



SAR EVALUATION REPORT

Applicant Name:
 Apple, Inc.
 One Apple Park Way
 Cupertino, CA 95014

Date of Testing:
 8/27/2020-9/17/2020
Test Site/Location:
 PCTEST Lab, Morgan Hill, CA, USA
Document Serial No.:
 1C2008270050-01-R2.BCG

FCC ID:

BCG-A2096

APPLICANT:

APPLE, INC.

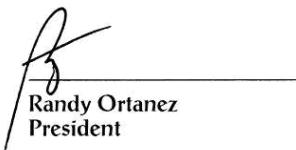
DUT Type: Wireless Headphones
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: A2096

| Equipment Class | Band & Mode | Tx Frequency | SAR | |
|-----------------|-------------|-----------------|----------------|----------------------|
| | | | 1g Head (W/kg) | 10g Extremity (W/kg) |
| DSS/DTS | Bluetooth | 2402 - 2480 MHz | 0.06 | 0.21 |

Note: This revised Test Report (S/N: 1C2008270050-01-R2.BCG) supersedes and replaces the previously issued report on the same subject device for the type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

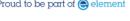
This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.6 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.


 Randy Ortanez
 President



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1 DEVICE UNDER TEST

1.1 Device Overview

| Band & Mode | Operating Modes | Tx Frequency |
|-------------|-----------------|-----------------|
| Bluetooth | Data | 2402 - 2480 MHz |

1.2 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

1.3.1 Maximum Output Power

| Mode / Band | | Modulated Average - Single Tx Chain (dBm) |
|---------------|---------|-------------------------------------------|
| Bluetooth BDR | Maximum | 12.5 |
| | Nominal | 11.5 |
| Bluetooth EDR | Maximum | 9.5 |
| | Nominal | 8.5 |
| Bluetooth LE | Maximum | 9.5 |
| | Nominal | 8.5 |

1.4 DUT Antenna Locations

Based on the expected use conditions, Head SAR and Extremity SAR were evaluated. The antenna is located inside the left cushion on the DUT. A diagram showing the location of the antenna can be found in Appendix E. More information about the configuration evaluated for SAR can be found in Section 4.2 and Section 4.3.

1.5 Simultaneous Transmission Capabilities

This Device does not support any Simultaneous transmission Scenarios.

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1.6 Guidance Applied

- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)

1.7 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical, and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 9.

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2 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

2.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

**Equation 2-1
SAR Mathematical Equation**

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dV} \right)$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

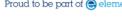
where:

σ = conductivity of the tissue-simulating material (S/m)

ρ = mass density of the tissue-simulating material (kg/m³)

E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

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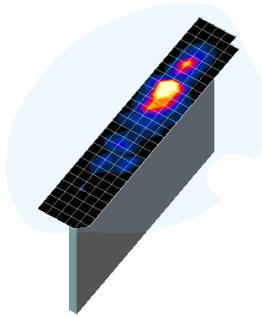
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3 DOSIMETRIC ASSESSMENT

3.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points ($10 \times 10 \times 10$) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.



**Figure 3-1
Sample SAR Area
Scan**

**Table 3-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04***

| Frequency | Maximum Area Scan Resolution (mm) ($\Delta x_{area}, \Delta y_{area}$) | Maximum Zoom Scan Resolution (mm) ($\Delta x_{zoom}, \Delta y_{zoom}$) | Maximum Zoom Scan Spatial Resolution (mm) | | | Minimum Zoom Scan Volume (mm) (x, y, z) |
|-----------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------|------------------------|-------------------------------|------------------------------------------------|
| | | | Uniform Grid | | Graded Grid | |
| | | | $\Delta z_{zoom}(n)$ | $\Delta z_{zoom}(1)^*$ | $\Delta z_{zoom}(n>1)^*$ | |
| ≤ 2 GHz | ≤ 15 | ≤ 8 | ≤ 5 | ≤ 4 | ≤ 1.5* $\Delta z_{zoom}(n-1)$ | ≥ 30 |
| 2-3 GHz | ≤ 12 | ≤ 5 | ≤ 5 | ≤ 4 | ≤ 1.5* $\Delta z_{zoom}(n-1)$ | ≥ 30 |
| 3-4 GHz | ≤ 12 | ≤ 5 | ≤ 4 | ≤ 3 | ≤ 1.5* $\Delta z_{zoom}(n-1)$ | ≥ 28 |
| 4-5 GHz | ≤ 10 | ≤ 4 | ≤ 3 | ≤ 2.5 | ≤ 1.5* $\Delta z_{zoom}(n-1)$ | ≥ 25 |
| 5-6 GHz | ≤ 10 | ≤ 4 | ≤ 2 | ≤ 2 | ≤ 1.5* $\Delta z_{zoom}(n-1)$ | ≥ 22 |

*Also compliant to IEEE 1528-2013 Table 6

| | | | | | |
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4 TEST CONFIGURATION POSITIONS

4.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$.

4.2 Positioning for Head

Wireless Headphones are head mounted devices that are designed to be used at the ear but does not protrude into the pinna or the auditory canal. The device is evaluated with the audio-output (cushion side) of the device aligned to the ERP reference point. The device was oriented against the phantom in such a way that mimics expected use conditions. The phantom is filled with head tissue-equivalent medium. Since the device can be used with the radiating element located on the right and left sides of the head, SAR testing was performed for both sides to simulate all potential head use-case conditions.

4.3 Extremity Exposure Configurations

Devices that designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation, based on the expected use conditions. Extremity SAR was evaluated with the outside (Logo) of the device touching the flat phantom, and the bottom edge touching the flat phantom. The antenna touching at 45° was additionally evaluated from normal condition because it is more conservative. The phantom is filled with body tissue-equivalent medium.

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5 RF EXPOSURE LIMITS

5.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

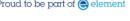
5.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 5-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

| HUMAN EXPOSURE LIMITS | | |
|----------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------------------------|
| | UNCONTROLLED ENVIRONMENT <i>General Population (W/kg) or (mW/g)</i> | CONTROLLED ENVIRONMENT <i>Occupational (W/kg) or (mW/g)</i> |
| Peak Spatial Average SAR Head | 1.6 | 8.0 |
| Whole Body SAR | 0.08 | 0.4 |
| Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc. | 4.0 | 20 |

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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6 FCC MEASUREMENT PROCEDURES

6.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

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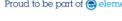
7 RF CONDUCTED POWERS

7.1 Bluetooth Conducted Powers

Table 7-1
Bluetooth Average RF Power

| Frequency [MHz] | Modulation | Data Rate [Mbps] | Channel No. | Avg Conducted Power | |
|--------------------|------------|------------------------|----------------|------------------------|--------|
| | | | | [dBm] | [mW] |
| 2402 | GFSK | 1.0 | 0 | 12.44 | 17.539 |
| 2441 | GFSK | 1.0 | 39 | 12.38 | 17.298 |
| 2480 | GFSK | 1.0 | 78 | 11.96 | 15.704 |

Note: The bolded data rates and channel above were tested for SAR.

