







# EMI TEST REPORT

**Test Report No.:14597255S-E-R1**

|                            |                                |
|----------------------------|--------------------------------|
| <b>Customer</b>            | NTT Sonority Inc.              |
| <b>Description of EUT</b>  | wireless on-ear speakers       |
| <b>Model Number of EUT</b> | MBE001                         |
| <b>FCC ID</b>              | 2A58O-MBE001                   |
| <b>Test Regulation</b>     | FCC Part 15 Subpart B, Class B |
| <b>Test Result</b>         | Complied (Refer to SECTION 3)  |
| <b>Issue Date</b>          | February 1, 2023               |
| <b>Remarks</b>             | -                              |

|  |  |
|--|--|
| <b>Representative test engineer</b>  | <b>Approved by</b>   |
|   |  |
| Yasumasa Owaki<br>Engineer   | Toyokazu Imamura<br>Leader   |
|     |  |
| CERTIFICATE 1266.03  |  |
| <input type="checkbox"/> The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan, Inc.<br><input checked="" type="checkbox"/> There is no testing item of "Non-accreditation". |  |

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- The information provided from the customer for this report is identified in Section 1.
- For test report(s) referred in this report, the latest version (including any revisions) is always referred.

## **REVISION HISTORY**

### **Original Test Report No.: 14597255S-E**

This report is a revised version of 14597255S-E. 14597255S-E is replaced with this report.

| Revision     | Test report No. | Date             | Revised Contents   |
|--------------|-----------------|------------------|--|
| - (Original) | 14597255S-E     | January 20, 2023 | -  |
| 1            | 14597255S-E-R1  | February 1, 2023 | P8<br>Exclusion of “C” from the EUTs<br>(from “EUT (Supplied with MBE001)” to “Supplied with MBE001” in Remarks column.<br><br>Modification of Remarks column of “1”<br>(from “-” to “Supplied with MBE001” in Remarks column. |

**Reference: Abbreviations (Including words undescribed in this report)**

|                |   |                 |  |
|----------------|---|-----------------|--|
| A2LA           | The American Association for Laboratory Accreditation           | IEEE            | Institute of Electrical and Electronics Engineers                              |
| AAN            | Asymmetric Artificial Network                                   | IF              | Intermediate Frequency   |
| AC             | Alternating Current   | ILAC            | International Laboratory Accreditation Conference                              |
| AM             | Amplitude Modulation  | ISED            | Innovation, Science and Economic Development Canada                            |
| AMN            | Artificial Mains Network  | ISN             | Impedance Stabilization Network  |
| Amp, AMP       | Amplifier   | ISO             | International Organization for Standardization                                 |
| ANSI           | American National Standards Institute                           | JAB             | Japan Accreditation Board  |
| Ant, ANT       | Antenna   | LAN             | Local Area Network   |
| AP             | Access Point  | LCL             | Longitudinal Conversion Loss   |
| ASK            | Amplitude Shift Keying  | LIMS            | Laboratory Information Management System                                       |
| Atten., ATT    | Attenuator  | LISN            | Line Impedance Stabilization Network   |
| AV             | Average   | MRA             | Mutual Recognition Arrangement   |
| BPSK           | Binary Phase-Shift Keying                                       | N/A             | Not Applicable   |
| BR             | Bluetooth Basic Rate  | NIST            | National Institute of Standards and Technology                                 |
| BT             | Bluetooth   | NS              | No signal detect.  |
| BT LE          | Bluetooth Low Energy  | NSA             | Normalized Site Attenuation  |
| BW             | BandWidth   | OBW             | Occupied BandWidth   |
| C.F            | Correction Factor   | OFDM            | Orthogonal Frequency Division Multiplexing                                     |
| Cal Int        | Calibration Interval  | PER             | Packet Error Rate  |
| CAV            | CISPR AV  | PK              | Peak   |
| CCK            | Complementary Code Keying                                       | P <sub>LT</sub> | long-term flicker severity   |
| CDN            | Coupling Decoupling Network                                     | POHC(A)         | Partial Odd Harmonic Current   |
| Ch., CH        | Channel   | Pol., Pola.     | Polarization   |
| CISPR          | Comite International Special des Perturbations Radioelectriques | PR-ASK          | Phase Reversal ASK   |
| Corr.          | Correction  | P <sub>ST</sub> | short-term flicker severity  |
| CPE            | Customer premise equipment                                      | QAM             | Quadrature Amplitude Modulation  |
| CW             | Continuous Wave   | QP              | Quasi-Peak   |
| DBPSK          | Differential BPSK   | QPSK            | Quadrature Phase Shift Keying  |
| DC             | Direct Current  | r.m.s., RMS     | Root Mean Square   |
| DET            | Detector  | RBW             | Resolution BandWidth   |
| D-factor       | Distance factor   | RE              | Radio Equipment  |
| Dmax           | maximum absolute voltage change during an observation period    | REV             | Reverse  |
| DQPSK          | Differential QPSK   | RF              | Radio Frequency  |
| DSSS           | Direct Sequence Spread Spectrum                                 | RFID            | Radio Frequency Identifier   |
| DUT            | Device Under Test   | RNSS            | Radio Navigation Satellite Service   |
| EDR            | Enhanced Data Rate  | RSS             | Radio Standards Specifications   |
| e.i.r.p., EIRP | Equivalent Isotropically Radiated Power                         | Rx              | Receiving  |
| EM clamp       | Electromagnetic clamp   | SINAD           | Ratio of (Signal + Noise + Distortion) to (Noise + Distortion)                 |
| EMC            | ElectroMagnetic Compatibility                                   | S/N             | Signal to Noise ratio  |
| EMI            | ElectroMagnetic Interference                                    | SA, S/A         | Spectrum Analyzer  |
| EMS            | ElectroMagnetic Susceptibility                                  | SABS            | South African Bureau of Standards  |
| EN             | European Norm   | SANS            | South African National Standards   |
| e.r.p., ERP    | Effective Radiated Power  | SG              | Signal Generator   |
| ETSI           | European Telecommunications Standards Institute                 | SVSWR           | Site-Voltage Standing Wave Ratio   |
| EU             | European Union  | THC(A)          | Total Harmonic Current   |
| EUT            | Equipment Under Test  | THD(%)          | Total Harmonic Distortion  |
| Fac.           | Factor  | TR, T/R         | Test Receiver  |
| FCC            | Federal Communications Commission                               | Tx              | Transmitting   |
| FHSS           | Frequency Hopping Spread Spectrum                               | VBW             | Video BandWidth  |
| FM             | Frequency Modulation  | Vert.           | Vertical   |
| Freq.          | Frequency   | WLAN            | Wireless LAN   |
| FSK            | Frequency Shift Keying  | xDSL            | Generic term for all types of DSL technology<br>(DSL: Digital Subscriber Line) |
| Fund           | Fundamental   |                 |  |
| FWD            | Forward   |                 |  |
| GFSK           | Gaussian Frequency-Shift Keying                                 |                 |  |
| GNSS           | Global Navigation Satellite System                              |                 |  |
| GPS            | Global Positioning System                                       |                 |  |
| Hori.          | Horizontal  |                 |  |
| ICES           | Interference-Causing Equipment Standard                         |                 |  |
| I/O            | Input/Output  |                 |  |
| IEC            | International Electrotechnical Commission                       |                 |  |

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## **Section 1: Customer information**

|                  |   |
|------------------|---|
| Company Name     | NTT Sonority Inc.                                 |
| Address          | 1-5-1 Otemachi, Chiyoda-ku, Tokyo 100-8116, Japan |
| Telephone Number | +81-80-8231-5126                                  |
| Contact Person   | Akira Nakagawa                                    |

The information provided from the customer is as follows:

- Customer, Description of EUT, Model Number of EUT on the cover page and other relevant pages
  - Operating/Test Mode(s) (Mode(s)) on all the relevant pages
  - Section 1: Customer information
  - Section 2: Equipment under test (EUT) other than the Receipt Date and Test Date
  - Section 4: Operation of EUT during testing
- \* The laboratory is exempted from liability of any test results affected from the above information in Section 2 and 4.

