Logo

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**INTERNATIONAL ORGANISATION FOR STANDARDISATION**

**ORGANISATION INTERNATIONALE DE NORMALISATION**

**ISO/IEC JTC1/SC29/WG6, MPEG AUDIO CODING**

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| **Title** | **MPEG-I Immersive Audio Subjective Test Logistics** |
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# Introduction

The Call for Proposals for MPEG-I Immersive Audio (CfP) [1] issued at the 3rd WG 6 meeting, April 2021. Submissions to the Call are to be evaluated at the 6th WG 6, January 2022.

# Registered Organizations

The following organizations have registered the intent to participate in the CfP. The ID is simply a short label for the proponent organization. The columns T1, T2, T3 indicate for which tests the organization might participate (this is non-binding and is for information only).

Table 1 - Registered Organizations

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ID** | **T1** | **T2** | **T3** | **Organization** | **Contact** | **Email** |
| 1 | BCM |  |  |  | b<>com Innovation Center | Nicolas Epain | [nicolas.epain@b-com.com](mailto:nicolas.epain@b-com.com) |
| 2 | DOL | X | X | X | Dolby | Leon Terentiv | [leon.terentiv@dolby.com](mailto:leon.terentiv@dolby.com) |
| 3 | ERC | X | X | X | Ericsson | Erlendur Karlsson | [erlendur.karlsson@ericsson.com](mailto:erlendur.karlsson@ericsson.com) |
| 4 | ETR | X |  |  | ETRI | Kyeongok Kang | [kokang@etri.re.kr](mailto:kokang@etri.re.kr) |
| 5 | FHG | X | X | X | Fraunhofer IIS | Juergen Herre | [hrr@iis.fraunhofer.de](mailto:hrr@iis.fraunhofer.de) |
| 6 | GAU |  |  |  | Gaudio Lab, Inc. | Sean Hyunjoo Chung | [sc@gaudiolab.com](mailto:sc@gaudiolab.com) |
| 7 | NHK |  |  |  | NHK | Takehiro Sugimoto | [sugimoto.t-fg@nhk.or.jp](mailto:sugimoto.t-fg@nhk.or.jp) |
| 8 | NOK | X | X | X | Nokia | Kari Järvinen | [kari.ju.jarvinen@nokia.com](mailto:kari.ju.jarvinen@nokia.com) |
| 9 | PAN | X | X |  | Panasonic Corporation | Hiroyuki Ehara | [ehara.hiroyuki@jp.panasonic.com](mailto:ehara.hiroyuki@jp.panasonic.com) |
| 10 | PHL | X | X | X | Philips | Jeroen Koppens | [jeroen.koppens@philips.com](mailto:jeroen.koppens@philips.com) |
| 11 | QAL | X | X | X | Qualcomm Technologies, Inc. | Isaac Muñoz | [isaacgm@qti.qualcomm.com](mailto:isaacgm@qti.qualcomm.com) |
| 12 | SNY | X | X |  | Sony | Ryuichi Namba | [Ryuichi.Namba@sony.com](mailto:Ryuichi.Namba@sony.com) |

For Test 1, this table indicates 9 proponents, or 18 renders under test, or 153 AB comparisons per scene task. 153 \* (14 scene-tasks) = 2142, and 2142/(40 comparisons per listener) = 53 listeners minimum.

For Test 2, this table indicates 8 proponents, or 16 renders under test, or 120 AB comparisons per scene task. 120 \* (7 scene-tasks) = 840, and 840/(40 comparisons per listener) = 21 listeners minimum.

For Test 3, this table indicates 6 proponents, or 12 renders under test, or 66 AB comparisons per scene task. 66 \* (4 scene-tasks) = 264, and 264/(40 comparisons per listener) = 7 listeners minimum.

