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Report No.: SHEM170100049601
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1 Cover Page

RF TEST REPORT

| | |
|---|---|
| Application No.: | SHEM1701000496CR |
| Applicant: | RAZOR USA LLC |
| FCC ID: | 2AGU6002 |
| IC: | 21056-002 |
| Equipment Under Test (EUT): NOTE: The following sample(s) submitted was/were identified on behalf of the client as | |
| Product Name: | Remote Control(RAZOR Electric Skateboard) |
| Model No.(EUT): | R002 |
| Standards: | FCC PART 15 Subpart C: 2016 RSS-210 Issue 9 (August 2016) RSS-Gen Issue 4 (November 2014) |
| Date of Receipt: | 2017-01-23 |
| Date of Test: | 2017-01-23 to 2017-04-28 |
| Date of Issue: | 2017-05-18 |
| Test Result: | Pass* |

*In the configuration tested, the EUT detailed in this report complied with the standards specified above.



Parlam Zhan
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.



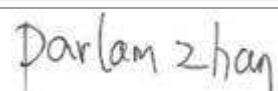
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2 Version

| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | / | 2017-05-18 | / | Original |
| | | | | |
| | | | | |
| | | | | |
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|--------------------------|-------------|--|---|
| Authorized for issue by: | | | |
| Engineer | Eddy Zong | |  |
| | Print Name | | |
| Clerk | Vincent Zhu | |  |
| | Print Name | | |
| Reviewer | Parlam Zhan | |  |
| | Print Name | | |

3 Test Summary

| Test Item | Test Requirement | IC Reference | Test method | Result |
|---|--|--|---|--------|
| Antenna Requirement | FCC Part 15, Subpart C Section 15.203 | RSS-Gen Section 8.1.3 | --- | PASS |
| AC Power Line Conducted Emission | FCC Part 15, Subpart C Section 15.207 | RSS-Gen Issue 4 Section 7.2.4 | ANSI C63.10 (2013) Section 6.2 | N/A |
| Field Strength of the Fundamental Signal | FCC Part 15, Subpart C Section 15.249 (a) | RSS-210 Issue 9 Annex 2.9 (a) | ANSI C63.10 (2013) Section 6.11 | PASS |
| Radiated Spurious Emissions | FCC Part 15, Subpart C Section 15.249 (a) &15.209&15.205 | RSS-Gen Issue 4 Section 4.9 RSS-Gen Issue 4 Section 7.2.2 | ANSI C63.10 (2013) Section 6.4&6.5&6.6&6.10 | PASS |
| 20dB Bandwidth | FCC Part 15, Subpart C Section 15.215 (c) | RSS-210 Issue 9 Annex 8 | ANSI C63.10 (2013) Section 6.9 | PASS |
| 99% Occupied bandwidth | --- | RSS-Gen Section 6.6 | RSS-Gen section 6.6 | PASS |

N/A: Not Applicable. Please refer to Section 7.3 of this report for details.

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5 General Information

5.1 Client Information

Applicant: RAZOR USA LLC
Address of Applicant: P.O. Box 3610 Cerritos, CA 90703 United States
Manufacturer: RAZOR USA LLC
Address of Manufacturer: P.O. Box 3610 Cerritos, CA 90703 United States
Factory: Zhejiang Jinbang Sports Equipment Co.,Ltd
Address of Factory: No.255 Qingchuan Road, Huzhen Town, Jinyun Zhengjiang 321404 China

5.2 General Description of E.U.T.

Product Description: Portable product with 2.4G function
Battery: DC 3V by 2* AAA.R03P batteries for transmitter

5.3 Technical Specifications:

| | |
|-----------------------|--|
| Operation Frequency: | 2405MHz-2478MHz |
| Channel Number: | 20 |
| Channel List: | 2405MHz, 2408MHz, 2413MHz, 2415MHz, 2418MHz, 2425MHz, 2428MHz, 2430MHz, 2434MHz, 2440MHz, 2446MHz, 2450MHz, 2456MHz, 2460MHz, 2461MHz, 2465MHz, 2470MHz, 2473MHz, 2475MHz, 2478MHz |
| Modulation Technique: | GFSK |
| Antenna Type | PCB antenna |
| Antenna Gain | -1 dBi |

5.4 Description of Support Units

The EUT has been tested independently.

5.5 Test Mode

| Test Mode | Description of Test Mode |
|------------------|---|
| Engineering Mode | Keeps EUT working in continuous transmitting mode |

5.6 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China.

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5.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868, C-4336, T-2221, G-830 respectively.

5.8 Measurement Uncertainty

| No. | Parameter | Measurement Uncertainty |
|-----|-------------------------------|--|
| 1 | Radio Frequency | $< \pm 1 \times 10^{-5}$ |
| 2 | Total RF power, conducted | $< \pm 1.5 \text{ dB}$ |
| 3 | RF power density, conducted | $< \pm 3 \text{ dB}$ |
| 4 | Spurious emissions, conducted | $< \pm 3 \text{ dB}$ |
| 5 | All emissions, radiated | $< \pm 6 \text{ dB}$ (Below 1GHz) $< \pm 6 \text{ dB}$ (Above 1GHz) |
| 6 | Temperature | $< \pm 1^{\circ}\text{C}$ |
| 7 | Humidity | $< \pm 5 \%$ |
| 8 | DC and low frequency voltages | $< \pm 3 \%$ |