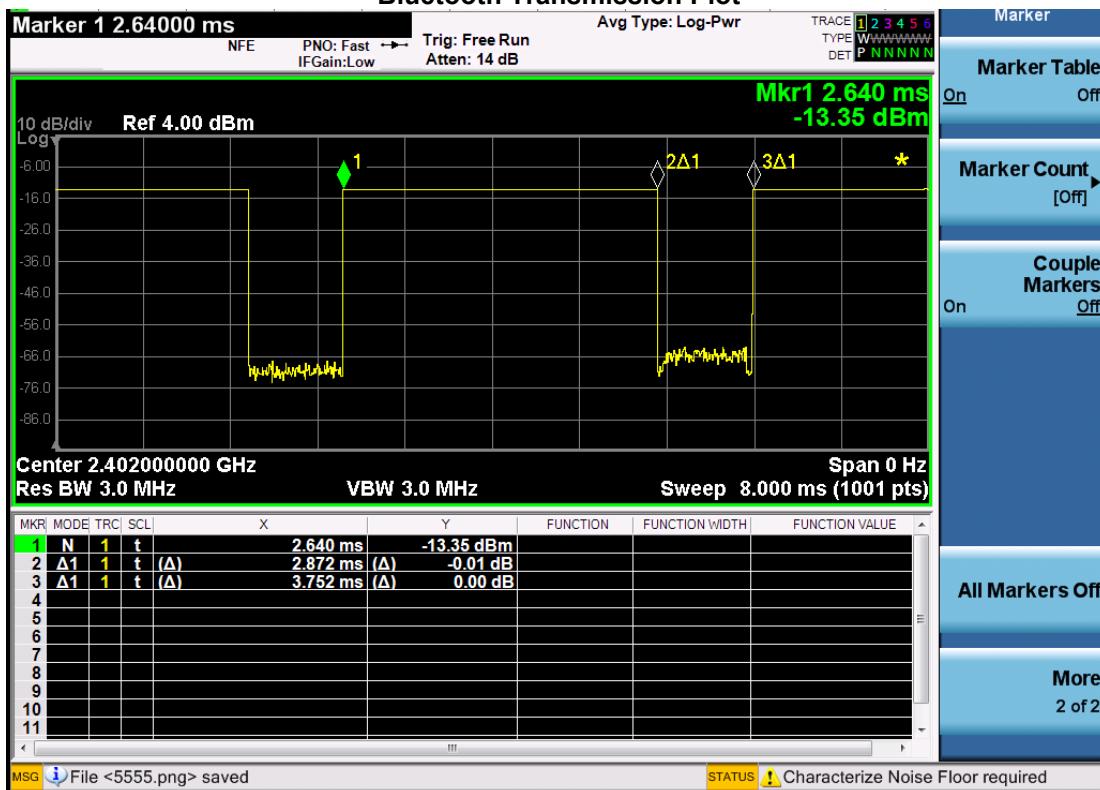
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Figure 7-1
Bluetooth Transmission Plot



Equation 7-1
Bluetooth Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.872\text{ms}}{3.752\text{ms}} * 100\% = 76.5\%$$

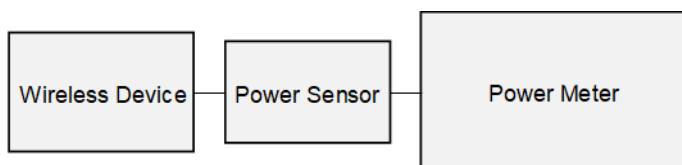


Figure 7-2
Power Measurement Setup

| | | | | |
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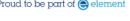
8 SYSTEM VERIFICATION

8.1 Tissue Verification

Table 8-1
Measured Tissue Properties

| Calibrated for Tests Performed on: | Tissue Type | Tissue Temp During Calibration (°C) | Measured Frequency (MHz) | Measured Conductivity, σ (S/m) | Measured Dielectric Constant, ϵ | TARGET Conductivity, σ (S/m) | TARGET Dielectric Constant, ϵ | % dev σ | % dev ϵ |
|------------------------------------|-------------|-------------------------------------|--------------------------|---------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|----------------|------------------|
| 9/17/2020 | 2450H | 21.2 | 2400 | 1.824 | 40.985 | 1.756 | 39.289 | 3.87% | 4.32% |
| | | | 2450 | 1.859 | 40.876 | 1.800 | 39.200 | 3.28% | 4.28% |
| | | | 2500 | 1.903 | 40.825 | 1.855 | 39.136 | 2.59% | 4.32% |
| 8/27/2020 | 2450B | 21.5 | 2400 | 1.971 | 51.922 | 1.902 | 52.767 | 3.63% | -1.60% |
| | | | 2450 | 2.038 | 51.713 | 1.950 | 52.700 | 4.51% | -1.87% |
| | | | 2500 | 2.104 | 51.504 | 2.021 | 52.636 | 4.11% | -2.15% |

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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8.2 Test System Verification

Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix D.

Table 8-2
System Verification Results -1g

| System Verification TARGET & MEASURED | | | | | | | | | | | | |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|-----------------------------------|-------------------------------------|-----------------------------------------|-----------------------------|
| SAR System # | Tissue Frequency (MHz) | Tissue Type | Date | Amb. Temp (°C) | Liquid Temp (°C) | Input Power (W) | Source SN | Probe SN | Measured SAR _{1g} (W/kg) | 1 W Target SAR _{1g} (W/kg) | 1 W Normalized SAR _{1g} (W/kg) | Deviation _{1g} (%) |
| AM6 | 2450 | HEAD | 09/17/2020 | 20.3 | 20.2 | 0.100 | 921 | 3837 | 5.650 | 53.100 | 56.500 | 6.40% |

Table 8-3
System Verification Results -10g

| System Verification TARGET & MEASURED | | | | | | | | | | | | |
|------------------------------------------|------------------------|-------------|------------|----------------|------------------|-----------------|-----------|----------|------------------------------------|--------------------------------------|------------------------------------------|------------------------------|
| SAR System # | Tissue Frequency (MHz) | Tissue Type | Date | Amb. Temp (°C) | Liquid Temp (°C) | Input Power (W) | Source SN | Probe SN | Measured SAR _{10g} (W/kg) | 1 W Target SAR _{10g} (W/kg) | 1 W Normalized SAR _{10g} (W/kg) | Deviation _{10g} (%) |
| AM5 | 2450 | BODY | 08/27/2020 | 21.0 | 19.9 | 0.100 | 750 | 7416 | 2.230 | 24.100 | 22.300 | -7.47% |

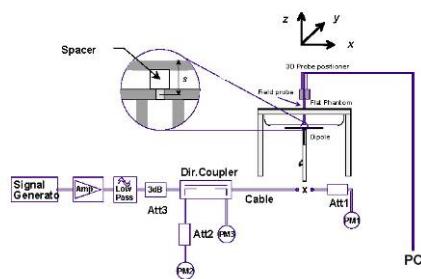


Figure 8-1
System Verification Setup Diagram



Figure 8-2
System Verification Setup Photo

| | | | |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------|
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9 SAR DATA SUMMARY

