



Solutions



**FCC 47 CFR PART 15 SUBPART C
ISED RSS-210 ISSUE 11
ISED RSS-GEN Issue 5**

CERTIFICATION TEST REPORT

For

5000 Series

MODEL NUMBER: HX369LBA, HX369W4A

FCC ID: 2ADZNHX36A

IC: 20109-HX36A

REPORT NUMBER: 4791828790.4.1

ISSUE DATE: July 17, 2025

Prepared for

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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|------|---------------|---------------|------------|
| V0 | July 17, 2025 | Initial Issue | |

Note: This report is based on 4791481978 which is issued by UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch September 19, 2024. The EUT had already applied for the FCC ID: 2ADZNH36A, IC: 20109-HX36A, the customer added the new EUT name, model name and upgraded the standard version to RSS 210 ISSUE 11. The new model HX369LBA and HX369W4A have the same RF technical construction including circuit diagram, PCB Layout, component layout and performance with HX369SR. The difference is minor non-RF boards and circuitry, model number and product description. Therefore, the new model will be reconsidered testing in the EMC part and spot check in RF part from 9kHz-1GHz. For the RF data, please refer to the original report.

| Summary of Test Results | | | |
|-------------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------|
| Clause | Test Items | FCC Rules | Test Results |
| 1 | Transmitter 99% Emission Bandwidth / 20dB Bandwidth | RSS-GEN 6.7 CFR 47 FCC §Part 15.215 (c) | Note 4 |
| 2 | Transmitter Frequency Stability (Temperature & Voltage Variation) | CFR 47 FCC §15.225(e) ISED RSS-GEN Clause 6.11 ISED RSS-210 Annex B.6 | Note 4 |
| 3 | Fundamental Field Strength | CFR 47 FCC §15.225(a)(b)(c)(d) ISED RSS-GEN Clause 6.12 ISED RSS-210 Annex B.6 | PASS |
| 4 | Radiated Emissions | CFR 47 FCC§15.209(a) CFR 47 FCC§15.225(d) ISED RSS-GEN Clause 6.13 ISED RSS-210 Annex B.6 | PASS |
| 5 | Band Edge Radiated Emissions | CFR 47 FCC §15.209(a) CFR 47 FCC §15.225(c)(d) ISED RSS-GEN Clause 6.13 ISED RSS-210 Annex B.6 | PASS |
| 6 | Antenna Requirement | CFR 47 FCC §15.203 ISED RSS-GEN Clause 6.8 | Pass |
| 7 | AC Power Line Conducted Emission | CFR 47 FCC §15.207(a) ISED RSS-GEN Clause 8.8 | Not Applicable (Note 3) |

Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
 Note 2: The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART C, ISED RSS-210 Issue 11 and ISED RSS-GEN Issue 5 > when <Simple Acceptance> decision rule is applied.
 Note 3: The EUT can't transmit the NFC signal when charging. And it needs to put in a charging base to charge.
 Note 4: Please refer to original test report 4791481978.

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1. ATTESTATION OF TEST RESULTS

FCC

Applicant Information

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Applicant Information

Company Name: Philips Oral Healthcare
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Manufacturer Information

Company Name: Philips Oral Healthcare, Inc.
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Manufacturer Information

Company Name: Philips Oral Healthcare
Address: 22100 Bothell-Everett Highway Bothell US 98021 United States Of America (Excluding The States Of Alaska)

EUT Information

EUT Name: 5000 Series
Model: HX369LBA
Series Model: HX369W4A
Model Difference: Please refer to clause 5.1. Description of EUT
Brand: Sonicare
Sample Received Date: June 16, 2025
Sample Status: Normal
Sample ID: 8593354
Date of Tested: June 18, 2025 ~ June 25, 2025

| APPLICABLE STANDARDS | |
|------------------------------|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 FCC PART 15 SUBPART C | PASS |
| ISED RSS-210 Issue 11 | PASS |
| ISED RSS-GEN Issue 5 | PASS |

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, ISED RSS-210 Issue 11 and RSS-GEN Issue 5.

3. FACILITIES AND ACCREDITATION

| | |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accreditation Certificate | <p>A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p>FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.</p> <p>ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note 1:

All tests measurement facilities use to collect the measurement data are located at Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China.

Note 2:

The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3:

For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item | Uncertainty |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Conduction emission | 3.63 dB |
| Radiation Emission test (include Fundamental emission) (9KHz-30MHz) | 3.61 dB |
| Radiation Emission test (include Fundamental emission) (30MHz-1GHz) | 3.47 dB |
| Radiation Emission test (1GHz to 26GHz) (include Fundamental emission) | 5.64 dB (1 GHz-18 GHz) |
| | 5.64 dB (18 GHz-26 GHz) |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. | |

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

| | |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name | 5000 Series |
| Model | HX369LBA |
| Series Model | HX369W4A |
| Model difference: | HX369W4A has the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with HX369LBA. The difference lies only the color, model number. |
| Operation Frequency | 13.56MHz |
| Modulation | BPSK |
| Battery | DC 3.6 V |

5.2. MAXIMUM FIELD STRENGTH

| Frequency (MHz) | Max Peak field strength @30m (dB μ V/m) |
|-----------------|---------------------------------------------|
| 13.56 | -6.22 |

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

| Frequency (MHz) | Antenna Type | Antenna Gain (dBi) |
|-----------------|------------------------------|--------------------|
| 13.56 | Enameled copper wire antenna | 0 |

5.4. TEST ENVIRONMENT

| Environment Parameter | Selected Values During Tests | |
|-----------------------|------------------------------|-----------|
| Relative Humidity | 45 ~ 65% | |
| Atmospheric Pressure: | 1025Pa | |
| Temperature | TN | 0 ~ 40°C |
| Voltage: | VL | DC 3.06 V |
| | VN | DC 3.6 V |
| | VH | DC 4.14 V |

