

FCC Part 15C



Measurement and Test Report

For

Y-cam Solutions Ltd

3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

FCC ID: V4FY-CAM

| | |
|--|---|
| Report Concerns: Original Report | Equipment Type: Network Camera |
| Model: | <u>Y-CAM Black</u> |
| Report No.: | <u>STR08028025I-1</u> |
| Test/Witness Engineer: |  |
| Test Date: | <u>2008-02-19 to 2008-02-29</u> |
| Prepared By: | Shenzhen SEM.Test Compliance Service Co., Ltd 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101) |
| Approved & Authorized By: |  _____ Jandy So / PSQ Manager |

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Y-cam Solutions Ltd.
Address of applicant: 3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

Manufacturer: Y-cam Solutions Ltd.
Address of manufacturer: 3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

General Description of E.U.T

| Items | Description |
|---------------------|--------------------------|
| EUT Description: | Network Camera |
| Trade Name: | Y-CAM |
| Model No.: | Y-CAM Black |
| Adjusted Models: | Y-CAM White Y-CAM Knight |
| Rated Voltage: | DC 5V Adaptor |
| Max. Output Power | < 20dBm |
| Frequency range: | 2412-2462MHz |
| Number of channels: | 11 |
| Size: | 5MHz |
| Channel Separation: | Fixed Antenna |
| Type of Antenna: | 11.3x8.6x3.3cm |

The test data is gathered from a production sample, provided by the manufacturer. Test is carried out with Y-CAM Black since the other models listed in this report are different appearance from model Y-CAM Black without electronic construction changed, declared by the manufacture.

1.2 Test Standards

The following report is prepared on behalf of Y-cam Solutions Ltd. in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted with Low Channel, Middle Channel and High Channel, accordingly in reference to the Operating Instructions.

1.5 Test Facility

The Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission.

The acceptance letter from the FCC is maintained in files which the Registration No.: 759397.

Measurement required was performed at laboratory of Solid Industrial Co., Ltd. at 333 Bulong Highway Buji Longgang, Shenzhen, Guangdong, China.

1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.7 Accessories Equipment List and Details

| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|------------|---------------|
| IBM | Notebook | R51e | LV14893 |
| TP-LINK | Modem | TM-EC5658V | KT99CTQC-508 |
| Lenovo | Printer | 3110 | OD65133711480 |

1.8 EUT Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| DC Power Cable | 1.8 | Unshielded | With Core |
| RJ 45 Cable | 3.0 | Shielded | Without Core |

2. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|-----------------------------|------------------------|-----------|
| § 15.203; § 15.247(c)(1)(i) | Antenna Requirement | Compliant |
| § 15.207 | Conducted Emission | Compliant |
| § 15.247(e) | Power Spectral Density | Compliant |
| § 15.247(a)(2) | 6 dB Bandwidth | Compliant |
| § 15.247(b)(3) | Power Output | Compliant |
| § 15.209(a)(d) | Radiated Emission | Compliant |
| § 15.247(d) | Band edge | Compliant |

3. §15.203 - ANTENNA REQUIREMENT

3.1 Standard Applicable

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

3.2 Test Result

This product has a fixed antenna, fulfill the requirement of this section.

4. CONDUCTED EMISSIONS

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 0.5 dB.

4.2 Test Equipment List and Details

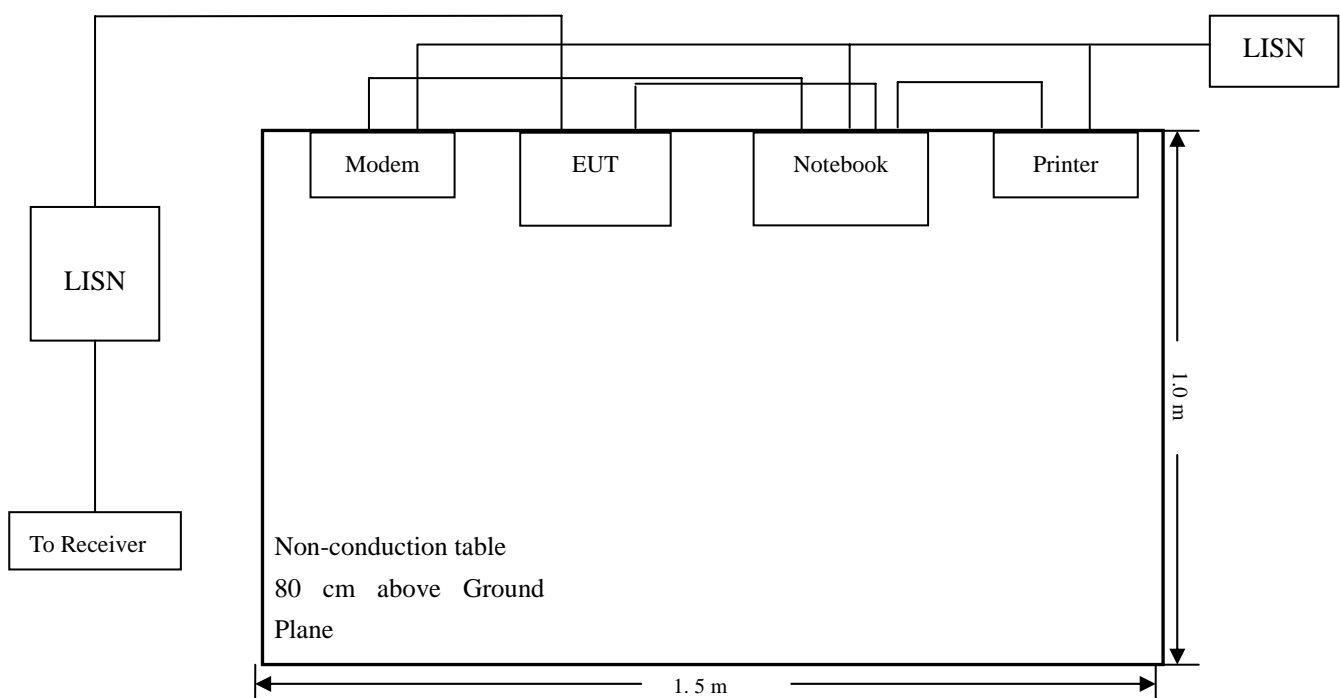
| Description | Manufacturer | Model | Serial Number | Cal. Date | Due. Date |
|-------------------|-----------------|---------|---------------|------------|------------|
| EMI Test Receiver | Rohde & Schwarz | ESCS30 | 830245/009 | 2007-06-30 | 2008-06-29 |
| AMN | Rohde & Schwarz | ESH2-Z5 | 100002 | 2007-06-30 | 2008-06-29 |
| Limiter | Rohde & Schwarz | ESH3-Z2 | 357.8810.52 | 2007-06-30 | 2008-06-29 |
| AMN | Rohde & Schwarz | ESH3-Z5 | 828304/014 | 2007-06-30 | 2008-06-29 |

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

4.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

4.4 Basic Test Setup Block Diagram



4.5 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 20° C |
| Relative Humidity: | 52% |
| ATM Pressure: | 1011 mbar |

4.6 Summary of Test Results/Plots

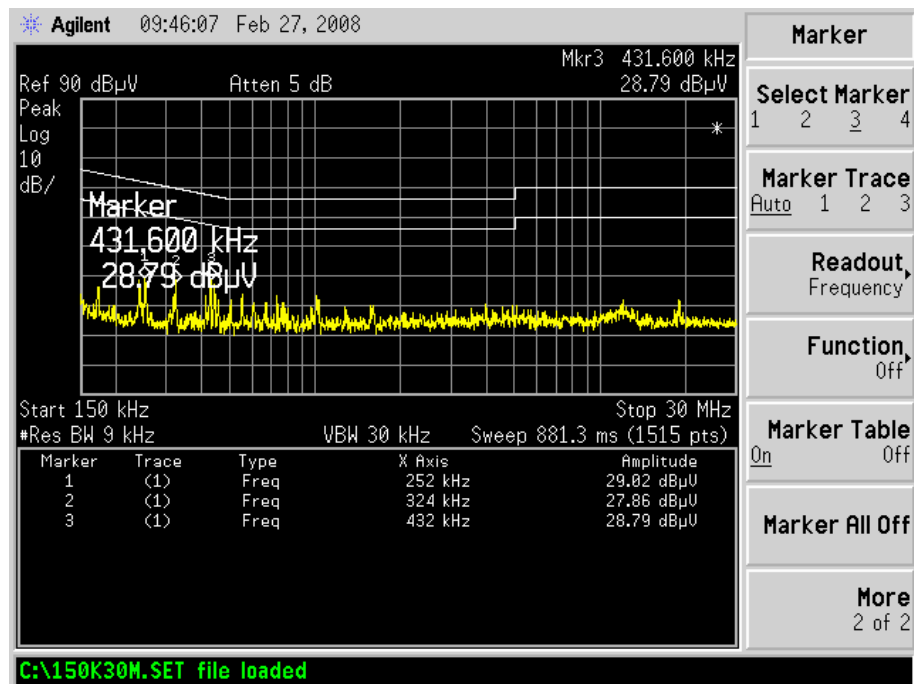
According to the data in section 4.7, the EUT complied with the FCC 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