9.1 Standalone Head SAR Data

Table 9-1
Bluetooth Head SAR

| MEASUREMENT RESULTS | | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|---------|------------------|-------------------------------------------------|---------|----------------------|------------------|----------------|----------|--------|-----------------------------|-----------------------------|--------------------------|--------|
| FREQUENCY | | Mode | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Spacing | Power Drift [dB] | Test Position | Side | Device Serial Number | Data Rate (Mbps) | Duty Cycle (%) | SAR (1g) | | Scaling Factor (Cond Power) | Scaling Factor (Duty Cycle) | Reported SAR (1g) (W/kg) | Plot # |
| MHz | Ch. | | | | | | | | | | | | (W/kg) | (W/kg) | | | | |
| 2402.00 | 0 | Bluetooth | FHSS | 12.5 | 12.44 | 0 mm | 0.07 | Right Head | Cushion | HOY0295005LPPDC8M | 1 | 76.5 | 0.062 | 1.014 | 1.013 | 0.064 | A1 | |
| 2441.00 | 39 | Bluetooth | FHSS | 12.5 | 12.38 | 0 mm | 0.09 | Right Head | Cushion | HOY0295005LPPDC8M | 1 | 76.5 | 0.049 | 1.028 | 1.013 | 0.051 | | |
| 2480.00 | 78 | Bluetooth | FHSS | 12.5 | 11.96 | 0 mm | -0.06 | Right Head | Cushion | HOY0295005LPPDC8M | 1 | 76.5 | 0.041 | 1.132 | 1.013 | 0.047 | | |
| 2402.00 | 0 | Bluetooth | FHSS | 12.5 | 12.44 | 0 mm | -0.14 | Left Head | Cushion | HOY0295005LPPDC8M | 1 | 76.5 | 0.027 | 1.014 | 1.013 | 0.028 | | |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population | | | | | | | | Head 1.6 W/kg (mW/g) averaged over 1 gram | | | | | | | | | | |

Note: The reported SAR was scaled to the 77.5% transmission duty factor to determine compliance since the duty factor of the device is permanently limited to 77.5% per the manufacturer.

9.2 Standalone Extremity SAR Data

Table 9-2
Bluetooth Extremity SAR

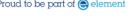
| MEASUREMENT RESULTS | | | | | | | | | | | | | | | | | |
|---------------------------------------------------------------------------------------------------|-----|-----------|---------|-----------------------------|-----------------------|------------------|---------|-------------------------------------------------------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------|--------|---------------------------|--------|
| FREQUENCY | | Mode | Service | Maximum Allowed Power [dBm] | Conducted Power [dBm] | Power Drift [dB] | Spacing | Device Serial Number | Data Rate (Mbps) | Side | Duty Cycle (%) | Scaling Factor (Cond Power) | Scaling Factor (Duty Cycle) | SAR (10g) | | Reported SAR (10g) (W/kg) | Plot # |
| MHz | Ch. | | | | | | | | | | | | | (W/kg) | (W/kg) | | |
| 2402 | 0 | Bluetooth | FHSS | 12.5 | 12.44 | 0.05 | 0 mm | HOY0295005LPPDC8M | 1 | Bottom Edge | 76.5 | 1.014 | 1.013 | 0.154 | 0.158 | | |
| 2402 | 0 | Bluetooth | FHSS | 12.5 | 12.44 | 0.03 | 0 mm | HOY0295005LPPDC8M | 1 | Logo | 76.5 | 1.014 | 1.013 | 0.039 | 0.040 | | |
| 2402 | 0 | Bluetooth | FHSS | 12.5 | 12.44 | 0.15 | 0 mm | HOY0295005LPPDC8M | 1 | Antenna Touching | 76.5 | 1.014 | 1.013 | 0.204 | 0.210 | A2 | |
| 2441 | 39 | Bluetooth | FHSS | 12.5 | 12.38 | -0.03 | 0 mm | HOY0295005LPPDC8M | 1 | Antenna Touching | 76.5 | 1.028 | 1.013 | 0.150 | 0.156 | | |
| 2480 | 78 | Bluetooth | FHSS | 12.5 | 11.96 | -0.02 | 0 mm | HOY0295005LPPDC8M | 1 | Antenna Touching | 76.5 | 1.132 | 1.013 | 0.105 | 0.120 | | |
| ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population | | | | | | | | Extremity 4.0 W/kg (mW/g) averaged over 10 gram | | | | | | | | | |

Note: The reported SAR was scaled to the 77.5% transmission duty factor to determine compliance since the duty factor of the device is permanently limited to 77.5% per the manufacturer.

9.3 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 616217 D04v01r02 and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical, and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. For Head SAR evaluation, the DUT's audio-output (cushion side) was aligned to the ERP reference point. For Extremity SAR evaluation, the DUT's outer edge (Logo) was positioned at 0 mm from the phantom. Extremity SAR evaluation, was additionally tested with the bottom edge touching the phantom at 0 mm.

| | | | | | | |
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The antenna touching at 45° angle was additionally evaluated from normal use condition because it is more conservative. Additional test setup and positioning information can be found in Section 4.2 and Section 4.3.

7. Per FCC KDB 865664 D01v01r04, variability SAR tests were not required since measured SAR results for all frequency bands were less than 0.8 W/kg. Please see section 10 for variability analysis.
8. Per FCC KDB Publication 447498 D01v06, when the maximum reported 1g averaged SAR is \leq 0.8 W/kg and 10g averaged is \leq 2.0 W/kg, SAR testing on additional channels was not required.

Bluetooth Notes:

1. Bluetooth SAR was evaluated with a test mode with hopping disabled with DH5 operation. The reported SAR was scaled to the 77.5% transmission duty factor to determine compliance since the duty factor of the device is limited to 77.5% per the manufacturer. See Section 7.1 for the time domain plot and calculation for the duty factor of the device.

| | | | |
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10 SAR MEASUREMENT VARIABILITY

10.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability was not assessed for each frequency band since all measured SAR measured values are <0.8 W/Kg for 1g SAR and <2.0 W/kg for 10g SAR.

