**3GPP TSG SA WG4 Meeting #109eS4-200777**

**20th May-3rd June 2020**

**Source: Huawei Technologies Co. Ltd., China Mobile Com. Corporation**

**Title: New SID on Media Negotiation Extensions for Super Resolution**

**Document for: Approval**

**Agenda Item: 6**

3GPP™ Study 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: New SID on Media Negotiation Extensions for Super Resolution

## Acronym: FS\_MNE\_SR

## Unique identifier: yyyyyy

## 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

|  |  |
| --- | --- |
|  | 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 |
|  |  |  |

### 2.3 Other related Work Items and dependencies

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

## 3 Justification

According to the current Market Surveys, the data services have continued rapid growth and gradually become the main revenue of most telecom operators, the video calls are on the rise with the immersive media technologies and high bandwidth of 5G networks, but the audio calls tend to be saturated. These telecom operators mainly follow the traffic model of the data services (i.e., the uplink traffic is much smaller than the downlink traffic) when actually deploying wireless resources. In other words, the uplink and downlink resources are asymmetric.

However, they are symmetric in the traffic models of audio and video calls based on the bitrate and resolution of SDP offer/answer negotiation. Based on the asymmetric traffic model of wireless resources, video calls may be possibly affected or even fall back audio calls once the network resources begin to be lack especially in the uplink.

In order to solve the problems without changing the asymmetric traffic model of wireless resources, it is necessary to introduce some new technologies that are able to restore high resolution and/or bitrate from low resolution once the resources are allowed. For example, the local party initiates a video call and sends a lower resolution media stream because of the lack of the uplink network resources, and then the uplink media stream can be transferred a higher resolution one via super resolution technologies when the network resources of the remaining part of the call path are allowed. Especially, if the remote party supports super resolution, it can be done that by itself.

Currently, the academic communities have the corresponding research such as super resolution, but it has not yet been applied to video calls. Super resolution is an import class of image processing techniques to enhance the resolution of images and videos. In fact, these technologies can help to improve user experiences under weak network coverage whether the traffic models is asymmetric or not.

This study item will investigate how to apply super resolution and bandwidth extension to the audio and video calls.

## 4 Objective

Based on the above considerations, the objective of this Study Item is to investigate the following issues:

1. Analysing the technologies related to super resolution that can be supported in media function element and/or MTSI clients.
2. Determining the possible constraints when deploying these technologies.
3. Collecting the use cases associated with weak network coverage and identifying the relevant needs.
4. Studying the extensions to the current signalling and media flows to support these needs.
5. Proposing the solutions related to video calls when using super resolution.
6. Drawing conclusions on the potential solutions in 3GPP.

## 5 Expected Output and Time scale

|  |
| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | Series | Title | For info at TSG#  | For approval at TSG# | Remarks |
| *TR* | *TR 26.9xx* | *Media Negotiation Extensions for Super Resolution*  | *SA#90(Dec 2020)* | *SA#91(Mar 2021)* |  |

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

## 6 Work item Rapporteur(s)

Rapporteurs:

Yidan Teng, Company: Huawei Technologies Co. Ltd., email address: tengyidan@huawei.com

## 7 Work item leadership

TSG SA WG4

## 8 Aspects that involve other WGs

## 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| Huawei Technologies Co. Ltd. |
| China Mobile Com. Corporation |
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