

RF TEST REPORT

Test item : RCU
Model No. : PRF-L100-ET32
Order No. : DTNC1409-04138
Date of receipt : 2014-09-23
Test duration : 2014-09-25 ~ 2014-09-29
Date of issue : 2014-10-02
Use of report : FCC Original Grant

Applicant : Pachem Korea Co.,Ltd.
(Jamsil-dong,902(Jamsil-dong,Seoil Bldg.)),102, Olympic-ro, Songpa-gu,
Seoul Korea

Test laboratory : DT&C Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935

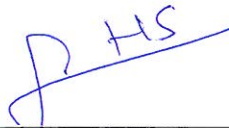
Test specification : FCC Part 15 Subpart C 247

Test environment : See appended test report

Test result : ☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DT&C Co., Ltd.

Tested by:



Engineer
Hyunsu Son

Reviewed by:



Technical Manager
HongHee Lee

Test Report Version

| Test Report No. | Date | Description |
|--------------------|---------------|-----------------------------|
| DRTFCC1409-1256 | Sep. 30, 2014 | Initial issue |
| DRTFCC1409-1256(1) | Oct. 02, 2014 | Added the test data of duty |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Table of Contents

| | |
|--|-----------|
| 1. EUT DESCRIPTION | 4 |
| 2. SUMMARY OF TESTS | 5 |
| 3. TEST METHODOLOGY | 6 |
| 3.1 EUT Configuration | 6 |
| 3.2 EUT Exercise..... | 6 |
| 3.3 General Test Procedures | 6 |
| 3.4 Description of Test Modes | 6 |
| 4. INSTRUMENT CALIBRATION | 7 |
| 5. FACILITIES AND ACCREDITATIONS..... | 7 |
| 5.1 Facilities | 7 |
| 5.2 Equipment..... | 7 |
| 6. ANTENNA REQUIREMENTS..... | 7 |
| 7. TEST RESULT | 8 |
| 7.1 6dB Bandwidth | 8 |
| 7.2 Maximum Peak Conducted Output Power | 11 |
| 7.3 Maximum Power Spectral Density..... | 14 |
| 7.4 Out of Band Emissions in non-restricted frequency band | 17 |
| 7.5 Out of Band Emissions in restricted frequency band | 24 |
| 7.6 AC Power-line Conducted Emissions | 27 |
| 7.7 Occupied Bandwidth | 28 |
| 8. LIST OF TEST EQUIPMENT..... | 29 |
| APPENDIX I | 30 |
| APPENDIX II | 31 |

1. EUT DESCRIPTION

| | |
|------------------------------|---|
| Product | RCU |
| Model Name | PRF-L100-ET32 |
| Power Supply | DC 3.0 V(Lithium Ion Battery) |
| Frequency Range | 2425 ~ 2475 MHz(3 channels) |
| Modulation Type | O-QPSK |
| Antenna Specification | Antenna Type: Internal Antenna Antenna Gain: -0.99 dBi(PK) |

2. SUMMARY OF TESTS

| FCC Part Section(s) | RSS Section(s) | Parameter | Limit | Test Condition | Status Note 1 |
|--|-----------------|---|------------------------|-------------------|----------------------------|
| I. Transmitter Mode (TX) | | | | | |
| 15.247(a) | RSS-210 [A8.2] | 6 dB Bandwidth | > 500 kHz | Conducted | C |
| 15.247(b) | RSS-210 [A8.4] | Transmitter Output Power | < 1Watt | | C |
| 15.247(d) | RSS-210 [A8.5] | Out of Band Emissions / Band Edge | 20dBc in any 100kHz BW | | C |
| 15.247(e) | RSS-210 [A8.2] | Transmitter Power Spectral Density | < 8dBm / 3kHz | | C |
| - | RSS Gen [4.6.1] | Occupied Bandwidth (99%) | RSS-Gen(4.6.1) | | NA |
| 15.205 15.209 | RSS-210 [A8.5] | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | < FCC 15.209 limits | Radiated | C ^{Note2} |
| 15.207 | RSS-Gen [7.2.4] | AC Conducted Emissions | < FCC 15.207 limits | AC Line Conducted | NA ^{Note3} |
| 15.203 | - | Antenna Requirements | FCC 15.203 | - | C |
| <p>Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable</p> <p>Note 2: This test item was performed in each axis and the worst case data was reported.</p> <p>Note 3: This device is used Battery for power supplying.(DC 3.0 V(Lithium Ion Battery))</p> <p>Therefore this test item was not performed.</p> | | | | | |

3. TEST METHODOLOGY

Generally the tests were performed according to the KDB558074 v03r02. And ANSI C63.10-2009 was used to reference appropriate EUT setup and maximizing procedures of radiated spurious emission and AC line conducted emission testing.

3.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 General Test Procedures

Conducted Emissions

According to the requirements in Section 6.2 of ANSI C63.10, the EUT is placed on the turntable, which is 0.8 m above ground plane and the conducted emissions from the EUT are measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and Average detector.

Radiated Emissions

The EUT is placed on a turntable, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the highest emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axis according to the requirements in Section 6.3 of ANSI C63.10

3.4 Description of Test Modes

The EUT has been tested with the operating condition for maximizing the emission characteristics. A test program is used to control the EUT for staying in transmitting.

| Test Mode | Channel | Frequency [MHz] |
|-----------|---------|-----------------|
| O-QPSK | Lowest | 2425 |
| | Middle | 2450 |
| | Highest | 2475 |

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1 Facilities

The open area test site(OATS) or semi anechoic chamber and conducted measurement facility used to collect the radiated and conducted test data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935. The site is constructed in conformance with the requirements.

- Semi anechoic chamber registration Number: 165783

5.2 Equipment

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, loop, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and peak, quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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."

This device uses a pattern antenna.

Therefore this E.U.T Complies with the requirement of §15.203

7. TEST RESULT

7.1 6dB Bandwidth

■ Test Requirements and limit, §15.247(a) & RSS-210[A8.2]

The minimum 6 dB band-width shall be at least 500 kHz.

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geq 3 \times$ RBW, peak detector with maximum hold) is implemented by the instrumentation function.

When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

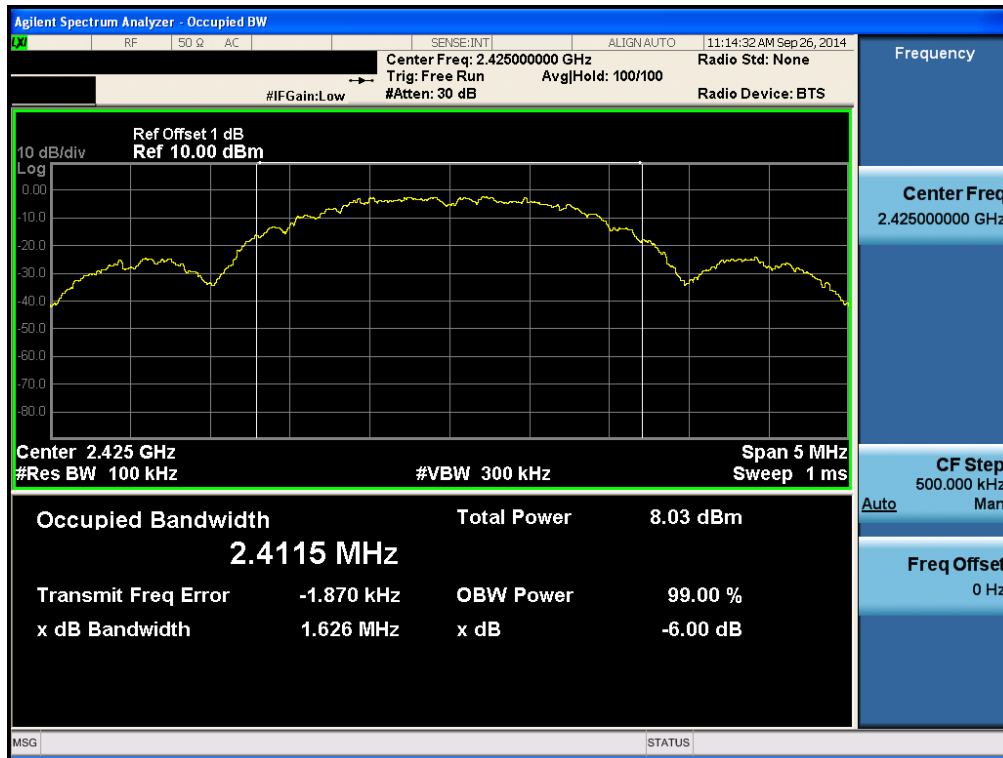
■ Test Results: **Comply**

| Test Mode | Channel | Results [MHz] |
|-----------|---------|---------------|
| O-QPSK | Lowest | 1.626 |
| | Middle | 1.599 |
| | Highest | 1.572 |

