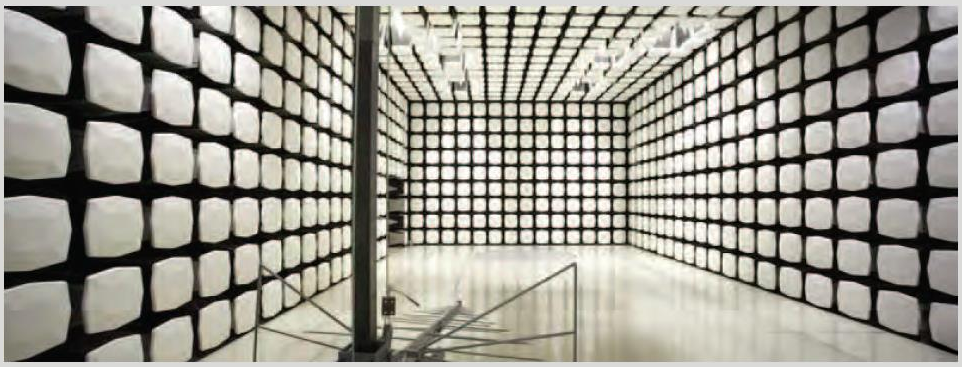
# Starkey Laboratories, Inc.

**BTE 13**

**FCC 15.209:2018**
**NFMI**

**Report # STAK0123.3**



NVLAP LAB CODE: 200881-0

# CERTIFICATE OF TEST

**Last Date of Test: June 11, 2018**
**Starkey Laboratories, Inc.**
**Model: BTE 13**

## Radio Equipment Testing

### Standards

| Specification | Method |
|---|---|
| FCC 15.209:2018 | ANSI C63.10:2013 |

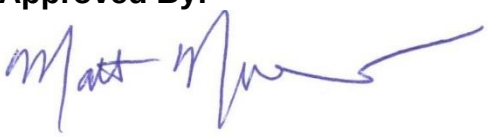
### Results

| Method Clause | Test Description | Applied | Results | Comments |
|---|---|---|---|---|
| 6.2 | Powerline Conducted Emissions | No | N/A | Not required for battery operated device. |
| 6.4 | Field Strength of Fundamental | Yes | Pass | |
| 6.4, 6.5 | Spurious Radiated Emissions | Yes | Pass | |

### Deviations From Test Standards

None

### Approved By:



*Matt Nuernberg, Operations Manager*

***Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.***

# REVISION HISTORY

| Revision Number | Description | Date | Page Number |
|---|---|---|---|
| 00 | None | | |

# ACCREDITATIONS AND AUTHORIZATIONS

## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

## Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

## European Union

**European Commission** – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

## Korea

**MSIT / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

## Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

## Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

## Vietnam

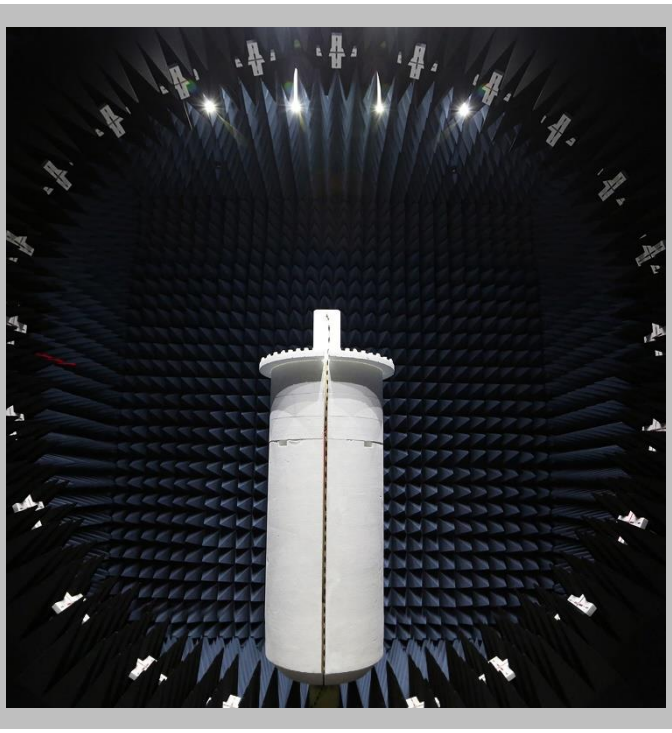
**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

