



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

588 West Jindu Road, Songjiang District, Shanghai, China
Telephone: +86 (0) 21 6191 5666
Fax: +86 (0) 21 6191 5678
ee.shanghai@sgs.com

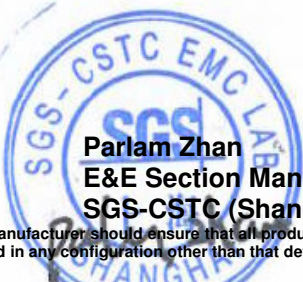
Report No.: SHEM150500127002
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1 Cover Page

FCC Part 15C TEST REPORT

| | |
|---|--|
| Application No.: | SHEM1505001270CR |
| Applicant: | Beijing Choice Electronic Technology Co., Ltd. |
| FCC ID: | WWIIPR1 |
| Equipment Under Test (EUT): NOTE: The following sample(s) was/were submitted and identified by the client as | |
| Product Name: | MyMed Reminder |
| Model No.(EUT): | PR1 |
| Standards: | FCC PART 15 Subpart C: 2014 |
| Date of Receipt: | May 08, 2015 |
| Date of Test: | June 25, 2015 to July 02, 2015 |
| Date of Issue: | July 23, 2015 |
| Test Result: | Pass* |

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





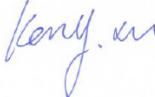
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant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

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

| Revision Record | | | | |
|-----------------|---------|---------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | / | July 23, 2015 | / | Original |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| | | | |
|--------------------------|------------|---|--|
| Authorized for issue by: | | | |
| Engineer | Eddy Zong |  | |
| | Print Name | | |
| Clerk | Susie Liu |  | |
| | Print Name | | |
| Reviewer | Kenx Xu |  | |
| | Print Name | | |



3 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|--|---|--------|
| Antenna Requirement | FCC Part 15, Subpart C Section 15.203/15.247 (c) | --- | PASS |
| AC Power Line Conducted Emission | FCC Part 15, Subpart C Section 15.207 | ANSI C63.10 (2013) Section 6.2 | PASS |
| Minimum 6dB Bandwidth | FCC Part 15, Subpart C Section 15.247 (a)(2) | ANSI C63.10 (2013) Section 6.9.1 | PASS |
| Conducted Peak Output Power | FCC Part 15, Subpart C Section 15.247 (b)(3) | ANSI C63.10 (2013) Section 6.10.2 | PASS |
| Power Spectrum Density | FCC Part 15, Subpart C Section 15.247 (e) | ANSI C63.10 (2013) Section 6.11.2 | PASS |
| RF Conducted Spurious Emissions and Band-edge | FCC Part 15, Subpart C Section 15.247(d) | ANSI C63.10 (2013) Section 7.7.9&7.7.10 | PASS |
| Radiated Spurious emissions and Band-edge | FCC Part 15, Subpart C Section 15.209 and Section 15.205 | ANSI C63.10 (2013) Section 6.5&6.6&6.7 | PASS |



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5 General Information

5.1 Client Information

Applicant: Beijing Choice Electronic Technology Co., Ltd.
Address of Applicant: Room 4104, No. A12 Yuquan Road, Haidian District, 100143 Beijing, PEOPLE'S REPUBLIC OF CHINA
Manufacturer: Beijing Choice Electronic Technology Co., Ltd.
Address of Manufacturer: Room 4104, No. A12 Yuquan Road, Haidian District, 100143 Beijing, PEOPLE'S REPUBLIC OF CHINA
Factory: Beijing Choice Electronic Technology Co., Ltd.
Address of Factory: No.9 Shuangyuan Rd., Badachu Hi-tech Zone, Shijiangshan District, 100041 Beijing, P.R. China.

5.2 General Description of E.U.T.

Brand Name: iChoice
Product Description: Portable Product
Adapter: Manufacturer: Apple
Model No.: A1402
Rated Input: AC 100~240V 50~60Hz 0.15A
Rated Output: DC 5.0V 1A
Cable length: DC port: 20 cm
Rechargeable Batteries: DC 3.7V Li-on Rechargeable Battery
Supply the EUT with fully charged battery during the testing.

5.3 Technical Specifications

Operation Frequency: 2402MHz-2480MHz
Bluetooth Version: BT 4.0
Modulation Type: GFSK
Number of Channel: 40
Antenna Type: Integral
Antenna Gain: 0dBi

5.4 Test Mode

| Test Mode | Description of Test Mode |
|-------------------|---|
| Transmitting mode | Keep EUT continuously transmit data from Bluetooth modular. |

5.5 Description of Support Units

The EUT has been tested independently

5.6 Details of Test Channel

Using test software was control EUT work in continuous transmitting mode. And select test channel as below:

| Channel | Frequency (MHz) |
|----------------|-----------------|
| Low Channel | 2402 |
| Middle Channel | 2440 |
| High Channel | 2480 |

5.7 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

5.8 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. Date of expiry: 2017-07-14.

- **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, Expiry Date: 2017-09-16.

- **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. Expiry Date: 2017-06-18.

- **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. Date of Expiry: 2017-11-16.



5.9 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 | $< \pm 6 \text{ dB}$ (30MHz – 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 List

| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due date |
|------|---|-------------------------------|-----------------------------|---------------|------------|---------------|
| 1 | EMI test receiver | Rohde & Schwarz | ESCS30 | 100086 | 2015-01-22 | 2016-01-21 |
| 2 | Line impedance stabilization network | SCHWARZBECK | NSLK8127 | 8127490 | 2015-01-22 | 2016-01-21 |
| 3 | Line impedance stabilization network | ETS | 3816/2 | 00034161 | 2015-01-22 | 2016-01-21 |
| 4 | Spectrum Analyzer | Rohde & Schwarz | FSP-30 | 2705121009 | 2015-01-22 | 2016-01-21 |
| 5 | EMI test receiver | Rohde & Schwarz | ESU40 | 100109 | 2015-02-13 | 2016-02-12 |
| 6 | Active Loop Antenna (9kHz to 30MHz) | Schwarzbeck - Mess-Elektronik | FMZB 1519 | 1519-034 | 2015-02-07 | 2016-02-06 |
| 7 | Broadband UHF-VHF ANTENNA (25MHz to 2GHz) | SCHWARZBECK | VULB9168 | 9168-313 | 2015-02-07 | 2016-02-06 |
| 8 | Ultra broadband antenna (25MHz to 3GHz) | Rohde & Schwarz | HL562 | 100227 | 2014-08-30 | 2015-08-29 |
| 9 | Horn Antenna (1GHz to 18GHz) | Rohde & Schwarz | HF906 | 100284 | 2015-02-07 | 2016-02-06 |
| 10 | Horn Antenna (1GHz to 18GHz) | SCHWARZBECK | BBHA9120D | 9120D-679 | 2015-02-07 | 2016-02-06 |
| 11 | Horn Antenna (14GHz to 40GHz) | SCHWARZBECK | BBHA 9170 | BBHA9170373 | 2015-02-13 | 2016-02-12 |
| 12 | Pre-amplifier (9KHz – 2GHz) | LNA6900 | TESEQ | 71033 | 2014-12-27 | 2015-12-27 |
| 13 | Pre-amplifier (1GHz – 26.5GHz) | Rohde & Schwarz | SCU-F0118-G40-BZ4-CSS(F) | 10001 | 2015-01-22 | 2016-01-21 |
| 14 | Pre-amplifier (14GHz – 40GHz) | Rohde & Schwarz | SCU-F1840-G35-BZ3-CSS(F) | 10001 | 2015-01-22 | 2016-01-21 |
| 15 | Tunable Notch Filter | Wainwright instruments GmbH | WRCT800.0/880.0-0.2/40-5SSK | 9170397 | / | / |
| 16 | High pass Filter | FSCW | HP 12/2800-5AA2 | 19A45-02 | / | / |
| 17 | High-low temperature cabinet | Suzhou Zhihe | TL-40 | 50110050 | 2014-09-11 | 2015-09-10 |
| 18 | AC power stabilizer | WOCEN | 6100 | 51122 | 2015-01-02 | 2016-01-01 |
| 19 | DC power | QJE | QJ30003SII | 611145 | 2015-01-02 | 2016-01-01 |
| 20 | Signal Generator (Interferer) | Agilent | SMR40 | 100555 | 2014-08-10 | 2015-08-09 |
| 21 | Signal Generator (Blocker) | Rohde & Schwarz | SMJ100A | 02.20.360.142 | 2015-01-22 | 2016-01-21 |
| 22 | Splitter | Anritsu | MA1612A | M12265 | / | / |
| 23 | Coupler | e-meca | 803-S-1 | 900-M01 | / | / |

7 Antenna Requirement

7.1 E.U.T. test conditions

Test Power: DC 3.7V

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 -102 mbar |

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 the lowest channel: 0 channel (2402MHz), middle channel: 39 channel (2440MHz) and highest channel: 78 channel (2480MHz) with fixed at channel.

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.

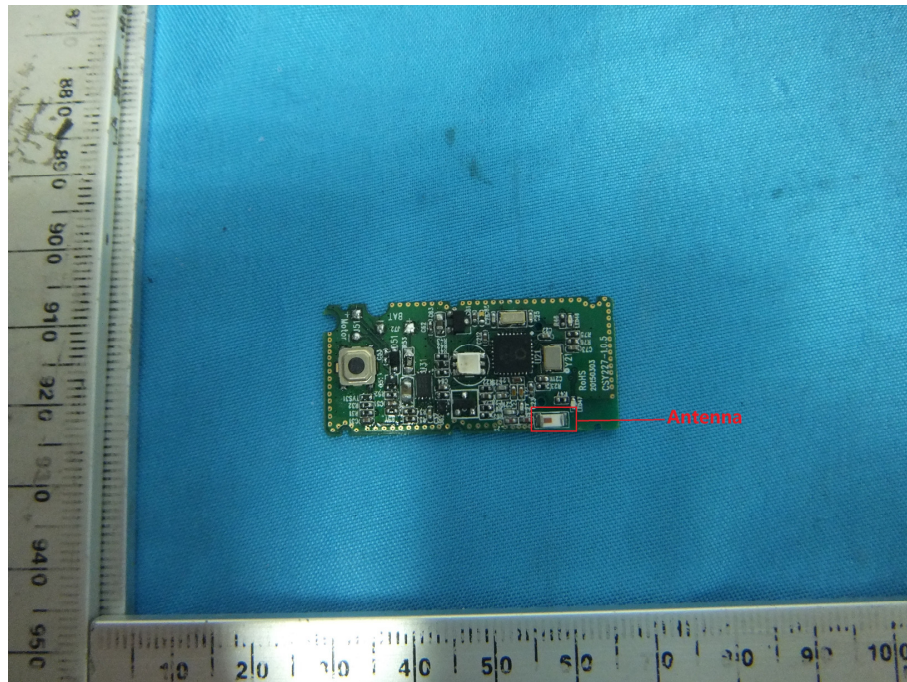
15.247(b) (4) requirement:

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 integrated on the main PCB and no consideration of replacement. The gain of the antenna is less than 0 dBi.

