



**FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8**

CERTIFICATION TEST REPORT

FOR

QUAD-BAND RADIO WITH WLAN AND BT RADIO

MODEL NUMBER: A1456, A1532

**FCC ID: BCG-E2644A
IC: 579C-E2644A, 579C-E2644B**

REPORT NUMBER: 13U14987-15

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Prepared for
**APPLE
1 INFINITE LOOP
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NVLAP LAB CODE 200065-0

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| Rev. | Issue Date | Revisions | Revised By |
|------|------------|---------------|------------|
| -- | 07/22/13 | Initial Issue | T. Chan |

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: QUAD-BAND RADIO WITH WLAN AND BT RADIO

MODEL: A1456, A1532

SERIAL NUMBER: 39KD007FHYY (Conducted), C39KP005FL57 (Radiated)

DATE TESTED: APRIL 26 - JUNE 12, 2013

| APPLICABLE STANDARDS | |
|---|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 Part 15 Subpart C | Pass |
| INDUSTRY CANADA RSS-210 Issue 8 Annex 8 | Pass |
| INDUSTRY CANADA RSS-GEN Issue 3 | Pass |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

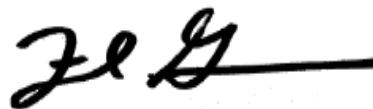
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:

Tested By:



Thu Chan
WiSE Operations Manager
UL Verification Services Inc.



Francisco Guarnero
WiSE Lab Technician
UL Verification Services

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---------------------------------------|-------------|
| Conducted Disturbance, 0.15 to 30 MHz | 3.52 dB |
| Radiated Disturbance, 30 to 1000 MHz | 4.94 dB |

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Model A1456/A1532 is a mobile phone with multimedia functions (music, application support, and video), cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/CDMA/EVDO/LTE radio, IEEE 802.11a/b/g/n, Bluetooth and GPS radio. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|--------------|--------------------|-------------------|
| 2412 - 2462 | 802.11b | 18.810 | 76.03 |
| 2412 - 2462 | 802.11g | 23.760 | 237.68 |
| 2412 - 2462 | 802.11n HT20 | 23.490 | 223.36 |
| 5745 - 5825 | 802.11a | 20.816 | 120.67 |
| 5746 - 5825 | 802.11n HT20 | 20.529 | 112.95 |
| 5747 - 5825 | 802.11n HT40 | 20.741 | 118.60 |

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PiFA antenna, with a maximum gain as below table.

| FREQUENCY (MHZ) | ANTENNA GAIN (dBi) |
|-----------------|---------------------|
| 2400 – 2483.5 | 0.21 |
| 5150 -- 5250 | -0.73 |
| 5250 -- 5350 | -0.37 |
| 5500 -- 5700 | 1.31 |
| 5725 -- 5850 | 1.59 |

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was WL Tool FW 6.10.56.166

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel for RF radiated emissions below 1GHz tests is channel with highest RF output power.

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

For the fundamental investigation, the EUT is investigated for vertical and horizontal antenna orientations and the worst case was determined to be at Y-position for 2.4GHz and 5GHz bands.

Based on the manufacturer's attestation that the nominal output power is reduced as the data rate increases, the data rates tested represent the highest power and worst-case with respect to EMC performance.

Worst-case data rates were used:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| Support Equipment List | | | |
|------------------------|--------------|-------|---------------|
| Description | Manufacturer | Model | Serial Number |
| AC adapter | Apple | A1385 | NA |
| Earphone | Apple | NA | NA |

I/O CABLES (Conducted Setup)

| I/O Cable List | | | | | | |
|----------------|---------|----------------------|----------------|------------|------------------|----------------------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | Antenna | 1 | SMA | Shielded | 0.1m | To Spectrum Analyzer |

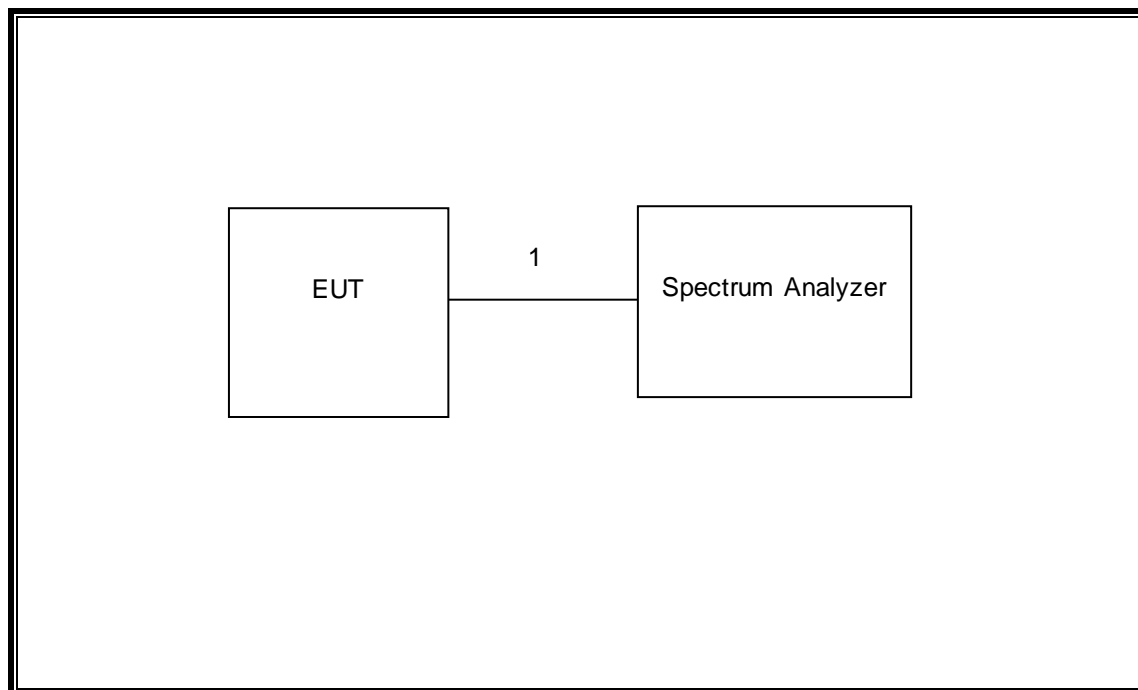
I/O CABLES (Radiated Setup)

| I/O Cable List | | | | | | |
|----------------|------|----------------------|----------------|------------|------------------|---------|
| Cable No | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | Jack | 1 | Earphone | Unshielded | 0.5m | N/A |

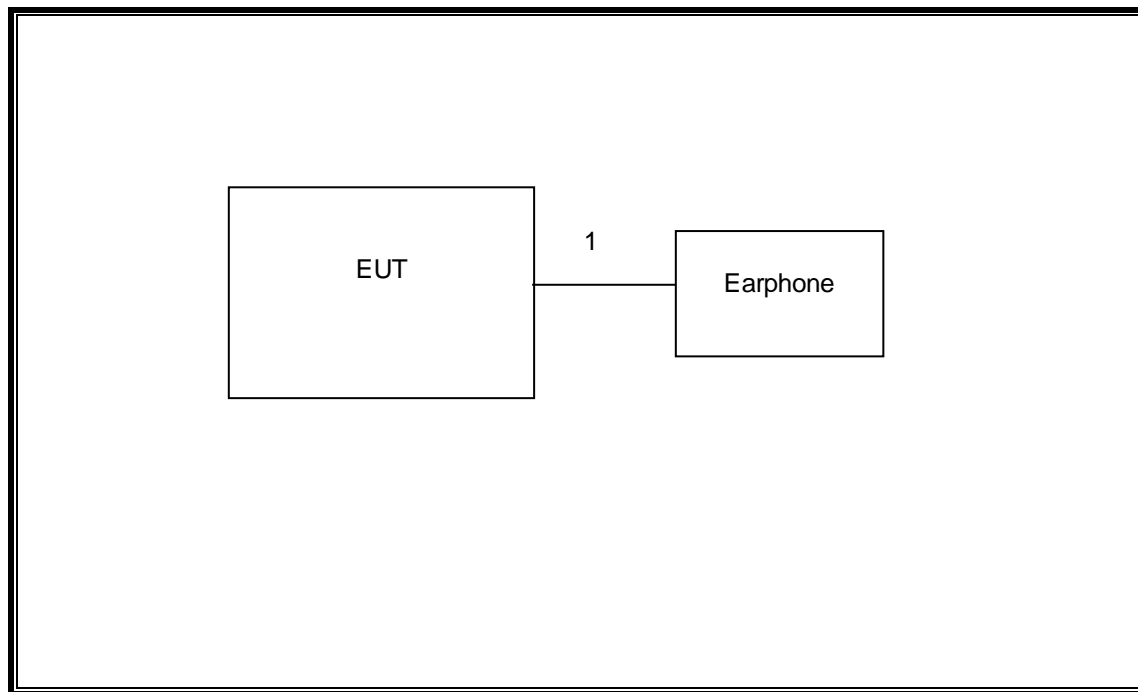
TEST SETUP

The EUT is a stand-alone device.

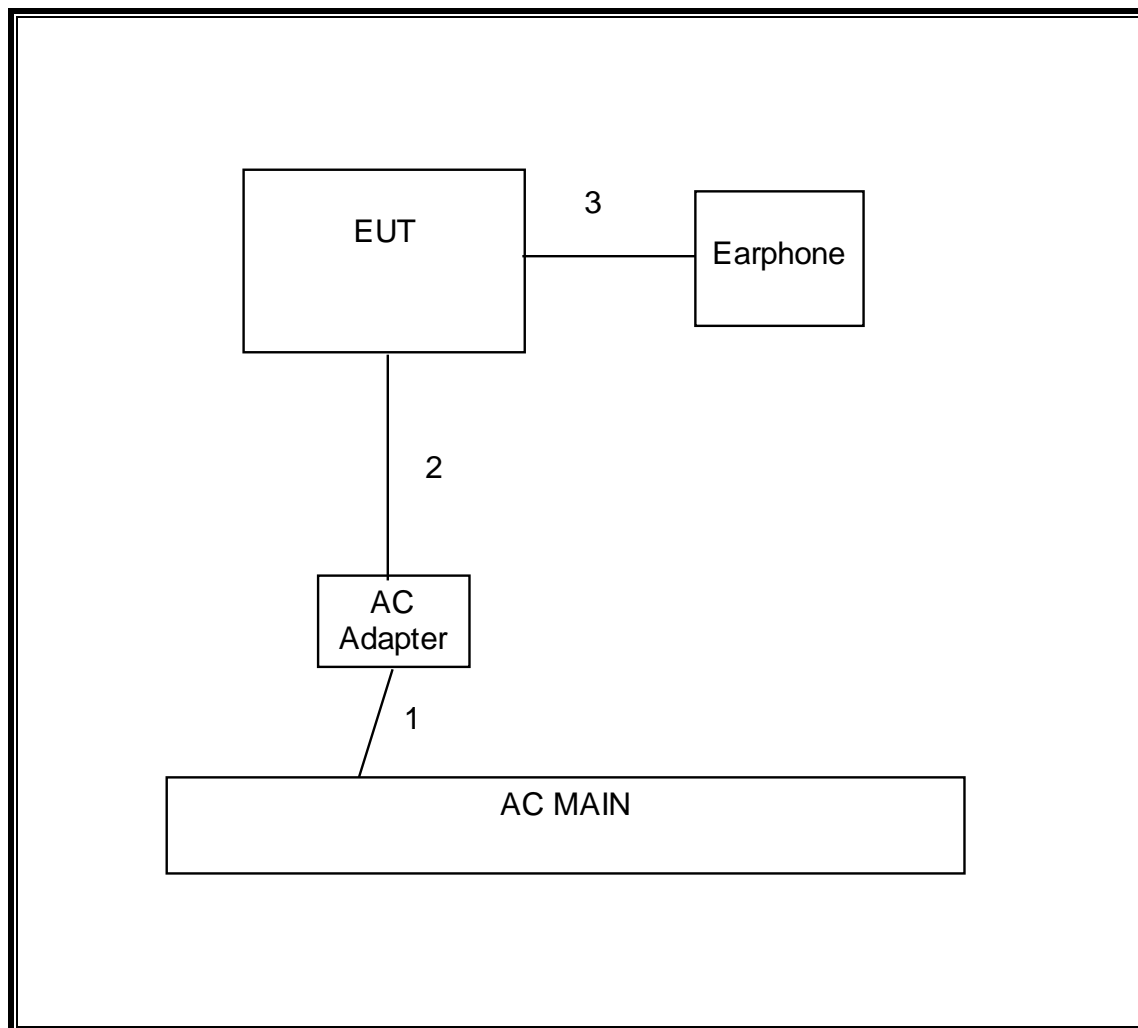
SETUP DIAGRAM FOR CONDUCTED TESTS



SETUP DIAGRAM FOR RADIATED TESTS



SETUP DIAGRAM FOR AC POWER CONDUCTED TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List | | | | |
|-------------------------------------|----------------|------------------|--------|----------|
| Description | Manufacturer | Model | Asset | Cal Due |
| Horn Antenna 1-18GHz | ETS Lindgren | 3117 | F00133 | 02/19/14 |
| Preamplifier, 1300 MHz | Agilent / HP | 8447D | C00580 | 01/28/14 |
| Antenna, Horn, 26.5 GHz | ARA | SWH-28 | C01015 | 05/06/14 |
| Antenna, Biconolog, 30MHz-1 GHz | Sunol Sciences | JB3 | F00215 | 03/07/14 |
| Peak / Average Power Sensor | Agilent / HP | E9323A | F00026 | 07/27/14 |
| P-Series single channel Power Meter | Agilent / HP | N1911A | F00153 | 07/26/14 |
| Spectrum Analyzer, 3Hz-44GHz | Agilent | N9030A | F00127 | 02/22/14 |
| PreApmplifier, 1-26.5GHz | Agilent | 8449B | C01052 | 10/22/13 |
| LISN, 30 MHz | FCC | LISN-50/250-25-2 | N02625 | 04/17/14 |
| Antenna, Horn, 40 GHz | ARA | MWH-2640/B | C00981 | 06/14/14 |
| EMI Test Receiver, 30 MHz | R & S | ESHS 20 | N02396 | 08/08/13 |
| Preamplifier, 40 GHz | Miteq | NSP4000-SP2 | C00990 | 08/02/13 |

7. ANTENNA PORT TEST RESULTS

7.1. 2.4GHz BAND

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

B MODE

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low | 2412 | 8.052 | 0.5 |
| Mid | 2437 | 8.052 | 0.5 |
| High | 2462 | 8.064 | 0.5 |

G MODE

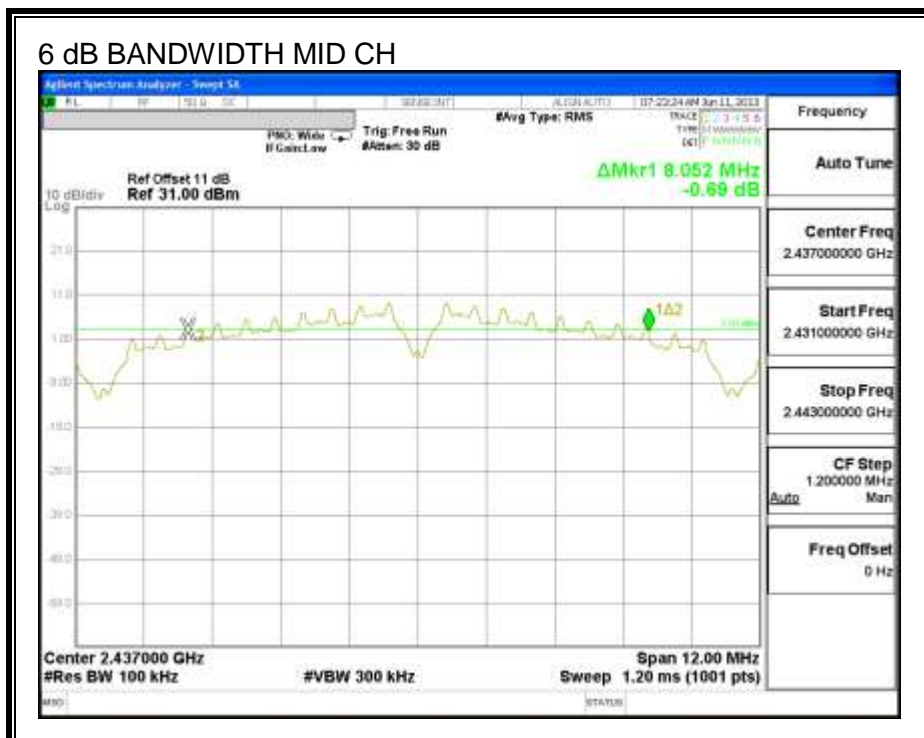
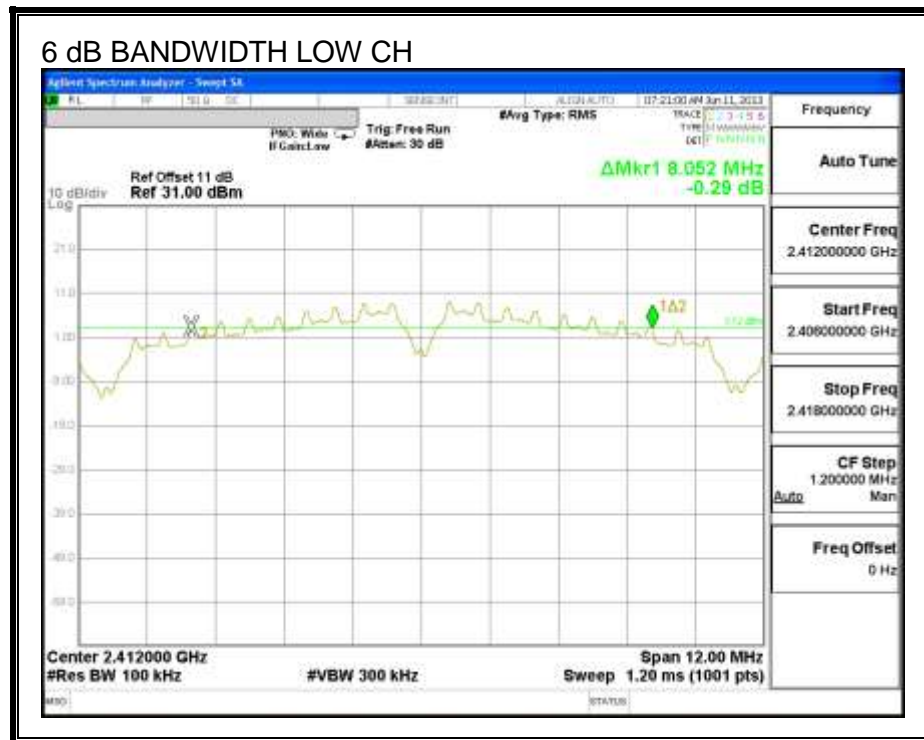
| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low | 2412 | 15.134 | 0.5 |
| Mid | 2437 | 15.123 | 0.5 |
| High | 2462 | 15.134 | 0.5 |

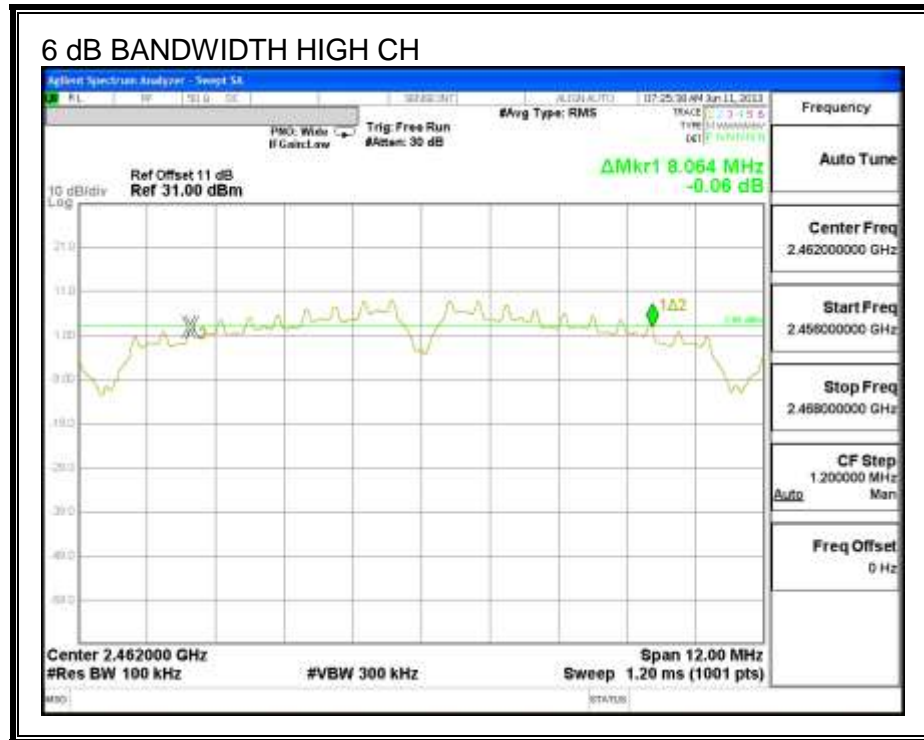
HT20

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low | 2412 | 15.134 | 0.5 |
| Mid | 2437 | 15.157 | 0.5 |
| High | 2462 | 15.134 | 0.5 |

b mode

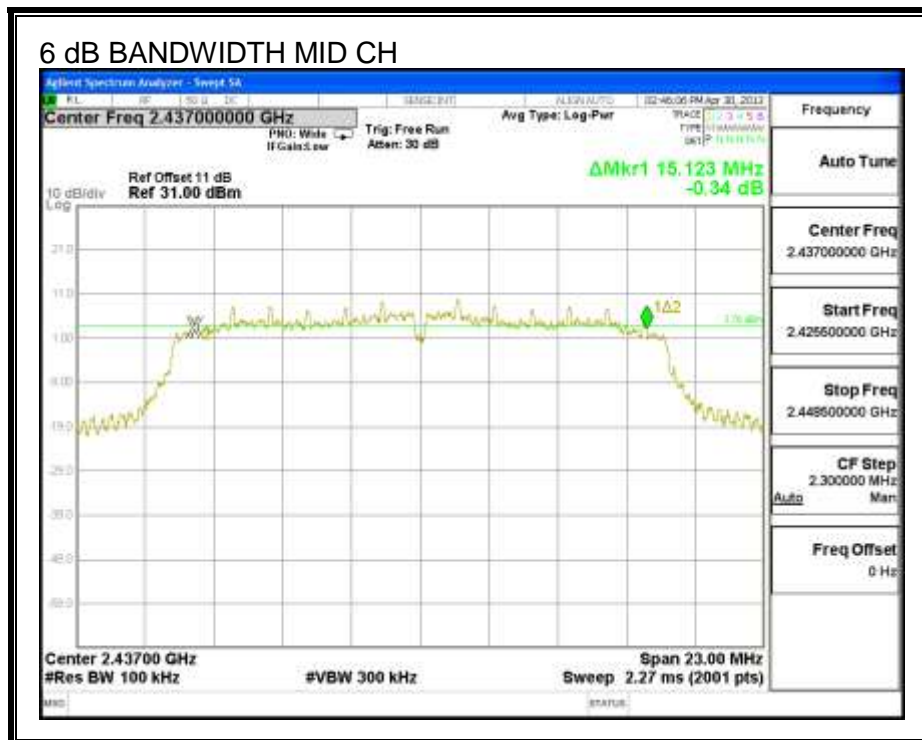
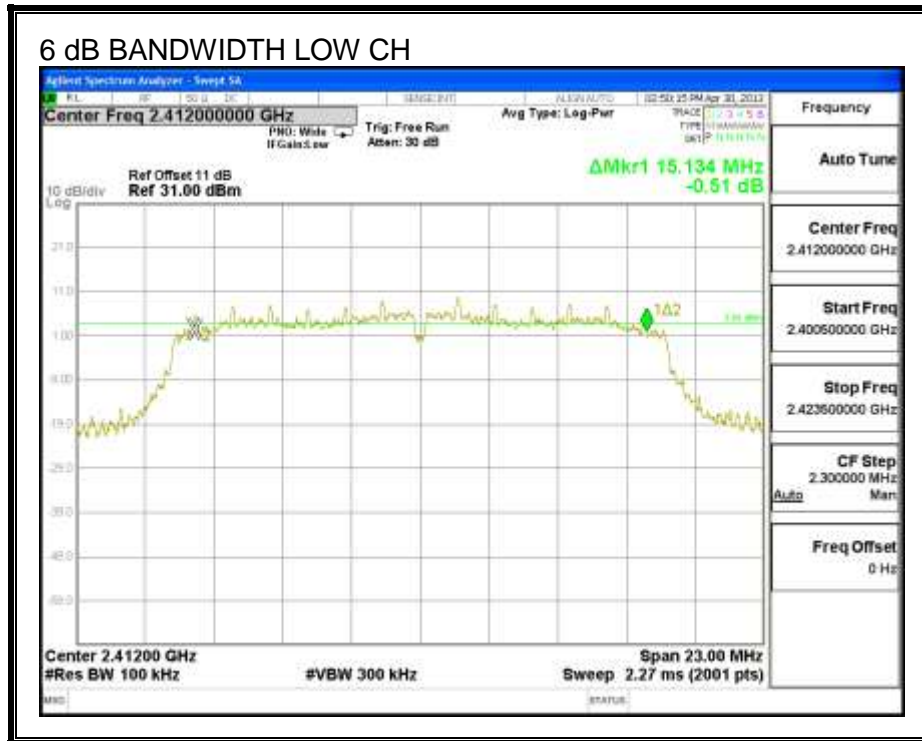
6 dB BANDWIDTH

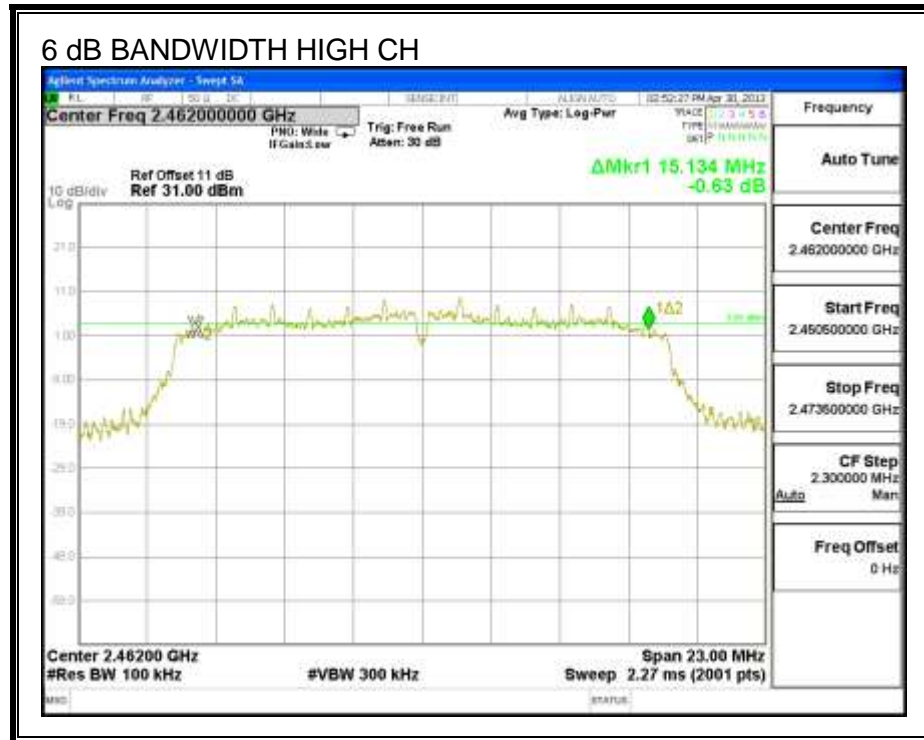




G mode

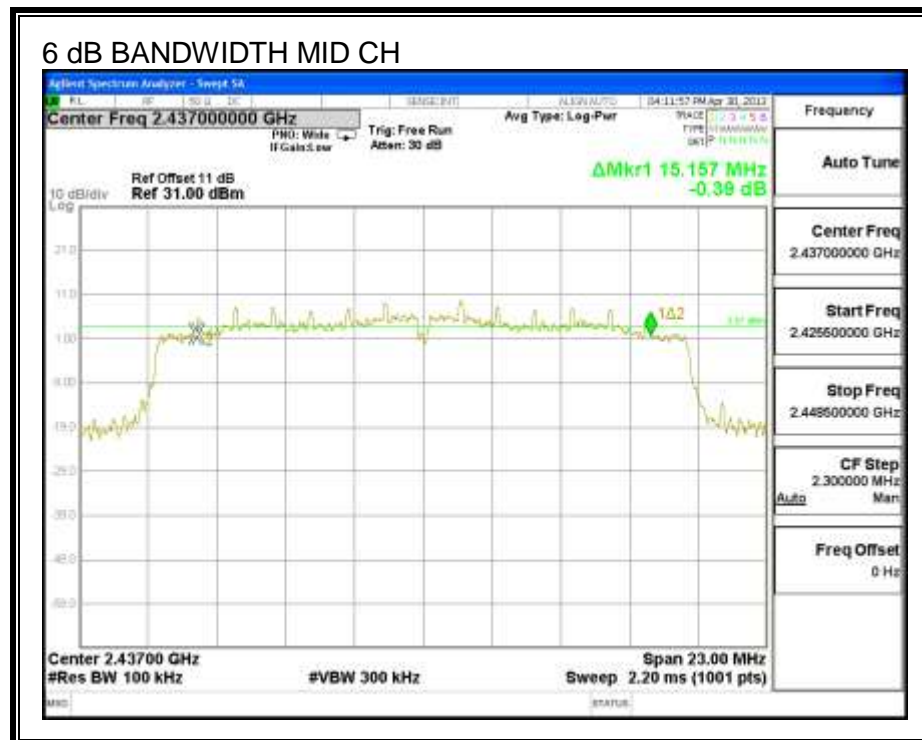
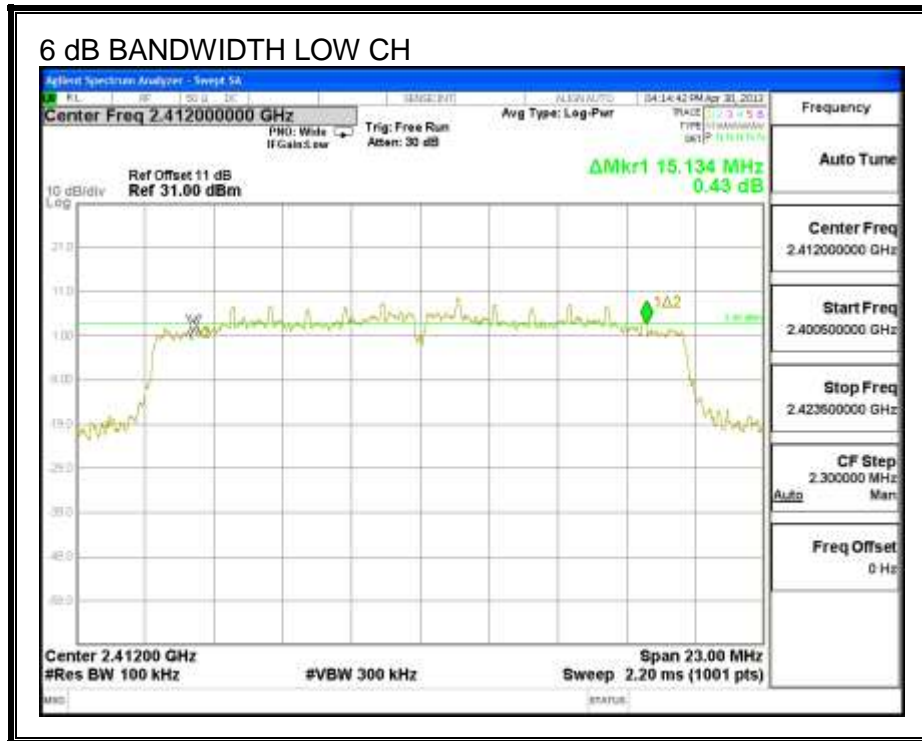
6 dB BANDWIDTH

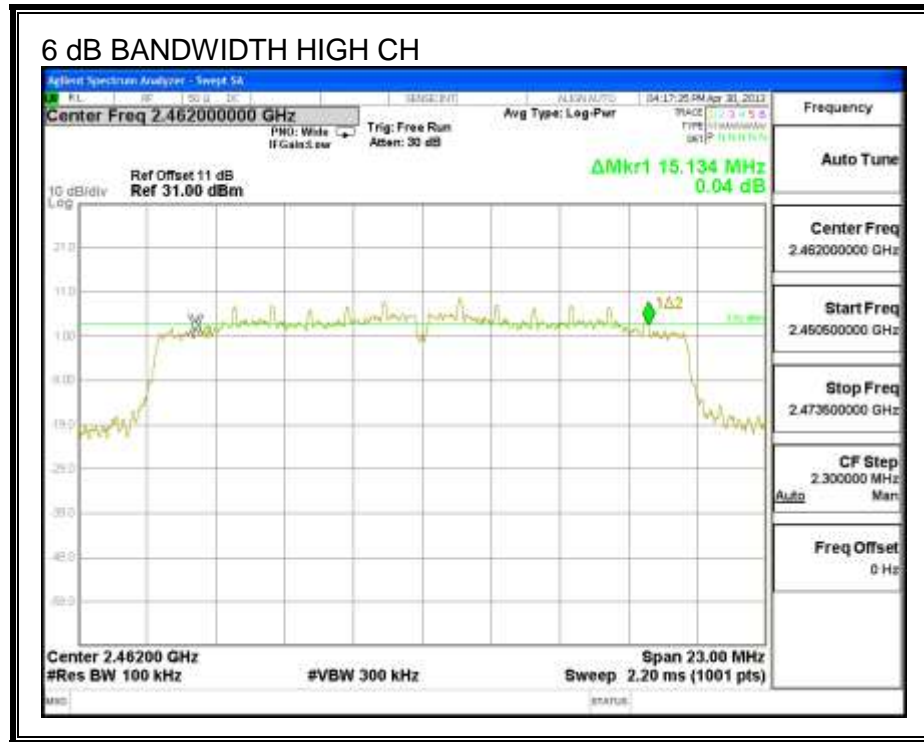




HT20

6 dB BANDWIDTH





7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

B mode

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 2412 | 12.4980 |
| Mid | 2437 | 12.6040 |
| High | 2462 | 12.3370 |