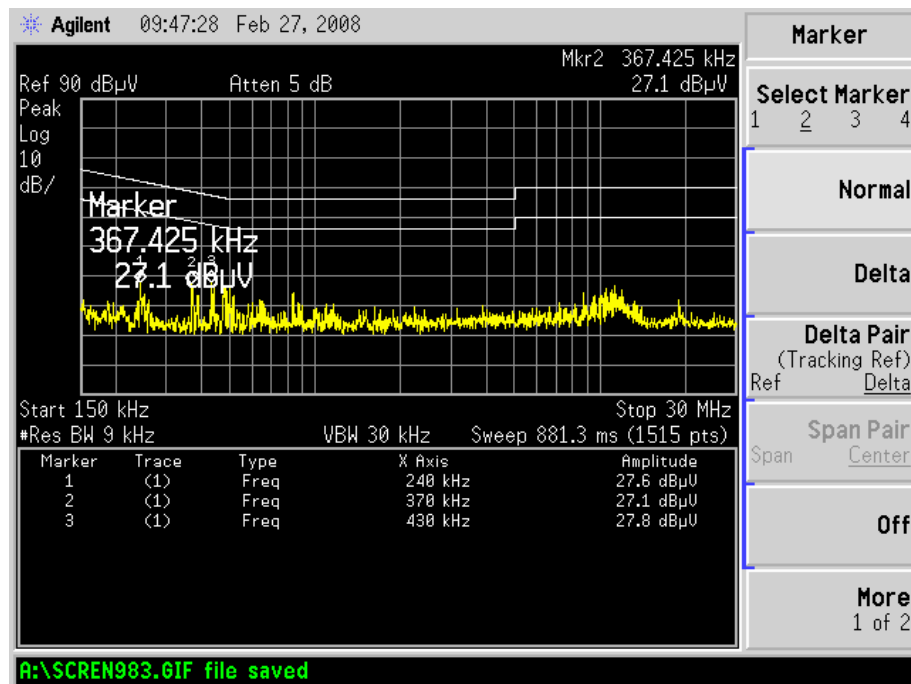
-28.4 dB μ V at 0.432 MHz in the Neutral, 0.15-30MHz

4.7 Conducted Emissions Test Data

| LINE CONDUCTED EMISSIONS | | | | FCC 15.207 | |
|--------------------------|------------|-----------|--------------|------------|--------|
| Frequency | Amplitude | Detector | Phase | Limit | Margin |
| MHz | dB μ V | QP/Ave/Pk | Line/Neutral | dB μ V | dB |
| 0.432 | 28.79 | PK | Neutral | 57.21 | -28.4 |
| 0.430 | 27.80 | PK | Line | 57.25 | -29.5 |
| 0.370 | 27.10 | PK | Line | 58.50 | -31.4 |
| 0.324 | 27.86 | PK | Neutral | 59.60 | -31.7 |
| 0.252 | 29.02 | PK | Neutral | 61.69 | -32.7 |
| 0.240 | 27.60 | PK | Line | 62.10 | -34.5 |

The PK reading is lower than the Limit, so the AV reading is omitted

Plot of Conducted Emissions Test Data*Conducted Disturbance**EUT: Network Camera**M/N: Y-CAM Black**Operating Condition: Running**Test Specification: N**Comment: 120V/60Hz; DC 5V adapter*

Plot of Conducted Emissions Test Data*Conducted Disturbance**EUT: Network Camera**M/N: Y-CAM Black**Operating Condition: Running**Test Specification: L**Comment: 120V/60Hz; DC 5V adapter*

5. POWER SPECTRAL DENSITY

5.1 Standard Applicable

According to 15.247(a)(1)(iii), For digitally modulated systems, the 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.

5.2 Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|-----------------|----------------------|--------------|---------------|------------|------------|
| Rohde & Schwarz | EMI Test Receiver | ESI26 | 830245/009 | 2007-06-30 | 2008-06-29 |
| ETS | 50 ohm Coaxial Cable | SUCOFLEX 104 | 25498514 | 2007-06-30 | 2008-06-29 |

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

5.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW,VBW=3KHz, Span = 20MHz.
4. Repeat above procedures until all frequency measured was complete.

5.4 Environmental Conditions

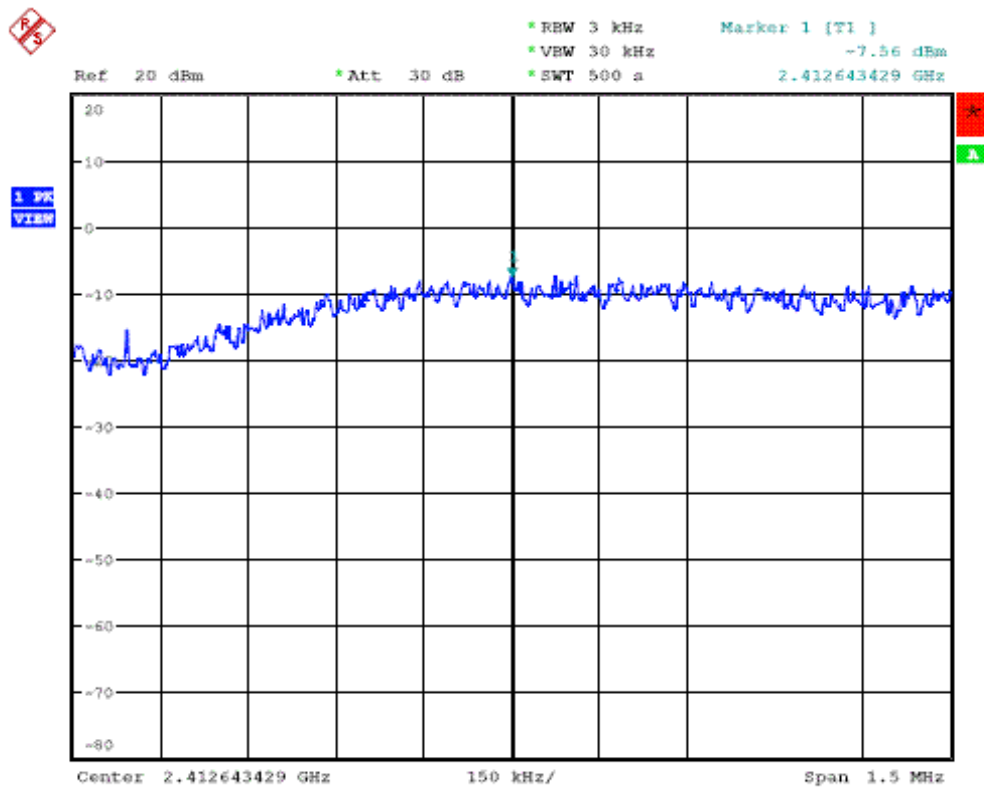
| | |
|--------------------|-----------|
| Temperature: | 20° C |
| Relative Humidity: | 54% |
| ATM Pressure: | 1011 mbar |

5.5 Summary of Test Results/Plots

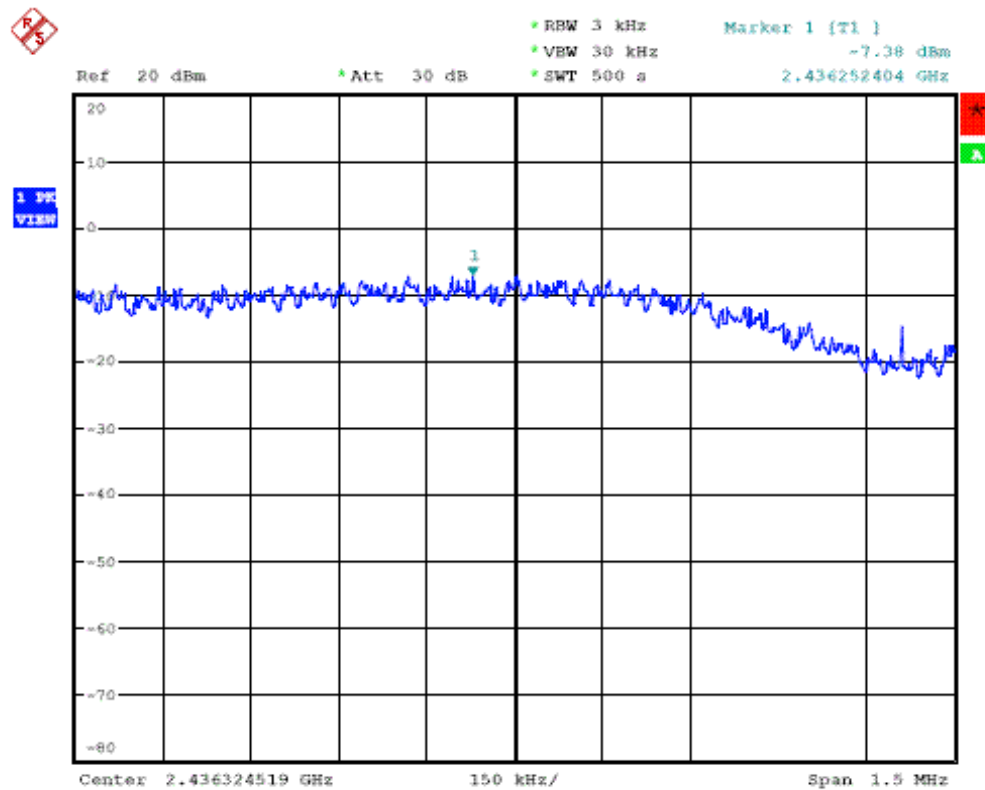
| Test mode | Test channel | Reading dBm/3kHz | Limit dBm/3kHz |
|-----------|-----------------------------|---------------------|-------------------|
| 802.11b | Low channel (2412MHz) | -7.56 | 8 |
| | Middle channel (2437MHz) | -7.38 | 8 |
| | High channel (2462MHz) | -7.32 | 8 |
| 802.11g | Low channel (2412MHz) | -13.85 | 8 |
| | Middle channel (2437MHz) | -13.43 | 8 |
| | High channel (2462MHz) | -12.74 | 8 |