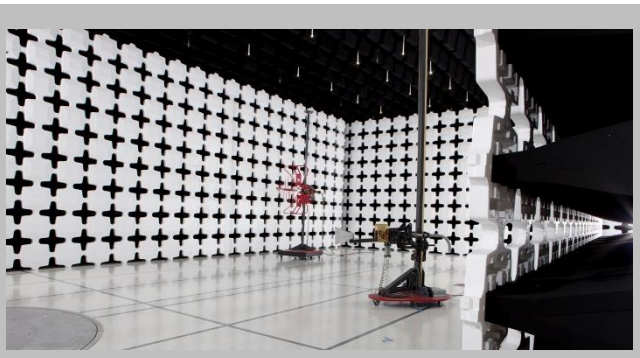
# SCOPE

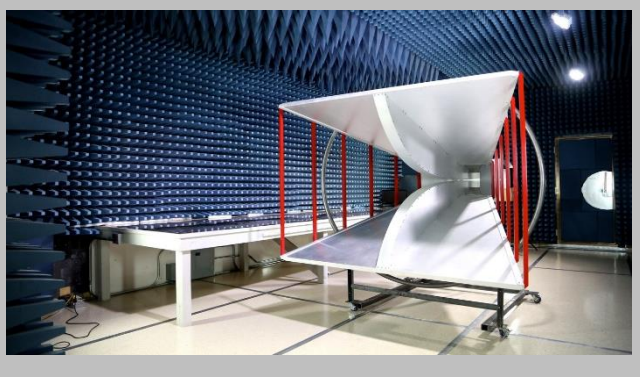
For details on the Scopes of our Accreditations, please visit:
http://portlandcustomer.element.com/ts/scope/scope.htm
http://gsi.nist.gov/global/docs/cabs/designations.html

# FACILITIES

| California | Minnesota | New York | Oregon | Texas | Washington |
|---|---|---|---|---|---|
| Labs OC01-17<br>41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918 | Labs MN01-10<br>9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612)-638-5136 | Labs NY01-04<br>4939 Jordan Rd.<br>Elbridge, NY 13060<br>(315) 554-8214 | Labs EV01-12<br>6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | Labs TX01-09<br>3801 E Plano Pkwy<br>Plano, TX 75074<br>(469) 304-5255 | Labs NC01-05<br>19201 120th Ave NE<br>Bothell, WA 98011<br>(425)984-6600 |
| **NVLAP** | | | | | |
| NVLAP Lab Code: 200676-0 | NVLAP Lab Code: 200881-0 | NVLAP Lab Code: 200761-0 | NVLAP Lab Code: 200630-0 | NVLAP Lab Code:201049-0 | NVLAP Lab Code: 200629-0 |
| **Innovation, Science and Economic Development Canada** | | | | | |
| 2834B-1, 2834B-3 | 2834E-1, 2834E-3 | N/A | 2834D-1, 2834D-*2* | 2834G-1 | 2834F-1 |
| **BSMI** | | | | | |
| SL2-IN-E-1154R | SL2-IN-E-1152R | N/A | SL2-IN-E-1017 | SL2-IN-E-1158R | SL2-IN-E-1153R |
| **VCCI** | | | | | |
| A-0029 | A-0109 | N/A | A-0108 | A-0201 | A-0110 |
| **Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA** | | | | | |
| US0158 | US0175 | N/A | US0017 | US0191 | US0157 |







# EMISSIONS MEASUREMENTS

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

## Measurement Bandwidths

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

*Measurements were made using the bandwidths and detectors specified. No video filter was used.*

## Sample Calculations

**Radiated Emissions:**

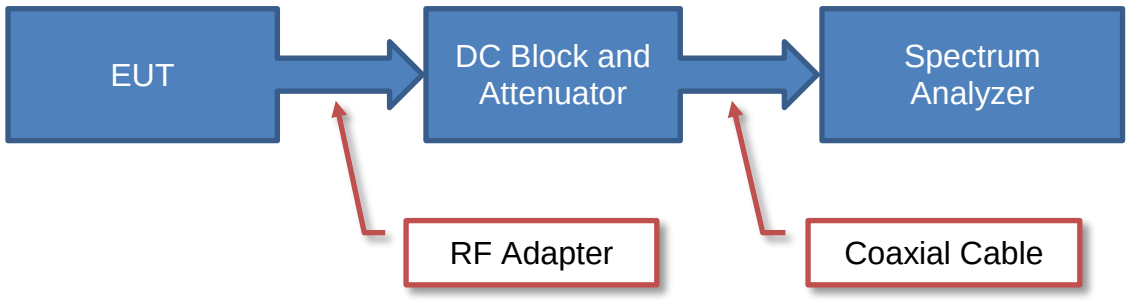
| Field Strength | | Measured Level | | Antenna Factor | | Cable Factor | | Amplifier Gain | | Distance Adjustment Factor | | External Attenuation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **33.5** | = | 42.6 | + | 28.6 | + | 3.1 | - | 40.8 | + | 0.0 | + | 0.0 |

