

NORTHWEST EMC

Centrica Connected Home Ltd

FCC_Test_MOT001

FCC_Test_DWS#1

Report # ELEM0006



NVLAP Lab Code: 201049-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety

CERTIFICATE OF TEST

Last Date of Test: September 22, 2016
Centrica Connected Home Ltd
Models: FCC_Test_MOT001; FCC_Test_DWS#1

Emissions

Standards

| Specification | Method |
|----------------------------|-----------------|
| FCC 15.109:2016 Class B | ANSI C63.4:2014 |
| FCC 15.109(g):2016 Class B | |

Results

| Test Description | Applied | Results | Comments |
|-----------------------------------|---------|---------|----------|
| Radiated Emissions | Yes | Pass | |
| Radiated Emissions High Frequency | Yes | Pass | |

Deviations From Test Standards

None

Approved By:



Jeremiah Darden, 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 Northwest EMC 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 – Validated by the European Commission as a Notified Body under the R&TTE Directive.

Australia/New Zealand

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

Korea

MSIP / 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://www.nwemc.com/accreditations/>
<http://gsi.nist.gov/global/docs/cabs/designations.html>

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

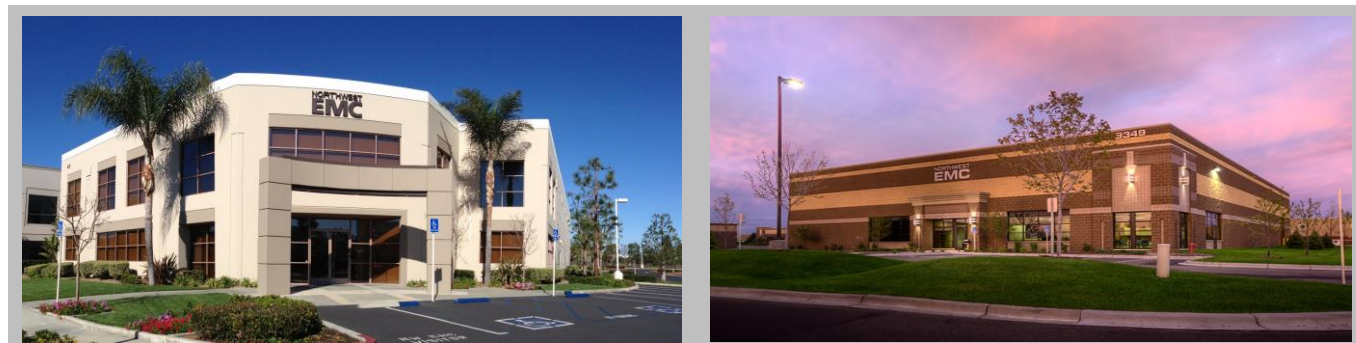
Radiated Emissions:

| 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 |

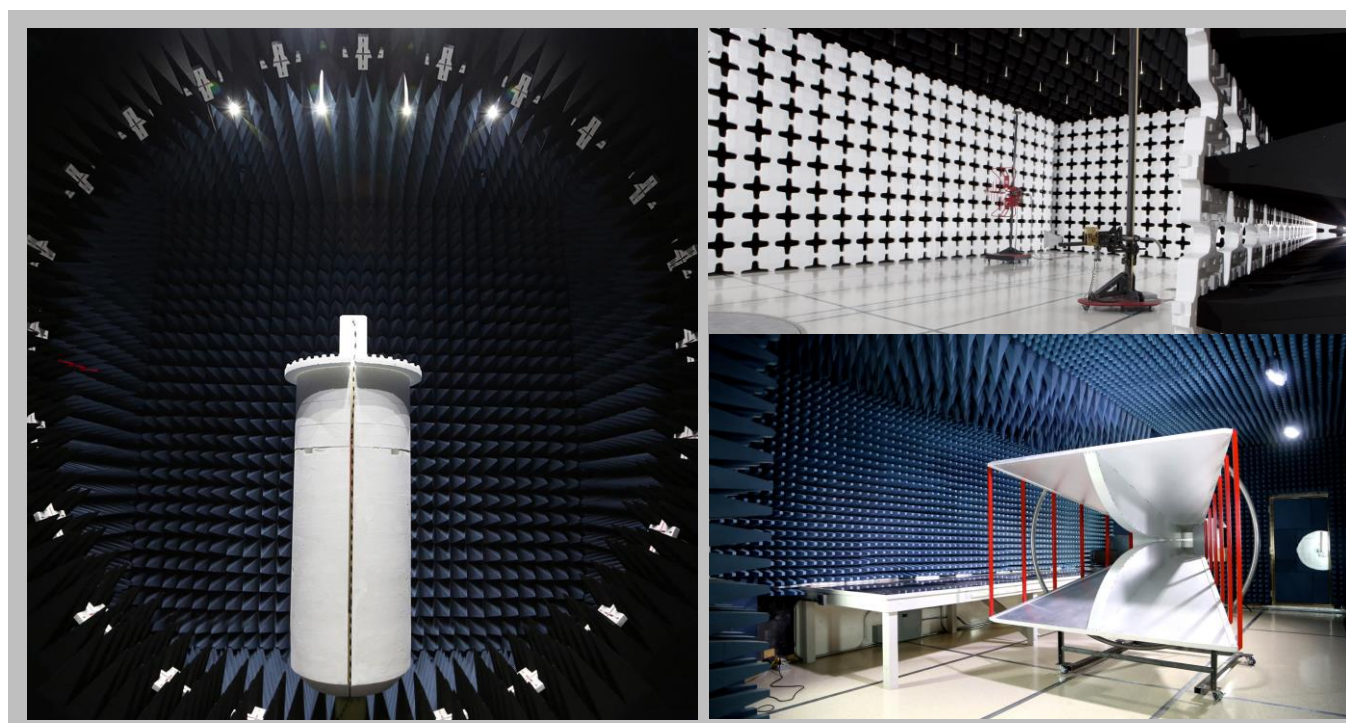
Conducted Emissions:

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

FACILITIES



| | | | | | |
|---|---|--|---|--|---|
| California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918 | Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136 | New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214 | Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066 | Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255 | Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (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 | 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/RRR, MIC, MOC, NCC, OFCA | | | | | |
| US0158 | US0175 | N/A | US0017 | US0191 | US0157 |



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

| | |
|--------------------------|----------------------------------|
| Company Name: | Centrica Connected Home Ltd |
| Address: | 30 Station Road |
| City, State, Zip: | Cambridge CB1 2RE United Kingdom |
| Test Requested By: | Alex Toohie |
| Models: | FCC_Test_MOT001; FCC_Test_DWS#1 |
| First Date of Test: | September 22, 2016 |
| Last Date of Test: | September 22, 2016 |
| Receipt Date of Samples: | September 12, 2016 |
| Equipment Design Stage: | Prototype |
| Equipment Condition: | No Damage |

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

Contact sensor and motion sensor, each containing the following common features: small battery powered device powered by a single CR123A primary battery (user-replaceable), ZigBee radio using Channels 11 to 25 in the 2.4GHz ISM band (2MHz bandwidth, 5MHz channel spacing), internal wire antenna, and maximum Tx power + 5dBm.

Highest frequency generated or used in the device:

Assumes > 108 MHz and < 3.6 GHz

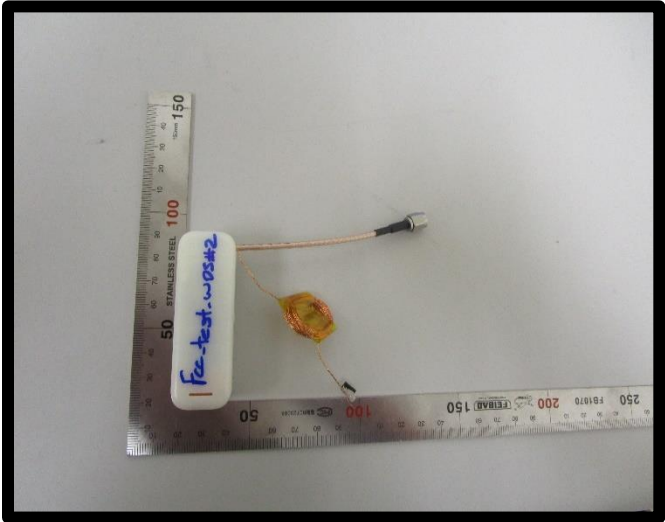
Testing Objective:

Provide the specific EMC testing requested by the customer.

EUT Photo



PRODUCT DESCRIPTION



CONFIGURATIONS

Configuration ELEM0006- 5

| EUT | | | |
|--------------|-----------------------------|-------------------|---------------|
| Description | Manufacturer | Model/Part Number | Serial Number |
| Zigbee Radio | Centrica Connected Home Ltd | FCC_Test_MOT001 | None |

Configuration ELEM0006- 6

| EUT | | | |
|--------------|-----------------------------|-------------------|---------------|
| Description | Manufacturer | Model/Part Number | Serial Number |
| Zigbee Radio | Centrica Connected Home Ltd | FCC_Test_DWS#1 | None |

MODIFICATIONS

Equipment Modifications

| Item | Date | Test | Modification | Note | Disposition of EUT |
|------|-----------|-----------------------------------|--------------------------------------|---|---|
| 1 | 9/22/2016 | Radiated Emissions | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Northwest EMC following the test. |
| 2 | 9/22/2016 | Radiated Emissions High Frequency | Tested as delivered to Test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed. |

RADIATED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT. Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters (from antenna to boundary of EUT). At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

The EUT arrangement is configured as equivalent to that occurring in normal use. Tabletop equipment is placed on a 0.8 meter high non-conductive table & for Floor-standing equipment, it is placed on, but insulated from a ground reference plane by the use of its own rollers or stand-off supports. If measurements above 1 GHz were required, the test setup was modified to meet the regulatory requirements for higher frequency measurements. If required, RF absorber was placed on the floor between the measurement antenna and EUT. If required, per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables.

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.

The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|------------------------------|---------------|----------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent | N9010A | AFL | 10/29/2015 | 10/29/2016 |
| Antenna - Biconilog | ETS Lindgren | 3143B | AYF | 4/13/2016 | 4/13/2018 |
| Cable | Northwest EMC | RE 9kHz - 1GHz | TXB | 5/31/2016 | 5/31/2017 |
| Amplifier - Pre-Amplifier | Miteq | AM-1551 | PAH | 9/12/2016 | 9/12/2017 |

MEASUREMENT UNCERTAINTY

| Description | | |
|--------------|--------|---------|
| Expanded k=2 | 3.3 dB | -3.3 dB |

FREQUENCY RANGE INVESTIGATED

30 MHz TO 1000 MHz

POWER INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

ELEM0006-5
ELEM0006-6

MODES INVESTIGATED

Standby Mode

RADIATED EMISSIONS

| | | | |
|-------------------|-----------------------------|--------------------|------------|
| EUT: | FCC_Test_MOT001 | Work Order: | ELEM0006 |
| Serial Number: | None | Date: | 09/22/2016 |
| Customer: | Centrica Connected Home Ltd | Temperature: | 23.7°C |
| Attendees: | None | Relative Humidity: | 45% |
| Customer Project: | None | Bar. Pressure: | 1019 mb |
| Tested By: | Jonathan Kiefer | Job Site: | TX02 |
| Power: | Battery | Configuration: | ELEM0006-5 |

TEST SPECIFICATIONS

| | |
|----------------------------------|-----------------|
| Specification: Equipment Class B | Method: |
| FCC 15.109(g):2016 | ANSI C63.4:2014 |

