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Report No.: SZEM170900967803
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1 Cover Page

RF TEST REPORT

| | |
|---|--|
| Application No.: | SZEM1709009678CR |
| Applicant: | Hangzhou EZVIZ Network Co., Ltd |
| FCC ID: | 2ALZF-T2 |
| IC: | 22696-T2 |
| Equipment Under Test (EUT): NOTE: The following sample(s) submitted was/were identified on behalf of the client as | |
| Product Name: | Home Sense Magnetic Contact |
| Model No.(EUT): | CS-AS220 |
| Added Mo | CS-AS221, CS-AS222 |
| Standards: | FCC PART 15 Subpart C Section 15.249: 2016 RSS-210 Issue 9 (August 2016) RSS-Gen Issue 4 (November 2014) |
| Date of Receipt: | 2017-08-01 |
| Date of Test: | 2017-08-02 to 2017-09-07 |
| Date of Issue: | 2017-09-08 |
| Test Result: | Pass* |

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



Jack Zhang
EMC Laboratory Manager

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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | / | 2017-09-08 | / | Original |
| | | | | |
| | | | | |

| | | | | |
|--------------------------|--|--|--|-----------------------------|
| Authorized for issue by: | | | | |
| Engineer | |  _____ Foray Chen /Project Engineer | | 2017-09-08 _____ Date |
| Reviewer | |  _____ Eric Fu /Reviewer | | 2017-09-08 _____ Date |



2 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 3 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 8 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 3 Section 4.9 RSS-Gen Issue 3 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 8 Annex 8 | ANSI C63.10 (2013) Section 6.9 | PASS |
| 99% Occupied bandwidth | --- | RSS-Gen Section 6.6 | RSS-Gen section 6.6 | PASS |

Note: There are series models mentioned in this report, and they are the identical in electrical and electronic characters. Only the model CS-AS220 was tested since their differences were the software version, their naming and color silk.

N/A: This EUT in working mode is powered by battery only; therefore the AC Conducted Emission test is not applicable.



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4 General Information

4.1 Client Information

| | |
|--------------------------|---|
| Applicant: | Hangzhou EZVIZ Network Co., Ltd |
| Address of Applicant: | Floor 7, Building 1, No. 700, Dongliu Road, Binjiang District, Hangzhou, Zhejiang, 310052, China. |
| Manufacturer: | Hangzhou EZVIZ Network Co., Ltd |
| Address of Manufacturer: | Floor 7, Building 1, No. 700, Dongliu Road, Binjiang District, Hangzhou, Zhejiang, 310052, China. |
| Factory: | 1. Hangzhou Hikvision Technology Co., Ltd. 2. Hangzhou Hikvision Electronics Co., Ltd. |
| Address of Factory: | 1. No.700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China 2. No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China. |

4.1 General Description of E.U.T.

| | |
|----------------------|---|
| Product Description: | Fixed product with 915MHz function |
| Trade mark: |  |
| EUT Power Supply: | D DC 3V by CR2450 battery for transmitter (Supply the EUT with new battery during the testing). |

4.2 Technical Specifications

| | |
|-----------------------|-------------|
| Operation Frequency: | 915MHz |
| Modulation Technique: | FSK |
| Number of Channel: | 1 |
| Antenna Type | PCB Antenna |

4.3 Description of Support Units

The EUT has been tested independently.

4.4 Test Mode

| Test Mode | Description of Test Mode |
|------------------|---|
| Engineering mode | Using test software to control EUT working in continuous transmitting, and select channel and modulation type |