■ Result Plots

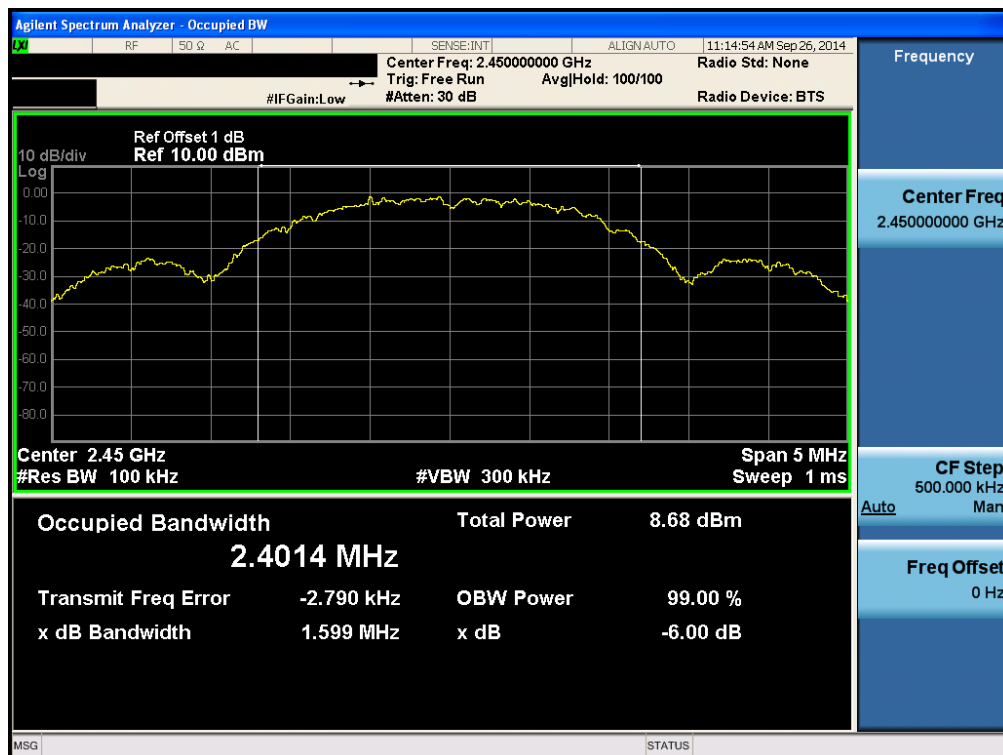
6 dB Bandwidth

Lowest channel



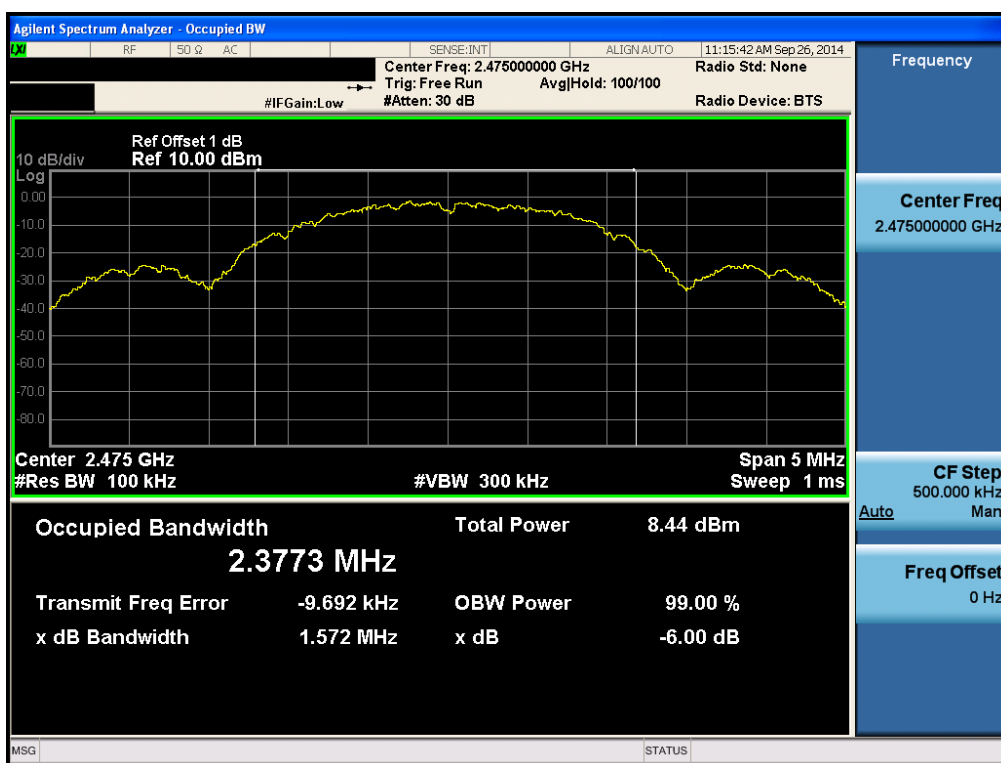
6 dB Bandwidth

Middle channel



6 dB Bandwidth

Highest channel



7.2 Maximum Peak Conducted Output Power

■ Test Requirements and limit, §15.247(b) & RSS-210[A8.4]

The maximum peak conducted power shall not exceed 1 Watt.

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

Maximum Peak Conducted Output Power is measured using the following procedure(RBW \geq DTS bandwidth).

1. Set the RBW \geq DTS bandwidth.
2. Set VBW $\geq 3 \times$ RBW.
3. Set span $\geq 3 \times$ RBW.
4. Sweep time = auto couple
5. Detector = peak
6. Trace mode = max hold
7. Allow trace to fully stabilize
8. Use peak marker function to determine the peak amplitude level.

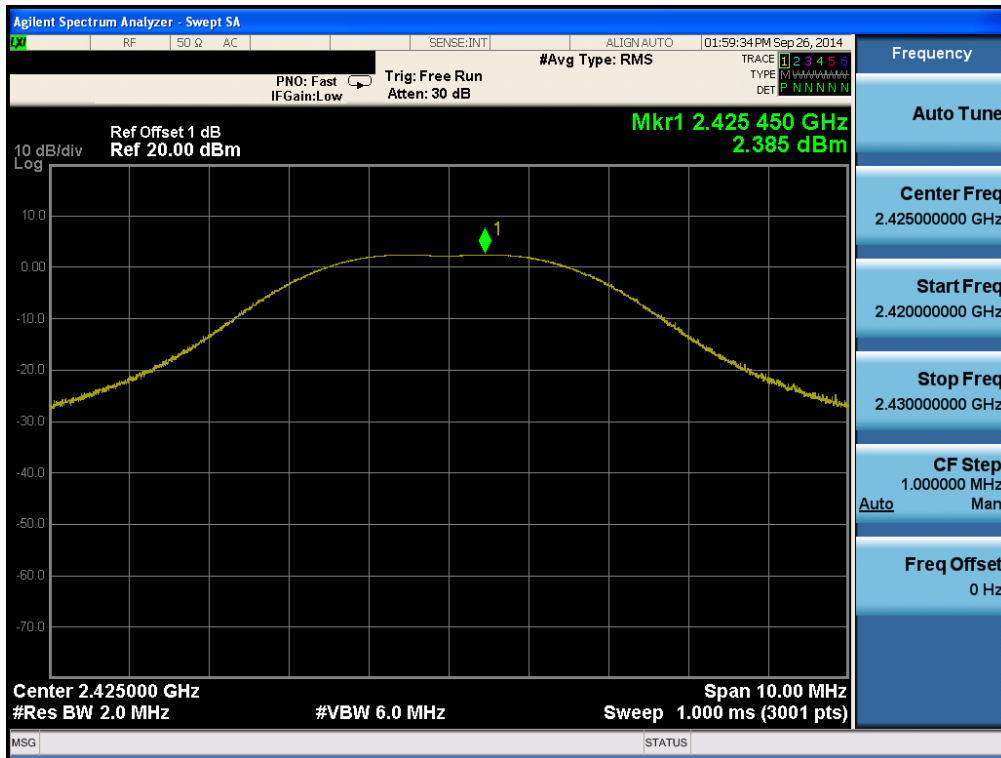
■ Test Results: **Comply**

| Test Mode | Channel | Results [dBm] |
|-----------|---------|---------------|
| O-QPSK | Lowest | 2.385 |
| | Middle | 2.900 |
| | Highest | 2.420 |