Antenna Configuration:



7.3 Conducted Emissions on Mains Terminals

Frequency Range: 150 KHz to 30 MHz

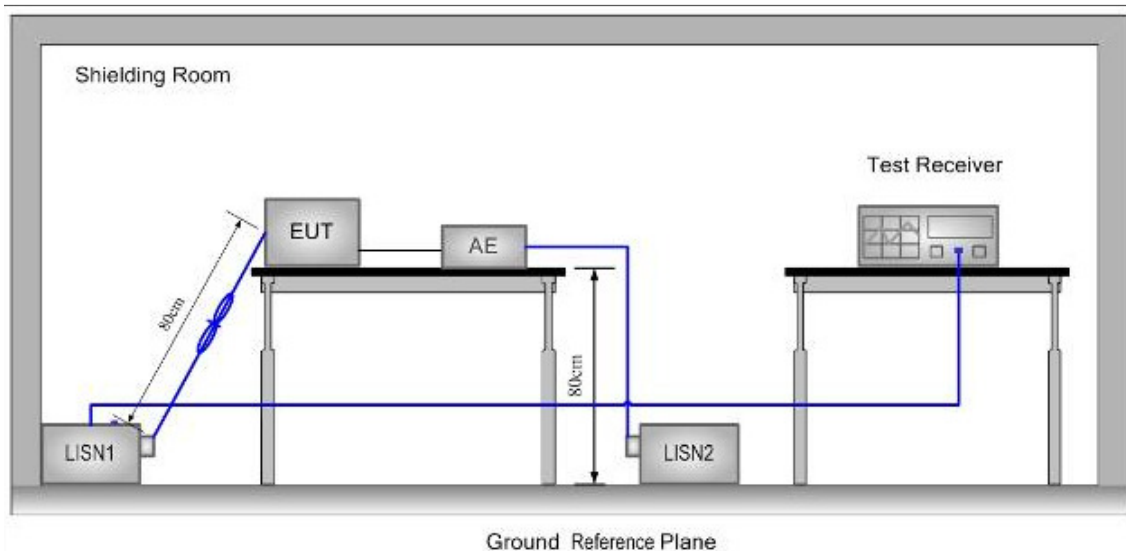
Class/Severity: Class B

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 Setup:



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

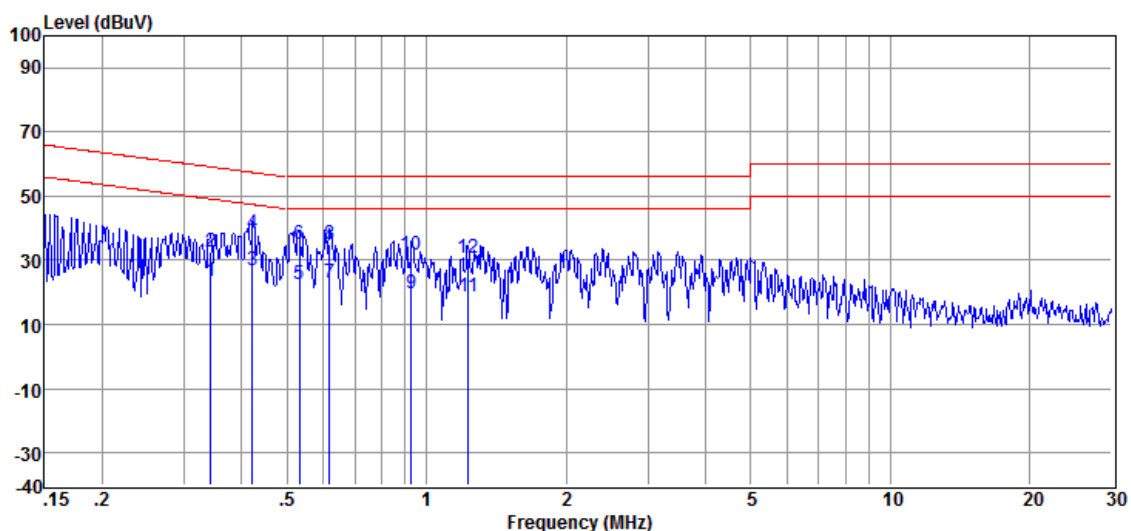
horizontal bundle with a length between 0.3m and 0.4m. All other units of the EUT and associated equipment were at least 0.8 m from the LISN.

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. Pretest under all modes; choose the worst case mode (in Middle channel) record on the report. Please see the attached Quasi-peak and Average test results.

Test Result: Pass

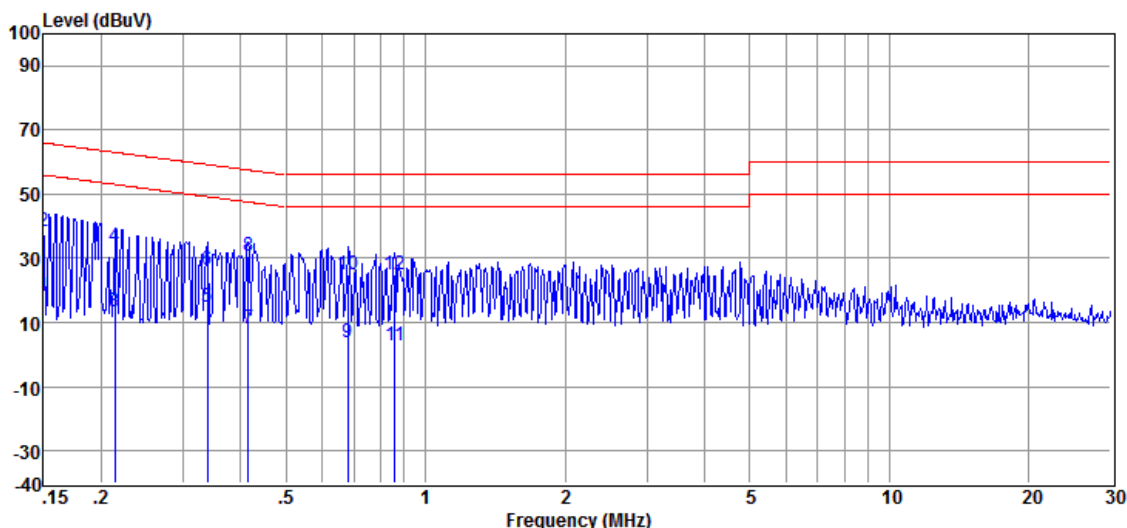
7.3.1 Measurement Data

Live Line:



| Item | Freq. | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Detector |
|--------|-------|------------|-------------|------------|--------|------------|------------|----------|
| (Mark) | (MHz) | (dBμV) | (dB) | (dB) | (dBμV) | (dBμV) | (dB) | |
| 1 | 0.343 | 22.99 | 0.25 | 0.10 | 23.34 | 49.13 | -25.79 | Average |
| 2 | 0.343 | 32.34 | 0.25 | 0.10 | 32.69 | 59.13 | -26.44 | QP |
| 3 | 0.421 | 26.30 | 0.25 | 0.10 | 26.65 | 47.42 | -20.77 | Average |
| 4 | 0.421 | 38.13 | 0.25 | 0.10 | 38.48 | 57.42 | -18.94 | QP |
| 5 | 0.532 | 22.22 | 0.24 | 0.10 | 22.56 | 46.00 | -23.44 | Average |
| 6 | 0.532 | 34.59 | 0.24 | 0.10 | 34.93 | 56.00 | -21.07 | QP |
| 7 | 0.617 | 22.60 | 0.23 | 0.10 | 22.93 | 46.00 | -23.07 | Average |
| 8 | 0.617 | 34.88 | 0.23 | 0.10 | 35.21 | 56.00 | -20.79 | QP |
| 9 | 0.928 | 19.49 | 0.18 | 0.10 | 19.77 | 46.00 | -26.23 | Average |
| 10 | 0.928 | 31.42 | 0.18 | 0.10 | 31.70 | 56.00 | -24.30 | QP |
| 11 | 1.229 | 18.42 | 0.23 | 0.10 | 18.75 | 46.00 | -27.25 | Average |
| 12 | 1.229 | 30.35 | 0.23 | 0.10 | 30.68 | 56.00 | -25.32 | QP |

Neutral Line:

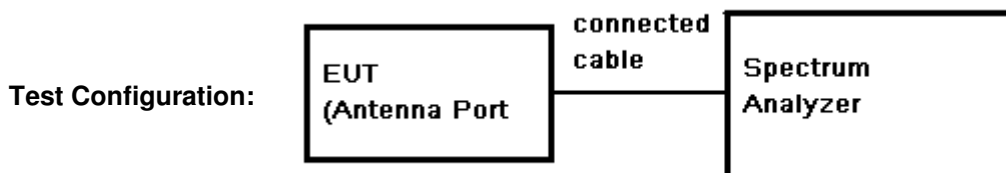


| Item | Freq. | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Detector |
|--------|-------|------------|-------------|------------|--------|------------|------------|----------|
| (Mark) | (MHz) | (dBμV) | (dB) | (dB) | (dBμV) | (dBμV) | (dB) | |
| 1 | 0.150 | 17.55 | 0.34 | 0.10 | 17.99 | 56.00 | -38.01 | Average |
| 2 | 0.150 | 38.22 | 0.34 | 0.10 | 38.66 | 66.00 | -27.34 | QP |
| 3 | 0.214 | 12.98 | 0.29 | 0.10 | 13.37 | 53.05 | -39.68 | Average |
| 4 | 0.214 | 33.31 | 0.29 | 0.10 | 33.70 | 63.05 | -29.35 | QP |
| 5 | 0.339 | 14.26 | 0.30 | 0.10 | 14.66 | 49.22 | -34.56 | Average |
| 6 | 0.339 | 26.15 | 0.30 | 0.10 | 26.55 | 59.22 | -32.67 | QP |
| 7 | 0.415 | 7.81 | 0.30 | 0.10 | 8.21 | 47.55 | -39.34 | Average |
| 8 | 0.415 | 30.23 | 0.30 | 0.10 | 30.63 | 57.55 | -26.92 | QP |
| 9 | 0.679 | 3.62 | 0.20 | 0.10 | 3.92 | 46.00 | -42.08 | Average |
| 10 | 0.679 | 24.79 | 0.20 | 0.10 | 25.09 | 56.00 | -30.91 | QP |
| 11 | 0.857 | 2.52 | 0.21 | 0.10 | 2.83 | 46.00 | -43.17 | Average |
| 12 | 0.857 | 24.80 | 0.21 | 0.10 | 25.11 | 56.00 | -30.89 | QP |

Level = Read Level + LISN/ISN Factor + Cable Loss.

7.4 6dB Occupied Bandwidth

Test Mode: Transmitting mode



Limit: ≥ 500 kHz

Test Procedure:

1. Place the EUT on the table and set it in transmitting 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=100KHz, VBW =3* RBW, Span=5MHz, Sweep=auto
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured was complete.