**Conducted Emissions:**

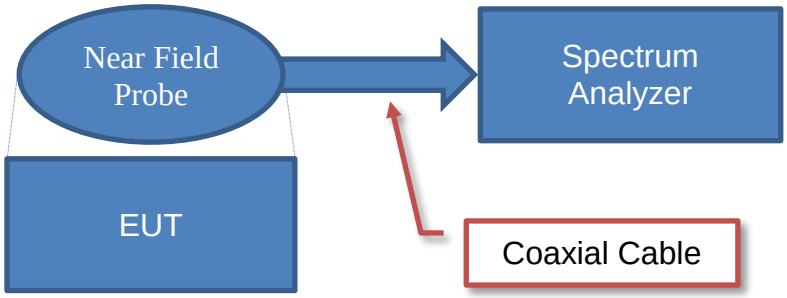
| Adjusted Level | | Measured Level | | Transducer Factor | | Cable Factor | | External Attenuation |
|---|---|---|---|---|---|---|---|---|
| **47.1** | = | 26.7 | + | 0.3 | + | 0.1 | + | 20.0 |

# Test Setup Block Diagrams

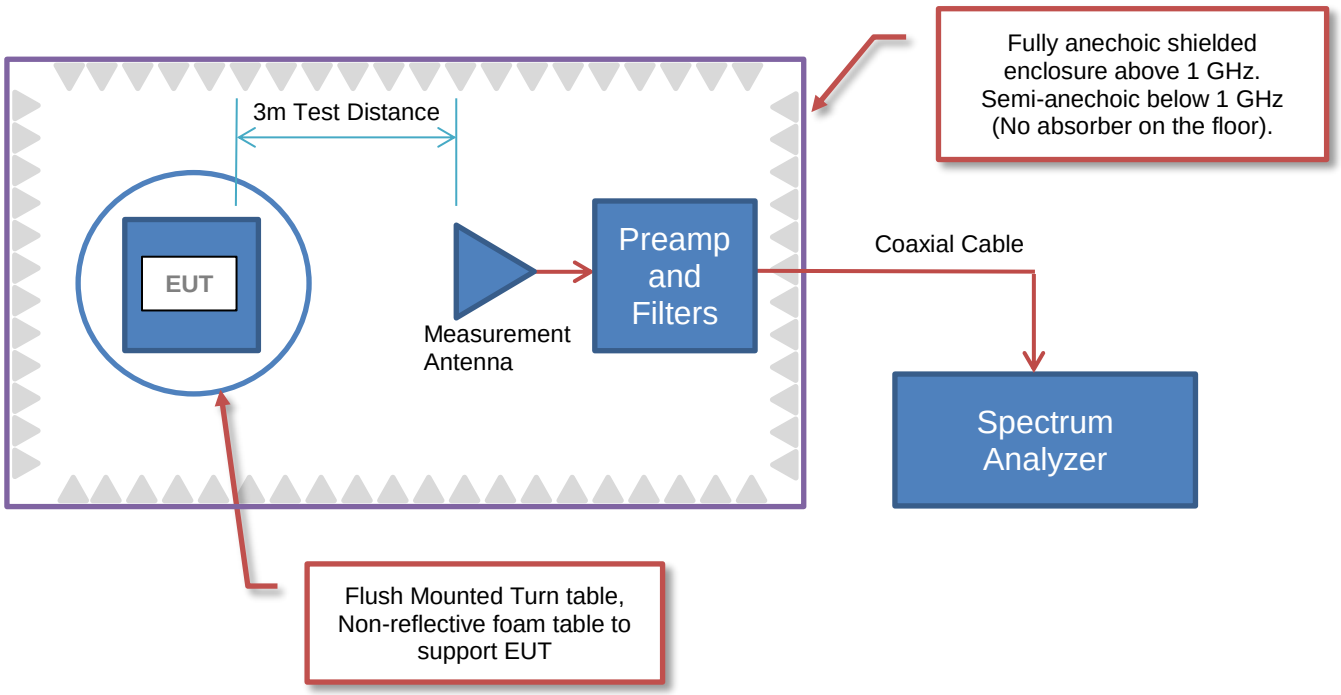
## Antenna Port Conducted Measurements




## Near Field Test Fixture Measurements




## Spurious Radiated Emissions



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

| | |
|---|---|
| **Company Name:** | Starkey Laboratories, Inc. |
| **Address:** | 6600 Washington Ave. SO. |
| **City, State, Zip:** | Eden Prairie, MN 55344 |
| **Test Requested By:** | Bill Mitchell |
| **Model:** | BTE 13 |
| **First Date of Test:** | June 11, 2018 |
| **Last Date of Test:** | June 11, 2018 |
| **Receipt Date of Samples:** | June 11, 2018 |
| **Equipment Design Stage:** | Production |
| **Equipment Condition:** | No Damage |
| **Purchase Authorization:** | Verified |

## Information Provided by the Party Requesting the Test

| **Functional Description of the EUT:** |
|---|
| NFMI radio using near-field communications (NFC) with 1 antenna type. |

| **Testing Objective:** |
|---|
| To demonstrate compliance to FCC Part 15.209 specifications. |

# CONFIGURATIONS

## Configuration STAK0123- 2

| EUT | | | |
|---|---|---|---|
| **Description** | **Manufacturer** | **Model/Part Number** | **Serial Number** |
| Hearing Aid (Rx) | Starkey Laboratories, Inc. | BTE13 | 180913811 |
| Hearing Aid (Tx) | Starkey Laboratories, Inc. | BTE13 | 180913810 |