10.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

| | | | |
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11 EQUIPMENT LIST

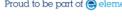
| Manufacturer | Model | Description | Cal Date | Cal Interval | Cal Due | Serial Number |
|--------------------|-----------|---------------------------------|------------|--------------|------------|---------------|
| Agilent | 8753ES | S-Parameter Network Analyzer | 1/16/2020 | Annual | 1/16/2021 | US39170118 |
| Agilent | E4438C | ESG Vector Signal Generator | 1/15/2020 | Triennial | 1/15/2023 | MY45090479 |
| Agilent | N5182A | MXG Vector Signal Generator | 5/13/2020 | Annual | 5/13/2021 | MY47420603 |
| Amplifier Research | 1551G6 | Amplifier | CBT | N/A | CBT | 343972 |
| Amplifier Research | 1551G6 | Amplifier | CBT | N/A | CBT | 343971 |
| Anritsu | MA24106A | USB Power Sensor | 7/24/2020 | Annual | 7/24/2021 | 1231535 |
| Anritsu | MA24106A | USB Power Sensor | 2/27/2020 | Annual | 2/27/2021 | 1244524 |
| Anritsu | MA2411B | Pulse Power Sensor | 11/15/2019 | Annual | 11/15/2020 | 1027293 |
| Anritsu | MA2411B | Pulse Power Sensor | 8/12/2020 | Annual | 8/12/2021 | 1207364 |
| Anritsu | ML2496A | Power Meter | 11/6/2019 | Annual | 11/6/2020 | 1405003 |
| Control Company | 4040 | Therm./ Clock/ Humidity Monitor | 10/9/2018 | Biennial | 10/9/2020 | 181647802 |
| Control Company | 4352 | Ultra Long Stem Thermometer | 11/29/2018 | Biennial | 11/29/2020 | 181766816 |
| Keysight | 772D | Dual Directional Coupler | CBT | N/A | CBT | MY52180215 |
| Agilent | 85033E | 3.5mm Standard Calibration Kit | 6/6/2020 | Annual | 6/6/2021 | MY53402352 |
| MCL | BW-N6W5+ | 6dB Attenuator | CBT | N/A | CBT | 1139 |
| Mini-Circuits | NLP-2950+ | Low Pass Filter DC to 2700 MHz | CBT | N/A | CBT | N/A |
| MiniCircuits | VLF-6000+ | Low Pass Filter | CBT | N/A | CBT | N/A |
| Insize | 1108-150 | Digital Caliper | 1/17/2020 | Biennial | 1/17/2022 | 409193536 |
| Narda | 4772-3 | Attenuator (3dB) | CBT | N/A | CBT | 9406 |
| Pasternack | PE2209-10 | Bidirectional Coupler | CBT | N/A | CBT | N/A |
| Rohde & Schwarz | FSP-7 | Spectrum Analyzer | 1/9/2020 | Biennial | 1/9/2022 | 100288 |
| Seekonk | NC-100 | Torque Wrench | 7/30/2020 | Annual | 7/30/2022 | 22217 |
| SPEAG | D2450V2 | 2450 MHz SAR Dipole | 11/12/2018 | Biennial | 11/12/2020 | 921 |
| SPEAG | D2450V2 | 2450 MHz SAR Dipole | 6/14/2019 | Biennial | 6/14/2021 | 750 |
| SPEAG | DAE4 | Data Acquisition Electronics | 6/11/2020 | Annual | 6/11/2021 | 701 |
| SPEAG | DAE4 | Data Acquisition Electronics | 1/14/2020 | Annual | 1/14/2021 | 793 |
| SPEAG | DAK-3.5 | Dielectric Assessment Kit | 5/12/2020 | Annual | 5/12/2021 | 1070 |
| SPEAG | EX3DV4 | SAR Probe | 6/22/2020 | Annual | 6/22/2021 | 7416 |
| SPEAG | EX3DV4 | SAR Probe | 1/20/2020 | Annual | 1/20/2021 | 3837 |

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler, or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

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12 MEASUREMENT UNCERTAINTIES

| a | c | d | e = f(d,k) | f | g | h = c x f/e | i = c x g/e | k |
|-------------------------------------------------------------------------------|---------------|----------------|---------------|-----------------------|--------------------------|--------------------------------|----------------------------------|----------------|
| Uncertainty Component | Tol. (± %) | Prob. Dist. | Div. | c _i 1gm | c _i 10 gms | 1gm u _i (± %) | 10gms u _i (± %) | v _i |
| Measurement System | | | | | | | | |
| Probe Calibration | 6.55 | N | 1 | 1.0 | 1.0 | 6.6 | 6.6 | ∞ |
| Axial Isotropy | 0.25 | N | 1 | 0.7 | 0.7 | 0.2 | 0.2 | ∞ |
| Hemispherical Isotropy | 1.3 | N | 1 | 0.7 | 0.7 | 0.9 | 0.9 | ∞ |
| Boundary Effect | 2.0 | R | 1.73 | 1.0 | 1.0 | 1.2 | 1.2 | ∞ |
| Linearity | 0.3 | N | 1 | 1.0 | 1.0 | 0.3 | 0.3 | ∞ |
| System Detection Limits | 0.25 | R | 1.73 | 1.0 | 1.0 | 0.1 | 0.1 | ∞ |
| Readout Electronics | 0.3 | N | 1 | 1.0 | 1.0 | 0.3 | 0.3 | ∞ |
| Response Time | 0.8 | R | 1.73 | 1.0 | 1.0 | 0.5 | 0.5 | ∞ |
| Integration Time | 2.6 | R | 1.73 | 1.0 | 1.0 | 1.5 | 1.5 | ∞ |
| RF Ambient Conditions - Noise | 3.0 | R | 1.73 | 1.0 | 1.0 | 1.7 | 1.7 | ∞ |
| RF Ambient Conditions - Reflections | 3.0 | R | 1.73 | 1.0 | 1.0 | 1.7 | 1.7 | ∞ |
| Probe Positioner Mechanical Tolerance | 0.4 | R | 1.73 | 1.0 | 1.0 | 0.2 | 0.2 | ∞ |
| Probe Positioning w/ respect to Phantom | 6.7 | R | 1.73 | 1.0 | 1.0 | 3.9 | 3.9 | ∞ |
| Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation | 4.0 | R | 1.73 | 1.0 | 1.0 | 2.3 | 2.3 | ∞ |
| Test Sample Related | | | | | | | | |
| Test Sample Positioning | 2.7 | N | 1 | 1.0 | 1.0 | 2.7 | 2.7 | 35 |
| Device Holder Uncertainty | 1.67 | N | 1 | 1.0 | 1.0 | 1.7 | 1.7 | 5 |
| Output Power Variation - SAR drift measurement | 5.0 | R | 1.73 | 1.0 | 1.0 | 2.9 | 2.9 | ∞ |
| SAR Scaling | 0.0 | R | 1.73 | 1.0 | 1.0 | 0.0 | 0.0 | ∞ |
| Phantom & Tissue Parameters | | | | | | | | |
| Phantom Uncertainty (Shape & Thickness tolerances) | 7.6 | R | 1.73 | 1.0 | 1.0 | 4.4 | 4.4 | ∞ |
| Liquid Conductivity - measurement uncertainty | 4.2 | N | 1 | 0.78 | 0.71 | 3.3 | 3.0 | 10 |
| Liquid Permittivity - measurement uncertainty | 4.1 | N | 1 | 0.23 | 0.26 | 1.0 | 1.1 | 10 |
| Liquid Conductivity - Temperature Uncertainty | 3.4 | R | 1.73 | 0.78 | 0.71 | 1.5 | 1.4 | ∞ |
| Liquid Permittivity - Temperature Uncertainty | 0.6 | R | 1.73 | 0.23 | 0.26 | 0.1 | 0.1 | ∞ |
| Liquid Conductivity - deviation from target values | 5.0 | R | 1.73 | 0.64 | 0.43 | 1.8 | 1.2 | ∞ |
| Liquid Permittivity - deviation from target values | 5.0 | R | 1.73 | 0.60 | 0.49 | 1.7 | 1.4 | ∞ |
| Combined Standard Uncertainty (k=1) | | | | | | RSS | 11.5 | 11.3 |
| Expanded Uncertainty (95% CONFIDENCE LEVEL) | | | | | | k=2 | 23.0 | 22.6 |

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13 CONCLUSION

13.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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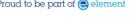
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14 REFERENCES

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.
- [3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.
- [4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.
- [5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

| | | | |
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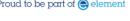
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- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.
- [20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.
- [21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.
- [22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015
- [23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07
- [24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01
- [25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04
- [26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04
- [27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02
- [28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02
- [29] Anexo à Resolução No. 533, de 10 de Setembro de 2009.
- [30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

| | | | | |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--|---------------------------------|
| FCC ID: BCG-A2096 |  Proud to be part of  | SAR EVALUATION REPORT | | Approved by: Quality Manager |
| Document S/N: 1C2008270050-01-R2.BCG | Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | | Page 21 of 21 |