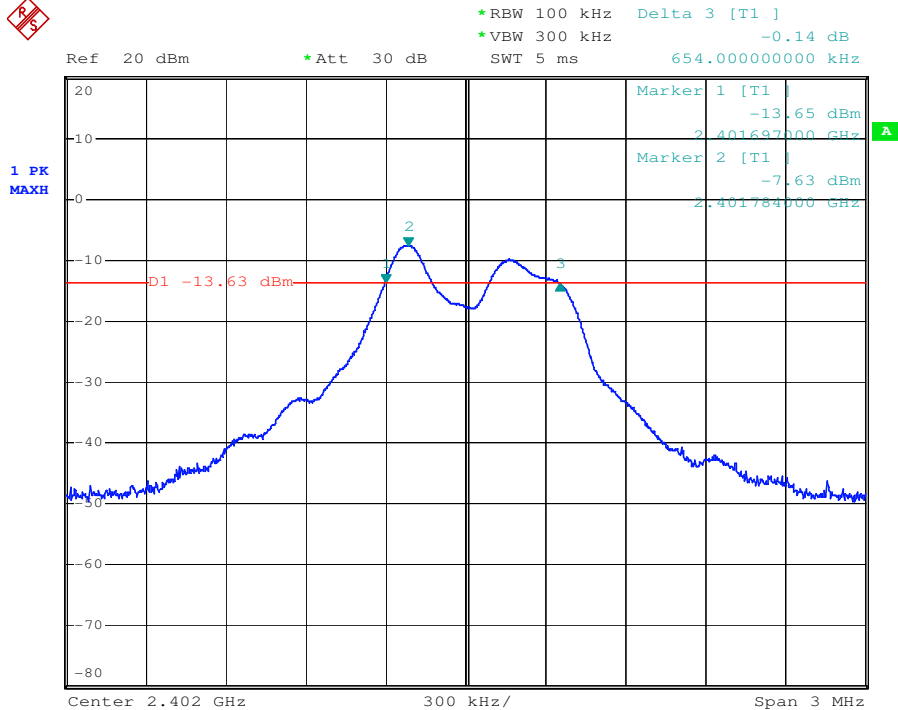
Test Result: Pass

Test date:

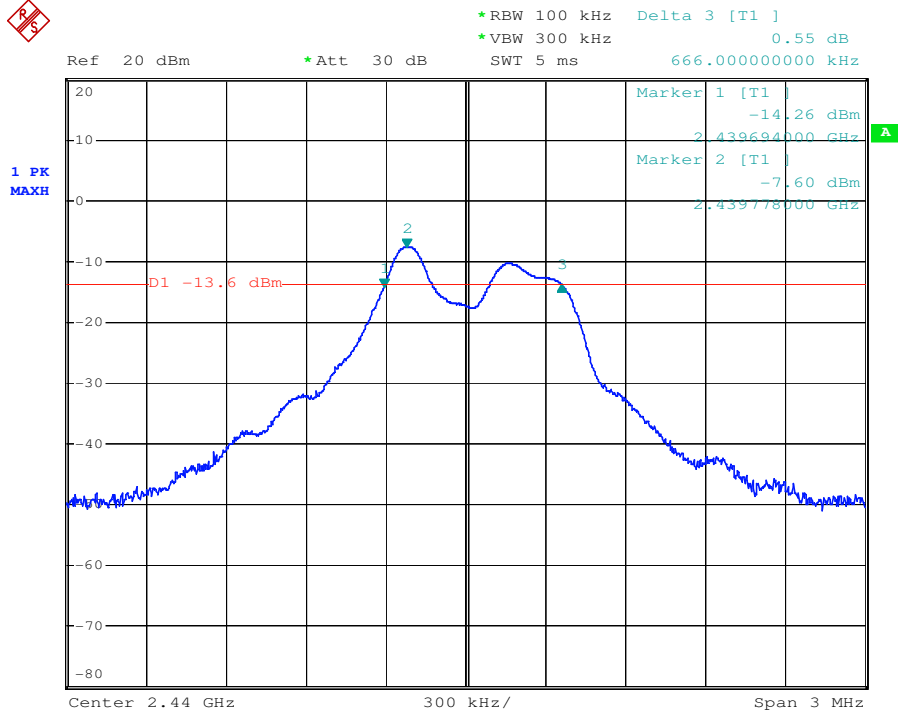
| Test Channel | Channel Frequency (MHz) | Bandwidth (MHz) |
|--------------|-------------------------|-----------------|
| Low | 2402 | 0.654 |
| Middle | 2440 | 0.666 |
| High | 2480 | 0.666 |

Test plot as follows:

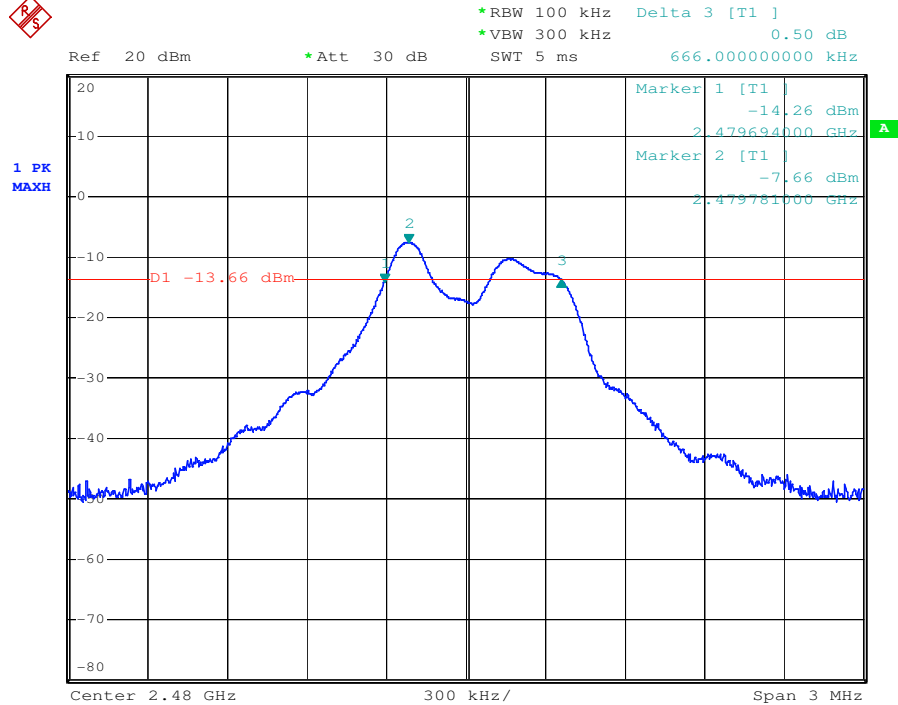
| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Lowest |
|------------|------|---------------|--------|



| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Middle |
|------------|------|---------------|--------|



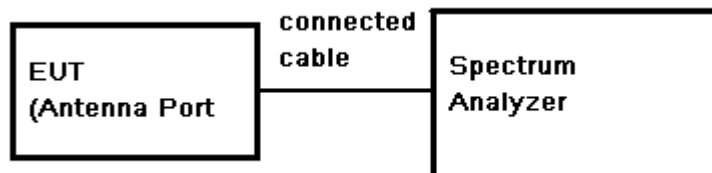
| | | | |
|------------|------|---------------|---------|
| Test mode: | GFSK | Test channel: | Highest |
|------------|------|---------------|---------|



7.5 Conducted Peak Output Power

Test Limit: 30dBm

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: RBW = 3 MHz, VBW = 10 MHz, Span= fully encompass the bandwidth, Sweep = auto; Detector Function = Peak Trace mode=max hold
3. Use the spectrum analyzer's channel power measurement function with the band limits set equal to the bandwidth edges.
4. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

Test Result: Pass

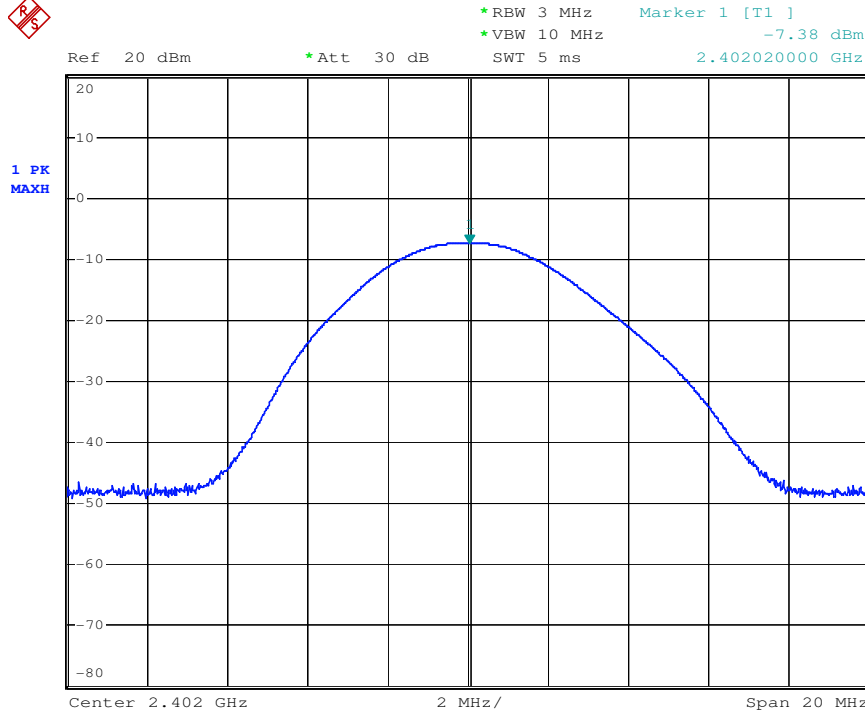
Test data:

| Test Channel | Fundamental Frequency (MHz) | Reading Power (dBm) | Cable Loss (dB) | Output Power (dBm) | Limit (dBm) | Over Limit (dB) |
|--------------|-----------------------------|---------------------|-----------------|--------------------|-------------|-----------------|
| Lowest | 2402 | -7.38 | 0.5 | -6.88 | 30 | -36.88 |
| Middle | 2440 | -7.35 | 0.5 | -6.85 | 30 | -36.85 |
| Highest | 2480 | -7.44 | 0.5 | -6.94 | 30 | -36.94 |

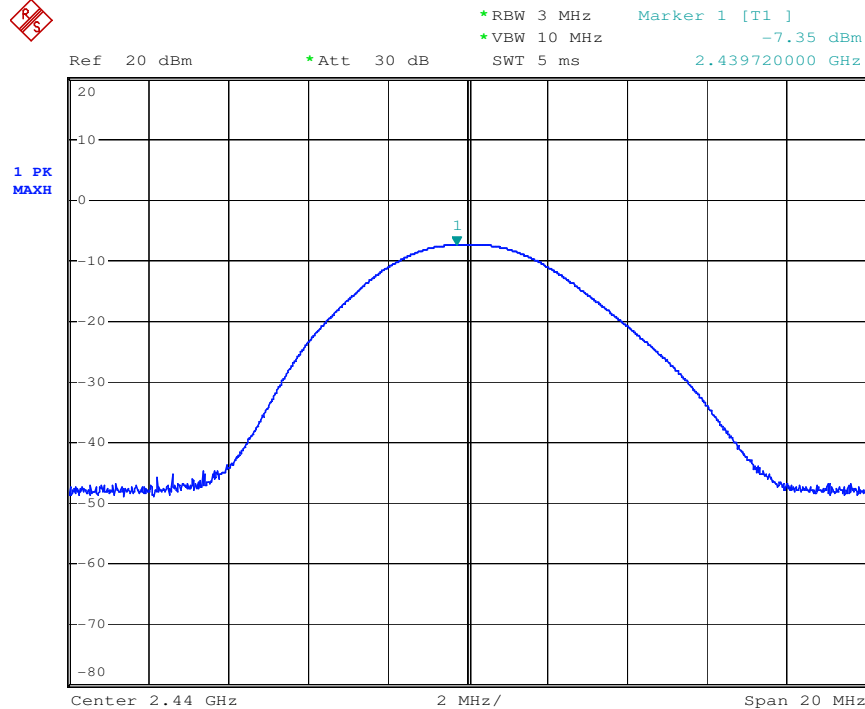
Output Power = Reading Power + Cable Loss

Test result plot as follows:

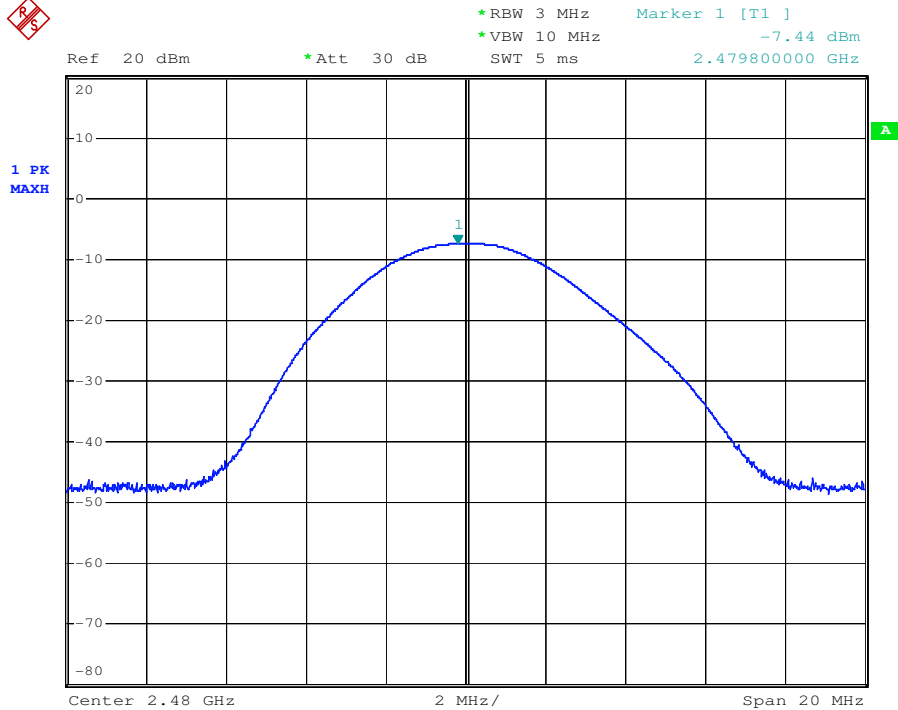
| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Lowest |
|------------|------|---------------|--------|



| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Middle |
|------------|------|---------------|--------|



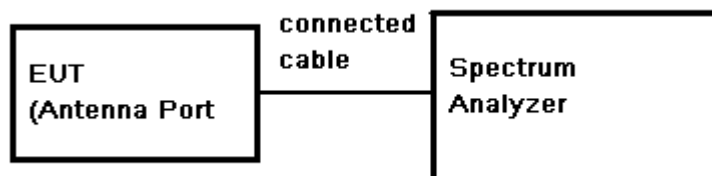
| | | | |
|------------|------|---------------|---------|
| Test mode: | GFSK | Test channel: | Highest |
|------------|------|---------------|---------|



7.6 Peak Power Spectral Density

Test Limit: 8dBm/3kHz

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: Center Frequency= Channel Frequency, RBW = 3 kHz VBW = 10 kHz. Span= fully encompass the bandwidth, Sweep = auto; Detector Function = Peak Trace mode=max hold,
3. Set MKR=Center Frequency, Trace=Clear Write.
4. Adjust the Span = 300 kHz, Sweep Time=100s, Trace=Max Hold, MKR=Peak Search.
5. Record the marker level for the particular mode.
6. Repeat these steps for other channel and device modes.

Test Result:

Pass

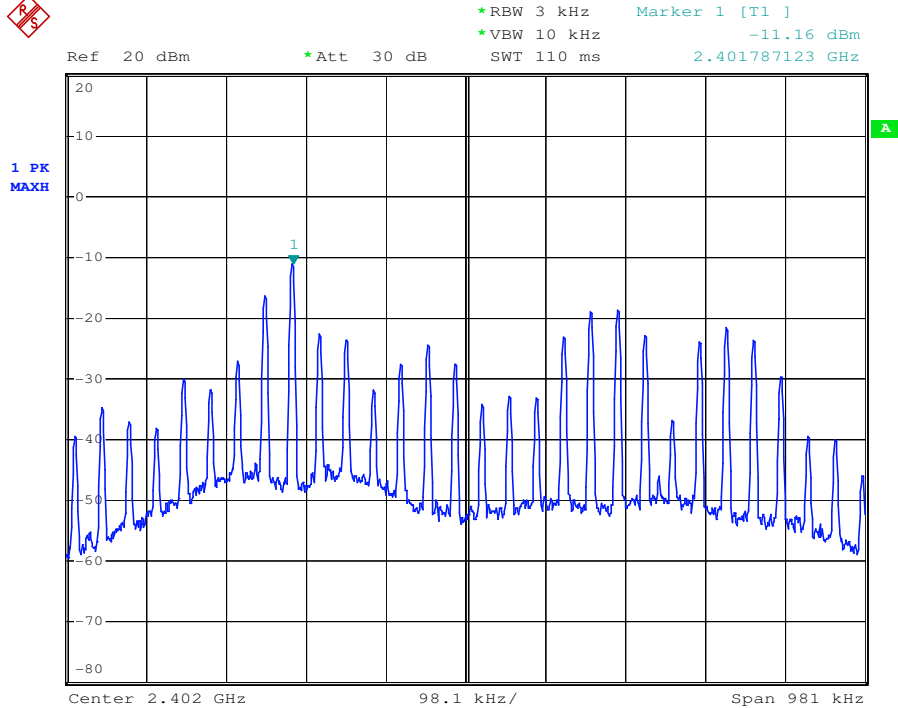
Test data:

| Channel | Reading (dBm) | Cable Loss (dB) | RF Power Density (dBm) | Peak Power Limit (dBm) | Result |
|---------|---------------|-----------------|------------------------|------------------------|--------|
| Low | -11.16 | 0.5 | -10.66 | 8 | PASS |
| Mid | -11.01 | 0.5 | -10.51 | 8 | PASS |
| High | -11.09 | 0.5 | -10.59 | 8 | PASS |

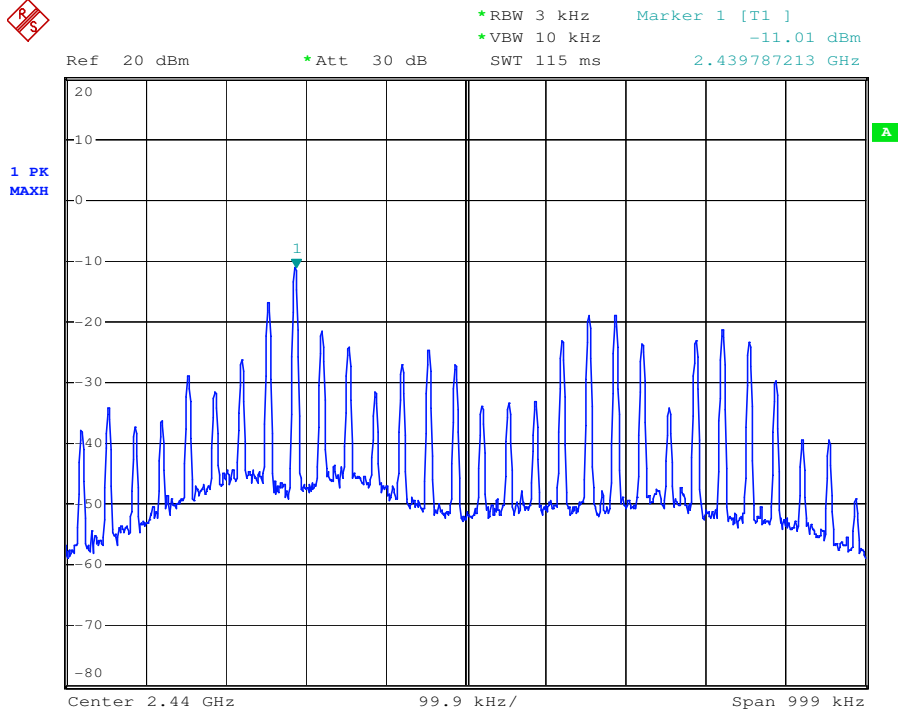
RF Power Density = Reading Power + Cable Loss

Test plot as follows:

| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Lowest |
|------------|------|---------------|--------|

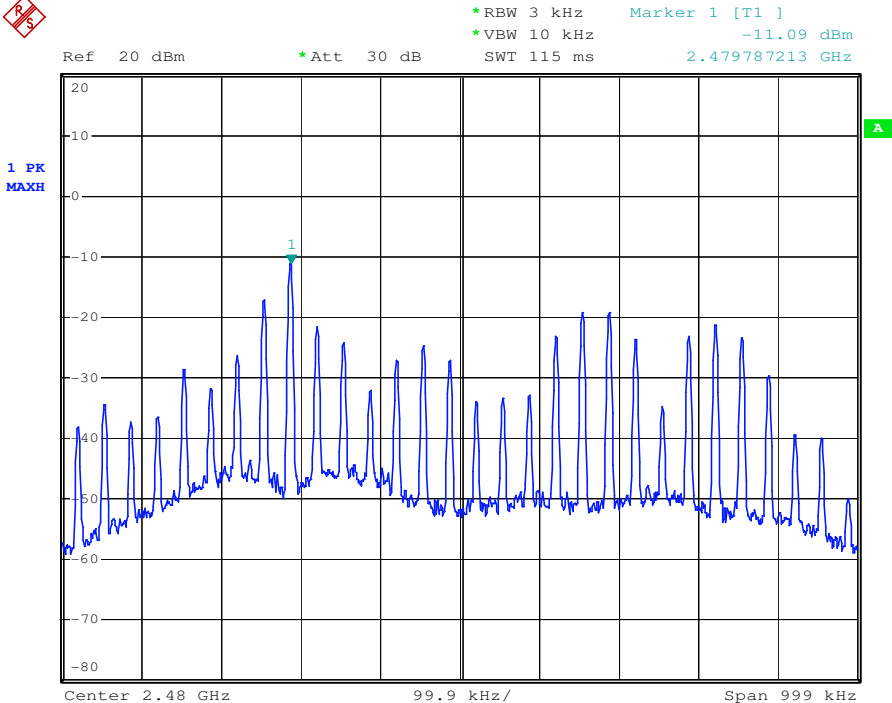


| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Middle |
|------------|------|---------------|--------|





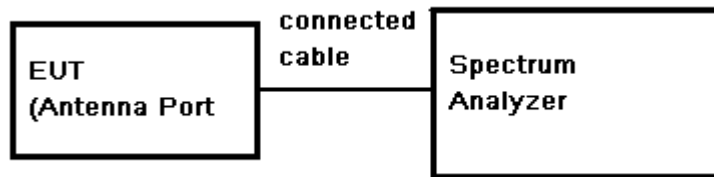
| | | | |
|------------|------|---------------|---------|
| Test mode: | GFSK | Test channel: | Highest |
|------------|------|---------------|---------|



7.7 Conducted Spurious Emissions and Band edge

Limit: (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

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: RBW = 100KHz. VBW >= RBW. Sweep = auto; Detector Function = Peak (Max. hold).