TEST PARAMETERS

| | | | | | |
|--------|-----|--------------------|----|---------------------|-----------|
| Run #: | 115 | Test Distance (m): | 10 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|----|---------------------|-----------|

COMMENTS

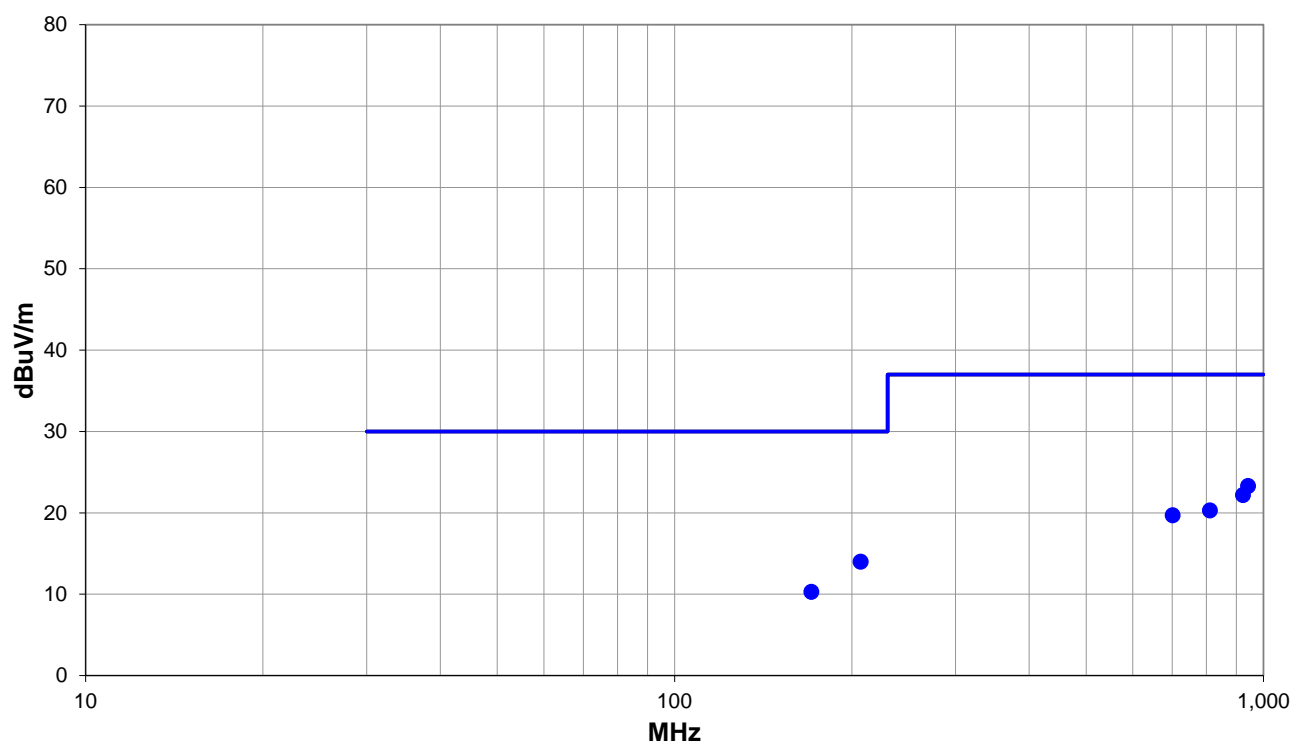
QP data. EUT Horizontal. Unintentional setup.

EUT OPERATING MODES

Standby Mode

DEVIATIONS FROM TEST STANDARD

None



Run #: 115

■ PK ◆ AV ● QP

RADIATED EMISSIONS

RESULTS - Run #115

| Freq (MHz) | Amp. (dBuV) | Factor (dB) | Ant. Height (m) | Azimuth (deg.) | Test Dist. (m) | Ext. Atten. (dB) | Polar. Trans. Type | Detect. | Dist. Adjust. (dB) | Adj. (dBuV/m) | Spec. Limit (dBuV/m) | Margin. (dB) |
|---------------|----------------|----------------|-----------------------|-------------------|----------------------|------------------------|--------------------------|---------|--------------------------|------------------|----------------------------|-----------------|
| 941.562 | 32.1 | -8.8 | 2.0 | 262.9 | 10.0 | 0.0 | Vert | QP | 0.0 | 23.3 | 37.0 | -13.7 |
| 923.220 | 32.2 | -10.0 | 1.5 | 249.9 | 10.0 | 0.0 | Vert | QP | 0.0 | 22.2 | 37.0 | -14.8 |
| 207.023 | 41.4 | -27.4 | 3.2 | 117.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 14.0 | 30.0 | -16.0 |
| 811.188 | 32.4 | -12.1 | 2.8 | 75.9 | 10.0 | 0.0 | Horz | QP | 0.0 | 20.3 | 37.0 | -16.7 |
| 701.340 | 32.7 | -13.0 | 3.7 | 33.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 19.7 | 37.0 | -17.3 |
| 170.737 | 38.5 | -28.2 | 3.5 | 120.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 10.3 | 30.0 | -19.7 |

CONCLUSION

Pass



Tested By

RADIATED EMISSIONS

| | | | |
|-------------------|-----------------------------|--------------------|------------|
| EUT: | FCC_Test_DWS#1 | Work Order: | ELEM0006 |
| Serial Number: | None | Date: | 09/22/2016 |
| Customer: | Centrica Connected Home Ltd | Temperature: | 23.7°C |
| Attendees: | None | Relative Humidity: | 45% |
| Customer Project: | None | Bar. Pressure: | 1019 mb |
| Tested By: | Jonathan Kiefer | Job Site: | TX02 |
| Power: | Battery | Configuration: | ELEM0006-6 |