■ Result Plots

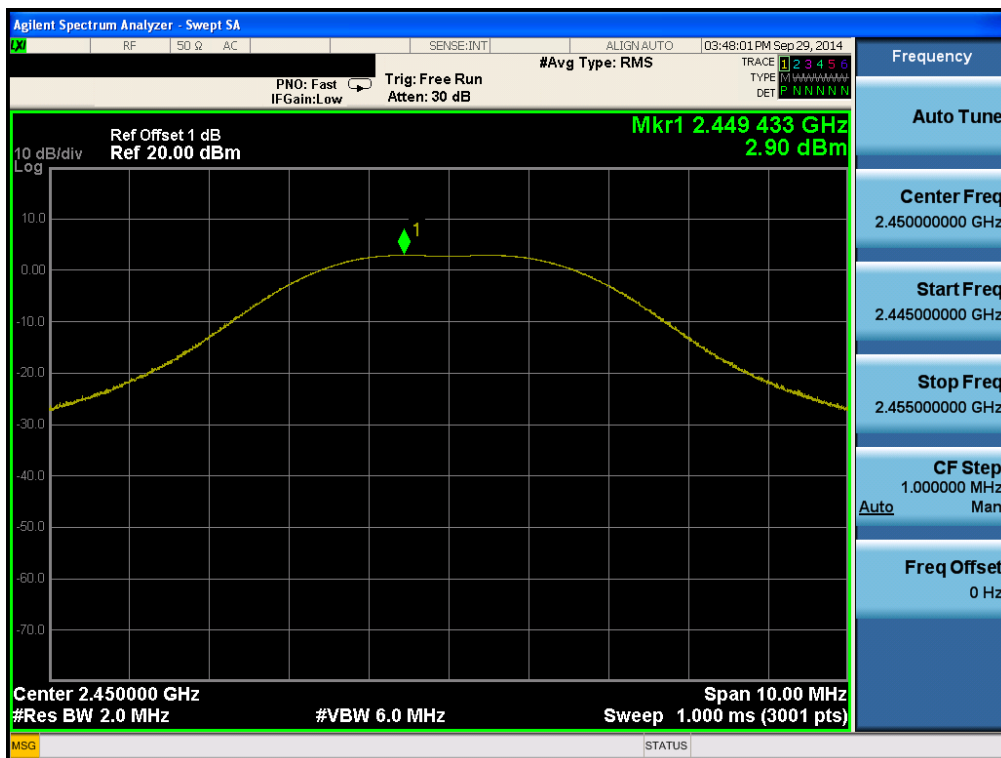
Maximum Peak Conducted Output Power

Lowest channel



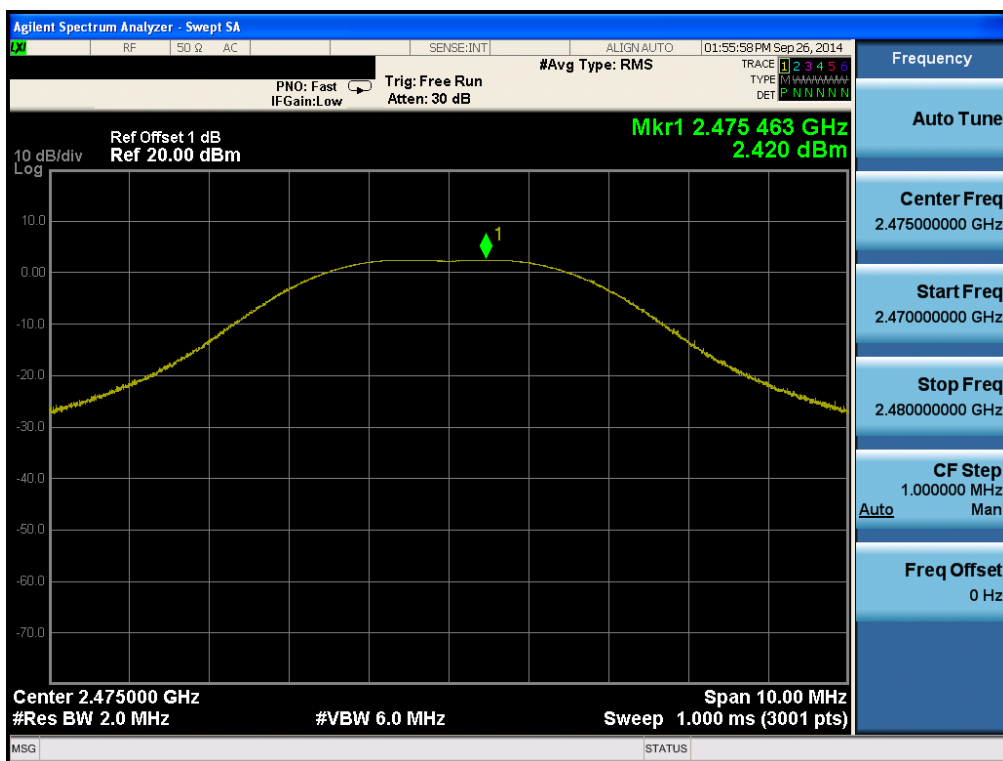
Maximum Peak Conducted Output Power

Middle channel



Maximum Peak Conducted Output Power

Highest channel



7.3 Maximum Power Spectral Density.

■ Test requirements and limit, §15.247(e) & RSS-210[A8.2]

A power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

The power spectral density is measured using the following procedure(PKPSD method).

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

■ Test Results: **Comply**

| Test Mode | Channel | Result [dBm] |
|-----------|---------|--------------|
| O-QPSK | Lowest | -0.92 |
| | Middle | -0.75 |
| | Highest | -0.85 |