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REV 21.4 M

09/11/2019

APPENDIX A: SAR TEST DATA

PCTEST

DUT: BCG-A2096; Type: Wireless Headphones; Serial: H0Y0295005LPPDC8M

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.307

Medium: 2450 MHz Head Medium parameters used (interpolated):

$f = 2402$ MHz; $\sigma = 1.825$ S/m; $\epsilon_r = 40.981$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 09-17-2020; Ambient Temp: 20.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3837; ConvF(7.49, 7.49, 7.49) @ 2402 MHz; Calibrated: 1/20/2020

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/14/2020

Phantom: Twin-SAM V4.0 Main; Type: QD 000 P40 CC; Serial: 1114

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Mode: Bluetooth, Right Head, Cushion Side, Ch 0, 1 Mbps

Area Scan (12x11x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

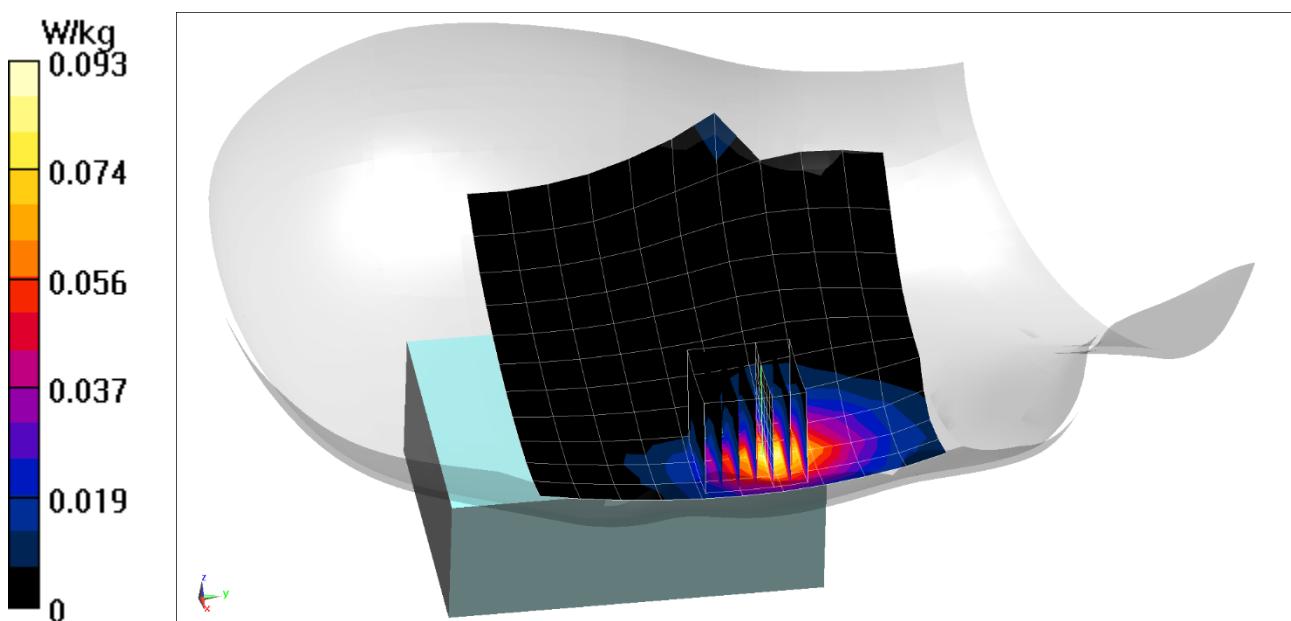
Reference Value = 5.721 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.112 W/kg

SAR(1 g) = 0.062 W/kg

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid

Ratio of SAR at M2 to SAR at M1 = 54.8%



PCTEST

DUT: BCG-A2096; Type: Wireless Headphones; Serial: H0Y0295005LPPDC8M

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.307

Medium: 2450 MHz Body Medium parameters used (interpolated):

$f = 2402$ MHz; $\sigma = 1.974$ S/m; $\epsilon_r = 51.914$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-27-2020; Ambient Temp: 21.0°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN7416; ConvF(7.28, 7.28, 7.28) @ 2402 MHz; Calibrated: 6/22/2020

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/11/2020

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Mode: Bluetooth, Extremity SAR, Ch 0, 1 Mbps, Antenna Touching

Area Scan (9x9x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (8x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4

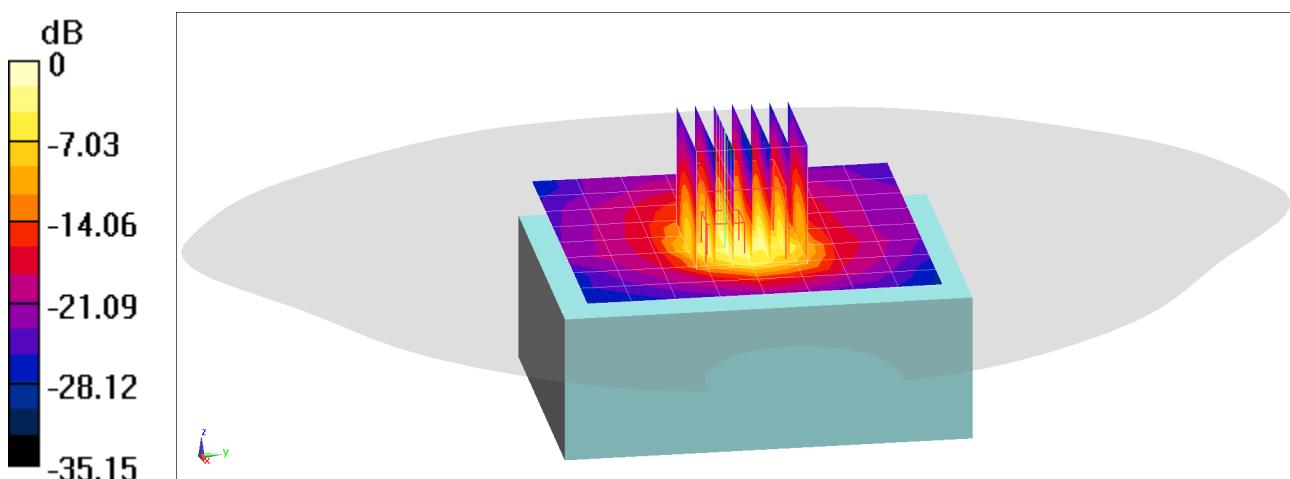
Reference Value = 10.26 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 2.06 W/kg

SAR(10 g) = 0.204 W/kg

Smallest distance from peaks to all points 3 dB below = 6 mm

Ratio of SAR at M2 to SAR at M1 = 60.6%



APPENDIX B: SYSTEM VERIFICATION

PCTEST

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 921

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Head Medium parameters used:

$f = 2450$ MHz; $\sigma = 1.859$ S/m; $\epsilon_r = 40.876$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-17-2020; Ambient Temp: 20.3°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3837; ConvF(7.49, 7.49, 7.49) @ 2450 MHz; Calibrated: 1/20/2020