6 Equipments Used during Test

| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due date |
|------|--|--------------------------------|----------------------------------|--------------------------------------|------------|---------------|
| 1 | Power meter | Rohde & Schwarz | NRP | 101641 | 2017-01-14 | 2018-01-13 |
| 2 | Power Sensor | Rohde & Schwarz | NRP-Z22 | 101096 | 2016-08-06 | 2017-08-05 |
| 3 | Spectrum Analyzer | Rohde & Schwarz | FSP-30 | 2705121009 | 2017-01-14 | 2018-01-13 |
| 4 | EMI test receiver | Rohde & Schwarz | ESU40 | 100109 | 2017-02-13 | 2018-01-15 |
| 5 | Active Loop Antenna (9kHz to 30MHz) | Rohde & Schwarz | FMZB1519 | 1519-034 | 2017-02-13 | 2018-01-15 |
| 6 | Broadband UHF-VHF ANTENNA (25MHz to 2GHz) | SCHWARZBECK | VULB9168 | 9168-313 | 2017-02-13 | 2018-01-15 |
| 7 | Ultra broadband antenna (25MHz to 3GHz) | Rohde & Schwarz | HL562 | 100227 | 2016-08-30 | 2017-08-29 |
| 8 | Horn Antenna (1GHz to 18GHz) | Rohde & Schwarz | HF906 | 100284 | 2017-02-13 | 2018-01-15 |
| 9 | Horn Antenna (1GHz to 18GHz) | SCHWARZBECK | BBHA9120D | 9120D-679 | 2017-02-13 | 2018-01-15 |
| 10 | Horn Antenna(14GHz to 40GHz) | SCHWARZBECK | BBHA 9170 | BBHA917-0373 | 2017-02-13 | 2018-01-15 |
| 11 | Pre-amplifier (9KHz – 2GHz) | LNA6900 | TESEQ | 71033 | / | / |
| 12 | Pre-amplifier (1GHz – 26.5GHz) | SCHWARZBECK | SCU-F0118- G40-BZ4- CSS(F) | 10001 | 2017-01-14 | 2018-01-13 |
| 13 | Pre-amplifie (14GHz – 40GHz) | SCHWARZBECK | SCU-F1840- G35-BZ3- CSS(F) | 10001 | 2017-01-14 | 2018-01-13 |
| 14 | Tunable Notch Filter | Wainwright instruments GmbH | WRCT800.0/880 .0-0.2/40-5SSK | 170397 169777 169780 192507 | / | / |
| 15 | High pass Filter | FSCW | HP 12/2800- 5AA2 | 19A45-02 | / | / |
| 16 | High-low temperature cabinet | Suzhou Zhihe | TL-40 | 50110050 | 2016-09-11 | 2017-09-10 |
| 17 | AC power stabilizer | WOCEN | 6100 | 51122 | 2017-01-14 | 2018-01-13 |
| 18 | DC power | QJE | QJ30003SII | 3573/4/3 | 2017-01-14 | 2018-01-13 |
| 19 | Signal Generator (Interferer) | Rohde & Schwarz | SMR40 | 100555 | 2016-08-13 | 2017-08-12 |
| 20 | Signal Generator (Blocker) | Rohde & Schwarz | SMJ100A | 101394 | 2017-01-14 | 2018-01-13 |
| 21 | Splitter | Anritsu | MA1612A | M12265 | / | / |
| 22 | Coupler | e-meca | 803-S-1 | 900-M01 | / | / |

7 Test Results

7.1 E.U.T. test conditions

Requirements: 15.31(e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Operating Environment:

| | |
|-----------------------|---------------|
| Temperature: | 20.0 -25.0 °C |
| Humidity: | 35-75 % RH |
| Atmospheric Pressure: | 99.2 -102kPa |

Test frequencies: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and. if required. reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

| Frequency range over which device operates | Number of frequencies | Location in the range of operation |
|--|-----------------------|---|
| 1 MHz or less | 1 | Middle |
| 1 to 10 MHz | 2 | 1 near top and 1 near bottom |
| More than 10 MHz | 3 | 1 near top. 1 near middle and 1 near bottom |

Pursuant to Part 15.31(c) For swept frequency equipment, measurements shall be made with the frequency sweep stopped at those frequencies chosen for the measurements to be reported.

Test frequency is 2450MHz

7.2 Antenna Requirement

Standard requirement:

15.203 requirement:

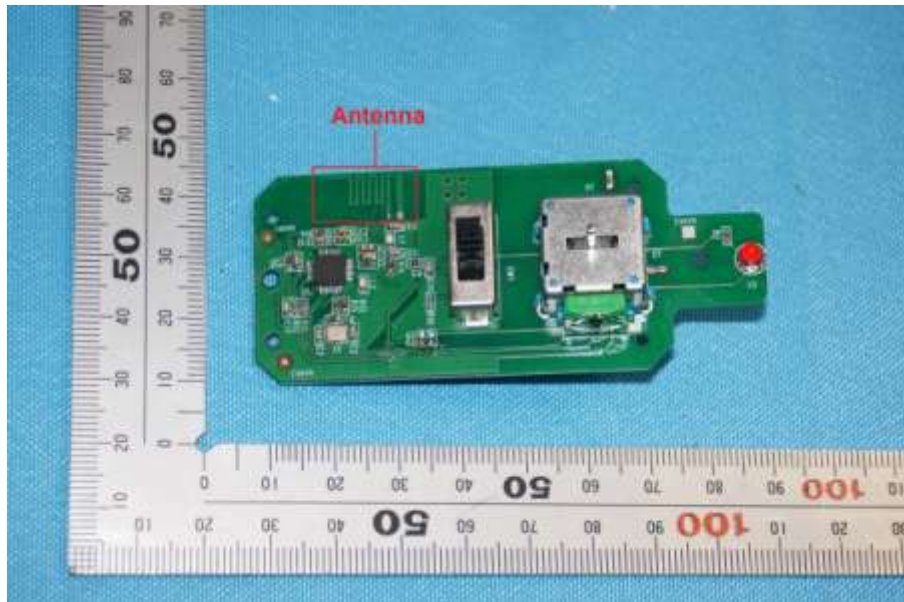
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit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

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is PCB antenna. The gain of the antenna is less than -1 dBi.



