**Title: Comparisons between non-parametric spatial audio capture and parametric spatial audio capture**

**Source: Beijing Xiaomi Mobile Software Co., Ltd, Nokia Corporation**

**Document for: Discussion &Agreement**

**Agenda Item: 7.8**

# Introduction

According to the discussions during SA4#126-e post-telco meeting, this proposal is to describe the comparisons between non-parametric spatial audio capture and parametric spatial audio capture.

# Content

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#### Comparisons between non-parametric spatial audio capture and parametric spatial audio capture

Parametric spatial audio employs a suitable parametric representation for the captured sound field, which is based on the analysis of the raw microphone signals to produce parameter metadata and potentially converting the raw microphone signal into specialized audio channel data.

In contrast, non-parametric spatial audio can only produce the audio channel data without parameter metadata. Once the microphones and their configuration are determined, the raw microphone signals can be converted into expected audio channel data by certain signal processing.

The following table gives the comparisons of the two types of capture method and object-based audio is regarded as another class from capture style point of view. Refer to Table 1:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Format** | **Microphone number** | **Microphone configuration**  | **Parametric analysis** | **Renderer for playback** | **DoF for renderer**  |
| **object-based** | ≥1\* | - | optional | needed | 6DoF |
| **parametric** | ≥2 | Linear array: stereoPlanar array: surround3D array: 3D | needed | needed | 3DoF |
| **non-parametric** | **channel-based** | ≥2 | Linear array: stereoPlanar array: surround3D array: 3D | optional | optional | 0DoF |
| **ambisonics** | Planar : ≥33D: ≥4 | Planar array: surround3D array: 3D | optional | needed | 3DoF |

Table 1 Comparisons of three capture style

\*: Per audio object

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# Conclusion

It is proposed to include section 2 into TR 26.933 as the chapter 6.2.3.5. Comparisons between non-parametric spatial audio capture and parametric spatial audio capture.

**References**

1. S4-231944: [FS\_DaCED] TR 26.933 v0.3.0
2. S4aA230132: Non-parametric spatial audio capture for smartphones and other form factors