## **Section 2 : Equipment under test (EUT)**

### **2.1 Identification of EUT**

|               |  |
|---------------|--|
| Description   | wireless on-ear speakers   |
| Model Number  | MBE001   |
| Serial Number | Refer to 4.2.  |
| Condition     | Engineering prototype<br>(Not for Sale: This sample is equivalent to mass-produced items.) |
| Modification  | No Modification by the test lab.   |
| Receipt Date  | December 1, 2022   |
| Test Date     | December 2 to 3, 2022  |

### **2.2 Product description**

#### **General Specification**

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Rating                              | Typical: DC 3.85 V (3.0 V to 4.4 V) |
| Clock frequency (ies) in the system | 32 MHz                              |

#### **Radio Specification**

##### **Bluetooth (BR / EDR)**

|                        |                                    |
|------------------------|------------------------------------|
| Equipment Type         | Transceiver                        |
| Frequency of Operation | 2402 MHz to 2480 MHz               |
| Type of Modulation     | FHSS (GFSK, $\pi/4$ DQPSK, 8 DPSK) |
| Antenna Gain           | Left: -1.8 dBi, Right: -1.6 dBi    |

##### **Bluetooth (Low Energy)**

|                        |                                 |
|------------------------|---------------------------------|
| Equipment Type         | Transceiver                     |
| Frequency of Operation | 2402 MHz to 2480 MHz            |
| Type of Modulation     | GFSK                            |
| Antenna Gain           | Left: -1.8 dBi, Right: -1.6 dBi |

### **Section 3 : Test specification, procedures and results**

#### **3.1 Test specification**

|                    |  |
|--------------------|--|
| Test Specification | FCC Part 15 Subpart B<br>The latest version on the first day of the testing period |
| Title              | FCC 47CFR Part15 Radio Frequency Device<br>Subpart B Unintentional Radiators       |

#### **3.2 Procedures & results**

| Item               | Test procedure   | Limits  | Worst margin   | Result         | Remarks |
|--------------------|--|---------|--|----------------|---------|
| Conducted emission | ANSI C 63.4:2014<br>/C 63.4a:2017<br>7. AC powerline<br>conducted emission<br>measurements | Class B | 32.2 dB<br>Freq.: 0.17500 MHz<br>Detector: Quasi-Peak<br>Phase: L1<br>Power: AC 240 V / 60 Hz<br>(AC Adapter)                            | Complied<br>a) | -       |
| Radiated emission  | ANSI C 63.4:2014<br>/C 63.4a:2017<br>8. Radiated emission<br>measurements                  | Class B | 12.3 dB<br>Freq.: 8647.700 MHz<br>Detector: Average<br>Polarization: Vertical<br>Mode: Charge<br>Power: AC 120 V / 60 Hz<br>(AC Adapter) | Complied<br>b) | *1)     |

Note: UL Japan's EMI work procedure: Work Instructions-ULID-003591

a) Refer to Appendix 1 (data of Conducted emission)

b) Refer to Appendix 1 (data of Radiated emission)

\*1) Measurements have been performed up to 13 GHz since the highest frequency of internal source of the EUT is 2480 MHz.

#### **3.3 Deviation from standard**

| Item                                    | Normative references of<br>FCC Subpart A Section 15.31 | Actually applied              |
|---|--|-------------------------------|
| Conducted emission<br>Radiated emission | ANSI C 63.4:2014                                       | ANSI C 63.4:2014/C 63.4a:2017 |

Other than above, no addition, exclusion nor deviation has been made from the standard.

### 3.4 Uncertainty

Measurement uncertainty is not taken into account when stating conformity with a specified requirement.  
Note: When margins obtained from test results are less than the measurement uncertainty, the test results may exceed the limit.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor  $k = 2$ .

| Item   | Frequency range   | Calculated Uncertainty ( $\pm$ ) |
|--|-------------------|----------------------------------|
| Conducted emission<br>(AC Mains) AMN/LISN        | 9 kHz to 150 kHz  | 3.1 dB                           |
|  | 150 kHz to 30 MHz | 3.1 dB                           |
| Radiated emission<br>(Measurement distance: 3 m) | 30 MHz to 200 MHz | 4.8 dB                           |
|  | 200 MHz to 1 GHz  | 6.1 dB                           |
|  | 1 GHz to 6 GHz    | 4.7 dB                           |
|  | 6 GHz to 18 GHz   | 5.3 dB                           |
|  | 18 GHz to 40 GHz  | 5.5 dB                           |

### 3.5 Test location

UL Japan, Inc. Shonan EMC Lab.  
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 Japan  
Telephone number : +81-463-50-6400  
A2LA Certificate Number : 1266.03  
(FCC Test firm registration number: 626366, ISED lab company number: 2973D / CAB identifier: JP0001)

| Test room                     | Width x Depth x Height (m)                               | Test room             | Width x Depth x Height (m) |
|-------------------------------|--|-----------------------|----------------------------|
| No.1<br>Semi-anechoic chamber | 20.6 x 11.3 x 7.65<br>Maximum measurement distance: 10 m | No.1 Shielded room    | 6.8 x 4.1 x 2.7            |
| No.2<br>Semi-anechoic chamber | 20.6 x 11.3 x 7.65<br>Maximum measurement distance: 10 m | No.2 Shielded room    | 6.8 x 4.1 x 2.7            |
| No.3<br>Semi-anechoic chamber | 12.7 x 7.7 x 5.35<br>Maximum measurement distance: 5 m   | No.3 Shielded room    | 6.3 x 4.7 x 2.7            |
| No.4<br>Semi-anechoic chamber | 8.1 x 5.1 x 3.55   | No.4 Shielded room    | 4.4 x 4.7 x 2.7            |
|                               |  | No.5 Shielded room    | 7.8 x 6.4 x 2.7            |
|                               |  | No.6 Shielded room    | 7.8 x 6.4 x 2.7            |
|                               |  | No.7 Shielded room    | 2.76 x 3.76 x 2.4          |
|                               |  | No.8 Shielded room    | 3.45 x 5.5 x 2.4           |
|                               |  | No.1 Measurement room | 2.55 x 4.1 x 2.5           |

### 3.6 Test setup, test data & test instruments

Refer to Appendix 1 to 3.

## Section 4 : Operation of EUT during testing

### 4.1 Operating modes

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

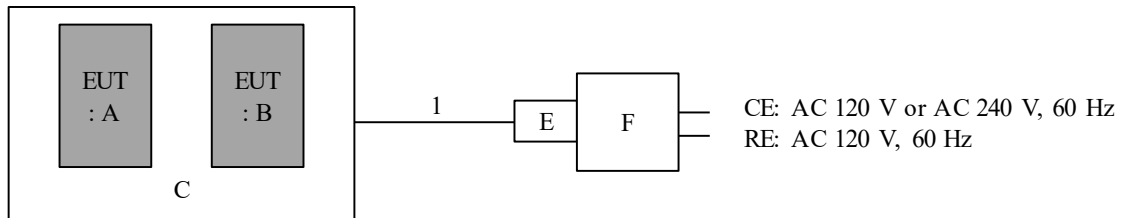
|                   |                          |
|-------------------|--------------------------|
| Operation mode(s) | 1. Charge mode           |
|                   | 2. BT Communication mode |

|          |                |
|----------|----------------|
| Software | Version: 0.8.2 |
|----------|----------------|

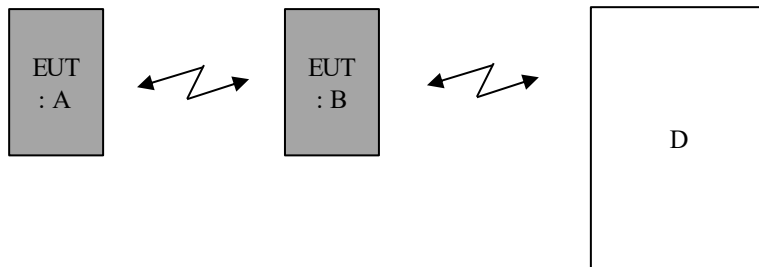
|               |   |
|---------------|---|
| Justification | The system was configured in typical fashion (as a customer would normally use it) for testing. |
|---------------|---|

### 4.2 Configuration and peripherals

Charge mode



BT Communication mode



\* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

#### Description of EUT and Support equipment

| No. | Item                     | Model number | Serial number    | Manufacturer    | Remarks              |
|-----|--------------------------|--------------|------------------|-----------------|----------------------|
| A   | wireless on-ear speakers | MBE001       | B2242002E02      | Foster Electric | EUT (Left)           |
| B   | wireless on-ear speakers | MBE001       | B2242012802      | Foster Electric | EUT (Right)          |
| C   | Carrying case            | -            | 6                | Foster Electric | Supplied with MBE001 |
| D   | Smartphone               | CLT-L29      | WCR7N18523000926 | HUAWEI          | -                    |
| E   | USB Type C to A          | GP-CPARAH/SG | -                | GOPPA           | -                    |
| F   | AC Adapter               | A1720        | -                | Apple           | -                    |

#### List of cables used

| No. | Cable | Length (m) | Shield-Cable | Shield-Connector | Remarks              |
|-----|-------|------------|--------------|------------------|----------------------|
| 1   | USB   | 0.5        | Shielded     | Shielded         | Supplied with MBE001 |

\* Refer to Appendix 3 for abbreviations.