7.3 Conducted Emissions on Mains Terminals

Frequency Range: 150 KHz to 30 MHz

Class/Severity: Class B

Limit:

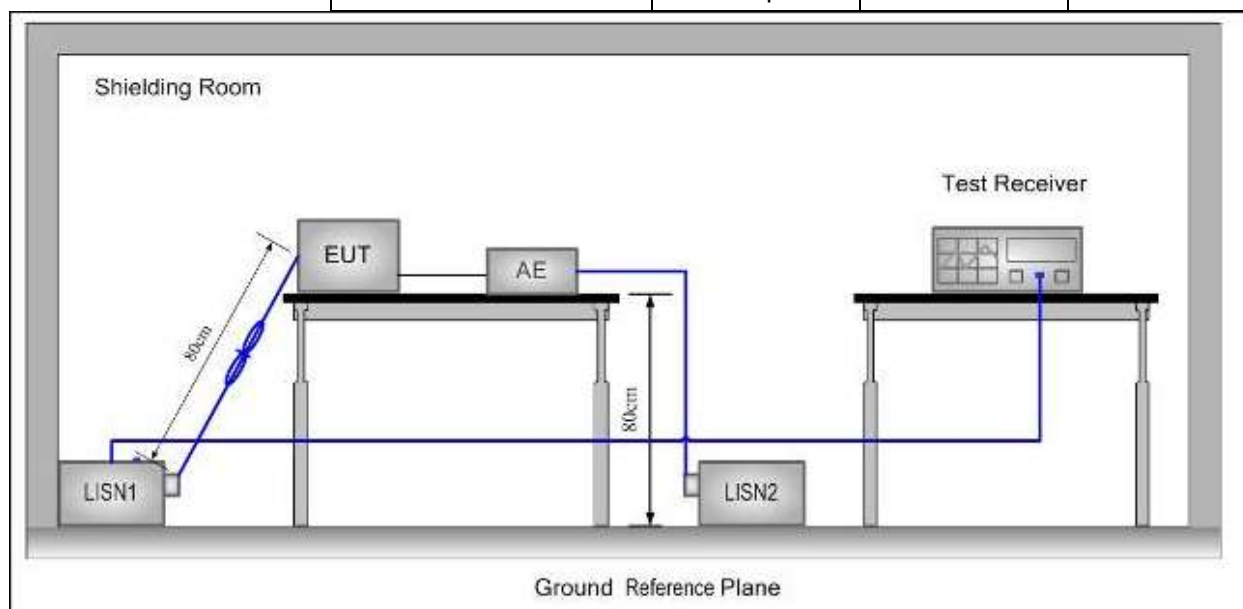
| Frequency range MHz | Class B Limits: dB (μV) | |
|------------------------|-------------------------|----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

Note1: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

Note2: The lower limit is applicable at the transition frequency.

Test site/setup: Test instrumentation set-up:

| Frequency Range | Detector | RBW | VBW |
|-----------------|------------|-------|-------|
| 9KHz to 150Hz | Quasi-peak | 200Hz | 500Hz |
| 150KHz to 30MHz | Quasi-peak | 9kHz | 30kHz |



Test Procedure:

1. The mains terminal disturbance voltage was measured with the EUT in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN, which was bonded to the ground reference plane in the same way as the LISN for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference

plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance was between the closest points of the LISN and the EUT. The mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment were at least 0.8 m from the LISN.

Remark: Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected. Please see the attached Quasi-peak and Average test results.

Test Result: N/A

Test Data:

Note: This EUT is powered by battery only; therefore the AC Conducted Emission test is not applicable.

7.4 Field Strength of the Fundamental Signal

Test Site: Measurement Distance: 3m

Receiver Setup:

| Frequency | Detector | RBW | VBW | Remark |
|------------|----------|------|------|---------|
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Peak | 1MHz | 10Hz | Average |

Limit:

| Frequency | Limit (dBuV/m) | Remark |
|-----------------|----------------|---------|
| 2400-2483.5 MHz | 114 | Peak |
| | 94 | Average |

Test Setup:

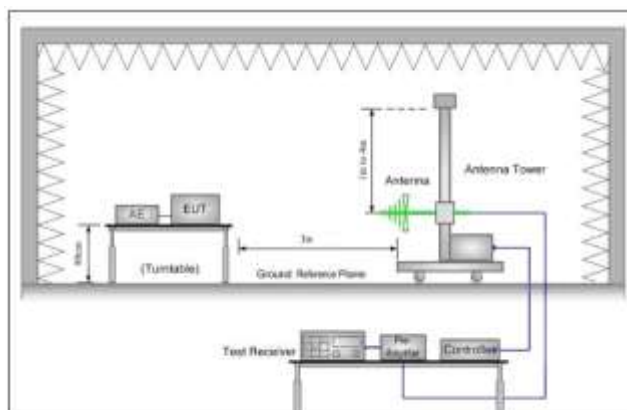


Figure 1. 30MHz to 1GHz

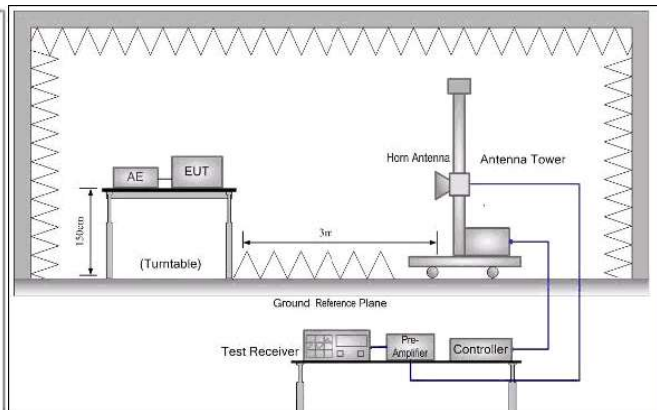


Figure 2. Above 1 GHz

Test Procedure:

- The EUT was placed on the top of a rotating table above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Repeat above procedures until all frequencies measured was complete.

Test Results:

Pass



Measurement Data

Peak value:

| Frequency (MHz) | Read Level (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-----------------|-------------------|---------------|----------------|---------------------|-----------------|----------|--------------|
| 2405 | 91.96 | -3.93 | 88.03 | 94 | -5.97 | Peak | Horizontal |
| | 86.07 | -3.92 | 82.15 | 94 | -11.85 | Peak | Vertical |
| 2440 | 93.66 | -3.96 | 89.7 | 94 | -4.3 | Peak | Horizontal |
| | 82.95 | -3.96 | 78.99 | 94 | -15.01 | Peak | Vertical |
| 2478 | 92.04 | -4.01 | 88.03 | 94 | -5.97 | Peak | Horizontal |
| | 84.3 | -4.01 | 80.29 | 94 | -13.71 | Peak | Vertical |

Remark:

1) The basic equation with a sample calculation is as follows: Level = Read Level + Factor.