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594



4.6 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



4.7 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 | $< \pm 3 \%$ |



5 Equipments Used during Test

| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due date |
|------|-------------------------------------|--------------|-----------------------------|--------------------------------------|------------|---------------|
| 1 | Spectrum Analyzer | R&S | FSP-30 | 2705121009 | 2017-01-14 | 2018-01-13 |
| 2 | Spectrum Analyzer | Agilent | N9020A | MY51240197 | 2017-07-03 | 2018-07-02 |
| 3 | Power meter | R&S | NRP | 101641 | 2017-01-14 | 2018-01-13 |
| 4 | Power Sensor | R&S | NRP-Z22 | 101096 | 2017-08-06 | 2018-08-05 |
| 5 | Signal Generator | R&S | SMR40 | 100555 | 2017-07-03 | 2018-07-02 |
| 6 | Signal Generator | Agilent | N5182A | MY50143776 | 2017-07-03 | 2018-07-02 |
| 7 | Communication Tester | R&S | CMW500 | 1201.0002K75 | 2016-12-24 | 2017-12-23 |
| 8 | Switcher | Tonscend | JS0806 | JS0806-2 | / | / |
| 9 | Splitter | Anritsu | MA1612A | M12265 | / | / |
| 10 | Coupler | e-meca | 803-S-1 | 900-M01 | / | / |
| 11 | High-low Temperature Cabinet | Suzhou Zhihe | TL-40 | 50110050 | 2016-09-11 | 2017-09-10 |
| 12 | AC Power Stabilizer | WOCEN | 6100 | 51122 | 2017-01-14 | 2018-01-13 |
| 13 | DC Power Supply | QJE | QJ30003SII | 3573/4/3 | 2017-01-14 | 2018-01-13 |
| 14 | EMI Test Receiver | R&S | ESU40 | 100109 | 2017-02-13 | 2018-01-15 |
| 15 | Active Loop Antenna (9kHz to 30MHz) | R&S | FMZB1519 | 1519-034 | 2017-02-13 | 2018-01-15 |
| 16 | Broadband Antenna (25MHz to 2GHz) | Schwarzbeck | VULB9168 | 9168-313 | 2017-02-13 | 2018-01-15 |
| 17 | Broadband Antenna (25MHz to 3GHz) | R&S | HL562 | 100227 | 2017-08-30 | 2018-08-29 |
| 18 | Horn Antenna (1 -18GHz) | R&S | HF906 | 100284 | 2017-02-13 | 2018-01-15 |
| 19 | Horn Antenna (1 - 18GHz) | Schwarzbeck | BBHA9120D | 9120D-679 | 2017-02-13 | 2018-01-15 |
| 20 | Horn Antenna (14 - 40GHz) | Schwarzbeck | BBHA 9170 | BBHA917-0373 | 2017-02-13 | 2018-01-15 |
| 21 | Pre-amplifier (9KHz – 2GHz) | LNA6900 | TESEQ | 71033 | 2017-02-13 | 2018-01-15 |
| 22 | Pre-amplifier (1 – 26.5GHz) | Schwarzbeck | SCU-F0118-G40-BZ4-CSS(F) | 10001 | 2017-01-14 | 2018-01-13 |
| 23 | Pre-amplifier (14 – 40GHz) | Schwarzbeck | SCU-F1840-G35-BZ3-CSS(F) | 10001 | 2017-01-14 | 2018-01-13 |
| 24 | Tunable Notch Filter | Wainwright | WRCT800.0/880.0-0.2/40-5SSK | 170397 169777 169780 192507 | / | / |
| 25 | High pass Filter | FSCW | HP 12/2800-5AA2 | 19A45-02 | / | / |

6 Test Results

6.1 E.U.T. test conditions

Test Voltage: AC 120V 60Hz

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 -102.0 kPa |

6.2 Antenna Requirement

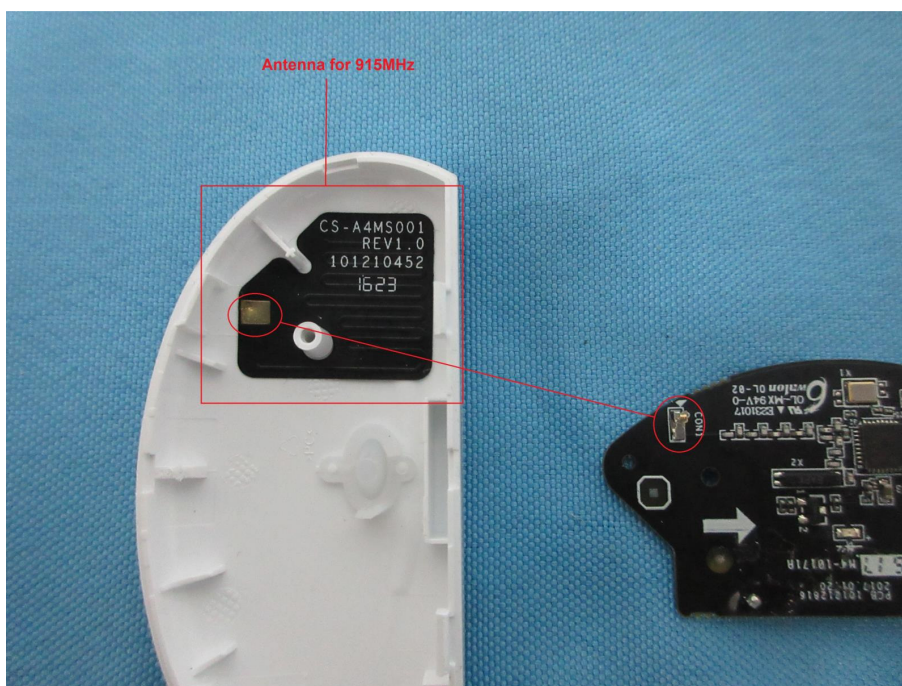
Standard requirement:

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

EUT Antenna:

The antenna is PCB Antenna and no consideration of replacement.