## Section 5 : Conducted emission

### 5.1 Test conditions

|                 |                    |
|-----------------|--------------------|
| Frequency range | 0.15 MHz to 30 MHz |
| EUT position    | Table top          |

### 5.2 Test configuration

The EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. The EUT was located 0.8 m from Line Impedance Stabilization Network (LISN). Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. Photographs of the set up are shown in Appendix 1.

### 5.3 Test procedure

The emission had been measured with the EUT in the shielded room. An overview sweep with peak detection has been performed. The measurements had been performed with a quasi-peak detector and if required, with a CISPR average detector (CAV).

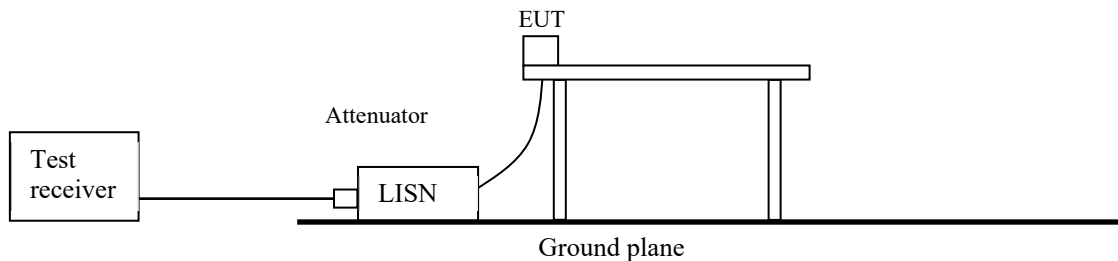
The conducted emission measurements were made with the following detector function.

|               |               |
|---------------|---------------|
| Detector Type | QP / CAV      |
| IF Bandwidth  | 9 kHz / 9 kHz |

### 5.4 Results

Summary of the test results : Pass

Figure 1. Test Setup



## Section 6 : Radiated emission

### 6.1 Test conditions

|                 |                  |
|-----------------|------------------|
| Frequency range | 30 MHz to 13 GHz |
| EUT position    | Table top        |

### 6.2 Test configuration

The EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity. Photographs of the set up are shown in Appendix 1.

### 6.3 Test procedure

The Radiated Electric Field Strength intensity has been measured in a Semi-Anechoic Chamber with a ground plane at a distance of 3 m\*.

\* Measuring distance (below 1 GHz)

The boundary of the EUT is defined by an imaginary circular periphery.

The measuring antenna height was varied between 1 m and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

Test antenna was aimed at the emission source for receiving the maximum signal and always kept. (above 1 GHz)

The radiated emission measurements were made with the following detector function.

|               |                                       |                                     |                      |
|---------------|---------------------------------------|-------------------------------------|----------------------|
|               | 30 MHz to 1000 MHz<br>(Test receiver) | 1 GHz to 13 GHz (Spectrum analyzer) |                      |
| Detector Type | QP                                    | AV *1)                              | PK                   |
| IF Bandwidth  | 120 kHz                               | RBW 1 MHz/ VBW 10 Hz                | RBW 1 MHz/ VBW 3 MHz |

\*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

The noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

### 6.4 Results

Summary of the test results : Pass

Figure 2. Antenna angle

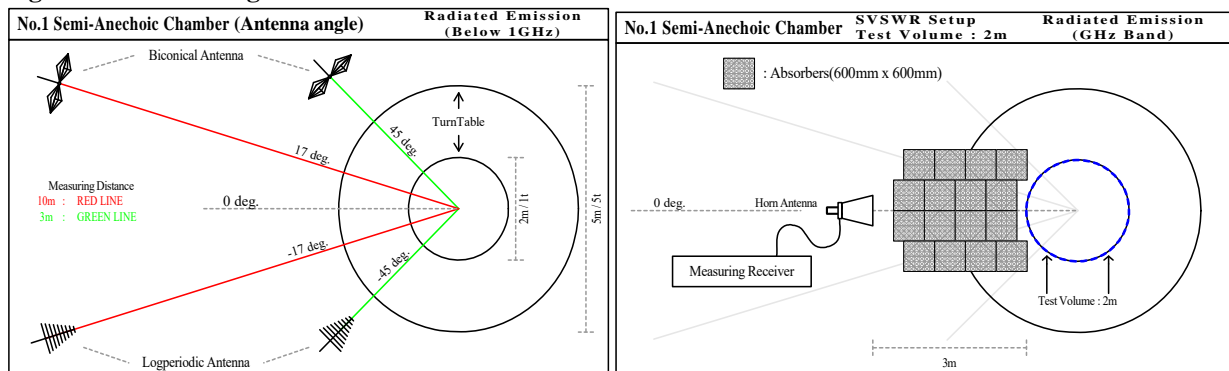
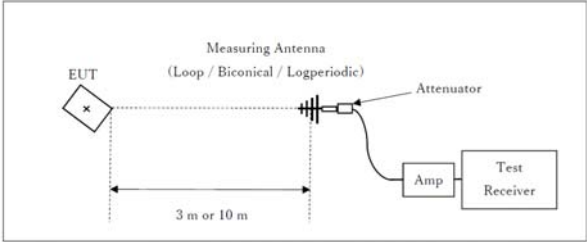


Figure 3. Test Setup

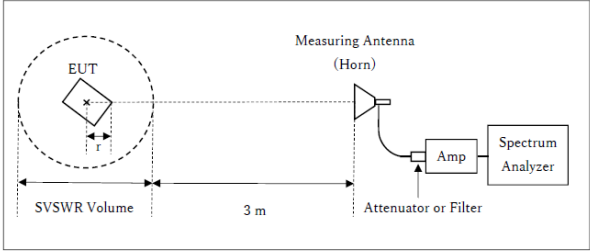
Below 1 GHz



x : Center of turn table

Test Distance: 3 m

1 GHz to 13 GHz



r : Radius of an outer periphery of EUT

x : Center of turn table

Distance Factor:  $20 \times \log (3.94 \text{ m}^*/3.0 \text{ m}) = 2.37 \text{ dB}$

\* Test Distance:  $(3 + \text{SVSWR Volume} / 2) - r = 3.94 \text{ m}$

SVSWR Volume: 2 m

(SVSWR Volume has been calibrated based on CISPR 16-1-4.)

r = 0.06 m

Distance Factor is based on FCC Subpart A Section 15.31 (f).