(The Factor is calculated by adding the Antenna Factor, Cable Loss and Preamp Factor)

If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

7.5 Radiated Spurious Emissions

Frequency Range: 9KHz to 25GHz

Test site/setup: Measurement Distance: 3m

Test instrumentation set-up:

| Frequency Range | Detector | RBW | VBW |
|-------------------|------------|----------|----------|
| 0.009MHz-0.090MHz | Peak | 10kHz | 30kHz |
| 0.009MHz-0.090MHz | Average | 10kHz | 30kHz |
| 0.090MHz-0.110MHz | Quasi-peak | 10kHz | 30kHz |
| 0.110MHz-0.490MHz | Peak | 10kHz | 30kHz |
| 0.110MHz-0.490MHz | Average | 10kHz | 30kHz |
| 0.490MHz -30MHz | Quasi-peak | 10kHz | 30kHz |
| 30MHz-1GHz | Quasi-peak | 100kHz | 300kHz |
| Above 1GHz | Peak | RBW=1MHz | VBW≥RBW |
| | Average | | VBW=10Hz |

Sweep=Auto

15.209 Limit:

| Frequency | Field strength (microvolt/meter) | Limit (dBuV/m) |
|-------------------|-------------------------------------|----------------|
| 0.009MHz-0.490MHz | 2400/F(KHz) | 128.5 ~ 93.8 |
| 0.490MHz-1.705MHz | 24000/F(KHz) | 73.8 ~63.0 |
| 1.705MHz-30MHz | 30 | 69.5 |
| 30MHz-88MHz | 100 | 40.0 |
| 88MHz-216MHz | 150 | 43.5 |
| 216MHz-960MHz | 200 | 46.0 |
| 960MHz-1GHz | 500 | 54.0 |
| Above 1GHz | 500 | 54.0 |

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Configuration: Receive antenna scan height 1 m - 4 m. polarization Vertical / Horizontal

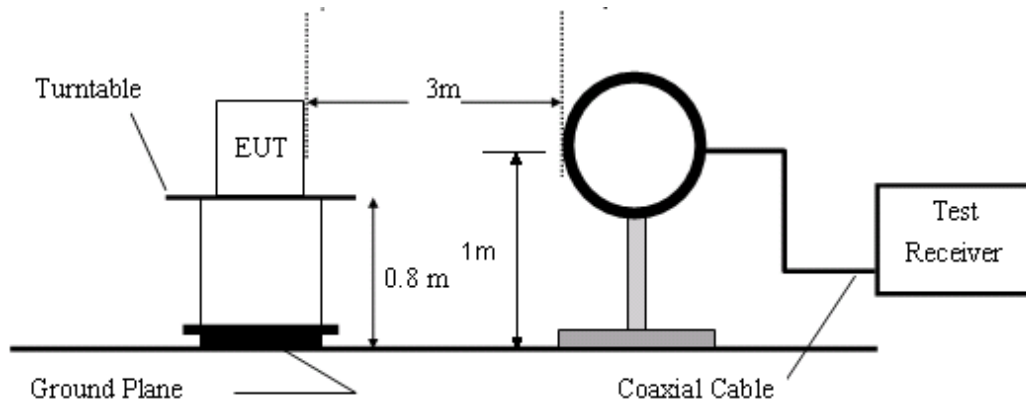


Figure1. Blow 30MHz radiated emissions test configuration

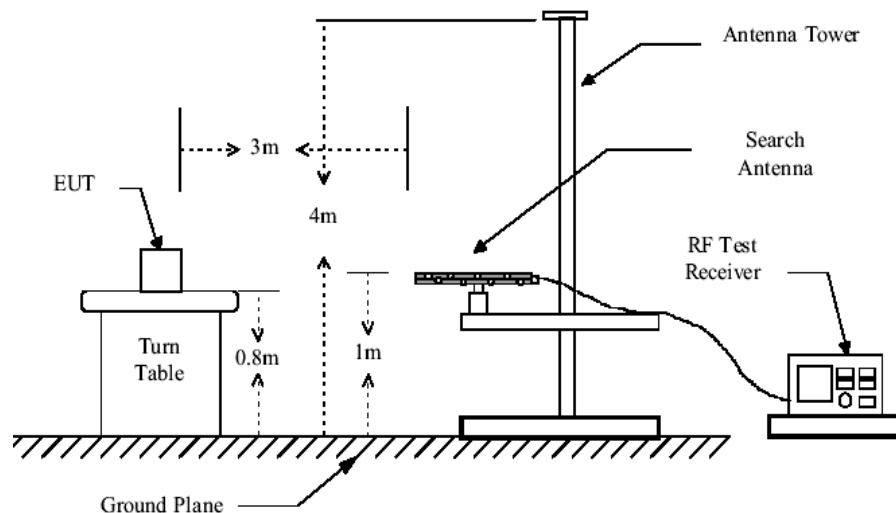


Figure2. 30MHz to 1GHz radiated emissions test configuration

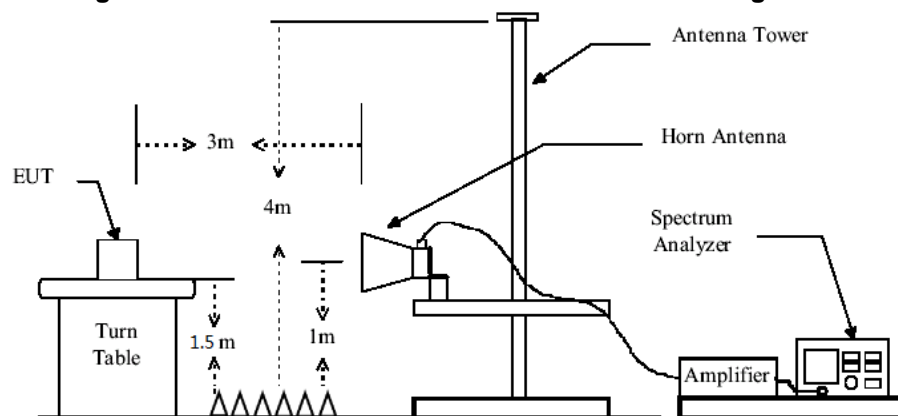


Figure3. Above 1GHz radiated emissions test configuration

Test Procedure: The procedure used was ANSI Standard C63.10:2013. The receiver was scanned from 9KHz to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Low noise amplifier was used below 1GHz, High pass Filter was used above 3GHz.