TEST SPECIFICATIONS

| | |
|----------------------------------|-----------------|
| Specification: Equipment Class B | Method: |
| FCC 15.109(g):2016 | ANSI C63.4:2014 |

TEST PARAMETERS

| | | | | | |
|--------|-----|--------------------|----|---------------------|-----------|
| Run #: | 116 | Test Distance (m): | 10 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|----|---------------------|-----------|

COMMENTS

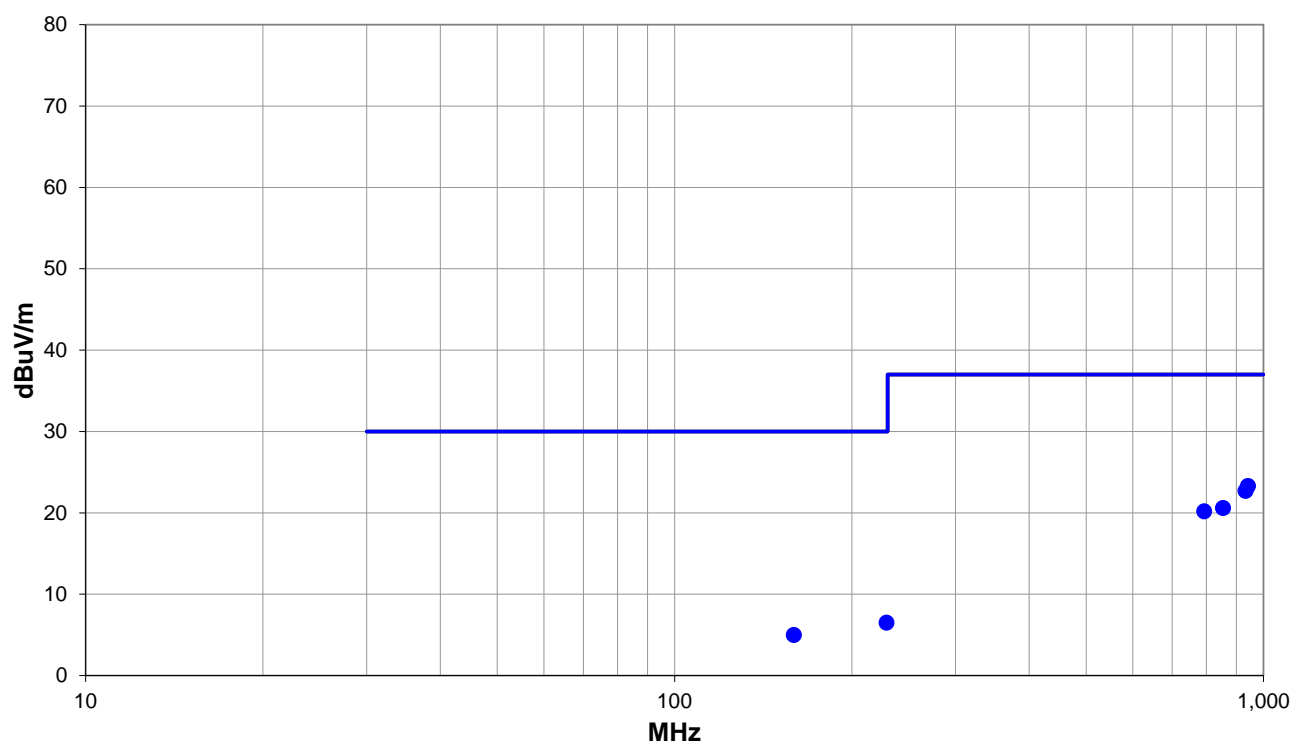
QP data. EUT Horizontal. Unintentional setup.

EUT OPERATING MODES

Standby Mode

DEVIATIONS FROM TEST STANDARD

None



Run #: 116

■ PK ◆ AV ● QP

RADIATED EMISSIONS

RESULTS - Run #116

| Freq (MHz) | Amp. (dBuV) | Factor (dB) | Ant. Height (m) | Azimuth (deg.) | Test Dist. (m) | Ext. Atten. (dB) | Polar. Trans. Type | Detect. | Dist. Adjust. (dB) | Adj. (dBuV/m) | Spec. Limit (dBuV/m) | Margin. (dB) |
|---------------|----------------|----------------|-----------------------|-------------------|----------------------|------------------------|--------------------------|---------|--------------------------|------------------|----------------------------|-----------------|
| 941.081 | 32.1 | -8.8 | 2.8 | 200.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 23.3 | 37.0 | -13.7 |
| 932.283 | 32.0 | -9.3 | 2.0 | 276.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 22.7 | 37.0 | -14.3 |
| 853.717 | 32.3 | -11.7 | 1.0 | 58.9 | 10.0 | 0.0 | Horz | QP | 0.0 | 20.6 | 37.0 | -16.4 |
| 793.140 | 32.4 | -12.2 | 1.0 | 66.0 | 10.0 | 0.0 | Horz | QP | 0.0 | 20.2 | 37.0 | -16.8 |
| 229.074 | 32.8 | -26.3 | 2.0 | 93.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 6.5 | 30.0 | -23.5 |
| 159.433 | 32.7 | -27.7 | 3.8 | 138.0 | 10.0 | 0.0 | Vert | QP | 0.0 | 5.0 | 30.0 | -25.0 |