G mode

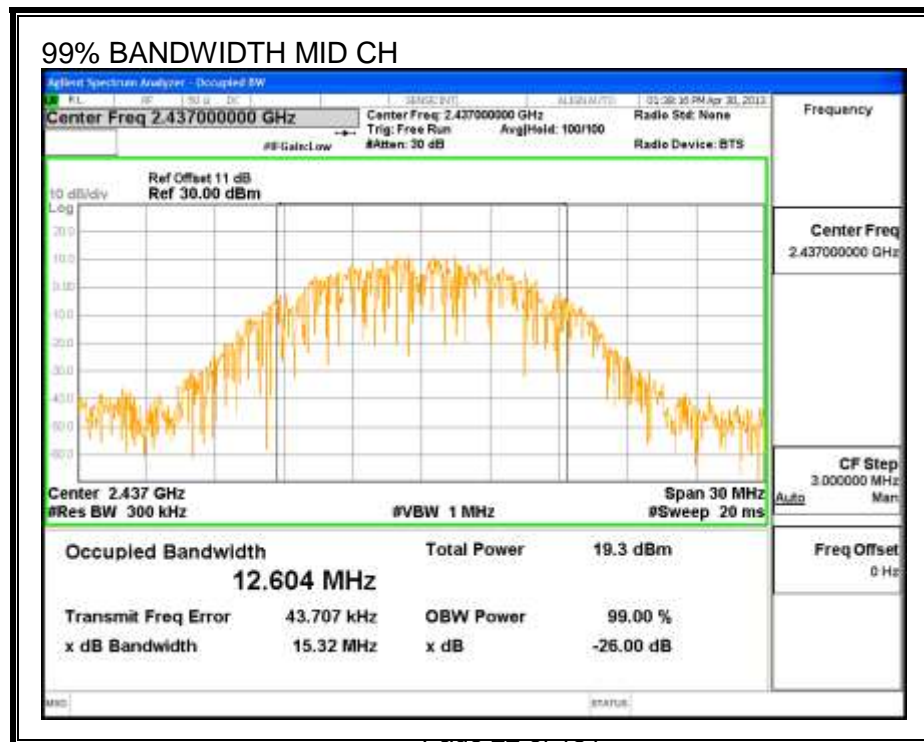
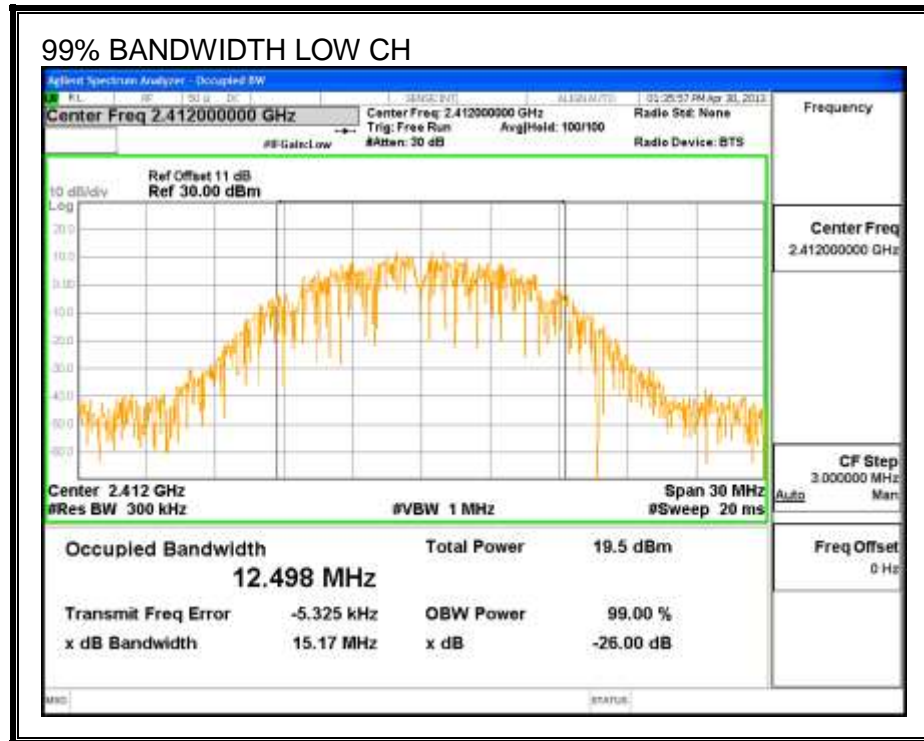
| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 2412 | 16.4620 |
| Mid | 2437 | 16.4110 |
| High | 2462 | 16.5380 |

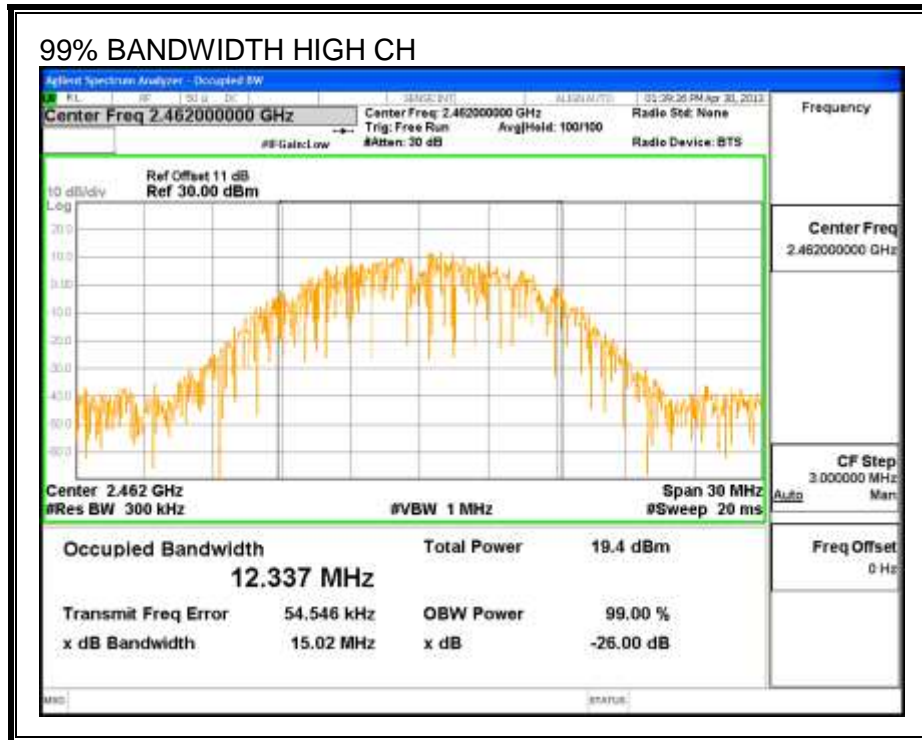
HT20

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 2412 | 17.6280 |
| Mid | 2437 | 17.0680 |
| High | 2462 | 17.6200 |

B mode

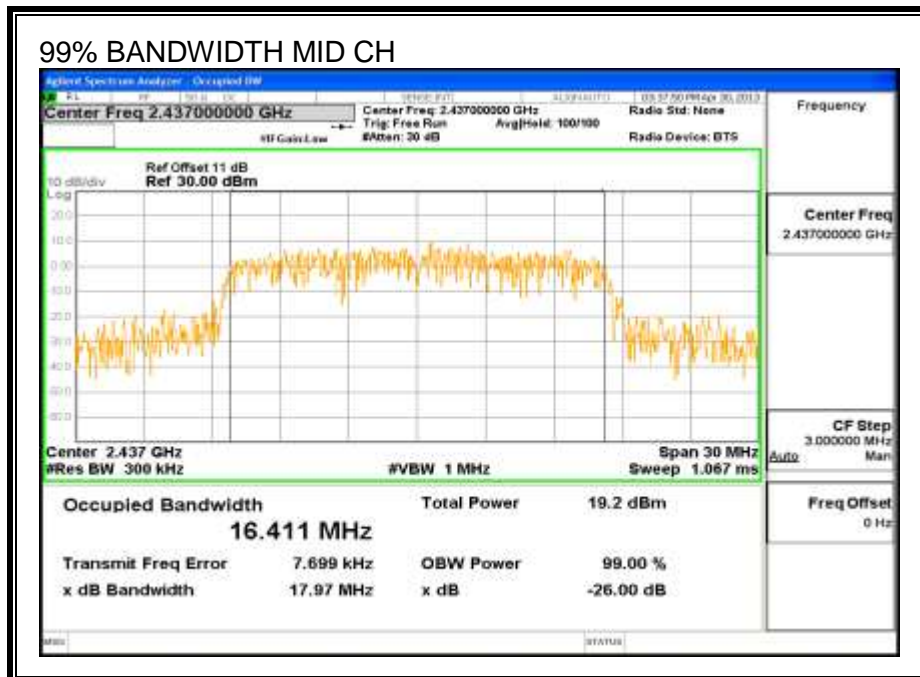
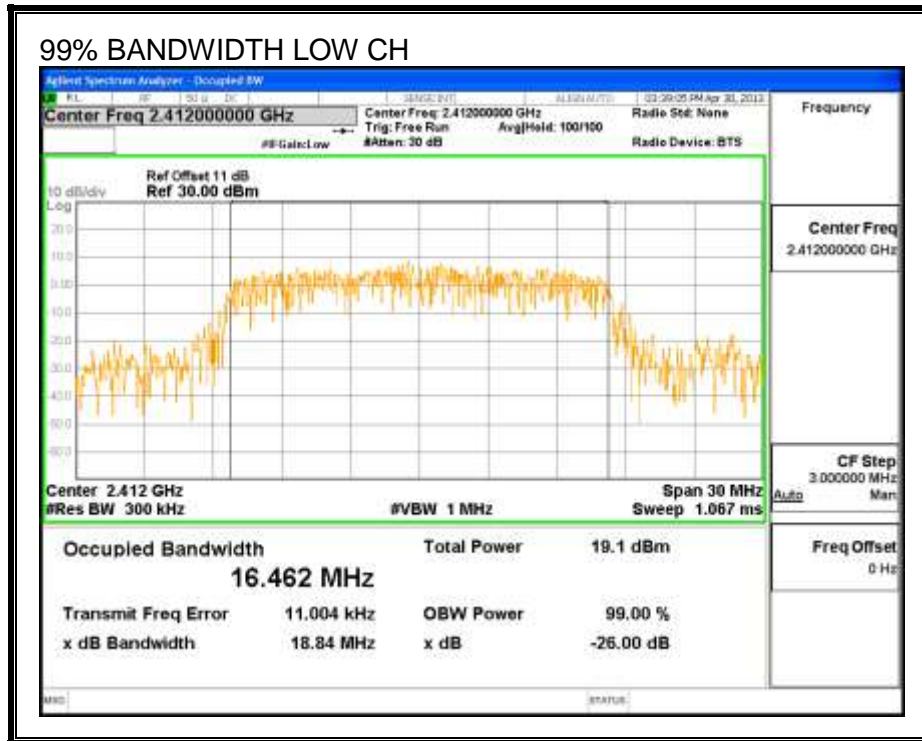
99% BANDWIDTH

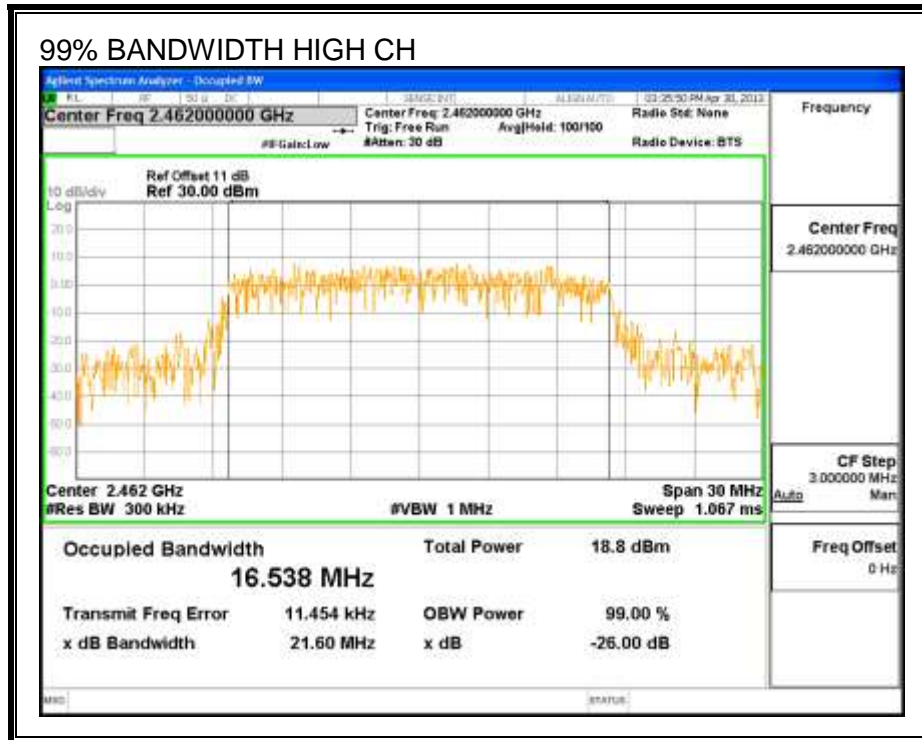




G mode

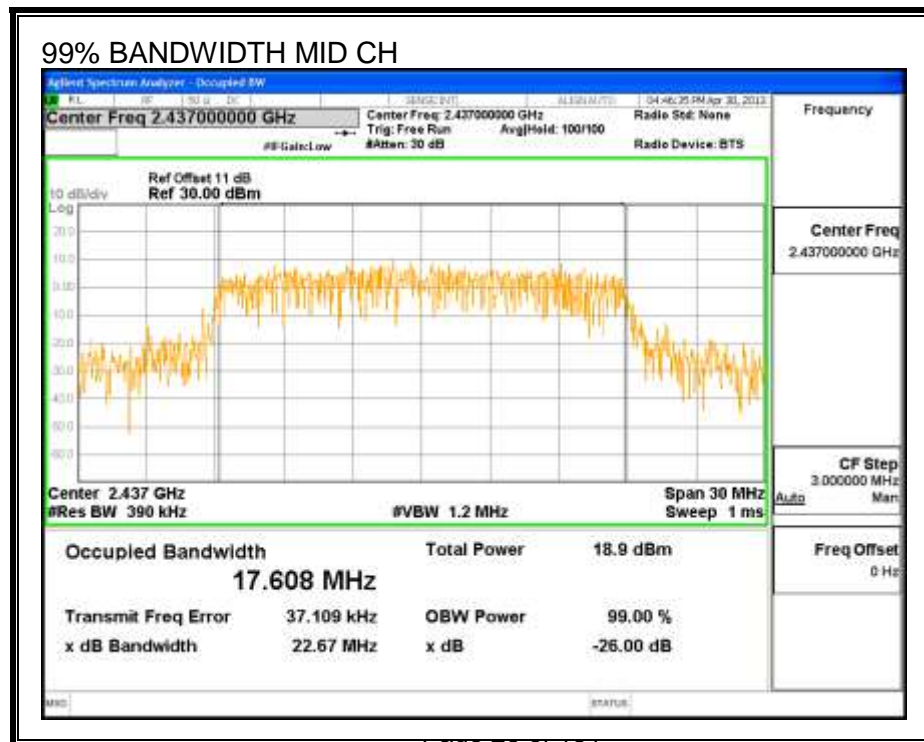
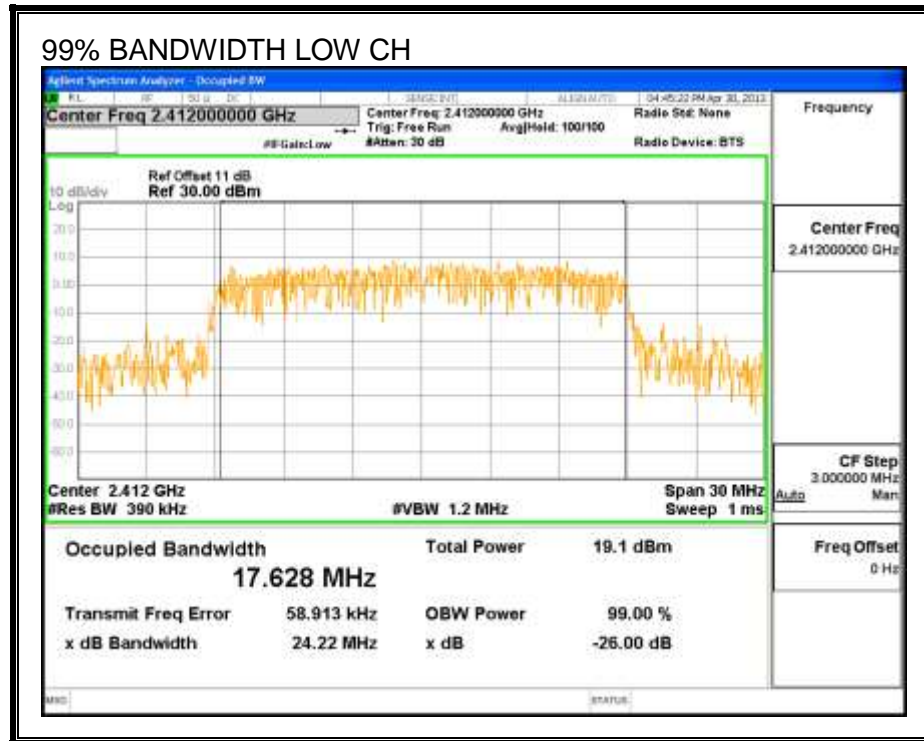
99% BANDWIDTH

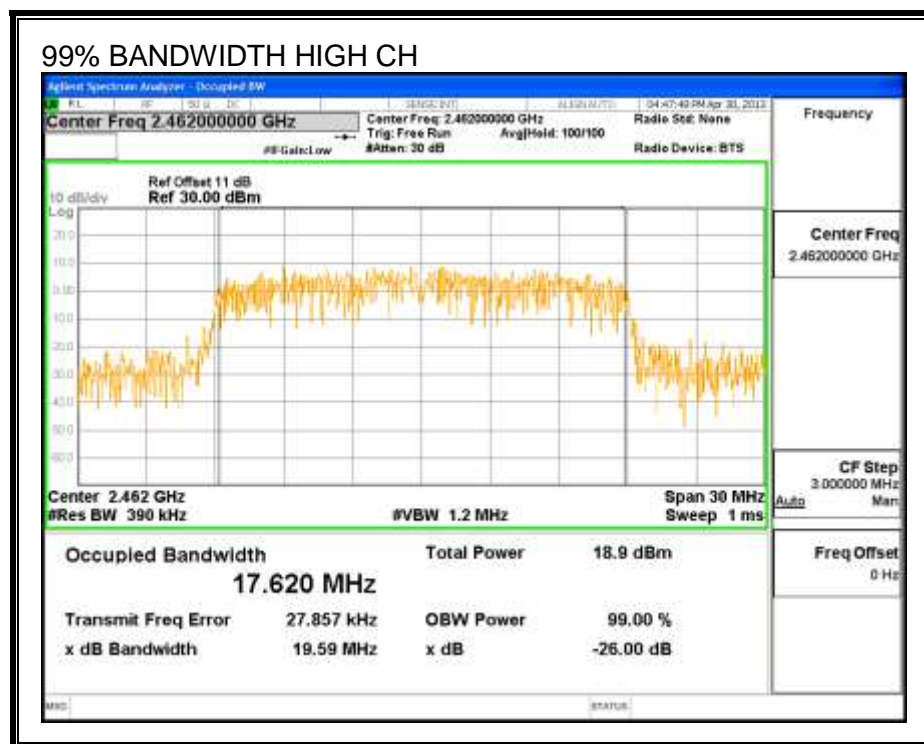




HT20

99% BANDWIDTH





7.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

B mode

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 2412 | 16.0 |
| Mid | 2437 | 16.0 |
| High | 2462 | 16.0 |

G mode

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 2412 | 15.9 |
| Mid | 2437 | 16.0 |
| High | 2462 | 15.9 |

HT20

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 2412 | 16.0 |
| Mid | 2437 | 15.9 |
| High | 2462 | 16.0 |

7.1.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

B mode

Limits

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low | 2412 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| Mid | 2437 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| High | 2462 | 1.00 | 30.00 | 30 | 36 | 30.00 |

Results

| Channel | Frequency (MHz) | Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low | 2412 | 18.812 | 18.81 | 30.00 | -11.19 |
| Mid | 2437 | 18.760 | 18.76 | 30.00 | -11.24 |
| High | 2462 | 18.707 | 18.71 | 30.00 | -11.29 |

G mode

Limits

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low | 2412 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| Mid | 2437 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| High | 2462 | 1.00 | 30.00 | 30 | 36 | 30.00 |

Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---------|--------------------|-----------------------------------|-----------------------------------|-------------------------|----------------|
| Low | 2412 | 23.65 | 23.65 | 30.00 | -6.35 |
| Mid | 2437 | 23.72 | 23.72 | 30.00 | -6.28 |
| High | 2462 | 23.76 | 23.76 | 30.00 | -6.24 |

HT20

Limits

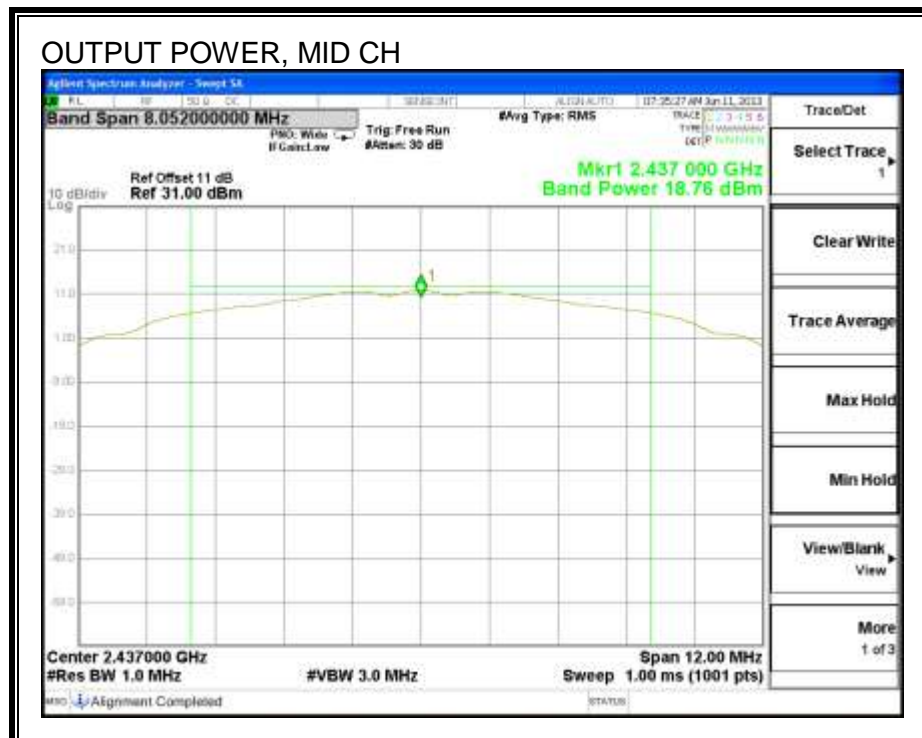
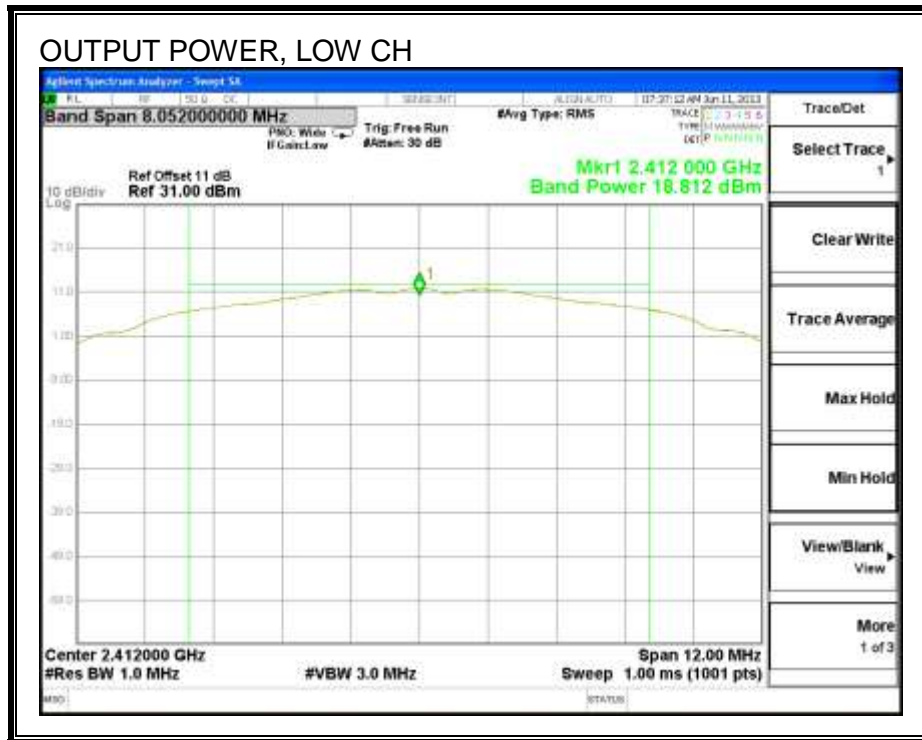
| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|----------------|----------------------------|---------------------------------------|--|---|--|--------------------------------|
| Low | 2412 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| Mid | 2437 | 1.00 | 30.00 | 30 | 36 | 30.00 |
| High | 2462 | 1.00 | 30.00 | 30 | 36 | 30.00 |

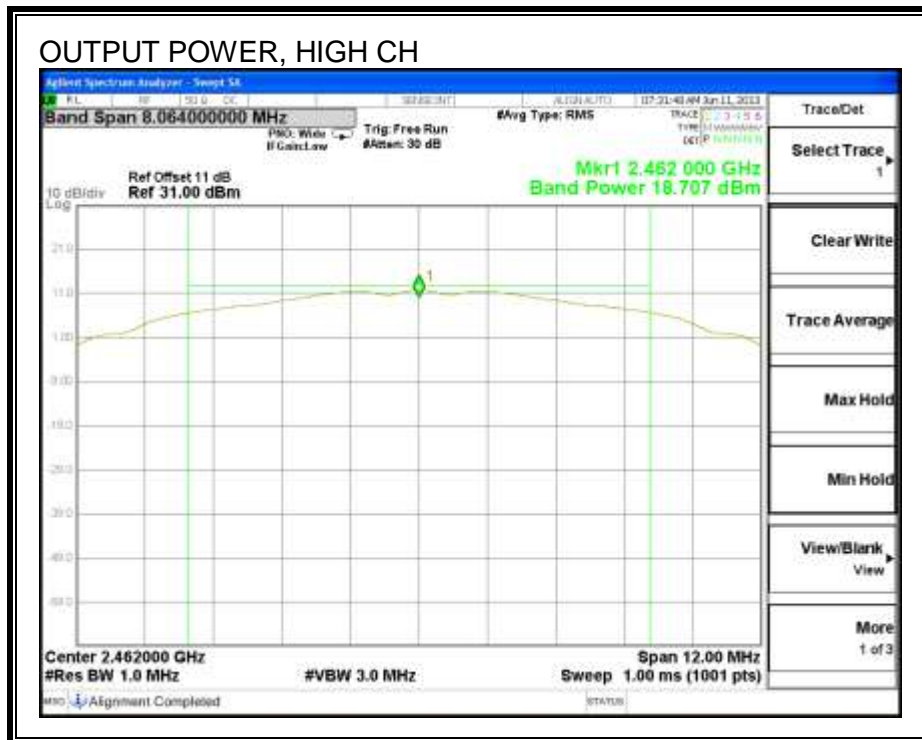
Results

| Channel | Frequency (MHz) | Chain 0 Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|----------------|----------------------------|---|---|----------------------------------|------------------------|
| Low | 2412 | 23.32 | 23.32 | 30.00 | -6.68 |
| Mid | 2437 | 23.49 | 23.49 | 30.00 | -6.51 |
| High | 2462 | 23.42 | 23.42 | 30.00 | -6.58 |

b mode

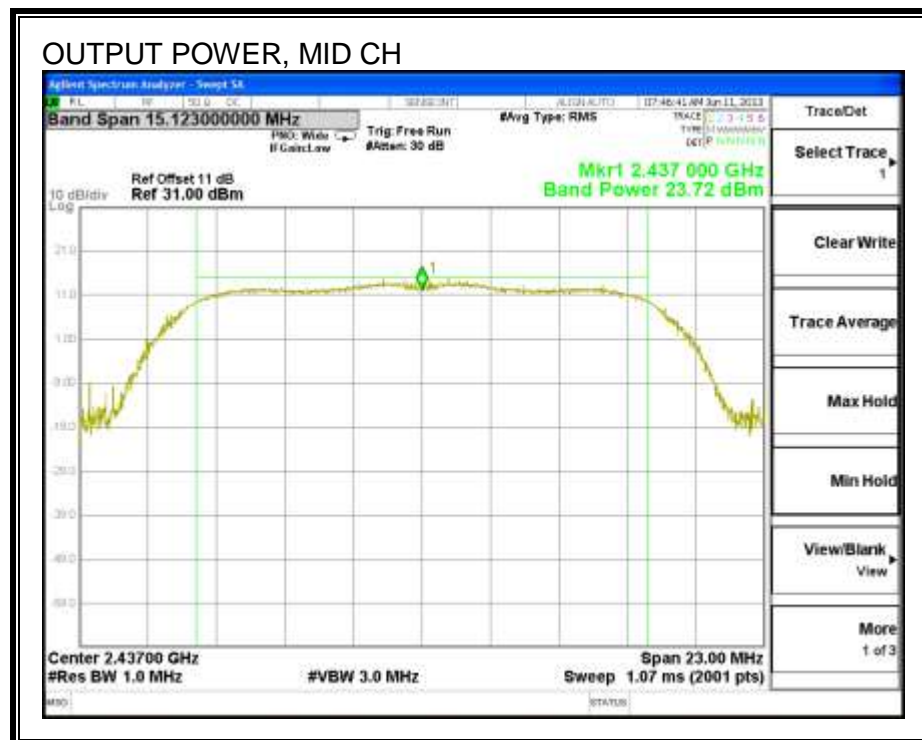
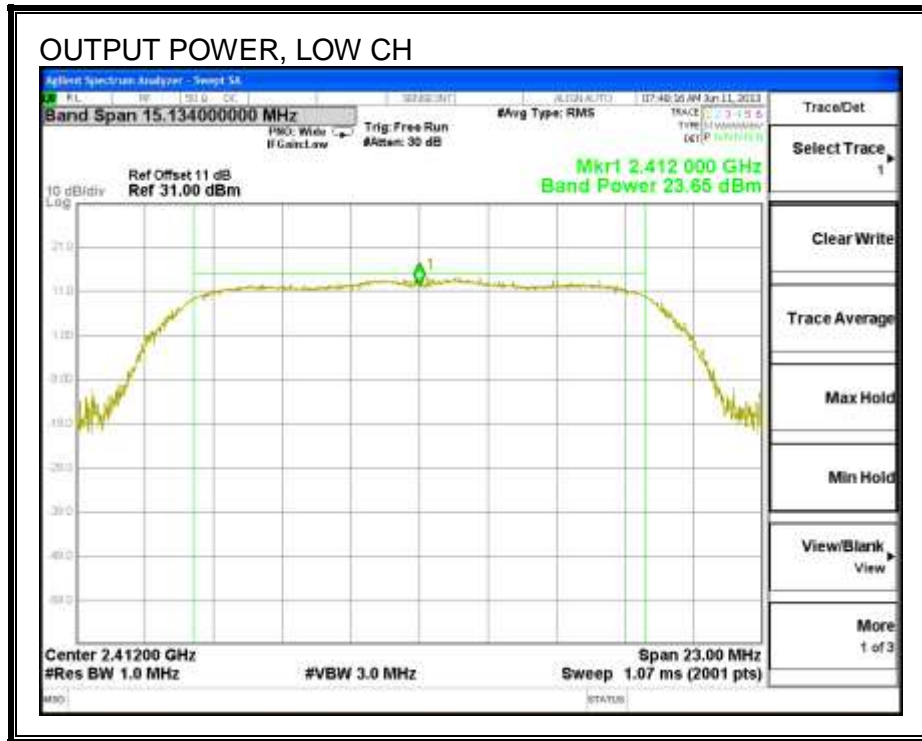
OUTPUT POWER