For 802.11b

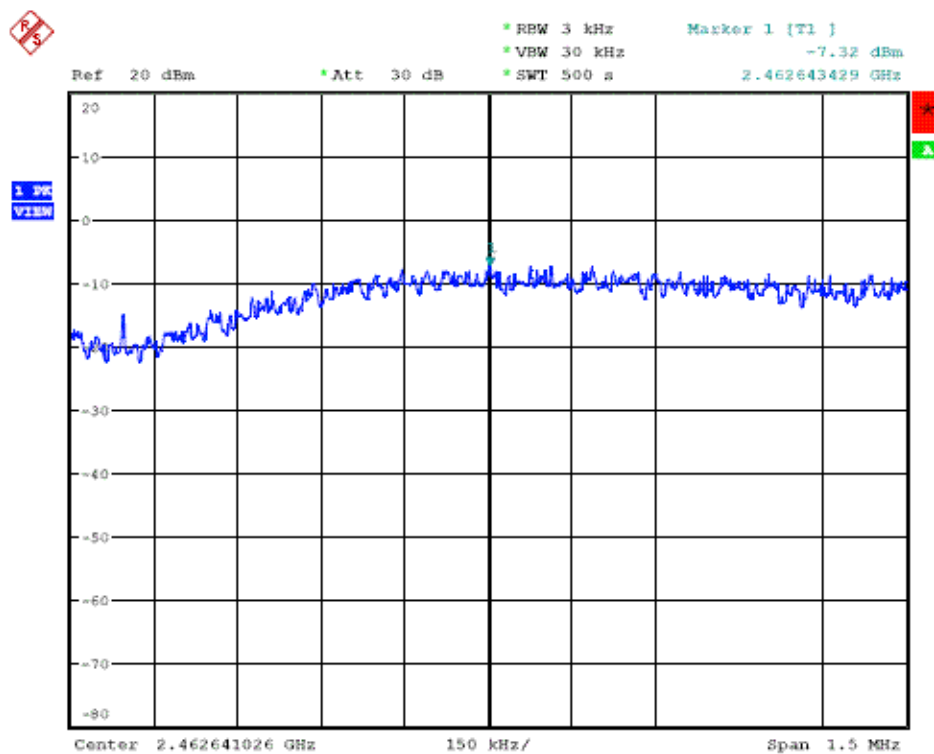
Low Channel:



Middle Channel:

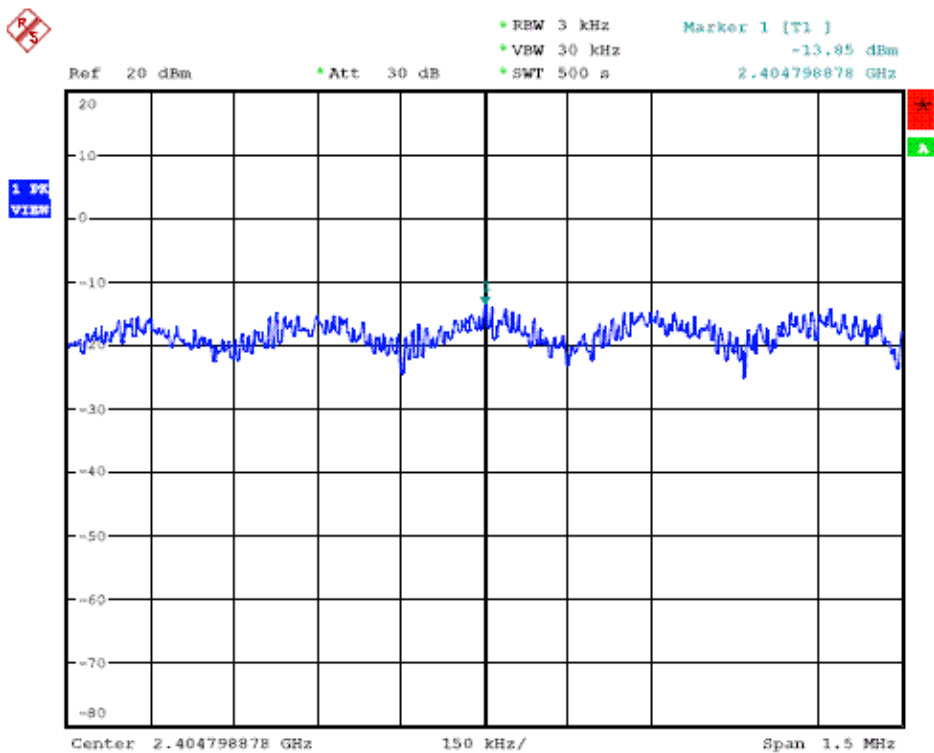


High Channel:

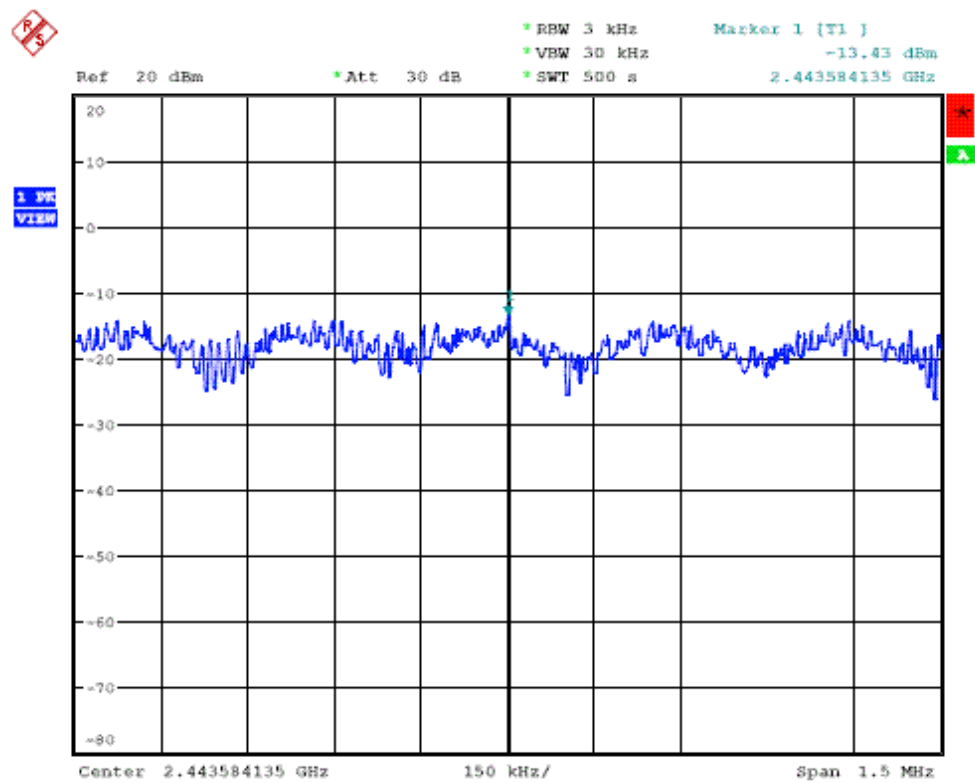


For 802.11g

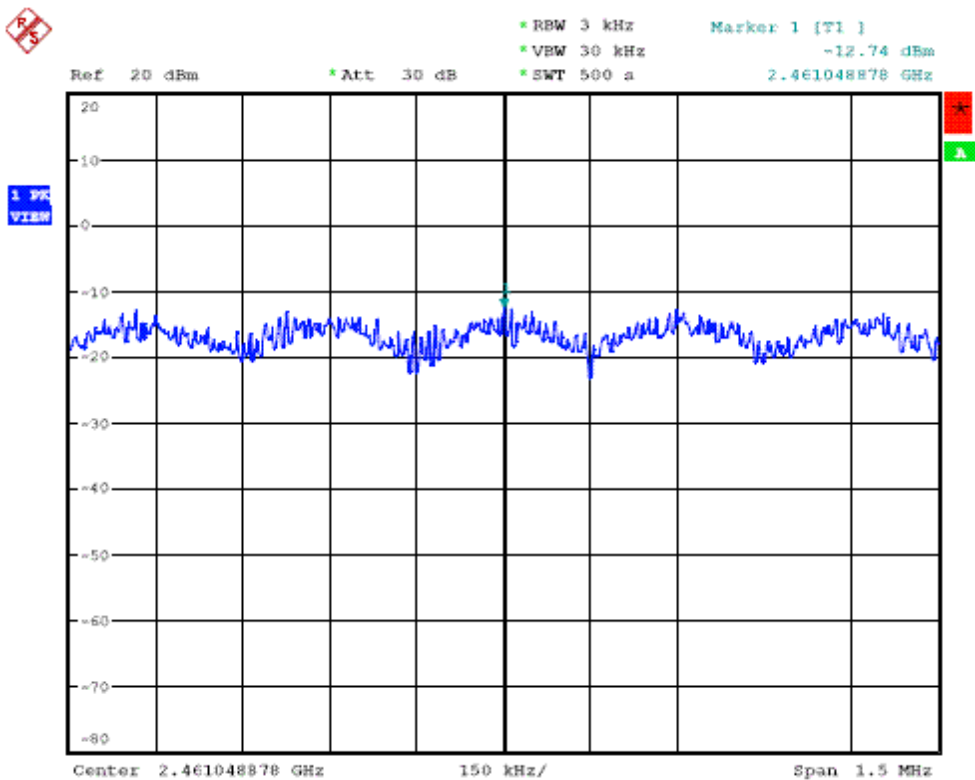
Low Channel:



Middle Channel:



High Channel:



6. 6-dB BANDWIDTH

6.1 Standard Applicable

According to 15.247(a)(2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|-----------------|----------------------|--------------|---------------|------------|------------|
| Rohde & Schwarz | EMI Test Receiver | ESI26 | 830245/009 | 2007-06-30 | 2008-06-29 |
| ETS | 50 ohm Coaxial Cable | SUCOFLEX 104 | 25498514 | 2007-06-30 | 2008-06-29 |

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

6.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set center frequency of spectrum analyzer = operating frequency.
3. The spectrum analyzer as RBW=300KHz (1 % of Bandwidth.), Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.

6.4 Environmental Conditions

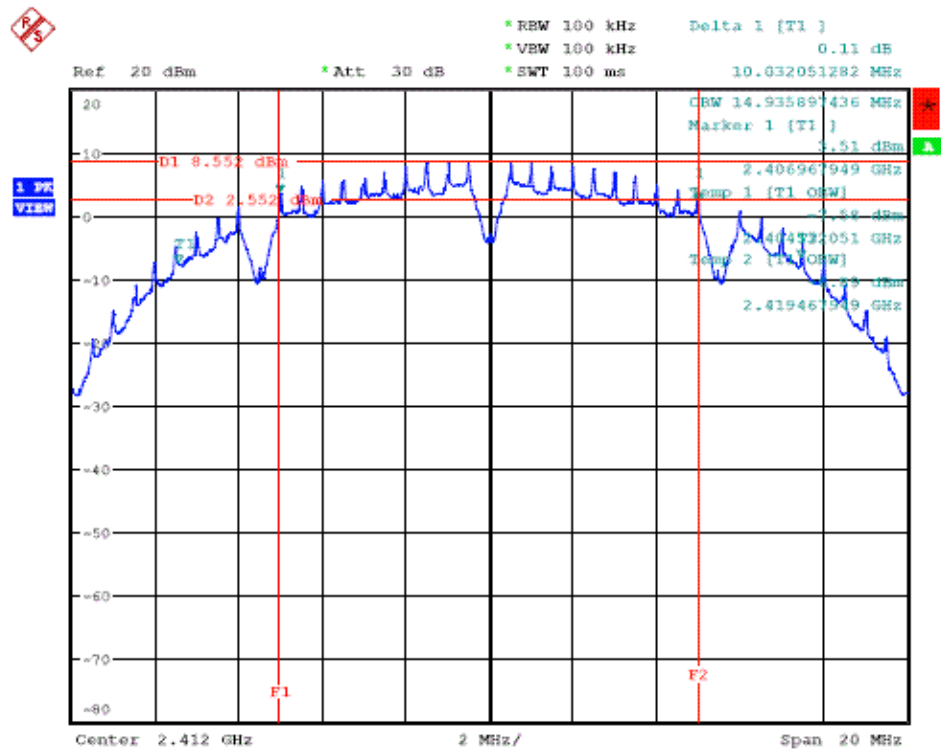
| | |
|--------------------|-----------|
| Temperature: | 24° C |
| Relative Humidity: | 53% |
| ATM Pressure: | 1018 mbar |

6.5 Summary of Test Results/Plots

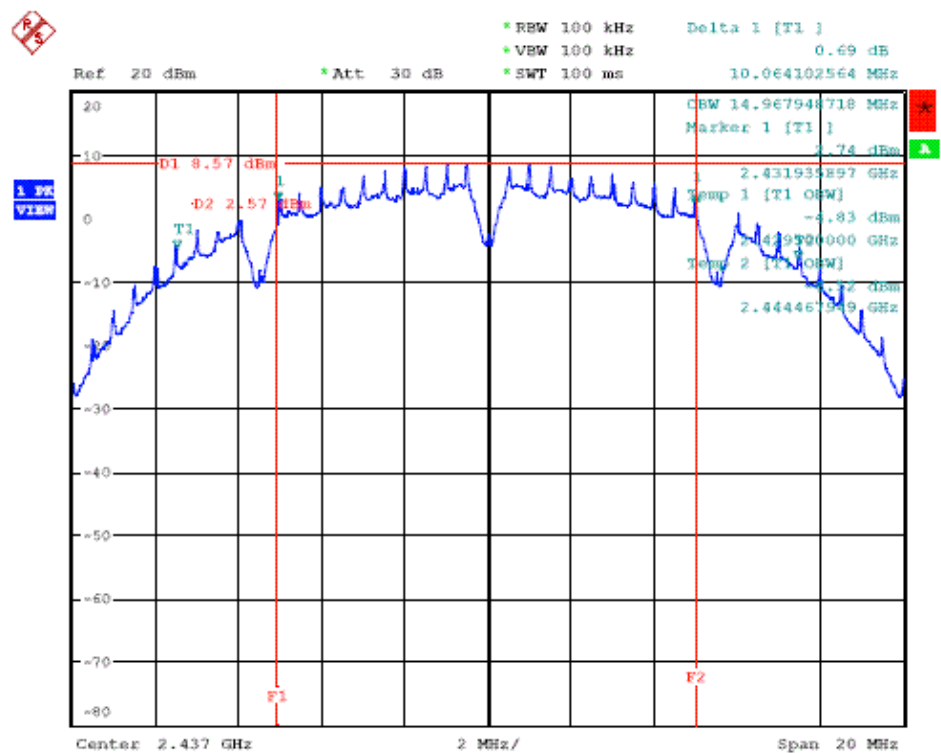
| Test mode | Frequency MHz | 6 dB Bandwidth MHz | Min Limit kHz |
|-----------|---------------|--------------------|---------------|
| 802.11b | 2412 | 10.03 | 500 |
| | 2437 | 10.06 | 500 |
| | 2462 | 10.06 | 500 |
| 802.11g | 2412 | 16.47 | 500 |
| | 2437 | 16.44 | 500 |
| | 2462 | 16.47 | 500 |

For 802.11b

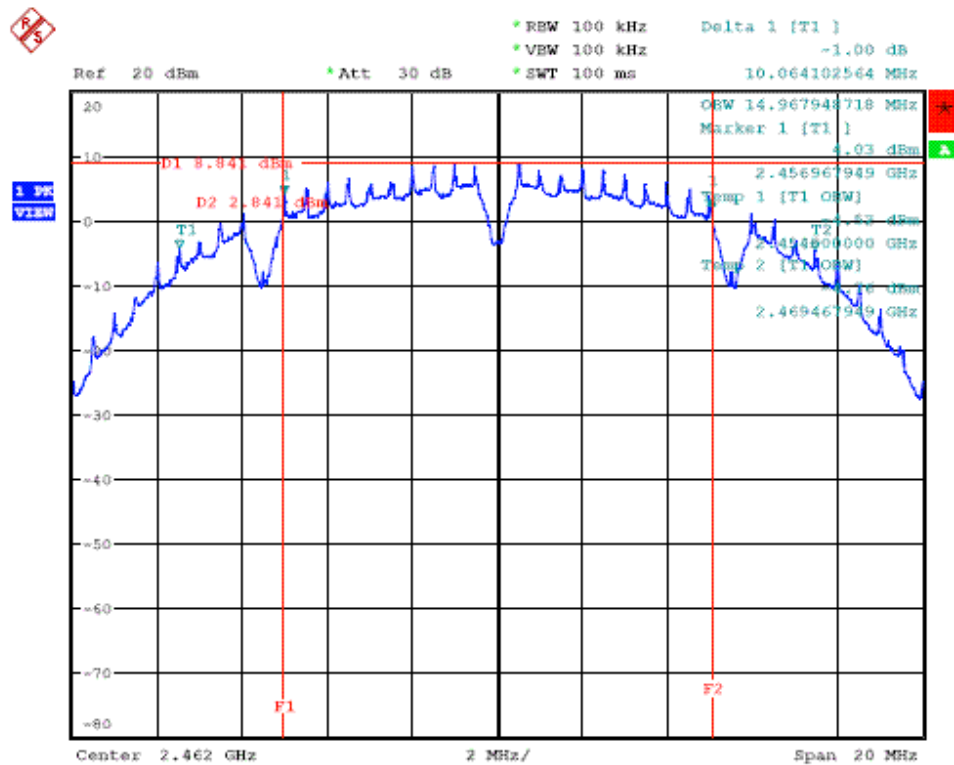
Low Channel:



Mid Channel:

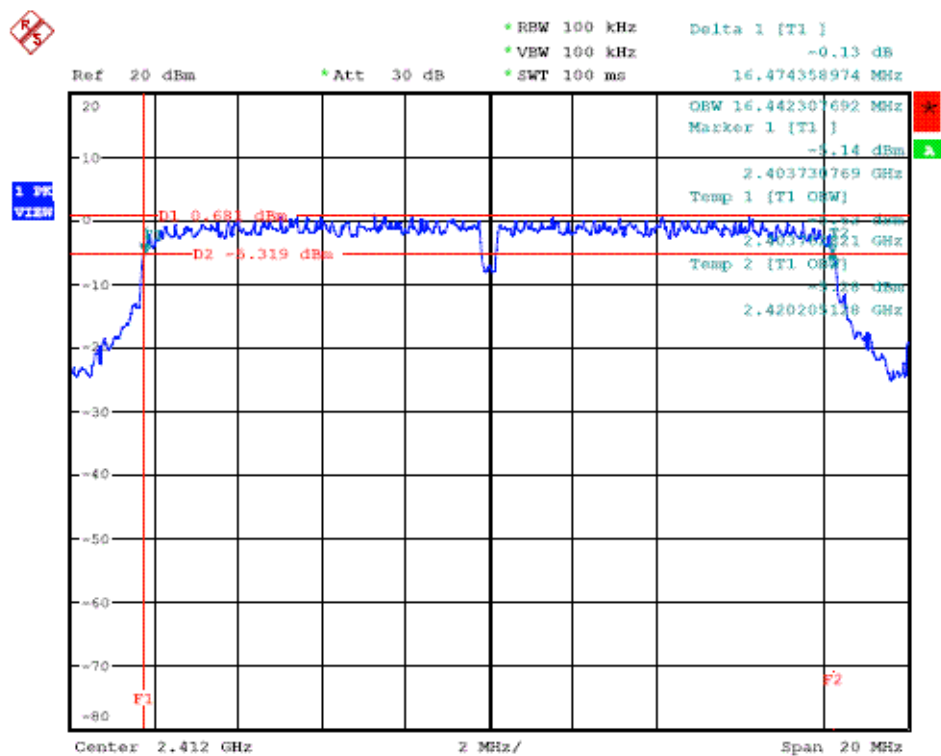


High Channel:

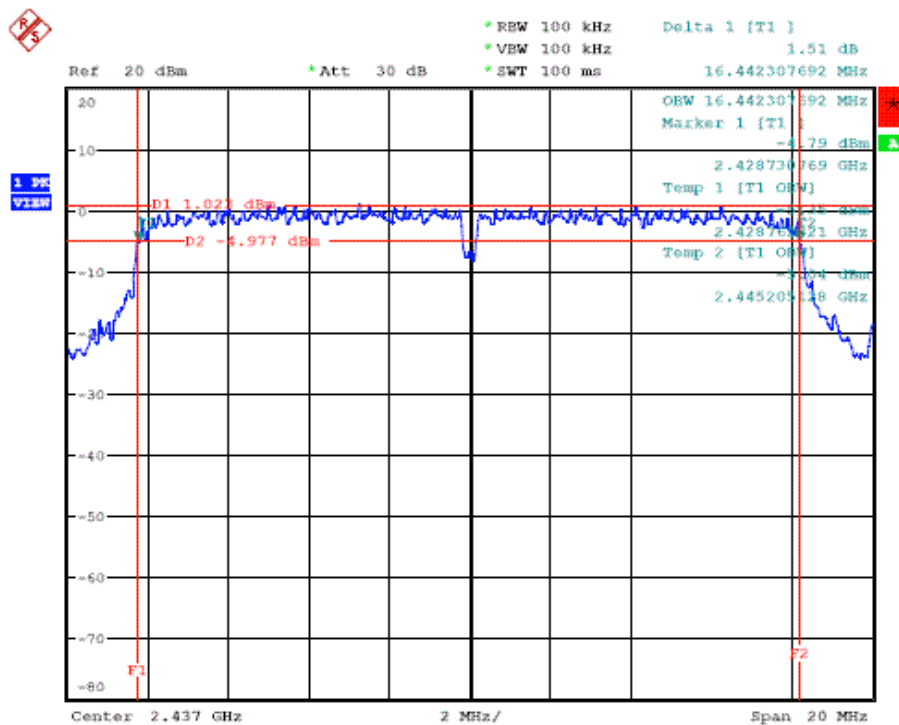


For 802.11g

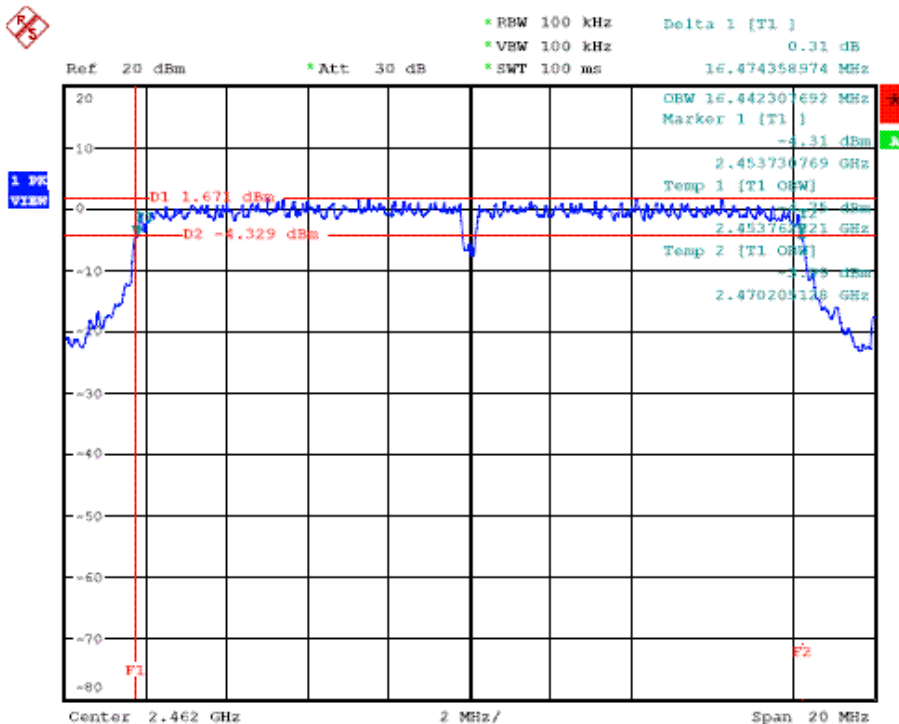
Low Channel:



Mid Channel:



High Channel:



7. POWER OUTPUT

7.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

7.2 Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|-----------------|----------------------|--------------|---------------|------------|------------|
| Rohde & Schwarz | EMI Test Receiver | ESI26 | 830245/009 | 2007-06-30 | 2008-06-29 |
| ETS | 50 ohm Coaxial Cable | SUCOFLEX 104 | 25498514 | 2007-06-30 | 2008-06-29 |

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

7.3 Test Procedure

The device under test has an integral antenna and the power was measured on a radiated basis.

7.4 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 21° C |
| Relative Humidity: | 55% |
| ATM Pressure: | 1011 mbar |

7.5 Summary of Test Results/Plots

| Test mode | Frequency MHz | Reading dBm | Output power W | Max Limit W |
|-----------|---------------|-------------|----------------|-------------|
| 802.11b | 2412 | 19.12 | 0.0817 | 1 |
| | 2437 | 19.06 | 0.0805 | 1 |
| | 2462 | 19.18 | 0.0828 | 1 |
| 802.11g | 2412 | 19.54 | 0.0899 | 1 |
| | 2437 | 19.23 | 0.0838 | 1 |
| | 2462 | 19.05 | 0.0804 | 1 |

8. FIELD STRENGTH OF SPURIOUS EMISSIONS

8.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ± 3.0 dB.

