**3GPP TSG SA WG4 Meeting #117-e S4-21xxxx**

**14 – 23 February, 2022, Electronic Meeting (revision of xx-yyxxxx)**

**Source: Ericsson LM, Facebook, Huawei, KPN N.V., Nokia Corporation, Samsung Electronics Co., Ltd.**

**Title: New WID on IMS-based AR Conversational Services**

**Document for: Agreement**

**Agenda Item: xxx**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: IMS-based AR Conversational Services

Acronym: IBACS

Unique identifier: TBA

Potential target Release: Rel-18

# 1 Impacts

*{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}*

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

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

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

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| --- |
| **Parent Work / Study Items**  |
| **Acronym** | **Working Group** | **Unique ID** | **Title (as in 3GPP Work Plan)** |
|  |  |  |  |
| ITT4RT | S4 | 820003 | Support of Immersive Teleconferencing and Telepresence for Remote Terminals |
| FS\_5GSTAR | S4 | 880011 | Study on 5G Glass-type AR/MR Devices |

### 2.3 Other related Work Items and dependencies

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| **Other related Work /Study Items (if any)** |
| **Unique ID** | **Title** | **Nature of relationship** |
| 810006 | Extended Reality (XR) in 5G | Relevant XR use cases in the conversational space |
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|  |  |  |
|  |  |  |
| 820003 | Support of Immersive Teleconferencing and Telepresence for Remote Terminals | Previous work in MTSI relating to 360-degree immersive communication in IMS |
| 850042 | Study on evolution of IMS multimedia telephony service | Feasibility study on AR call |
| 920029 | Stage 1 of Evolution of IMS Multimedia Telephony Service | Requirements to support AR telephony communication as specified in TS 22.173 and TS 22.261 |
| 940066 | Study on system architecture for next generation real time communication services | Study on system architecture enhancement for next generation real time communication in IMS (TR 23.728). NOTE(Simon): I was not able to find this TR  |
| See Note | MeCAR1 | We expect that multiple relevant topics (like special descriptions, …) will be addressed in MeCAR and ultimately feed the work in IBACS |
| See Note | FS\_SmarTAR1 | FS\_SmarTAR will address the aspect of tethered AR devices that is currently not well defined in TR 26.998. Once the SmarTAR work is concluded, IBACS will use the outcome as basis for concversational services in IMS for tethered AR devices.  |
| See Note | iRTCW1 | IBACS currently has no direct dependency on iRTCW, however the work items have some relation in scope, i.e. when it comes to RTP traffic. It is currently proposed to create a new TS that can serve both work items to address normative work on RTP streaming for real-time immersive media stream.  |
| See Note | 5G\_AREA?1 | IBACS currently has no direct dependency on 5G\_AREA, however any potentially overlapping work needs to be monitored in respect to its impact on normative work. |

Note 1: The marked WIDs/SIDs are currently in draft phase and will be finalized in the following meetings. Any relationship or dependency is based on the current status of the respective draft.

# 3 Justification

Extended reality (VR (Virtual Reality), MR (Mixed Reality), AR (Augmented Reality)) applications and services need for new standardized enablers in 3GPP. In SA4, work has been conducted during the past releases to address developments in in this area. TR 26.928 (Extended Reality (XR) in 5G) identified multiple aspects of potential normative work in regard to conversational services (clause 7.6 & 7.8). TR 26.998 (5G Glass-type AR/MR) identified multiple aspects of normative work to support 5G/AR Real-time Communication (clause 8.4). TR 26.998 identified the following normative work that will be addressed in IBACS: conversational AR services require real-time communication both in the downlink and the uplink, need to support delivery of immersive media via RTP, support suitable control protocols for end-to-end adaptation, support capability exchange, and support any necessary session and connection establishment (based on SIP and SDP). Further the IBACS work will be driven by any existing and related functionalities defined in TS 26.114, including the basic uni-directional VR conferencing MTSI service.

The next standardization phase should be based on the above developments and proceed to Stage 3 specification. A new specification is planned to address AR conversational services for IMS and develop the necessary enablers to deploy new compelling applications and services based on extended reality experiences.