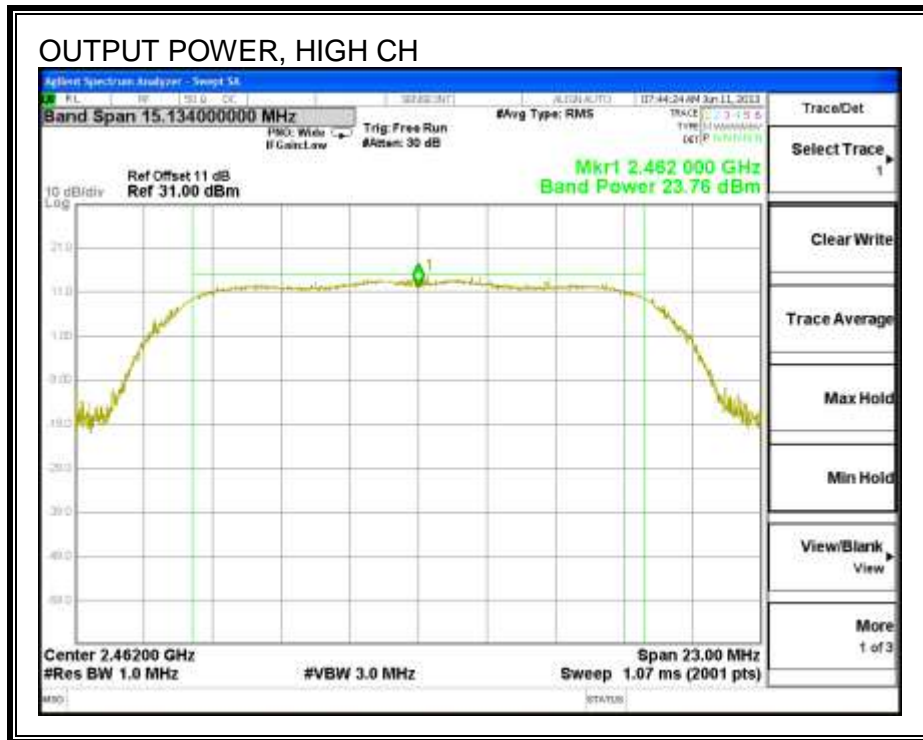




G mode

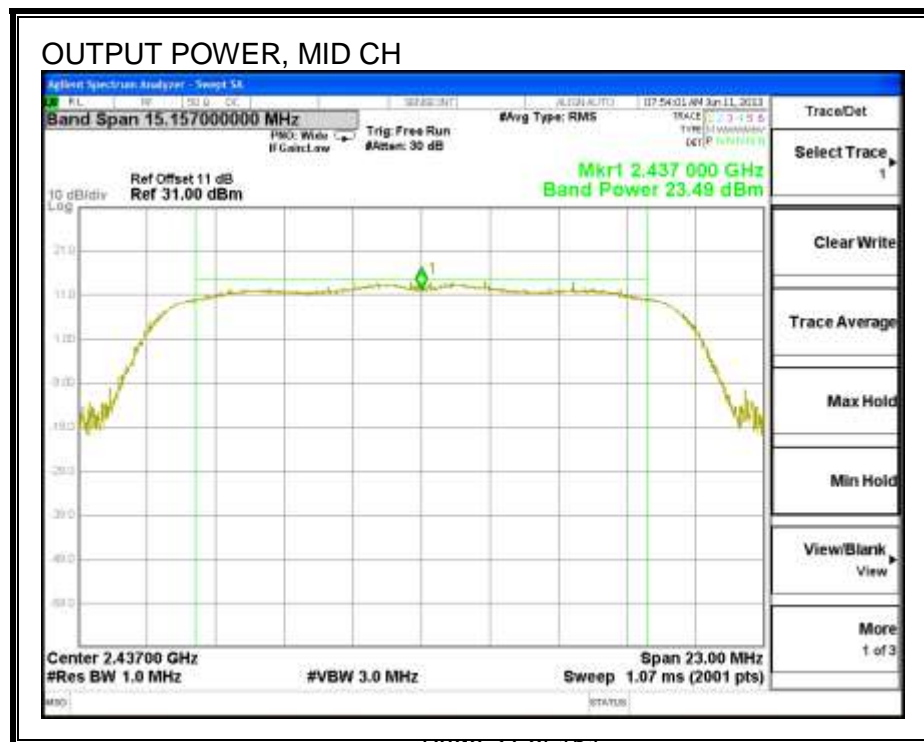
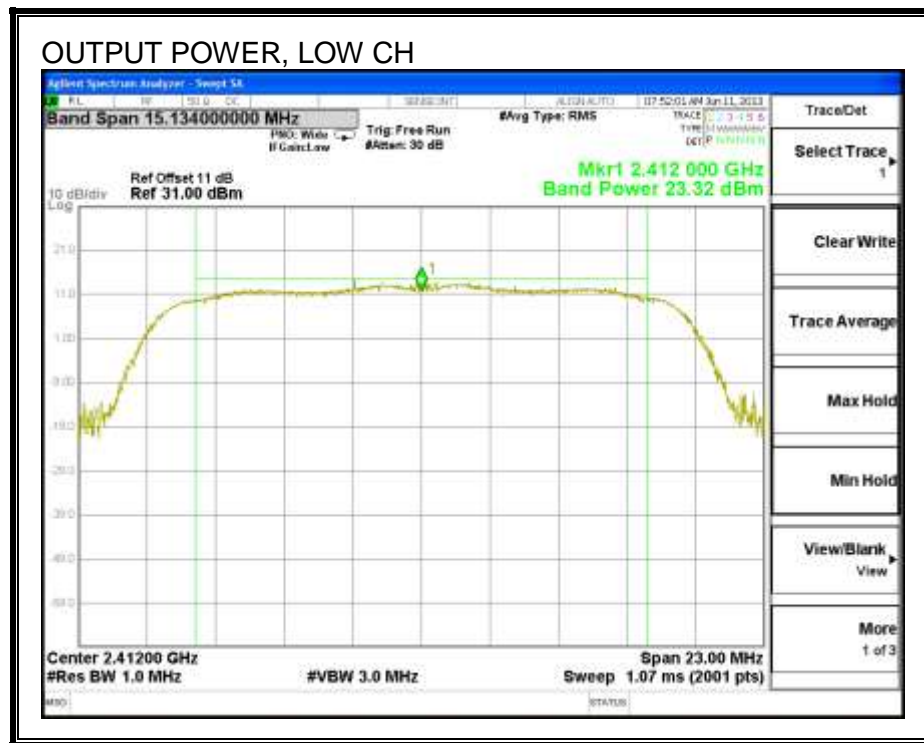
OUTPUT POWER

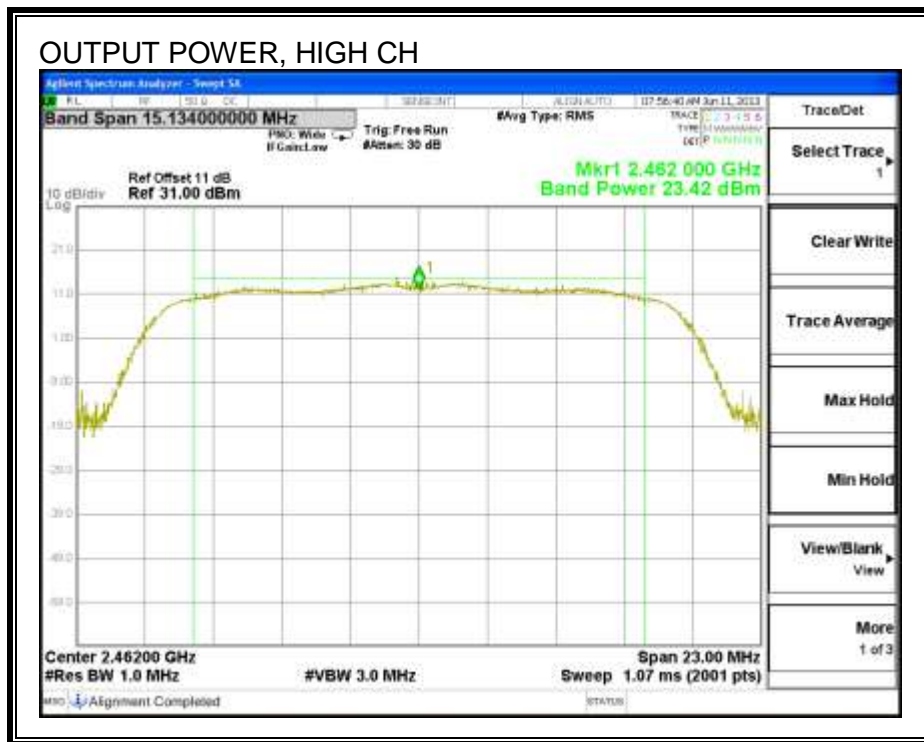




HT20

OUTPUT POWER





7.1.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

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

B mode

PSD Results

| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 2412 | -2.12 | 8.0 | -10.12 |
| Mid | 2437 | -1.98 | 8.0 | -9.98 |
| High | 2462 | -2.33 | 8.0 | -10.33 |

G mode

PSD Results

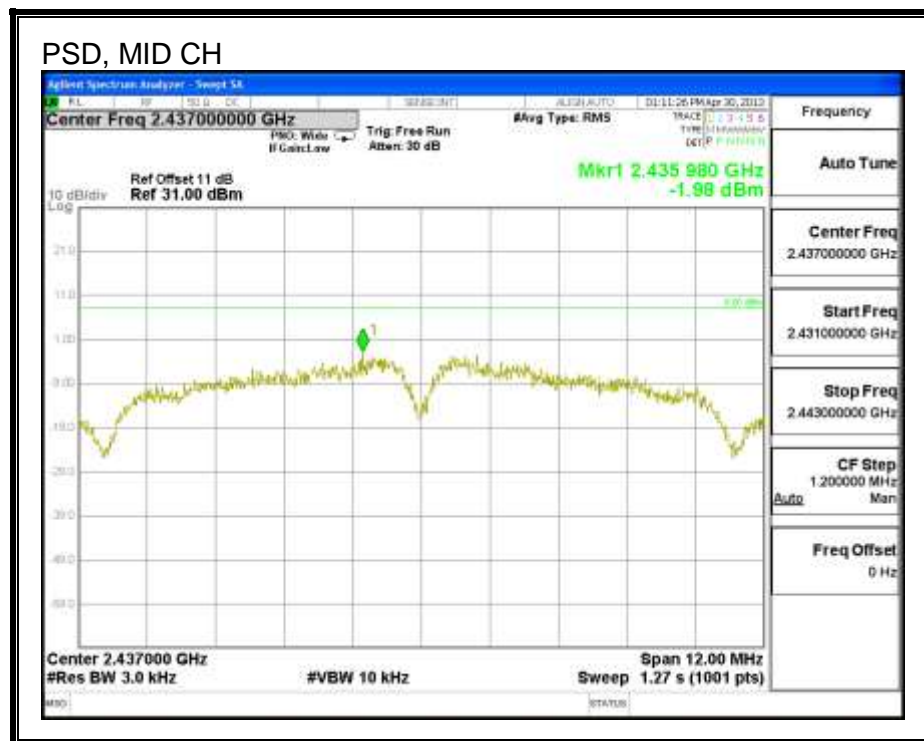
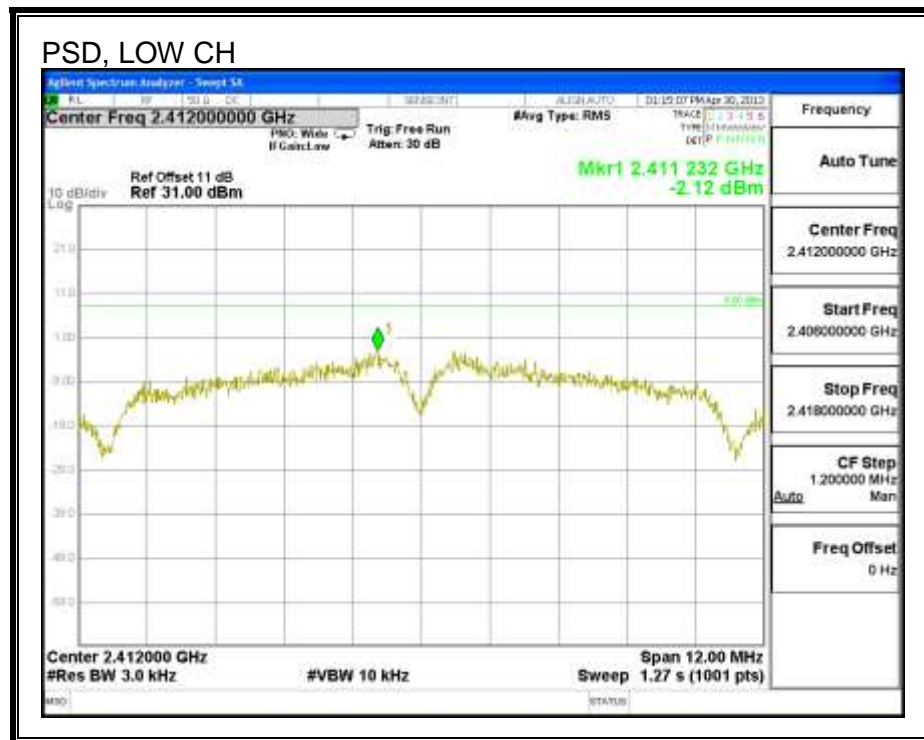
| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 2412 | -5.29 | 8.0 | -13.29 |
| Mid | 2437 | -5.25 | 8.0 | -13.25 |
| High | 2462 | -5.02 | 8.0 | -13.02 |

HT20

PSD Results

| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 2412 | -5.50 | 8.0 | -13.50 |
| Mid | 2437 | -5.62 | 8.0 | -13.62 |
| High | 2462 | -5.17 | 8.0 | -13.17 |

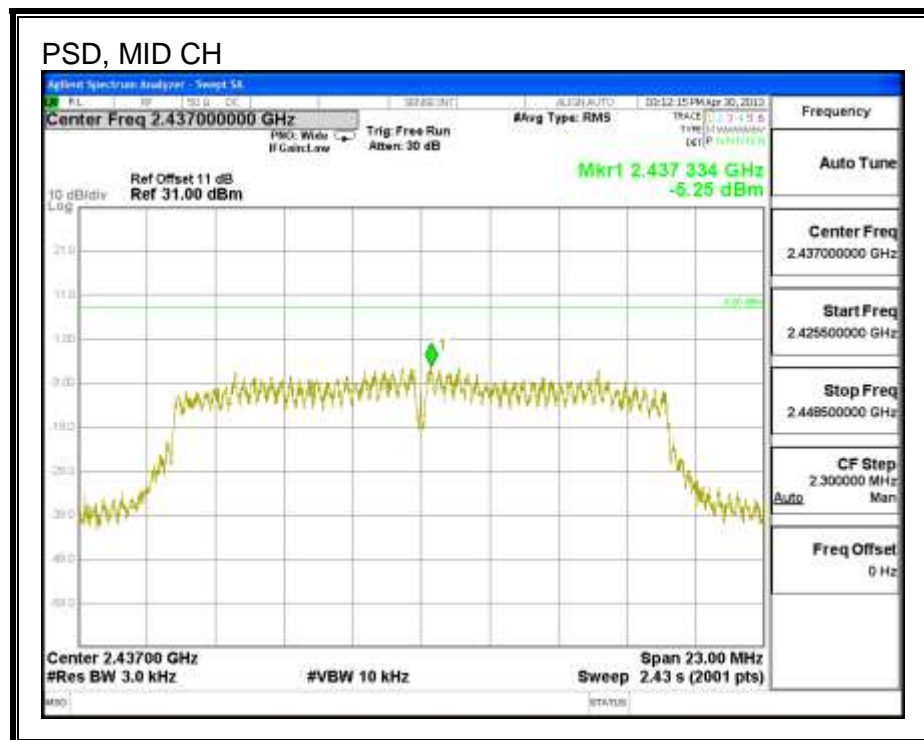
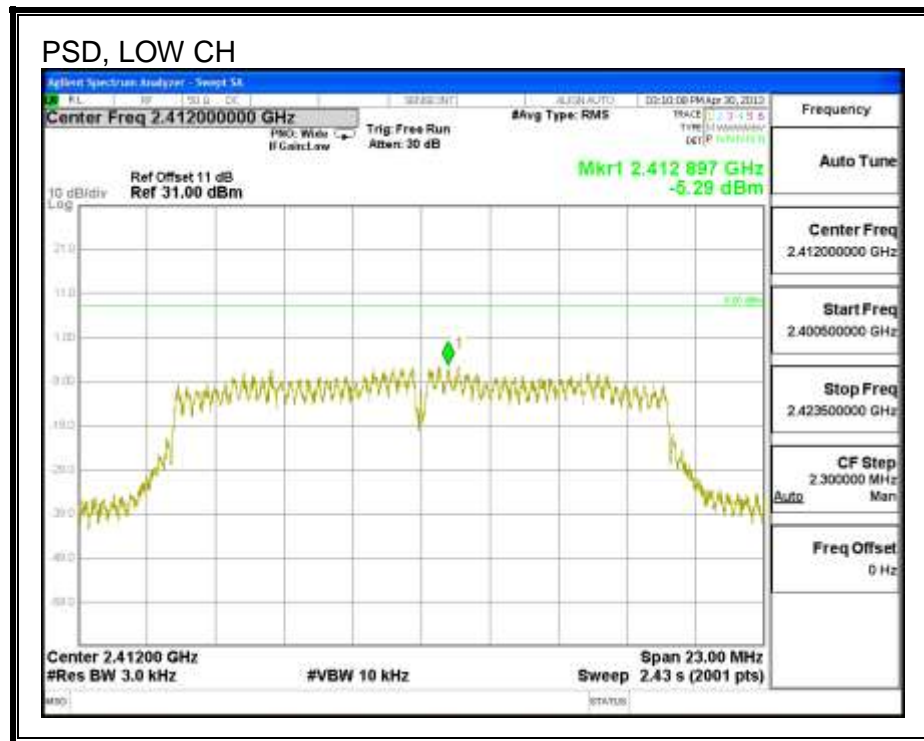
B mode, PSD

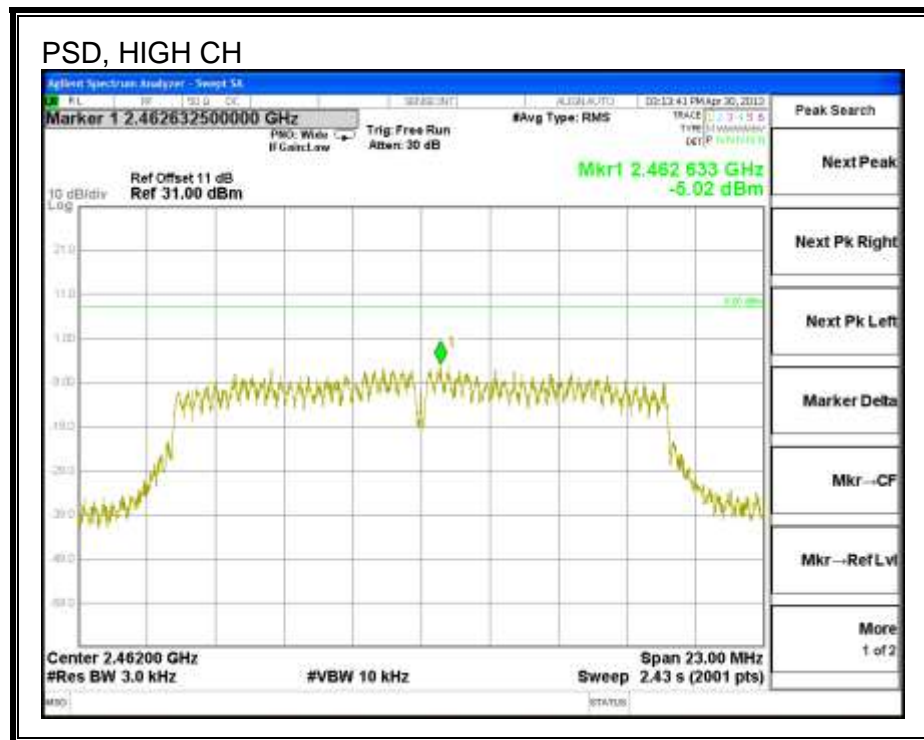




G mode

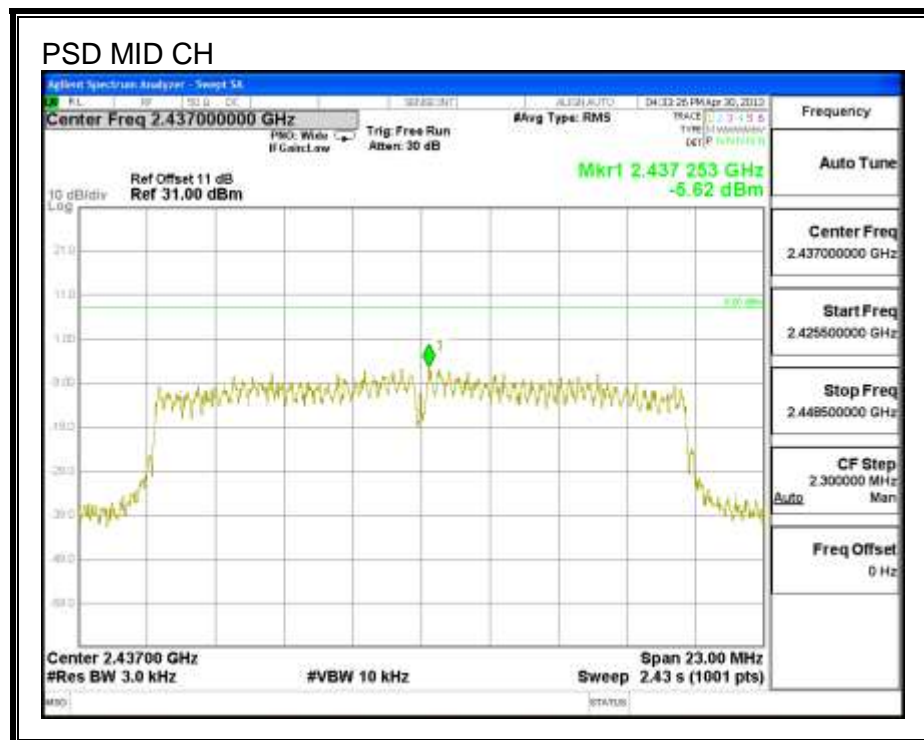
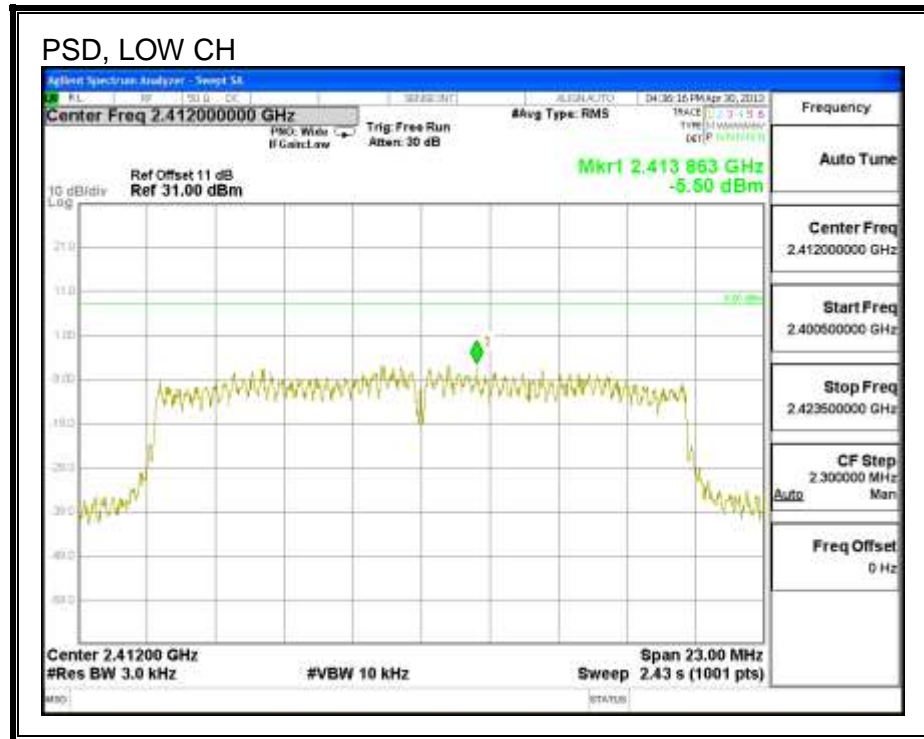
PSD

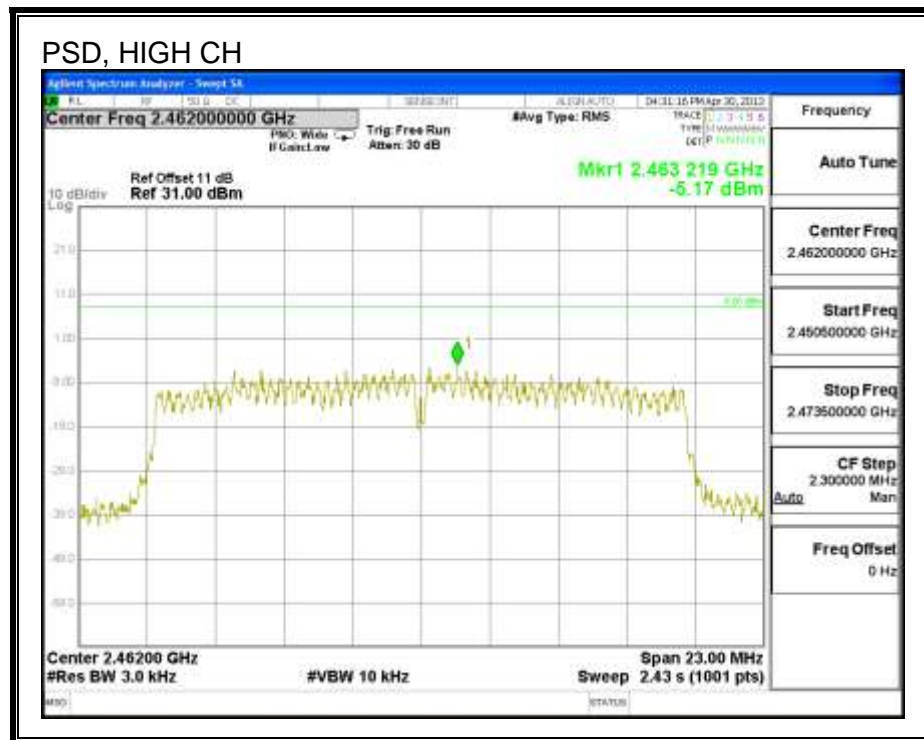




HT20

PSD





7.1.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

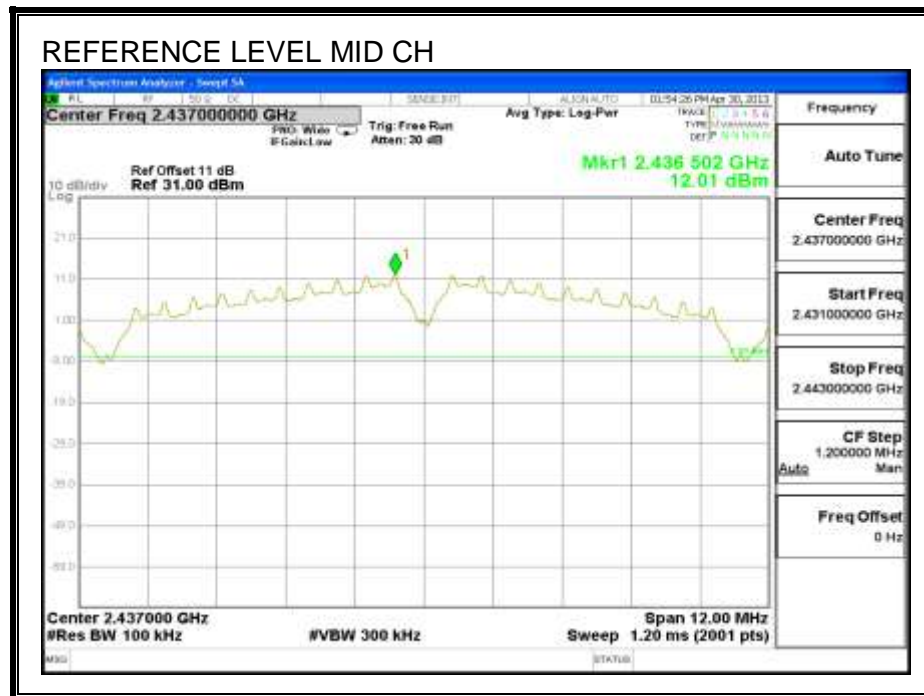
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

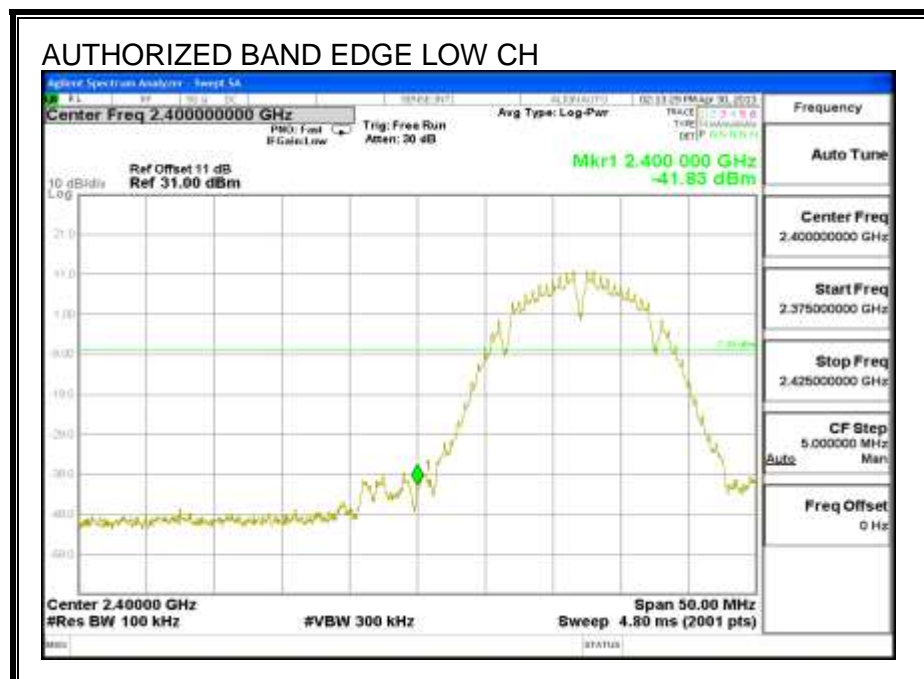
RESULTS

B mode.