# DATA OF CONDUCTED EMISSION TEST

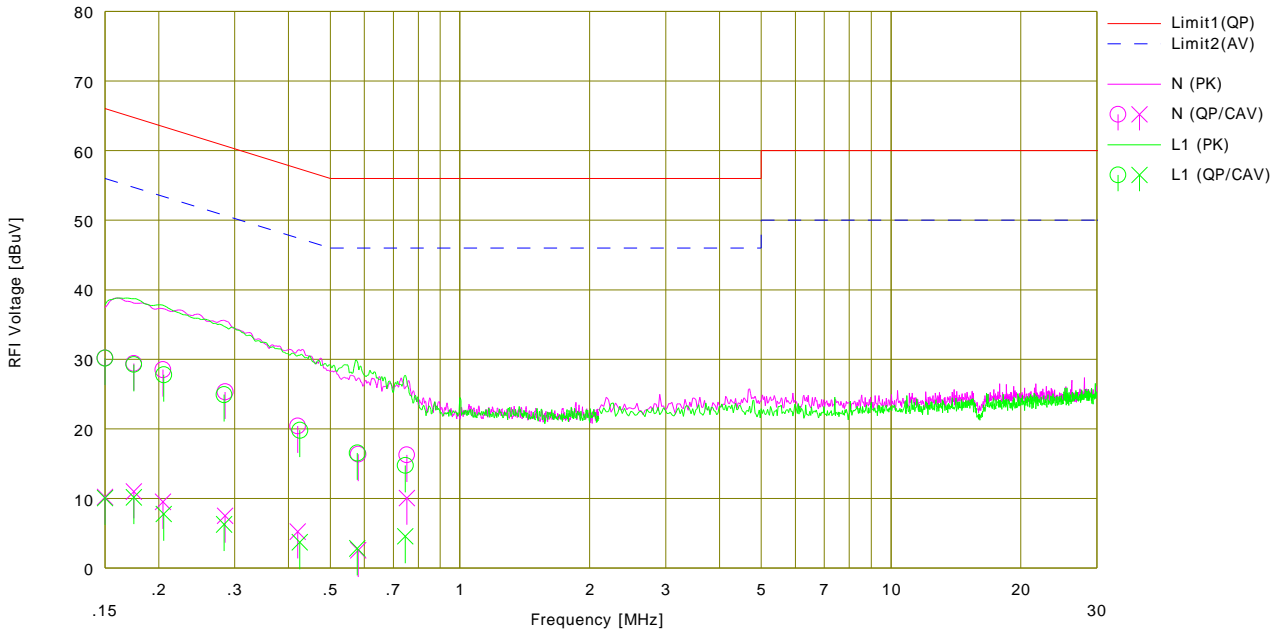
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2022/12/03

Company : NTT Sonority Inc.  
Kind of EUT : wireless on-ear speakers  
Model No. : MBE001  
Serial No. : L: B2242002E02, R: B2242012802  
Remarks : -

Mode : Charge  
Order No. : 14597255  
Power : AC 120 V / 60 Hz (AC Adapter)  
Temp./Humi. : 21 deg.C / 34 %RH

Limit : EN 55032\_Class B\_AC mains

Engineer : Yasumasa Owaki



| No. | Freq.<br>[MHz] | Reading |        | C.Fac | Results |        | Limit  |        | Margin |      | Phase | Comment |
|-----|----------------|---------|--------|-------|---------|--------|--------|--------|--------|------|-------|---------|
|     |                | <QP>    | <CAV>  |       | <QP>    | <CAV>  | <QP>   | <AV>   | <QP>   | <AV> |       |         |
|     |                | [dBuV]  | [dBuV] |       | [dBuV]  | [dBuV] | [dBuV] | [dBuV] | [dB]   | [dB] |       |         |
| 1   | 0.15000        | 17.60   | -2.40  | 12.60 | 30.20   | 10.20  | 66.00  | 56.00  | 35.8   | 45.8 | N     |         |
| 2   | 0.17500        | 16.80   | -1.60  | 12.60 | 29.40   | 11.00  | 64.72  | 54.72  | 35.3   | 43.7 | N     |         |
| 3   | 0.20459        | 15.90   | -3.10  | 12.61 | 28.51   | 9.51   | 63.42  | 53.42  | 34.9   | 43.9 | N     |         |
| 4   | 0.28520        | 12.70   | -5.10  | 12.62 | 25.32   | 7.52   | 60.66  | 50.66  | 35.3   | 43.1 | N     |         |
| 5   | 0.42056        | 7.80    | -7.40  | 12.63 | 20.43   | 5.23   | 57.44  | 47.44  | 37.0   | 42.2 | N     |         |
| 6   | 0.58080        | 3.70    | -10.10 | 12.66 | 16.36   | 2.56   | 56.00  | 46.00  | 39.6   | 43.4 | N     |         |
| 7   | 0.75275        | 3.60    | -2.60  | 12.67 | 16.27   | 10.07  | 56.00  | 46.00  | 39.7   | 35.9 | N     |         |
| 8   | 0.15000        | 17.60   | -2.50  | 12.57 | 30.17   | 10.07  | 66.00  | 56.00  | 35.8   | 45.9 | L1    |         |
| 9   | 0.17500        | 16.70   | -2.40  | 12.57 | 29.27   | 10.17  | 64.72  | 54.72  | 35.4   | 44.5 | L1    |         |
| 10  | 0.20554        | 15.20   | -4.80  | 12.58 | 27.78   | 7.78   | 63.38  | 53.38  | 35.6   | 45.6 | L1    |         |
| 11  | 0.28350        | 12.30   | -6.30  | 12.60 | 24.90   | 6.30   | 60.71  | 50.71  | 35.8   | 44.4 | L1    |         |
| 12  | 0.42555        | 7.20    | -8.90  | 12.60 | 19.80   | 3.70   | 57.34  | 47.34  | 37.5   | 43.6 | L1    |         |
| 13  | 0.57780        | 3.90    | -9.80  | 12.64 | 16.54   | 2.84   | 56.00  | 46.00  | 39.4   | 43.1 | L1    |         |
| 14  | 0.74691        | 2.10    | -8.10  | 12.65 | 14.75   | 4.55   | 56.00  | 46.00  | 41.2   | 41.4 | L1    |         |

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN (AMN) + Cable + ATT) [dB]  
LISN (AMN) = SLS-02

# DATA OF CONDUCTED EMISSION TEST

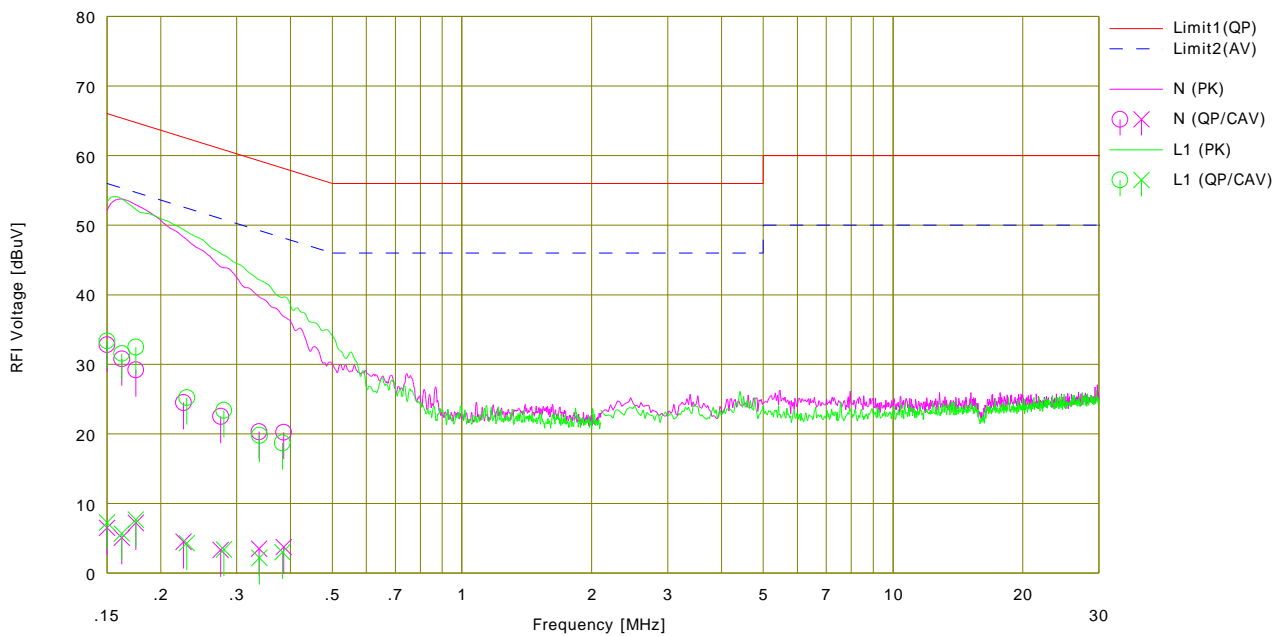
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2022/12/03

