5G System (5GS)".

[4] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

[5] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[6] 3GPP TS 26.348: "Northbound Application Programming Interface (API) for Multimedia Broadcast/Multicast Service (MBMS) at the xMB reference point".

[7] 3GPP TS 26.501: "5G Media Streaming (5GMS); General description and architecture".

[8] IETF RFC 3500: "RTP: A Transport Protocol for Real-Time Applications".

[9] IETF RFC 2250: "RTP Payload Format for MPEG1/MPEG2 Video".

[10] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[X] 3GPP TS 23.289: "Mission Critical services over 5G System".

[Y] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE\_LTE)".

SECOND change

## 4.1 General

This clause defines a reference architecture for 5G Multicast–Broadcast User Services, including the logical functions involved and the logical reference points between them.

The provisioning of group communication services as defined in TS 23.289 [X] is supported by MBS User Services, in particular the addition of User Plane FEC protection by the MBSTF. This usage is further described in clause A.1

Other aspects of interworking with LTE are specified in clause 5.2 of TS 23.247 [5] and are not considered further in the present document.

Third CHANGE

# A.1 Group Communication

## A.1.1 General

The Group Communication (GC) Service, also know as the Mission Critical Service, can utilise the MBS System for GC data delivery. Figure A.1.1-1 presents a high-level architectural view of Mission Critical Services provisioned and delivered using MBS User Services, as described in TS 23.289 [X] and TS 23.468 [Y].



Figure A.1.1-1: Architectural view of a mission critical system using MBS User Services

## A.1.2 Group Communication service without FEC

In the case where FEC protection of the GC service is not required, the GC server may directly invoke the Nmbsmf service operations exposed by the MB-SMF at reference point Nmb13 or N33+N29mb for TMGI and MBS Session management, e.g. TMGI allocation/deallocation, MBS Session Creation/Update/Release, as defined in TS 23.247 [5].

NOTE: In this case, the MBSF and MBSTF is not involved in the collaboration, even when these functions are deployed in the 5G System.



Figure A.1.2-1: Group Communicatin service without FEC

After TMGI allocation and MBS Session creation via Control Plane exchanges between the GC Server and the MB-SMF, the MB-UPF directly ingests GC data from the GC Server via N6mb.

## A.1.3 Group Communication service with AL‑FEC

In the case when Application Layer FEC (AL‑FEC) protection is needed for the GC services, the MBSF and MBSTF are involved, as shown in figure A.1.3‑1. In this case, TMGI allocation/deallocation is still accomplished using the services provided by MB-SMF, as described in clause A.1.2. However, an MBS User Service using Packet Distribution Session running in Forward-Only mode is instead provisioned by the GC Server in the MBSF via reference pointNmb10 or N33+Nmb5 to enable the FEC functionality provided by the MBSTF.

NOTE 1: This method may also be used to provision Group Communication service without AL‑FEC by omitting the optional FEC configuration described in step 3 below.

NOTE 2: In this method, the MBSF takes responsibility for managing the MBS Session in the MB-UPF by invoking Nmbsmf\_MBSSession services as described in step 4 below.



Figure A.1.3-1: Group Communication service with AL‑FEC

The steps are as follows:

1. The GC Server allocates a TMGI by invoking the Nmbsmf\_TMG\_Allocate service operation provided by the MB‑SMF (see clause 9.1.2.2 in TS 23.247 [5]) at reference point Nmb13 or N33+N29mb.

2. The GC Server creates an MBS User Service by invoking the Nmbsf\_MBSUserService\_Create service operation provided by the MBSF (see clause 7.2.2.1 in the present document) at reference point Nmb10 or N33+Nmb5.

3. The GC Server invokes the Nmbsf\_MBSUserDataIngestSession\_Createservice (see clause 7.2.3.1) at reference point Nmb10 or N33+Nmb5 to create an MBS User Data Ingest Session together with an MBS Distribution Session using Packet Distribution Method in Forward-only mode.

- The allocated TMGI is included in the MBS Distribution Session parameters.

- A FEC configuration is included in the MBS Distribution Session parameters specifying the required FEC functionality.4. At the time indicated in the MBS User Data Ingest Session, the MBSF invokes the Nmsbtf\_‌MBSDistribution‌Session‌\_Createservice exposed by MBSTF at reference point Nmb2 (see clause 7.3.2.1) to configure the MBS Distribution Session, including the provisioned FEC functionality.

5. When the MBS Distribution Session becomes active, the MBSTF starts ingesting the GC data stream from the GC Server via reference point Nmb8.

6. The MBSTF adds the required AL‑FEC protection to the ingested GC data stream according to the FEC configuration and sends the resulting FEC-protected GC data stream to the MB-UPF via Nmb9 for GC data delivery over the MBS Session.

End of CHANGEs