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 1/14/2020

Phantom: Twin-SAM V4.0 Main; Type: QD 000 P40 CC; Serial: 1114

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

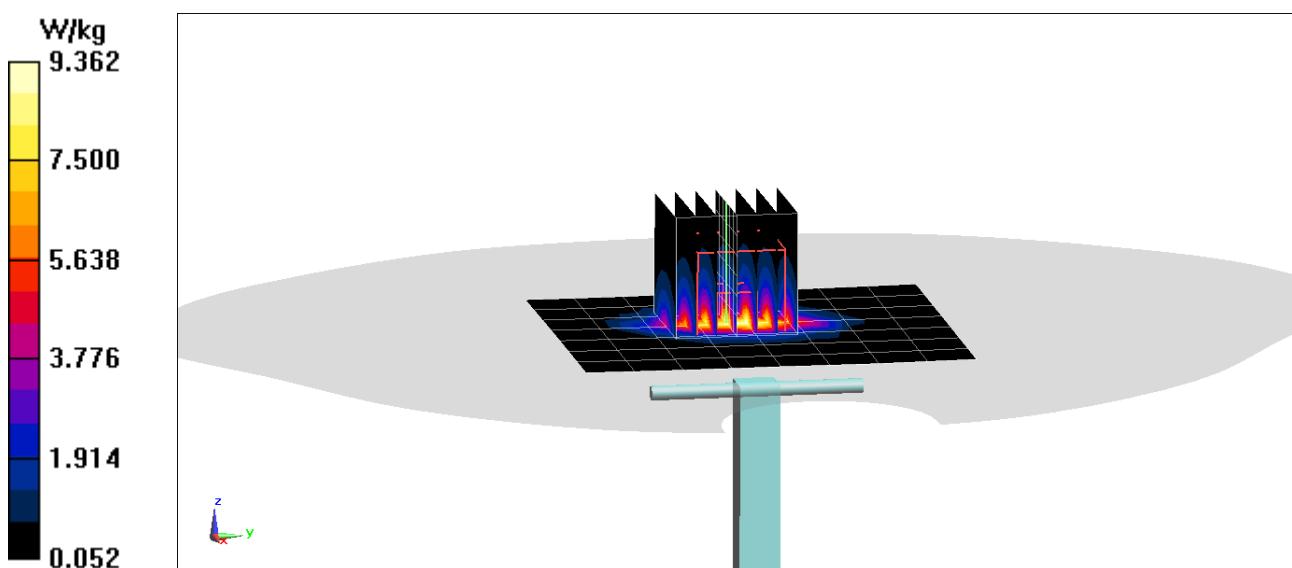
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 11.8 W/kg

SAR(1 g) = 5.65 W/kg

Deviation(1 g) = 6.40%



PCTEST

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 750

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz Body Medium parameters used:

$f = 2450$ MHz; $\sigma = 2.038$ S/m; $\epsilon_r = 51.713$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-27-2020; Ambient Temp: 21.0°C; Tissue Temp: 19.9°C

Probe: EX3DV4 - SN7416; ConvF(7.28, 7.28, 7.28) @ 2450 MHz; Calibrated: 6/22/2020

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn701; Calibrated: 6/11/2020

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1936

Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

2450 MHz System Verification at 20.0 dBm (100 mW)

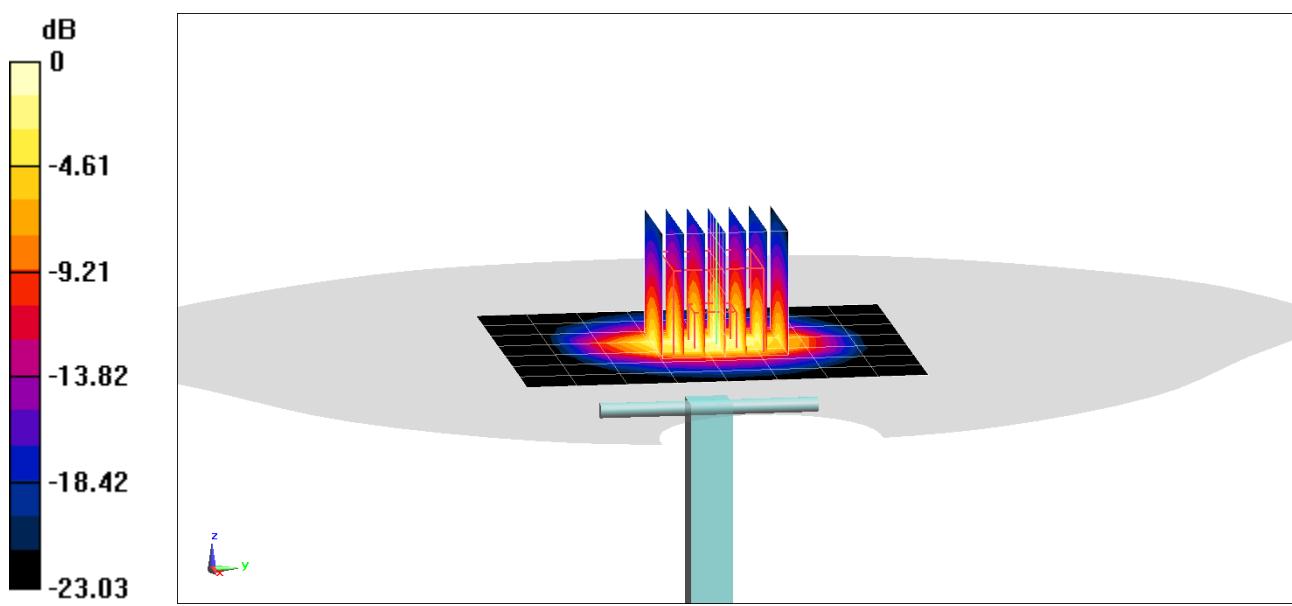
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 10.3 W/kg

SAR(10 g) = 2.23 W/kg

Deviation(10 g) = -7.47%



0 dB = 8.32 W/kg = 9.20 dBW/kg

APPENDIX C: SAR TISSUE SPECIFICATIONS

| | | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCG-A2096 |  SAR EVALUATION REPORT | Approved by: Quality Manager |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | APPENDIX C: Page 1 of 4 |

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity ϵ' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho' \cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

3 Composition / Information on ingredients

3.2 Mixtures

Description: Aqueous solution with surfactants and inhibitors

Declarable, or hazardous components:

| | | |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------|
| CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28-0000 | Ethanediol STOT RE 2, H373; Acute Tox. 4, H302 | >1.0-4.9% |
| CAS: 68608-26-4 EINECS: 271-781-5 Reg.nr.: 01-2119527859-22-0000 | Sodium petroleum sulfonate Eye Irrit. 2, H319 | < 2.9% |
| CAS: 107-41-5 EINECS: 203-489-0 Reg.nr.: 01-2119539582-35-0000 | Hexylene Glycol / 2-Methyl-pentane-2,4-diol Skin Irrit. 2, H315; Eye Irrit. 2, H319 | < 2.9% |
| CAS: 68920-66-1 NLP: 500-236-9 Reg.nr.: 01-2119489407-26-0000 | Alkoxylated alcohol, > C₁₆ Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319 | < 2.0% |

Additional information:

For the wording of the listed risk phrases refer to section 16.

Not mentioned CAS-, EINECS- or registration numbers are to be regarded as Proprietary/Confidential.

The specific chemical identity and/or exact percentage concentration of proprietary components is withheld as a trade secret.

Figure C-1

Note: Liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

| | | |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCG-A2096 |  SAR EVALUATION REPORT | Approved by: Quality Manager |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | APPENDIX C: Page 2 of 4 |

Measurement Certificate / Material Test

| | |
|--------------|------------------------------------------------|
| Item Name | Body Tissue Simulating Liquid (MBBL600-6000V6) |
| Product No. | SL AAM U16 BC (Batch: 181029-1) |
| Manufacturer | SPEAG |

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Target Parameters

Target parameters as defined in the KDB 865664 compliance standard.