Test Result: Pass

7.7.1 Conducted Spurious Emissions

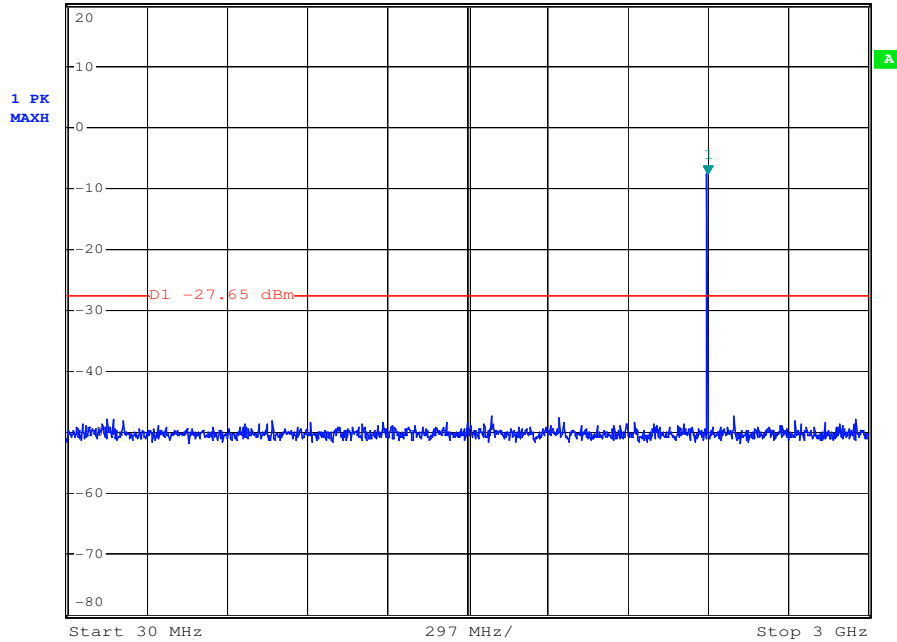
Test plot as follows:

| Test mode: | GFSK | Test channel: | Lowest |
|------------|------|---------------|--------|
|------------|------|---------------|--------|

30MHz-3GHz:



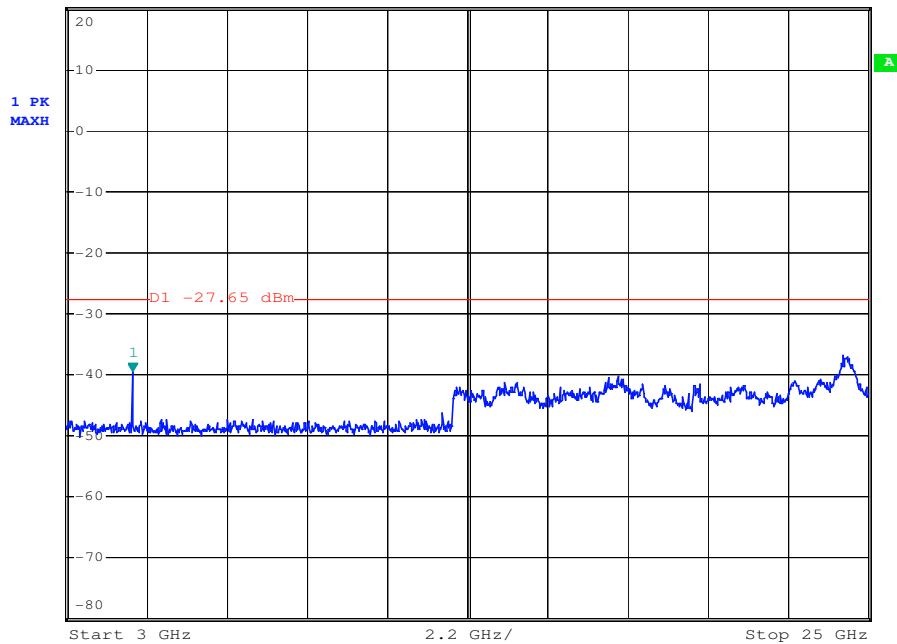
Ref 20 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz -7.65 dBm
SWT 300 ms 2.403030000 GHz



3GHz-25GHz:



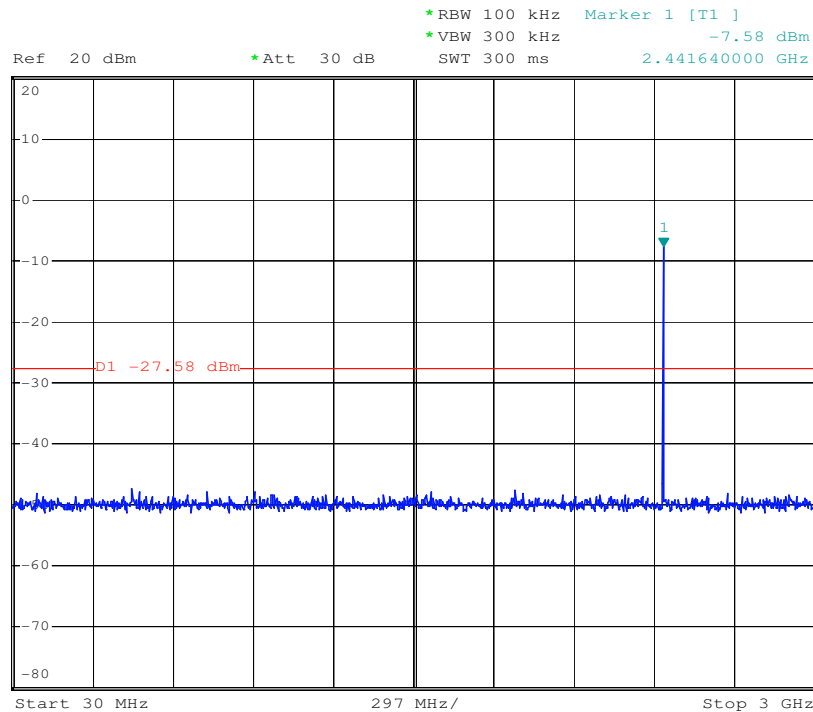
Ref 20 dBm *Att 30 dB *RBW 100 kHz Marker 1 [T1]
*VBW 300 kHz -39.34 dBm
SWT 2.2 s 4.804000000 GHz



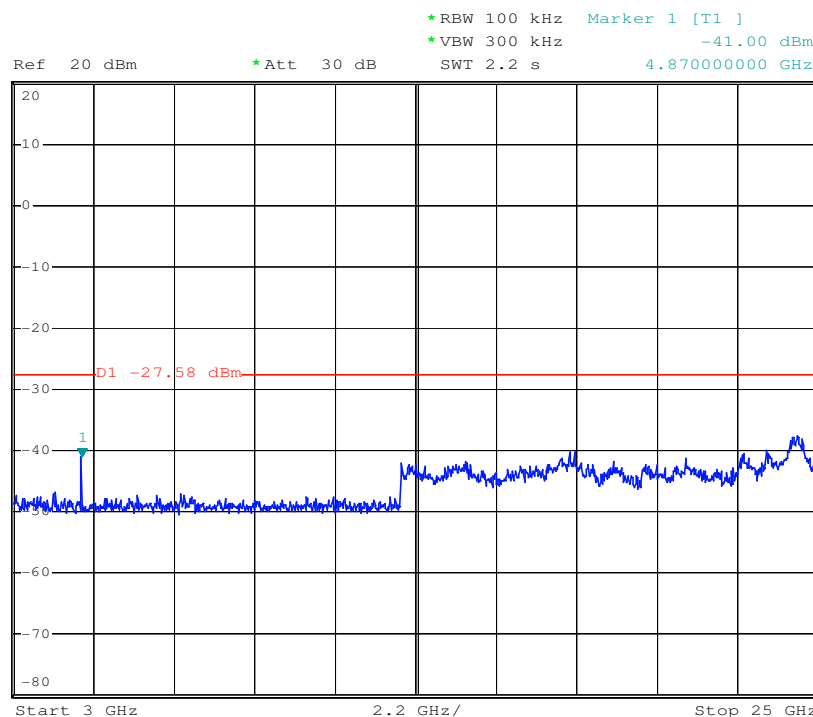


| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Middle |
|------------|------|---------------|--------|

30MHz-3GHz:

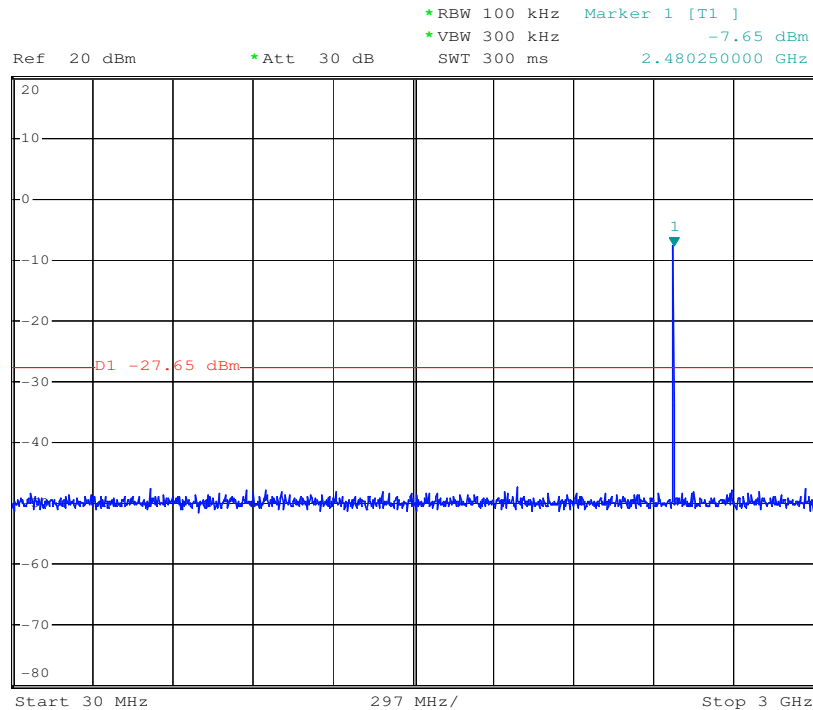


3GHz-25GHz:

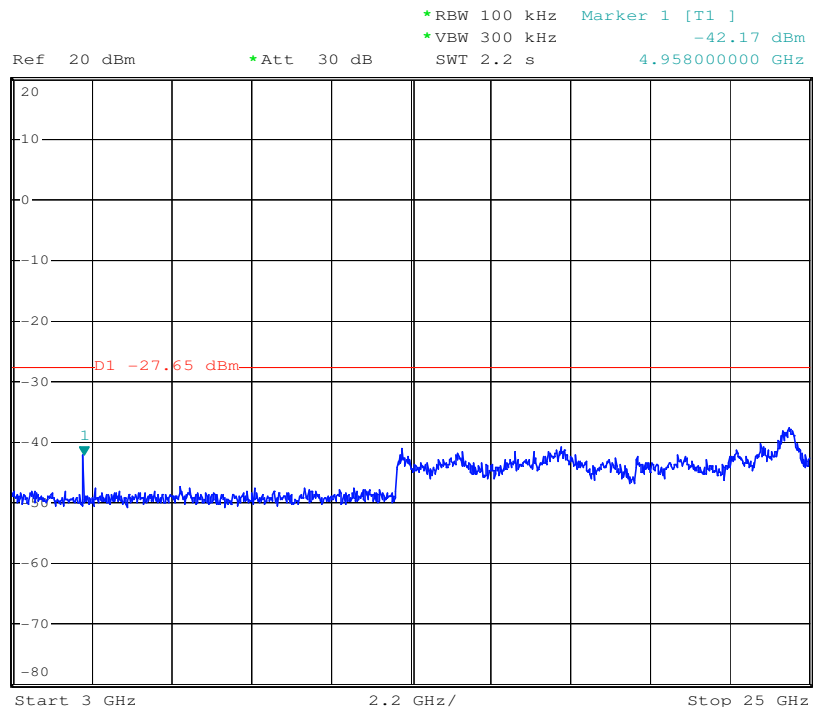


| | | | |
|------------|------|---------------|---------|
| Test mode: | GFSK | Test channel: | Highest |
|------------|------|---------------|---------|