Between 1G and 3GHz, we did not use any amplifier or filter.

Compliance test was performed on worse case (Antenna A mode).

Test were performed for their spatial orthogonal(X, Y, Z), the worst test data (X orthogonal) was submitted.

- 1) For this intentional radiator operates below 25 GHz. the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the third harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 5rd harmonic.
- 2) As shown in Section, for frequencies above 1000MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

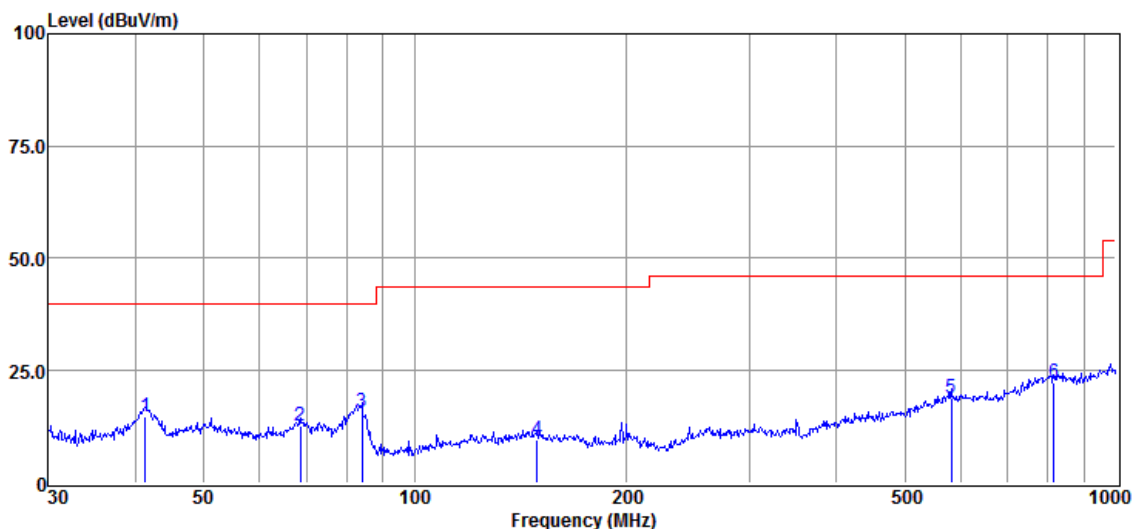
The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

Test Result: Pass

7.5.1 Radiated Spurious Emissions

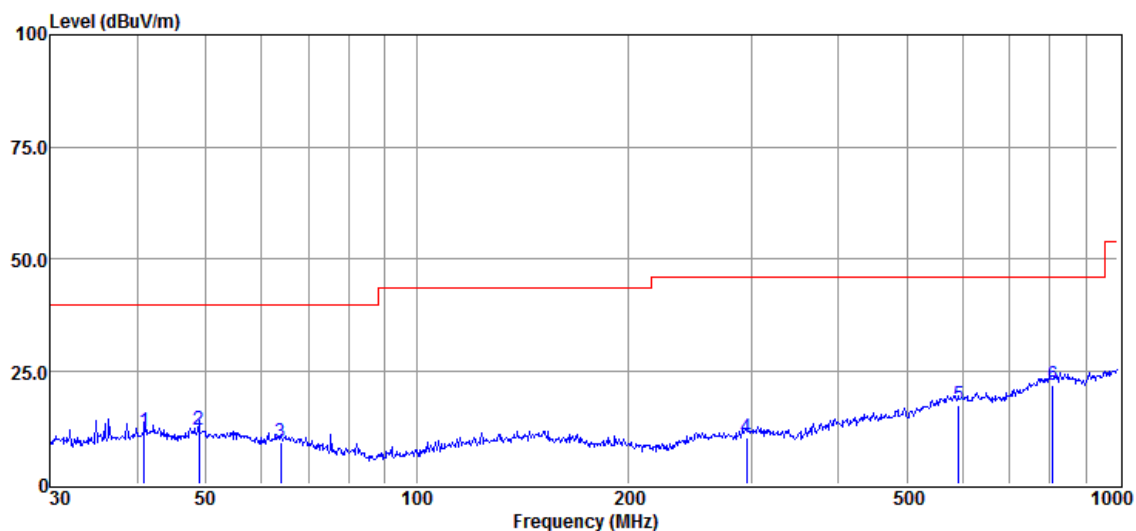
30MHz-1GHz:

Vertical:



| Item | Freq. | Read Level | Antenna Factor | Preamplifier Factor | Cable Loss | Result Level | Limit Line | Over Limit | Detector |
|--------|--------|------------|----------------|---------------------|------------|--------------|------------|------------|----------|
| (Mark) | (MHz) | (dBμV) | (dB/m) | (dB) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 1 | 41.28 | 29.64 | 13.76 | 28.80 | 0.23 | 14.83 | 40.00 | -25.17 | QP |
| 2 | 68.63 | 29.12 | 11.90 | 28.80 | 0.33 | 12.55 | 40.00 | -27.45 | QP |
| 3 | 84.11 | 35.56 | 8.69 | 28.70 | 0.39 | 15.94 | 40.00 | -24.06 | QP |
| 4 | 149.49 | 24.74 | 12.78 | 28.40 | 0.62 | 9.74 | 43.50 | -33.76 | QP |
| 5 | 582.74 | 26.50 | 20.26 | 29.24 | 1.35 | 18.87 | 46.00 | -27.13 | QP |
| 6 | 815.97 | 25.54 | 23.66 | 29.08 | 2.11 | 22.23 | 46.00 | -23.77 | QP |

Horizontal:



| Item | Freq. | Read Level | Antenna Factor | Preamplifier Factor | Cable Loss | Result Level | Limit Line | Over Limit | Detector |
|--------|--------|------------|----------------|---------------------|------------|--------------|------------|------------|----------|
| (Mark) | (MHz) | (dBμV) | (dB/m) | (dB) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 1 | 40.85 | 26.54 | 13.67 | 28.80 | 0.22 | 11.63 | 40.00 | -28.37 | QP |
| 2 | 48.84 | 26.87 | 13.86 | 28.80 | 0.26 | 12.19 | 40.00 | -27.81 | QP |
| 3 | 63.98 | 25.04 | 12.59 | 28.80 | 0.31 | 9.14 | 40.00 | -30.86 | QP |
| 4 | 295.15 | 24.36 | 13.00 | 27.90 | 0.84 | 10.30 | 46.00 | -35.70 | QP |
| 5 | 593.05 | 25.20 | 20.29 | 29.25 | 1.36 | 17.60 | 46.00 | -28.40 | QP |
| 6 | 807.43 | 25.50 | 23.58 | 29.09 | 2.08 | 22.07 | 46.00 | -23.93 | QP |