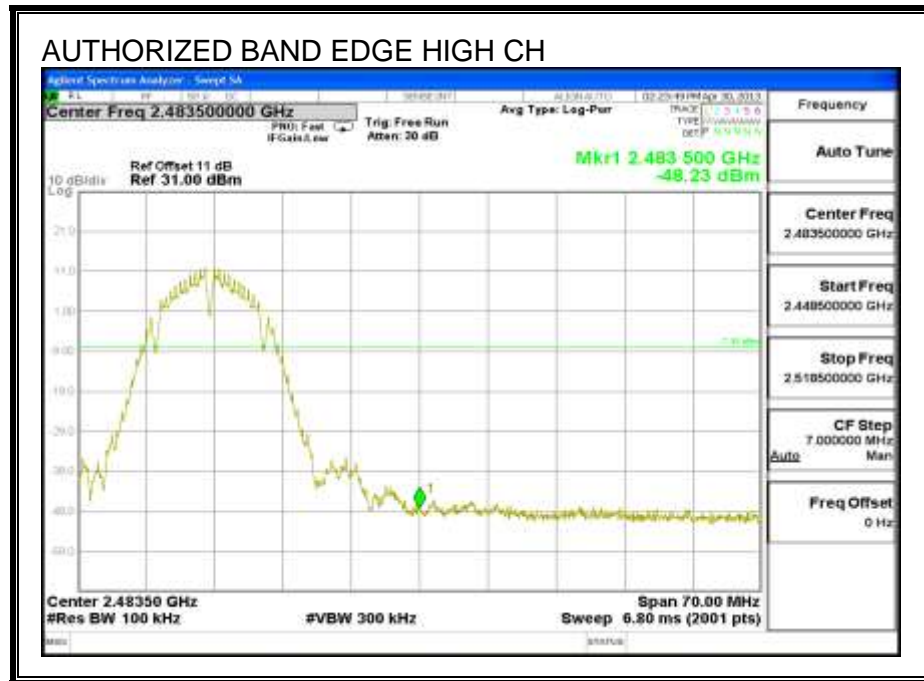
IN-BAND REFERENCE LEVEL



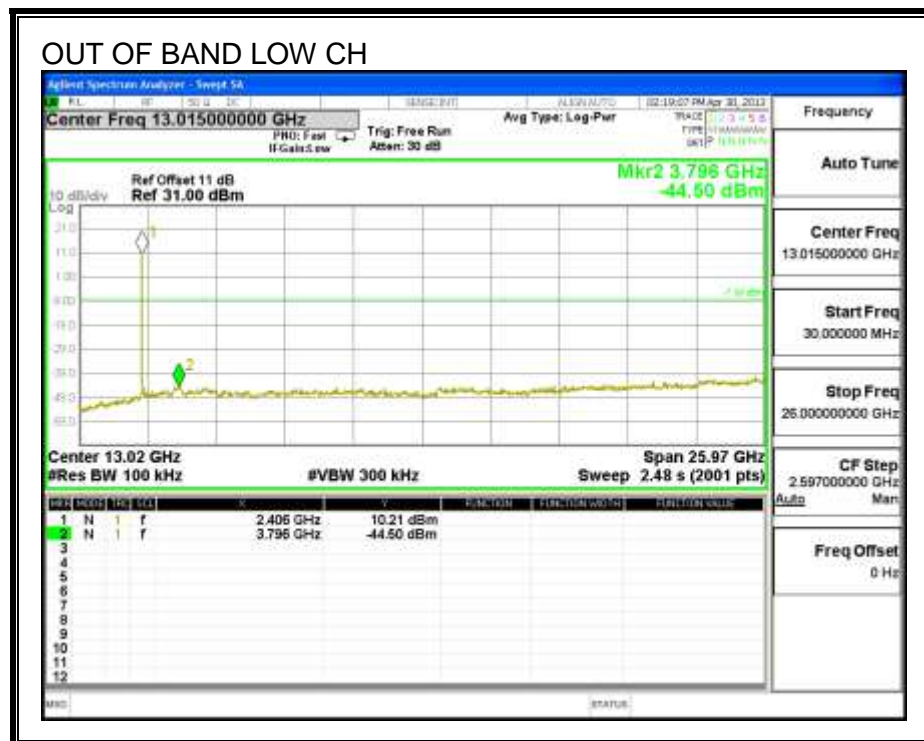
LOW CHANNEL BANDEDGE



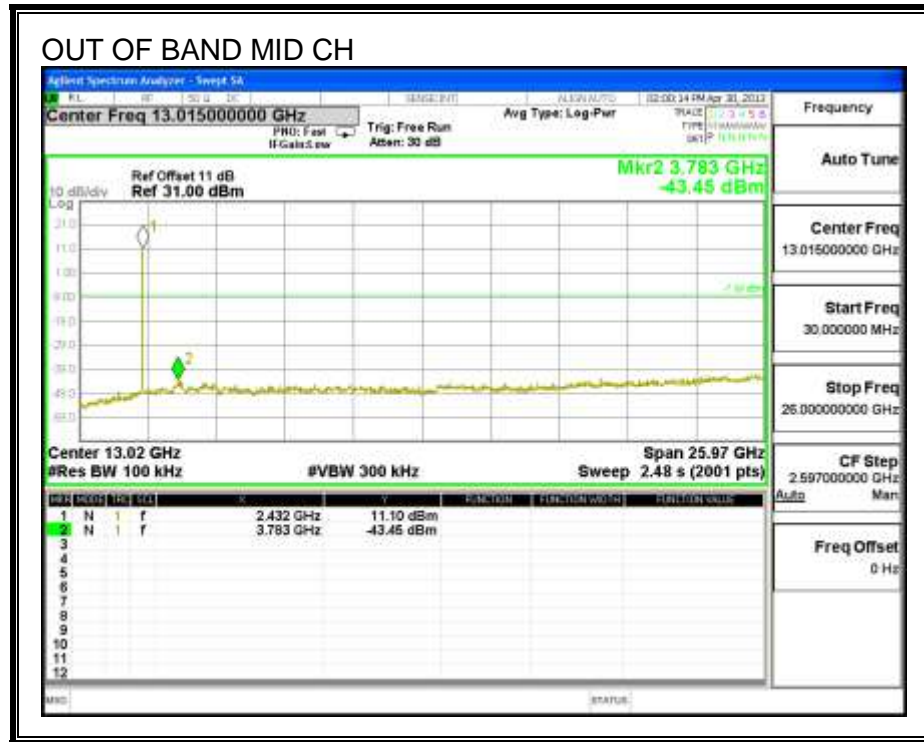
HIGH CHANNEL BANDEDGE



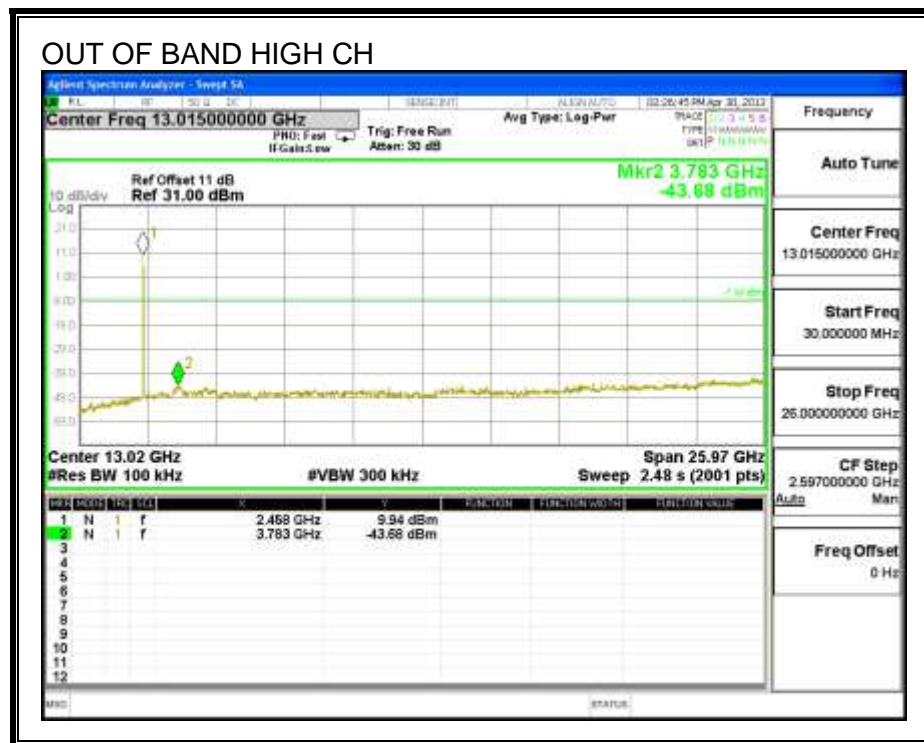
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH

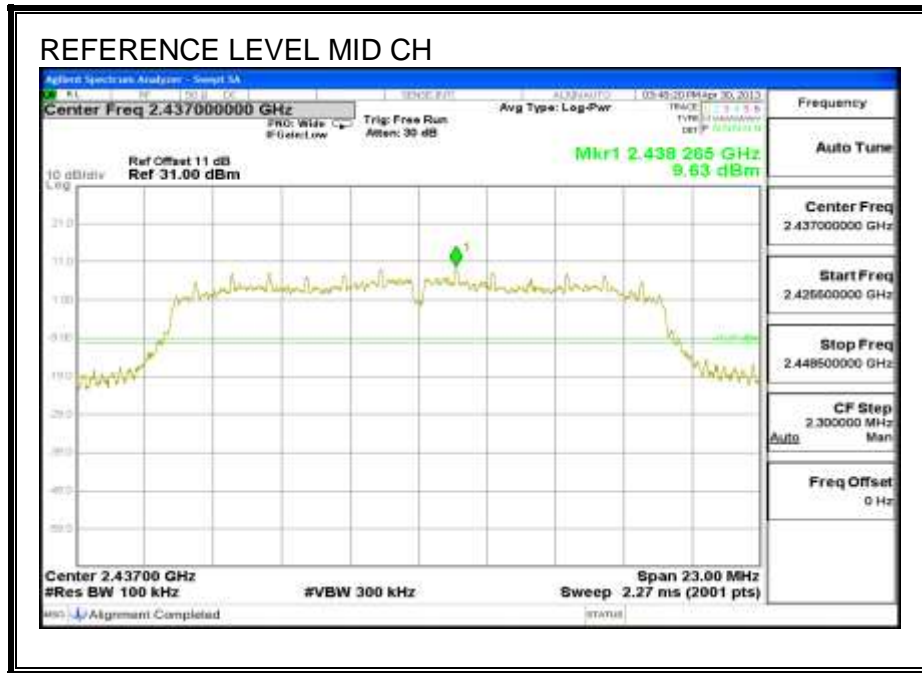


OUT OF BAND HIGH CH

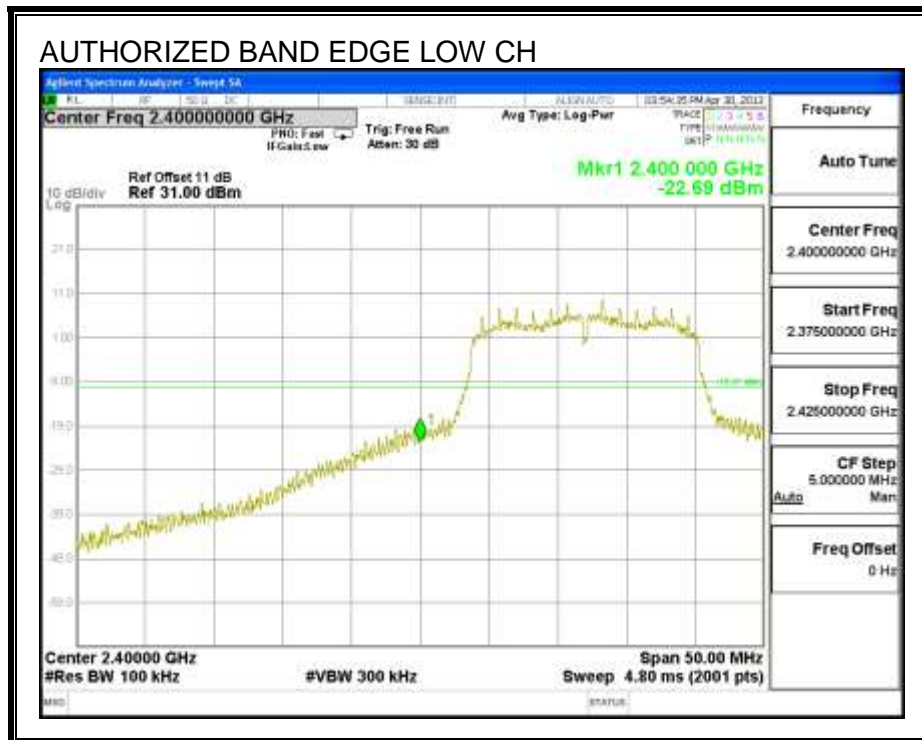


G mode

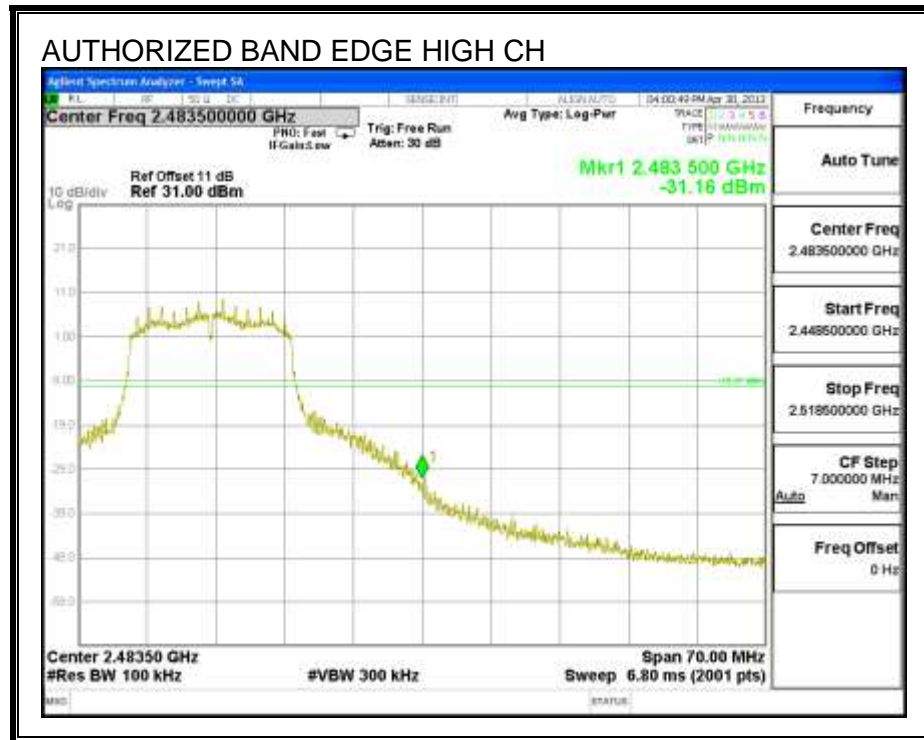
IN-BAND REFERENCE LEVEL



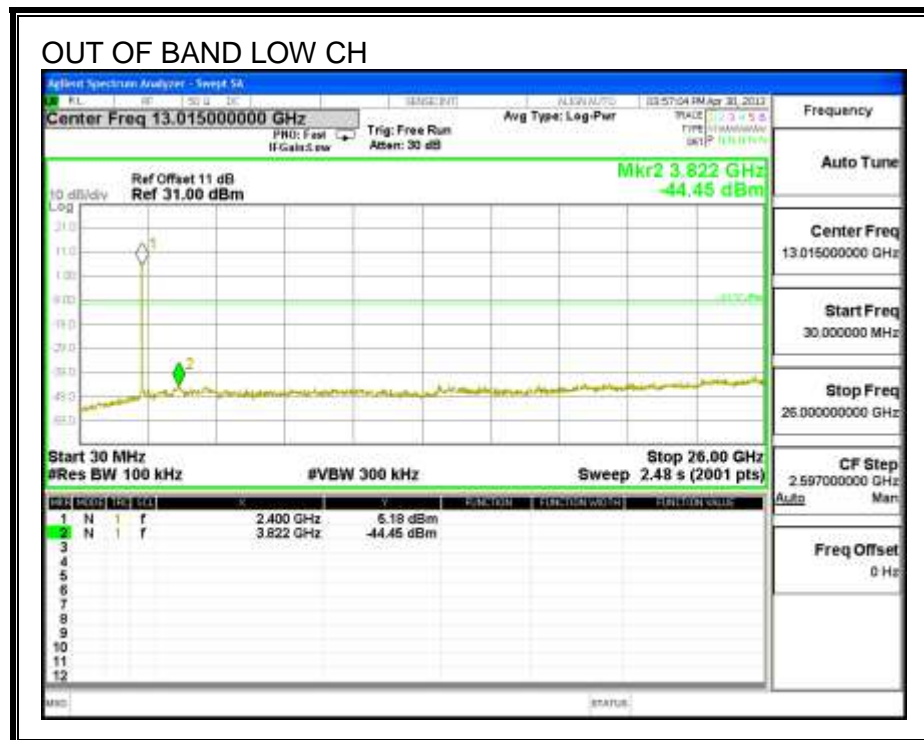
LOW CHANNEL BANDEDGE



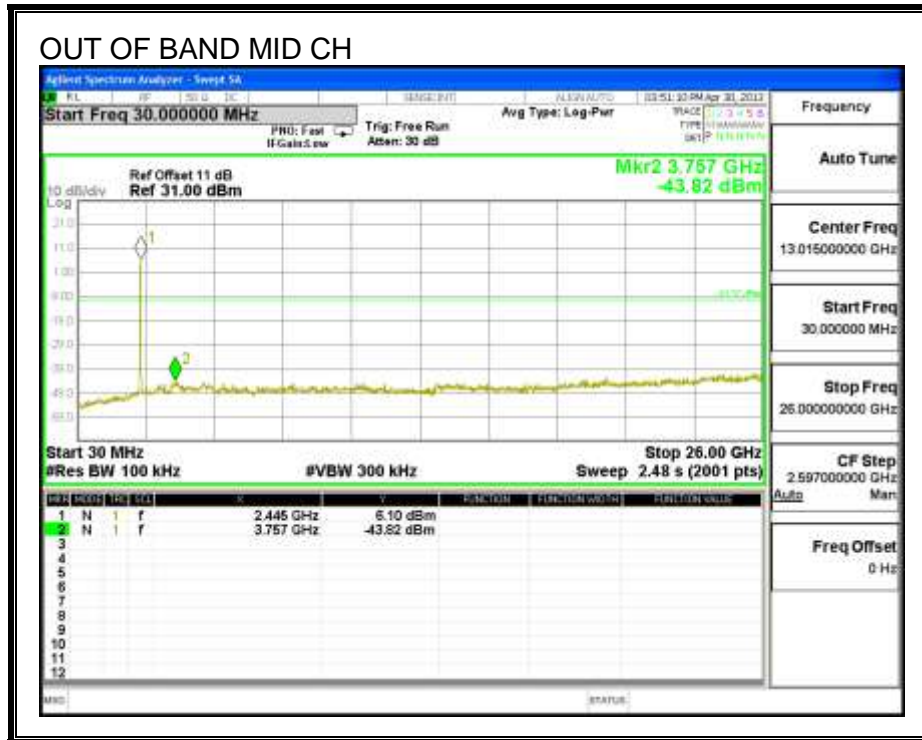
HIGH CHANNEL BANDEDGE



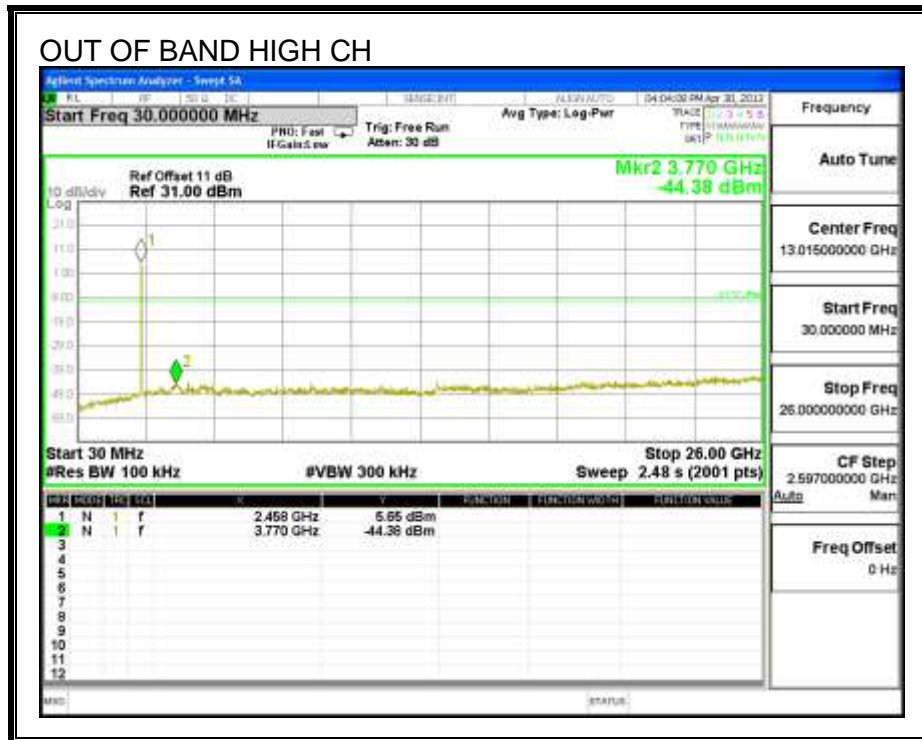
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH

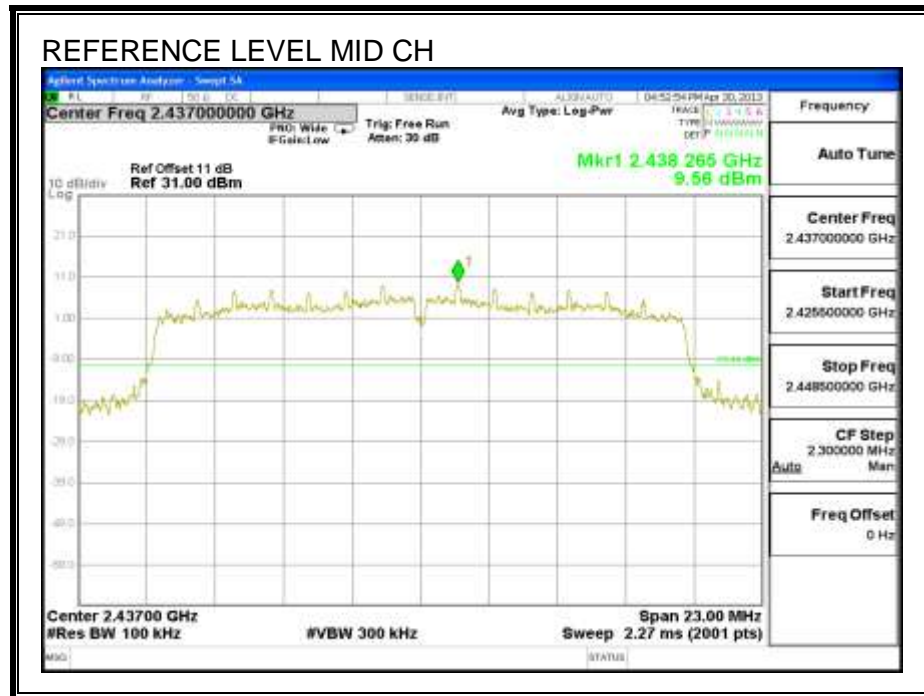


OUT OF BAND HIGH CH

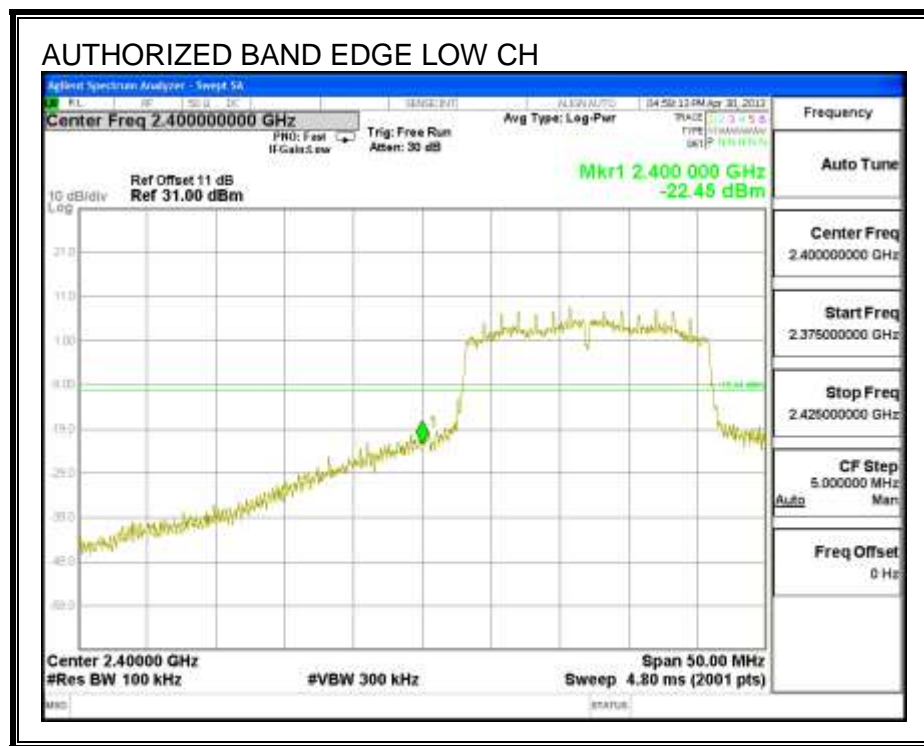


HT20

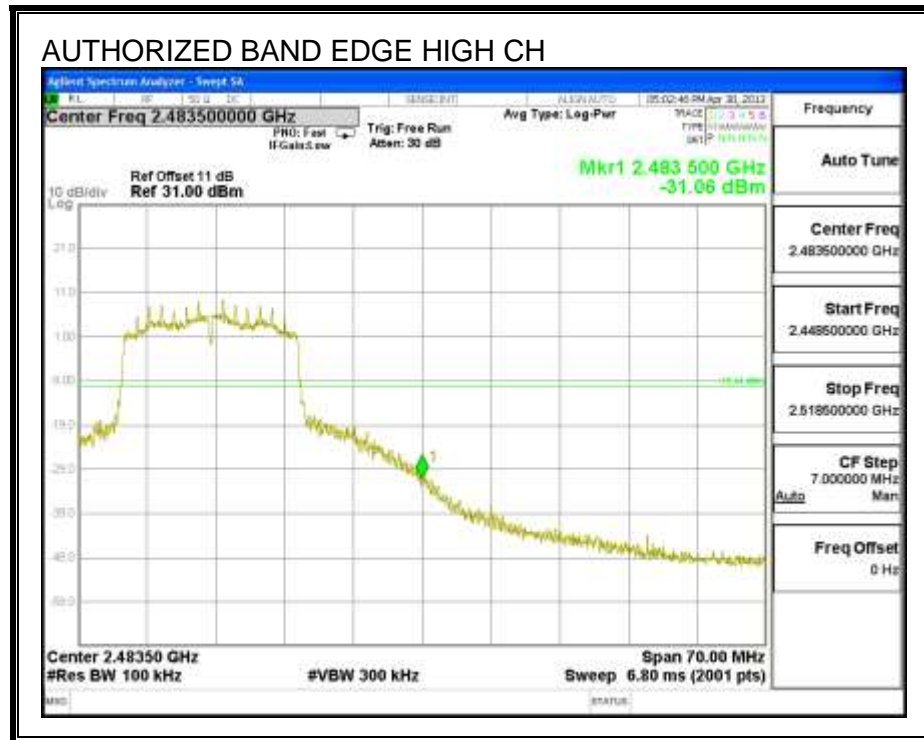
IN-BAND REFERENCE LEVEL



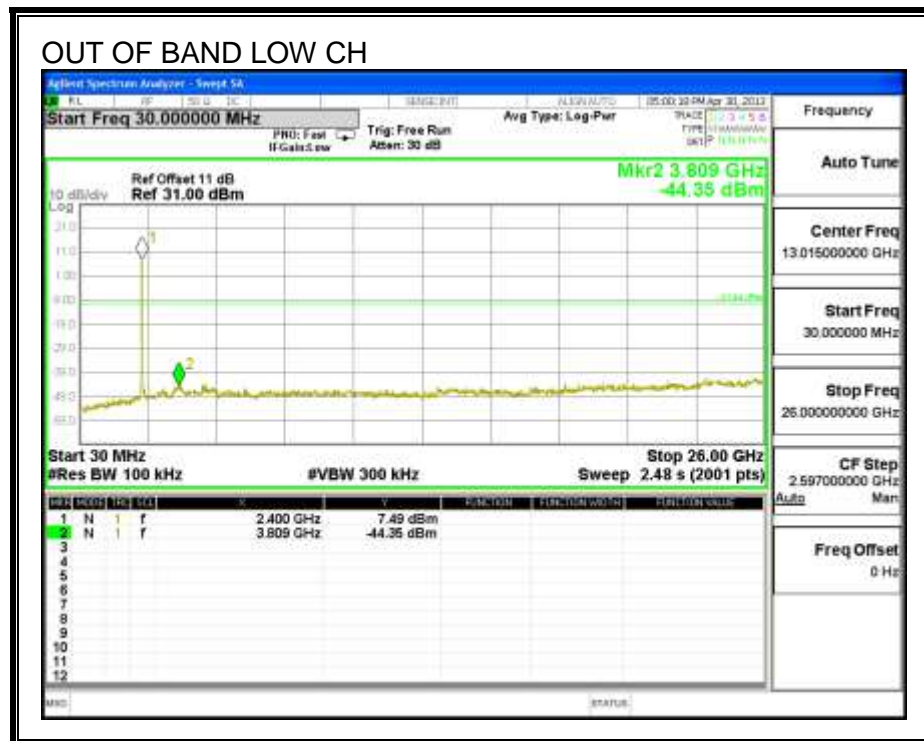
LOW CHANNEL BANDEDGE



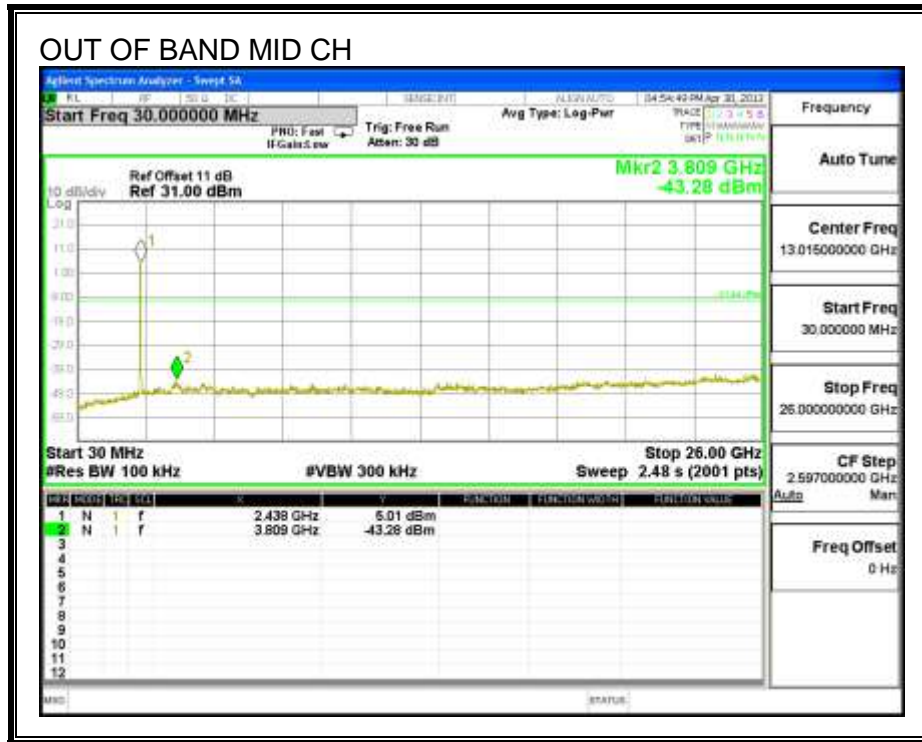
HIGH CHANNEL BANDEDGE



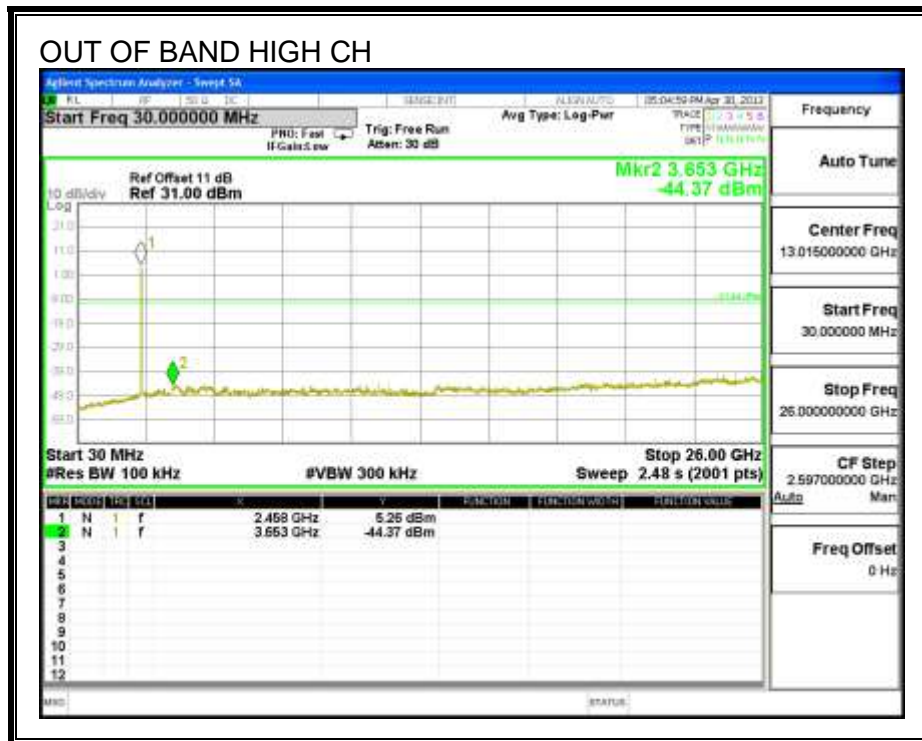
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH



OUT OF BAND HIGH CH



7.2. 5.8GHz BAND

7.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

KDB 558074 D01 v01 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247".