30MHz-3GHz:



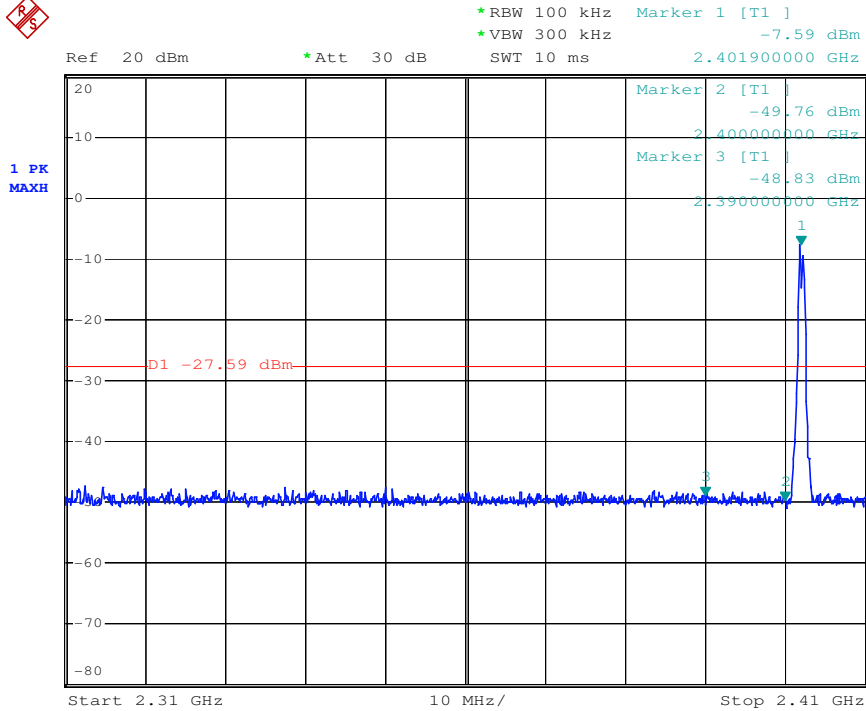
3GHz-25GHz:



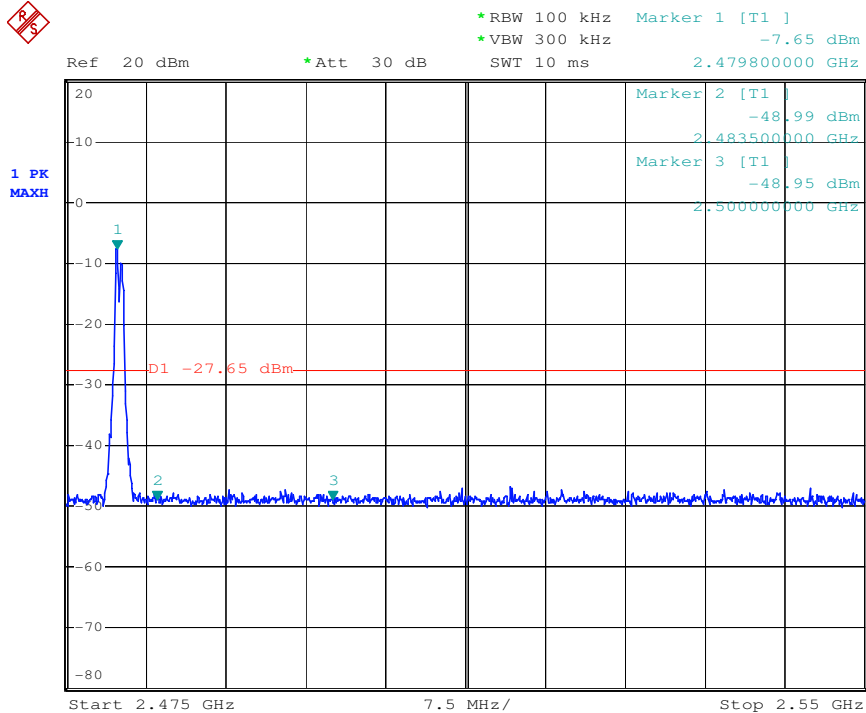
7.7.2 Conducted Band-edge

Test plot as follows:

| | | | |
|------------|------|---------------|--------|
| Test mode: | GFSK | Test channel: | Lowest |
|------------|------|---------------|--------|



| | | | |
|------------|------|---------------|---------|
| Test mode: | GFSK | Test channel: | Highest |
|------------|------|---------------|---------|



7.8 Radiated Spurious Emissions and Band-edge

Frequency Range: 9KHz to 25GHz

Test site/setup: Measurement Distance: 3m (Semi-Anechoic Chamber)

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 | Limit (dBuV/m) |
|-------------------|----------------|
| 0.009MHz-0.490MHz | 128.5 ~ 93.8 |
| 0.490MHz-1.705MHz | 73.8 ~63.0 |
| 1.705MHz-30MHz | 69.5 |
| 30MHz-88MHz | 40.0 |
| 88MHz-216MHz | 43.5 |
| 216MHz-960MHz | 46.0 |
| 960MHz-1GHz | 54.0 |
| Above 1GHz | 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

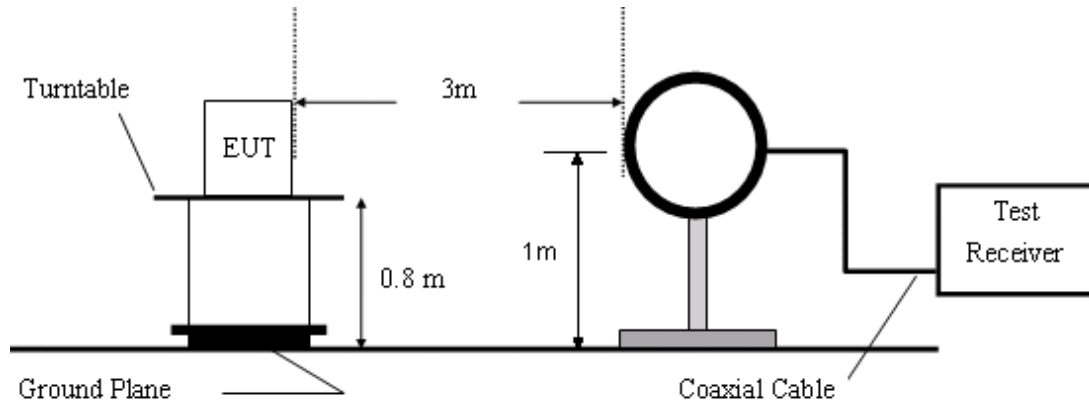


Figure1. Below 30MHz radiated emissions test configuration

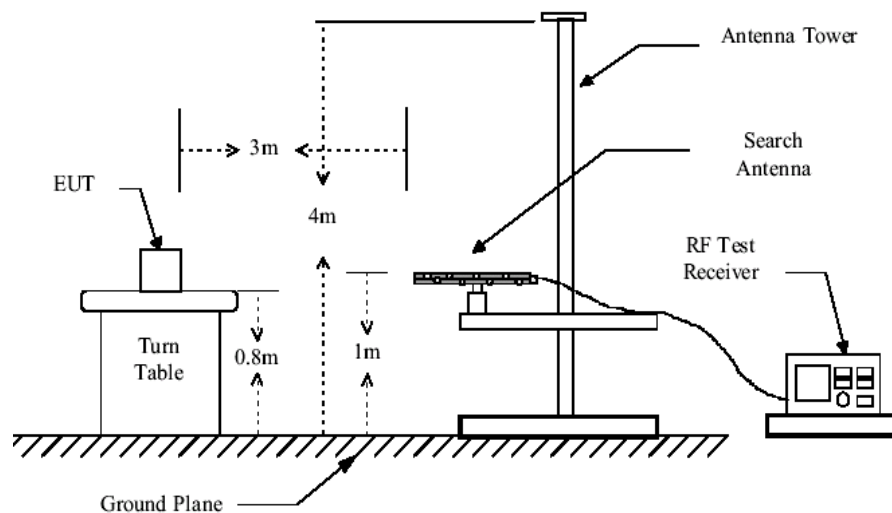


Figure 2. 30MHz to 1GHz radiated emissions test configuration

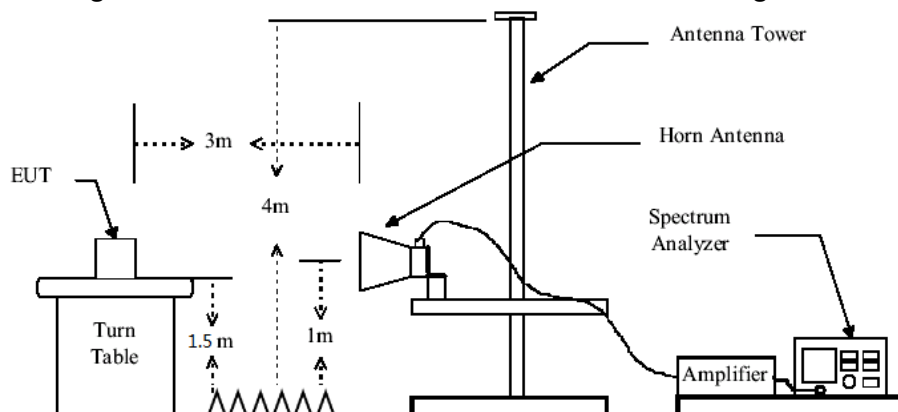


Figure 3. Above 1GHz radiated emissions test configuration

Test Procedure:

The procedure used was ANSI Standard C63.10. 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.

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 1000 MHz, 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

7.8.1 Radiated Spurious Emissions

30MHz-1GHz:

lowest Channel

| Item | Freq. | Read Level | Antenna Factor | Preamplifier Factor | Cable Loss | Result Level | Limit Line | Over Limit | Detector | Polarization |
|--------|--------|------------|----------------|---------------------|------------|--------------|------------|------------|----------|--------------|
| (Mark) | (MHz) | (dBμV) | (dB/m) | (dB) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | |
| 1 | 39.16 | 23.15 | 13.01 | 23.70 | 0.26 | 12.72 | 40.00 | -27.28 | QP | Horizontal |
| 2 | 59.44 | 22.93 | 12.10 | 23.69 | 0.51 | 11.85 | 40.00 | -28.15 | QP | Horizontal |
| 3 | 159.78 | 23.13 | 12.30 | 23.63 | 1.22 | 13.02 | 43.50 | -30.48 | QP | Horizontal |
| 4 | 348.03 | 23.58 | 13.19 | 23.69 | 1.96 | 15.04 | 46.00 | -30.96 | QP | Horizontal |
| 5 | 452.72 | 23.53 | 16.11 | 23.72 | 2.32 | 18.24 | 46.00 | -27.76 | QP | Horizontal |
| 6 | 766.06 | 24.08 | 21.89 | 23.91 | 3.14 | 25.20 | 46.00 | -20.80 | QP | Horizontal |
| 1 | 35.50 | 36.18 | 12.65 | 23.71 | 0.19 | 25.31 | 40.00 | -14.69 | QP | Vertical |
| 2 | 47.83 | 26.93 | 12.88 | 23.70 | 0.38 | 16.49 | 40.00 | -23.51 | QP | Vertical |
| 3 | 54.26 | 31.31 | 12.18 | 23.69 | 0.47 | 20.27 | 40.00 | -19.73 | QP | Vertical |
| 4 | 62.21 | 29.97 | 11.82 | 23.68 | 0.54 | 18.65 | 40.00 | -21.35 | QP | Vertical |
| 5 | 79.80 | 28.46 | 8.47 | 23.67 | 0.69 | 13.95 | 40.00 | -26.05 | QP | Vertical |
| 6 | 147.92 | 25.99 | 12.19 | 23.64 | 1.16 | 15.70 | 43.50 | -27.80 | QP | Vertical |