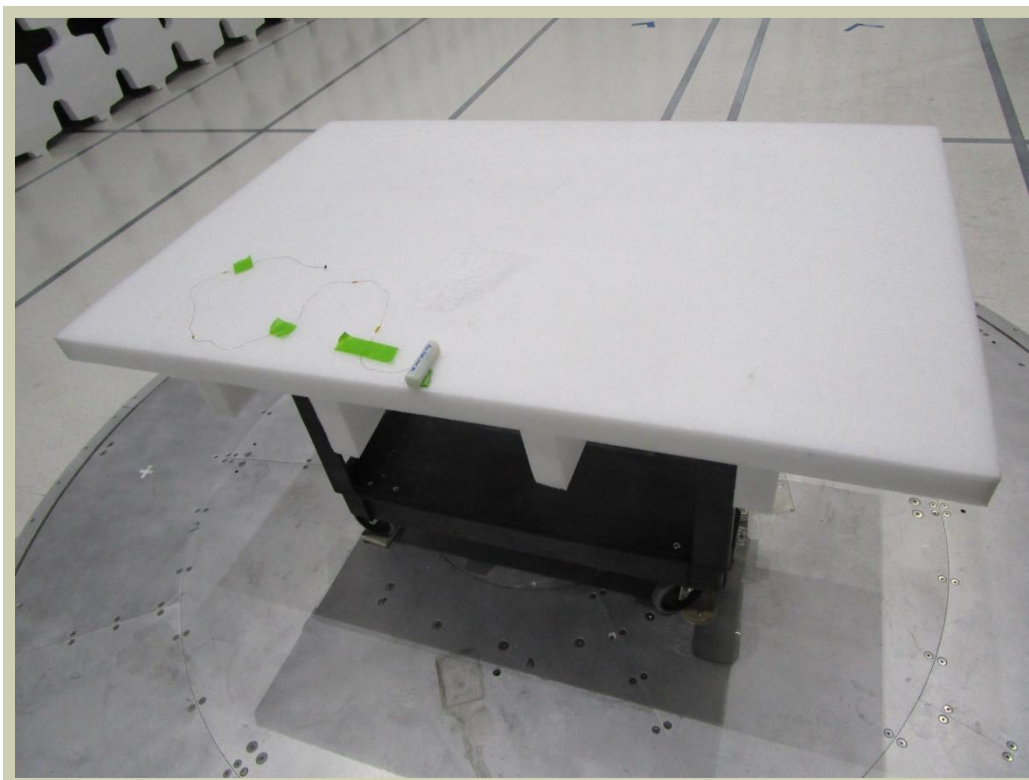
CONCLUSION

Pass

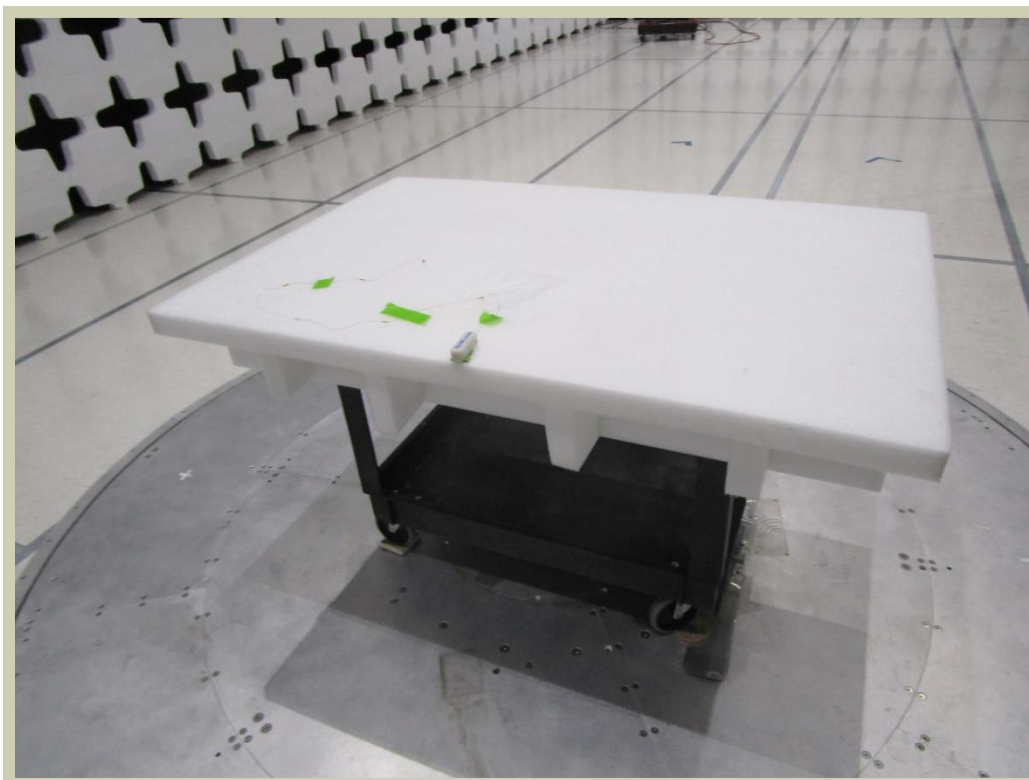


Tested By

RADIATED EMISSIONS



RADIATED EMISSIONS



RADIATED EMISSIONS HIGH FREQUENCY

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT. Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters (from antenna to boundary of EUT). At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

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The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

| Description | Manufacturer | Model | ID | Last Cal. | Cal. Due |
|------------------------------|---------------|------------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent | N9010A | AFL | 10/29/2015 | 10/29/2016 |
| Antenna - Double Ridge | ETS Lindgren | 3115 | AJN | 9/15/2016 | 9/15/2018 |
| Cable | Northwest EMC | 1-8.2 GHz | TXC | 5/31/2016 | 5/31/2017 |
| Amplifier - Pre-Amplifier | Miteq | AMF-3D-00100800-32-13P | PAJ | 5/31/2016 | 5/31/2017 |
| Antenna - Standard Gain | ETS Lindgren | 3160-07 | AJF | NCR | NCR |
| Cable | Northwest EMC | 8-18GHz | TXD | 5/31/2016 | 5/31/2017 |
| Amplifier - Pre-Amplifier | Miteq | AMF-6F-08001200-30-10P | PAK | 10/22/2015 | 10/22/2016 |
| Antenna - Standard Gain | ETS Lindgren | 3160-08 | AJG | NCR | NCR |
| Amplifier - Pre-Amplifier | Miteq | AMF-6F-12001800-30-10P | PAL | 10/22/2015 | 10/22/2016 |