Note: VL= Lower Extreme Test Voltage

VN= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Item | Equipment | Brand Name | Model Name | Remarks |
|------|-----------|------------|------------|---------|
| 1 | / | / | / | / |

I/O CABLES

| Cable No | Port | Connector Type | Cable Type | Cable Length(m) | Remarks |
|----------|------|----------------|------------|-----------------|---------|
| 1 | / | / | / | / | / |

ACCESSORY

| Item | Accessory | Brand Name | Model Name | Description |
|------|-----------|------------|------------|-------------|
| 1 | / | / | / | / |

TEST SETUP

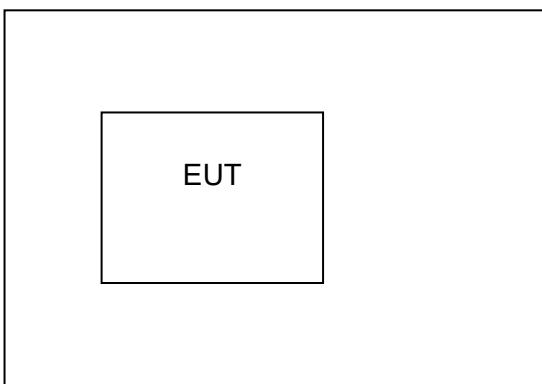
The EUT can't transmit the NFC signal when in charging.

New battery has been used during measurement.

Note: Test was performed with tag and without tag, but only the worst-case data (with tag) was recorded in the report.

NFC support both ISO /IEC 14443A and ISO /IEC 14443B. All lowest and highest data rates as per the standards are supported - 106 kbps, 212 kbps, 424 kbps and 848 kbps, all the modes had been tested, but only the worst data (ISO 14443A 106 kbps) was recorded in the report.

SETUP DIAGRAM FOR TESTS



5.6. MEASURING INSTRUMENT AND SOFTWARE USED

| Radiated Emissions | | | | | |
|--------------------------------------|--------------|------------|---------------|--------------|--------------|
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Due Date |
| MXE EMI Receiver | KESIGHT | N9038A | MY56400036 | Sep.28, 2024 | Sep.27, 2025 |
| Hybrid Log Periodic Antenna | TDK | HLP-3003C | 130959 | May.08, 2023 | May.07 2026 |
| Preamplifier | HP | 8447D | 2944A09099 | Sep.28, 2024 | Sep.27, 2025 |
| Loop antenna | Schwarzbeck | 1519B | 00008 | Dec.09, 2024 | Dec.08, 2027 |
| Preamplifier | TDK | PA-02-0118 | TRS-305-00067 | Sep.28, 2024 | Sep.27, 2025 |
| Preamplifier | TDK | PA-02-2 | TRS-307-00003 | Sep.28, 2024 | Sep.27, 2025 |
| Software | | | | | |
| Description | | | Manufacturer | Name | Version |
| Test Software for Radiated Emissions | | | Farad | EZ-EMC | Ver. UL-3A1 |
| Other instruments | | | | | |
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
| Temperature humidity probe | OMEGA | ITHX-SD-5 | 18470007 | Oct.8, 2024 | Oct.7, 2025 |
| PXA Signal Analyzer | Keysight | N9030A | MY55410512 | Sep.28, 2024 | Sep.27, 2025 |

6. ANTENNA PORT TEST RESULTS

6.1. 99% & 20dB BANDWIDTH

LIMITS

| Section | Test Item | Limit |
|---------------------------------|-------------------------|------------------------------|
| ANSI C63.10 Section 6.9.2 | 20dB% Bandwidth | For reporting purposes only. |
| ISED RSS-GEN Clause 6.7 Issue 5 | 99 % Occupied Bandwidth | For reporting purposes only. |

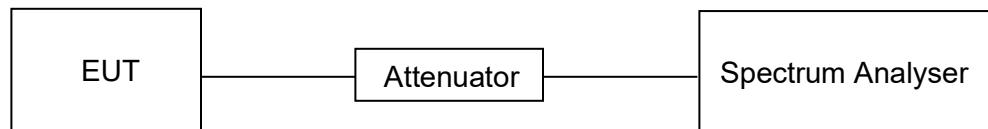
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1 kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

Note: Because the measured signal is CW or CW-like adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

The type of band for the signal is narrowband.

TEST SETUP



TEST ENVIRONMENT

| | | | |
|---------------------|---|-------------------|---|
| Temperature | / | Relative Humidity | / |
| Atmosphere Pressure | / | Test Voltage | / |

RESULTS

Please refer to the original report.

6.2. TRANSMITTER FREQUENCY STABILITY

LIMITS

CFR 47 FCC §15.225(e)
ISED RSS-210 Annex B B.6

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of 0 degrees to + 40 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

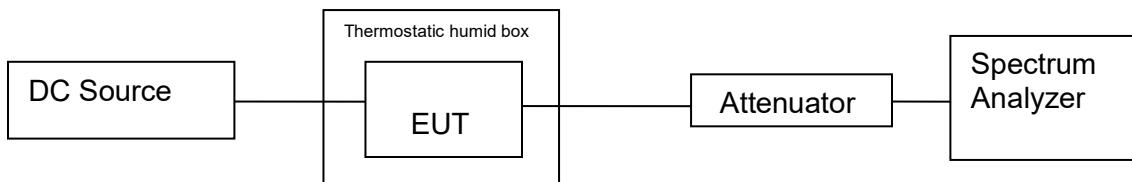
TEST SETUP AND PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

| | |
|------------------|--------------------------------------------------------------|
| Center Frequency | The center frequency of the channel under test |
| Detector | PEAK |
| RBW | 10 kHz |
| VBW | $\geq 3 \times$ RBW |
| Span | Encompass the entire emissions bandwidth (EBW) of the signal |
| Trace | Max hold |
| Sweep time | Auto |

Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculate the frequency drift.