■ Result Plots

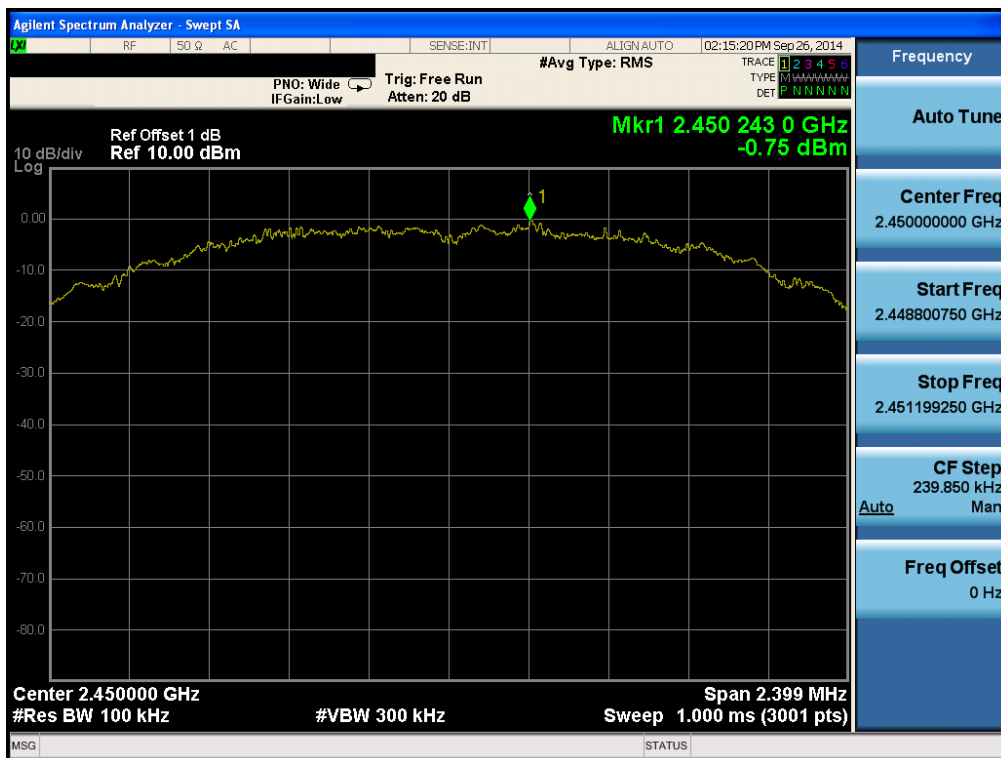
Maximum Power Spectral Density

Lowest channel

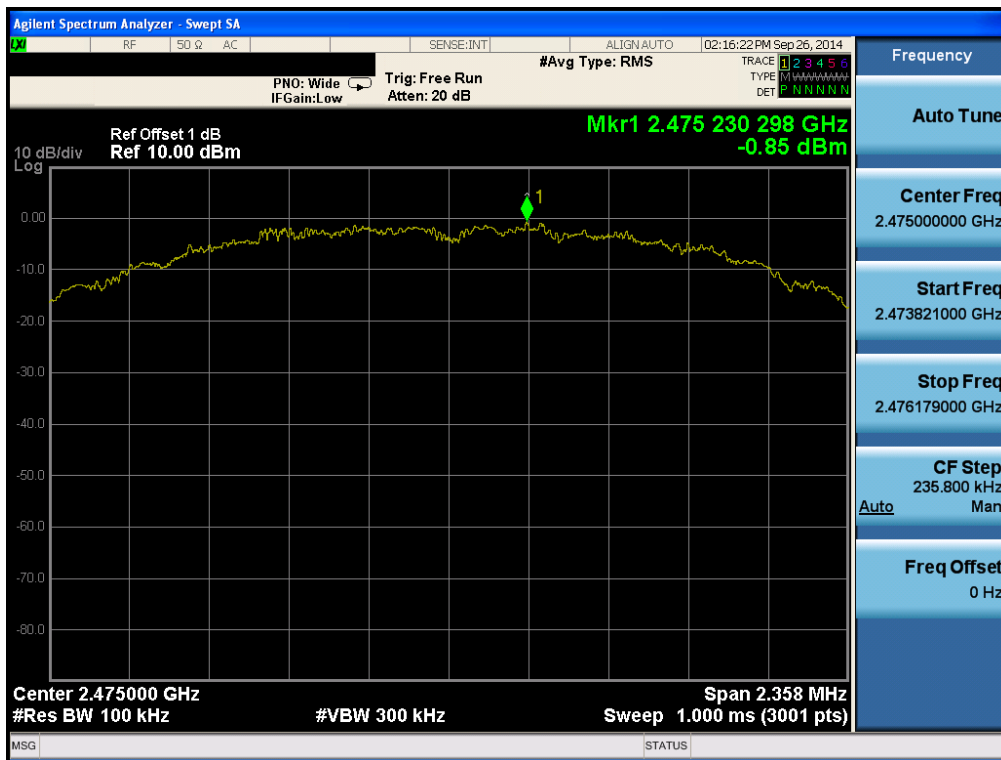


Maximum Power Spectral Density

Middle channel



Highest channel



7.4 Out of Band Emissions in non-restricted frequency band

■ Test requirements and limit, §15.247(d) & RSS-210[A8.5]

If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

The transmitter output is connected to a spectrum analyzer.

■ Measurement Procedure 1 – Reference level measurement

1. Set instrument center frequency to DTS channel center frequency.
2. Set the span to ≥ 1.5 times the DTS bandwidth.
3. Set the RBW = 100 kHz.
4. Set the VBW $\geq 3 \times$ RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum PSD level

■ Measurement Procedure 2 – Emissions level measurement

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = 100 kHz (See below note for actual setting)
3. Set the VBW $\geq 3 \times$ RBW (See below note for actual setting)
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow the trace to stabilize.
8. Use the peak marker function to determine the maximum amplitude level.

Note: This test item was tested with below settings.

- RBW= 100kHz, VBW= 300kHz for frequency range: 9 kHz ~ 30 MHz
- RBW= 1MHz, VBW= 3MHz for frequency range: 30 MHz ~ 10 GHz and 10 GHz~25 GHz

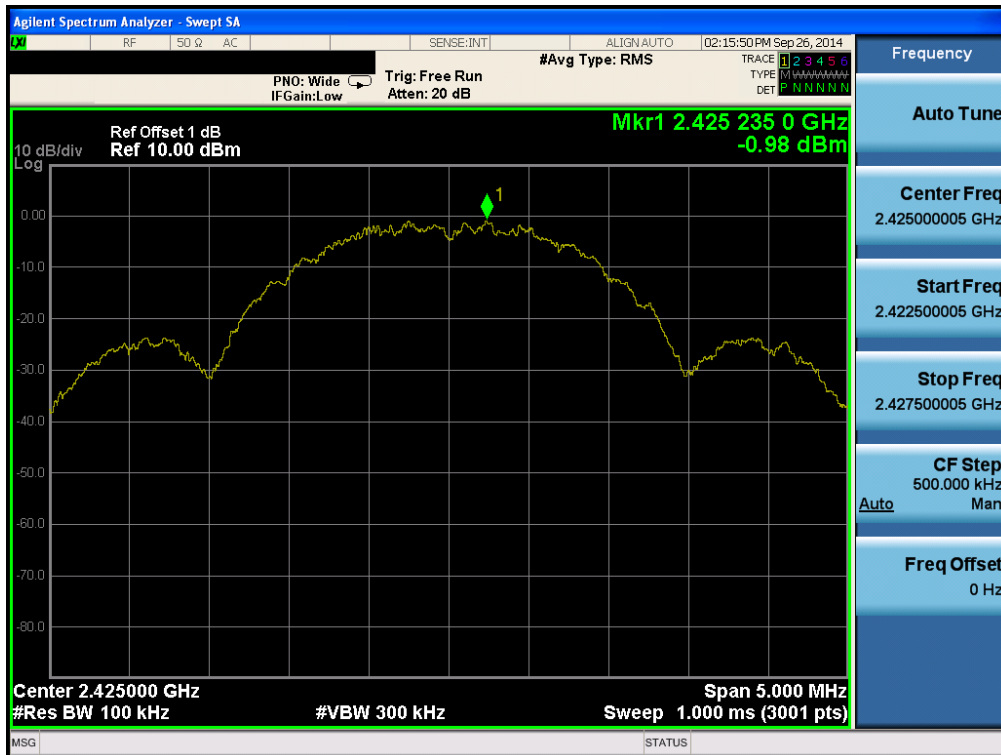
If the emission level with above setting was close to the limit (ie, less than 3 dB margin) then zoom scan is required using RBW = 100 kHz, VBW = 300 kHz, SPAN = 100 MHz and BINS = 2001 to get accurate emission level within 100 kHz BW.