Middle Channel

| Item | Freq. | Read Level | Antenna Factor | Preamplifier Factor | Cable Loss | Result Level | Limit Line | Over Limit | Detector | Polarization |
|--------|--------|------------|----------------|---------------------|------------|--------------|------------|------------|----------|--------------|
| (Mark) | (MHz) | (dBμV) | (dB/m) | (dB) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | |
| 1 | 39.16 | 22.95 | 13.01 | 23.70 | 0.26 | 12.52 | 40.00 | -27.48 | QP | Horizontal |
| 2 | 59.44 | 22.68 | 12.10 | 23.69 | 0.51 | 11.60 | 40.00 | -28.40 | QP | Horizontal |
| 3 | 159.78 | 22.12 | 12.30 | 23.63 | 1.22 | 14.03 | 43.50 | -29.47 | QP | Horizontal |
| 4 | 348.03 | 23.56 | 13.19 | 23.69 | 1.96 | 15.02 | 46.00 | -30.98 | QP | Horizontal |
| 5 | 452.72 | 23.64 | 16.11 | 23.72 | 2.32 | 18.13 | 46.00 | -27.87 | QP | Horizontal |
| 6 | 766.06 | 24.06 | 21.89 | 23.91 | 3.14 | 25.22 | 46.00 | -20.78 | QP | Horizontal |
| 1 | 35.50 | 36.16 | 12.65 | 23.71 | 0.19 | 25.29 | 40.00 | -14.71 | QP | Vertical |
| 2 | 47.83 | 26.81 | 12.88 | 23.70 | 0.38 | 16.37 | 40.00 | -23.63 | QP | Vertical |
| 3 | 54.26 | 29.31 | 12.18 | 23.69 | 0.47 | 18.27 | 40.00 | -21.73 | QP | Vertical |
| 4 | 62.21 | 28.97 | 11.82 | 23.68 | 0.54 | 17.65 | 40.00 | -22.35 | QP | Vertical |
| 5 | 79.80 | 26.36 | 8.47 | 23.67 | 0.69 | 11.85 | 40.00 | -28.15 | QP | Vertical |
| 6 | 147.92 | 26.98 | 12.19 | 23.64 | 1.16 | 16.71 | 43.50 | -26.79 | QP | Vertical |

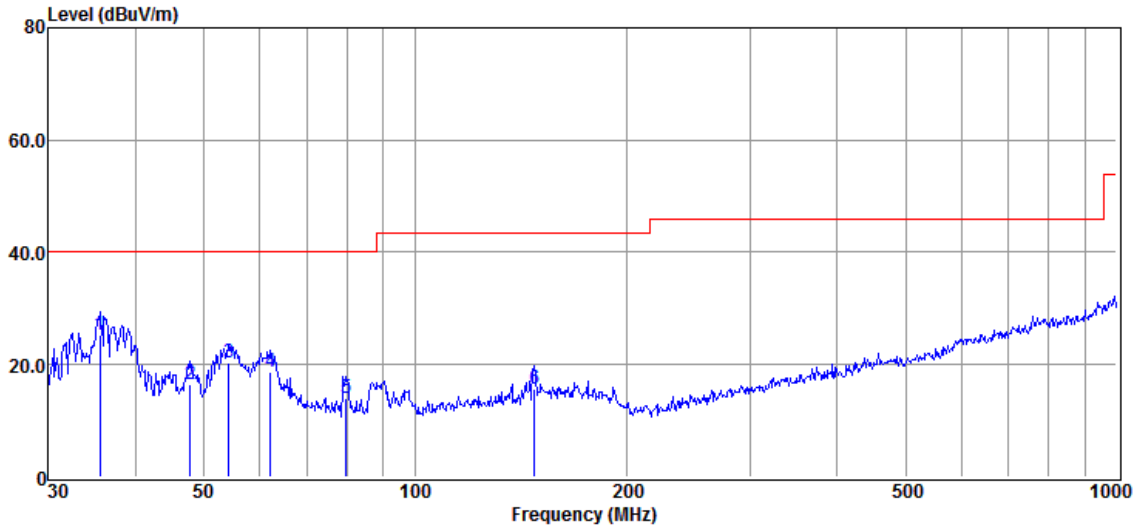


Highest Channel

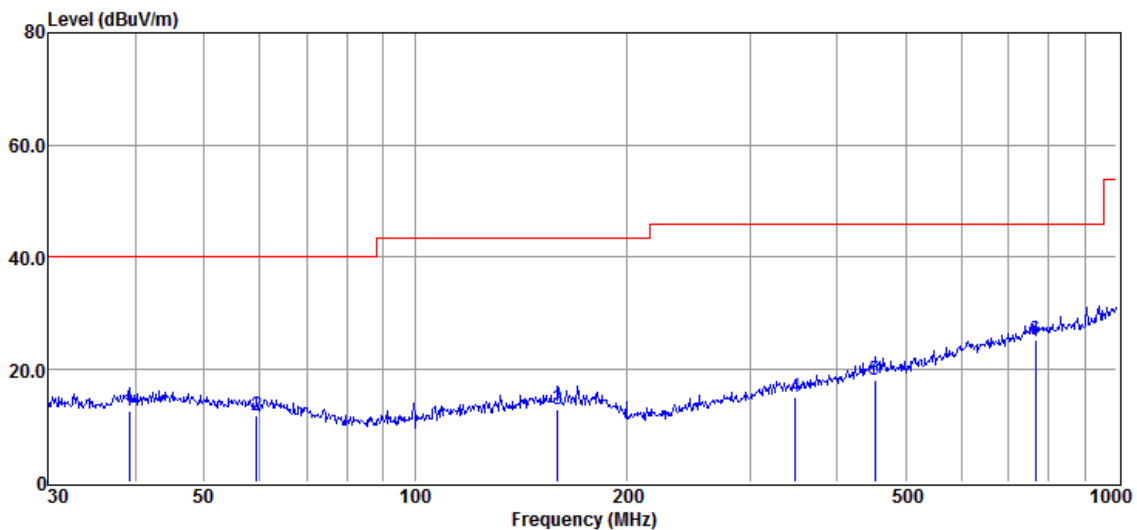
| Item | Freq. | Read Level | Antenna Factor | Preamplifier Factor | Cable Loss | Result Level | Limit Line | Over Limit | Detector | Polarization |
|--------|--------|------------|----------------|---------------------|------------|--------------|------------|------------|----------|--------------|
| (Mark) | (MHz) | (dBμV) | (dB/m) | (dB) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | | |
| 1 | 39.16 | 22.98 | 13.01 | 23.70 | 0.26 | 12.55 | 40.00 | -27.45 | QP | Horizontal |
| 2 | 59.44 | 22.98 | 12.10 | 23.69 | 0.51 | 11.90 | 40.00 | -28.10 | QP | Horizontal |
| 3 | 159.78 | 23.12 | 12.30 | 23.63 | 1.22 | 15.03 | 43.50 | -28.47 | QP | Horizontal |
| 4 | 348.03 | 21.35 | 13.19 | 23.69 | 1.96 | 13.81 | 46.00 | -32.19 | QP | Horizontal |
| 5 | 452.72 | 23.32 | 16.11 | 23.72 | 2.32 | 17.81 | 46.00 | -28.19 | QP | Horizontal |
| 6 | 766.06 | 24.17 | 21.89 | 23.91 | 3.14 | 25.33 | 46.00 | -20.67 | QP | Horizontal |
| 1 | 35.50 | 36.12 | 12.65 | 23.71 | 0.19 | 25.25 | 40.00 | -14.75 | QP | Vertical |
| 2 | 47.83 | 26.76 | 12.88 | 23.70 | 0.38 | 16.32 | 40.00 | -23.68 | QP | Vertical |
| 3 | 54.26 | 29.28 | 12.18 | 23.69 | 0.47 | 18.24 | 40.00 | -21.77 | QP | Vertical |
| 4 | 62.21 | 28.94 | 11.82 | 23.68 | 0.54 | 17.62 | 40.00 | -22.38 | QP | Vertical |
| 5 | 79.80 | 25.36 | 8.47 | 23.67 | 0.69 | 10.85 | 40.00 | -29.15 | QP | Vertical |
| 6 | 147.92 | 26.48 | 12.19 | 23.64 | 1.16 | 16.21 | 43.50 | -27.29 | QP | Vertical |

Result Level = Read Level + Antenna Factor + Cable loss - Preamplifier Factor

Below is the plot of worst case on lowest channel:
Vertical:



Horizontal:



Above 1GHz:

Lowest Channel(2402MHz)

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4804 | 41.21 | 6.18 | 47.39 | 54 | -6.61 | peak | Horizontal |
| 2 | 7206 | 39.43 | 10.63 | 50.06 | 54 | -3.94 | peak | Horizontal |
| 3 | 9608 | 36.45 | 14.38 | 50.83 | 54 | -3.17 | peak | Horizontal |
| 4 | 4804 | 42.52 | 6.18 | 48.70 | 54 | -5.30 | peak | Vertical |
| 5 | 7206 | 39.69 | 10.63 | 50.32 | 54 | -3.68 | peak | Vertical |
| 6 | 9608 | 36.38 | 14.38 | 50.76 | 54 | -3.24 | peak | Vertical |

Middle Channel(2440MHz)

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4880 | 44.36 | 6.97 | 51.33 | 54 | -2.67 | peak | Horizontal |
| 2 | 7320 | 39.87 | 11.12 | 50.99 | 54 | -3.01 | peak | Horizontal |
| 3 | 9760 | 37.55 | 14.35 | 51.90 | 54 | -2.10 | peak | Horizontal |
| 4 | 4880 | 38.03 | 6.97 | 45.00 | 54 | -9.00 | peak | Vertical |
| 5 | 7320 | 39.13 | 11.12 | 50.25 | 54 | -3.75 | peak | Vertical |
| 6 | 9760 | 37.17 | 14.35 | 51.52 | 54 | -2.48 | peak | Vertical |

Test in Channel High in transmitting status

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 4960 | 43.61 | 7.49 | 51.10 | 54 | -2.90 | peak | Horizontal |
| 2 | 7440 | 40.13 | 11.65 | 51.78 | 54 | -2.22 | peak | Horizontal |
| 3 | 9920 | 37.69 | 14.40 | 52.09 | 54 | -1.91 | peak | Horizontal |
| 4 | 4960 | 40.51 | 7.49 | 48.00 | 54 | -6.00 | peak | Vertical |
| 5 | 7440 | 40.08 | 11.65 | 51.73 | 54 | -2.27 | peak | Vertical |
| 6 | 9920 | 38.06 | 14.4 | 52.46 | 54 | -1.54 | peak | Vertical |

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

2. No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), the amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.