8.2 Standard Applicable

According to §15.247(c), 15.205 15.209(b) & 15.35 (b), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Section 15.209:

30 - 88 MHz 40 dBuV/m @3M

88 -216 MHz 43.5 dBuV/m @3M

216 -960 MHz 46 dBuV/m @3M

Above 960 MHz 54dBuV/m @3M

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

Emissions that fall in the restricted bands (15.205) must be less than 54dBuV/m otherwise the spurious and harmonics must be attenuated by at least 20dB.

8.3 Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|-----------------|-------------------------|--------------|---------------|------------|------------|
| Rohde & Schwarz | EMI Test Receiver | ESI26 | 830245/009 | 2007-06-30 | 2008-06-29 |
| ETS | Multi_Device Controller | 2090 | 57230 | 2007-06-30 | 2008-06-29 |
| ETS | Receiver Antenna | 2175 | 57337 | 2007-06-30 | 2008-06-29 |
| ETS | 50 ohm Coaxial Cable | SUCOFLEX 104 | 25498514 | 2007-06-30 | 2008-06-29 |
| Rohde & Schwarz | Horn Antenna | HF906 | 100014 | 2007-06-30 | 2008-06-29 |

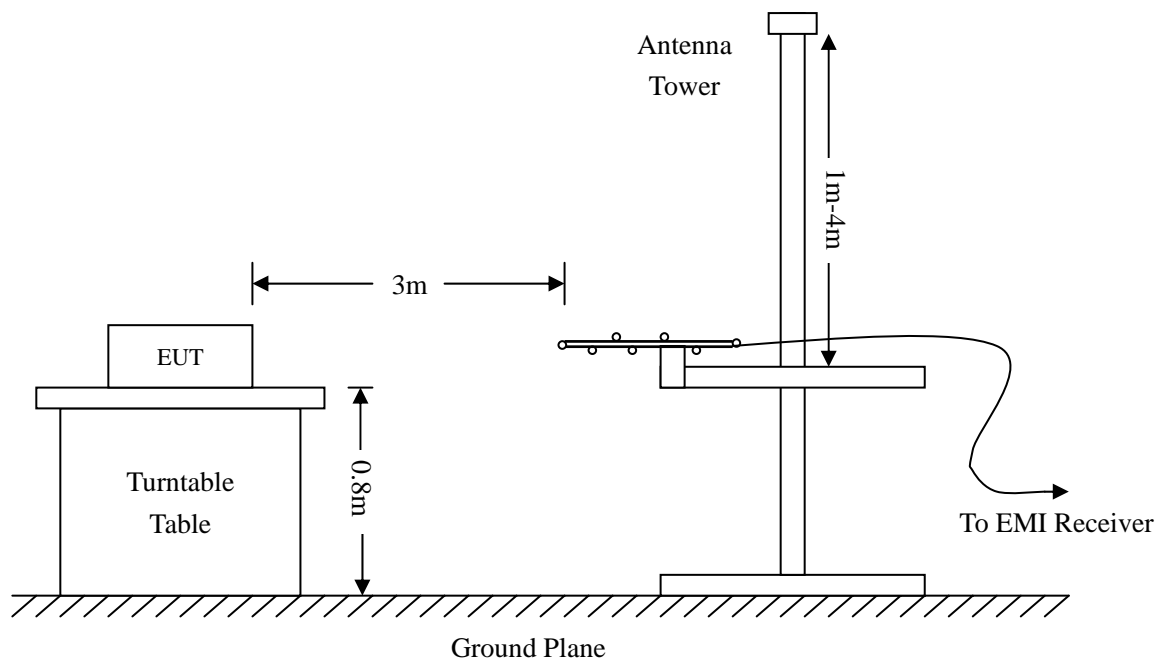
Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

8.4 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



8.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15 Limit}$$

8.6 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 22° C |
| Relative Humidity: | 52% |
| ATM Pressure: | 1012 mbar |

8.7 Summary of Test Results/Plots

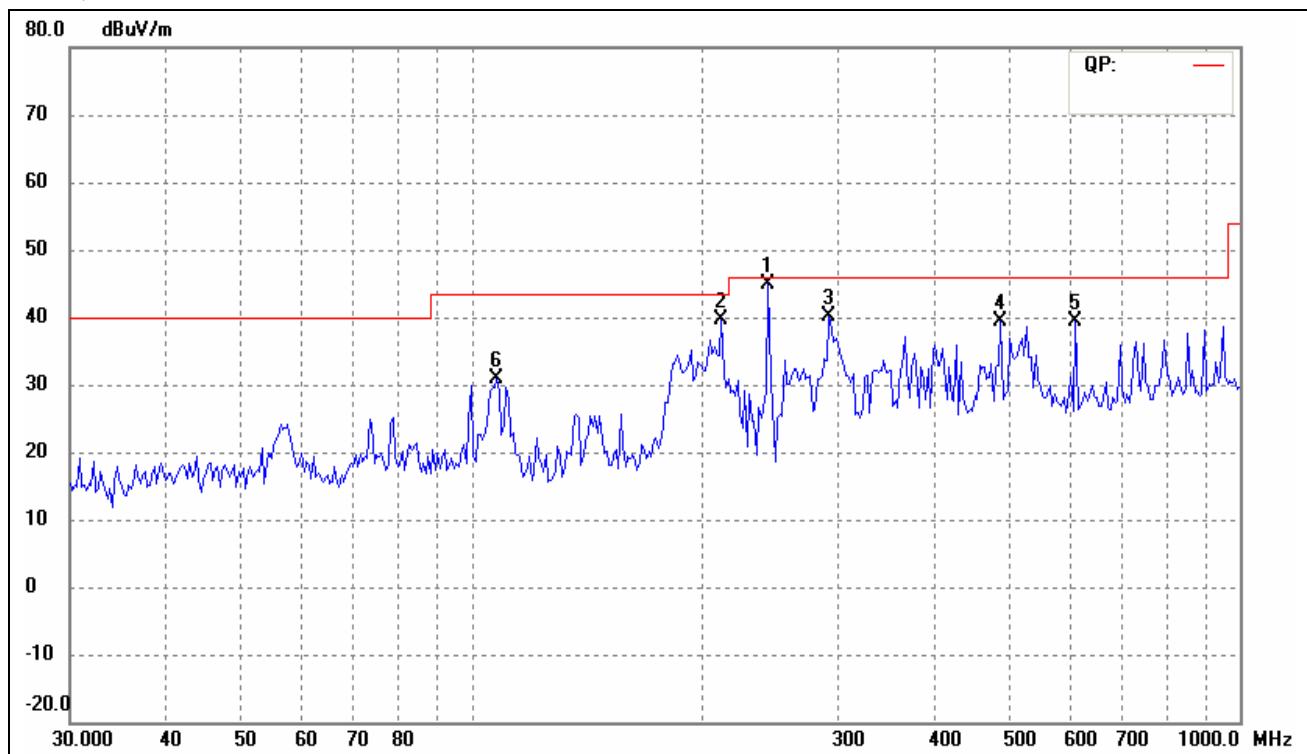
According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst margin of:

-1.2 dB μ V at 865.1 MHz in the Vertical polarization, 30 MHz to 25 GHz, 3Meters

| Frequency MHz | Detector | Meter Reading dBuV | Direction Degree | Polar H / V | Antenna Loss dB | Cable loss dB | Amplifier dB | Correction Amplitude dBuV/m | Limit dBuV/m | Margin dB |
|------------------------------|----------|--------------------|------------------|-------------|-----------------|---------------|--------------|-----------------------------|--------------|-----------|
| Low Channel (1G to 25GHz) | | | | | | | | | | |
| 4824.0 | AV | 43.9 | 270 | V | 34.1 | 5.2 | 33.0 | 50.2 | 54 | -3.8 |
| 7236.0 | AV | 39.2 | 90 | V | 37.4 | 6.1 | 33.5 | 49.2 | 54 | -4.8 |
| 4824.0 | AV | 41.8 | 60 | H | 34.1 | 5.2 | 33.0 | 48.1 | 54 | -5.9 |
| 7236.0 | AV | 37.3 | 45 | H | 37.4 | 6.1 | 33.5 | 47.3 | 54 | -6.7 |
| 4824.0 | PK | 47.1 | 45 | H | 34.1 | 5.2 | 33.0 | 53.4 | 74 | -20.6 |
| 4824.0 | PK | 46.2 | 90 | V | 34.1 | 5.2 | 33.0 | 52.5 | 74 | -21.5 |
| 7236.0 | PK | 41.3 | 270 | V | 37.4 | 6.1 | 33.5 | 51.3 | 74 | -22.7 |
| 7236.0 | PK | 40.8 | 180 | H | 37.4 | 6.1 | 33.5 | 50.8 | 74 | -23.2 |
| 2412.0 | AV | 111.7 | 60 | H | 29.1 | 3.7 | 34.0 | 110.5 | | (Fund.) |
| 2412.0 | AV | 117.3 | 270 | V | 29.1 | 3.7 | 34.0 | 116.1 | | (Fund.) |
| 2412.0 | PK | 113.2 | 45 | H | 29.1 | 3.7 | 34.0 | 112.0 | | (Fund.) |
| 2412.0 | PK | 120.0 | 90 | V | 29.1 | 3.7 | 34.0 | 118.8 | | (Fund.) |
| Middle Channel (1G to 25GHz) | | | | | | | | | | |
| 7311.0 | AV | 39.5 | 270 | V | 37.4 | 6.1 | 33.5 | 49.5 | 54 | -4.5 |
| 4874.0 | AV | 43.0 | 90 | V | 34.1 | 5.2 | 33.0 | 49.3 | 54 | -4.7 |
| 4874.0 | AV | 41.0 | 45 | H | 34.1 | 5.2 | 33.0 | 47.3 | 54 | -6.7 |
| 7311.0 | AV | 36.8 | 60 | H | 37.4 | 6.1 | 33.5 | 46.8 | 54 | -7.2 |
| 7311.0 | PK | 45.4 | 45 | V | 37.4 | 6.1 | 33.5 | 55.4 | 74 | -18.6 |
| 7311.0 | PK | 44.8 | 45 | H | 37.4 | 6.1 | 33.5 | 54.8 | 74 | -19.2 |
| 4874.0 | PK | 47.9 | 270 | V | 34.1 | 5.2 | 33.0 | 54.2 | 74 | -19.8 |
| 4874.0 | PK | 47.4 | 180 | H | 34.1 | 5.2 | 33.0 | 53.7 | 74 | -20.3 |
| 2437.0 | AV | 109.5 | 45 | H | 29.1 | 3.7 | 34.0 | 108.3 | | (Fund.) |
| 2437.0 | AV | 116.1 | 90 | V | 29.1 | 3.7 | 34.0 | 114.9 | | (Fund.) |
| 2437.0 | PK | 111.5 | 90 | H | 29.1 | 3.7 | 34.0 | 110.3 | | (Fund.) |
| 2437.0 | PK | 117.1 | 60 | V | 29.1 | 3.7 | 34.0 | 115.9 | | (Fund.) |