6.3 Conducted Emissions on Mains Terminals

Frequency Range: 150 KHz to 30 MHz

Class/Severity: Class B

Limit:

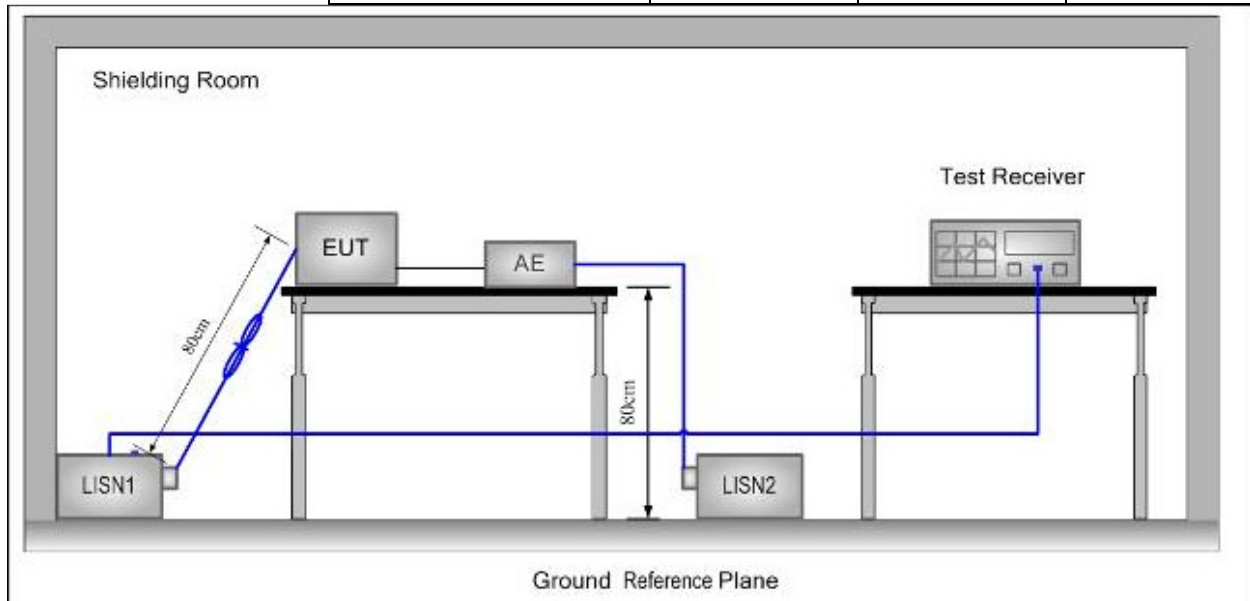
| Frequency range MHz | Class B Limits: dB (μV) | |
|------------------------|-------------------------|----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

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:

N/A: This EUT in working mode is powered by battery only; therefore the AC Conducted Emission test is not applicable.

6.4 Field Strength of the Fundamental Signal

Test Site: Measurement Distance: 3m

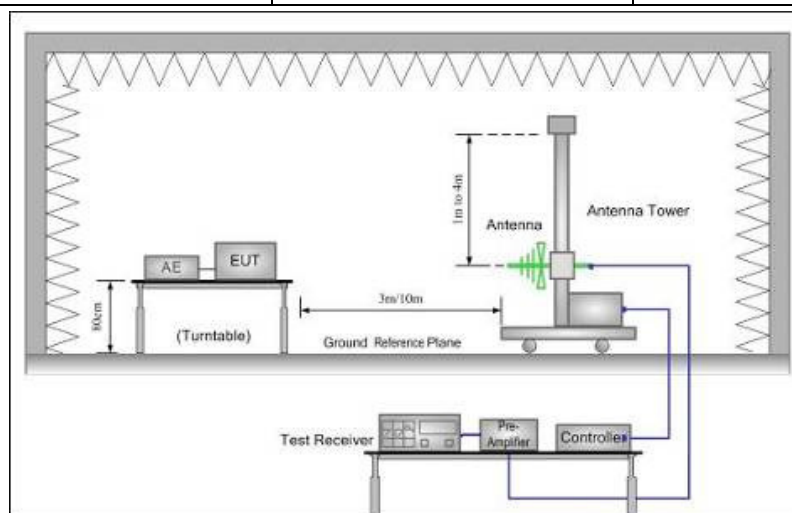
Receiver Setup:

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

Limit:

| Frequency | Limit (dBuV/m) | Remark |
|-------------|----------------|------------|
| 902-928 MHz | 114 | Peak |
| | 94 | Quasi-Peak |

Test Setup:



Test Procedure:

- The EUT was placed on the top of a rotating table 0.8 meters 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.