TEST SETUP



TEST RESULTS

Please refer to the original report.

7. RADIATED EMISSION TEST RESULTS

LIMITS

Fundamental field strength

| | |
|------------------------|-------------------------------------------------|
| FCC Reference: | Part 15.225(a)(b)(c)(d) & 15.209(a) |
| ISED Canada Reference: | RSS-GEN 6.13 & RSS-210 B.6 & RSS-GEN Clause 8.9 |
| Test Method Used: | ANSI C63.10 Sections 6.3, 6.4 and 6.5 |

| Frequency (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) | Measured Distance (Meters) |
|-----------------------------|-----------------------|-------------------------|----------------------------|
| 13.553-13.567 | 15848 | 84 | 30 |
| 13.410-13.553/13.567-13.710 | 334 | 50.47 | 30 |
| 13.110-13.410/13.710-14.010 | 106 | 40.51 | 30 |

Note(s):

1. The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.
2. The limit is specified at a test distance of 30 meters. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).

Radiation Disturbance Test Limit for FCC (Class B) (9KHz-1GHz)

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| 960~1000 | 500 | 3 |

ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz

| Frequency | Magnetic field strength (H-Field) (μ A/m) | Measurement distance (m) |
|-------------------------------|------------------------------------------------|--------------------------|
| 9 - 490 kHz ^{Note 1} | 6.37/F (F in kHz) | 300 |
| 490 - 1705 kHz | 63.7/F (F in kHz) | 30 |
| 1.705 - 30 MHz | 0.08 | 30 |

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30MHz.

Restricted bands of operation

| MHz | MHz | MHz | GHz |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110 | 16.42-16.423 | 399.9-410 | 4.5-5.15 |
| ¹ 0.495-0.505 | 16.69475-16.69525 | 608-614 | 5.35-5.46 |
| 2.1735-2.1905 | 16.80425-16.80475 | 960-1240 | 7.25-7.75 |
| 4.125-4.128 | 25.5-25.67 | 1300-1427 | 8.025-8.5 |
| 4.17725-4.17775 | 37.5-38.25 | 1435-1626.5 | 9.0-9.2 |
| 4.20725-4.20775 | 73-74.6 | 1645.5-1646.5 | 9.3-9.5 |
| 6.215-6.218 | 74.8-75.2 | 1660-1710 | 10.6-12.7 |
| 6.26775-6.26825 | 108-121.94 | 1718.8-1722.2 | 13.25-13.4 |
| 6.31175-6.31225 | 123-138 | 2200-2300 | 14.47-14.5 |
| 8.291-8.294 | 149.9-150.05 | 2310-2390 | 15.35-16.2 |
| 8.362-8.366 | 156.52475-156.52525 | 2483.5-2500 | 17.7-21.4 |
| 8.37625-8.38675 | 156.7-156.9 | 2690-2900 | 22.01-23.12 |
| 8.41425-8.41475 | 162.0125-167.17 | 3260-3267 | 23.6-24.0 |
| 12.29-12.293 | 167.72-173.2 | 3332-3339 | 31.2-31.8 |
| 12.51975-12.52025 | 240-285 | 3345.8-3358 | 36.43-36.5 |
| 12.57675-12.57725 | 322-335.4 | 3600-4400 | (²) |
| 13.36-13.41 | | | |

Note: ¹Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

²Above 38.6c

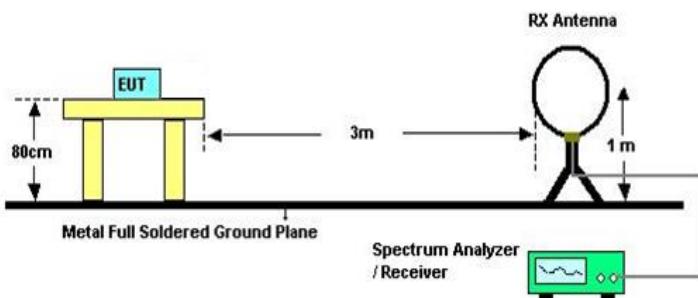
Table 7 – Restricted frequency bands^{Note 1}

| MHz | MHz | GHz |
|---------------------|-----------------------|---------------|
| 0.090 - 0.110 | 149.9 - 150.05 | 9.0 - 9.2 |
| 0.495 - 0.505 | 156.52475 - 156.52525 | 9.3 - 9.5 |
| 2.1735 - 2.1905 | 156.7 - 156.9 | 10.6 - 12.7 |
| 3.020 - 3.026 | 162.0125 - 167.17 | 13.25 - 13.4 |
| 4.125 - 4.128 | 167.72 - 173.2 | 14.47 - 14.5 |
| 4.17725 - 4.17775 | 240 - 285 | 15.35 - 16.2 |
| 4.20725 - 4.20775 | 322 - 335.4 | 17.7 - 21.4 |
| 5.677 - 5.683 | 399.9 - 410 | 22.01 - 23.12 |
| 6.215 - 6.218 | 608 - 614 | 23.6 - 24.0 |
| 6.26775 - 6.26825 | 960 - 1427 | 31.2 - 31.8 |
| 6.31175 - 6.31225 | 1435 - 1626.5 | 36.43 - 36.5 |
| 8.291 - 8.294 | 1645.5 - 1646.5 | Above 38.6 |
| 8.362 - 8.366 | 1660 - 1710 | |
| 8.37625 - 8.38675 | 1718.8 - 1722.2 | |
| 8.41425 - 8.41475 | 2200 - 2300 | |
| 12.29 - 12.293 | 2310 - 2390 | |
| 12.51975 - 12.52025 | 2483.5 - 2500 | |
| 12.57675 - 12.57725 | 2655 - 2900 | |
| 13.36 - 13.41 | 3260 - 3267 | |
| 16.42 - 16.423 | 3332 - 3339 | |
| 16.69475 - 16.69525 | 3345.8 - 3358 | |
| 16.80425 - 16.80475 | 3500 - 4400 | |
| 25.5 - 25.67 | 4500 - 5150 | |
| 37.5 - 38.25 | 5350 - 5460 | |
| 73 - 74.6 | 7250 - 7750 | |
| 74.8 - 75.2 | 8025 - 8500 | |
| 108 - 138 | | |

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.