Company : NTT Sonority Inc.  
 Kind of EUT : wireless on-ear speakers  
 Model No. : MBE001  
 Serial No. : L: B2242002E02, R: B2242012802  
 Remarks : -

Mode : Charge  
 Order No. : 14597255  
 Power : AC 240 V / 60 Hz (AC Adapter)  
 Temp./Humi. : 21 deg.C / 34 %RH

Limit : EN 55032\_Class B\_AC mains

Engineer : Yasumasa Owaki



| No. | Freq.<br>[MHz] | Reading        |                 | C.Fac | Results        |                 | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|-----------------|-------|----------------|-----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <CAV><br>[dBuV] |       | <QP><br>[dBuV] | <CAV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.15000        | 20.20          | -6.10           | 12.60 | 32.80          | 6.50            | 66.00          | 56.00          | 33.2         | 49.5         | N     |         |
| 2   | 0.16250        | 18.20          | -7.50           | 12.60 | 30.80          | 5.10            | 65.34          | 55.34          | 34.5         | 50.2         | N     |         |
| 3   | 0.17500        | 16.60          | -5.40           | 12.60 | 29.20          | 7.20            | 64.72          | 54.72          | 35.5         | 47.5         | N     |         |
| 4   | 0.22581        | 11.90          | -8.10           | 12.60 | 24.50          | 4.50            | 62.60          | 52.60          | 38.1         | 48.1         | N     |         |
| 5   | 0.27570        | 9.90           | -9.30           | 12.61 | 22.51          | 3.31            | 60.94          | 50.94          | 38.4         | 47.6         | N     |         |
| 6   | 0.33840        | 7.70           | -9.10           | 12.61 | 20.31          | 3.51            | 59.24          | 49.24          | 38.9         | 45.7         | N     |         |
| 7   | 0.38571        | 7.60           | -8.90           | 12.63 | 20.23          | 3.73            | 58.16          | 48.16          | 37.9         | 44.4         | N     |         |
| 8   | 0.15000        | 20.80          | -5.30           | 12.57 | 33.37          | 7.27            | 66.00          | 56.00          | 32.6         | 48.7         | L1    |         |
| 9   | 0.16250        | 19.00          | -6.90           | 12.57 | 31.57          | 5.67            | 65.34          | 55.34          | 33.7         | 49.6         | L1    |         |
| 10  | 0.17500        | 19.90          | -4.90           | 12.57 | 32.47          | 7.67            | 64.72          | 54.72          | 32.2         | 47.0         | L1    |         |
| 11  | 0.23002        | 12.60          | -8.30           | 12.59 | 25.19          | 4.29            | 62.45          | 52.45          | 37.2         | 48.1         | L1    |         |
| 12  | 0.28001        | 10.80          | -9.20           | 12.59 | 23.39          | 3.39            | 60.82          | 50.82          | 37.4         | 47.4         | L1    |         |
| 13  | 0.33901        | 7.20           | -10.40          | 12.60 | 19.80          | 2.20            | 59.23          | 49.23          | 39.4         | 47.0         | L1    |         |
| 14  | 0.38291        | 6.10           | -9.60           | 12.60 | 18.70          | 3.00            | 58.22          | 48.22          | 39.5         | 45.2         | L1    |         |

# DATA OF RADIATED EMISSION TEST

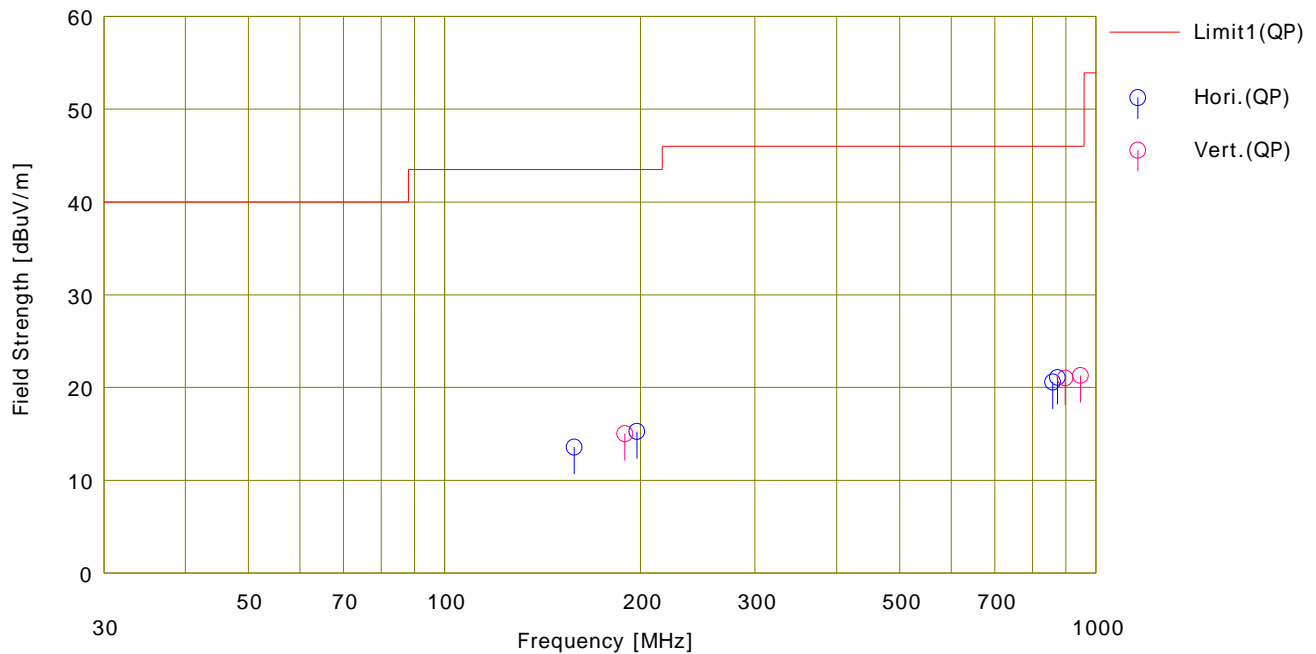
UL Japan, Inc. Shonan EMC Lab. No.1 Semi-Anechoic Chamber  
Date : 2022/12/02

Company : NTT Sonority Inc.  
 Kind of EUT : wireless on-ear speakers  
 Model No. : MBE001  
 Serial No. : L: B2242002E02, R: B2242012802  
 Remarks : (EUT Axis) Hori: Y, Vert: Y

Mode : BT Communication  
 Order No. : 14597255  
 Power : DC 3.85 V (Battery)  
 Temp./Humi. : 20 deg.C / 42 %RH

Limit : FCC\_Part 15 Subpart B(15.109)\_Class B

Engineer : Yasumasa Owaki



| No. | Freq.<br>[MHz] | Reading        | Ant.Fac<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | S.Fac<br>[dB] | Result           | Limit            | Margin       | Pola.<br>[H/V] | Height<br>[cm] | Angle<br>[deg] | Ant.<br>Type | Comment |
|-----|----------------|----------------|-------------------|--------------|--------------|---------------|------------------|------------------|--------------|----------------|----------------|----------------|--------------|---------|
|     |                | <QP><br>[dBuV] |                   |              |              |               | <QP><br>[dBuV/m] | <QP><br>[dBuV/m] | <QP><br>[dB] |                |                |                |              |         |
| 1   | 158.185        | 21.20          | 15.23             | 8.82         | 31.79        | 0.12          | 13.58            | 43.50            | 29.9         | Hori.          | 200            | 313            | BC           |         |
| 2   | 197.450        | 21.30          | 16.66             | 9.21         | 31.77        | -0.14         | 15.26            | 43.50            | 28.2         | Hori.          | 150            | 252            | BC           |         |
| 3   | 859.200        | 20.50          | 21.89             | 9.78         | 31.59        | 0.00          | 20.58            | 46.00            | 25.4         | Hori.          | 100            | 229            | LP           |         |
| 4   | 873.605        | 20.60          | 22.12             | 9.85         | 31.50        | 0.00          | 21.07            | 46.00            | 24.9         | Hori.          | 100            | 81             | LP           |         |
| 5   | 189.345        | 21.30          | 16.49             | 9.13         | 31.77        | -0.12         | 15.03            | 43.50            | 28.4         | Vert.          | 100            | 264            | BC           |         |
| 6   | 897.605        | 20.20          | 22.20             | 9.97         | 31.35        | 0.00          | 21.02            | 46.00            | 24.9         | Vert.          | 100            | 359            | LP           |         |
| 7   | 947.200        | 20.00          | 22.20             | 10.17        | 31.08        | 0.00          | 21.29            | 46.00            | 24.7         | Vert.          | 150            | 187            | LP           |         |