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 |
|-----------------|-------------------|---------------|----------------|---------------------|-----------------|----------|--------------|
| 915 | 109.14 | 16.43 | 92.71 | 94 | -1.29 | Peak | Horizontal |
| | 106.01 | 16.43 | 89.58 | 94 | -4.42 | 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)
- 2) If the Peak value below the Quasi-Peak Limit, the Quasi-Peak test doesn't perform for this submission.



6.5 Radiated Spurious Emissions and Band-edge

Frequency Range: 9KHz to 10GHz

Test site/setup:

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

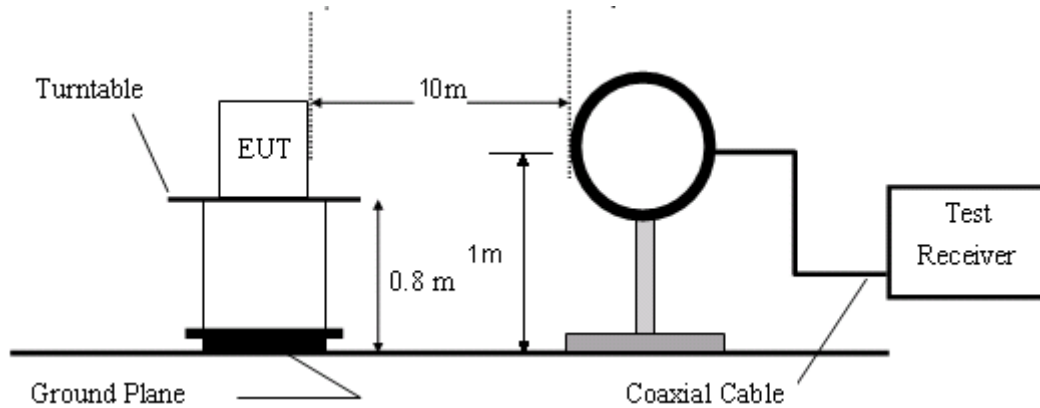


Figure1. Blow 30MHz radiated emissions test configuration

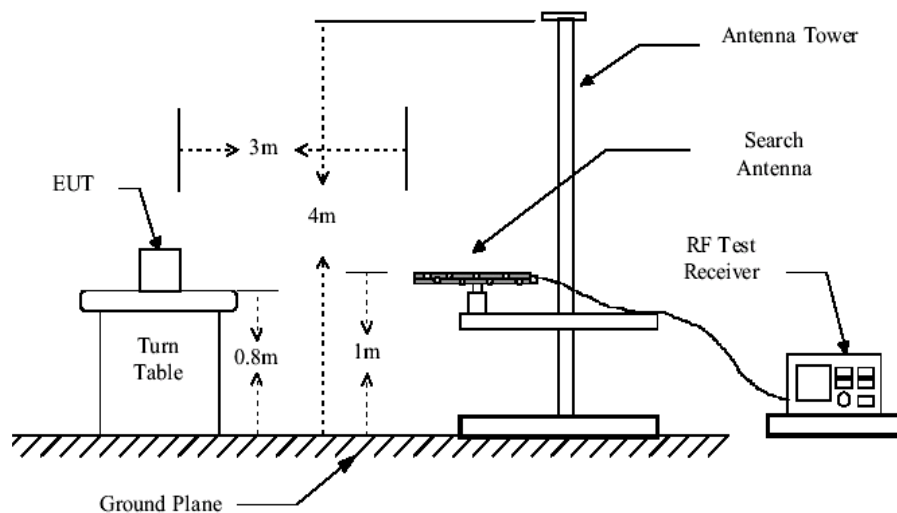


Figure2. 30MHz to 1GHz radiated emissions test configuration

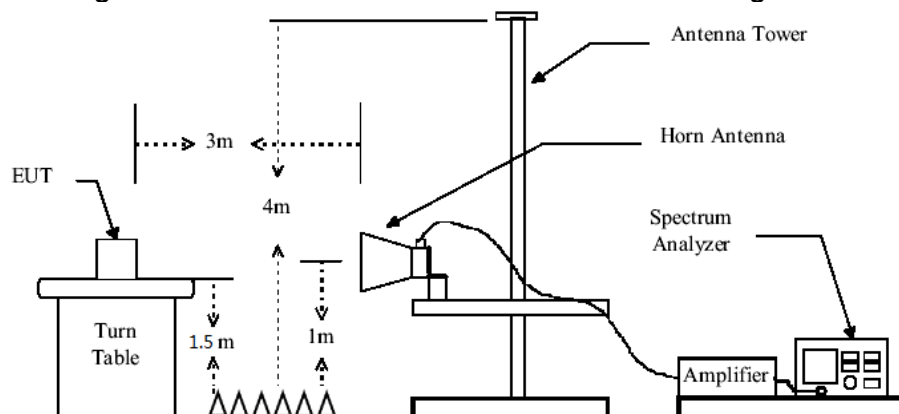


Figure3. Above 1GHz radiated emissions test configuration



Test Procedure: The procedure used was ANSI Standard C63.10. The receiver was scanned from 9KHz to 10GHz. 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.