TEST SETUP AND PROCEDURE

Below 30 MHz

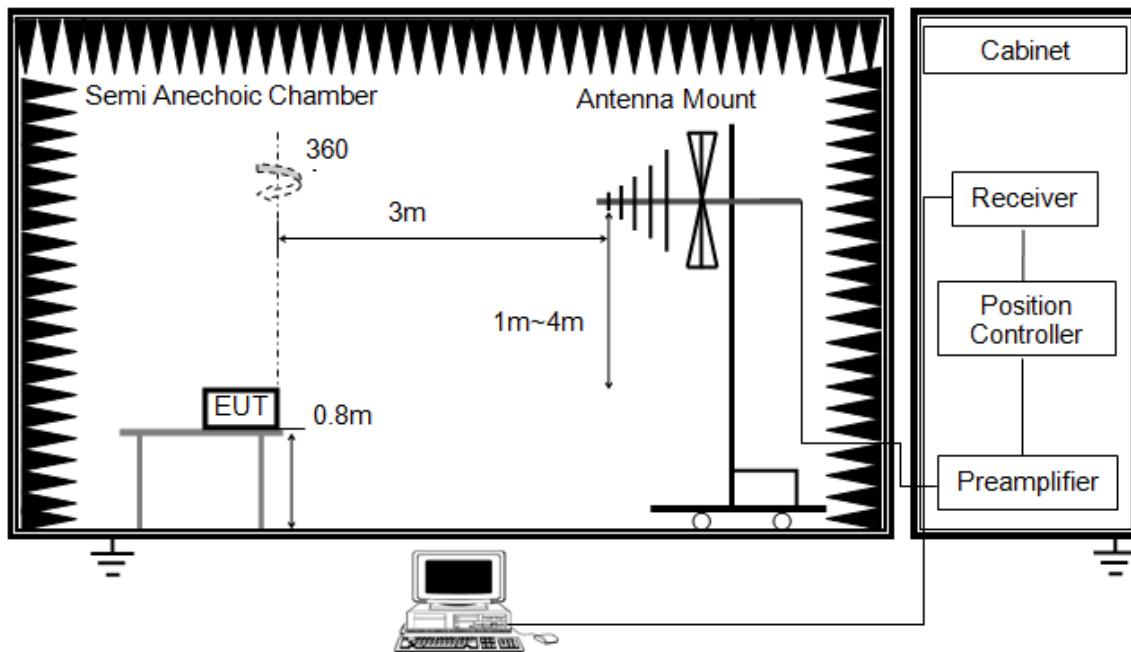


The setting of the spectrum analyser

| | |
|-------|-------------------------------------------------------------------|
| RBW | 200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz) |
| VBW | 600 Hz (From 9 kHz to 0.15 MHz)/ 30 kHz (From 0.15 MHz to 30 MHz) |
| Sweep | Auto |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.
2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80 cm above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.
5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.
7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.
8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω ; For example, the measurement frequency X kHz resulted in a level of Y dB V/m , which is equivalent to $Y-51.5 = Z$ dB A/m , which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1G

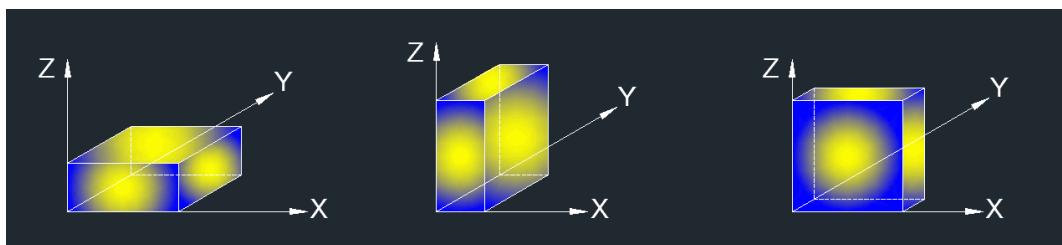


The setting of the spectrum analyser

| | |
|----------|----------|
| RBW | 120K |
| VBW | 300K |
| Sweep | Auto |
| Detector | Peak/QP |
| Trace | Max hold |

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
3. The EUT was placed on a turntable with 80cm above ground.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
7. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