RESULTS

a mode

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low | 5745 | 15.144 | 0.5 |
| Mid | 5785 | 15.120 | 0.5 |
| High | 5825 | 15.144 | 0.5 |

HT20 Mode

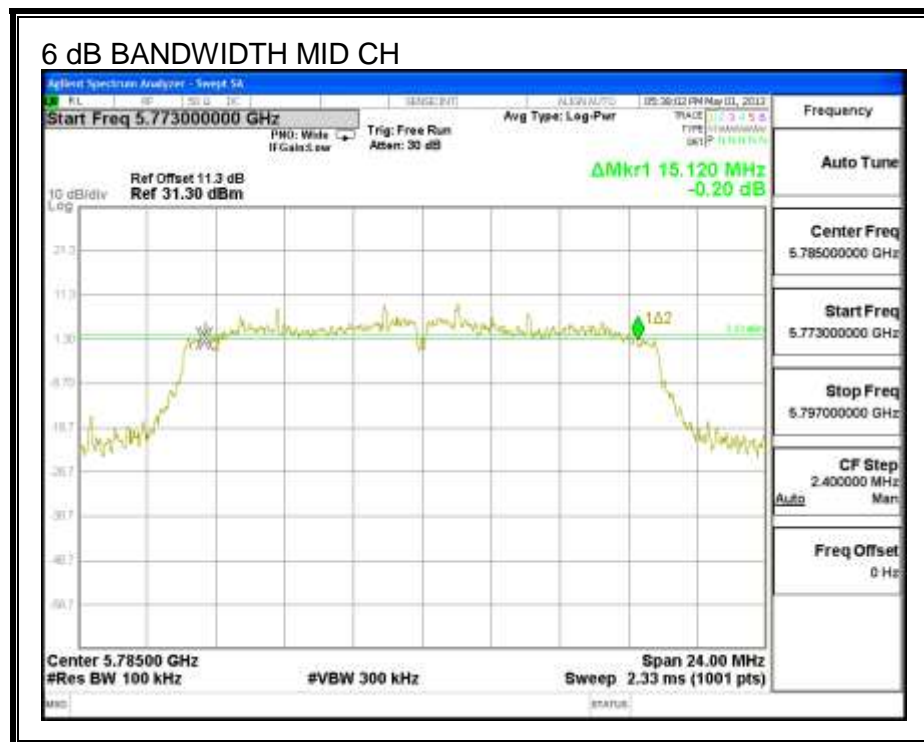
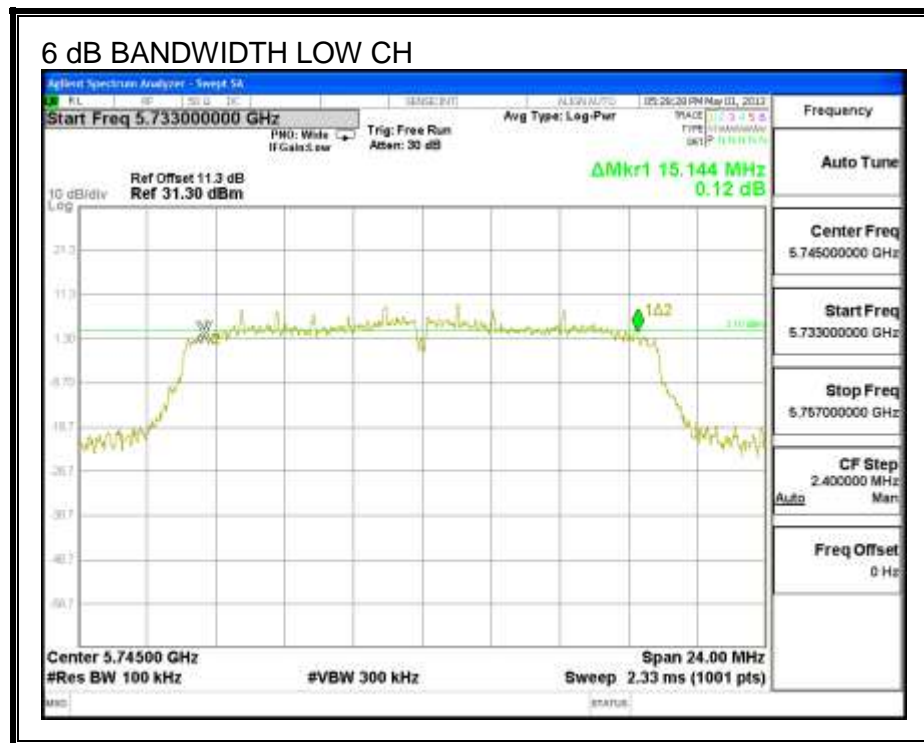
| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low | 5745 | 15.168 | 0.5 |
| Mid | 5785 | 15.096 | 0.5 |
| High | 5825 | 15.096 | 0.5 |

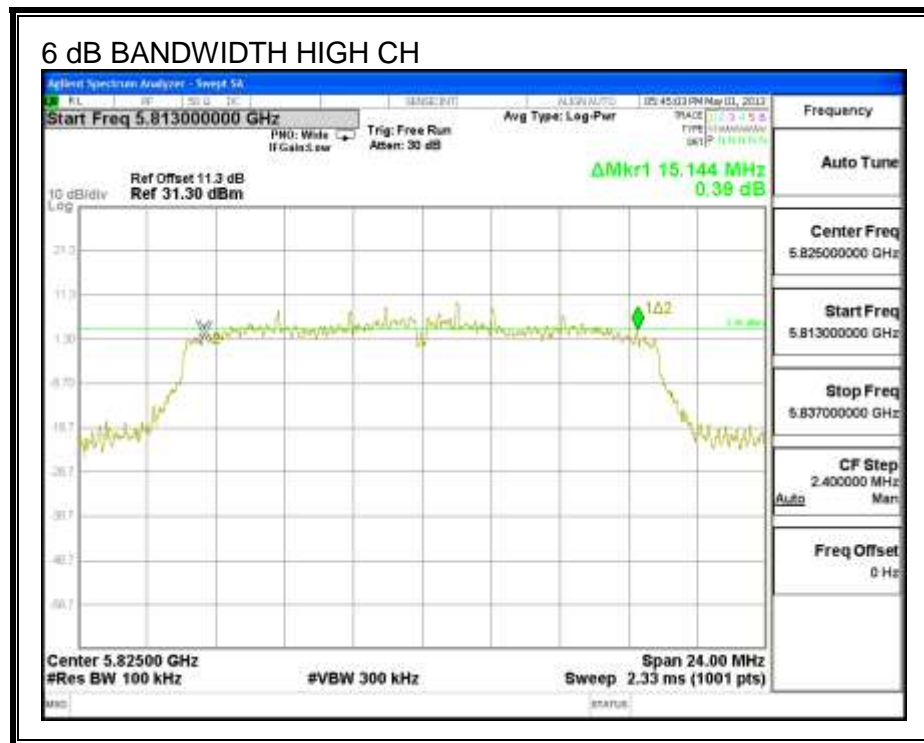
HT40

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low | 5755 | 35.112 | 0.5 |
| High | 5795 | 35.112 | 0.5 |

a mode

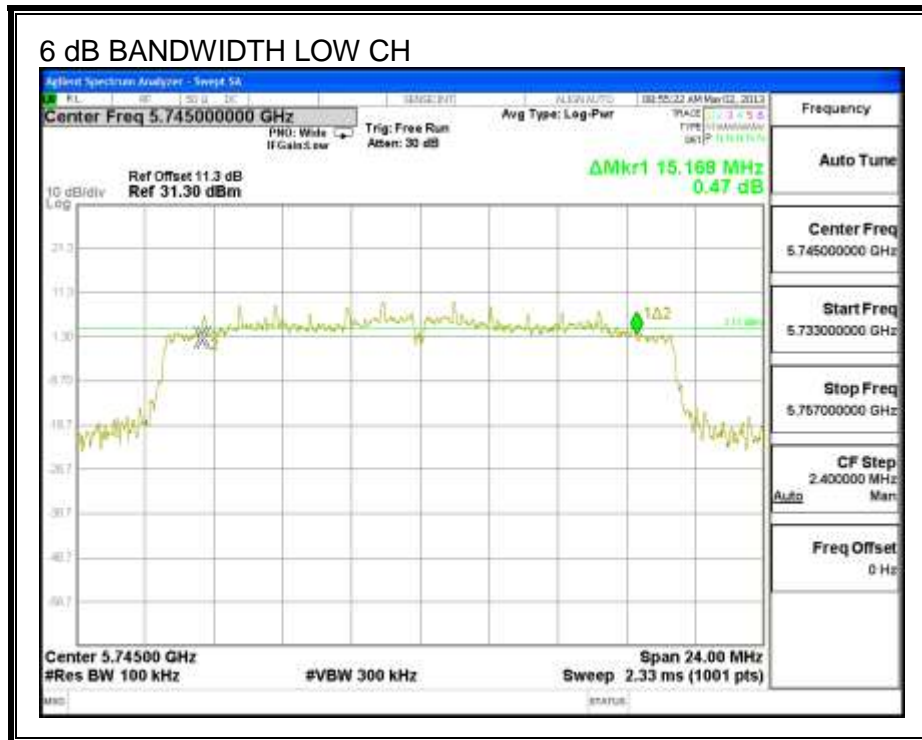
6 dB BANDWIDTH

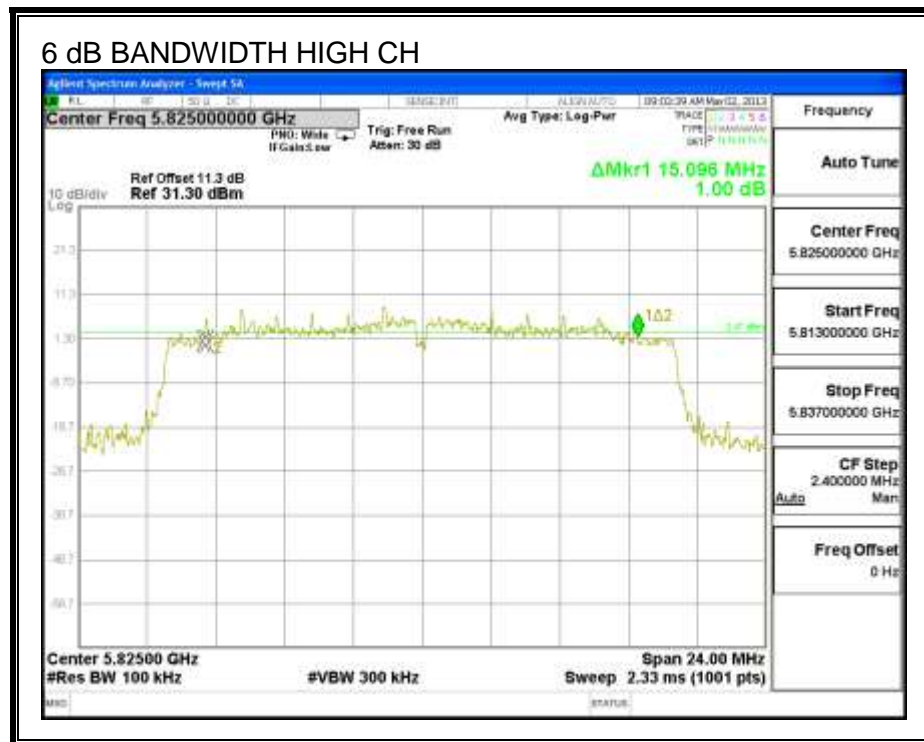




HT20

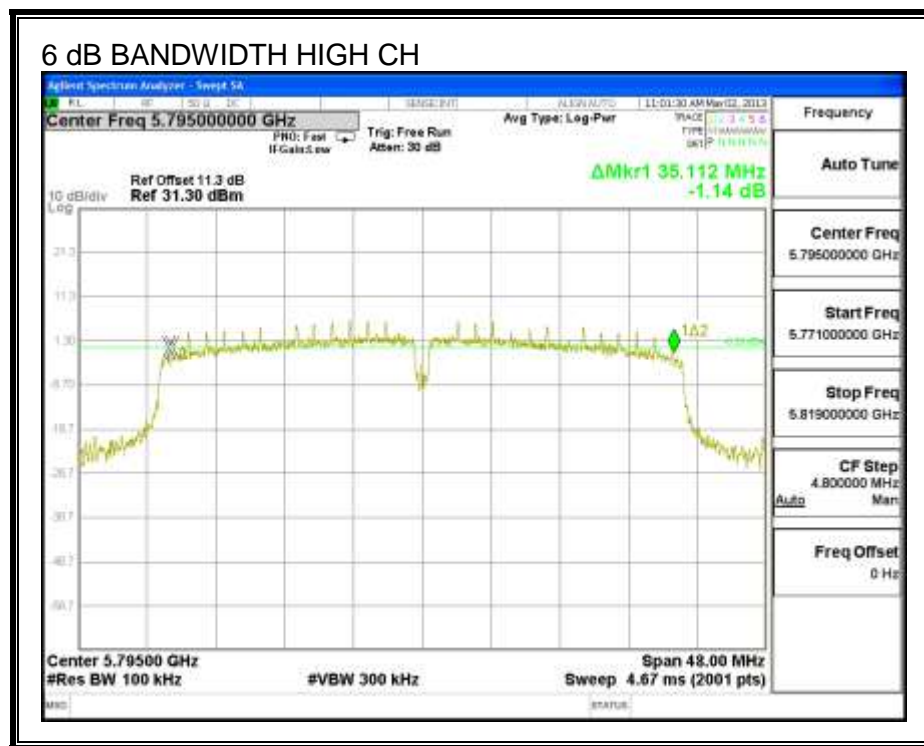
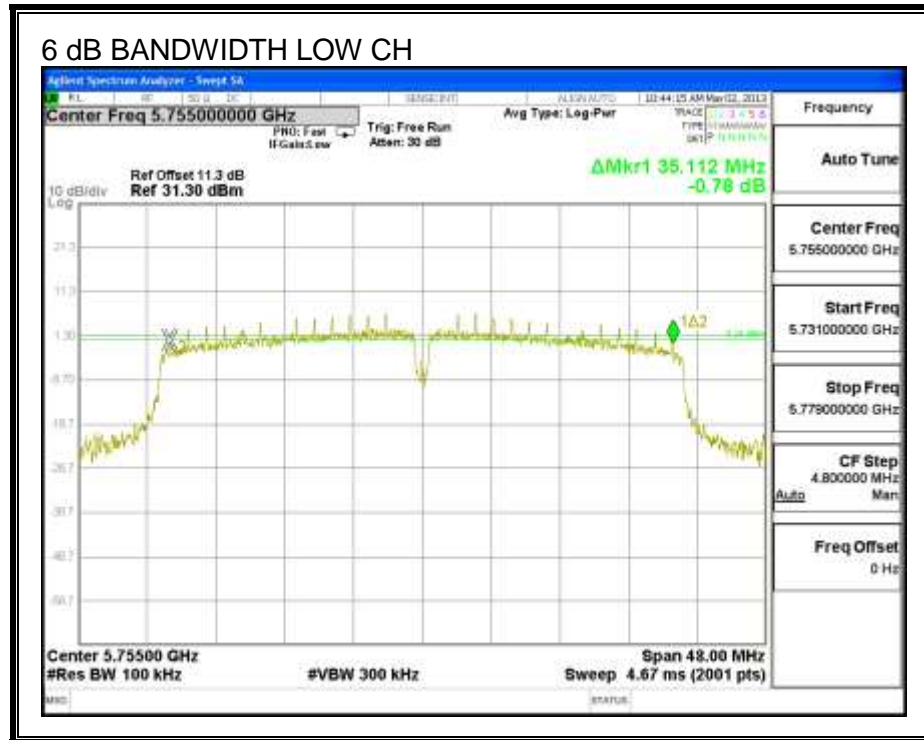
6 dB BANDWIDTH





HT40

6 dB BANDWIDTH



7.2.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

a mode

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 5745 | 16.3380 |
| Mid | 5785 | 16.4100 |
| High | 5825 | 16.4550 |

HT20

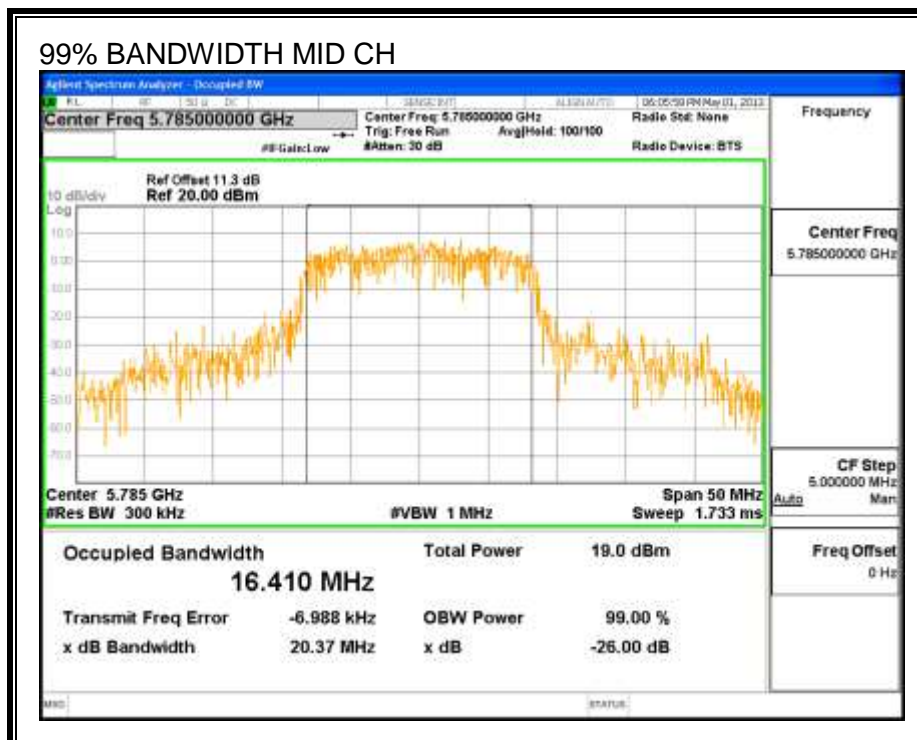
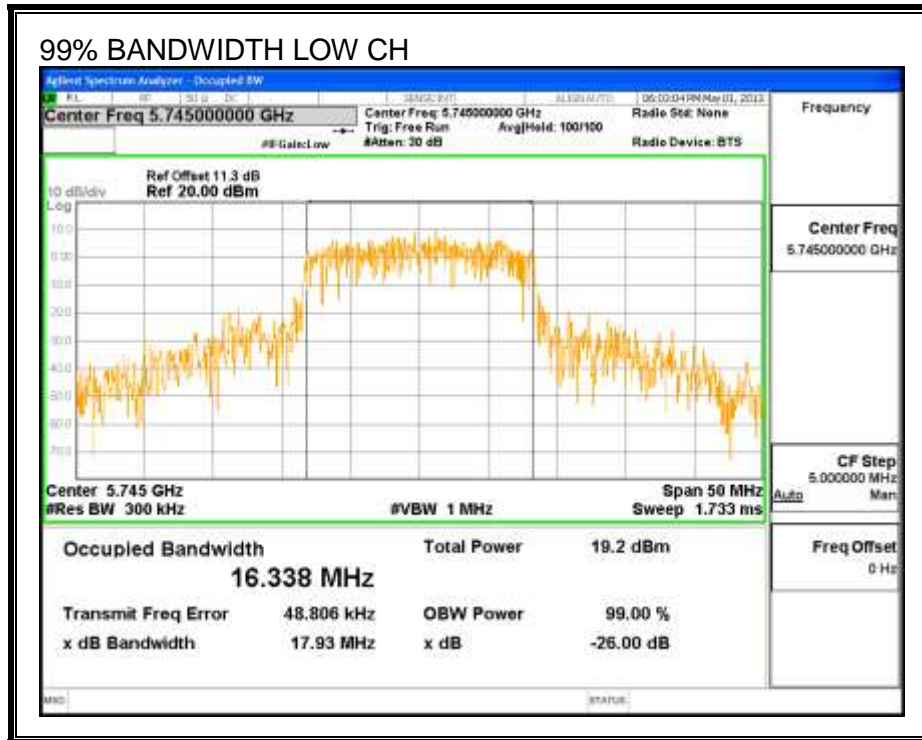
| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 5745 | 17.6220 |
| Mid | 5785 | 17.6570 |
| High | 5825 | 17.6440 |

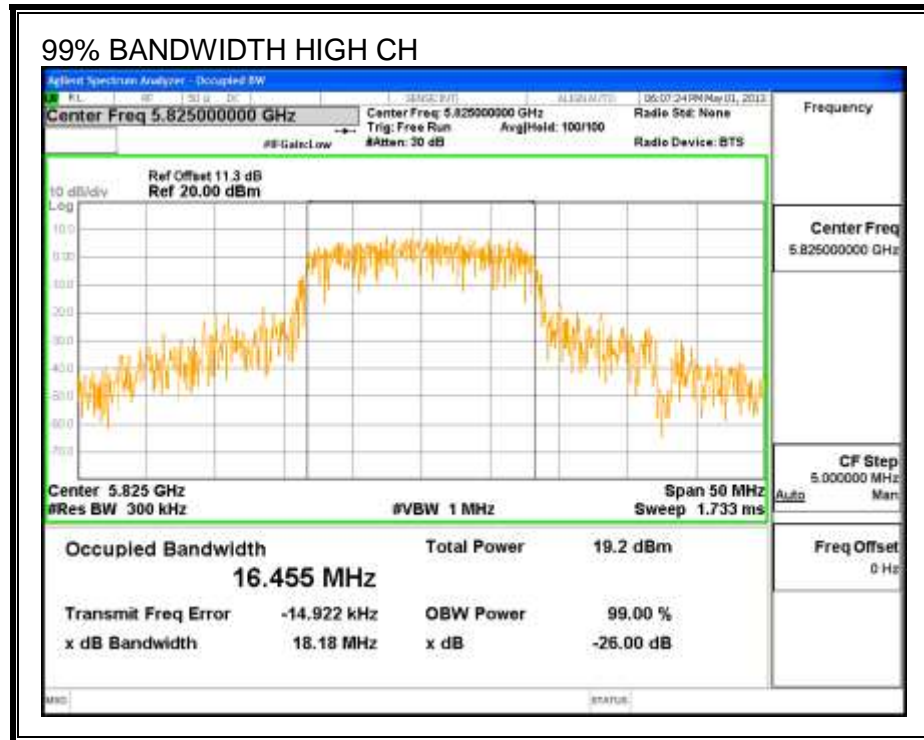
HT40

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|--------------------|------------------------|
| Low | 5755 | 36.1210 |
| High | 5795 | 36.1840 |

a mode

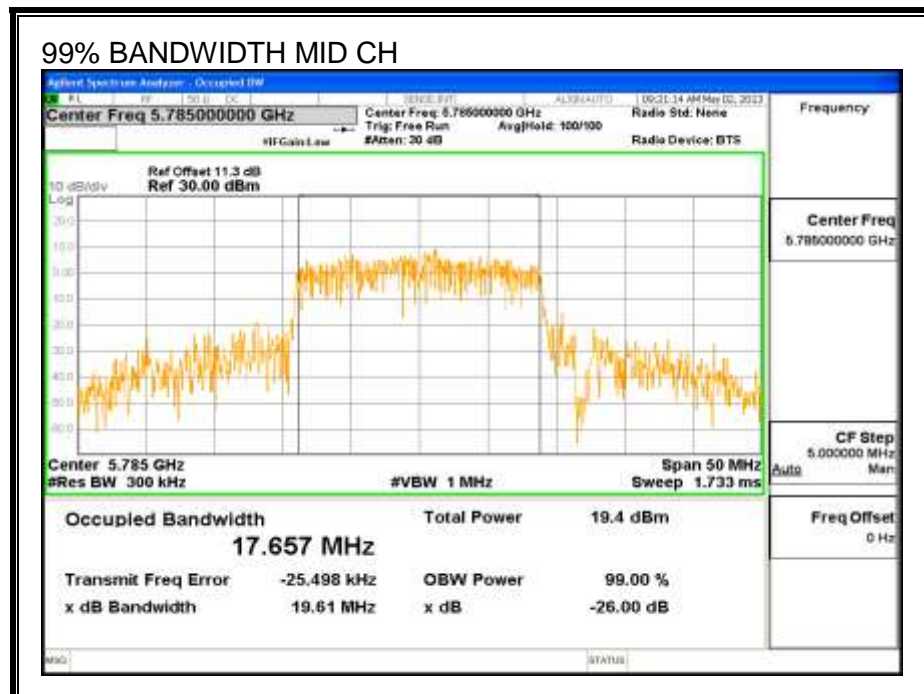
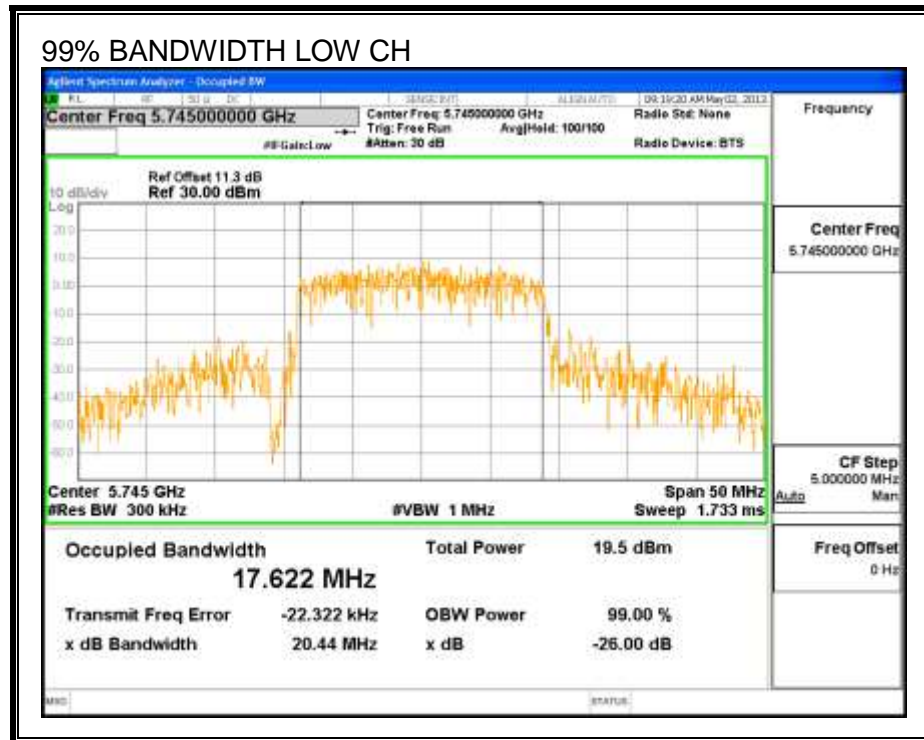
99% BANDWIDTH

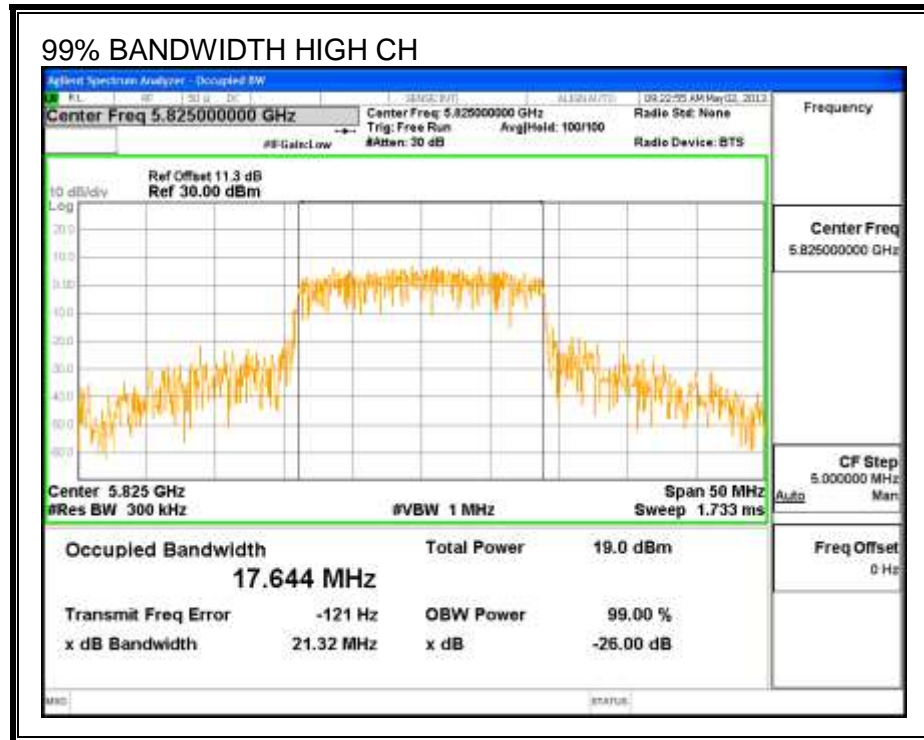




HT20

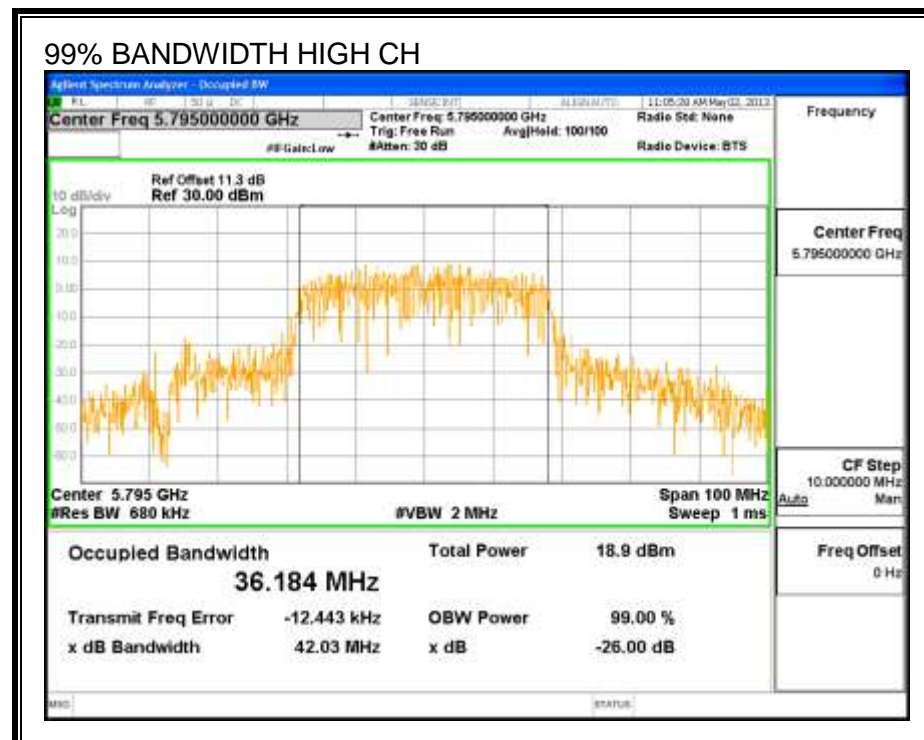
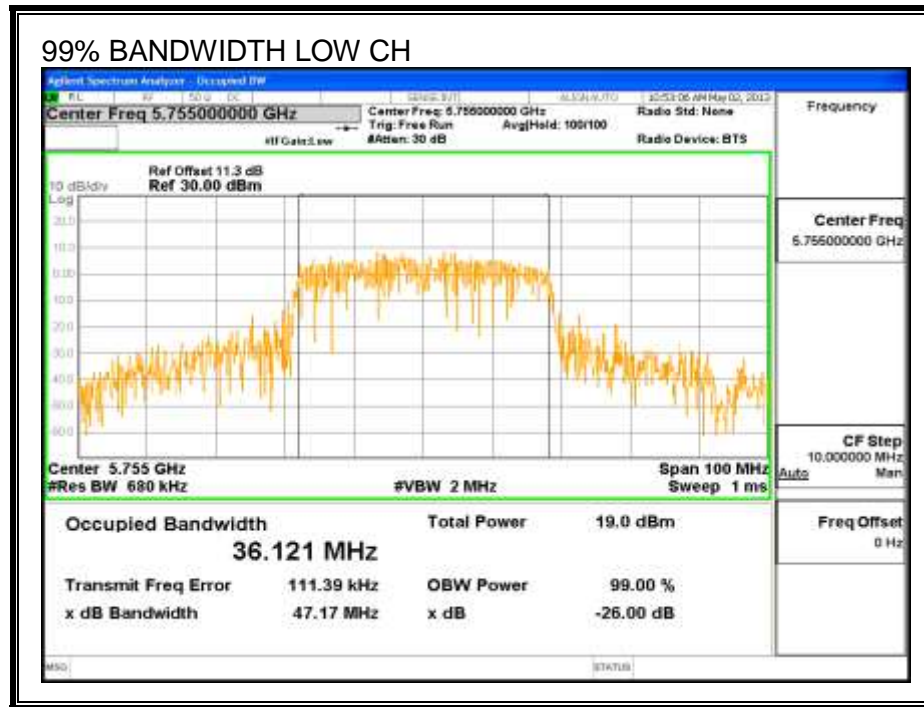
99% BANDWIDTH





HT40

99% BANDWIDTH



7.2.3. AVERAGE POWER

LIMITS

Note; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

a mode

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 5745 | 13.5 |
| Mid | 5785 | 13.5 |
| High | 5825 | 13.5 |

HT20

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 5745 | 13.5 |
| Mid | 5785 | 13.5 |
| High | 5825 | 13.5 |

HT40

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 5755 | 13.5 |
| High | 5795 | 13.4 |

7.2.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

a mode

Limits

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low | 5745 | -4.50 | 30.00 | 30 | 36 | 30.00 |
| Mid | 5785 | -4.50 | 30.00 | 30 | 36 | 30.00 |
| High | 5825 | -4.50 | 30.00 | 30 | 36 | 30.00 |

Results

| Channel | Frequency (MHz) | Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low | 5745 | 20.816 | 20.82 | 30.00 | -9.18 |
| Mid | 5785 | 20.541 | 20.54 | 30.00 | -9.46 |
| High | 5825 | 20.640 | 20.64 | 30.00 | -9.36 |

HT20

Limits

| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low | 5745 | -4.50 | 30.00 | 30 | 36 | 30.00 |
| Mid | 5785 | -4.50 | 30.00 | 30 | 36 | 30.00 |
| High | 5825 | -4.50 | 30.00 | 30 | 36 | 30.00 |

Results

| Channel | Frequency (MHz) | Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low | 5745 | 20.529 | 20.53 | 30.00 | -9.47 |
| Mid | 5785 | 20.528 | 20.53 | 30.00 | -9.47 |
| High | 5825 | 20.436 | 20.44 | 30.00 | -9.56 |