# Subjective Test Labs

The following organizations have expressed an interest in being test laboratories for the MPEG-I Immersive Audio CfP subjective tests. Test 1 and Test 3 are Virtual Reality, Test 2 is Augmented Reality (see CfP document [1]). The entry under the T1, T2, T3 headings are the approximate number of subjects that the test lab expects to participate in Tests 1, 2 and 3, respectively

**Table 2 – Test Labs Participating in Listening Tests**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **TL\_ID** | **T1** | **T2** | **T3** | **Organization** | **Contact Name** | **Email** |
| 1 | TL\_DOL | X-5 |  | X-5 | Dolby | Leon Terentiv | [leon.terentiv@dolby.com](mailto:leon.terentiv@dolby.com) |
| 2 | TL\_ERC | X-10 |  | X-10 | Ericsson | Erlendur Karlsson | [erlendur.karlsson@ericsson.com](mailto:erlendur.karlsson@ericsson.com) |
| 3 | TL\_ETR | X-8 |  |  | ETRI | Kyeongok Kang | [kokang@etri.re.kr](mailto:kokang@etri.re.kr) |
| 4 | TL\_FHG | X-8 | X-9 | X-8 | FhG-IIS | Juergen Herre | [hrr@iis.fraunhofer.de](mailto:hrr@iis.fraunhofer.de) |
| 5 | TL\_GAU | X-4 |  | X-4 | Gaudio | Sean Hyunjoo Chung | [sc@gaudiolab.com](mailto:sc@gaudiolab.com) |
| 6 | TL\_NOK | X-6 | X-6 | X-6 | Nokia | Kari Järvinen | [kari.ju.jarvinen@nokia.com](mailto:kari.ju.jarvinen@nokia.com) |
| 7 | TL\_PAN | X-5 | X-5 | X-5 | Panasonic | Hiroyuki Ehara | [ehara.hiroyuki@jp.panasonic.com](mailto:ehara.hiroyuki@jp.panasonic.com) |
| 8 | TL\_PHI | X-8 |  | X-8 | Philips | Jeroen Koppens | [jeroen.koppens@philips.com](mailto:jeroen.koppens@philips.com) |
| 9 | TL\_QAL | X-5 | X-5 | X-5 | Qualcomm | Isaac Muñoz | [isaacgm@qti.qualcomm.com](mailto:isaacgm@qti.qualcomm.com) |
| 10 | TL\_SNY | X-7 | X-7 |  | Sony | Ryuichi Namba | [Ryuichi.Namba@sony.com](mailto:Ryuichi.Namba@sony.com) |
| 11 | TL\_TUI | X-7 | X-7 | X-7 | TU-Ilmenau | Ulrike Sloma | ulrike.sloma@tu-ilmenau.de |
| 12 | TL\_VAG | X-4 |  |  | VoiceAge | Philippe Gournay | Philippe.Gournay@USherbrooke.ca |
|  | **Total** | **77** | **39** | **58** |  |  |  |

The table indicates that there are 77 listeners for Test 1, 39, for Test 2 and 58 for Test 3, which is more than the estimated minimum number needed for each test, shown above. This provides some “cushion” in the event that test sites are not able to provide the target number of listeners.

# Test Platform

The Test Labs shall use the Audio Evaluation Platform (AEP) [3] and the specific equipment recommended in Section 3.1 to perform the subjective tests.

# Listener Training and Testing

The listener instructions for training and testing are shown in [2], Annex E.

Test Labs must capture metadata about subjects: three categories: 1) naïve, 2) expert in audio coding, 3) expert in binaural rendering, and that, if possible, there should be some naïve listeners at each test site.

The test labs shall give subjects unique names, but names that do reveal subject identity, for example:

L01.txt, L02.txt.

Training and testing for a given listener should be on same or consecutive days, however test labs should avoid a gap of a few days or more between training and testing. Training and testing should be done so as to minimize listener fatigue. Test Supervisor should enforce “breaks” after 30 minutes.

# Score Submission

Test Labs shall submit the listening test scores files, as produced by the AEP, to the Test Administrator (see [1] Section 7) no later than 2021-12-13. For each test, submission is as a single zip archive containing the score files for all subjects participating in that test.

# Evaluation Procedures

The evaluation procedures for the subjective tests are documented in [2].

Score-based post-screening is automatically done by AEP and Matlab analysis software.

Subjects may be rejected (post-screened) due to task conformance (i.e. lack of executing required task) only by consensus of WG 6 experts. Log files from all test sites will be made available by Test Administrator.

# References

1. WG 6 N0056, MEG-I Immersive Audio Call for Proposals
2. WG 6 N0084, MPEG-I Immersive Audio Test and Evaluation Procedures
3. WG 6 N0086, MPEG-I Immersive Audio Documentation for the Audio Evaluation Platform