# MODIFICATIONS

## Equipment Modifications

| Item | Date | Test | Modification | Note | Disposition of EUT |
|---|---|---|---|---|---|
| 1 | 6/11/2018 | Field Strength of Fundamental | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 2 | 6/11/2018 | Spurious Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

# FIELD STRENGTH OF FUNDAMENTAL

PSA-ESCI 2018.03.06

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

**MODES OF OPERATION**

Transmitting NFMI (10.281 MHz) - SN 180913810 streaming to SN 180913811.

**POWER SETTINGS INVESTIGATED**

Battery

**CONFIGURATIONS INVESTIGATED**

STAK0123 - 2

**FREQUENCY RANGE INVESTIGATED**

| | | | |
|---|---|---|---|
| Start Frequency | 490 kHz | Stop Frequency | 30 MHz |

**SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFD | 2-Aug-2017 | 12 mo |
| Cable | ESM Cable Corp. | Bilog Cables | MNH | 9-Nov-2017 | 12 mo |
| Antenna - Loop | ETS Lindgren | 6502 | AOB | 16-May-2017 | 24 mo |

**MEASUREMENT BANDWIDTHS**

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

**TEST DESCRIPTION**

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

The fundamental carrier of the EUT was maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A calibrated active loop antenna was used for this test in order to provide sufficient measurement sensitivity. The center of the loop antenna was maintained at 1m above the ground plane during the testing.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

As outlined in 15.209(e), 15.31(f)(2), and RSS-GEN, 6.4, measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