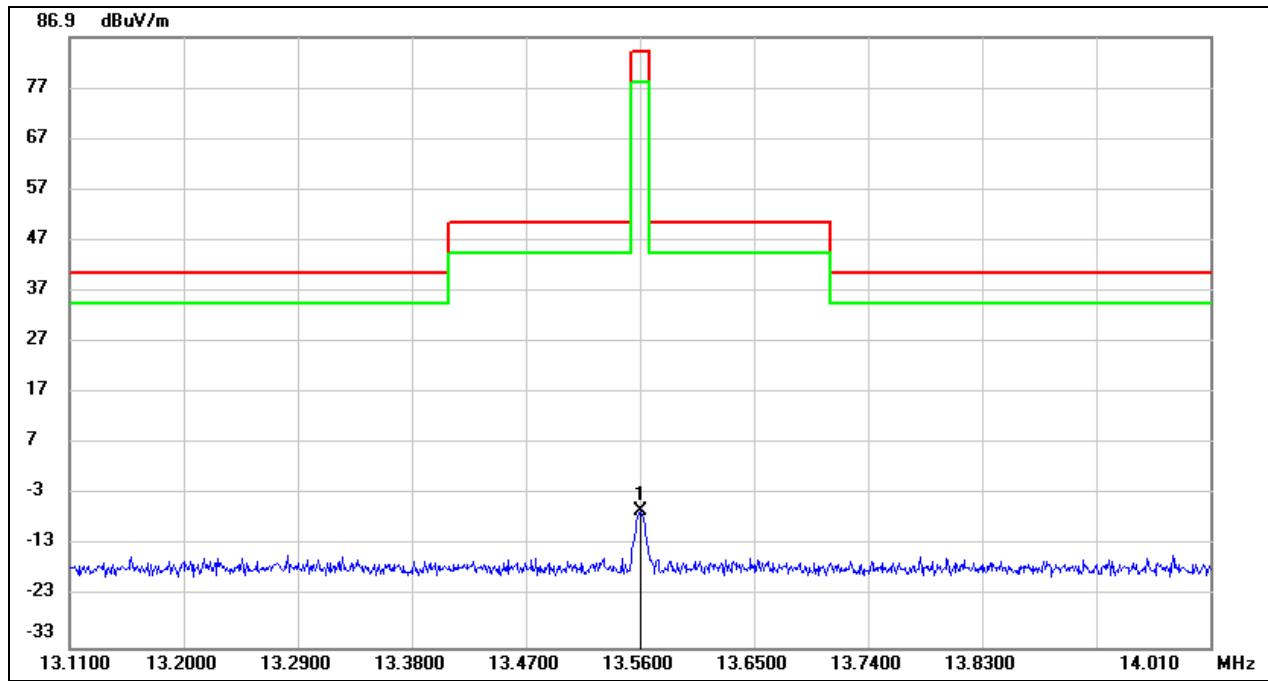
X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST ENVIRONMENT

| | | | |
|---------------------|---------|-------------------|----------|
| Temperature | 24.1 °C | Relative Humidity | 59.0 % |
| Atmosphere Pressure | 101kPa | Test Voltage | DC 3.6 V |

RESULTS**7.1. FIELD STRENGTH OF INTENTIONAL EMISSIONS****FIELD STRENGTH OF INTENTIONAL EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT)**

| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1 | 13.5600 | 44.50 | -50.72 | -6.22 | 84.00 | -90.22 | peak |

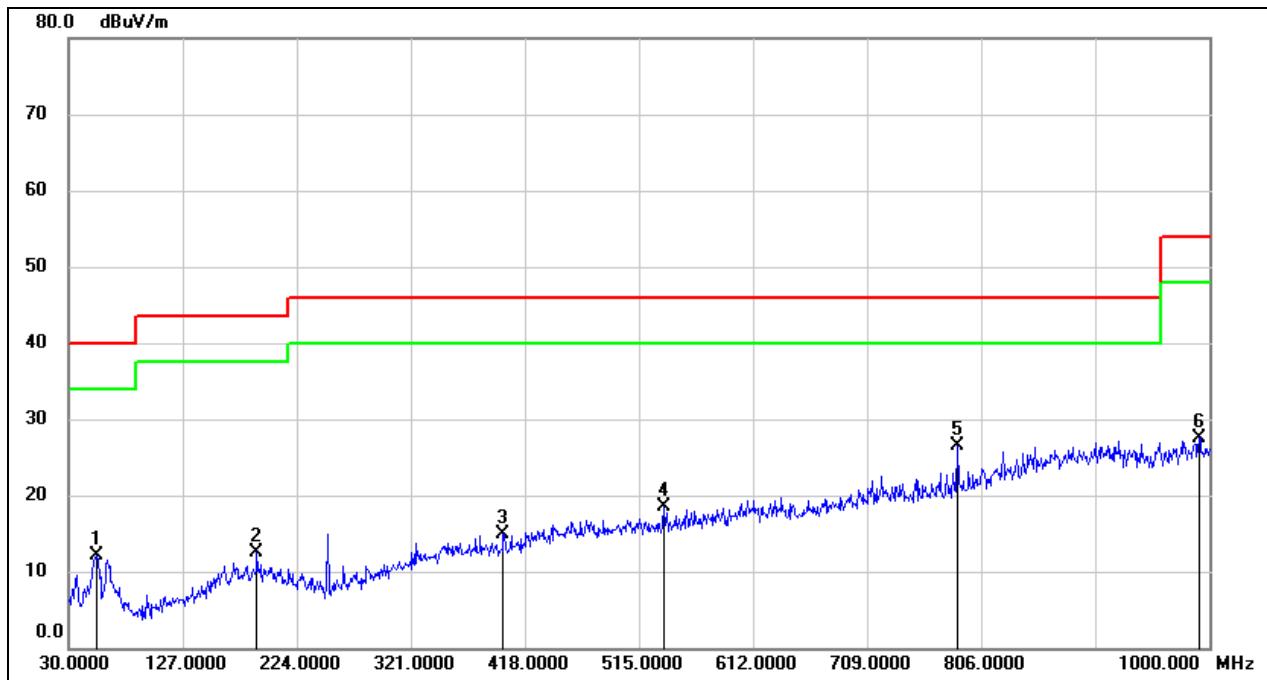
Note: 1. Result Level = Read Level + Correct Factor.