■ Test Results: **Comply**

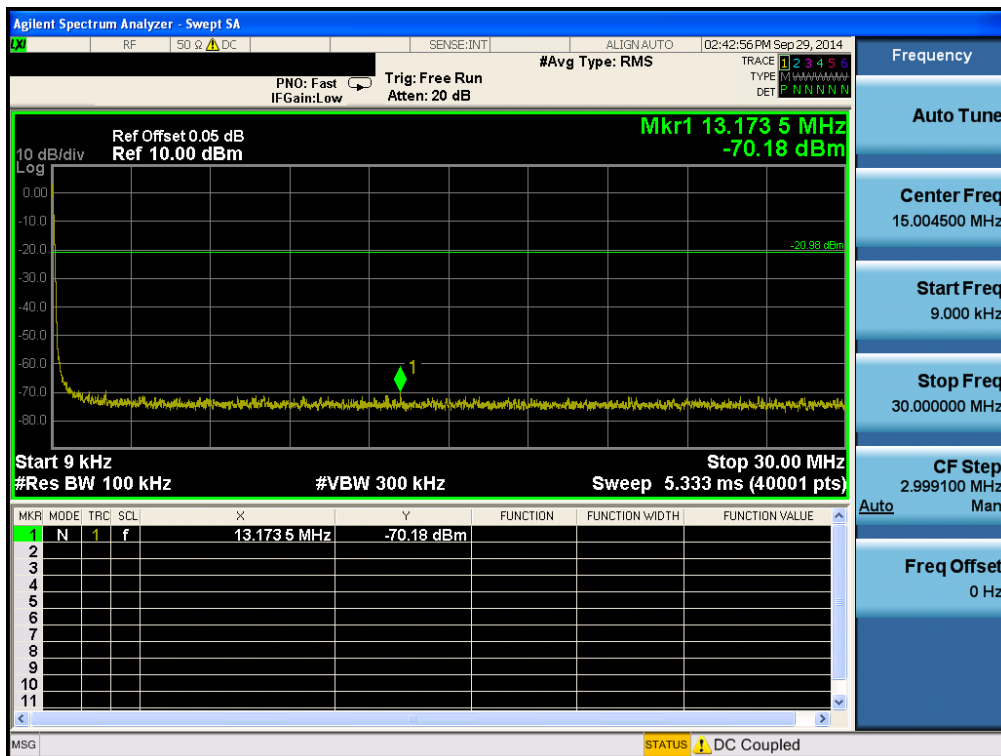
■ Test Plots

Lowest channel

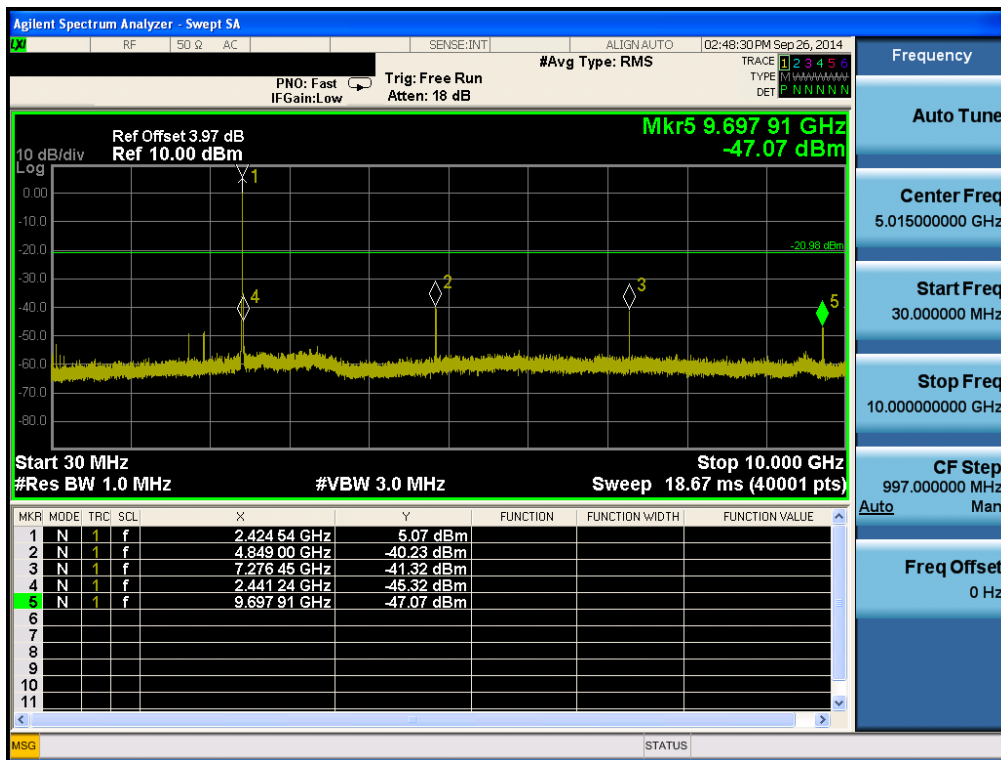
Reference level measurement



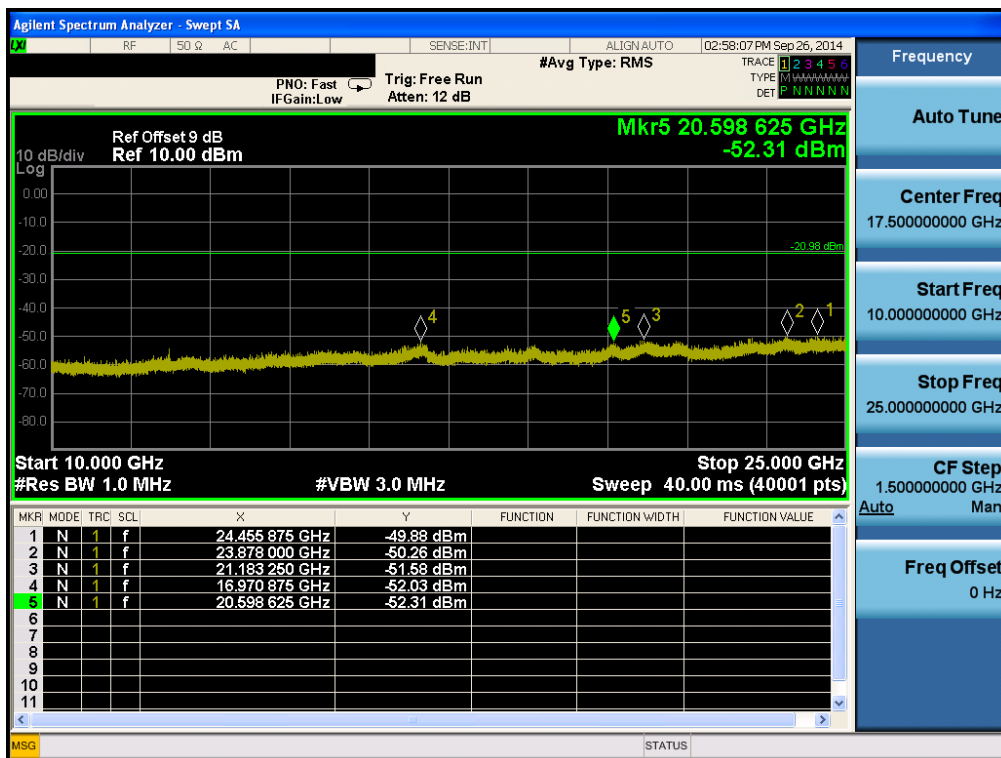
Emissions level measurement 1



Emissions level measurement 2



Emissions level measurement 3

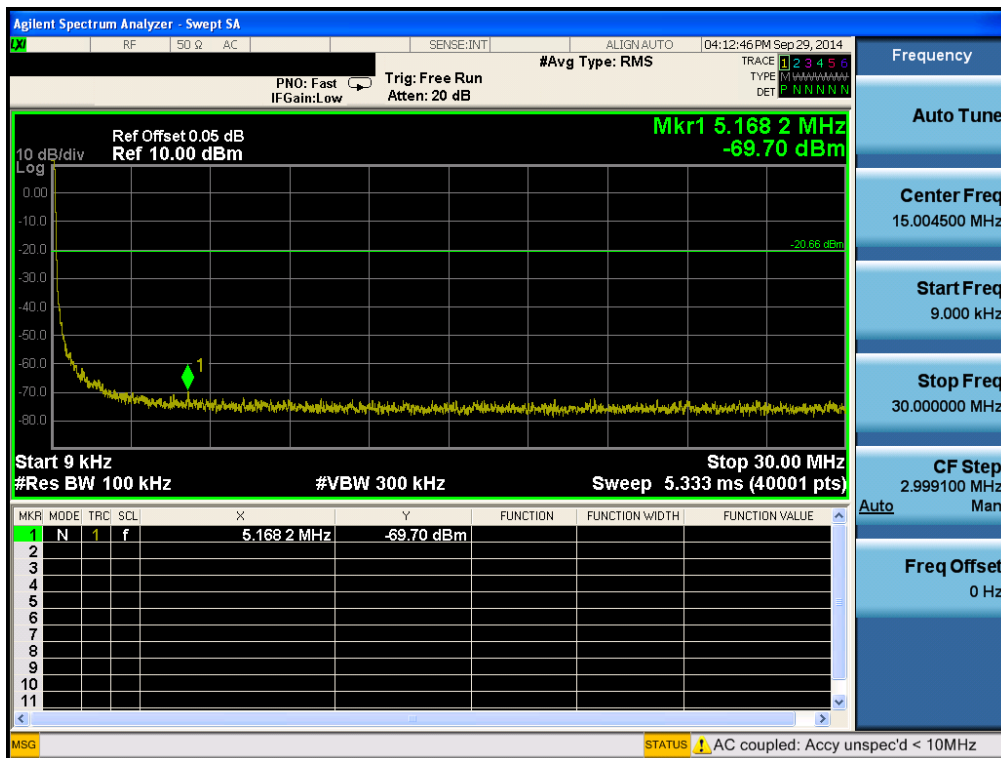


Middle channel

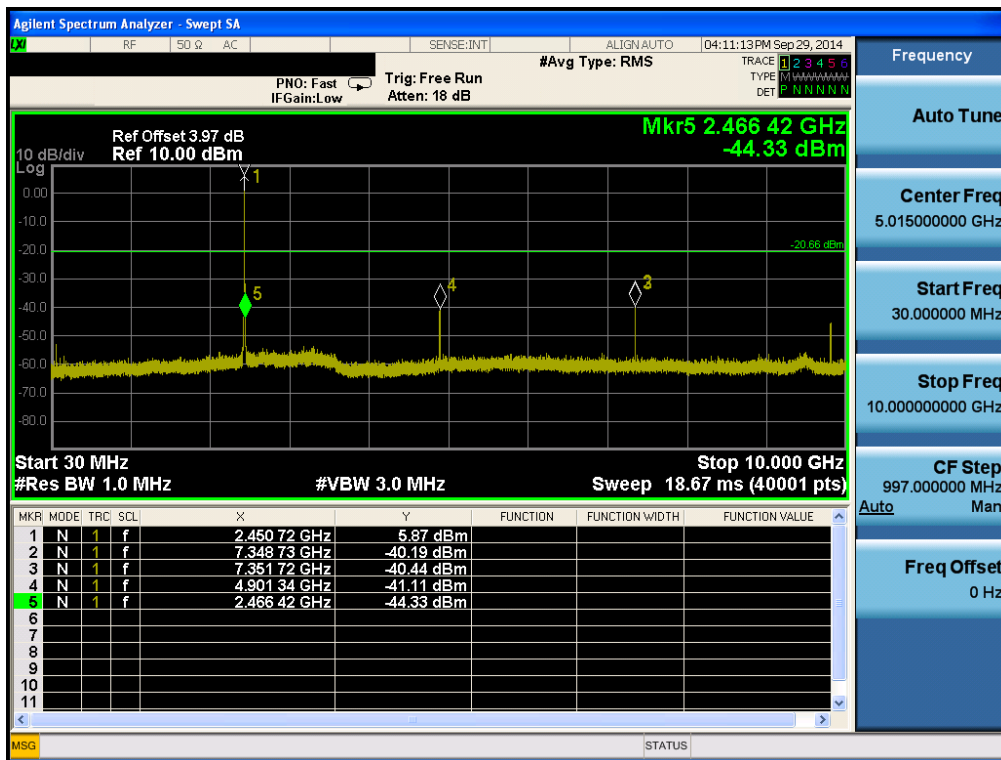
Reference level measurement



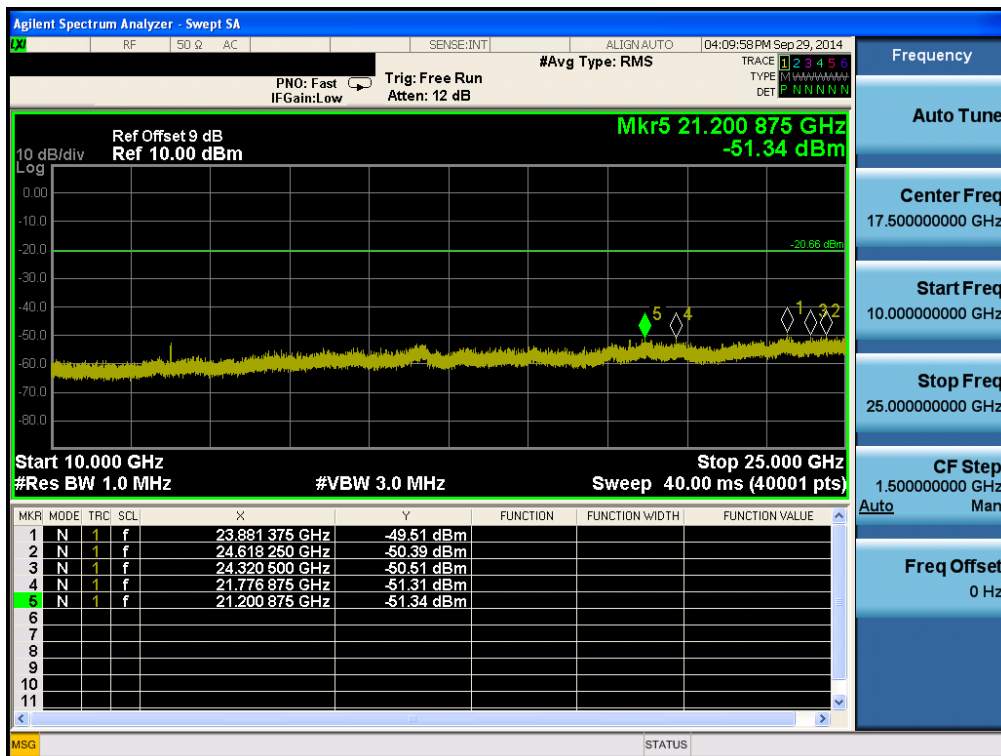
Emissions level measurement 1



Emissions level measurement 2



Emissions level measurement 3

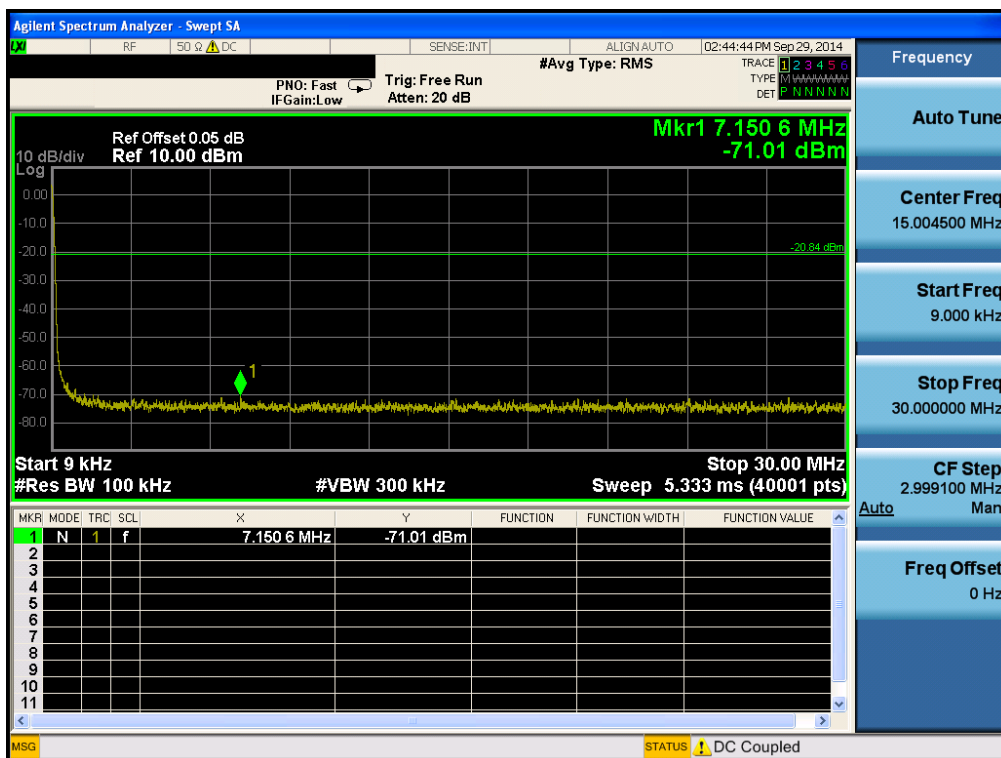


Highest channel

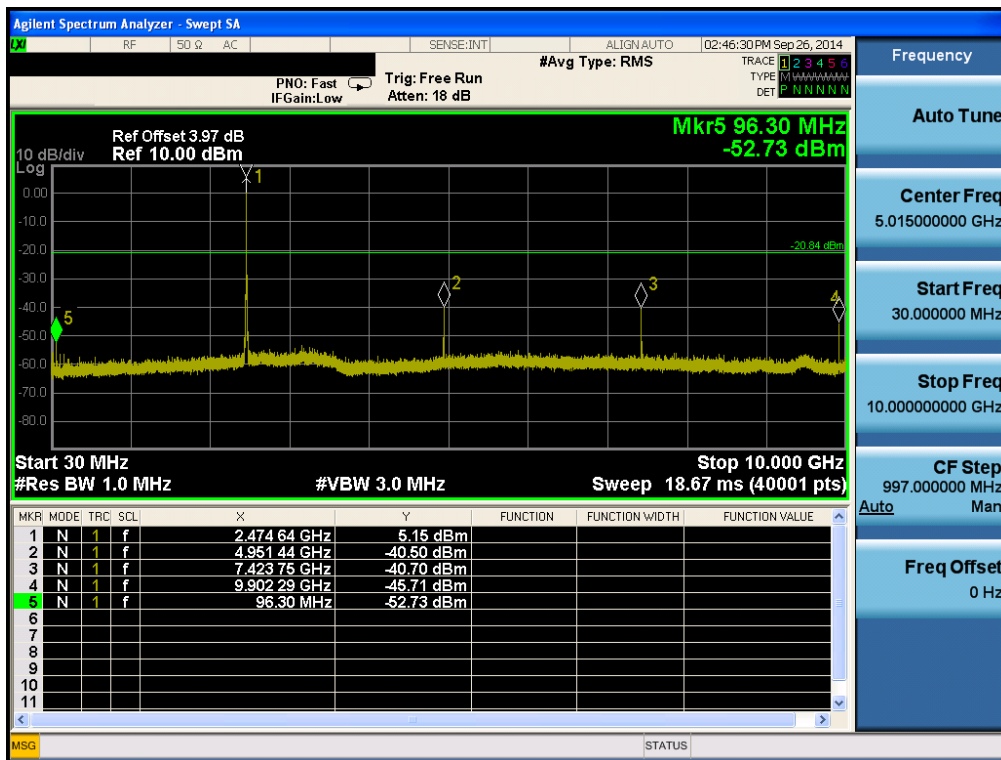
Reference level measurement



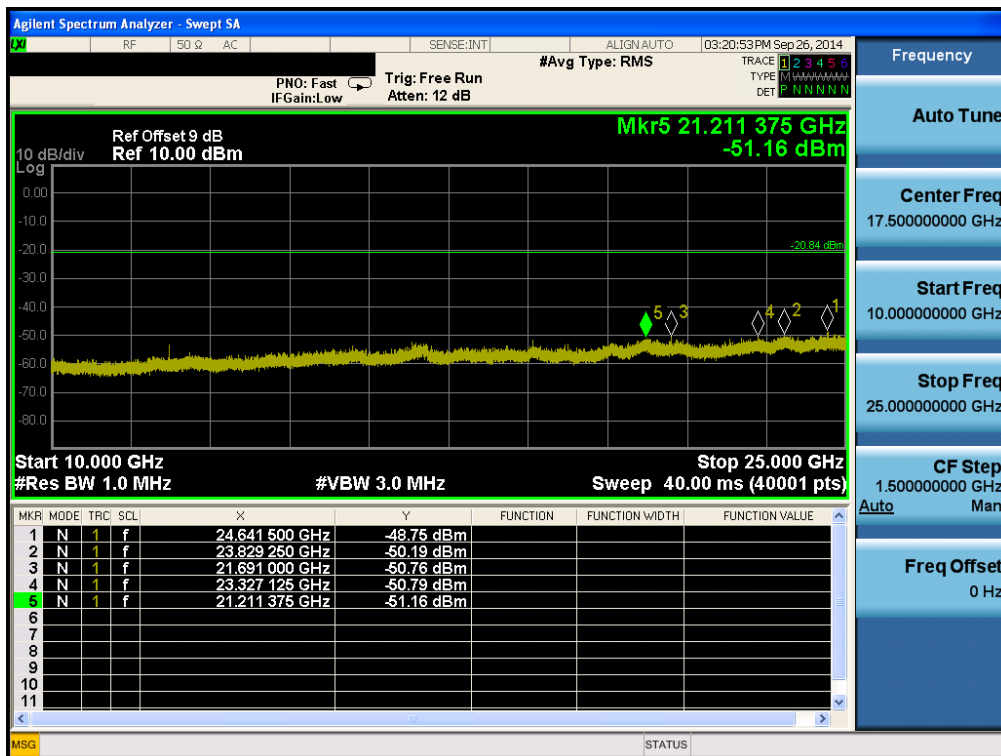
Emissions level measurement 1



Emissions level measurement 2



Emissions level measurement 3



7.5 Out of Band Emissions in restricted frequency band

■ Test Requirements and limit, §15.247(d) & RSS-210[A8.5]