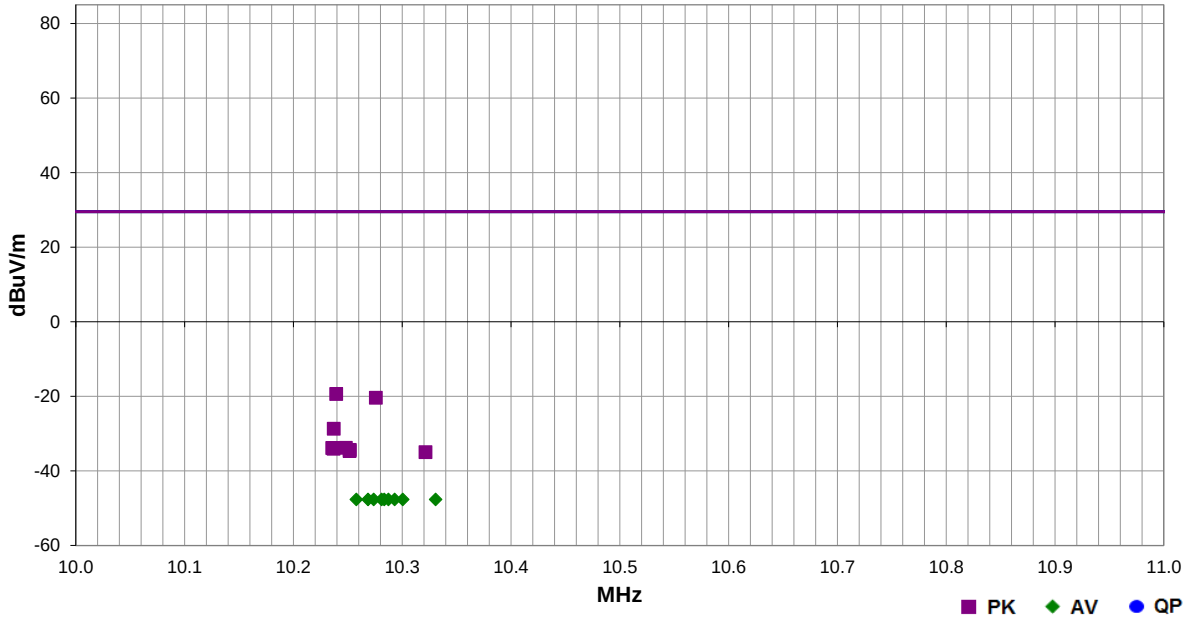
# FIELD STRENGTH OF FUNDAMENTAL

EmiR5 2018.05.07 PSA-ESCI 2018.05.04

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | STAK0123 | **Date:** | 11-Jun-2018 | | |
| **Project:** | None | **Temperature:** | 23.4 °C | | |
| **Job Site:** | MN05 | **Humidity:** | 59.3% RH | | |
| **Serial Number:** | 180913810, 180913811 | **Barometric Pres.:** | 1015 mbar | **Tested by:** | Chris Patterson |
| **EUT:** | BTE 13 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Starkey Laboratories, Inc. | | | | |
| **Attendees:** | Charlie Esch | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting NFMI (10.281 MHz) - SN 180913810 streaming to SN 180913811. | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | None | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| FCC 15.209:2018 | ANSI C63.10:2013 |

| **Run #** | 42 | **Test Distance (m)** | 1 | **Antenna Height(s)** | 1(m) | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.239 | 28.3 | 11.4 | 1.0 | 104.0 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -19.4 | 29.5 | -48.9 | EUT Vert |
| 10.276 | 27.3 | 11.4 | 1.0 | 332.0 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -20.4 | 29.5 | -49.9 | EUT Vert |
| 10.237 | 19.0 | 11.4 | 1.0 | 282.0 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -28.7 | 29.5 | -58.2 | EUT Horz |
| 10.248 | 13.9 | 11.4 | 1.0 | 263.0 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -33.8 | 29.5 | -63.3 | EUT Vert |
| 10.236 | 13.8 | 11.4 | 1.0 | 135.0 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -33.9 | 29.5 | -63.4 | EUT On Side |
| 10.237 | 13.6 | 11.4 | 1.0 | 146.0 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -34.1 | 29.5 | -63.6 | EUT On Side |
| 10.252 | 13.3 | 11.4 | 1.0 | 314.0 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -34.4 | 29.5 | -63.9 | EUT Horz |
| 10.252 | 13.0 | 11.4 | 1.0 | 58.1 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -34.7 | 29.5 | -64.2 | EUT Horz |
| 10.322 | 12.7 | 11.4 | 1.0 | 354.9 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -35.0 | 29.5 | -64.5 | EUT On Side |
| 10.281 | 0.0 | 11.4 | 1.0 | 282.0 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Horz |
| 10.301 | 0.0 | 11.4 | 1.0 | 354.9 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT On Side |
| 10.288 | 0.0 | 11.4 | 1.0 | 332.0 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Vert |
| 10.284 | 0.0 | 11.4 | 1.0 | 104.0 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Vert |
| 10.258 | 0.0 | 11.4 | 1.0 | 146.0 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT On Side |
| 10.293 | 0.0 | 11.4 | 1.0 | 314.0 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Horz |
| 10.269 | 0.0 | 11.4 | 1.0 | 58.1 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Horz |
| 10.274 | 0.0 | 11.4 | 1.0 | 135.0 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT On Side |
| 10.331 | 0.0 | 11.4 | 1.0 | 263.0 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -47.7 | 29.5 | -77.2 | EUT Vert |

# SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2018.05.04

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

**MODES OF OPERATION**

Transmitting at 10.281 MHz

**POWER SETTINGS INVESTIGATED**

Battery

**CONFIGURATIONS INVESTIGATED**

STAK0123 - 2

**FREQUENCY RANGE INVESTIGATED**

| | | | |
|---|---|---|---|
| Start Frequency | 10 kHz | Stop Frequency | 1000 MHz |

**SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

**TEST EQUIPMENT**

| Description | Manufacturer | Model | ID | Last Cal. | Interval |
|---|---|---|---|---|---|
| Analyzer - Spectrum Analyzer | Agilent | E4440A | AFD | 2-Aug-2017 | 12 mo |
| Antenna - Loop | ETS Lindgren | 6502 | AOB | 16-May-2017 | 24 mo |
| Amplifier - Pre-Amplifier | Miteq | AM-1616-1000 | AVO | 9-Nov-2017 | 12 mo |
| Cable | ESM Cable Corp. | Bilog Cables | MNH | 9-Nov-2017 | 12 mo |
| Antenna - Biconilog | Teseq | CBL 6141B | AYD | 25-Jan-2018 | 24 mo |

**MEASUREMENT BANDWIDTHS**

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|---|---|---|---|
| 0.01 - 0.15 | 1.0 | 0.2 | 0.2 |
| 0.15 - 30.0 | 10.0 | 9.0 | 9.0 |
| 30.0 - 1000 | 100.0 | 120.0 | 120.0 |
| Above 1000 | 1000.0 | N/A | 1000.0 |

**TEST DESCRIPTION**

The antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A calibrated active loop antenna was used for this test in order to provide sufficient measurement sensitivity. The center of the loop antenna was maintained at 1m above the ground plane during the testing.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

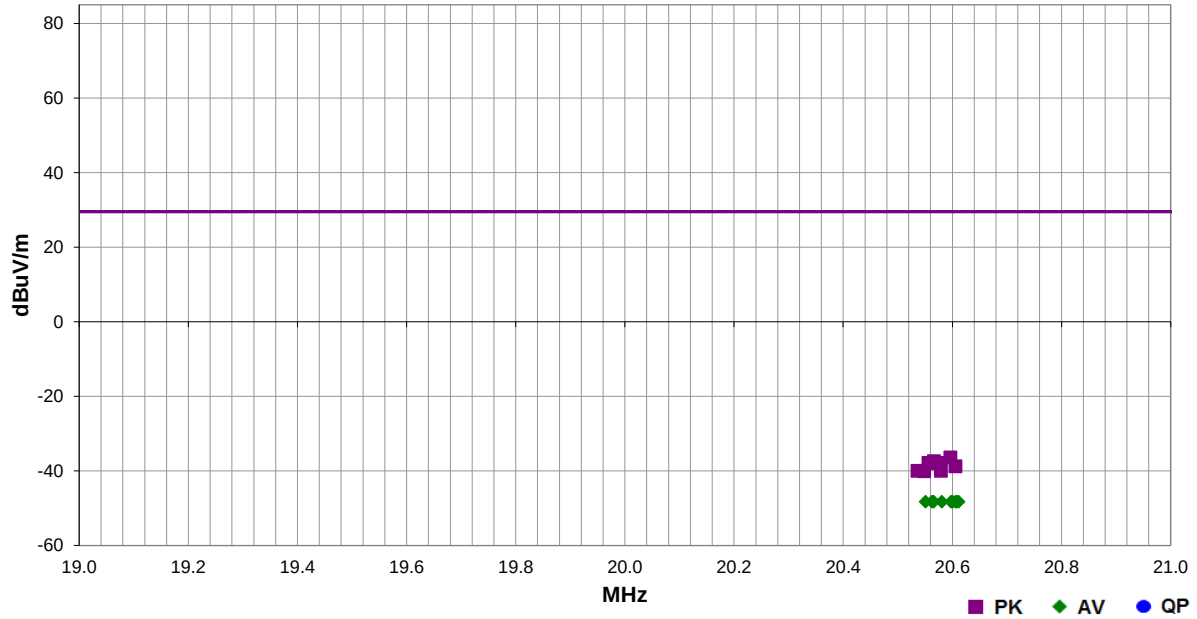
# SPURIOUS RADIATED EMISSIONS

EmiR5 2018.05.07 PSA-ESCI 2018.05.04

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | STAK0123 | **Date:** | 11-Jun-2018 | | |
| **Project:** | None | **Temperature:** | 23.4 °C | | |
| **Job Site:** | MN05 | **Humidity:** | 59.3% RH | | |
| **Serial Number:** | 180913810, 180913811 | **Barometric Pres.:** | 1015 mbar | **Tested by:** | Chris Patterson |
| **EUT:** | BTE 13 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Starkey Laboratories, Inc. | | | | |
| **Attendees:** | Charlie Esch | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting at 10.281 MHz | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | Hearing aid 180913810 transmitting to hearing aid 180913811 at 10.281 MHz. | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| FCC 15.209:2018 | ANSI C63.10:2013 |