2. The test result is for 30m, the distance extrapolation factor (40dB/decade) has been considered in the test result.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

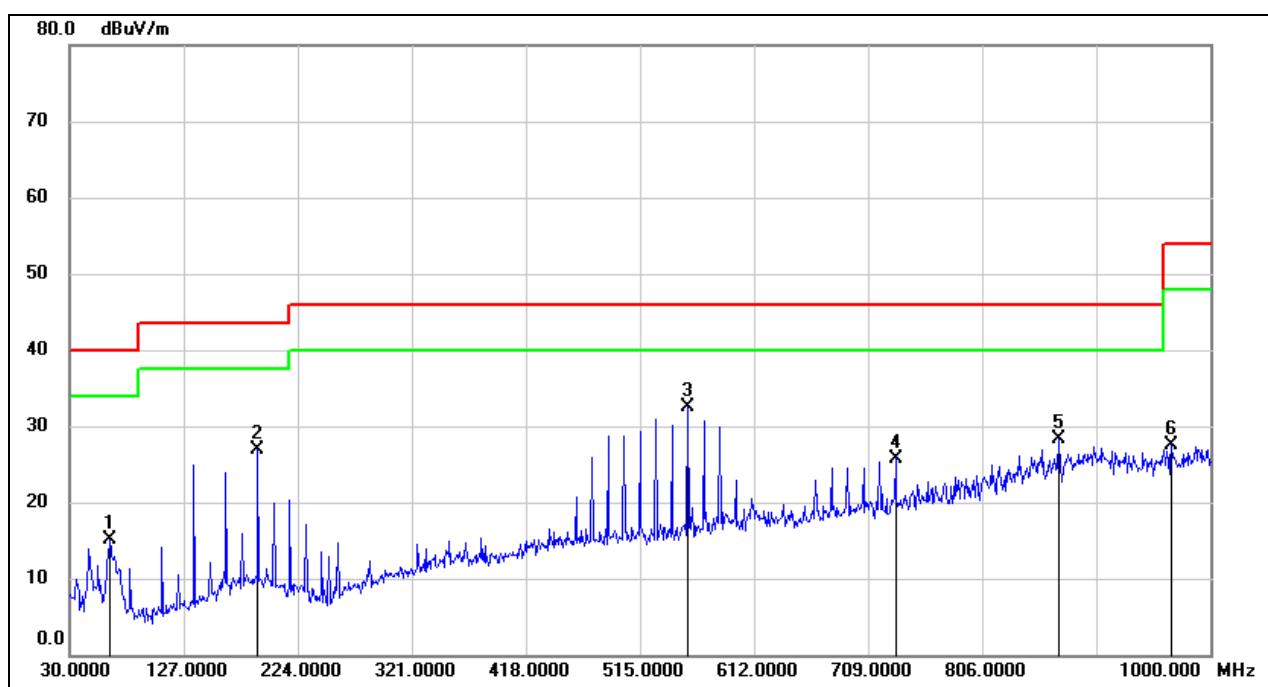
7.2. SPURIOUS EMISSIONS BELOW 1GHz AND ABOVE 30MHz

SPURIOUS EMISSIONS (HORIZONTAL)



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|----------------|-----------------|----------------|-------------|--------|
| 1 | 53.2800 | 27.12 | -15.03 | 12.09 | 40.00 | -27.91 | QP |
| 2 | 190.0500 | 24.38 | -11.95 | 12.43 | 43.50 | -31.07 | QP |
| 3 | 399.5700 | 24.48 | -9.61 | 14.87 | 46.00 | -31.13 | QP |
| 4 | 536.3400 | 25.72 | -7.20 | 18.52 | 46.00 | -27.48 | QP |
| 5 | 785.6300 | 29.46 | -2.88 | 26.58 | 46.00 | -19.42 | QP |
| 6 | 991.2700 | 27.81 | -0.25 | 27.56 | 54.00 | -26.44 | QP |

Note: 1. Result Level = Read Level + Correct Factor.

HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)


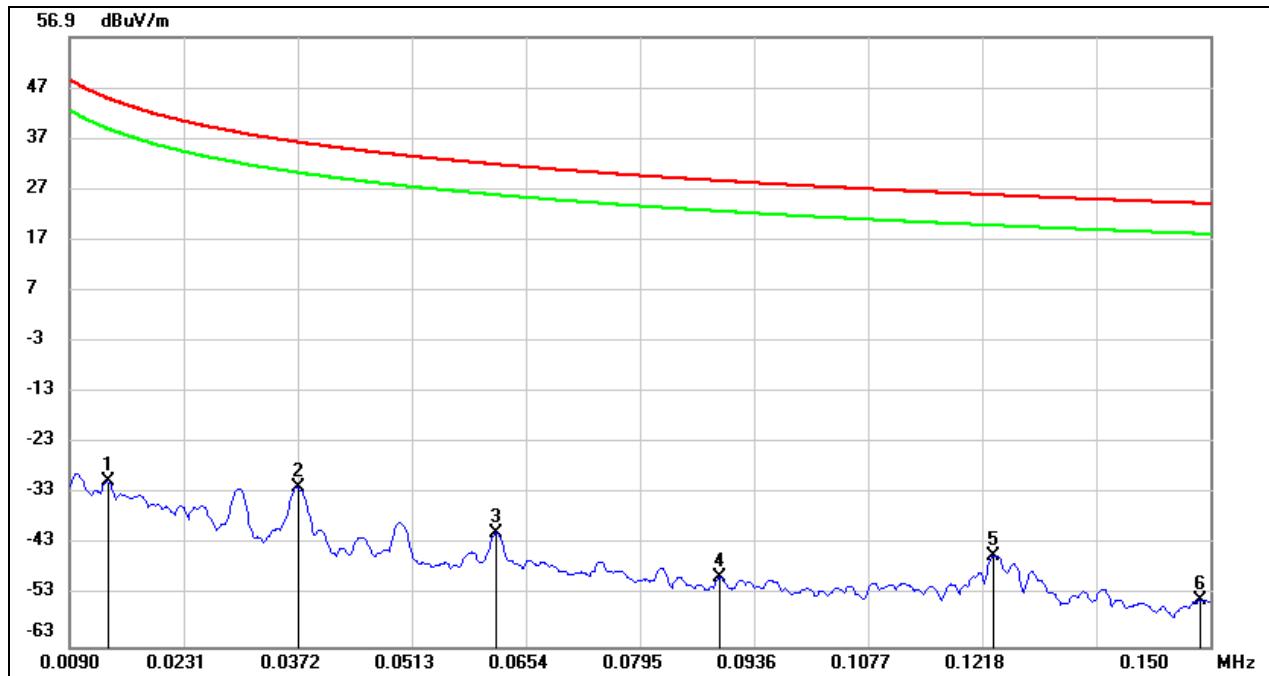
| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------|--------------------|-------------------|----------------|--------|
| 1 | 63.9500 | 30.14 | -15.07 | 15.07 | 40.00 | -24.93 | QP |
| 2 | 190.0500 | 38.76 | -11.95 | 26.81 | 43.50 | -16.69 | QP |
| 3 | 555.7400 | 39.30 | -6.88 | 32.42 | 46.00 | -13.58 | QP |
| 4 | 732.2800 | 29.58 | -3.78 | 25.80 | 46.00 | -20.20 | QP |
| 5 | 870.9900 | 29.31 | -0.94 | 28.37 | 46.00 | -17.63 | QP |
| 6 | 967.0200 | 28.09 | -0.59 | 27.50 | 54.00 | -26.50 | QP |