Pre-test was performed on Antenna A and Antenna B mode, 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.

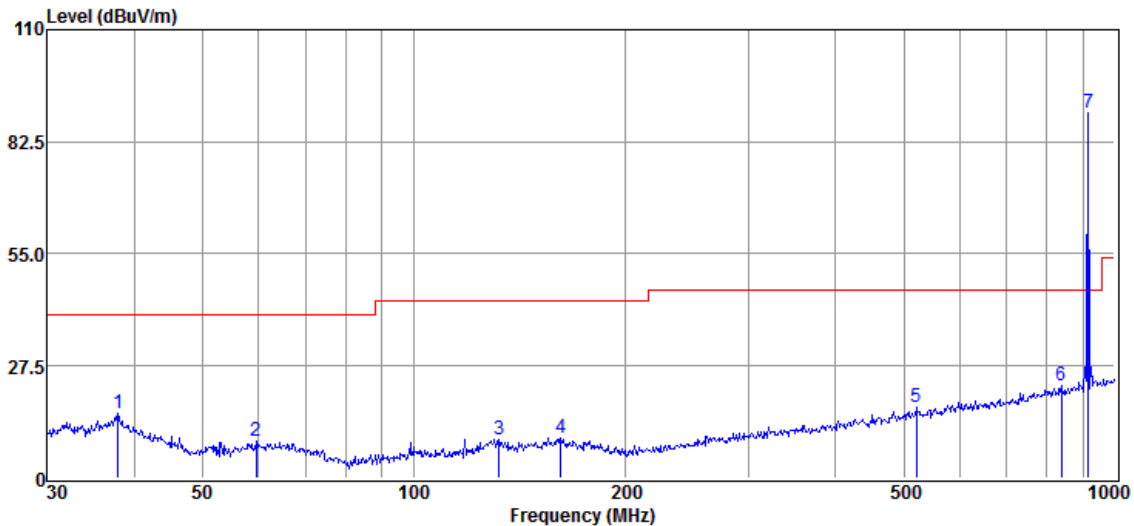
Test Result: Pass



6.5.1 Radiated Spurious Emissions

30MHz-1GHz:

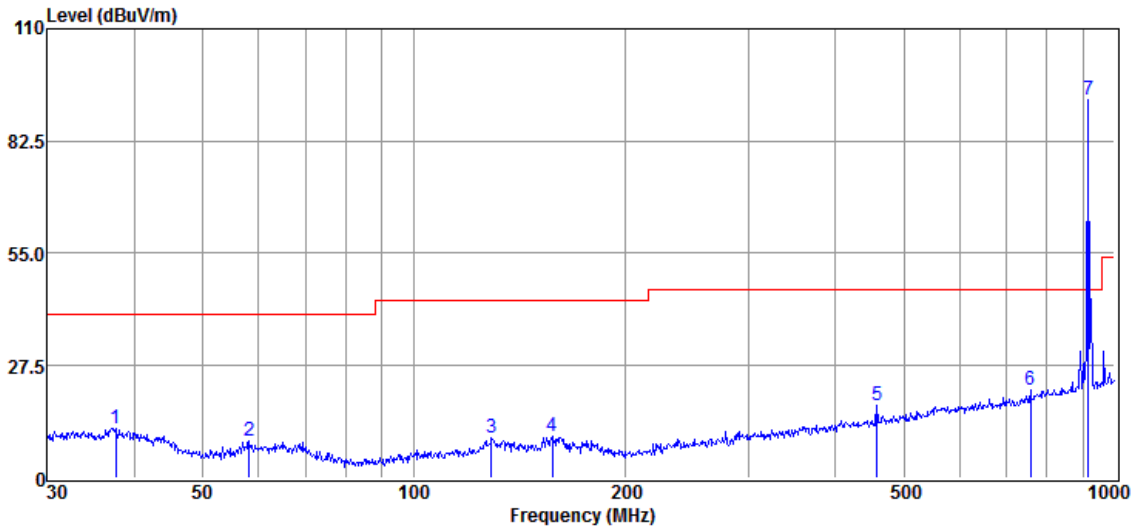
Vertical:



| 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 | 37.81 | 42.17 | 16.10 | 42.62 | 0.21 | 15.86 | 40.00 | -24.14 | QP |
| 2 | 59.65 | 38.79 | 12.52 | 42.65 | 0.30 | 8.96 | 40.00 | -31.04 | QP |
| 3 | 132.22 | 39.17 | 12.44 | 42.65 | 0.58 | 9.54 | 43.50 | -33.96 | QP |
| 4 | 162.04 | 38.91 | 12.77 | 42.59 | 0.64 | 9.73 | 43.50 | -33.77 | QP |
| 5 | 520.89 | 40.47 | 17.71 | 42.15 | 1.22 | 17.25 | 46.00 | -28.75 | QP |
| 6 | 839.18 | 40.34 | 22.23 | 42.28 | 2.21 | 22.50 | 46.00 | -23.50 | QP |
| 7 | 916.07 | 106.01 | 22.88 | 41.80 | 2.49 | 89.58 | Fundamental signal | | |



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 | 37.55 | 38.59 | 16.08 | 42.62 | 0.21 | 12.26 | 40.00 | -27.74 | QP |
| 2 | 58.20 | 39.16 | 12.25 | 42.65 | 0.29 | 9.05 | 40.00 | -30.95 | QP |
| 3 | 129.02 | 39.51 | 12.56 | 42.66 | 0.58 | 9.99 | 43.50 | -33.51 | QP |
| 4 | 157.56 | 39.17 | 12.83 | 42.60 | 0.63 | 10.03 | 43.50 | -33.47 | QP |
| 5 | 457.51 | 42.43 | 16.37 | 42.12 | 1.10 | 17.78 | 46.00 | -28.22 | QP |
| 6 | 758.04 | 41.07 | 21.23 | 42.60 | 1.91 | 21.61 | 46.00 | -24.39 | QP |
| 7 | 916.07 | 109.14 | 22.88 | 41.80 | 2.49 | 92.71 | Fundamental signal | | |

Level = Read Level + Antenna Factor + Cable Loss – Preamplifier Factor.



Above 1GHz:

| Mark | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Emission (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|------|-----------------|----------------|-------------|-------------------|----------------|-----------------|----------|--------------|
| 1 | 3367 | 40.45 | 1.85 | 42.3 | 54 | -11.7 | peak | Horizontal |
| 2 | 3682 | 40.67 | 2.6 | 43.27 | 54 | -10.73 | peak | Horizontal |
| 3 | 5509 | 40.68 | 6.94 | 47.62 | 54 | -6.38 | peak | Horizontal |
| 4 | 3385 | 41.77 | 1.87 | 43.64 | 54 | -10.36 | peak | Vertical |
| 5 | 4402 | 39.65 | 3.36 | 43.01 | 54 | -10.99 | peak | Vertical |
| 6 | 5662 | 41.23 | 6.83 | 48.06 | 54 | -5.94 | 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.