# DATA OF RADIATED EMISSION TEST

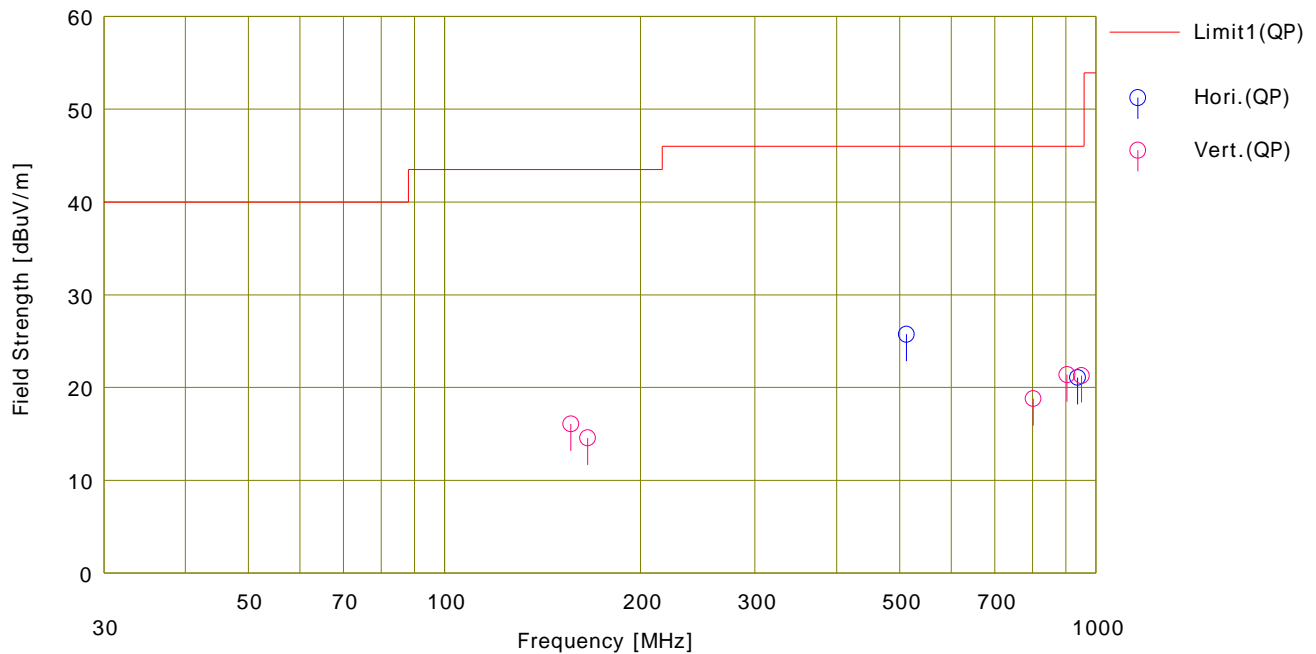
UL Japan, Inc. Shonan EMC Lab. No.1 Semi-Anechoic Chamber  
Date : 2022/12/02

Company : NTT Sonority Inc.  
 Kind of EUT : wireless on-ear speakers  
 Model No. : MBE001  
 Serial No. : L: B2242002E02, R: B2242012802  
 Remarks : -

Mode : Charge  
 Order No. : 14597255  
 Power : AC 120 V / 60 Hz (AC Adapter)  
 Temp./Humi. : 20 deg.C / 42 %RH

Limit : FCC\_Part 15 Subpart B(15.109)\_Class B

Engineer : Yasumasa Owaki



| No. | Freq.<br>[MHz] | Reading        | Ant.Fac<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | S.Fac<br>[dB] | Result           | Limit        | Margin | Pola.<br>[H/V] | Height<br>[cm] | Angle<br>[deg] | Ant.<br>Type | Comment |
|-----|----------------|----------------|-------------------|--------------|--------------|---------------|------------------|--------------|--------|----------------|----------------|----------------|--------------|---------|
|     |                | <QP><br>[dBuV] |                   |              |              |               | <QP><br>[dBuV/m] | <QP><br>[dB] |        |                |                |                |              |         |
| 1   | 512.000        | 31.90          | 17.80             | 7.96         | 31.93        | 0.00          | 25.73            | 46.00        | 20.2   | Hori.          | 184            | 143            | LP           |         |
| 2   | 938.400        | 20.00          | 22.08             | 10.13        | 31.12        | 0.00          | 21.09            | 46.00        | 24.9   | Hori.          | 150            | 1              | LP           |         |
| 3   | 156.485        | 23.80          | 15.13             | 8.80         | 31.79        | 0.13          | 16.07            | 43.50        | 27.4   | Vert.          | 100            | 198            | BC           |         |
| 4   | 166.000        | 21.80          | 15.55             | 8.90         | 31.78        | 0.09          | 14.56            | 43.50        | 28.9   | Vert.          | 100            | 1              | BC           |         |
| 5   | 801.625        | 20.30          | 20.86             | 9.49         | 31.85        | 0.00          | 18.80            | 46.00        | 27.2   | Vert.          | 150            | 78             | LP           |         |
| 6   | 904.000        | 20.50          | 22.19             | 10.00        | 31.31        | 0.00          | 21.38            | 46.00        | 24.6   | Vert.          | 100            | 137            | LP           |         |
| 7   | 951.200        | 19.90          | 22.24             | 10.19        | 31.05        | 0.00          | 21.28            | 46.00        | 24.7   | Vert.          | 100            | 123            | LP           |         |

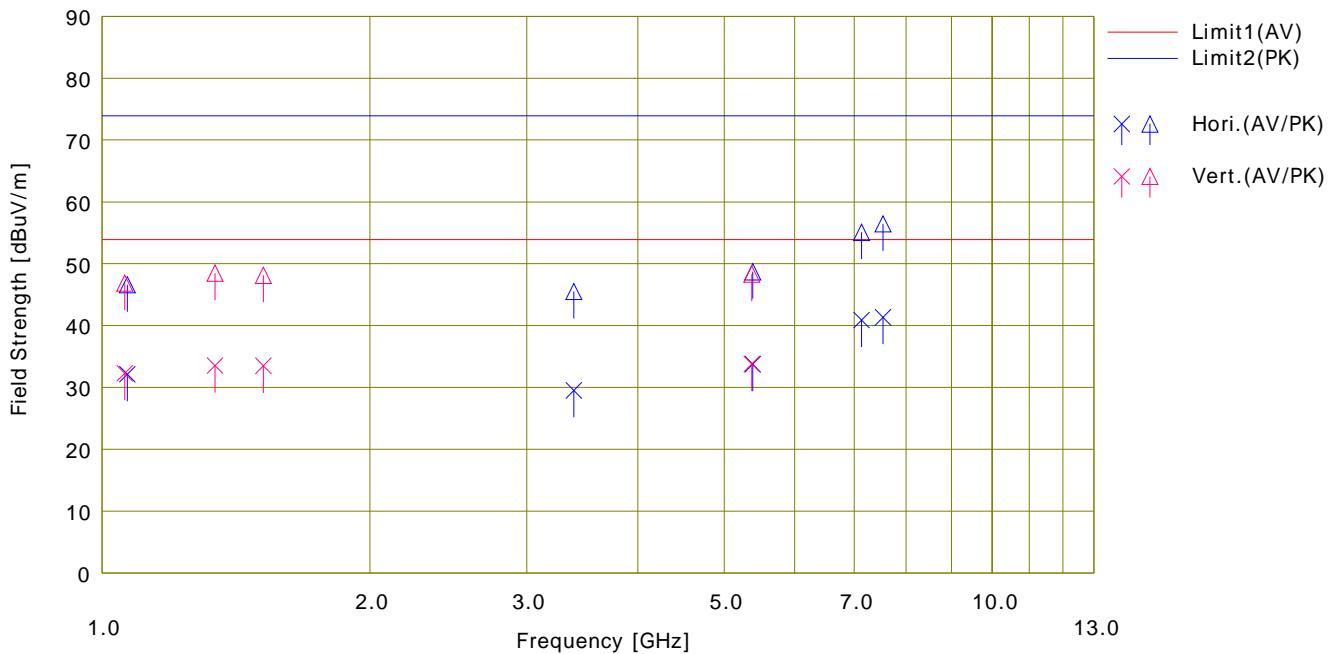
# DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Semi-Anechoic Chamber  
Date : 2022/12/02