| **Run #** | 45 | **Test Distance (m)** | 1 | **Antenna Height(s)** | 1(m) | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.596 | 11.9 | 10.8 | 1.0 | 133.0 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -36.4 | 29.5 | -65.9 | EUT Horz |
| 20.566 | 10.9 | 10.8 | 1.0 | 1.1 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -37.4 | 29.5 | -66.9 | EUT Horz |
| 20.572 | 10.4 | 10.8 | 1.0 | 160.1 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -37.9 | 29.5 | -67.4 | EUT On Side |
| 20.556 | 10.4 | 10.8 | 1.0 | 93.0 | 1.0 | 0.0 | Para to GND | PK | -59.1 | -37.9 | 29.5 | -67.4 | EUT Vert |
| 20.561 | 10.3 | 10.8 | 1.0 | 340.0 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -38.0 | 29.5 | -67.5 | EUT On Side |
| 20.606 | 9.5 | 10.8 | 1.0 | 228.1 | 1.0 | 0.0 | Perp to EUT | PK | -59.1 | -38.8 | 29.5 | -68.3 | EUT Vert |
| 20.579 | 8.3 | 10.8 | 1.0 | 120.1 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -40.0 | 29.5 | -69.5 | EUT Horz |
| 20.536 | 8.3 | 10.8 | 1.0 | 121.0 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -40.0 | 29.5 | -69.5 | EUT Vert |
| 20.548 | 8.2 | 10.8 | 1.0 | 325.9 | 1.0 | 0.0 | Para to EUT | PK | -59.1 | -40.1 | 29.5 | -69.6 | EUT On Side |
| 20.608 | 0.0 | 10.8 | 1.0 | 133.0 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Horz |
| 20.612 | 0.0 | 10.8 | 1.0 | 160.1 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT On Side |
| 20.606 | 0.0 | 10.8 | 1.0 | 93.0 | 1.0 | 0.0 | Para to GND | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Vert |
| 20.601 | 0.0 | 10.8 | 1.0 | 228.1 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Vert |
| 20.551 | 0.0 | 10.8 | 1.0 | 1.1 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Horz |
| 20.598 | 0.0 | 10.8 | 1.0 | 340.0 | 1.0 | 0.0 | Perp to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT On Side |
| 20.563 | 0.0 | 10.8 | 1.0 | 325.9 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT On Side |
| 20.566 | 0.0 | 10.8 | 1.0 | 120.1 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Horz |
| 20.581 | 0.0 | 10.8 | 1.0 | 121.0 | 1.0 | 0.0 | Para to EUT | AV | -59.1 | -48.3 | 29.5 | -77.8 | EUT Vert |

