**3GPP TSG-WG SA2 Meeting #146E e-meeting *S2-2106086***

**Elbonia, August 16 – 27, 2021 (revision of S2-2104312)**

**Source: Huawei**

**Title: New SID: Architectural enhancements for 5G multicast-broadcast services Phase 2**

**Document for: Approval**

**Agenda Item: 9.2**

**Work Item / Release: {FS\_5MBS\_Ph2} / Rel-18**

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](http://www.3gpp.org/About/WP.htm), article 39; and [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm).
Comprehensive instructions can be found at <http://www.3gpp.org/Work-Items>

Title: Study on architectural enhancements for 5G multicast-broadcast services Phase 2

Acronym: FS\_5MBS\_Ph2

Unique identifier

1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | **UICC apps** | **ME** | **AN** | **CN** | **Others (specify)** |
| **Yes** |  | X | X | X |  |
| **No** |  |  |  |  |  |
| **Don’t know** | X |  |  |  | X |

2 Classification of the Work Item and linked work items

2.1 Primary classification

This work item is a …

|  |  |
| --- | --- |
|  | **Feature** |
|  | **Building Block** |
|  | *Work Task* |
| X | **Study Item** |

2.2 Parent and child Work Items

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| **Parent and child Work Items**  |
| **Unique ID** | **Title** | **Nature of relationship** |
| N/A | N/A |  |

2.3 Other related Work Items and dependencies

|  |
| --- |
| **Other related Work Items (if any)** |
| **Unique ID** | **Title** | **Nature of relationship** |
| 830030 | Study on Architectural enhancements for 5G multicast-broadcast services | Antecedent study item (TR 23.757) |
| 900009 | Architectural enhancements for 5G multicast-broadcast services | Antecedent work item (TS 23.247) |

3 Justification

The Architectural enhancements for 5G multicast-broadcast services defined in Rel-17 enable the PLMN operators accommodate varies multicast and broadcast services. The work is based on requirements in clause 6.13 of TS 22.261, TS 22.146, TS 22.246 and clause 32 of TS 22.101. Specifically, the support within certain location areas, mobility, MBS session management, QoS, as well as interworking with E-UTRAN and EPC based eMBMS for Public Safety were studied in TR 23.757 and specified in TS 23.247.

Enabling UE’s receiving Multicast MBS Session data in CM-IDLE mode would be beneficial for the cases when the power efficiency is more important than the reliability. Besides that, other potential enhancements by RAN WG, e.g., SFN enhancement, may introduce new features to SA2 for MBS. Thus, it is needed to ensure the associating abilities would be addressed accordingly by SA2 in Rel-18.

Moreover, it was determined that in Rel-17 some issues were not handled, e.g., the roaming and limited SMF serving area issues. Lack of abilities may lead to the system failing to provision the related features if it is required. In addition, the support of Free To Air may need further enhancement.

TS 22.261 also mentions IoT applications as important broadcast/multicast applications.

This study aims at identifying the gaps that need to be filled to support the above-mentioned requirements, and studying the suitable solution to address these gaps. The study may also address the issues identified by RAN WGs.

4 Objective

The goal of this Study Item is to identify and evaluate further enhancements to the 5G Multicast/Broadcast Architecture to provide a wider usage for Multicast/Broadcast services. The following aspects are the objectives of the study:

Further enhancement on end-to-end procedures/functionalities:

- Study the architectural and procedural enhancement for enabling UE's receiving Multicast MBS Session data in CM-IDLE and CM-CONNECTED with RRC Inactive state.

- Further enhancement to Free To Air support;

- Support of efficient resource utilization for the same multicast/broadcast services in the case of RAN sharing;

Outstanding issues in Rel-17:

- Enhancements to support the UEs receiving MBS session data in roaming scenario;

- Enhancements to support the MBS session with deployments topologies with specific SMF Service Areas.

- Study possible enhancements for IoT applications.

And any other issues identified by RAN and other SA WGs that needed to be enhanced in SA2.

The NR is considered as wireless access technology.

Each of the above objectives can conclude independently from the other, and the impact on RAN is to be analysed by and coordinated with the relevant RAN WGs.

The time for this study item is about 7 TUs.

5 Expected Output and Time scale

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| --- |
| **New specifications** |
| Type  | Series | Title | For info at TSG#  | For approval at TSG# | Remarks |
| New TR | 23.xxx | Study on architectural enhancements for 5G multicast-broadcast services Phase 2 | TBD | TBD |  |

|  |
| --- |
| **Impacted existing TS/TR** |
| TS/TR No. | Description of change  | Target completion plenary# |
|  |  |  |

6 Work item Rapporteur(s)

Meng Li, Huawei, raymond.limeng@huawei.com

7 Work item leadership

SA2

8 Aspects that involve other WGs

Security aspects should be analysed by the SA3 WG.

The impact on the service layer is to be analysed by and coordinated with SA4.

The work on public safety is to be coordinated with SA6.

9 Supporting Individual Members

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| **Supporting IM name** |
| Huawei |
| HiSilicon |
| CBN |
| Samsung |
| Vivo |
| ZTE |
| China Unicom |
| CATT |
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