|   |                                 |
|---|---------------------------------|
| Company : NTT Sonority Inc.                                   | Mode : BT Communication         |
| Kind of EUT : wireless on-ear speakers                        | Order No. : 14597255            |
| Model No. : MBE001  | Power : DC 3.85 V (Battery)     |
| Serial No. : L: B2242002E02, R: B2242012802                   | Temp./Humi. : 20 deg.C / 40 %RH |
| Remarks : (EUT Axis) Hori: Y, Vert: Y, Test Distance = 394 cm |                                 |

Limit : FCC\_Part 15 Subpart B(15.109)\_Class B

Engineer : Masahide Ozaki



| No. | Freq.<br>[MHz] | Reading |        | Ant.Fac<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | D.Fac<br>[dB] | Result   |          | Limit    |          | Margin |      | Pola.<br>[H/V] | Height<br>[cm] | Angle<br>[deg] | Ant.<br>Type | Comment |
|-----|----------------|---------|--------|-------------------|--------------|--------------|---------------|----------|----------|----------|----------|--------|------|----------------|----------------|----------------|--------------|---------|
|     |                | <AV>    | <PK>   |                   |              |              |               | <AV>     | <PK>     | <AV>     | <PK>     | <AV>   | <PK> |                |                |                |              |         |
|     |                | [dBuV]  | [dBuV] |                   |              |              |               | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dB]   | [dB] |                |                |                |              |         |
| 1   | 1068.423       | 31.67   | 46.12  | 24.19             | 13.20        | 39.29        | 2.37          | 32.14    | 46.59    | 53.90    | 73.90    | 21.7   | 27.3 | Hori.          | 100            | 359            | 31SH1        |         |
| 2   | 3388.317       | 31.54   | 47.54  | 28.18             | 7.01         | 39.58        | 2.37          | 29.52    | 45.52    | 53.90    | 73.90    | 24.3   | 28.3 | Hori.          | 100            | 0              | 31SH1        |         |
| 3   | 5382.739       | 31.37   | 46.32  | 31.68             | 8.19         | 39.85        | 2.37          | 33.76    | 48.71    | 53.90    | 73.90    | 20.1   | 25.1 | Hori.          | 100            | 359            | 31SH1        |         |
| 4   | 7130.000       | 31.98   | 46.16  | 36.72             | 9.37         | 39.55        | 2.37          | 40.89    | 55.07    | 53.90    | 73.90    | 13.0   | 18.8 | Hori.          | 100            | 0              | 31SH1        |         |
| 5   | 7535.125       | 31.83   | 46.93  | 36.91             | 9.63         | 39.39        | 2.37          | 41.35    | 56.45    | 53.90    | 73.90    | 12.5   | 17.4 | Hori.          | 100            | 359            | 31SH1        |         |
| 6   | 1061.204       | 31.84   | 46.44  | 24.16             | 13.20        | 39.29        | 2.37          | 32.28    | 46.88    | 53.90    | 73.90    | 21.6   | 27.0 | Vert.          | 100            | 359            | 31SH1        |         |
| 7   | 1340.214       | 31.53   | 46.49  | 25.27             | 13.56        | 39.21        | 2.37          | 33.52    | 48.48    | 53.90    | 73.90    | 20.3   | 25.4 | Vert.          | 100            | 0              | 31SH1        |         |
| 8   | 1518.413       | 31.63   | 46.27  | 24.87             | 13.80        | 39.17        | 2.37          | 33.50    | 48.14    | 53.90    | 73.90    | 20.4   | 25.7 | Vert.          | 100            | 359            | 31SH1        |         |
| 9   | 5371.489       | 31.45   | 45.96  | 31.65             | 8.19         | 39.84        | 2.37          | 33.82    | 48.33    | 53.90    | 73.90    | 20.0   | 25.5 | Vert.          | 100            | 0              | 31SH1        |         |

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable + ATT or HPF)[dB]+D.Fac[dB]-Gain(AMP)[dB]  
Ant.Type=BC:Biconical Antenna LP:Logperiodic Antenna \*\*SH\*: Horn Antenna



# DATA OF RADIATED EMISSION TEST

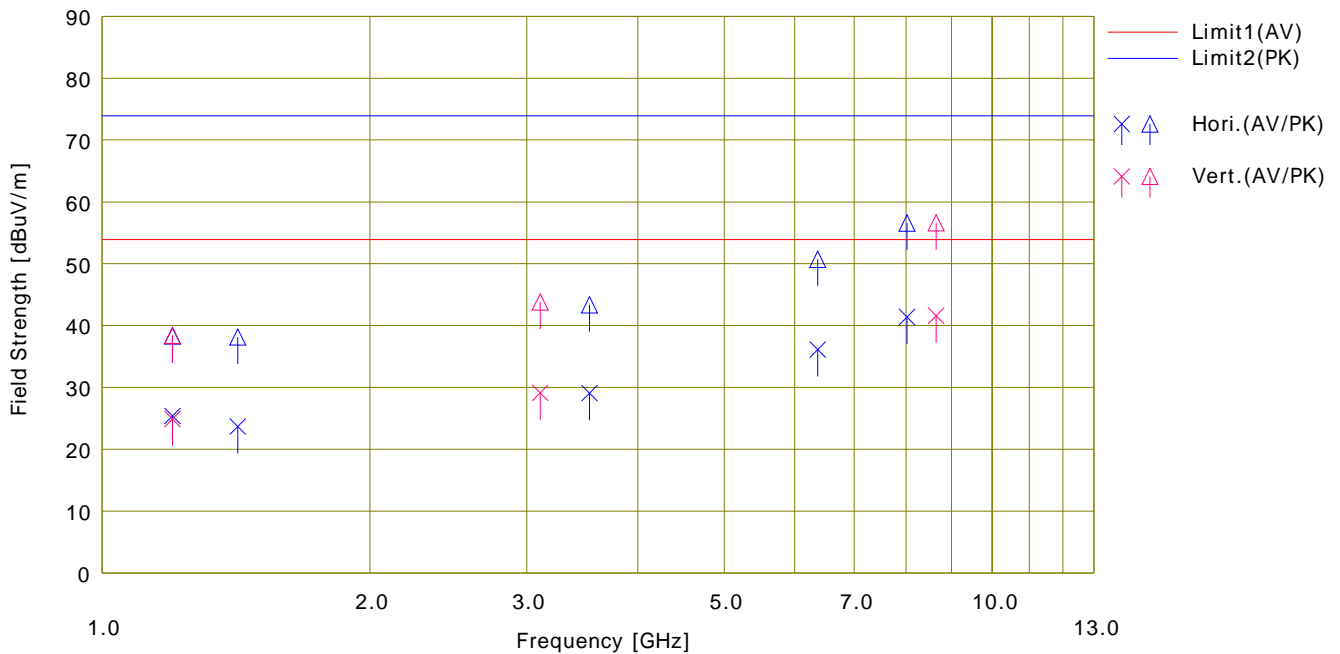
UL Japan, Inc. Shonan EMC Lab. No.1 Semi-Anechoic Chamber  
Date : 2022/12/02

Company : NTT Sonority Inc.  
Kind of EUT : wireless on-ear speakers  
Model No. : MBE001  
Serial No. : L: B2242002E02, R: B2242012802  
Remarks : Test Distance = 394 cm

Mode : Charge  
Order No. : 14597255  
Power : AC 120 V / 60 Hz (AC Adapter)  
Temp./Humi. : 20 deg.C / 40 %RH