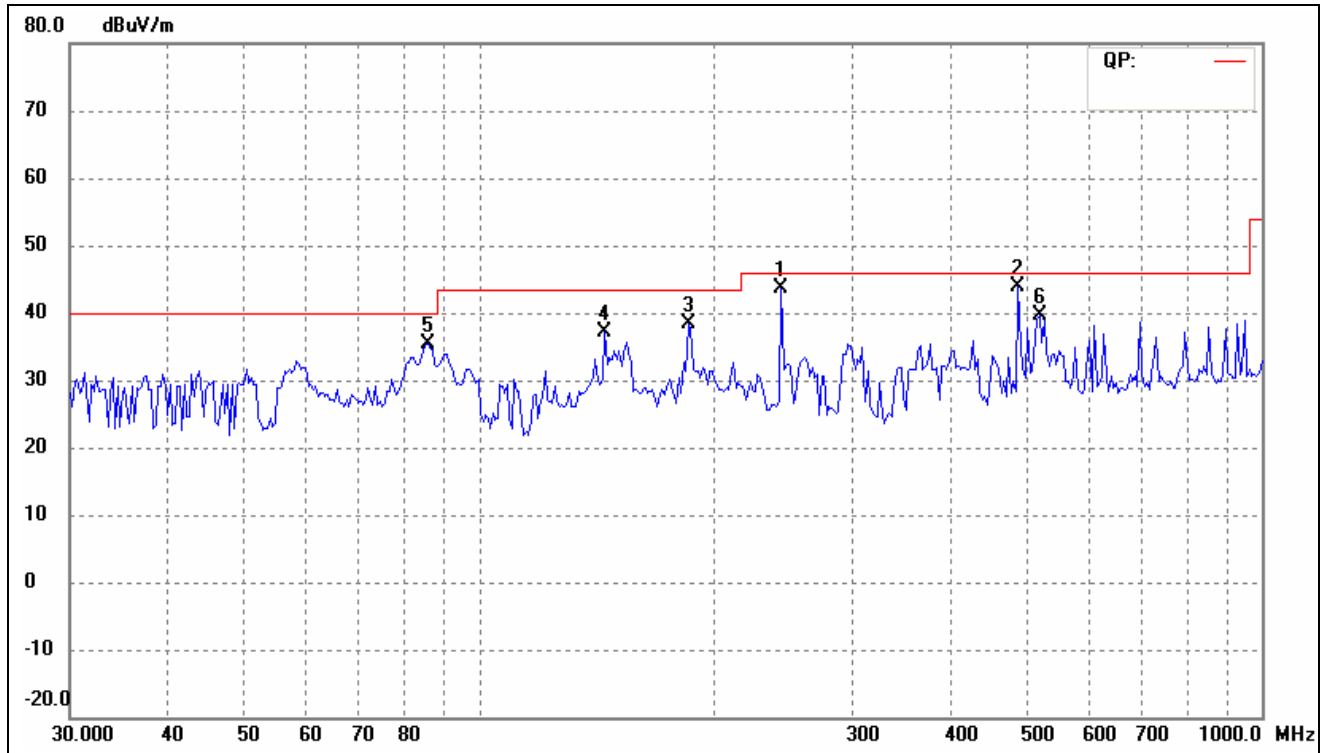
| High Channel (1G to 25GHz) | | | | | | | | | | |
|----------------------------|----|-------|-----|---|------|-----|------|-------|----|---------|
| 7386.0 | AV | 37.9 | 270 | V | 37.4 | 6.1 | 33.5 | 47.9 | 54 | -6.1 |
| 4924.0 | AV | 41.5 | 90 | V | 34.1 | 5.2 | 33.0 | 47.8 | 54 | -6.2 |
| 7386.0 | AV | 37.7 | 60 | H | 37.4 | 6.1 | 33.5 | 47.7 | 54 | -6.3 |
| 4924.0 | AV | 40.9 | 60 | H | 34.1 | 5.2 | 33.0 | 47.2 | 54 | -6.8 |
| 7386.0 | PK | 43.5 | 45 | V | 37.4 | 6.1 | 33.5 | 53.5 | 74 | -20.5 |
| 4924.0 | PK | 46.9 | 270 | V | 34.1 | 5.2 | 33.0 | 53.2 | 74 | -20.8 |
| 4924.0 | PK | 46.5 | 180 | H | 34.1 | 5.2 | 33.0 | 52.8 | 74 | -21.2 |
| 7386.0 | PK | 42.4 | 45 | H | 37.4 | 6.1 | 33.5 | 52.4 | 74 | -21.6 |
| 2462.0 | AV | 111.3 | 45 | H | 29.1 | 3.7 | 34.0 | 110.1 | | (Fund.) |
| 2462.0 | AV | 116.4 | 90 | V | 29.1 | 3.7 | 34.0 | 115.2 | | (Fund.) |
| 2462.0 | PK | 112.6 | 90 | H | 29.1 | 3.7 | 34.0 | 111.4 | | (Fund.) |
| 2462.0 | PK | 118.4 | 90 | V | 29.1 | 3.7 | 34.0 | 117.2 | | (Fund.) |

Note: Testing is carried out with frequency rang 30MHz to the tenth harmonics, which above 5th Harmonics is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.

Plot of Radiation Emissions Test*Radiated Disturbance**EUT: Network Camera**M/N: Y-CAM Black**Operating Condition: Transmitting below 1GHz**Test Specification: Horizontal & Vertical**Comment: DC 5V adapter**Horizontal*

| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree (°) | Height (cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|----------------|----------------|--------|
| 1 | 243.5431 | 36.31 | 8.53 | 44.84 | 46.00 | -1.16 | 0 | 120 | QP |
| 2 | 211.6111 | 32.71 | 6.99 | 39.70 | 43.50 | -3.80 | 360 | 110 | QP |
| 3 | 292.3643 | 30.37 | 9.68 | 40.05 | 46.00 | -5.95 | 120 | 100 | QP |
| 4 | 488.3263 | 27.58 | 11.86 | 39.44 | 46.00 | -6.56 | 135 | 105 | peak |
| 5 | 611.4623 | 25.05 | 14.21 | 39.26 | 46.00 | -6.74 | 45 | 150 | peak |
| 6 | 107.7853 | 23.19 | 7.77 | 30.96 | 43.50 | -12.54 | 0 | 110 | peak |

Vertical



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree (°) | Height (cm) | Remark |
|-----|--------------------|---------------------|-----------------------|--------------------|-------------------|----------------|----------------|----------------|--------|
| 1 | 243.5431 | 35.06 | 8.53 | 43.59 | 46.00 | -2.41 | 360 | 120 | QP |
| 2 | 488.3263 | 31.92 | 11.86 | 43.78 | 46.00 | -2.22 | 270 | 100 | QP |
| 3 | 185.1626 | 32.29 | 6.10 | 38.39 | 43.50 | -5.11 | 135 | 150 | QP |
| 4 | 144.7899 | 33.03 | 4.01 | 37.04 | 43.50 | -6.46 | 0 | 120 | QP |
| 5 | 86.0796 | 29.61 | 5.82 | 35.43 | 40.00 | -4.57 | 120 | 110 | QP |
| 6 | 520.2079 | 26.97 | 12.76 | 39.73 | 46.00 | -6.27 | 87 | 150 | peak |

9. OUT OF BAND EMISSIONS

9.1 Standard Applicable

According to §15.247 (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.

