**3GPP SA4 119-E meeting** ***S4-220660***

**E-meeting, May 11th – 19th, 2022**

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| *CR-Form-v12.0* | | | | | | | | |
| **PSEUDO CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **TS 26.502** | **CR** | **0003** | **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:*** | CR to TS 26.502 support of Group Communication Service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBUSA | | | | |  | ***Date:*** | | | 2022-05-04 |
|  |  | | | |  | |  | | |  |
| ***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 the SA2 LS S4-220XXX/S2-2203051, the Group Communication is only applicable to LTE/EPC and is referenced in TS 23.247 in Rel-17 only in the context of interworking with LTE eMBMS. To make use of MBS, the MCX server can act as an AF to interact with 5GS via Nmb13/Nmb10. Alignment for support of the group communication/MCX services is needed from SA4 aspects. | | | | | | | | |
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| ***Summary of change:*** | | Add support of Group Communication and Mission Critical Services in the Annex. | | | | | | | | |
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| ***Consequences if not approved:*** | | Support of group communication services is missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, A.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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

# A.1 Group Communication

## A.1.1 General

The Group Communication (GC) Service, which is only applicable to LTE/EPC as specified in TS 23.468 [X], can utilise the MBS System for GC data delivery via MB2-C and MB2-U in TS 23.247 Annex C [5]. The MCX service can act as an instantiation of a GCS AS. Moreover, it can also act as an AF to interact with 5GS via Nmb13 or Nmb10 for control plane, as well as N6mb or Nmb8 for user plane.

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 [Y] and TS 23.468 [X].



Figure A.1.1-1: Architectural view of MBS User Service for support of GC/MCX services

## A.1.2 Group Communication service without FEC

In the case where FEC protection of the GC/MCX service is not required, the GC/MCX 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/MCX Server and the MB-SMF, the MB-UPF directly ingests GC data from the GC/MCX 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 MCPTT / MCVideo 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/MCX 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/MCX 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/MCX 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/MCX data stream from the GC/MCX Server via reference point Nmb8.

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

End of CHANGEs