MEASUREMENT UNCERTAINTY

| Description | | |
|--------------|--------|---------|
| Expanded k=2 | 4.9 dB | -4.9 dB |

FREQUENCY RANGE INVESTIGATED

1 GHz TO 18 GHz

POWER INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

ELEM0006-5
ELEM0006-6

RADIATED EMISSIONS HIGH FREQUENCY

MODES INVESTIGATED

Standby Mode

RADIATED EMISSIONS HIGH FREQUENCY

| | | | |
|-------------------|-----------------------------|--------------------|------------|
| EUT: | FCC_Test_DWS#1 | Work Order: | ELEM0006 |
| Serial Number: | None | Date: | 09/22/2016 |
| Customer: | Centrica Connected Home Ltd | Temperature: | 23.7°C |
| Attendees: | None | Relative Humidity: | 45% |
| Customer Project: | None | Bar. Pressure: | 1019 mb |
| Tested By: | Jonathan Kiefer | Job Site: | TX02 |
| Power: | Battery | Configuration: | ELEM0006-6 |

TEST SPECIFICATIONS

| | |
|----------------------------------|-----------------|
| Specification: Equipment Class B | Method: |
| FCC 15.109:2016 | ANSI C63.4:2014 |

TEST PARAMETERS

| | | | | | |
|--------|-----|--------------------|---|---------------------|-----------|
| Run #: | 117 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|---|---------------------|-----------|

COMMENTS

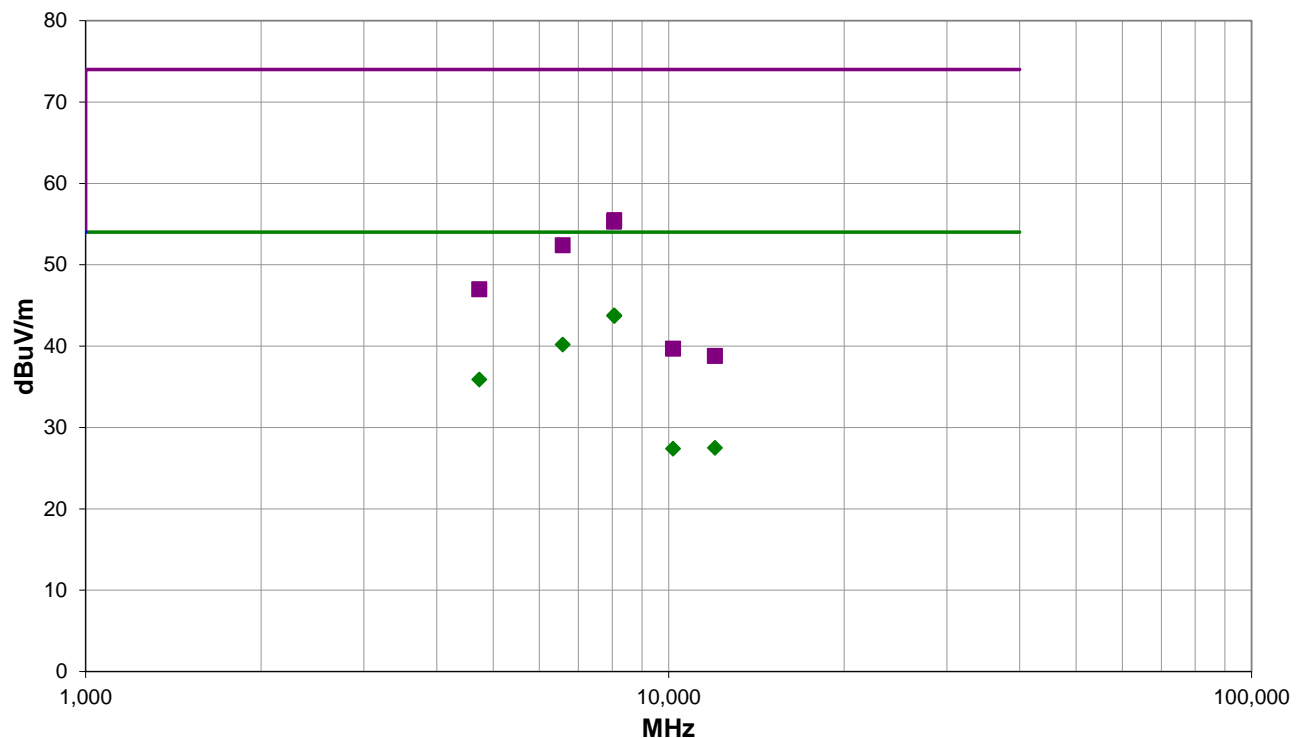
PK and AVG(RMS) data. EUT Horizontal. Unintentional setup.