Above 1GHz:

Channel: 2405MHz

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4810 | 39.34 | 6.25 | 45.59 | 54 | -8.41 | peak | Horizontal |
| 2 | 7215 | 40.6 | 10.67 | 51.27 | 54 | -2.73 | peak | Horizontal |
| 3 | 9620 | 37.42 | 14.37 | 51.79 | 54 | -2.21 | peak | Horizontal |
| 4 | 4810 | 40.27 | 6.25 | 46.52 | 54 | -7.48 | peak | Vertical |
| 5 | 7215 | 40.08 | 10.67 | 50.75 | 54 | -3.25 | peak | Vertical |
| 6 | 9620 | 37.66 | 14.37 | 52.03 | 54 | -1.97 | peak | Vertical |

Channel: 2440MHz

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4880 | 37.95 | 6.97 | 44.92 | 54 | -9.08 | peak | Horizontal |
| 2 | 7320 | 39.03 | 11.12 | 50.15 | 54 | -3.85 | peak | Horizontal |
| 3 | 9760 | 37.34 | 14.35 | 51.69 | 54 | -2.31 | peak | Horizontal |
| 4 | 4880 | 38.96 | 6.97 | 45.93 | 54 | -8.07 | peak | Vertical |
| 5 | 7320 | 38.27 | 11.12 | 49.39 | 54 | -4.61 | peak | Vertical |
| 6 | 9760 | 37.29 | 14.35 | 51.64 | 54 | -2.36 | peak | Vertical |

Channel: 2478MHz

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4956 | 38.32 | 7.48 | 45.8 | 54 | -8.2 | peak | Horizontal |
| 2 | 7434 | 39.79 | 11.62 | 51.41 | 54 | -2.59 | peak | Horizontal |
| 3 | 9912 | 38.14 | 14.4 | 52.54 | 54 | -1.46 | peak | Horizontal |
| 4 | 4956 | 39.69 | 7.48 | 47.17 | 54 | -6.83 | peak | Vertical |
| 5 | 7434 | 39.25 | 11.62 | 50.87 | 54 | -3.13 | peak | Vertical |
| 6 | 9912 | 38.62 | 14.4 | 53.02 | 54 | -0.98 | peak | Vertical |

Remark: 1. Test Level = Receiver Reading + Antenna Factor + Cable Loss- Preamplifier Factor

2. No any other emission which falls in restricted bands can be detected and be reported.

3. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

All frequencies within the "Restricted bands" have been evaluated to compliance. Section 15.205 Restricted bands of operation.

Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

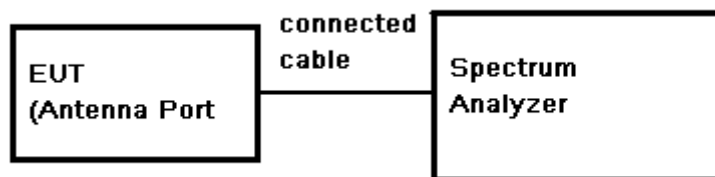
| MHz | MHz | MHz | GHz |
|----------------------------|---------------------|-----------------|------------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| ¹ 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 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 | 10.5 - 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 - | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.52525 | 2655 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 156.7 - 156.9 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.0125 - 167.17 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 167.72 - 173.2 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 240 - 285 | 3600 - 4400 | (²) |
| 13.36 - 13.41 | 322 - 335.4 | | |

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

² Above 38.6

7.6 20dB Bandwidth

Test Configuration:



Test Procedure:

1. Place the EUT on the table and set it in Engineering mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = approximately 1 % to 5 % of the OBW (set 30 kHz), VBW =3* RBW, Span=5MHz, Sweep=auto
4. Mark the peak frequency and -20dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured was complete.

Limit:

N/A

Test Result:

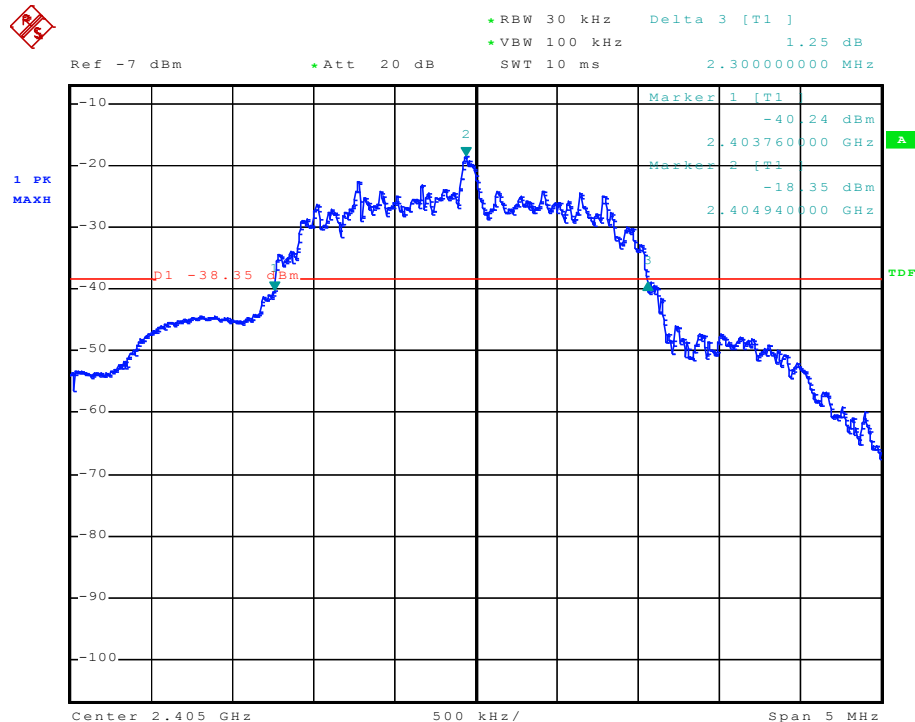
Pass

Test Data:

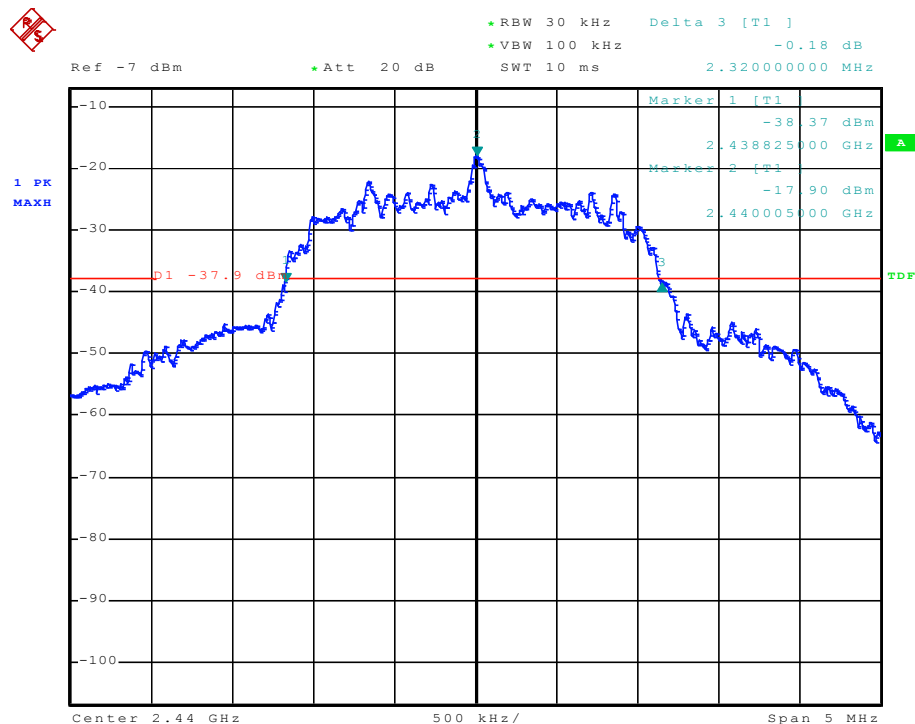
| Frequency (MHz) | Bandwidth (MHz) | Result |
|-----------------|-----------------|--------|
| 2405 | 2.30 | PASS |
| 2440 | 2.32 | PASS |
| 2478 | 2.35 | PASS |

Test plot as follows:

Channel: 2405MHz

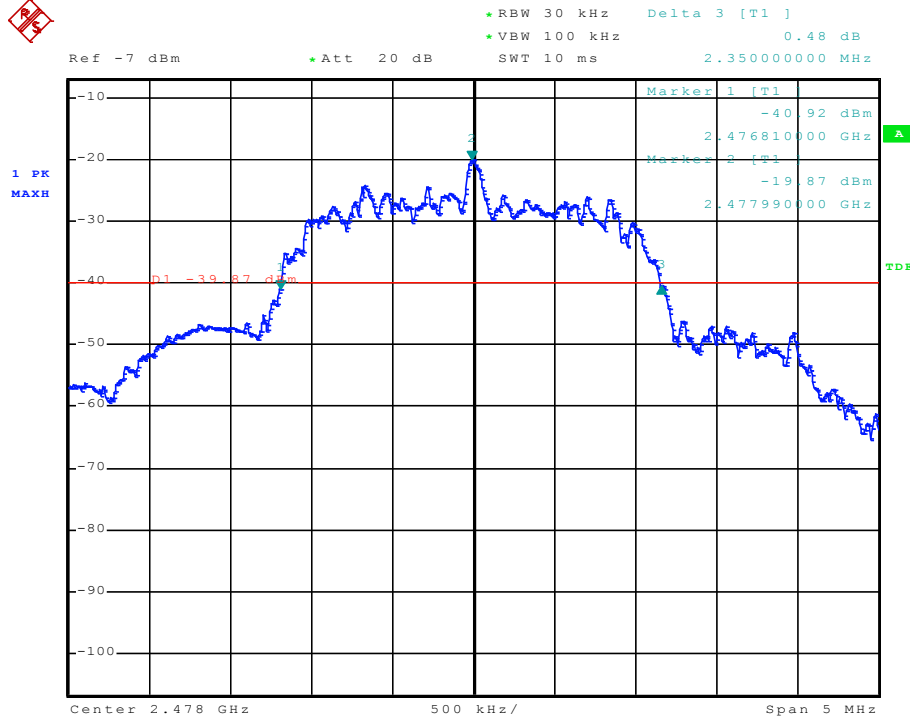


Channel: 2440MHz



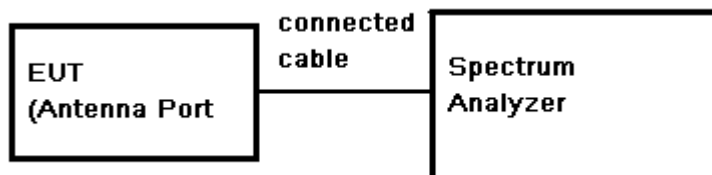


Channel: 2478MHz



7.7 99% Occupied Bandwidth

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: Span = approximately 2 to 3 times the 20dB bandwidth, centred on the hopping channel;
3. Set the spectrum analyzer: RBW = approximately 1 % to 5 % of the OBW (set 100 kHz), VBW \geq RBW. Sweep = auto; Detector Function = Peak. Trace = Max Hold.
4. Mark the peak frequency and using the 99% OBW function measure the bandwidth.