In any 100kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a) and (b), then the 15.209(a) limit in the table below has to be followed

▪ FCC Part 15.209(a) and (b)

| Frequency (MHz) | Limit (uV/m) | Measurement Distance (meter) |
|-----------------|--------------|------------------------------|
| 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 |
| Above 960 | 500 | 3 |

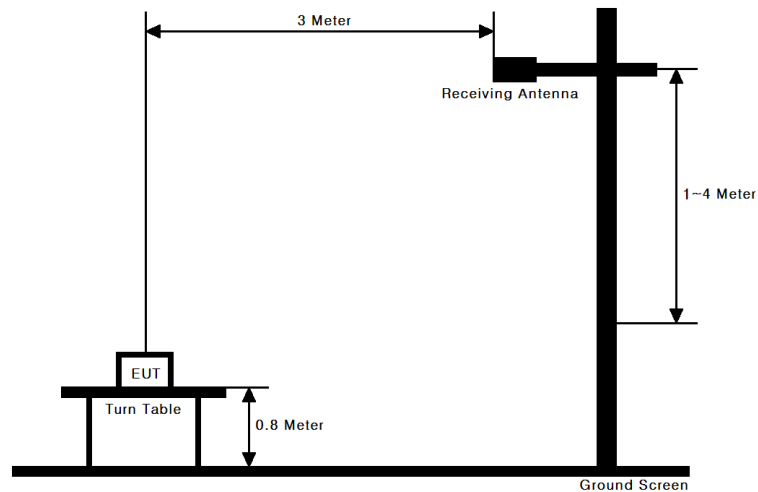
** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

▪ FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | MHz | GHz | GHz |
|-------------------|---------------------|-------------------|-----------------|--------------|---------------|
| 0.009 ~ 0.110 | 8.41425 ~ 8.41475 | 108 ~ 121.94 | 1300 ~ 1427 | 4.5 ~ 5.15 | 14.47 ~ 14.5 |
| 0.495 ~ 0.505 | 12.29 ~ 12.293 | 123 ~ 138 | 1435 ~ 1626.5 | 5.35 ~ 5.46 | 15.35 ~ 16.2 |
| 2.1735 ~ 2.1905 | 12.51975 ~ 12.52025 | 149.9 ~ 150.05 | 1645.5 ~ 1646.5 | 7.25 ~ 7.75 | 17.7 ~ 21.4 |
| 4.125 ~ 4.128 | 12.57675 ~ 12.57725 | 156.52475 ~ | 1660 ~ 1710 | 8.025 ~ 8.5 | 22.01 ~ 23.12 |