HT40

Limits

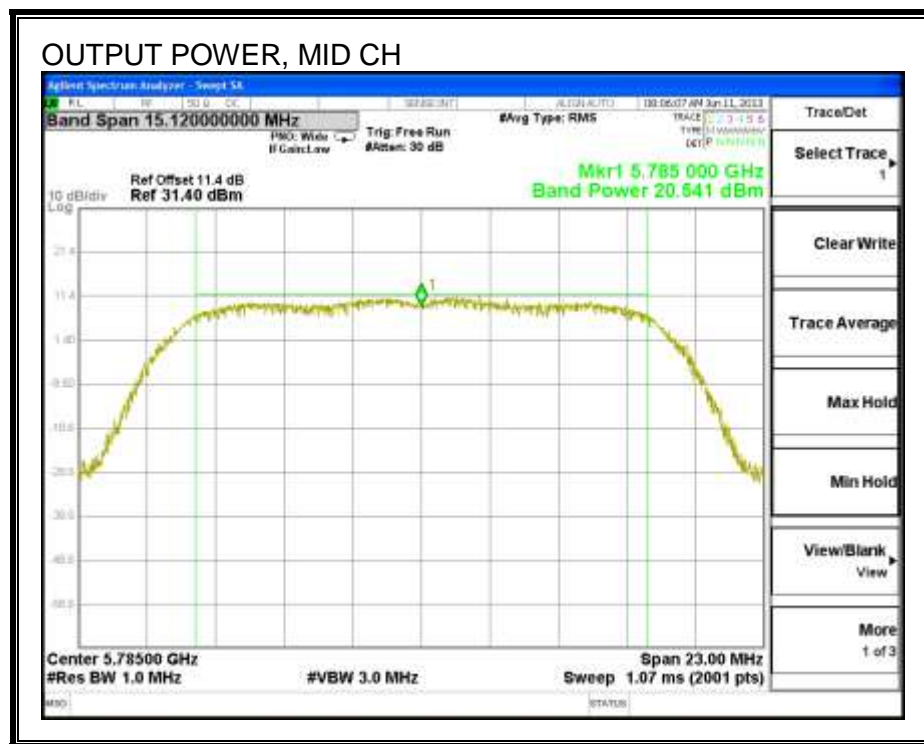
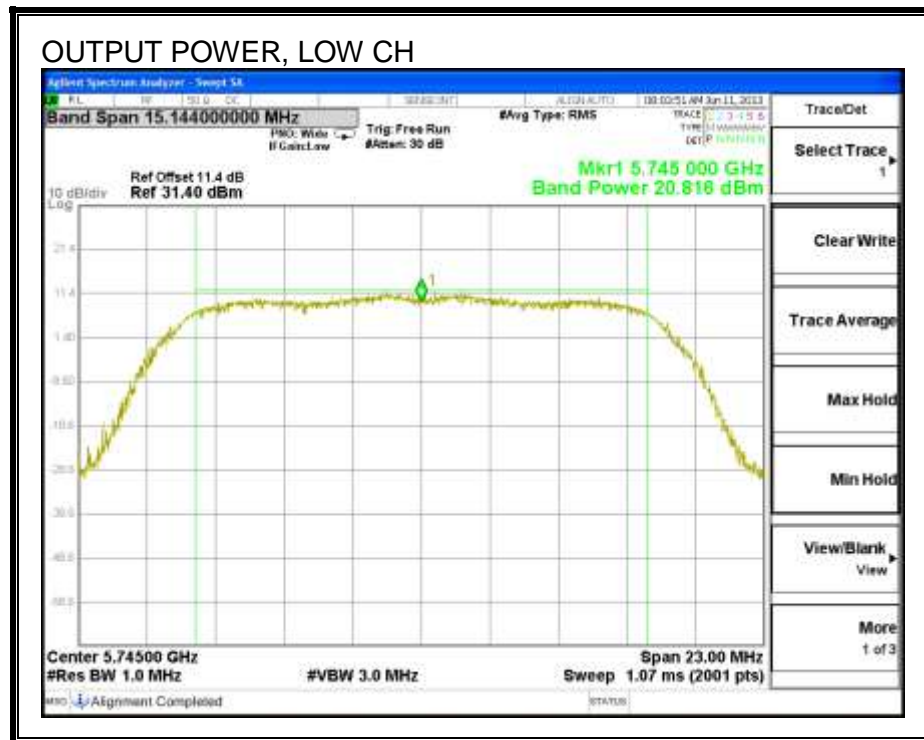
| Channel | Frequency (MHz) | Directional Gain (dBi) | FCC Power Limit (dBm) | IC Power Limit (dBm) | IC EIRP Limit (dBm) | Max Power (dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low | 5755 | -4.50 | 30.00 | 30 | 36 | 30.00 |
| High | 5795 | -4.50 | 30.00 | 30 | 36 | 30.00 |

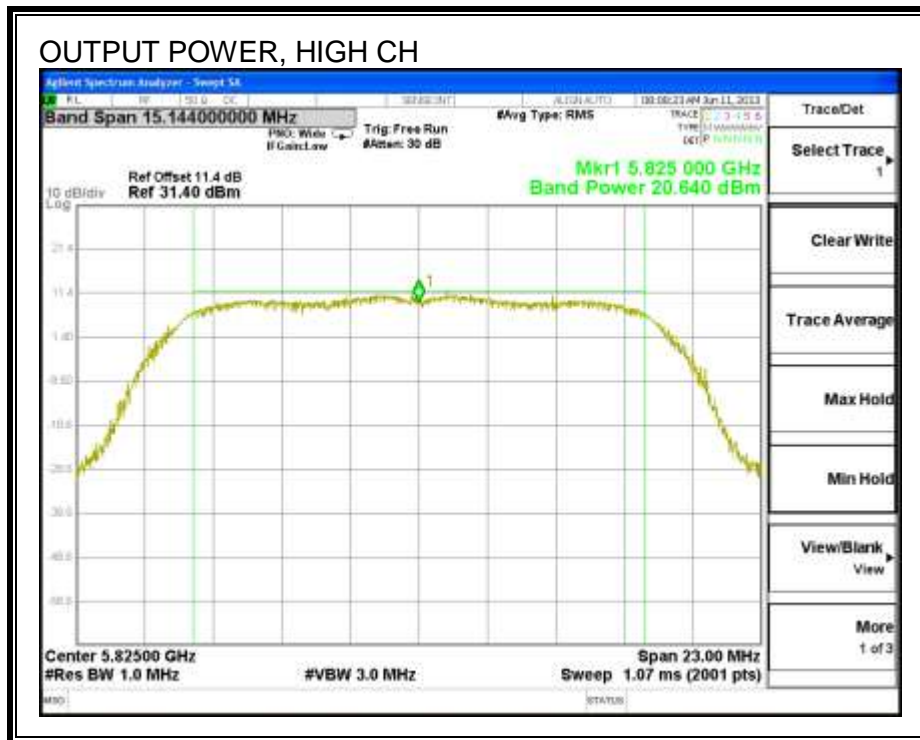
Results

| Channel | Frequency (MHz) | Meas Power (dBm) | Total Corr'd Power (dBm) | Power Limit (dBm) | Margin (dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low | 5755 | 20.710 | 20.710 | 30.00 | -9.29 |
| High | 5795 | 20.741 | 20.741 | 30.00 | -9.26 |

a mode

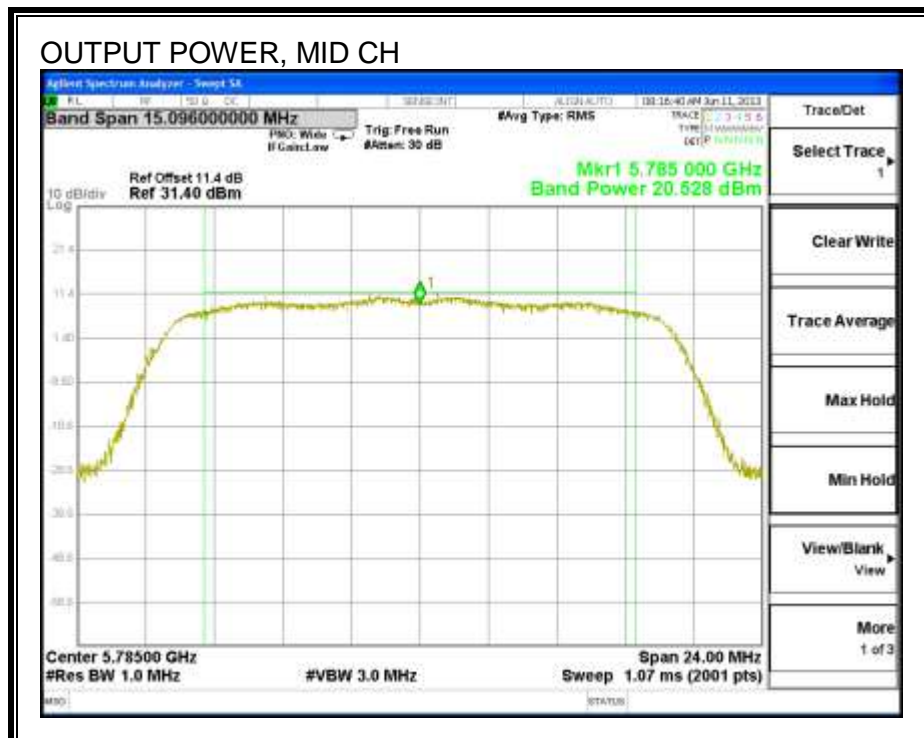
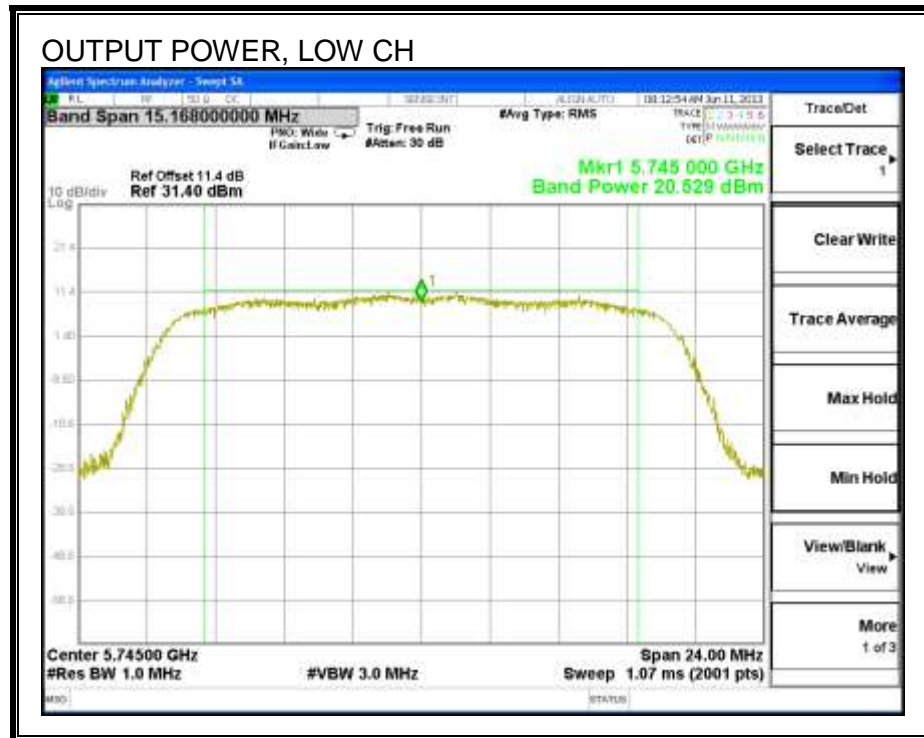
OUTPUT POWER

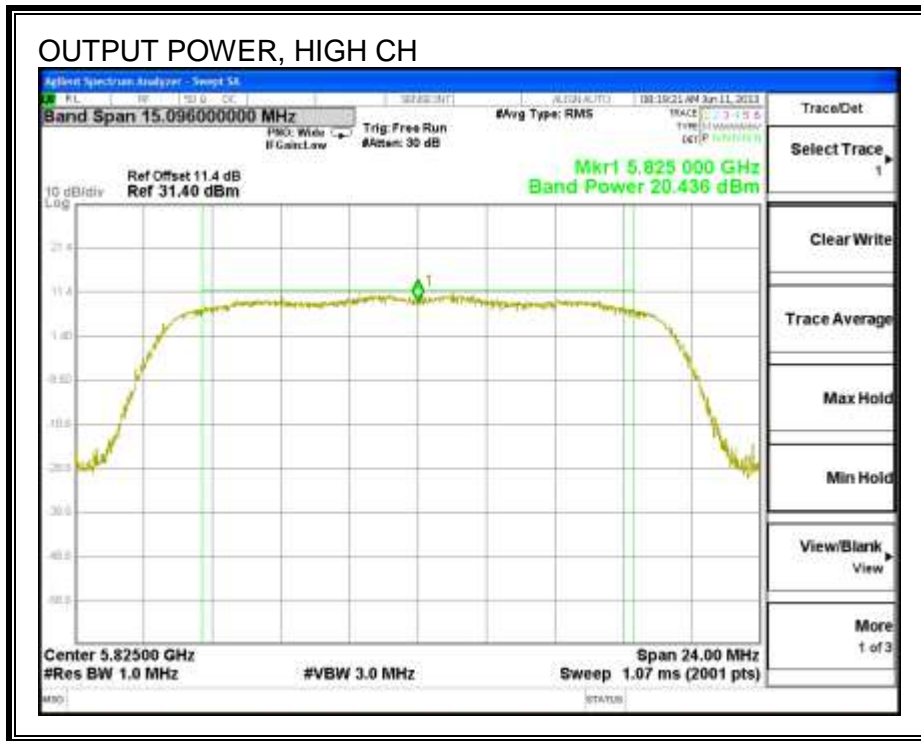




HT20

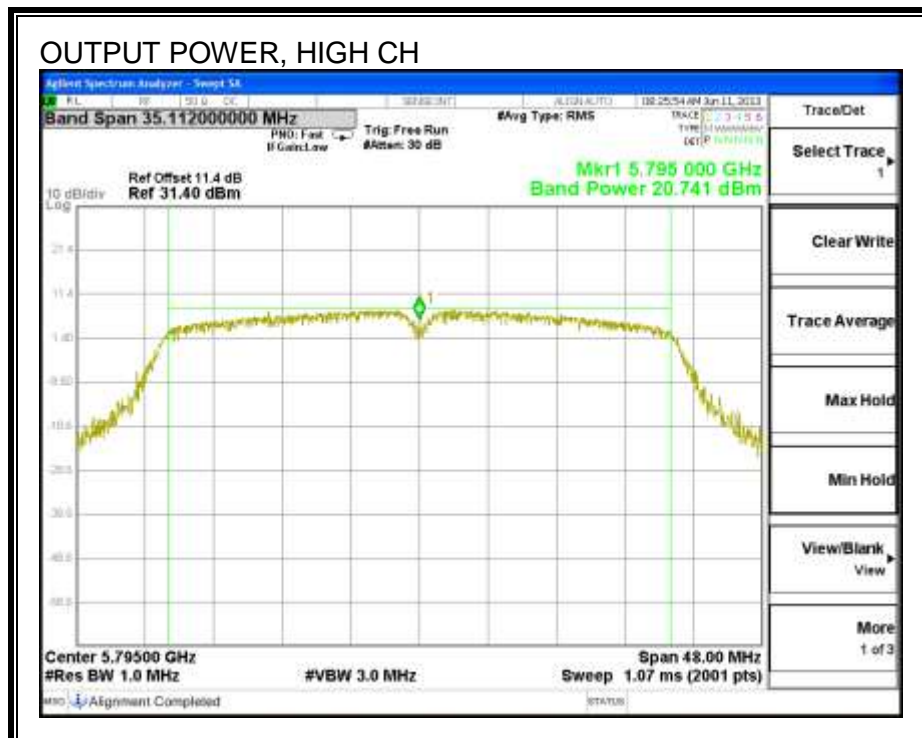
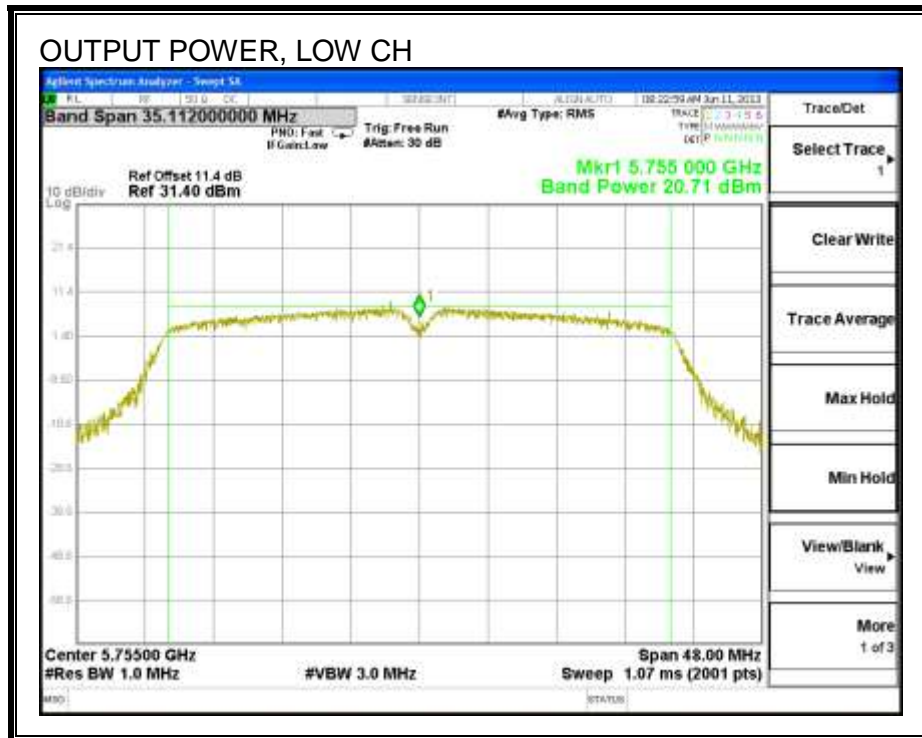
OUTPUT POWER





HT40

OUTPUT POWER



7.2.5. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

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

RESULTS

a mode

PSD Results

| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 5745 | -5.60 | 8.0 | -13.6 |
| Mid | 5785 | -5.46 | 8.0 | -13.5 |
| High | 5825 | -4.93 | 8.0 | -12.9 |

HT20

PSD Results

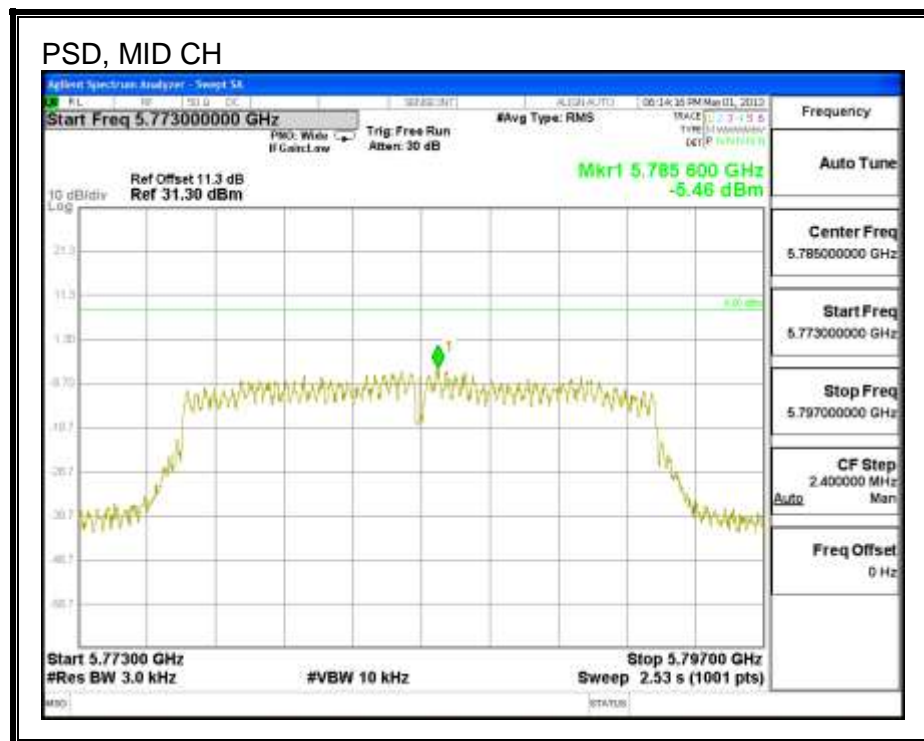
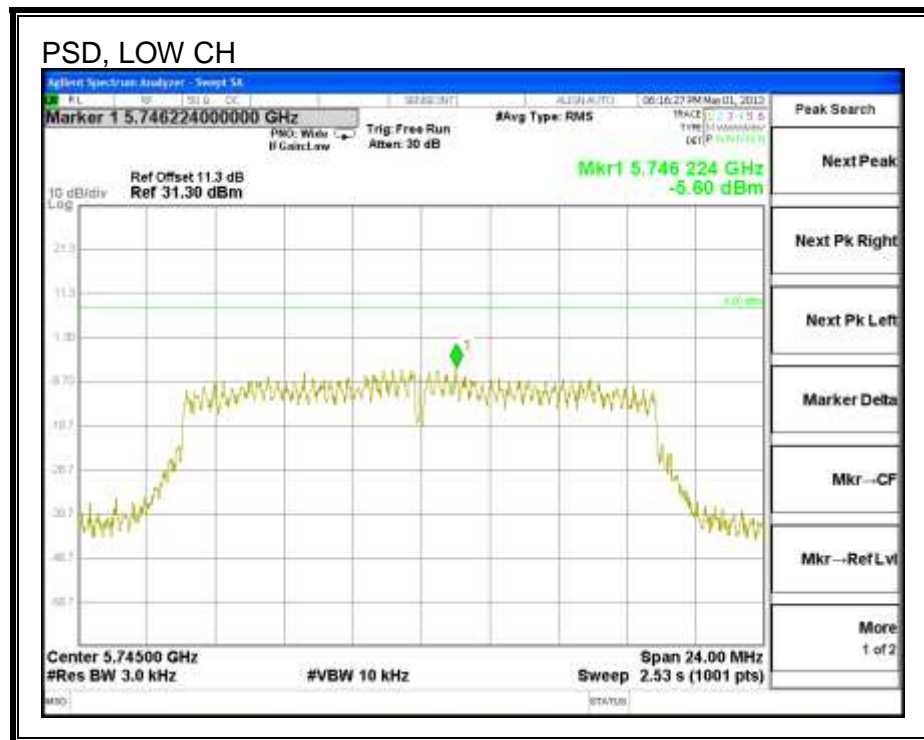
| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 5745 | -5.39 | 8.0 | -13.4 |
| Mid | 5785 | -5.76 | 8.0 | -13.8 |
| High | 5825 | -5.59 | 8.0 | -13.6 |

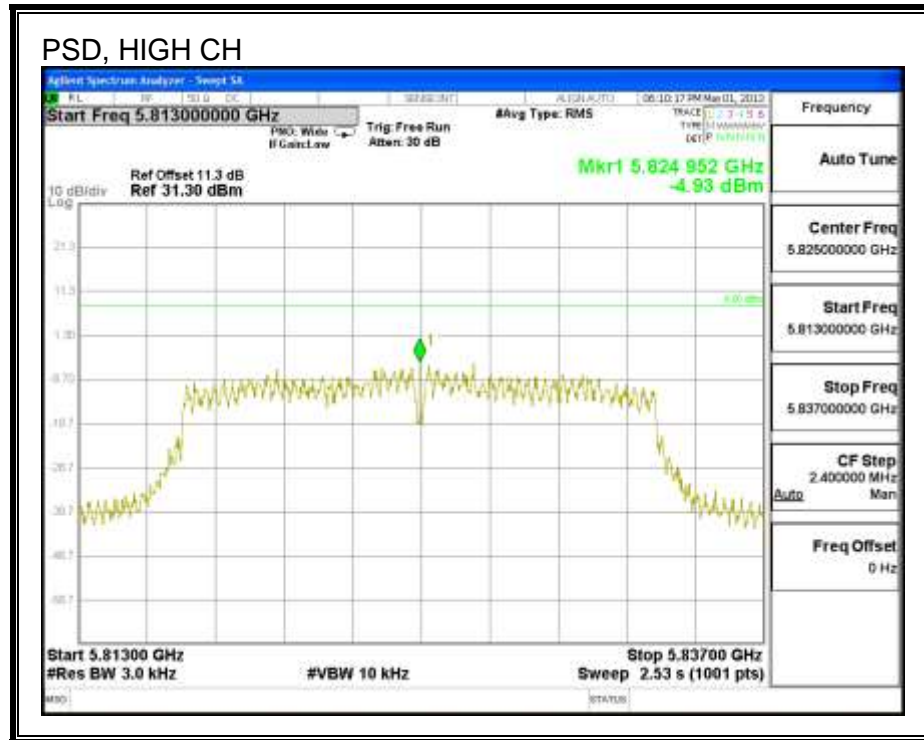
HT40

PSD Results

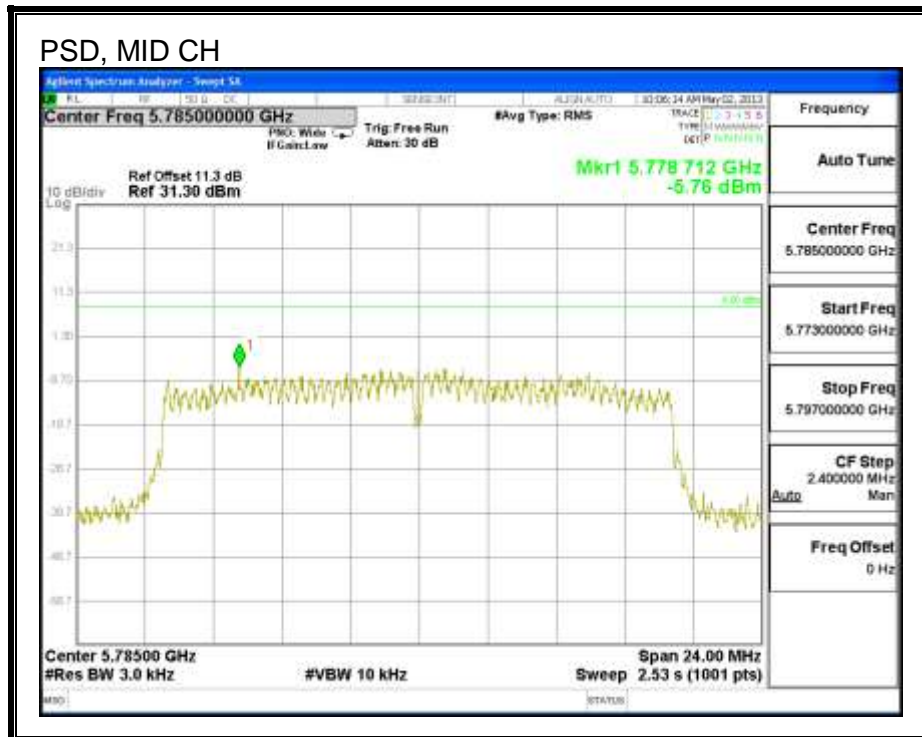
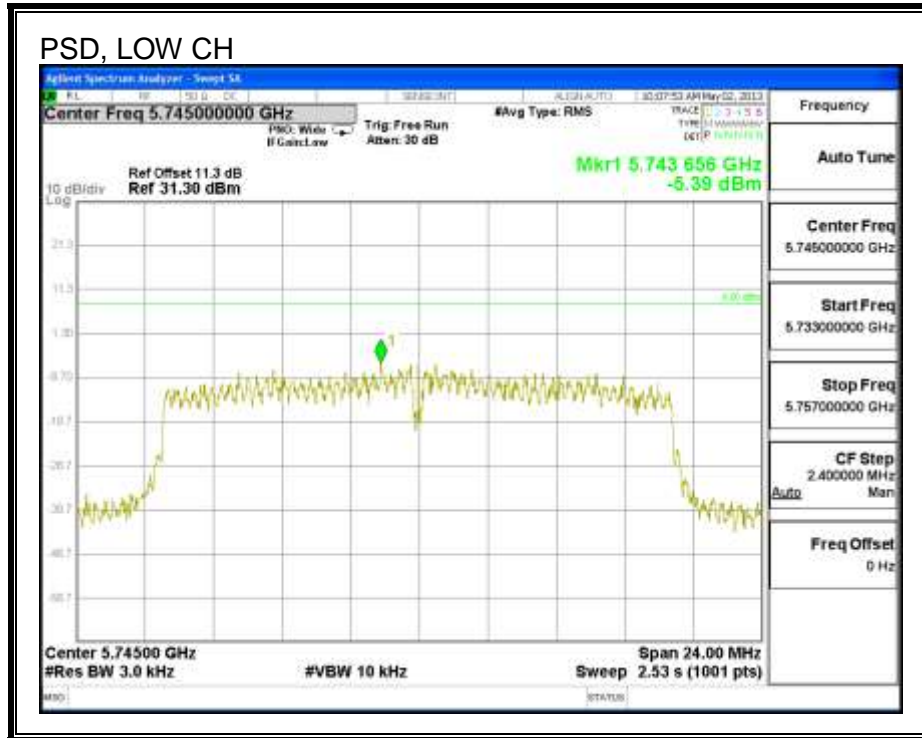
| Channel | Frequency (MHz) | Meas (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------|----------------|----------------|
| Low | 5755 | -8.64 | 8.0 | -16.6 |
| High | 5795 | -9.04 | 8.0 | -17.0 |

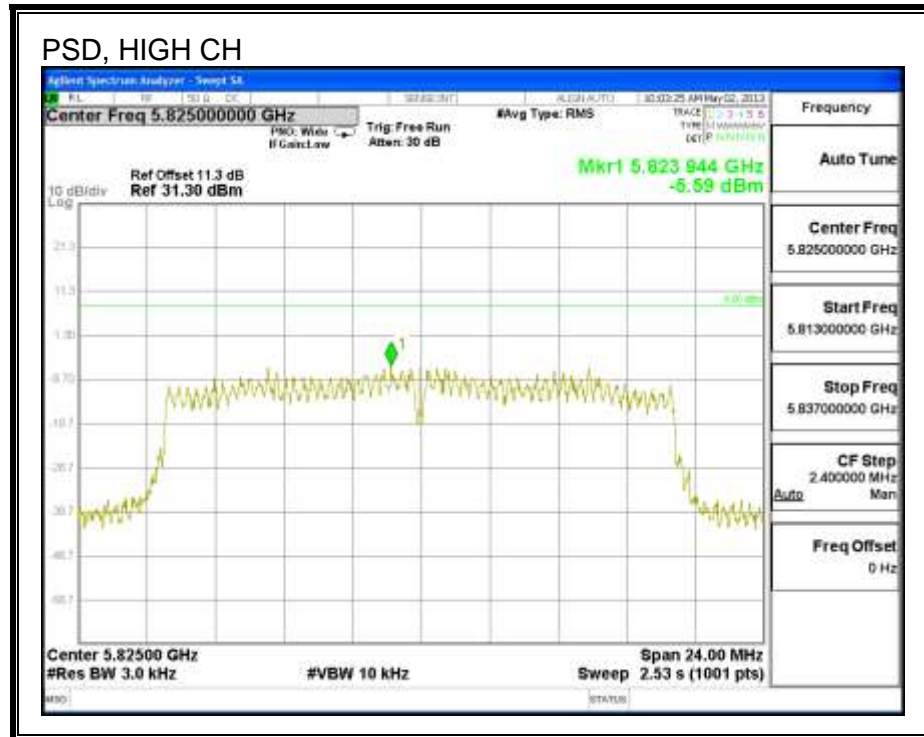
a mode, PSD



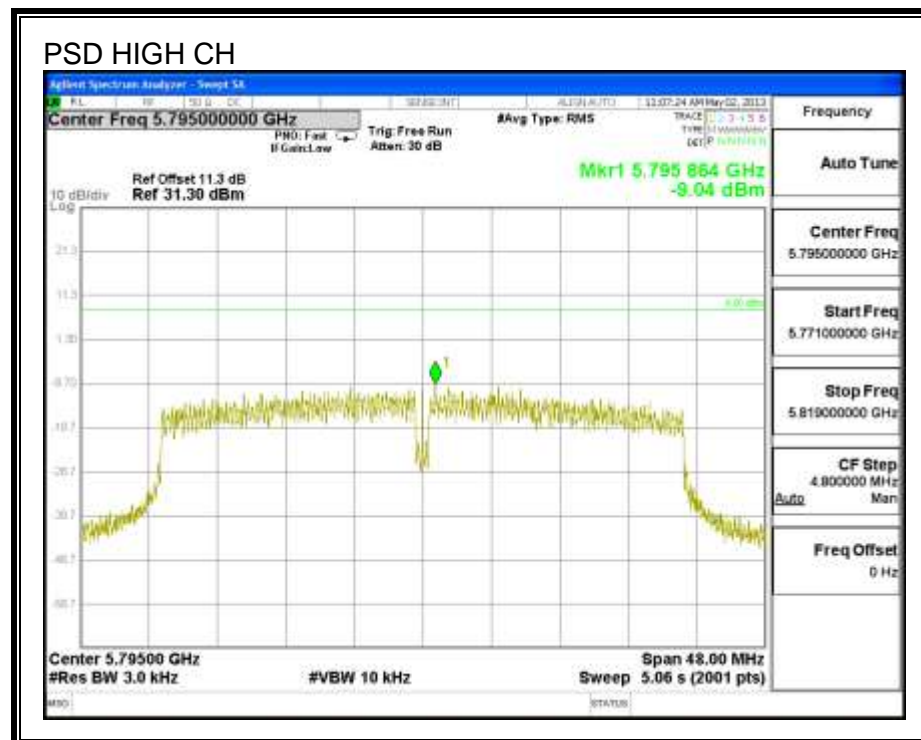
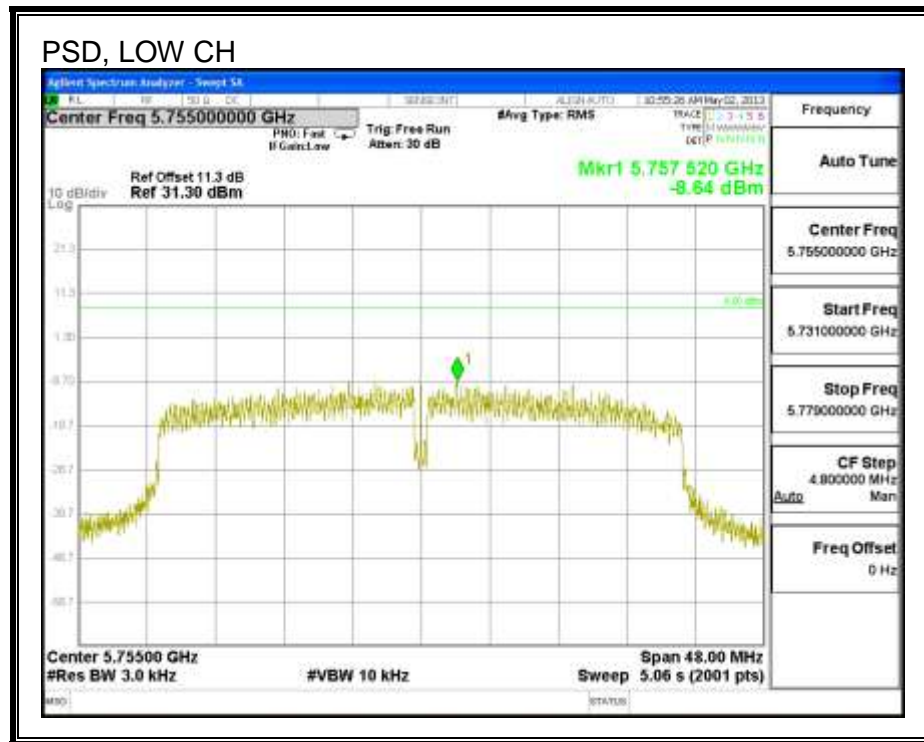