EUT OPERATING MODES

Standby Mode

DEVIATIONS FROM TEST STANDARD

None



Run #: 117

■ PK ◆ AV ● QP

RADIATED EMISSIONS HIGH FREQUENCY

RESULTS - Run #117

| Freq (MHz) | Amp. (dBuV) | Factor (dB) | Ant. Height (m) | Azimuth (deg.) | Test Dist. (m) | Ext. Atten. (dB) | Polar. Trans. Type | Detect. | Dist. Adjust. (dB) | Adj. (dBuV/m) | Spec. Limit (dBuV/m) | Margin. (dB) |
|---------------|----------------|----------------|-----------------------|-------------------|----------------------|------------------------|--------------------------|---------|--------------------------|------------------|----------------------------|-----------------|
| 8063.050 | 28.3 | 15.5 | 1.2 | 123.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 43.8 | 54.0 | -10.2 |
| 8066.783 | 28.2 | 15.5 | 1.2 | 190.9 | 3.0 | 0.0 | Horz | AV | 0.0 | 43.7 | 54.0 | -10.3 |
| 6579.392 | 28.0 | 12.2 | 1.2 | 69.9 | 3.0 | 0.0 | Horz | AV | 0.0 | 40.2 | 54.0 | -13.8 |
| 4732.483 | 30.0 | 5.9 | 1.5 | 183.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 35.9 | 54.0 | -18.1 |
| 8065.567 | 40.0 | 15.5 | 1.2 | 190.9 | 3.0 | 0.0 | Horz | PK | 0.0 | 55.5 | 74.0 | -18.5 |
| 8058.800 | 39.7 | 15.6 | 1.2 | 123.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 55.3 | 74.0 | -18.7 |
| 6578.683 | 40.2 | 12.2 | 1.2 | 69.9 | 3.0 | 0.0 | Horz | PK | 0.0 | 52.4 | 74.0 | -21.6 |
| 12005.380 | 29.6 | -2.1 | 1.2 | 262.9 | 3.0 | 0.0 | Vert | AV | 0.0 | 27.5 | 54.0 | -26.5 |
| 10173.330 | 30.4 | -3.0 | 1.2 | 81.9 | 3.0 | 0.0 | Vert | AV | 0.0 | 27.4 | 54.0 | -26.6 |
| 4732.400 | 41.1 | 5.9 | 1.5 | 183.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 47.0 | 74.0 | -27.0 |
| 10170.630 | 42.7 | -3.0 | 1.2 | 81.9 | 3.0 | 0.0 | Vert | PK | 0.0 | 39.7 | 74.0 | -34.3 |
| 12003.460 | 40.9 | -2.1 | 1.2 | 262.9 | 3.0 | 0.0 | Vert | PK | 0.0 | 38.8 | 74.0 | -35.2 |

CONCLUSION

Pass

Jonathan Kiefer

Tested By

RADIATED EMISSIONS HIGH FREQUENCY

| | | | |
|-------------------|-----------------------------|--------------------|------------|
| EUT: | FCC_Test_MOT001 | Work Order: | ELEM0006 |
| Serial Number: | None | Date: | 09/22/2016 |
| Customer: | Centrica Connected Home Ltd | Temperature: | 23.7°C |
| Attendees: | None | Relative Humidity: | 45% |
| Customer Project: | None | Bar. Pressure: | 1019 mb |
| Tested By: | Jonathan Kiefer | Job Site: | TX02 |
| Power: | Battery | Configuration: | ELEM0006-5 |

TEST SPECIFICATIONS

| | |
|----------------------------------|-----------------|
| Specification: Equipment Class B | Method: |
| FCC 15.109:2016 | ANSI C63.4:2014 |

TEST PARAMETERS

| | | | | | |
|--------|-----|--------------------|---|---------------------|-----------|
| Run #: | 121 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|---|---------------------|-----------|

COMMENTS

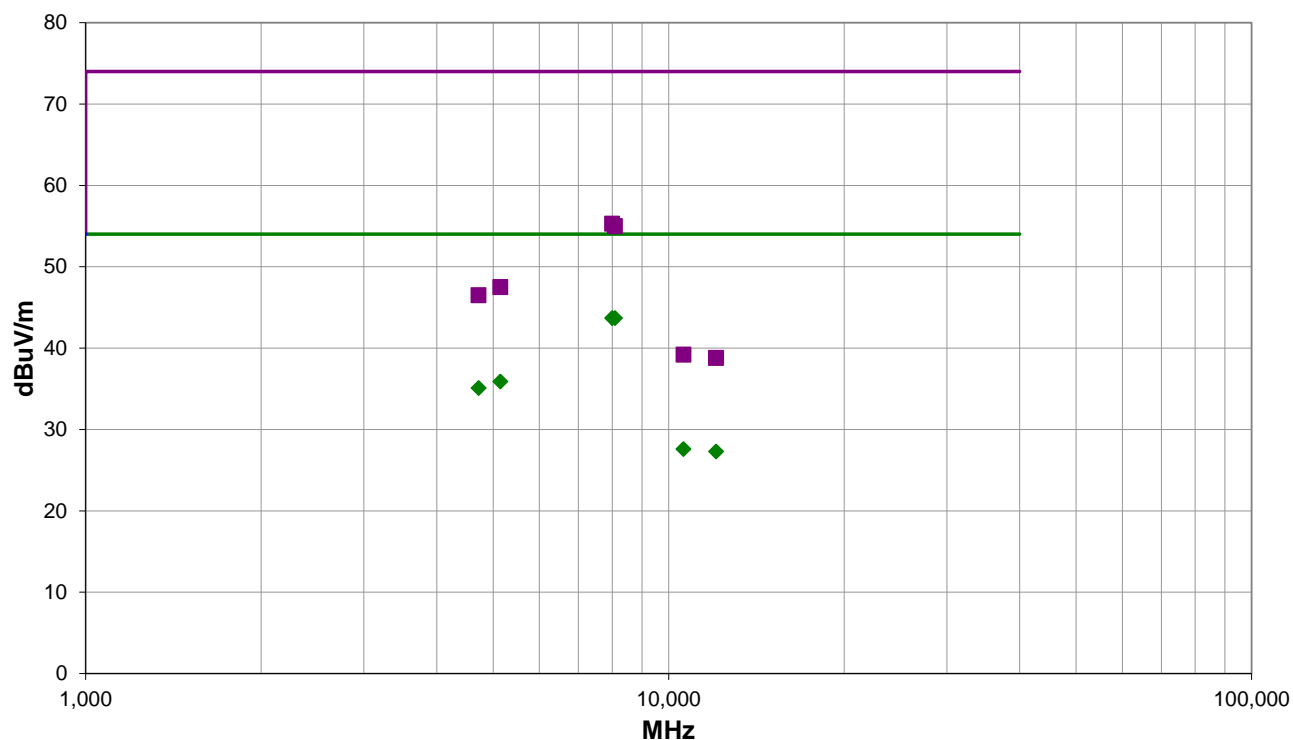
PK and AVG(RMS) data. EUT Horizontal. Unintentional setup.