Test Condition

Ambient Condition 22°C ; 30% humidity
 TSL Temperature 22°C
 Test Date 30-Oct-18
 Operator CL

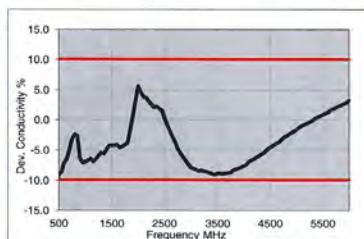
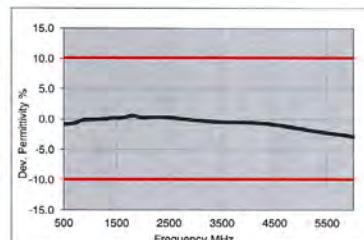
Additional Information

TSL Density

TSL Heat-capacity

Results

| f (MHz) | Measured | | Target | | Diff. to Target [%] | |
|---------|-------------|--------------|--------|-------|---------------------|----------------|
| | ϵ' | ϵ'' | eps | sigma | $\Delta\epsilon'$ | $\Delta\sigma$ |
| 800 | 55.1 | 21.3 | 0.95 | 55.3 | 0.97 | -0.4 -2.1 |
| 825 | 55.1 | 20.8 | 0.96 | 55.2 | 0.98 | -0.3 -2.0 |
| 850 | 55.1 | 20.6 | 0.96 | 55.1 | 0.98 | 0.0 -2.5 |
| 875 | 55.1 | 20.4 | 0.96 | 55.2 | 0.99 | -0.1 -3.0 |
| 900 | 55.0 | 19.7 | 0.98 | 55.0 | 1.05 | 0.0 -6.7 |
| 1400 | 54.2 | 15.6 | 1.22 | 54.1 | 1.28 | 0.2 -4.7 |
| 1450 | 54.1 | 15.4 | 1.24 | 54.0 | 1.30 | 0.2 -4.6 |
| 1500 | 54.1 | 15.3 | 1.27 | 53.9 | 1.33 | 0.3 -4.5 |
| 1550 | 54.0 | 15.1 | 1.30 | 53.9 | 1.36 | 0.2 -4.4 |
| 1600 | 53.9 | 15.0 | 1.33 | 53.8 | 1.39 | 0.2 -4.3 |
| 1625 | 53.9 | 14.9 | 1.35 | 53.8 | 1.41 | 0.3 -4.3 |
| 1640 | 53.9 | 14.9 | 1.36 | 53.7 | 1.42 | 0.3 -4.2 |
| 1650 | 53.8 | 14.9 | 1.36 | 53.7 | 1.43 | 0.2 -4.9 |
| 1700 | 53.8 | 14.8 | 1.40 | 53.6 | 1.46 | 0.4 -4.1 |
| 1750 | 53.7 | 14.7 | 1.43 | 53.4 | 1.49 | 0.5 -4.0 |
| 1800 | 53.7 | 14.6 | 1.46 | 53.3 | 1.52 | 0.8 -3.9 |
| 1810 | 53.7 | 14.6 | 1.47 | 53.3 | 1.52 | 0.8 -3.3 |
| 1825 | 53.7 | 14.6 | 1.48 | 53.3 | 1.52 | 0.8 -2.6 |
| 1850 | 53.6 | 14.5 | 1.50 | 53.3 | 1.52 | 0.6 -1.3 |
| 1900 | 53.5 | 14.5 | 1.53 | 53.3 | 1.52 | 0.4 0.7 |
| 1950 | 53.5 | 14.5 | 1.57 | 53.3 | 1.52 | 0.4 3.3 |
| 2000 | 53.4 | 14.4 | 1.60 | 53.3 | 1.52 | 0.2 5.3 |
| 2050 | 53.4 | 14.4 | 1.64 | 53.2 | 1.57 | 0.3 4.5 |
| 2100 | 53.3 | 14.4 | 1.68 | 53.2 | 1.62 | 0.2 3.7 |
| 2150 | 53.3 | 14.4 | 1.72 | 53.1 | 1.66 | 0.4 3.6 |
| 2200 | 53.2 | 14.4 | 1.76 | 53.0 | 1.71 | 0.3 2.9 |
| 2250 | 53.1 | 14.4 | 1.81 | 53.0 | 1.76 | 0.2 2.8 |
| 2300 | 53.1 | 14.4 | 1.85 | 52.9 | 1.81 | 0.4 2.2 |
| 2350 | 53.0 | 14.5 | 1.89 | 52.8 | 1.85 | 0.3 2.2 |
| 2400 | 52.9 | 14.5 | 1.94 | 52.8 | 1.90 | 0.2 2.1 |
| 2450 | 52.9 | 14.5 | 1.98 | 52.7 | 1.95 | 0.4 1.5 |
| 2500 | 52.8 | 14.6 | 2.03 | 52.6 | 2.02 | 0.3 0.5 |
| 2550 | 52.7 | 14.6 | 2.07 | 52.6 | 2.09 | 0.2 -1.0 |
| 2600 | 52.6 | 14.7 | 2.12 | 52.5 | 2.16 | 0.2 -1.9 |



| | | | | | | | |
|------|------|------|------|------|------|------|------|
| 3500 | 51.1 | 15.5 | 3.02 | 51.3 | 3.31 | -0.4 | -8.8 |
| 3700 | 50.8 | 15.7 | 3.24 | 51.1 | 3.55 | -0.5 | -8.8 |
| 5200 | 48.1 | 18.2 | 5.27 | 49.0 | 5.30 | -1.8 | -0.6 |
| 5250 | 48.0 | 18.3 | 5.34 | 49.0 | 5.36 | -1.9 | -0.4 |
| 5300 | 47.9 | 18.4 | 5.41 | 48.9 | 5.42 | -2.0 | -0.2 |
| 5500 | 47.5 | 18.6 | 5.70 | 48.6 | 5.65 | -2.2 | 0.8 |
| 5600 | 47.3 | 18.8 | 5.84 | 48.5 | 5.77 | -2.3 | 1.9 |
| 5700 | 47.1 | 18.9 | 5.99 | 48.3 | 5.88 | -2.5 | 1.8 |
| 5800 | 47.0 | 19.0 | 6.14 | 48.2 | 6.00 | -2.6 | 2.3 |

TSL Dielectric Parameters

1

Figure C-2
 600 – 5800 MHz Body Tissue Equivalent Matter

| | | | | | | | | |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------|--|--|--|--|--|-----------------------------------------------|
| FCC ID: BCG-A2096 |  | SAR EVALUATION REPORT | | | | | | Approved by: |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | | | | | | | Quality Manager APPENDIX C: Page 3 of 4 |

Measurement Certificate / Material Test

| | |
|--------------|-------------------------------------------------|
| Item Name | Head Tissue Simulating Liquid (HBBL600-10000V6) |
| Product No. | SL AAH U16 BC (Batch: 181031-2) |
| Manufacturer | SPEAG |

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

Ambient Condition 22°C ; 30% humidity
 TSL Temperature 22°C
 Test Date 31-Oct-18
 Operator CL