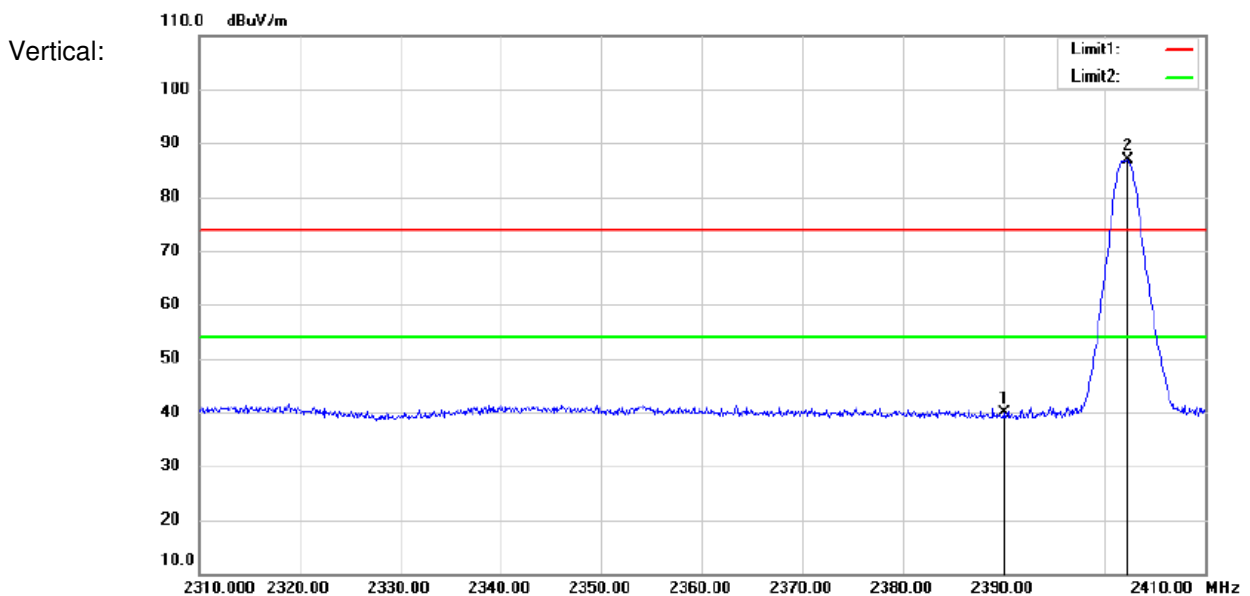
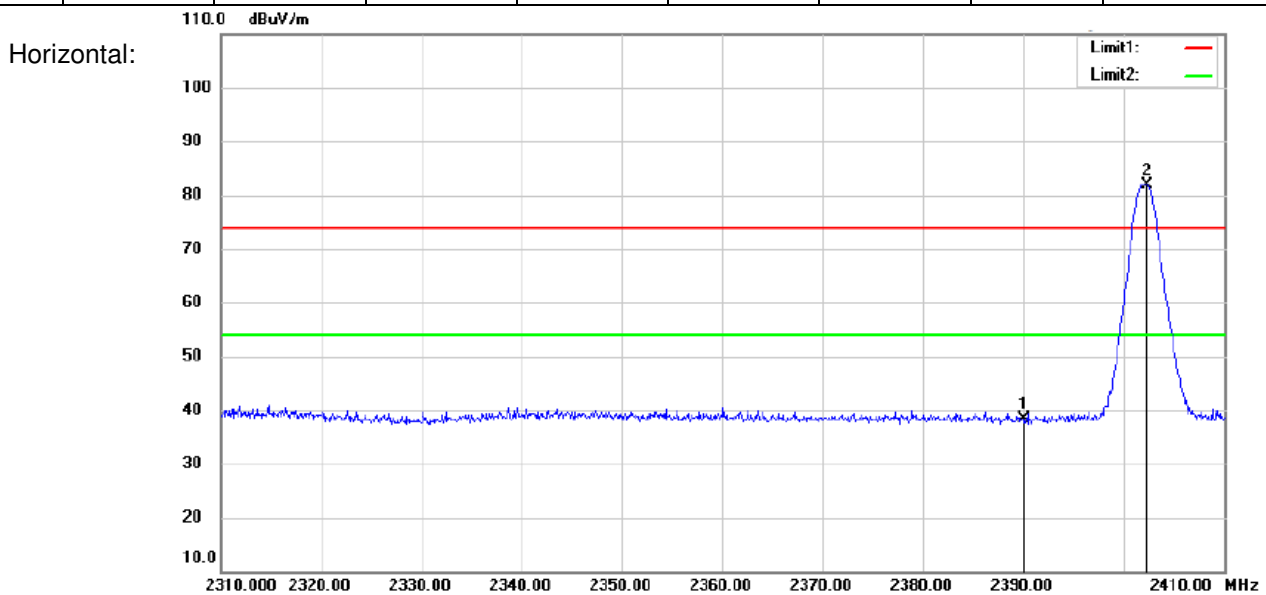
3. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.

7.8.2 Radiated Band-edge

Lowest Channel(2402MHz)

Modulation: GFSK

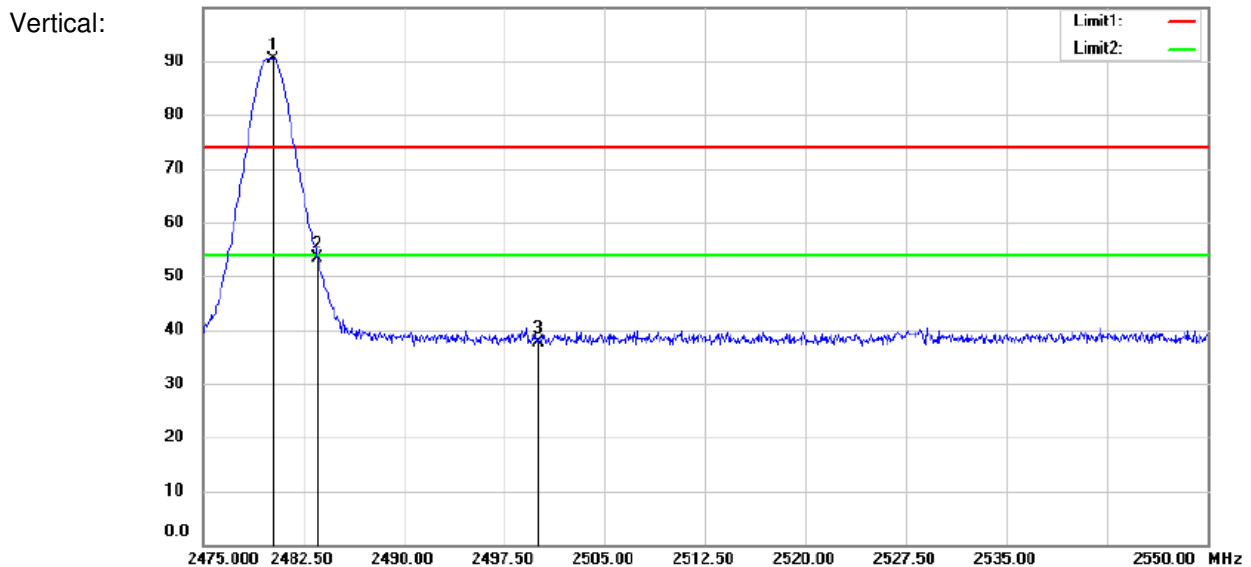
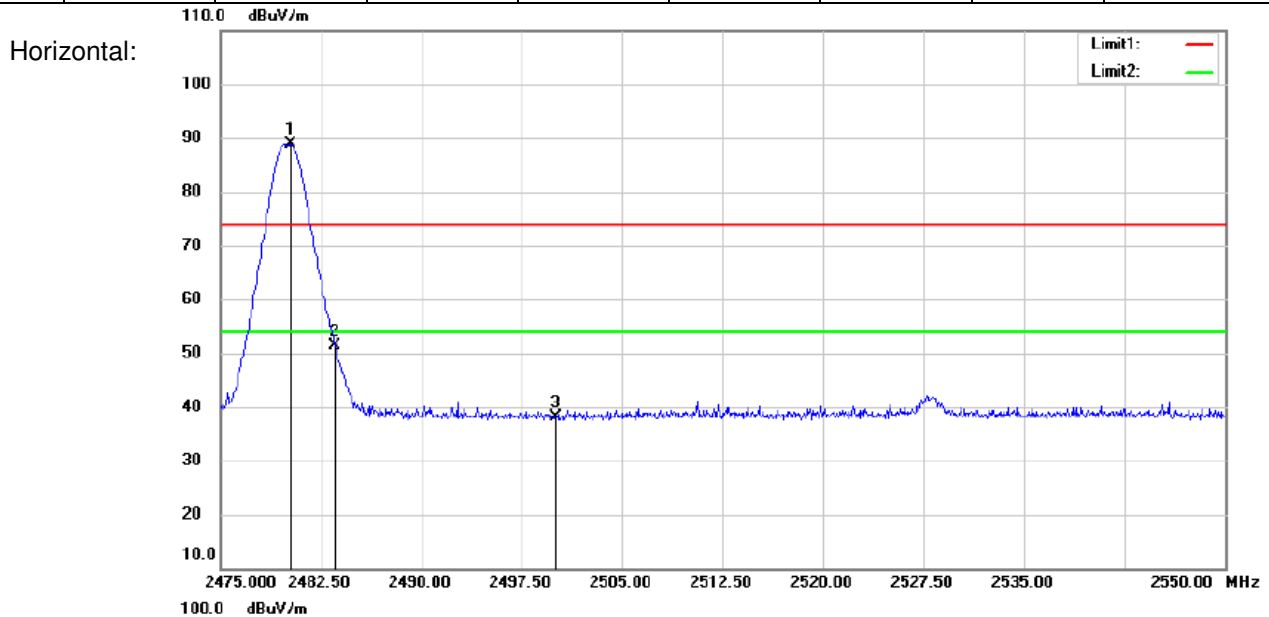
| MK. | Frequency (MHz) | Reading (dBuV/m) | Corrected factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-----------------|----------|--------------|
| 1 | 2390 | 42.17 | -3.89 | 38.28 | 54 | -15.72 | Peak | Horizontal |
| 2 | 2402.3 | 85.87 | -3.92 | 81.95 | 54 | 27.95 | Peak | Horizontal |
| 1 | 2390 | 43.83 | -3.89 | 39.94 | 54 | -14.06 | Peak | Vertical |
| 2 | 2402.3 | 90.68 | -3.92 | 86.76 | 54 | 32.76 | Peak | Vertical |



CH Low 2480MHz

Modulation: GFSK

| MK. | Frequency (MHz) | Reading (dBuV/m) | Corrected factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-----------------|----------|--------------|
| 1 | 2480.25 | 92.79 | -4.00 | 88.79 | 54 | 34.79 | Peak | Horizontal |
| 2 | 2483.5 | 55.50 | -4.01 | 51.49 | 54 | -2.51 | Peak | Horizontal |
| 3 | 2500 | 42.16 | -4.03 | 38.13 | 54 | -15.87 | Peak | Horizontal |
| 1 | 2480.25 | 94.44 | -4.00 | 90.44 | 54 | 36.44 | Peak | Vertical |
| 2 | 2483.5 | 57.49 | -4.01 | 53.48 | 54 | -0.52 | Peak | Vertical |
| 3 | 2500 | 41.63 | -4.03 | 37.60 | 54 | -16.40 | Peak | Vertical |



- Remark: 1. Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor.
2. No any other emissions level which are attenuated less than 20dB below the limit.
According to 15.31(o), the amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.
Hence there no other emissions have been 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 | 10.6 - 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 | 2655 - 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 | |
| 13.36 - 13.41 | | | |



8 Test Setup Photographs

Refer to the < PR1_Test Setup photos-FCC>.

9 EUT Constructional Details

Refer to the < PR1_External Photos-FCC> & < PR1_Internal Photos-FCC>.

--End of the Report--