HT20, PSD





HT40,PSD



7.2.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

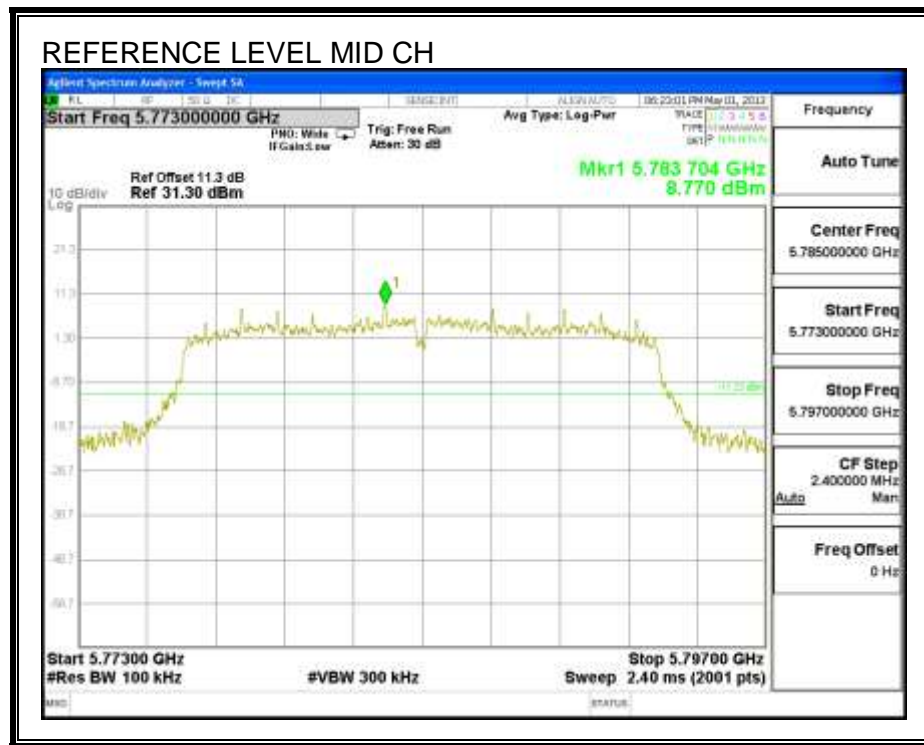
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

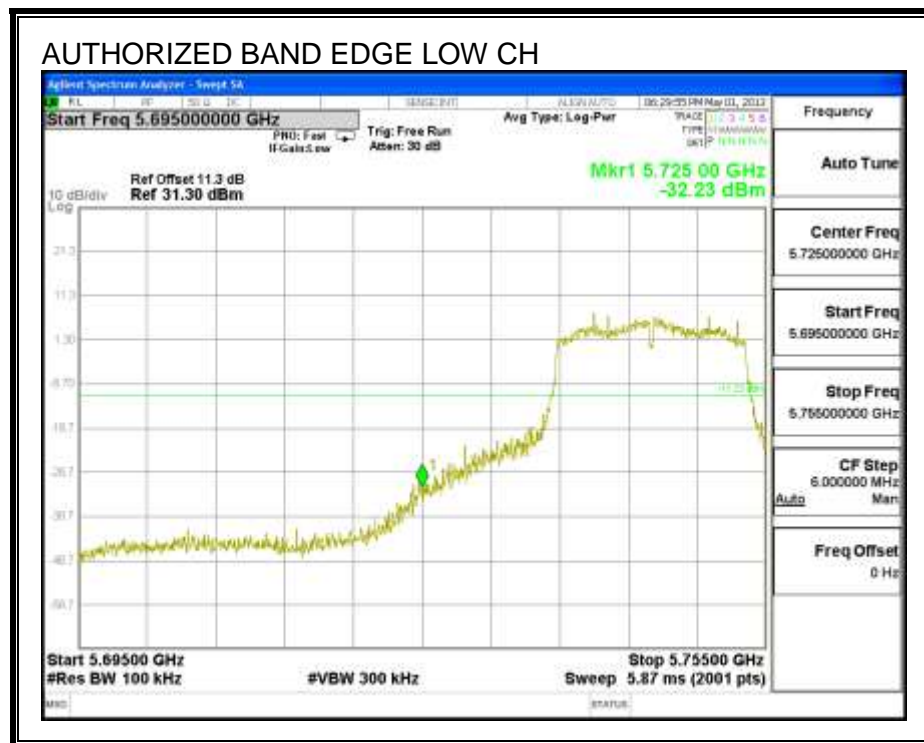
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

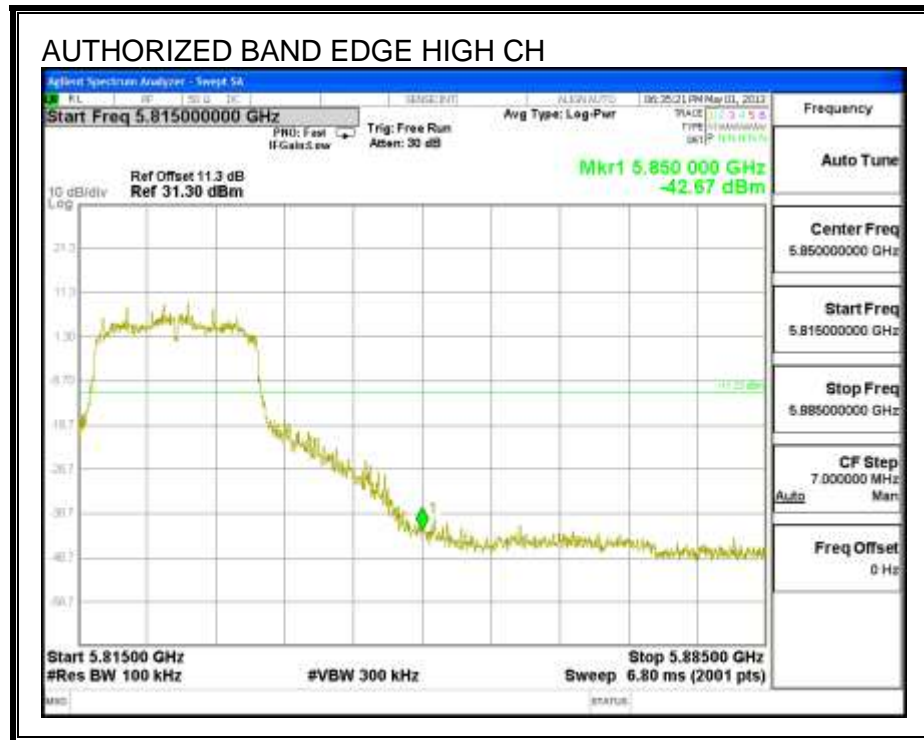
a mode, IN-BAND REFERENCE LEVEL



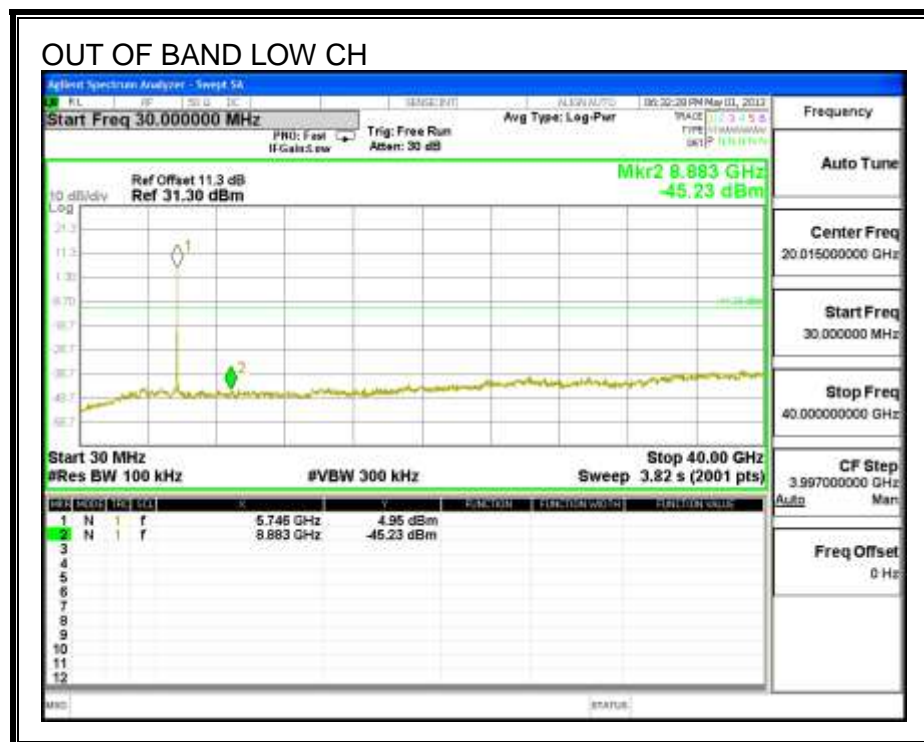
LOW CHANNEL BANDEDGE



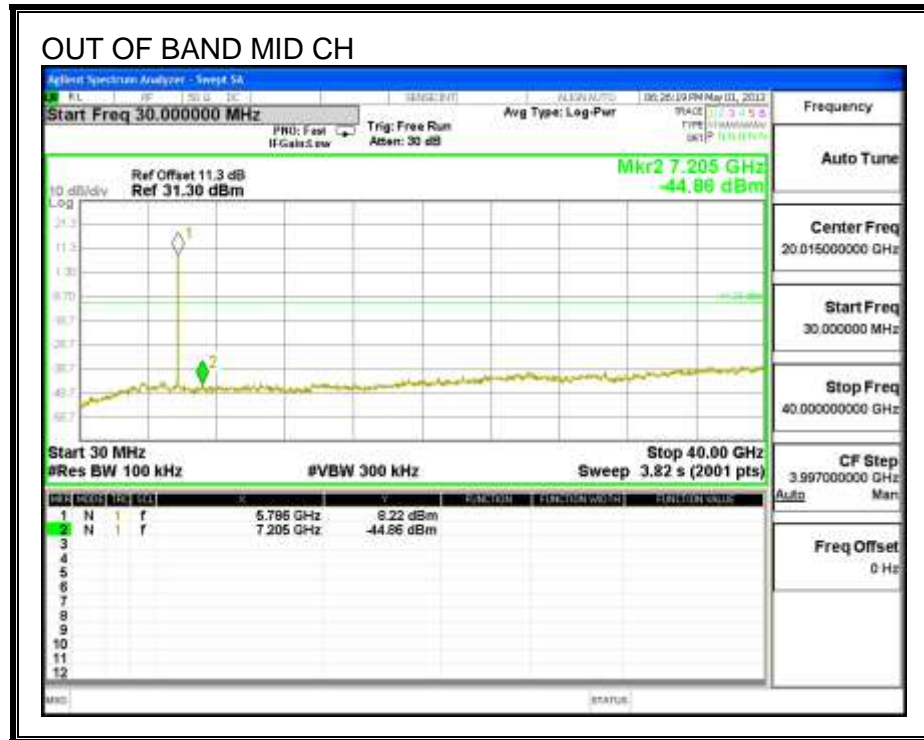
HIGH CHANNEL BANDEDGE



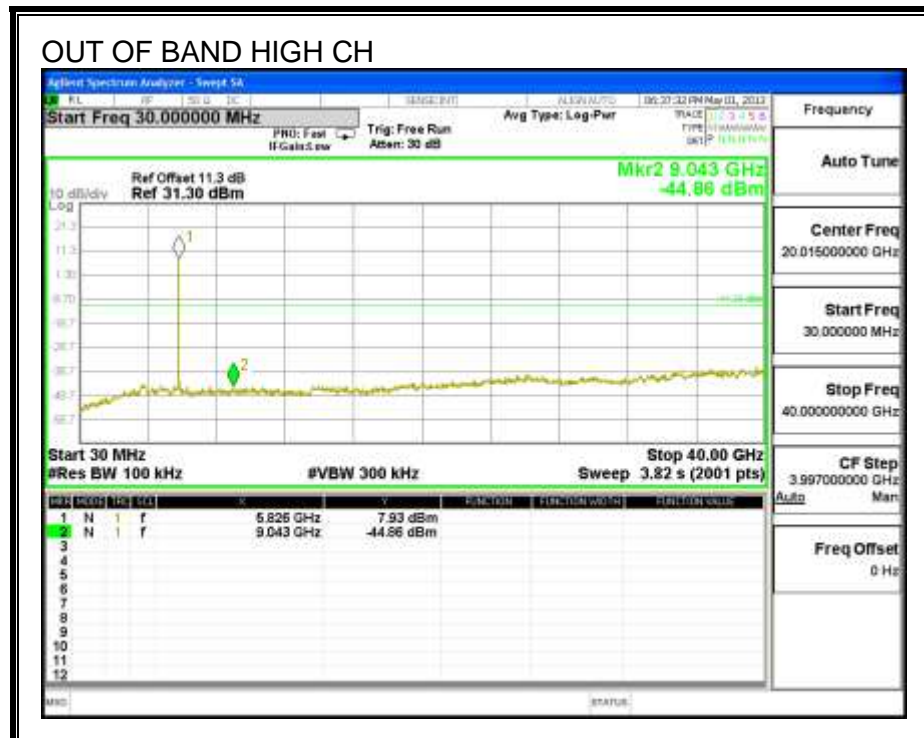
a mode, OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH



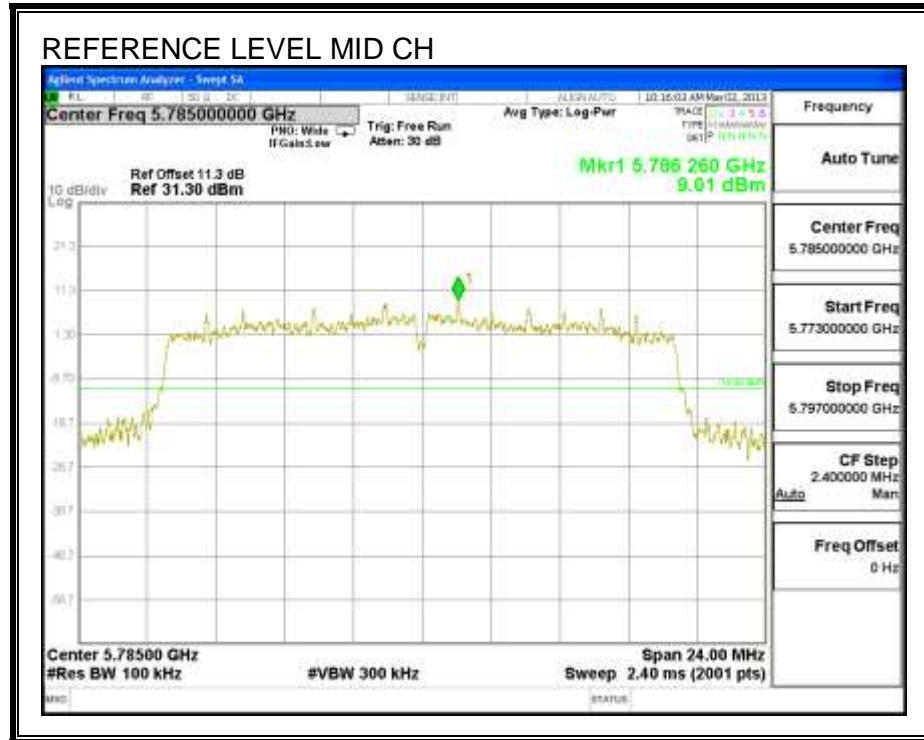
OUT OF BAND HIGH CH



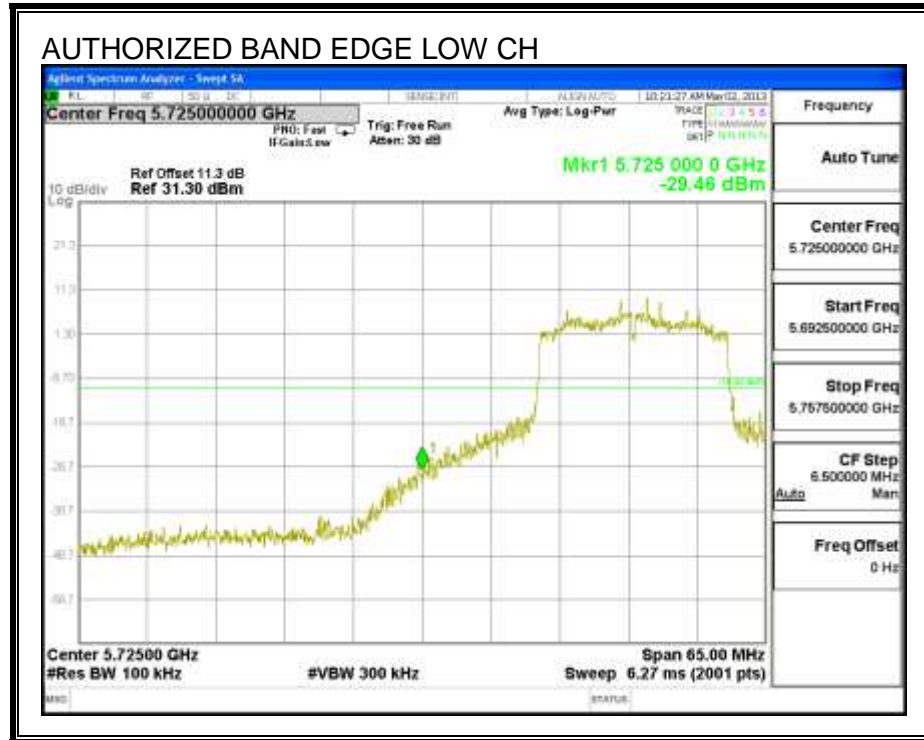
HT20

RESULTS

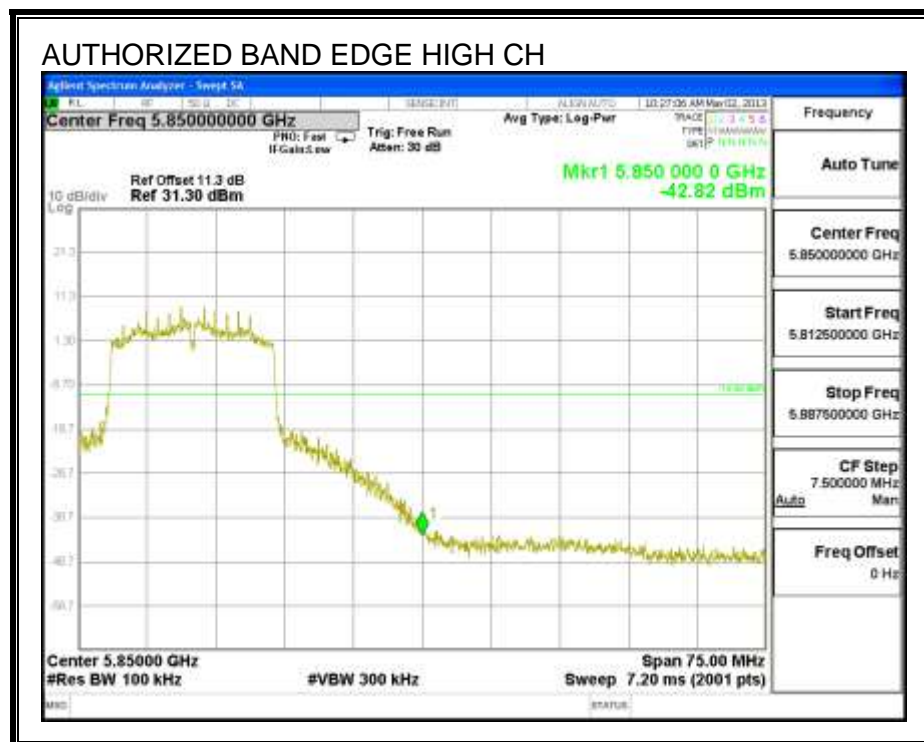
IN-BAND REFERENCE LEVEL



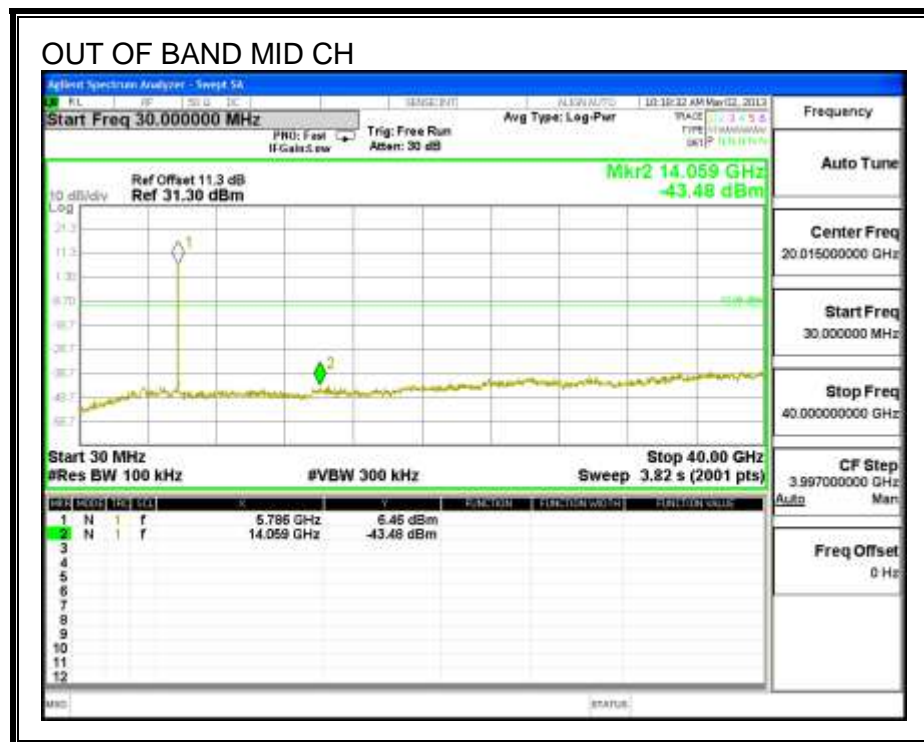
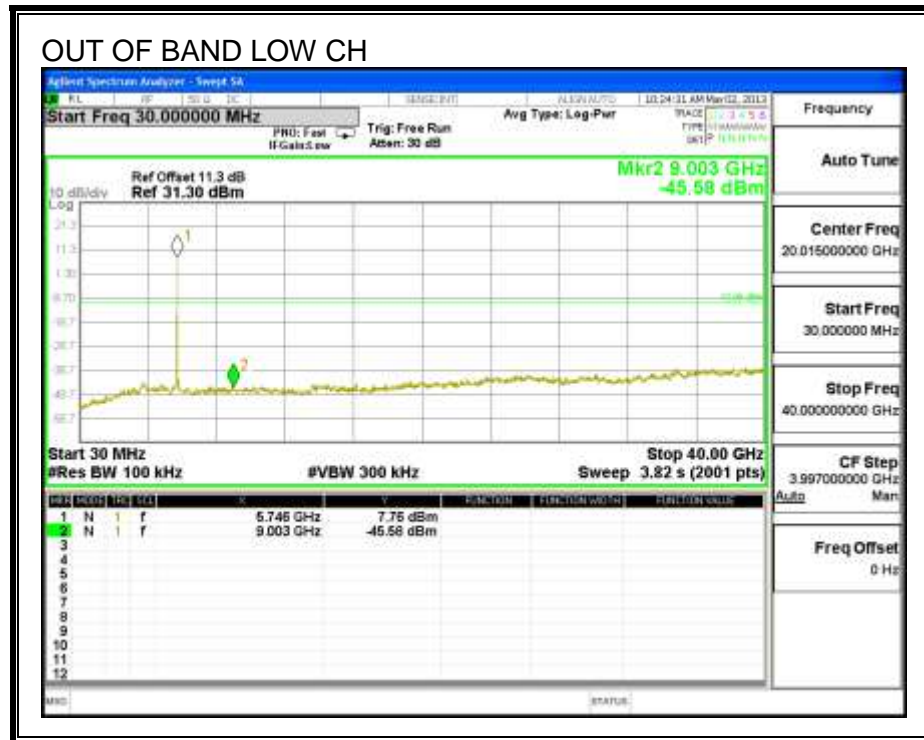
LOW CHANNEL BANDEDGE

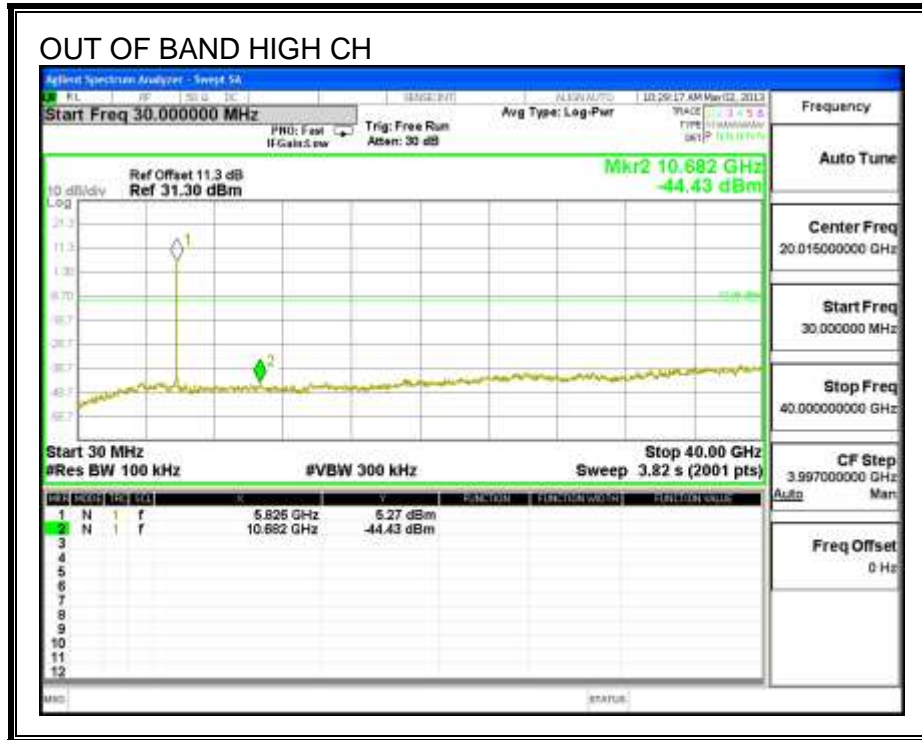


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

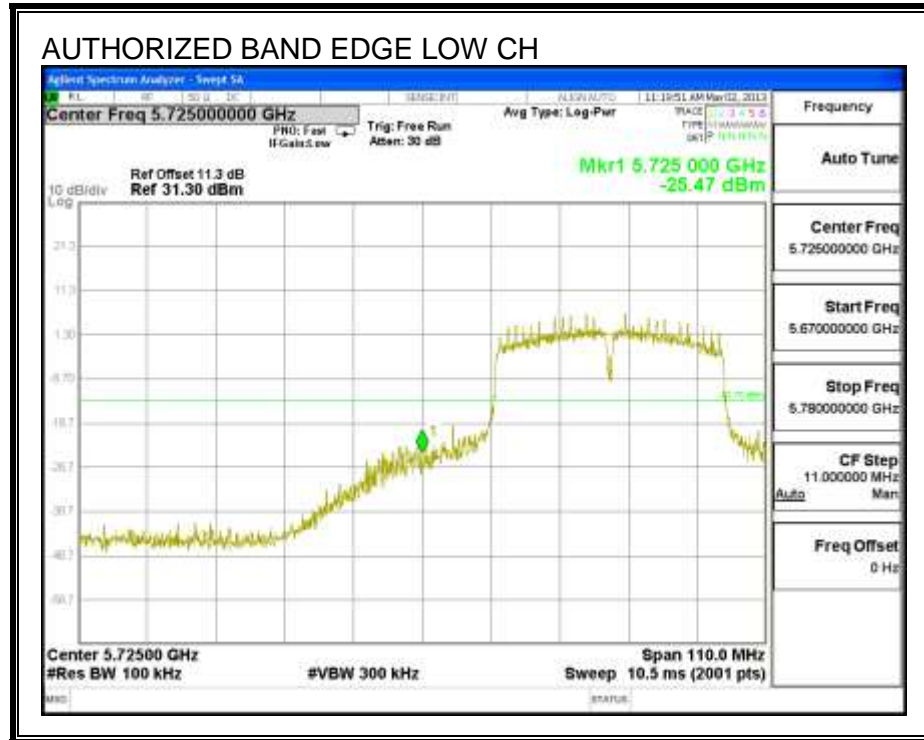




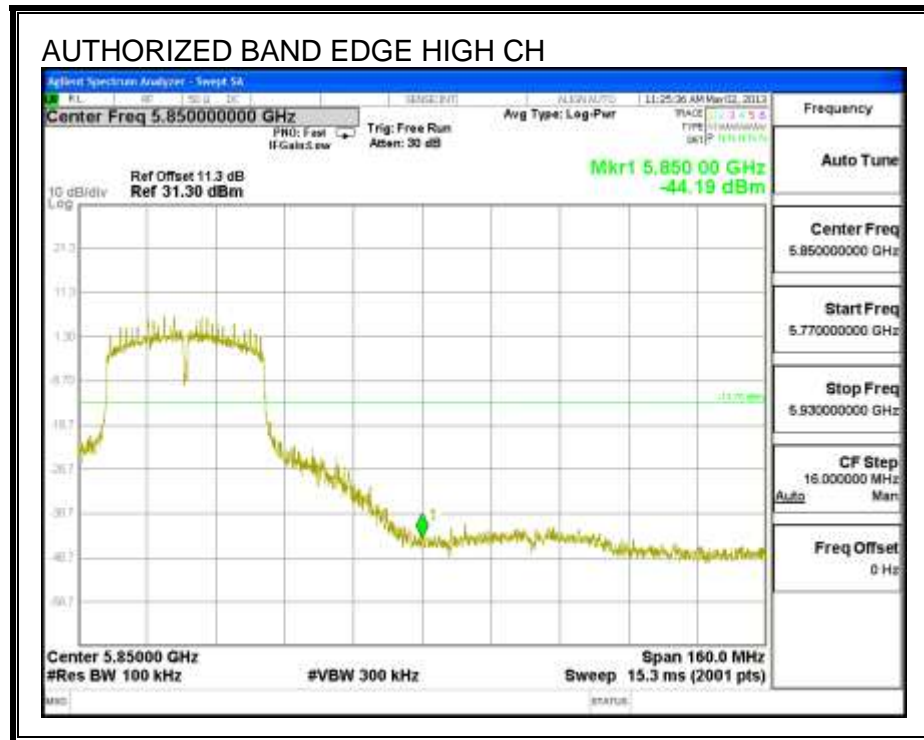
HT40

RESULTS

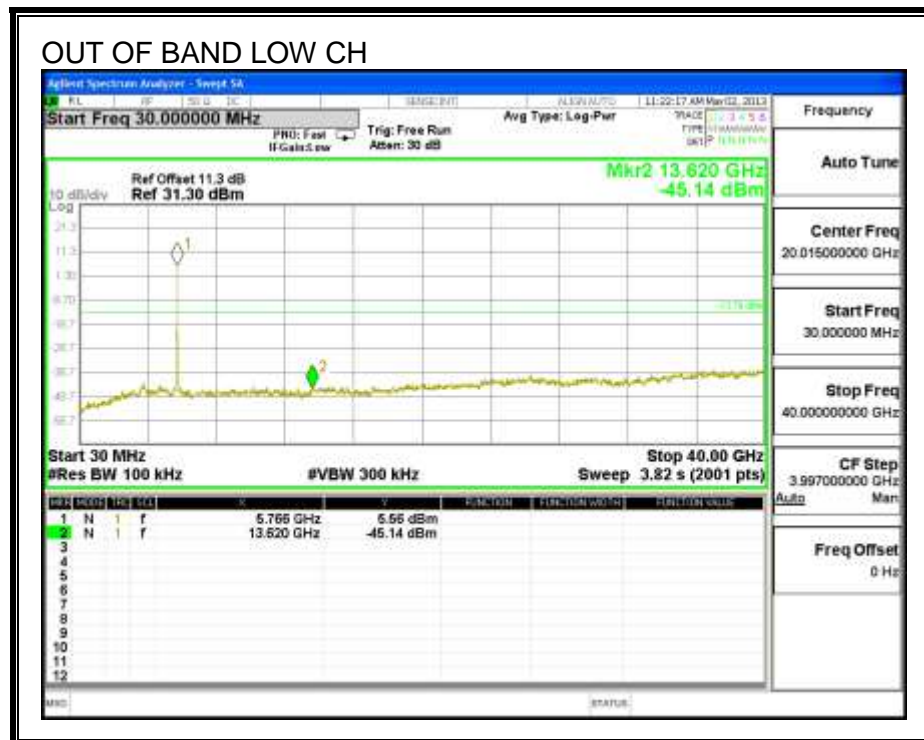
LOW CHANNEL BANDEDGE

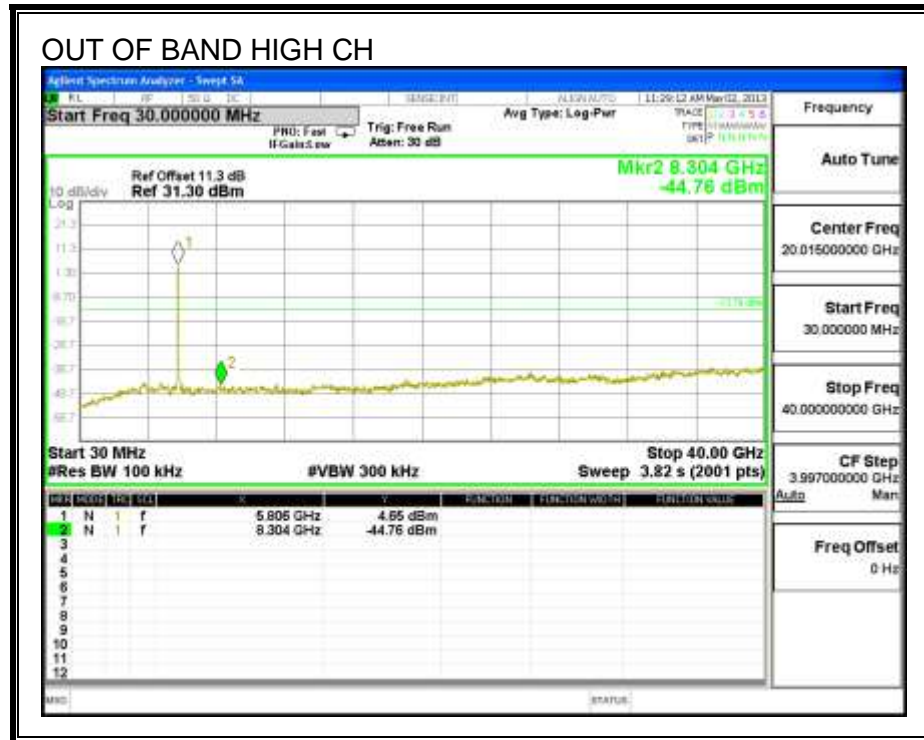


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 30 - 88 | 100 | 40 |
| 88 - 216 | 150 | 43.5 |
| 216 - 960 | 200 | 46 |
| Above 960 | 500 | 54 |

