3GPP TSG|WG-4 Meeting #127 S4-240234r3

Sophia Antipolis, FR, 29th January 2024 - 2nd February 2024

**Source: Xiaomi**

**Title: New Study on media formats and protocols support of Low-Energy, Connected, Small, Media-Enabled Devices (FS\_LyCoS)**

**Document for: Approval**

**Agenda Item: 6.2**

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: Study on media formats and protocols support of Low-Energy, Connected, Small, Media-Enabled Devices

Acronym: FS\_LyCoS

Unique identifier: XXXXXX

Potential target Release: Rel-19

# 1 Impacts

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
| X | Study  |
|  | Normative – Stage 1 |
|  | Normative – Stage 2 |
|  | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

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

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| N/A |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| N/A |  |  |

# 3 Justification

Low-Energy, Connected, Small, Media-Enabled devices (LyCos) are seamlessly integrating technology into our daily lives, enabling standalone connectivity and providing users with real-time data and personalized experiences. To offer richer experiences, LyCos are progressively becoming more capable in handling media modalities (notably: audio, video and haptics). For instance, smartwatches are being used nowadays for audio calls, video playback or even video streaming applications.

From the developments mentioned above, LyCos are increasingly becoming closer to UE. The latest smartwatches are even equipped with 4G LTE connectivity and offer media-centric user experiences. As such, this study includes both standalone and tethered LyCos, excluding the specifics of the pairing mechanism for the latter.

Typical LyCos considered in this study are primarily smartwatches and smartbands, although the study may include other types of devices provided they qualify as LyCos (i.e., connected devices, that are media-enabled, potentially equipped with a small-factor display, having notable energy and processing constraints). Devices explicitly not in the scope of this study are those falling into the scope of XR such as AR Glasses, MR HMD, VR HMD, etc.

The study will collect various end-to-end use cases that are related to media applications, such as messaging, audio and video recording, on-demand streaming, real-time communication, remote view etc…, which involve LyCos. Given the definition of LyCos above, the targeted user’s experience is a non-immersive 2D experience and, therefore, immersive applications and immersive formats will not be considered. Also, commercialized and deployed use cases expected to be feasible in the near future will be of higher priority in this study.

Based on those use cases and the device inventory, this study will consolidate the typical hardware capabilities as well as audio and video formats commonly used or expected to be used in those LyCos. This consolidation may be organised in different device categories based on different form factors. Next to these capabilities, the study will also identify the necessary content delivery and real-time transmission protocols to realise the collected use cases. Lastly, we discuss, if any, possible issues regarding the subjective quality and perceived experience as well as possible inefficiency of the current state-of-the art media formats (primarily designed for smartphones, TV, etc..) when delivered to LyCos.

# 4 Objective

The objective of this study item includes the following:

1. Define functional structures of Low-energy, Connected, Small, Media-Enabled Devices (LyCos). Then, identify their hardware capabilities and constraints with respect to streaming, rendering, communication, computing and graphics processing, tracking, sensors, display and power consumption.
2. Describe use cases and respective applications for LyCos, such as remote phone-monitoring, real-time communication and messaging. Map each use case to suitable device type(s), and define relevant processing functions and reference architectures for the devices that are required to support the use cases, taking into account the constraints and capabilities identified under the first objective.
3. Describe the architecture for media flow relevant to the use cases identified in the second objective. Identify media (exchange) formats and profiles relevant to the use cases identified in the second objective that can be processed and/or consumed on LyCos. Identify where media processing functions occur and which type of media formats are used for exchange between these elements to the described architecture.
4. Identify coverage of necessary content delivery transport protocols and capability exchange mechanisms, required for the use cases. If existing technologies and protocols cannot serve the cases sufficiently, describe the limitations.
5. Identify, if any, possible issues regarding the subjective quality and perceived experience as well as possible inefficiency of the current state-of-the art media formats (primarily designed for smartphones, TV, etc..) when delivered to LyCos.

# 5 Expected Output and Time scale

|  |
| --- |
| 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 |
| TR | 26.8xx | Study on media formats and protocols support of Low-Energy, Connected, Small, Media-Enabled Devices | SA#106(Dec 24) | SA#108(June 25) | Potetsianakis, Emmanouil, Xiaomi, emmanouil@xiaomi.com |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| N/A |  |  |  |
|  |  |  |  |

# 6 Work item Rapporteur(s)

Potetsianakis, Emmanouil, Xiaomi, emmanouil@xiaomi.com

# 7 Work item leadership

SA4

# 8 Aspects that involve other WGs

SA4 will coordinate this work with relevant WGs if necessary.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Xiaomi |
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