9.2 Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|-----------------|----------------------|--------------|---------------|------------|------------|
| Agilent | Spectrum Analyzer | E4402B | US41192821 | 2007-06-30 | 2008-06-29 |
| ETS | Receiver Antenna | 2175 | 57337 | 2007-06-30 | 2008-06-29 |
| ETS | 50 ohm Coaxial Cable | SUCOFLEX 104 | 25498514 | 2007-06-30 | 2008-06-29 |
| Rohde & Schwarz | Horn Antenna | HF906 | 100014 | 2007-06-30 | 2008-06-29 |

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

9.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW, VBW=100KHz, Span=50MHz, Sweep = auto
3. Set the Lowest and Highest Transmitting Channel, observed the outside band of 2400MHz to 2438.5MHz, then mark the higher-level emission for comparing with the FCC rules.

9.4 Environmental Conditions

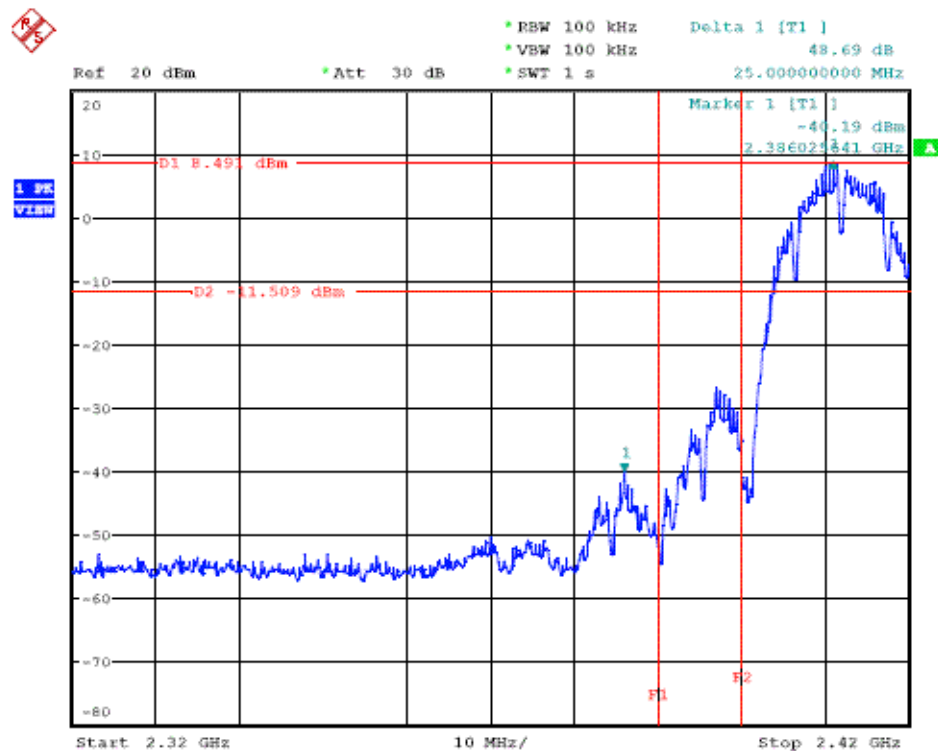
| | |
|--------------------|-----------|
| Temperature: | 21° C |
| Relative Humidity: | 54% |
| ATM Pressure: | 1011 mbar |

9.5 Summary of Test Results/Plots

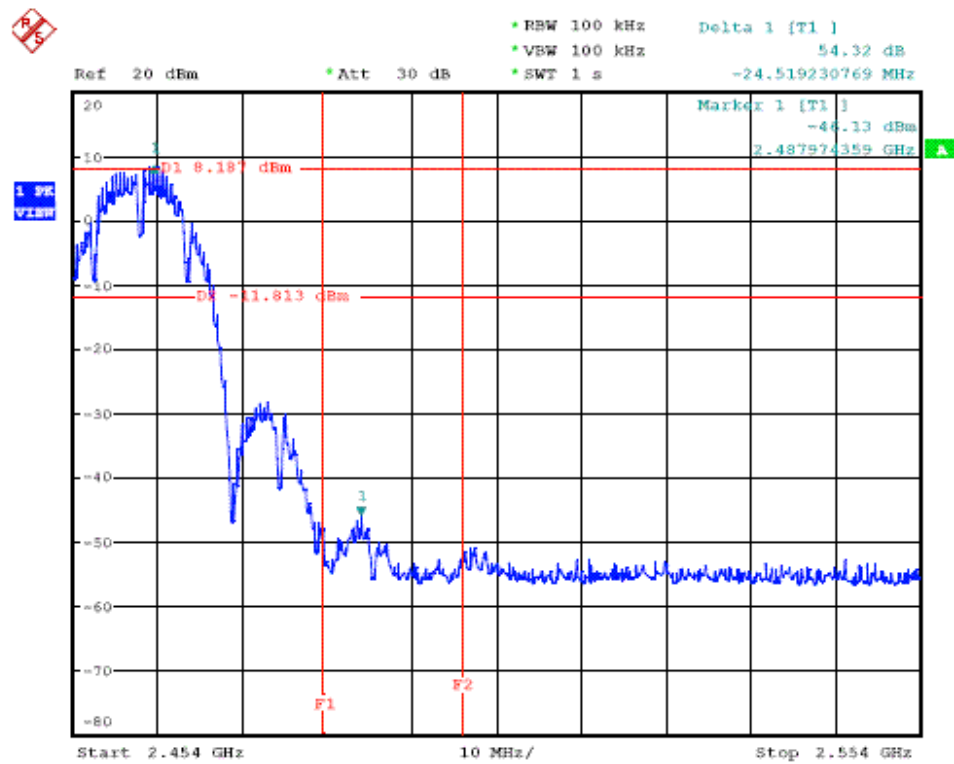
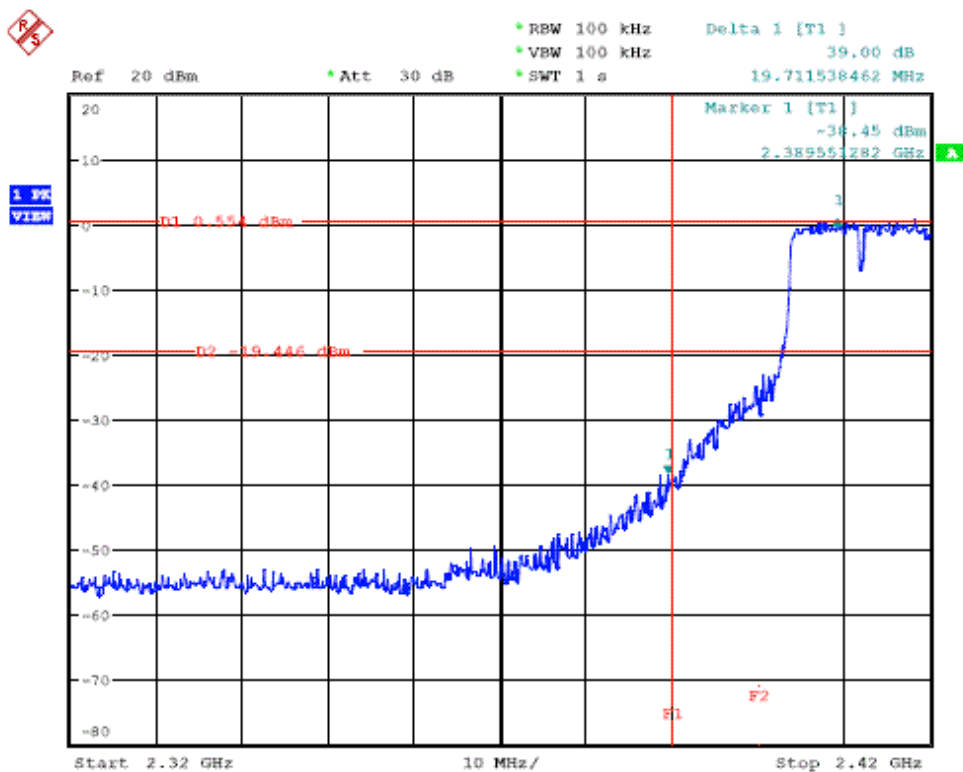
| Test mode | Frequency MHz | Limit dBuV /dB | Result |
|-----------|---------------|----------------|--------|
| 802.11b | 2390.00 | <54dBuV | Pass |
| | 2400.00 | >20dB | Pass |
| | 2483.50 | <54dBuV | Pass |
| 802.11g | 2390.00 | <54dBuV | Pass |
| | 2400.00 | >20dB | Pass |
| | 2483.50 | <54dBuV | Pass |

For 802.11b

Lowest Bandedge



Highest Bandedge

For 802.11g
Lowest Bandedge

Highest Bandedge