Note: 1. Result Level = Read Level + Correct Factor.

7.3. SPURIOUS EMISSIONS BELOW 30MHz

SPURIOUS EMISSIONS (LOOP ANTENNA FACE ON TO THE EUT)

9 kHz~ 150 kHz

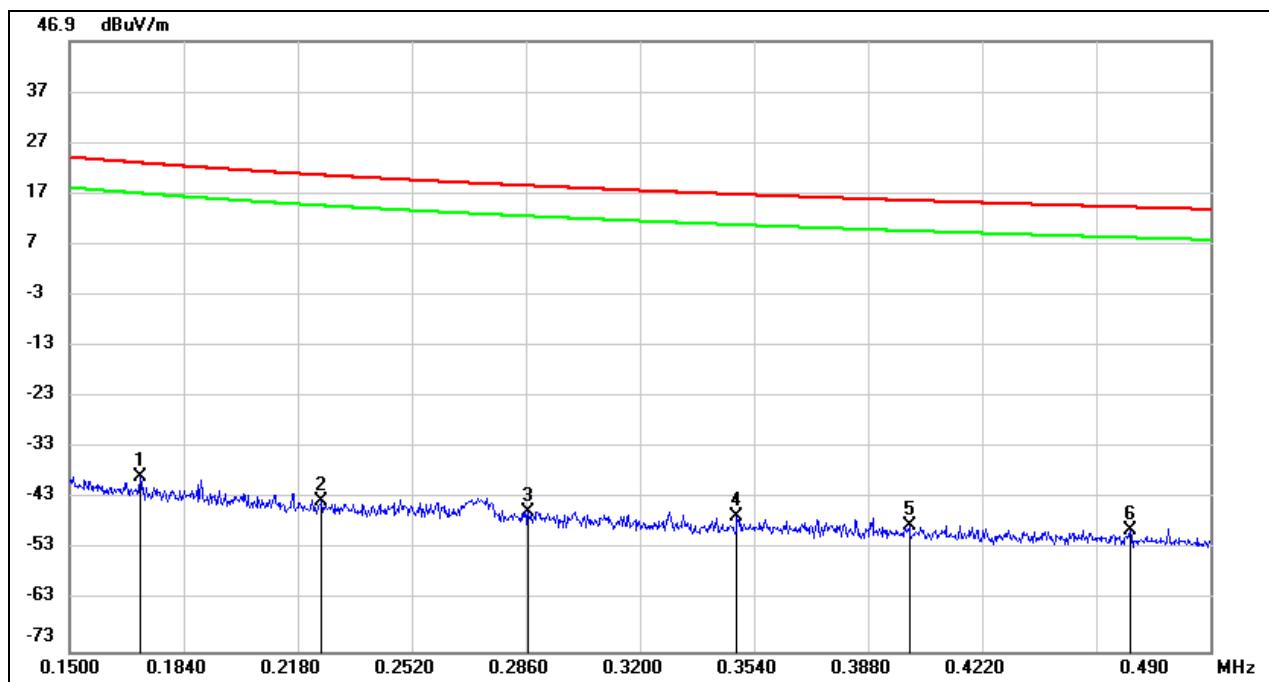


| No. | Frequency | Reading | Correct | FCC Result | FCC Limit | ISED Result | ISED Limit | Margin | Remark |
|-----|-----------|---------|---------|------------|-----------|-------------|------------|--------|--------|
| | (MHz) | (dBuV) | (dB/m) | (dBuV/m) | (dBuV/m) | (dBuA/m) | (dBuA/m) | (dB) | |
| 1 | 0.0137 | 59.27 | -89.95 | -30.68 | 44.87 | -82.18 | -6.63 | -75.55 | peak |
| 2 | 0.0371 | 59.52 | -91.25 | -31.73 | 36.21 | -83.23 | -15.29 | -67.94 | peak |
| 3 | 0.0617 | 51.40 | -92.23 | -40.83 | 31.80 | -92.33 | -19.7 | -72.63 | peak |
| 4 | 0.0894 | 43.25 | -92.60 | -49.35 | 28.58 | -100.85 | -22.92 | -77.93 | peak |
| 5 | 0.1232 | 47.31 | -92.45 | -45.14 | 25.79 | -96.64 | -25.71 | -70.93 | peak |
| 6 | 0.1487 | 38.29 | -92.28 | -53.99 | 24.16 | -105.49 | -27.34 | -78.15 | peak |