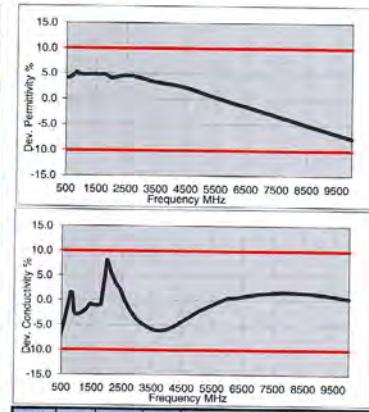
Additional Information

TSL Density

TSL Heat-capacity

Results

| f [MHz] | Measured | | Target | | Diff.to Target [%] | | |
|---------|-------------|--------------|--------|------|--------------------|-------------------|------|
| | ϵ' | ϵ'' | sigma | eps | sigma | $\Delta\epsilon'$ | |
| 800 | 43.8 | 20.5 | 0.91 | 41.7 | 0.90 | 5.1 | 1.4 |
| 825 | 43.8 | 20.1 | 0.92 | 41.6 | 0.91 | 5.3 | 1.5 |
| 835 | 43.8 | 19.9 | 0.93 | 41.5 | 0.91 | 5.4 | 2.0 |
| 850 | 43.7 | 19.7 | 0.93 | 41.5 | 0.92 | 5.3 | 1.5 |
| 900 | 43.5 | 18.9 | 0.95 | 41.5 | 0.97 | 4.8 | -2.1 |
| 1400 | 42.5 | 15.0 | 1.17 | 40.6 | 1.18 | 4.7 | -0.8 |
| 1450 | 42.5 | 14.8 | 1.19 | 40.5 | 1.20 | 4.9 | -0.8 |
| 1600 | 42.2 | 14.3 | 1.27 | 40.3 | 1.28 | 4.7 | -1.1 |
| 1625 | 42.2 | 14.2 | 1.29 | 40.3 | 1.30 | 4.8 | -0.7 |
| 1640 | 42.2 | 14.2 | 1.30 | 40.3 | 1.31 | 4.8 | -0.5 |
| 1650 | 42.1 | 14.2 | 1.30 | 40.2 | 1.31 | 4.6 | -1.0 |
| 1700 | 42.1 | 14.0 | 1.33 | 40.2 | 1.34 | 4.8 | -0.9 |
| 1750 | 42.0 | 13.9 | 1.36 | 40.1 | 1.37 | 4.8 | -0.8 |
| 1800 | 41.9 | 13.9 | 1.39 | 40.0 | 1.40 | 4.7 | -0.7 |
| 1810 | 41.9 | 13.8 | 1.40 | 40.0 | 1.40 | 4.7 | 0.0 |
| 1825 | 41.9 | 13.8 | 1.41 | 40.0 | 1.40 | 4.7 | 0.7 |
| 1850 | 41.8 | 13.8 | 1.42 | 40.0 | 1.40 | 4.5 | 1.4 |
| 1900 | 41.8 | 13.7 | 1.45 | 40.0 | 1.40 | 4.5 | 3.6 |
| 1950 | 41.7 | 13.7 | 1.48 | 40.0 | 1.40 | 4.3 | 5.7 |
| 2000 | 41.6 | 13.6 | 1.51 | 40.0 | 1.40 | 4.0 | 7.9 |
| 2050 | 41.6 | 13.6 | 1.55 | 39.9 | 1.44 | 4.2 | 7.3 |
| 2100 | 41.5 | 13.5 | 1.58 | 39.8 | 1.49 | 4.2 | 6.1 |
| 2150 | 41.4 | 13.5 | 1.62 | 39.7 | 1.53 | 4.2 | 5.7 |
| 2200 | 41.4 | 13.5 | 1.65 | 39.6 | 1.58 | 4.4 | 4.6 |
| 2250 | 41.3 | 13.5 | 1.69 | 39.6 | 1.62 | 4.4 | 4.2 |
| 2300 | 41.2 | 13.5 | 1.73 | 39.5 | 1.67 | 4.4 | 3.2 |
| 2350 | 41.1 | 13.5 | 1.76 | 39.4 | 1.71 | 4.4 | 2.9 |
| 2400 | 41.1 | 13.5 | 1.80 | 39.3 | 1.76 | 4.6 | 2.5 |
| 2450 | 41.0 | 13.5 | 1.84 | 39.2 | 1.80 | 4.6 | 2.2 |
| 2500 | 40.9 | 13.5 | 1.88 | 39.1 | 1.85 | 4.5 | 1.4 |
| 2550 | 40.8 | 13.5 | 1.92 | 39.1 | 1.91 | 4.4 | 0.6 |
| 2600 | 40.8 | 13.6 | 1.96 | 39.0 | 1.96 | 4.6 | -0.2 |
| 3500 | 39.2 | 14.1 | 2.74 | 37.9 | 2.91 | 3.3 | -5.8 |
| 3700 | 38.9 | 14.2 | 2.93 | 37.7 | 3.12 | 3.1 | -6.1 |



TSL Dielectric Parameters

Figure C-3
 600 – 5800 MHz Head Tissue Equivalent Matter

| | | |
|------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: BCG-A2096 |  SAR EVALUATION REPORT | Approved by: Quality Manager |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | APPENDIX C: Page 4 of 4 |

APPENDIX D: SAR SYSTEM VALIDATION

| | | | |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCG-A2096 |  PCTEST Proud to be part of Element | SAR EVALUATION REPORT | Approved by: Quality Manager |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | | APPENDIX D: Page 1 of 2 |

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

Table D-1
SAR System Validation Summary – 1g

| SAR System | Freq. (MHz) | Date | Probe SN | Probe Cal Point | | Cond. (σ) | Perm. (ϵ_r) | CW VALIDATION | | | MOD. VALIDATION | | |
|------------|-------------|-----------|----------|-----------------|------|--------------------|------------------------|---------------|-----------------|----------------|-----------------|-------------|------|
| | | | | | | | | SENSITIVITY | PROBE LINEARITY | PROBE ISOTROPY | MOD. TYPE | DUTY FACTOR | PAR |
| AM6 | 2450 | 3/10/2020 | 3837 | 2450 | Head | 1.846 | 39.91 | PASS | PASS | PASS | OFDM/TDD | PASS | PASS |

Table D-2
SAR System Validation Summary – 10g

| SAR System | Freq. (MHz) | Date | Probe SN | Probe Cal Point | | Cond. (σ) | Perm. (ϵ_r) | CW VALIDATION | | | MOD. VALIDATION | | |
|------------|-------------|----------|----------|-----------------|------|--------------------|------------------------|---------------|-----------------|----------------|-----------------|-------------|------|
| | | | | | | | | SENSITIVITY | PROBE LINEARITY | PROBE ISOTROPY | MOD. TYPE | DUTY FACTOR | PAR |
| AM5 | 2450 | 7/6/2020 | 7416 | 2450 | Body | 1.996 | 51.99 | PASS | PASS | PASS | OFDM/TDD | PASS | PASS |

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 86.5664 D01v01r04

| | | | |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------|
| FCC ID: BCG-A2096 |  PCTEST Proud to be part of Element | SAR EVALUATION REPORT | Approved by: Quality Manager |
| Test Dates: 8/27/2020-9/17/2020 | DUT Type: Wireless Headphones | | APPENDIX D: Page 2 of 2 |