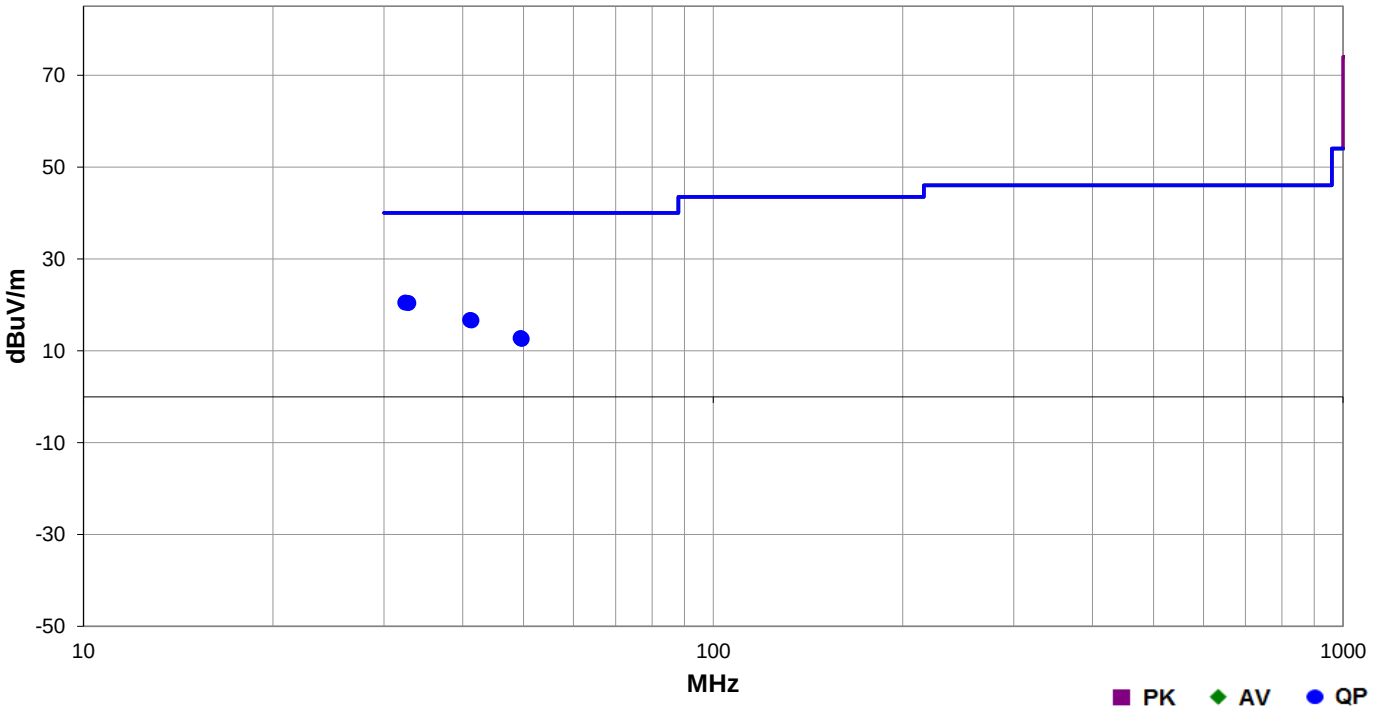
# SPURIOUS RADIATED EMISSIONS

EmiR5 2018.05.07 PSA-ESCI 2018.05.04

| | | | | | |
|---|---|---|---|---|---|
| **Work Order:** | STAK0123 | **Date:** | 11-Jun-2018 | | |
| **Project:** | None | **Temperature:** | 23.4 °C | | |
| **Job Site:** | MN05 | **Humidity:** | 59.3% RH | | |
| **Serial Number:** | 180913810, 180913811 | **Barometric Pres.:** | 1015 mbar | **Tested by:** | Chris Patterson |
| **EUT:** | BTE 13 | | | | |
| **Configuration:** | 2 | | | | |
| **Customer:** | Starkey Laboratories, Inc. | | | | |
| **Attendees:** | Charlie Esch | | | | |
| **EUT Power:** | Battery | | | | |
| **Operating Mode:** | Transmitting at 10.281 MHz | | | | |
| **Deviations:** | None | | | | |
| **Comments:** | Hearing aid 180913810 transmitting to hearing aid 180913811 at 10.281 MHz. | | | | |

| **Test Specifications** | **Test Method** |
|---|---|
| FCC 15.209:2018 | ANSI C63.10:2013 |

| **Run #** | 46 | **Test Distance (m)** | 3 | **Antenna Height(s)** | 1 to 4(m) | **Results** | Pass |
|---|---|---|---|---|---|---|---|




| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32.427 | 16.2 | 4.3 | 2.9 | 170.1 | 3.0 | 0.0 | Vert | QP | 0.0 | 20.5 | 40.0 | -19.5 |
| 32.809 | 16.3 | 4.1 | 1.0 | 63.0 | 3.0 | 0.0 | Horz | QP | 0.0 | 20.4 | 40.0 | -19.6 |
| 41.105 | 16.5 | 0.2 | 1.0 | 279.9 | 3.0 | 0.0 | Horz | QP | 0.0 | 16.7 | 40.0 | -23.3 |
| 41.299 | 16.4 | 0.2 | 1.0 | 129.0 | 3.0 | 0.0 | Vert | QP | 0.0 | 16.6 | 40.0 | -23.4 |
| 49.453 | 16.3 | -3.5 | 1.8 | 257.0 | 3.0 | 0.0 | Vert | QP | 0.0 | 12.8 | 40.0 | -27.2 |
| 49.644 | 16.2 | -3.6 | 1.0 | 300.0 | 3.0 | 0.0 | Horz | QP | 0.0 | 12.6 | 40.0 | -27.4 |