The new specification will leverage part of the existing TS 26.114 by importing/referencing part of its features and also develop new ones. This work item will leverage also other work items within the same domain in the SA4 WG.

The main goal is to enhance IMS communication with new functionalities that support AR media and experiences (e.g., AR conferencing). [Spatial audio is also an essential component that will be integrated in both the new planned specification and the existing TS 26.114.]

# 4 Objective

The objective of this work item is to specify an IMS-based instantiation for AR conversational services delivering AR media and metadata via IMS network. Relevant features and functional components specified for MTSI in TS 26.114 will be referenced and/or enhanced, if required.

More specifically, this work item aims to conduct normative work to specify the following aspects:

1. Terminal architectures for standalone, edge assisted and wireless tethered UEs integrated with an MTSI client (as defined in TS 26.114).

NOTE1: The work done for FS\_5GSTAR [and the result of Rel-18 WI MeCAR] should be taken into considerations. Work on tethered UEs heavily depends on SmarTAR.

1. IMS session setup, control, and capability negotiation procedures for traditional and AR media supporting multiple device-types in one IMS communications session.
2. Real-time transport of traditional as well as AR media, scene description, and metadata via IMS media path including Data Channel. Transport can be either one-way or bi-directional.

Note: Media capabilities come from MeCAR.

Note2: AR media as defined in clause 4.4 in 26.998?, Note: includes volumetric media)

Note3: is there any relation to iRTCW? Do we need a new spec for (immersive) RTP to be used both in iRTCW and IBACS?

1. Support of spatial descriptions needed to support spatial computing (as per TR 26.998) for conversational IMS communications.

NOTE4: This objective is subject to the conclusion of FS\_5GSTAR and will be based on the spatial descriptions that will be defined in MeCAR.

1. [Specify integration of the IVAS spatial audio codec to both TS 26.114, as well as to the new planned specification

NOTE5: This objective is subject to the availability of the IVAS codec within the Release 18 timeframe.

NOTE6: We will most likely delete this based on input from IVAS/EVS group]

# 5 Expected Output and Time scale

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| **New specifications {One line per specification. Create/delete lines as needed}** |
| **Type**  | **TS/TR number** | **Title** | **For info at TSG#**  | **For approval at TSG#** | **Rapporteur** |
| *TS* | *26.xxx* | *IMS-based AR Real-Time Communication* | *TSG#xx (after SA4#125)* | *TSG#xx (after SA4#126)* | *{<FamilyName>, <GivenName>, <Company>, <email address>. See Note 2}* |
| *TS* | *26.xxx* | *Support for Immersive media in RTP streaming* | *TSG#xx (after SA4#125)* | *TSG#xx (after SA4#126)* | *{<FamilyName>, <GivenName>, <Company>, <email address>. See Note 2}* |

|  |
| --- |
| **Impacted existing TS/TR {One line per specification. Create/delete lines as needed}** |
| **TS/TR No.** | **Description of change**  | **Target completion plenary#** | **Remarks** |
| 26.114 | Addition of IVAS, if ready in time | *TSG#xx (after SA4#126)* |  |

# 6 Work item Rapporteur(s)

*{Mandatory: <FamilyName>, <GivenName>, <Company>, <email address>}*

*{Optional: <FamilyName>, <GivenName>, <Company>, <email address>: Secondary task(s)}*

*{The first listed Rapporteur is the work item primary Rapporteur. The role of a Rapporteur is further described in* [*www.3gpp.org/specifications-groups/delegates-corner/writing-a-new-spec*](http://www.3gpp.org/specifications-groups/delegates-corner/writing-a-new-spec)*. By default, the primary Rapporteur shall ensure the production of the post-completion summary.
Secondary Rapporteur(s) are possible for specific secondary task(s), such as: "Write the post-completion summary"; "In charge of a specific aspect of the work item (specify which)"; "Rapporteur for a secondary responsible WG (specify which)"}*

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

Coordination with SA1, SA2, and RAN groups may be necessary.

# 9 Supporting Individual Members

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| **Supporting IM name** |
| Ericsson LM |
| Huawei |
| KPN N.V. |
| Nokia Corporation |
| Samsung Electronics Co., Ltd. |
| Facebook |
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