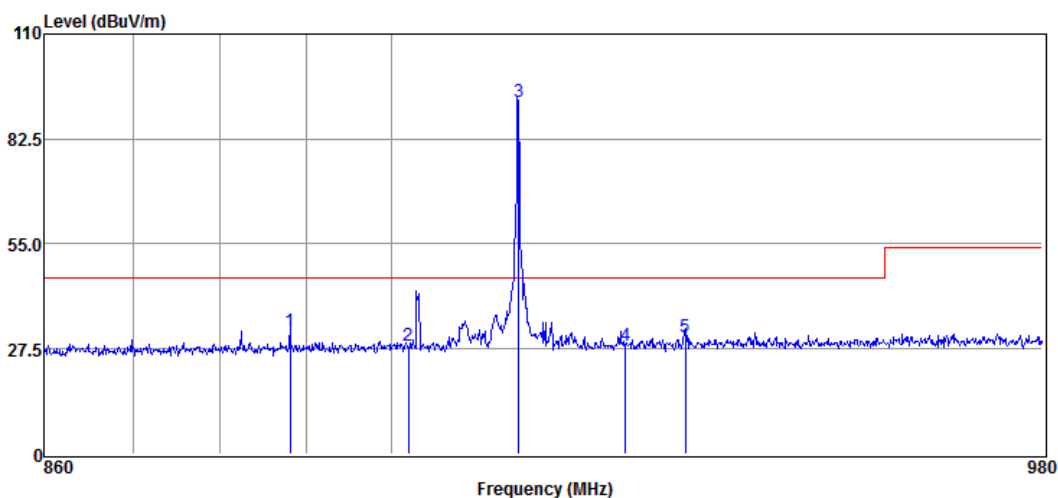


6.5.2 Radiated Band edge

Channel: 915MHz

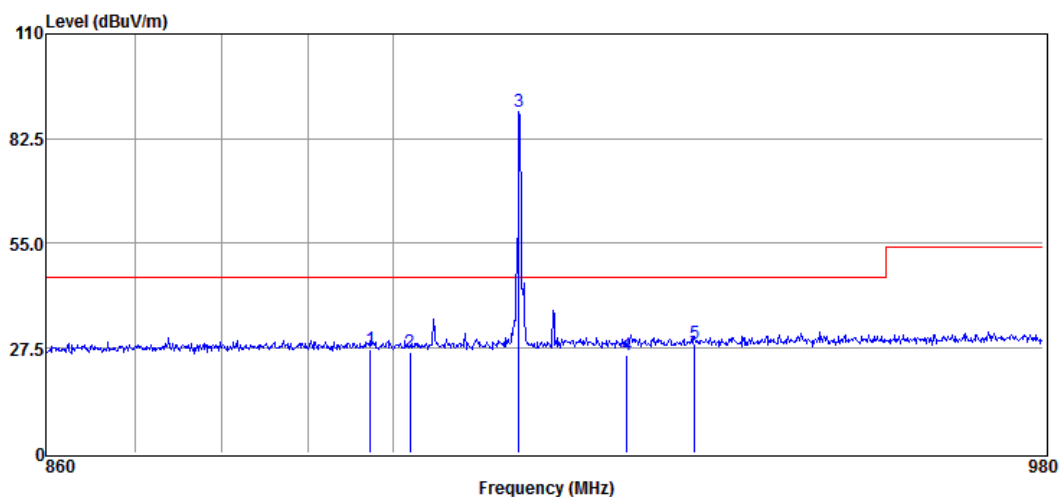
| MK. | Frequency (MHz) | Reading (dBuV/m) | Corrected factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Polarization |
|-----|-----------------|------------------|----------------------|-----------------|----------------|-----------------|----------|--------------|
| 1 | 888.08 | 49.22 | 22.61 | 42.00 | 2.42 | 32.25 | Peak | Horizontal |
| 2 | 902.00 | 45.20 | 22.74 | 41.90 | 2.45 | 28.49 | Peak | Horizontal |
| 3 | 915.05 | 108.63 | 22.88 | 41.80 | 2.49 | 92.20 | Peak | Horizontal |
| 4 | 928.00 | 44.35 | 23.03 | 41.70 | 2.56 | 28.24 | Peak | Horizontal |
| 5 | 935.23 | 46.77 | 23.10 | 41.65 | 2.56 | 30.78 | Peak | Horizontal |
| 1 | 897.29 | 44.17 | 22.68 | 41.90 | 2.42 | 27.37 | Peak | Vertical |
| 2 | 902.00 | 43.11 | 22.74 | 41.90 | 2.45 | 26.40 | Peak | Vertical |
| 3 | 914.93 | 105.91 | 22.88 | 41.80 | 2.49 | 89.48 | Peak | Vertical |
| 4 | 928.00 | 41.90 | 23.03 | 41.70 | 2.56 | 25.79 | Peak | Vertical |
| 5 | 936.21 | 44.76 | 23.10 | 41.65 | 2.56 | 28.77 | Peak | Vertical |

Horizontal





Vertical





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

1. FCC Part 15, Subpart C Section 15.205 Restricted bands of operation.

| MHz | MHz | MHz | GHz |
|---------------------|-----------------------|-----------------|---------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| 10.495 - 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 - 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 | | | |

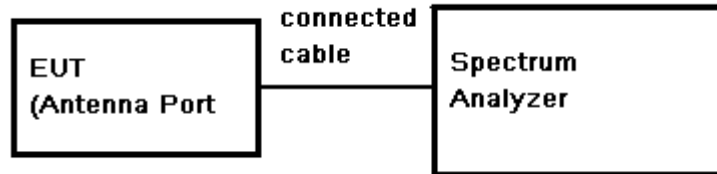


2. RSS-Gen section 7.2.2 Restricted bands of operation

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

6.6 20dB Bandwidth

Test Configuration:



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 = approximately 1 % to 5 % of the OBW (set 3 kHz), VBW = 3* RBW, Span=1MHz, 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:

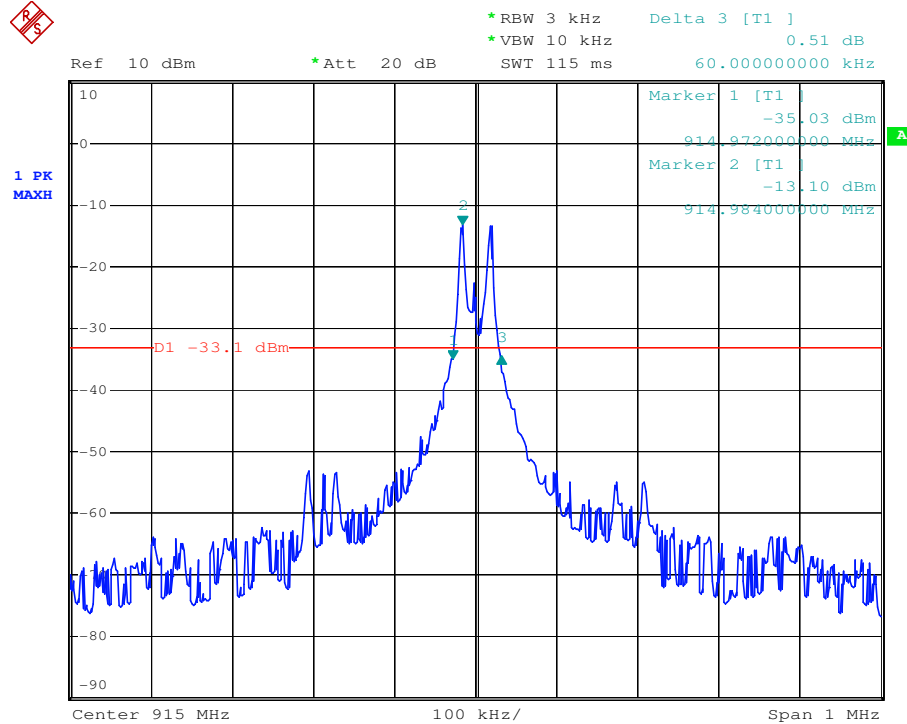
Pass

Test Data:

| Frequency (MHz) | Bandwidth (kHz) | Result |
|-----------------|-----------------|--------|
| 915 | 60.0 | PASS |



Test plot as follows:

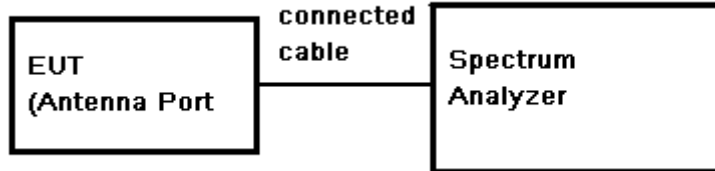


Date: 7.SEP.2017 15:21:55



6.7 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 = 1% of the span (set 3 kHz). VBW >= 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:

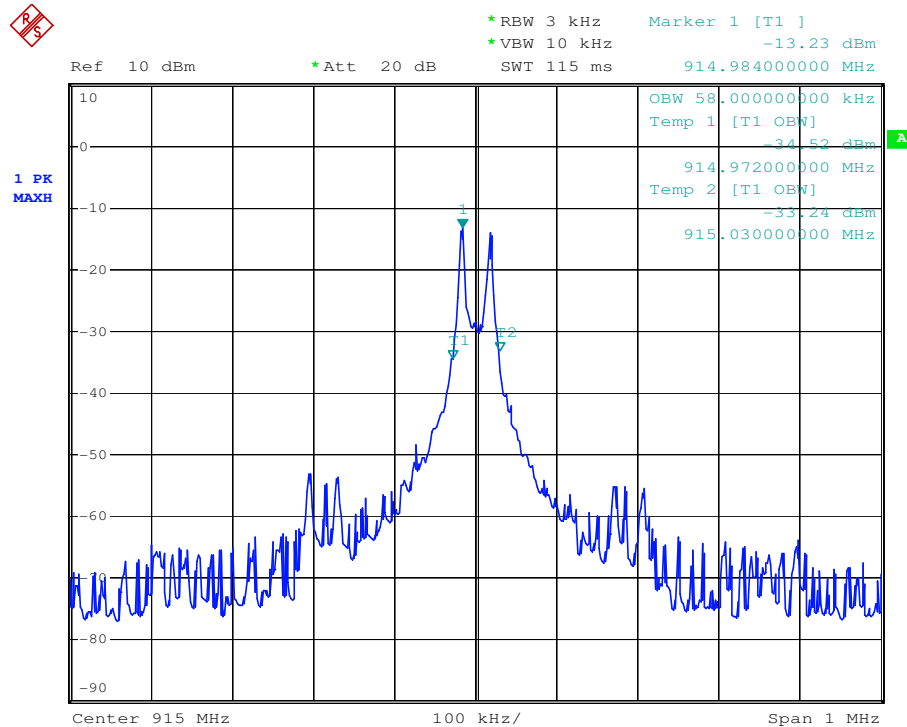
Pass

Test Date:

| Frequency (MHz) | Bandwidth (kHz) | Result |
|-----------------|-----------------|--------|
| 915 | 58.0 | PASS |



Test plot as follows:



Date: 7.SEP.2017 15:20:00



7 Test Setup Photographs

Refer to the < Test Setup photos>.

8 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

--End of the Report--