Test Result:

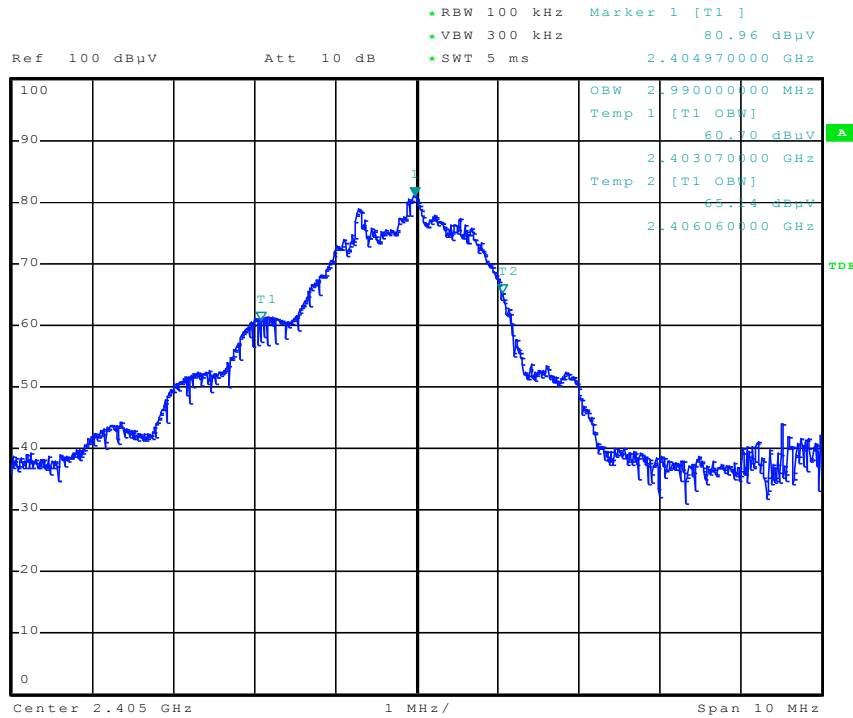
Pass

Test Date:

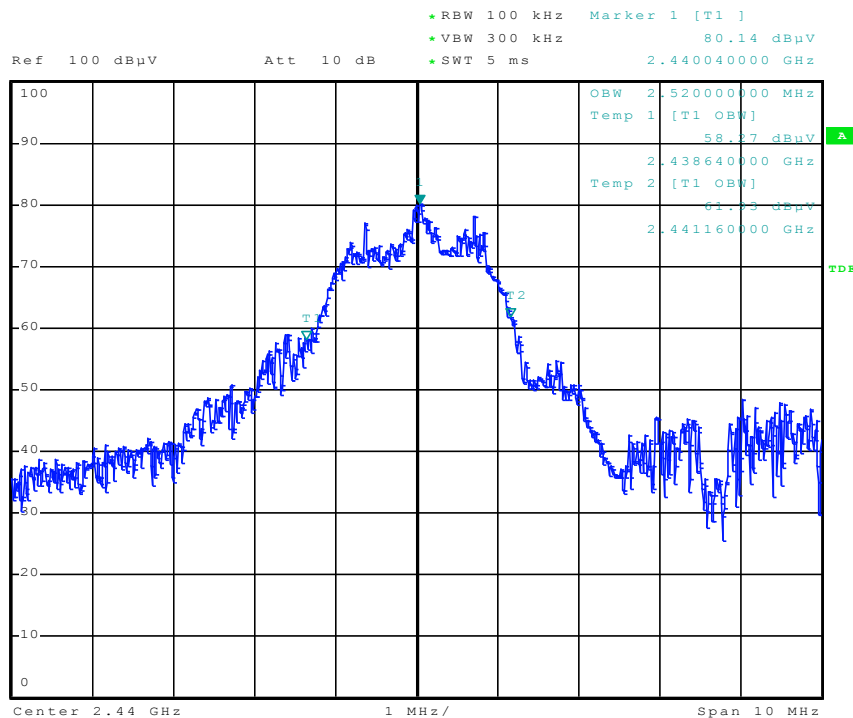
| Frequency (MHz) | Bandwidth (MHz) | Result |
|-----------------|-----------------|--------|
| 2405 | 2.99 | PASS |
| 2440 | 2.52 | PASS |
| 2478 | 2.63 | PASS |

Test plot as follows:

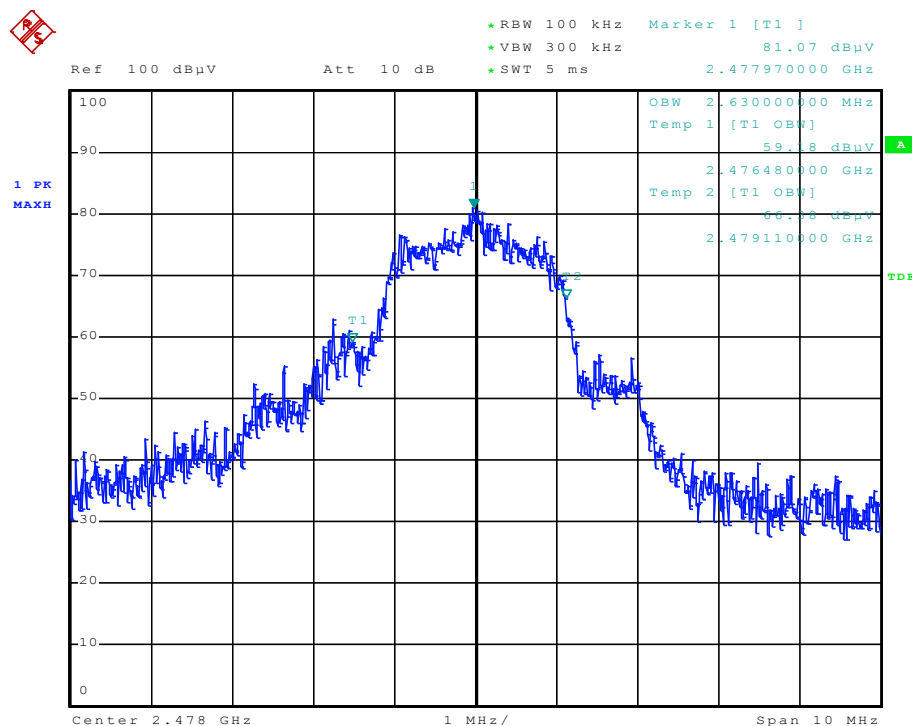
Channel: 2405MHz



Channel: 2440MHz



Channel: 2478MHz





8 Test Setup Photographs

Refer to the < R002 _Test Setup photos-FCC>.

9 EUT Constructional Details

Refer to the < R002 _External Photos > & < R002 _Internal Photos>.

--End of the Report--