| 4.17725 ~ 4.17775 | 13.36 ~ 13.41 | 156.52525 | 1718.8 ~ 1722.2 | 9.0 ~ 9.2 | 23.6 ~ 24.0 |
| 4.20725 ~ 4.20775 | 16.42 ~ 16.423 | 156.7 ~ 156.9 | 2200 ~ 2300 | 9.3 ~ 9.5 | 31.2 ~ 31.8 |
| 6.215 ~ 6.218 | 16.69475 ~ 16.69525 | 162.0125 ~ 167.17 | 2310 ~ 2390 | 10.6 ~ 12.7 | 36.43 ~ 36.5 |
| 6.26775 ~ 6.26825 | 16.80425 ~ 16.80475 | 167.72 ~ 173.2 | 2483.5 ~ 2500 | 13.25 ~ 13.4 | Above 38.6 |
| 6.31175 ~ 6.31225 | 25.5 ~ 25.67 | 240 ~ 285 | 2655 ~ 2900 | | |
| 8.291 ~ 8.294 | 37.5 ~ 38.25 | 322 ~ 335.4 | 3260 ~ 3267 | | |
| 8.362 ~ 8.366 | 73 ~ 74.6 | 399.90 ~ 410 | 3332 ~ 3339 | | |
| 8.37625 ~ 8.38675 | 74.8 ~ 75.2 | 608 ~ 614 | 3345.8 ~ 3358 | | |
| | | 960 ~ 1240 | 3600 ~ 4400 | | |

▪ **FCC Part 15.205(b):** The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

■ Test Configuration



■ Test Procedure

1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

Note: Measurement Instrument Setting for Radiated Emission Measurements.