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

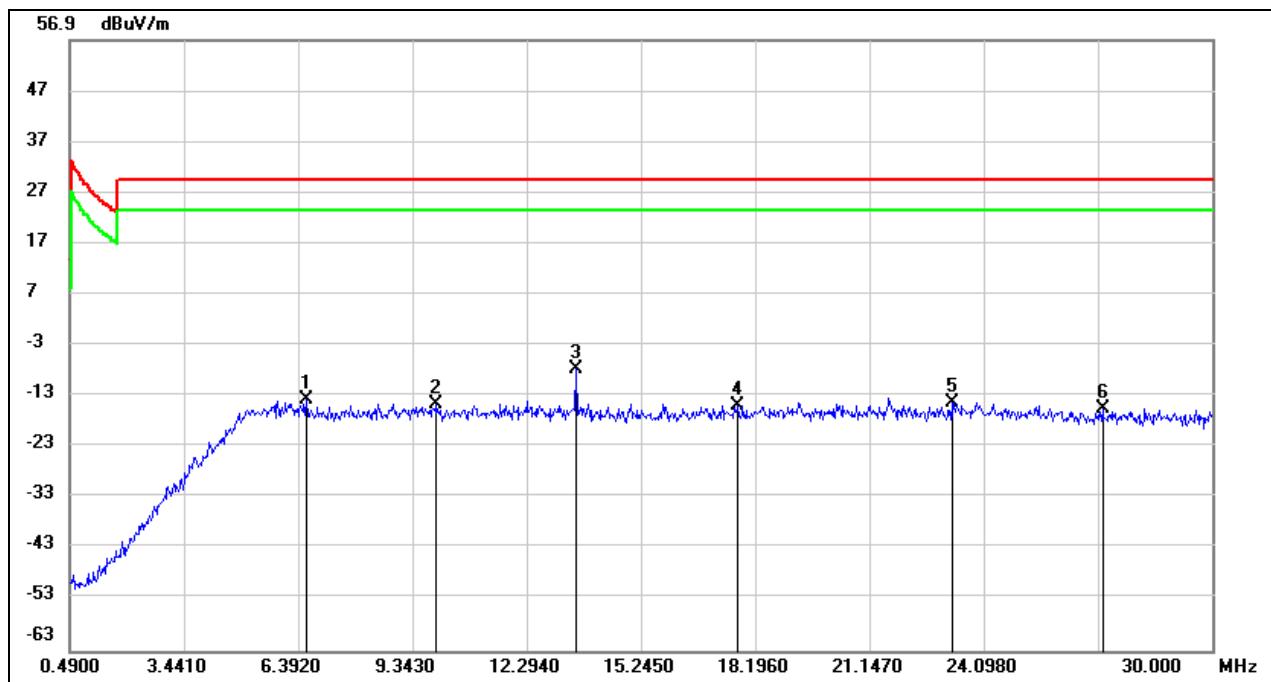
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

150 kHz ~ 490 kHz


| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | FCC Result (dBuV/m) | FCC Limit (dBuV/m) | ISED Result (dBuA/m) | ISED Limit (dBuA/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------|---------------------------|-----------------------|----------------------------|---------------------------|----------------|--------|
| 1 | 0.1711 | 53.27 | -92.14 | -38.87 | 22.94 | -90.37 | -28.56 | -61.81 | peak |
| 2 | 0.2251 | 48.37 | -92.06 | -43.69 | 20.55 | -95.19 | -30.95 | -64.24 | peak |
| 3 | 0.2867 | 46.78 | -92.34 | -45.56 | 18.45 | -97.06 | -33.05 | -64.01 | peak |
| 4 | 0.3489 | 46.08 | -92.50 | -46.42 | 16.75 | -97.92 | -34.75 | -63.17 | peak |
| 5 | 0.4001 | 44.23 | -92.60 | -48.37 | 15.56 | -99.87 | -35.94 | -63.93 | peak |
| 6 | 0.4662 | 43.53 | -92.73 | -49.20 | 14.23 | -100.7 | -37.27 | -63.43 | peak |

Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

490kHz ~ 30MHz


| No. | Frequency | Reading | Correct | FCC Result | FCC Limit | ISED Result | ISED Limit | Margin | Remark |
|-----|-----------|---------|---------|------------|-----------|-------------|------------|--------|-------------|
| | (MHz) | (dBuV) | (dB/m) | (dBuV/m) | (dBuV/m) | (dBuA/m) | (dBuA/m) | (dB) | |
| 1 | 6.5986 | 37.54 | -51.22 | -13.68 | 29.54 | -65.18 | -21.96 | -43.22 | peak |
| 2 | 9.9627 | 36.25 | -50.90 | -14.65 | 29.54 | -66.15 | -21.96 | -44.19 | peak |
| 3 | 13.5629 | 42.93 | -50.72 | -7.79 | / | -59.29 | / | / | fundamental |
| 4 | 17.7534 | 35.22 | -50.24 | -15.02 | 29.54 | -66.52 | -21.96 | -44.56 | peak |
| 5 | 23.2717 | 35.23 | -49.57 | -14.34 | 29.54 | -65.84 | -21.96 | -43.88 | peak |
| 6 | 27.1670 | 34.07 | -49.71 | -15.64 | 29.54 | -67.14 | -21.96 | -45.18 | peak |

Note:

1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.
3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.
4. About the Fundamental emission test result please refer to section 7.1.

8. ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

RESULTS

Complies

END OF REPORT