Limit : FCC\_Part 15 Subpart B(15.109)\_Class B

Engineer : Masahide Ozaki



| No. | Freq.<br>[MHz] | Reading |        | Ant.Fac<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | D.Fac<br>[dB] | Result   |          | Limit    |          | Margin |      | Pola.<br>[H/V] | Height<br>[cm] | Angle<br>[deg] | Ant.<br>Type | Comment |
|-----|----------------|---------|--------|-------------------|--------------|--------------|---------------|----------|----------|----------|----------|--------|------|----------------|----------------|----------------|--------------|---------|
|     |                | <AV>    | <PK>   |                   |              |              |               | <AV>     | <PK>     | <AV>     | <PK>     | <AV>   | <PK> |                |                |                |              |         |
|     |                | [dBuV]  | [dBuV] |                   |              |              |               | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dBuV/m] | [dB]   | [dB] |                |                |                |              |         |
| 1   | 1199.976       | 34.07   | 46.96  | 24.79             | 3.44         | 39.25        | 2.37          | 25.42    | 38.31    | 53.90    | 73.90    | 28.4   | 35.5 | Hori.          | 240            | 183            | 31SH1        |         |
| 2   | 1421.185       | 31.58   | 46.05  | 25.19             | 3.73         | 39.18        | 2.37          | 23.69    | 38.16    | 53.90    | 73.90    | 30.2   | 35.7 | Hori.          | 100            | 0              | 31SH1        |         |
| 3   | 3528.962       | 31.76   | 46.02  | 28.71             | 5.88         | 39.62        | 2.37          | 29.10    | 43.36    | 53.90    | 73.90    | 24.8   | 30.5 | Hori.          | 100            | 359            | 31SH1        |         |
| 4   | 6370.548       | 31.87   | 46.46  | 33.82             | 8.00         | 39.93        | 2.37          | 36.13    | 50.72    | 53.90    | 73.90    | 17.7   | 23.1 | Hori.          | 100            | 0              | 31SH1        |         |
| 5   | 8019.942       | 31.60   | 46.80  | 37.50             | 9.03         | 39.12        | 2.37          | 41.38    | 56.58    | 53.90    | 73.90    | 12.5   | 17.3 | Hori.          | 100            | 359            | 31SH1        |         |
| 6   | 1199.971       | 33.56   | 47.07  | 24.79             | 3.44         | 39.25        | 2.37          | 24.91    | 38.42    | 53.90    | 73.90    | 28.9   | 35.4 | Vert.          | 389            | 189            | 31SH1        |         |
| 7   | 3107.108       | 32.01   | 46.70  | 28.72             | 5.50         | 39.46        | 2.37          | 29.14    | 43.83    | 53.90    | 73.90    | 24.7   | 30.0 | Vert.          | 100            | 359            | 31SH1        |         |
| 8   | 8647.700       | 31.89   | 46.91  | 37.37             | 9.53         | 39.56        | 2.37          | 41.60    | 56.62    | 53.90    | 73.90    | 12.3   | 17.2 | Vert.          | 100            | 0              | 31SH1        |         |

## APPENDIX 2

## Test Instruments

## EMI test equipment

| Test Name | Local ID                       | LIMS ID | Description                  | Manufacturer                                | Model                                | Serial                  | Last Calibration Date | Calibration Interval (Month) |
|-----------|--------------------------------|---------|------------------------------|---|--------------------------------------|-------------------------|-----------------------|------------------------------|
| CE        | SAT3-13                        | 150923  | Attenuator                   | JFW   | 50HF-003N                            | -                       | 2022/02/21            | 12                           |
| CE        | SCC-A12/A13/SRSE-01            | 144966  | Coaxial Cable&RF Selector    | Suhner/Suhner/TOYO                          | RG223U/141PE/NS4906                  | -/0901-269(RF Selector) | 2022/04/20            | 12                           |
| CE        | SLS-02                         | 145539  | LISN                         | Rohde & Schwarz                             | ENV216                               | 100512                  | 2022/02/23            | 12                           |
| CE        | SOS-16                         | 167990  | Thermo-Hygrometer            | CUSTOM. Inc                                 | CTH-202                              | 708Q08R                 | 2022/10/18            | 12                           |
| CE,RE     | COTS-SEMI-5                    | 170932  | EMI Software                 | TSJ (Techno Science Japan)                  | TEPTO-DV3(RE,CE,ME,PE)               | -                       | -                     | -                            |
| CE,RE     | SJM-22                         | 207279  | Measuring Tool, Tape Measure | ASKUL                                       | -                                    | -                       | -                     | -                            |
| CE,RE     | STR-08                         | 150463  | Test Receiver                | Rohde & Schwarz                             | ESW44                                | 101581                  | 2022/03/02            | 12                           |
| CE,RE     | STS-01                         | 145792  | Digital Hitester             | HIOKI E.E. CORPORATION                      | 3805-50                              | 80997812                | 2022/09/20            | 12                           |
| RE        | KAT6-04                        | 144899  | Attenuator                   | Inmet                                       | 18N-6dB                              | -                       | 2021/12/10            | 12                           |
| RE        | SAEC-01(NSA)                   | 145597  | Semi-Anechoic Chamber        | TDK   | SAEC-01(NSA)                         | 1                       | 2022/04/11            | 12                           |
| RE        | SAEC-01(SVSWR)                 | 145561  | Semi-Anechoic Chamber        | TDK   | SAEC-01(SVSWR)                       | 1                       | 2022/05/13            | 12                           |
| RE        | SAF-01                         | 145003  | Pre Amplifier                | SONOMA                                      | 310N                                 | 290211                  | 2022/02/24            | 12                           |
| RE        | SAF-04                         | 145127  | Pre Amplifier                | Toyo Corporation                            | TPA0118-36                           | 2072554                 | 2022/05/20            | 12                           |
| RE        | SAT10-05                       | 145136  | Attenuator                   | Keysight Technologies Inc                   | 8493C-010                            | 74864                   | 2022/10/20            | 12                           |
| RE        | SAT3-09                        | 144959  | Attenuator                   | JFW   | 50HF-003N                            | -                       | 2022/08/23            | 12                           |
| RE        | SBA-01                         | 145161  | Biconical Antenna            | Schwarzbeck Mess-Elektronik OHG             | BBA9106                              | 91032664                | 2022/04/16            | 12                           |
| RE        | SCC-A1/A3/A5/A7/A8/A13/SRSE-01 | 144967  | Coaxial Cable&RF Selector    | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/NS4906 | -/0901-269(RF Selector) | 2022/04/20            | 12                           |
| RE        | SCC-A2/A4/A6/A7/A8/A13/SRSE-01 | 144968  | Coaxial Cable&RF Selector    | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/NS4906 | -/0901-269(RF Selector) | 2022/04/20            | 12                           |
| RE        | SCC-G05                        | 145039  | Coaxial Cable                | Junkosha                                    | J12J102207-00                        | APR-30-15-037           | 2022/01/06            | 12                           |
| RE        | SCC-G40                        | 166491  | Coaxial Cable                | Junkosha                                    | MWX221-01000NFSNMS/B                 | 1612S005                | 2022/01/06            | 12                           |
| RE        | SCC-G62                        | 196985  | Coaxial Cable                | Huber+Suhner                                | SUCOFLEX 102                         | 803650/2                | 2022/03/08            | 12                           |
| RE        | SFL-02                         | 145301  | Highpass Filter              | MICRO-TRONICS                               | HPM50111                             | 51                      | 2022/10/20            | 12                           |
| RE        | SHA-01                         | 145383  | Horn Antenna                 | Schwarzbeck Mess-Elektronik OHG             | BBHA9120D                            | 9120D-725               | 2022/03/01            | 12                           |
| RE        | SLA-05                         | 145527  | Logperiodic Antenna          | Schwarzbeck Mess-Elektronik OHG             | VUSLP9111B                           | 193                     | 2022/04/16            | 12                           |
| RE        | SOS-20                         | 191837  | Thermo-Hygrometer            | CUSTOM. Inc                                 | CTH-201                              | -                       | 2022/08/06            | 12                           |

\*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

The expiration date of the calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards

Test Item:

CE: Conducted emission,

RE: Radiated emission