Peak Measurement

RBW = As specified in below table , VBW $\geq 3 \times$ RBW, Sweep = Auto, Detector = Peak, Trace mode = Max Hold until the trace stabilizes.

| Frequency | RBW |
|-------------|-------------|
| 9-150 kHz | 200-300 Hz |
| 0.15-30 MHz | 9-10 kHz |
| 30-1000 MHz | 100-120 kHz |
| > 1000 MHz | 1 MHz |

Average Measurement

RBW = 1MHz, VBW = 10Hz, Detector = Peak, Average-VBW = Voltage, Sweep = Auto, Trace mode = Max Hold until the trace stabilize

■ Test Results: **Comply****9 kHz ~ 25GHz Data**

▪ Lowest Channel

| Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCF | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|---------|---------------------|---------------|----------------|------------|------|-----------------|----------------|-------------|
| 2388.80 | H | Y | PK | 44.88 | 2.51 | 0.00 | 47.39 | 74.00 | 26.61 |
| 2389.68 | H | Y | AV | 35.63 | 2.51 | 0.00 | 38.14 | 54.00 | 15.86 |
| 4849.64 | V | Y | PK | 50.73 | 8.71 | 0.00 | 59.44 | 74.00 | 14.56 |
| 4851.06 | V | Y | AV | 44.02 | 8.71 | 0.00 | 52.73 | 54.00 | 1.27 |

▪ Middle Channel

| Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCF | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|---------|---------------------|---------------|----------------|------------|------|-----------------|----------------|-------------|
| 4901.09 | V | Y | PK | 50.44 | 8.72 | 0.00 | 59.16 | 74.00 | 14.84 |
| 4901.00 | V | Y | AV | 43.98 | 8.72 | 0.00 | 52.70 | 54.00 | 1.30 |
| - | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - |

▪ Highest Channel

| Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCF | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|---------|---------------------|---------------|----------------|------------|------|-----------------|----------------|-------------|
| 2483.50 | H | Y | PK | 56.48 | 3.46 | 0.00 | 59.94 | 74.00 | 14.07 |
| 2483.50 | H | Y | AV | 49.47 | 3.46 | 0.00 | 52.93 | 54.00 | 1.07 |
| 4951.30 | V | Y | PK | 50.01 | 8.73 | 0.00 | 58.74 | 74.00 | 15.26 |
| 4950.84 | V | Y | AV | 43.84 | 8.73 | 0.00 | 52.57 | 54.00 | 1.43 |

Note.

1. No other spurious and harmonic emissions were reported greater than listed emissions above table.

2. Sample Calculation for PK result

$$\begin{aligned} \text{Margin} &= \text{Limit} - \text{Result} & / & & \text{Result} &= \text{Reading} + \text{T.F} & / & & \text{T.F} &= \text{AF} + \text{CL} - \text{AG} \\ \text{Where, T.F} &= \text{Total Factor} & / & & \text{AF} &= \text{Antenna Factor} & / & & \text{CL} &= \text{Cable Loss} \\ & & & & \text{AG} &= \text{Amplifier Gain} \end{aligned}$$

DCF = duty cycle factor

7.6 AC Power-line Conducted Emissions

■ Test Requirements and limit, §15.207 & RSS-Gen[7.2.2]

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency Range (MHz) | Conducted Limit (dBuV) | |
|--------------------------|------------------------|------------|
| | Quasi-Peak | Average |
| 0.15 ~ 0.5 | 66 to 56 * | 56 to 46 * |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

* Decreases with the logarithm of the frequency

■ Test Configuration

See test photographs for the actual connections between EUT and support equipment.

■ Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained using quasi-peak and average detector mode.

■ Test Results: **N/A**

This device is used Battery for power supplying.(DC 3.0 V(Lithium Ion Battery))

7.7 Occupied Bandwidth

■ Test Requirements, RSS-Gen [4.6.1]

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

■ Test Configuration

Refer to the APPENDIX I.

■ Test Procedure

The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

■ Test Results: **N/A**

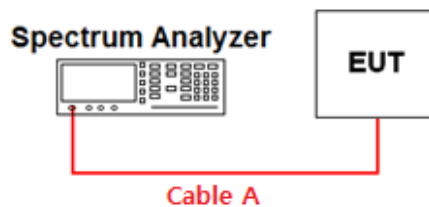
8. LIST OF TEST EQUIPMENT

| Type | Manufacturer | Model | Cal.Date (yy/mm/dd) | Next.Cal.Date (yy/mm/dd) | S/N |
|-------------------------|---------------|-----------|------------------------|-----------------------------|------------|
| Spectrum Analyzer | Agilent | N9020A | 14/03/28 | 15/03/28 | MY50200816 |
| Digital Multimeter | H.P | 34401A | 14/02/27 | 15/02/27 | 3146A13475 |
| Vector Signal Generator | Rohde Schwarz | SMBV100A | 14/01/07 | 15/01/07 | 255571 |
| Signal Generator | Rohde Schwarz | SMF100A | 14/07/01 | 15/07/01 | 102341 |
| Thermo hygrometer | BODYCOM | BJ5478 | 14/05/13 | 15/05/13 | 120612-1 |
| DC Power Supply | SM techno | SDP30-5D | 14/02/10 | 15/02/10 | 305DLJ204 |
| High-pass filter | Wainwright | WHKX3.0 | 14/09/12 | 15/09/12 | 9 |
| LOOP Antenna | Schwarzbeck | FMZB1513 | 14/04/29 | 16/04/29 | 1513-128 |
| BILOG ANTENNA | Schwarzbeck | VULB 9160 | 13/12/16 | 15/12/16 | 3358 |
| Horn Antenna | ETS-LINDGREN | 3117 | 14/05/12 | 16/05/12 | 00140394 |
| HORN ANT | A.H.Systems | SAS-574 | 13/03/20 | 15/03/20 | 154 |
| Amplifier (22dB) | H.P | 8447E | 14/01/07 | 15/01/07 | 2945A02865 |
| Amplifier (30dB) | Agilent | 8449B | 14/02/27 | 15/02/27 | 3008A00370 |
| EMI TEST RECEIVER | Rohde Schwarz | ESU | 14/01/08 | 15/01/08 | 100014 |

APPENDIX I

Conducted Test set up Diagram & Path loss Information

▪ Conducted Measurement



Path loss information

| Frequency (GHz) | Path Loss (dB) | Frequency (GHz) | Path Loss (dB) |
|-----------------|----------------|-----------------|----------------|
| 0.03 | 0.05 | 15 | 4.26 |
| 1 | 0.46 | 20 | 6.05 |
| 2.425 ~ 2475 | 1.00 | 25 | 9.00 |
| 5 | 2.57 | | |
| 10 | 3.97 | | |

Note. 1: The path loss from EUT to Spectrum analyzer was measured and used for test.

APPENDIX II**Duty cycle plots****■ TEST PROCEDURE**

Duty Cycle measured using **section 6.0 b) of KDB558074 v03r02:**

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value. Set $VBW \geq RBW$. Set detector = peak or average.

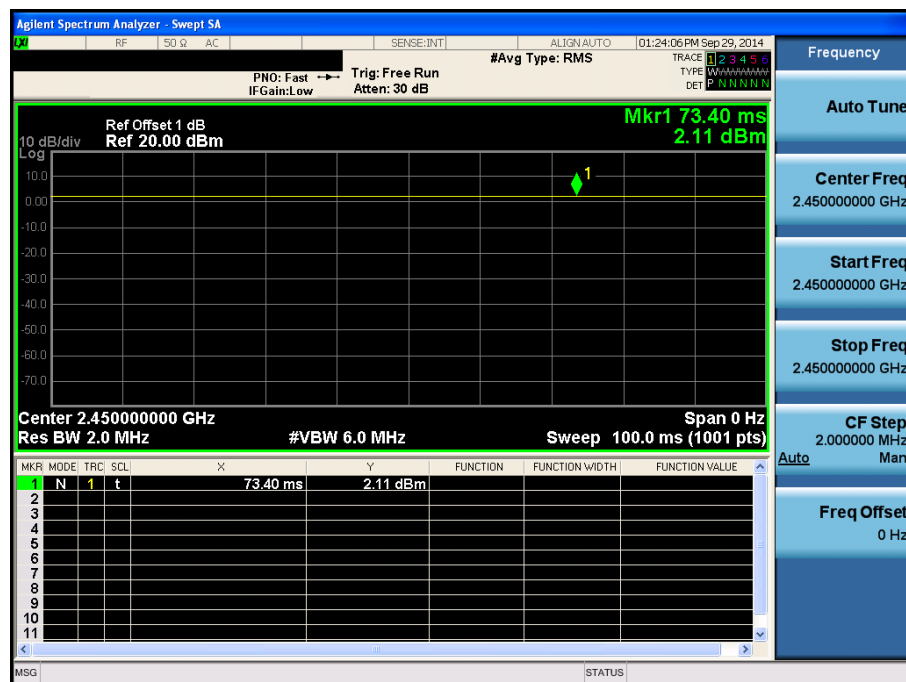
The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

Measurement set-up of RBW

| Mode | T | 50/T | RBW (\leq VBW) |
|------|---|------|-------------------|
| - | - | - | - |
| - | - | - | - |

Test Plots :**Duty Cycle**

Test Mode: O-QPSK & 2450MHz



Duty Cycle = 100%