EUT OPERATING MODES

Standby Mode

DEVIATIONS FROM TEST STANDARD

None



Run #: 121

■ PK ◆ AV ● QP

RADIATED EMISSIONS HIGH FREQUENCY

RESULTS - Run #121

| Freq (MHz) | Amp. (dBuV) | Factor (dB) | Ant. Height (m) | Azimuth (deg.) | Test Dist. (m) | Ext. Atten. (dB) | Polar. Trans. Type | Detect. | Dist. Adjust. (dB) | Adj. (dBuV/m) | Spec. Limit (dBuV/m) | Margin. (dB) |
|---------------|----------------|----------------|-----------------------|-------------------|----------------------|------------------------|--------------------------|---------|--------------------------|------------------|----------------------------|-----------------|
| 8087.233 | 28.2 | 15.5 | 3.8 | 231.9 | 3.0 | 0.0 | Horz | AV | 0.0 | 43.7 | 54.0 | -10.3 |
| 7999.308 | 27.8 | 15.9 | 1.2 | 207.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 43.7 | 54.0 | -10.3 |
| 5142.933 | 28.9 | 7.0 | 3.0 | 309.9 | 3.0 | 0.0 | Vert | AV | 0.0 | 35.9 | 54.0 | -18.1 |
| 7996.317 | 39.4 | 15.9 | 1.2 | 207.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 55.3 | 74.0 | -18.7 |
| 4720.333 | 29.3 | 5.8 | 1.2 | 182.0 | 3.0 | 0.0 | Horz | AV | 0.0 | 35.1 | 54.0 | -18.9 |
| 8087.183 | 39.5 | 15.5 | 3.8 | 231.9 | 3.0 | 0.0 | Horz | PK | 0.0 | 55.0 | 74.0 | -19.0 |
| 10599.460 | 30.5 | -2.9 | 4.0 | 324.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 27.6 | 54.0 | -26.4 |
| 5141.583 | 40.5 | 7.0 | 3.0 | 309.9 | 3.0 | 0.0 | Vert | PK | 0.0 | 47.5 | 74.0 | -26.5 |
| 12059.530 | 29.3 | -2.0 | 1.2 | 300.0 | 3.0 | 0.0 | Vert | AV | 0.0 | 27.3 | 54.0 | -26.7 |
| 4717.425 | 40.7 | 5.8 | 1.2 | 182.0 | 3.0 | 0.0 | Horz | PK | 0.0 | 46.5 | 74.0 | -27.5 |
| 10602.460 | 42.0 | -2.8 | 4.0 | 324.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 39.2 | 74.0 | -34.8 |
| 12056.460 | 40.8 | -2.0 | 1.2 | 300.0 | 3.0 | 0.0 | Vert | PK | 0.0 | 38.8 | 74.0 | -35.2 |

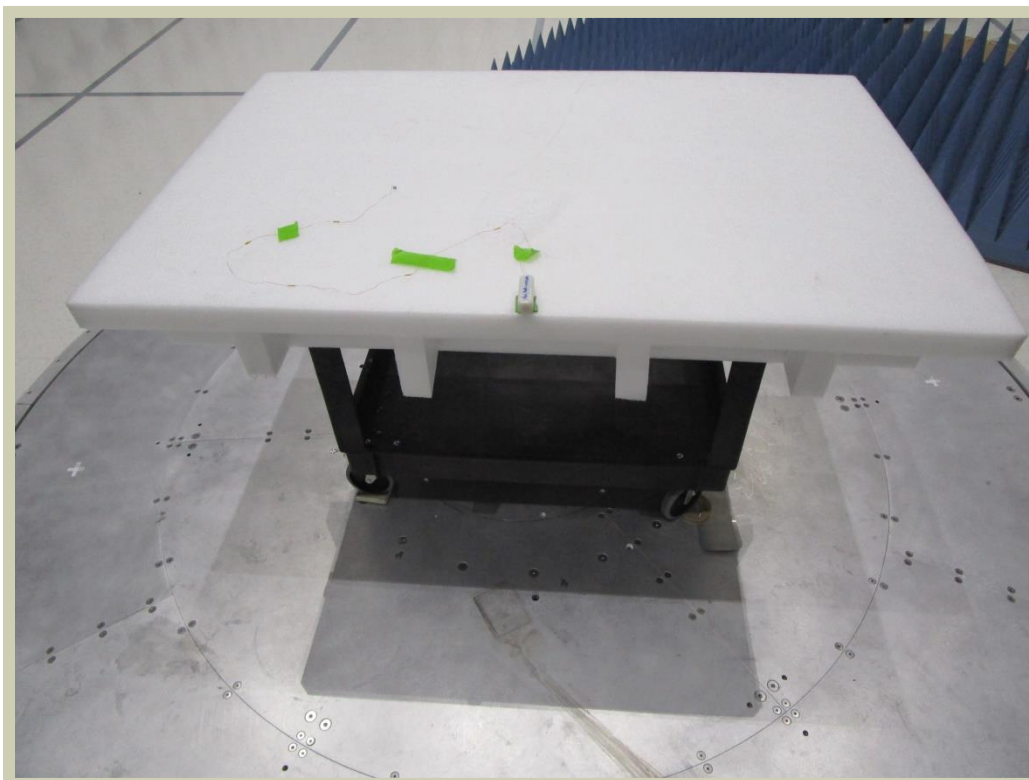
CONCLUSION

Pass

Jonathan Kiefer

Tested By

RADIATED EMISSIONS HIGH FREQUENCY



RADIATED EMISSIONS HIGH FREQUENCY