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

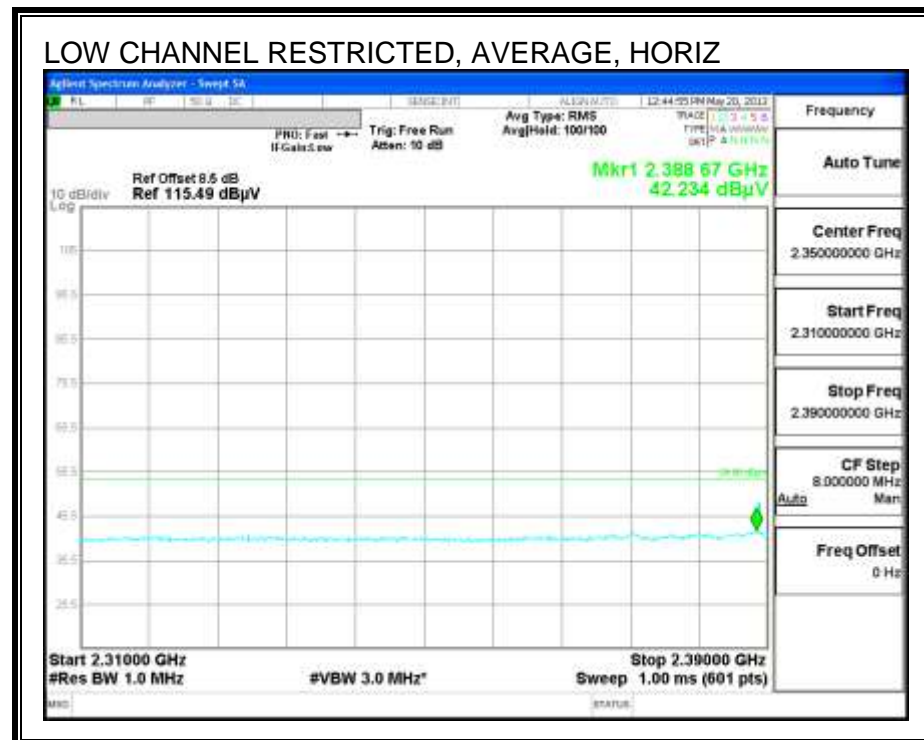
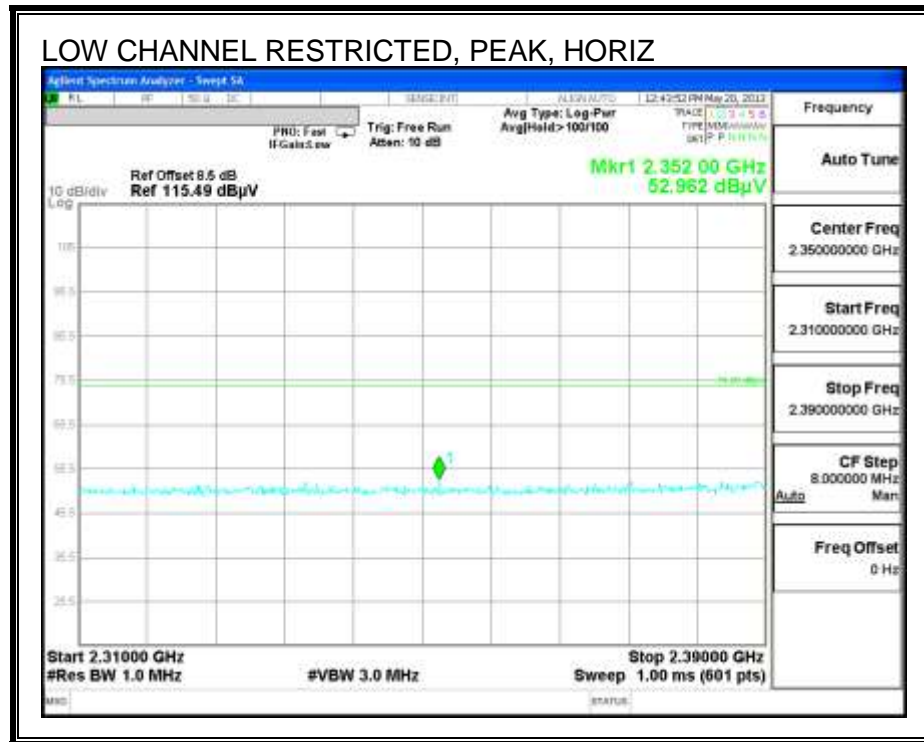
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

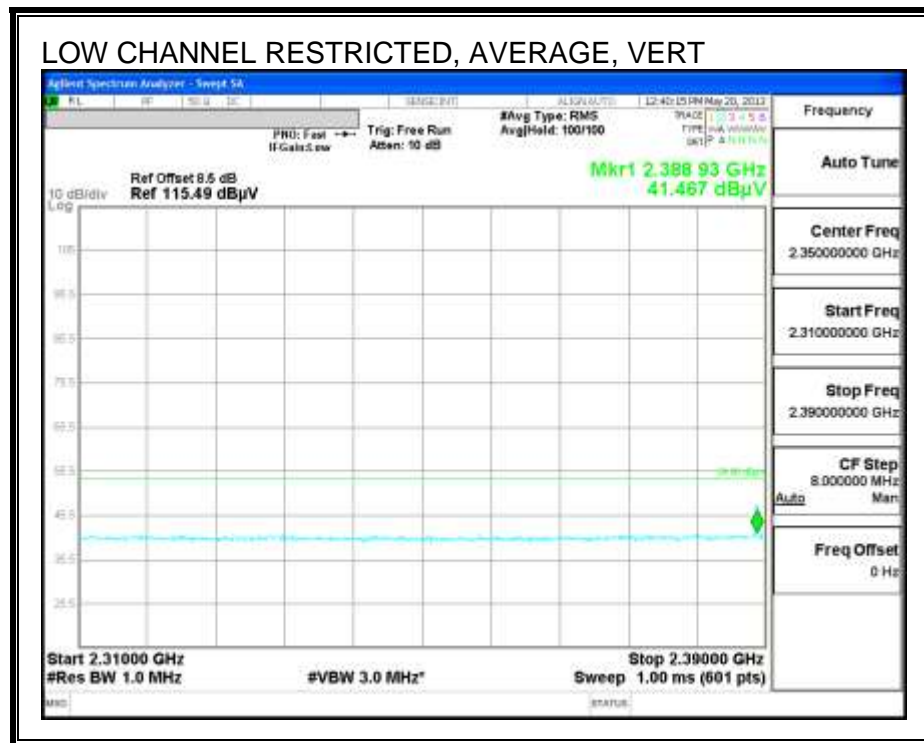
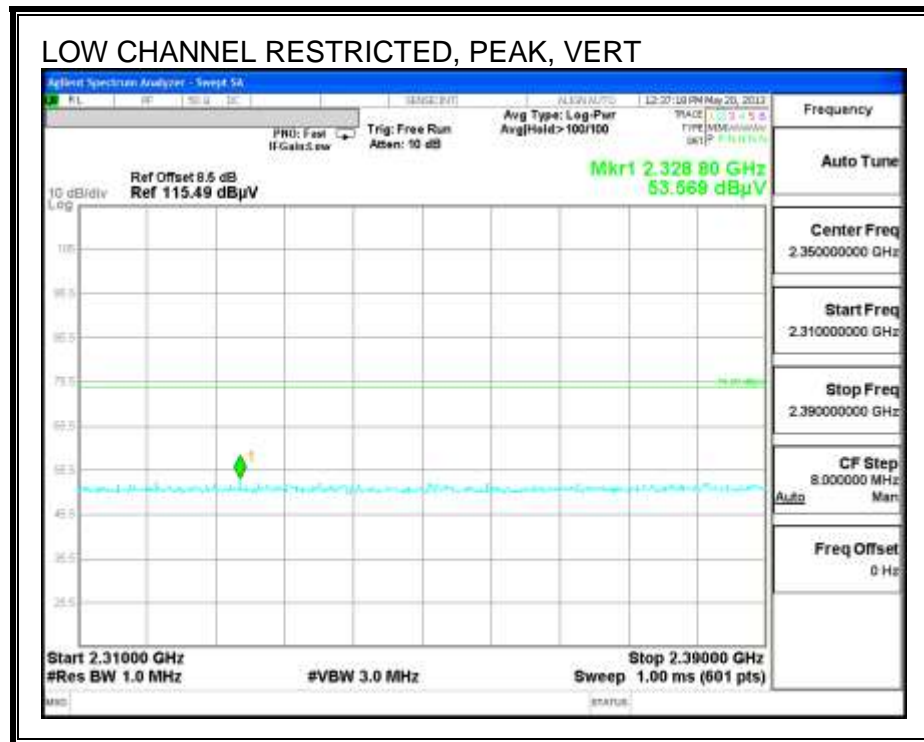
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

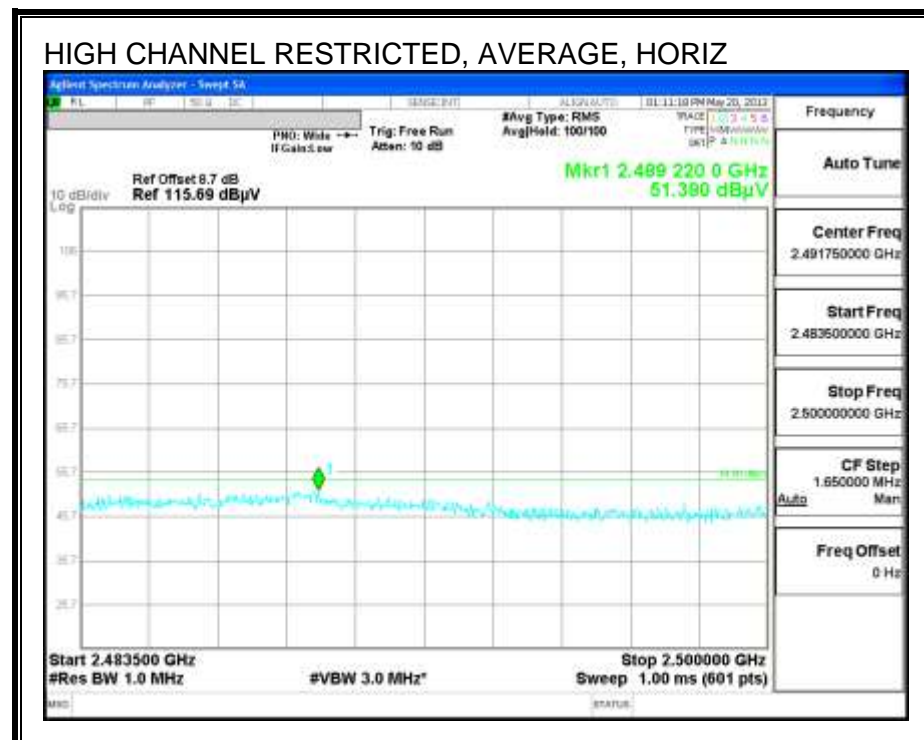
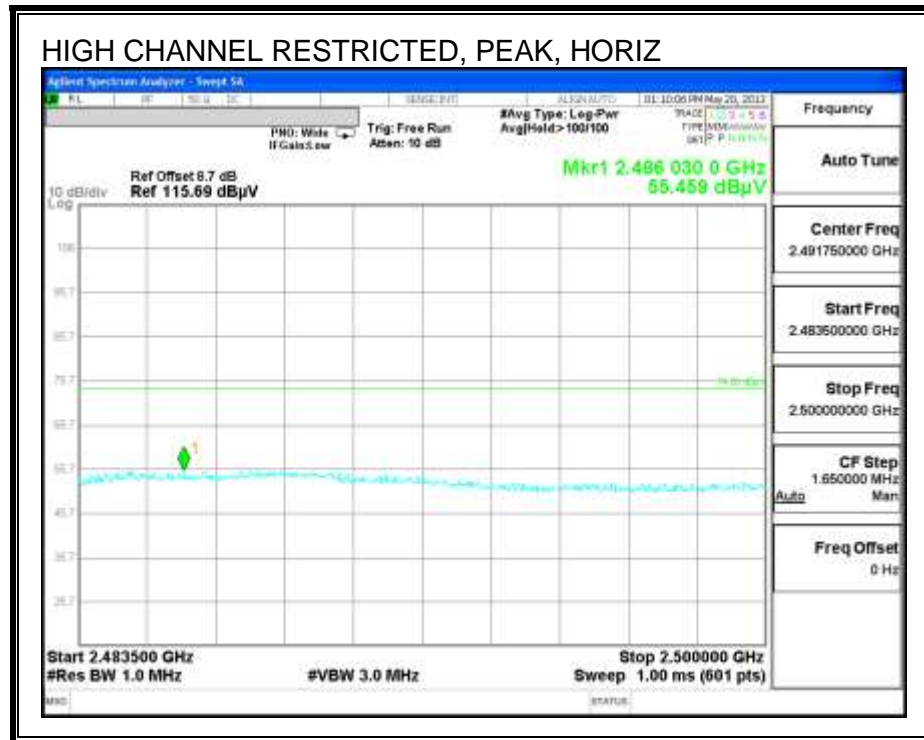
8.2. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

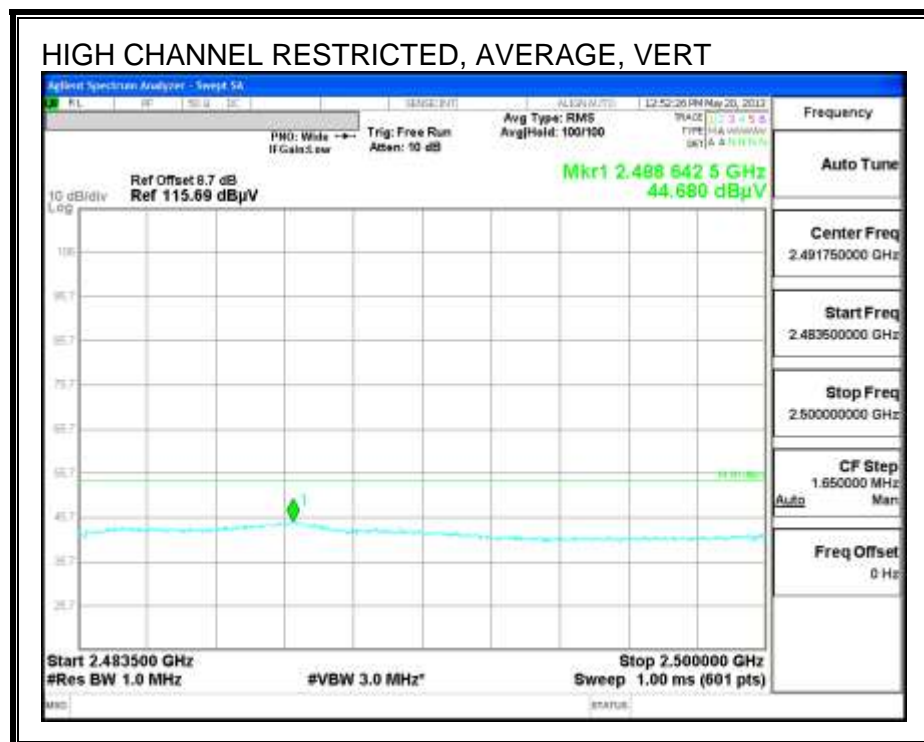
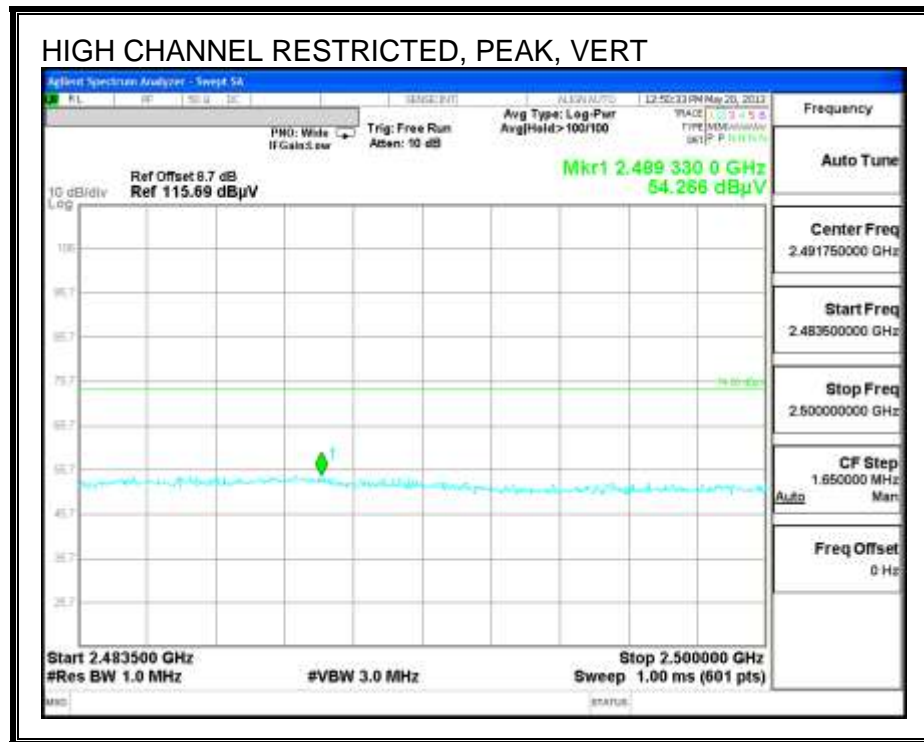
RESTRICTED BANDEDGE (LOW CHANNEL)





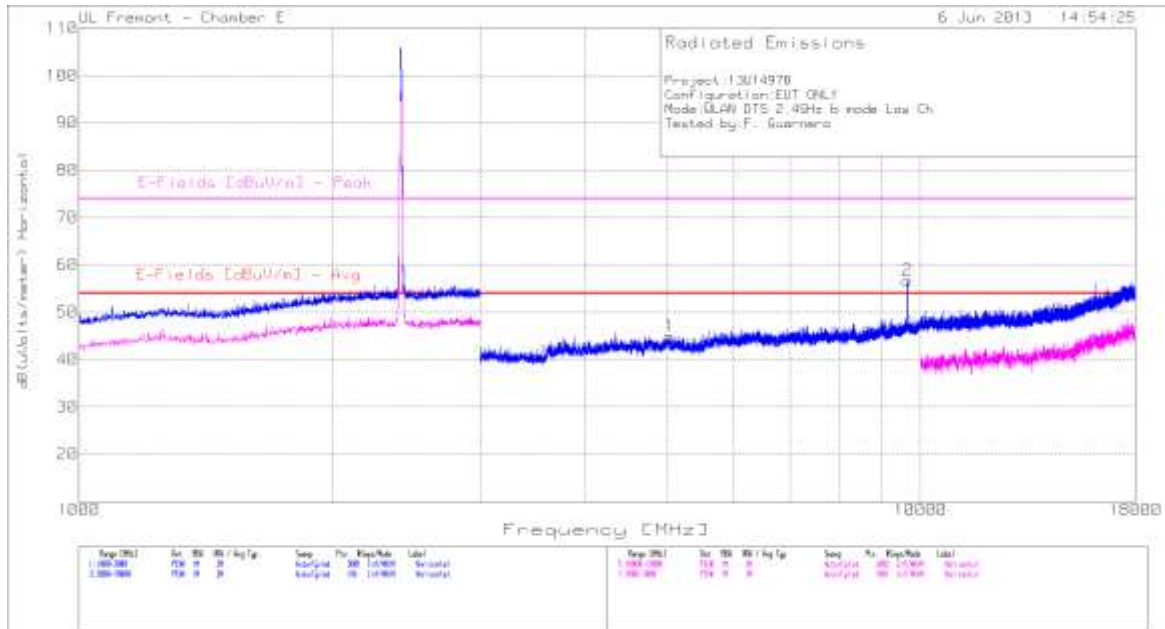
RESTRICTED BANDEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESTRICTED, HORIZONTAL



| Horizontal 3000 - 18000MHz | | | | | | | | | | | | |
|----------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolt s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] Peak | Margin (dB) | Height [cm] | Polarity |
| 1 | 5033.22 | 41.86 | PK | 34.4 | -31.3 | 44.96 | 53.97 | -9.01 | 74 | -29.04 | 399 | Horz |
| *2 | 9648.797 | 44.22 | PK | 37.6 | -25.2 | 56.62 | 53.97 | 2.65 | 74 | -17.38 | 199 | Horz |
| PK - Peak detector | | | | | | | | | | | | |
| * Not in Restricted Band | | | | | | | | | | | | |

UL Frontend - Chamber E

6 Jun 2013 14:54:25

Radiated Emissions

Project 13J14978
Configuration: ELT ONLY
Mode: GLAN DTS 2-4GHz & mode Low Ch
Tested by F. Guarnieri

E-Field [dB(μV/m²)] - Peak

E-Field [dB(μV/m²)] - Avg

dB(μV/(m².m²)) (Antenna)

Frequency [MHz]

Range [MHz] 1000-18000
Ref 100
dB 2
Avg 1
Sweep 1000000
Pre 1000000
Post 1000000
Label 1000000

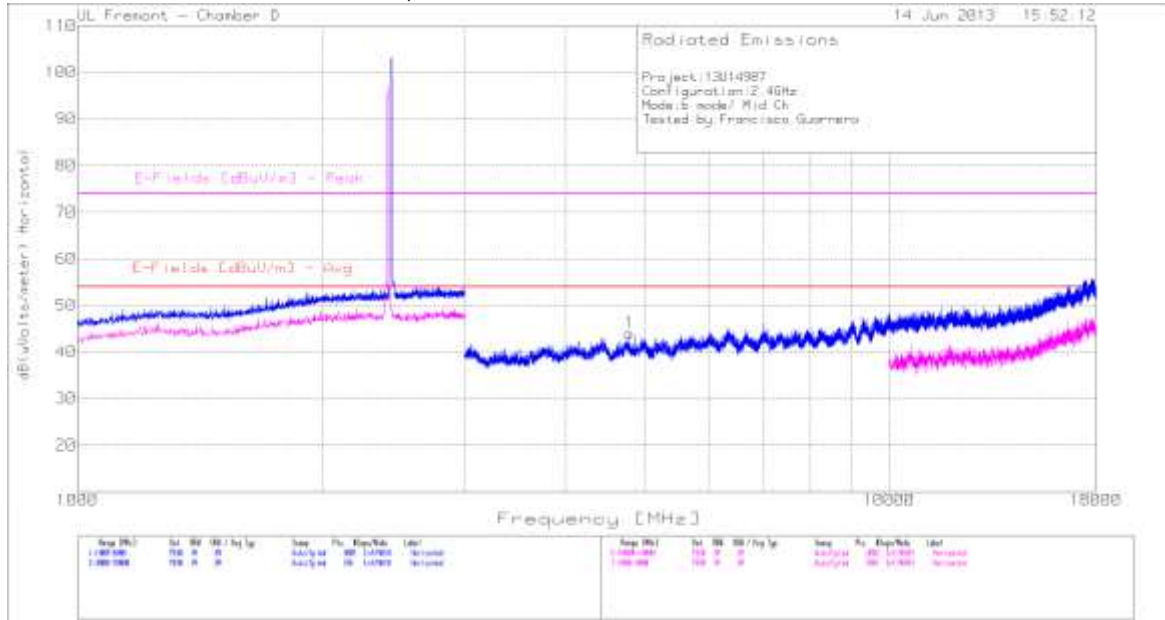
Range [MHz] 1000-18000
Ref 100
dB 2
Avg 1
Sweep 1000000
Pre 1000000
Post 1000000
Label 1000000

to node 1 on ch.DAT

Rev 9.5 13 Jun

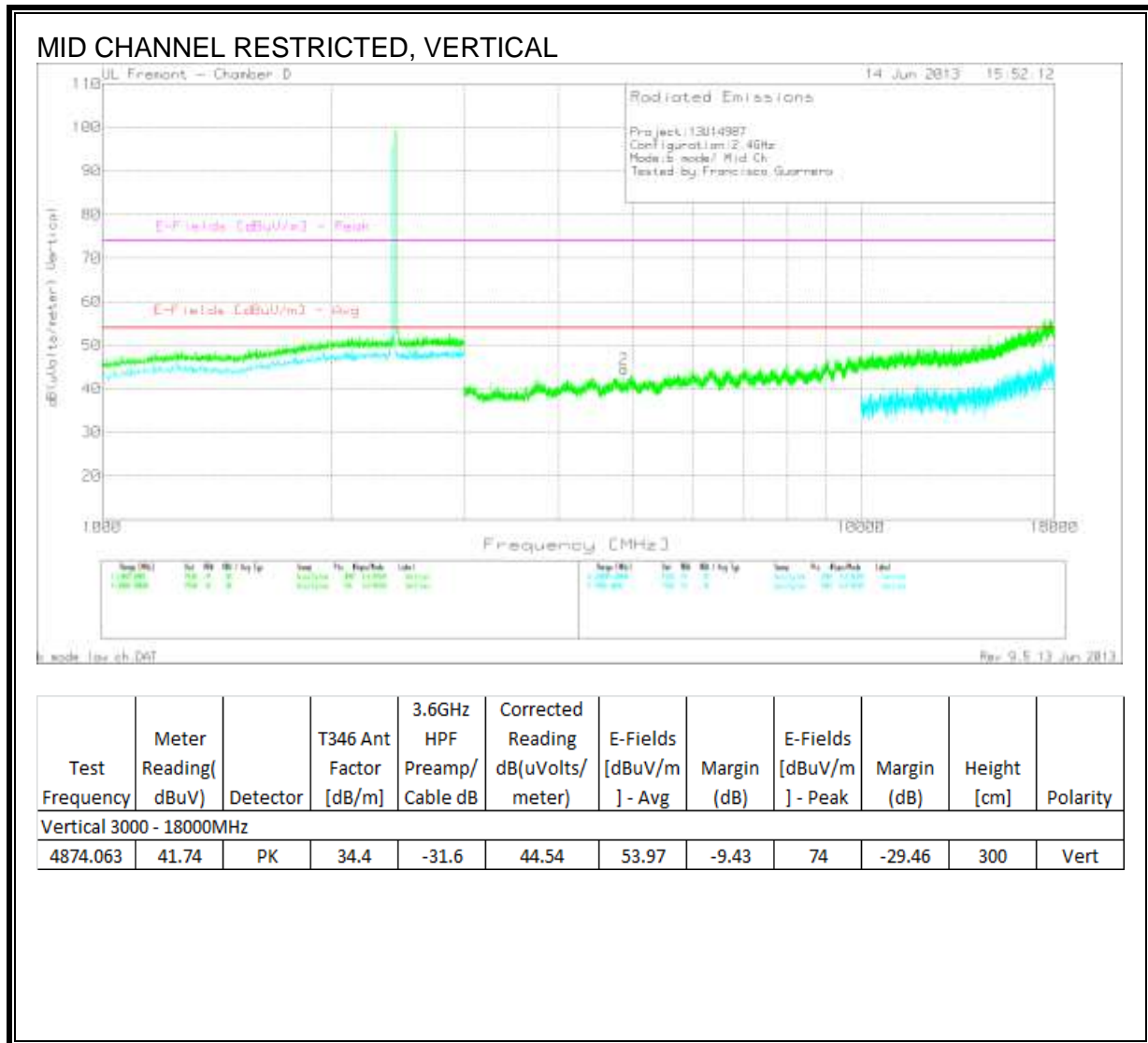
[illegible]

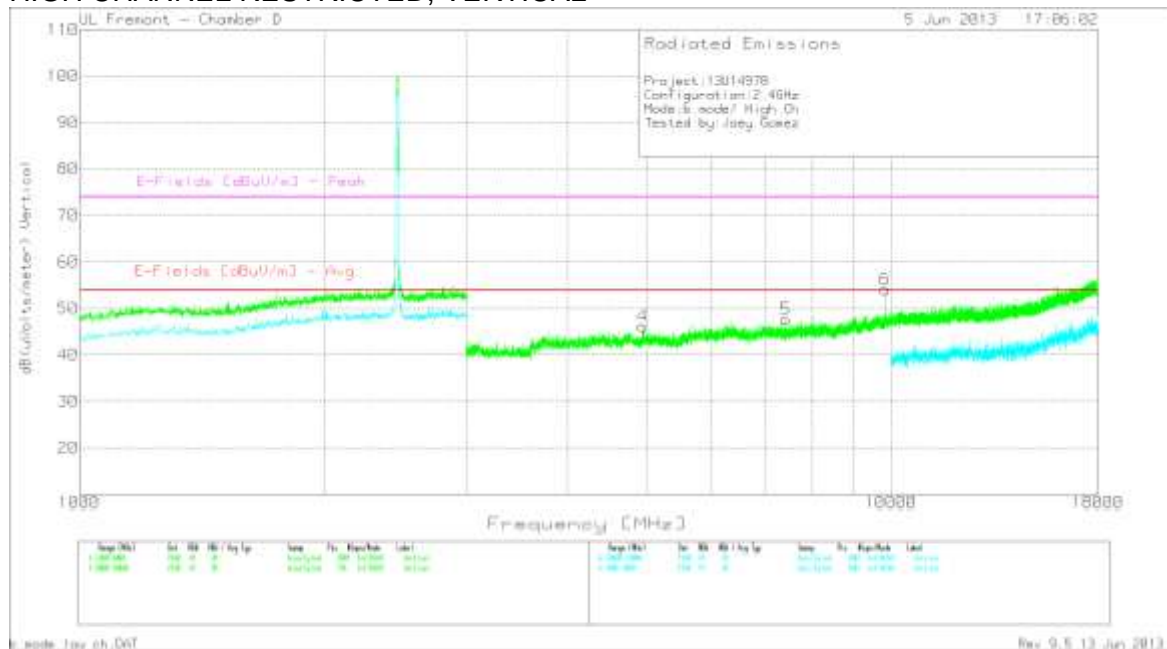
MID CHANNEL RESTRICTED, HORIZONTAL



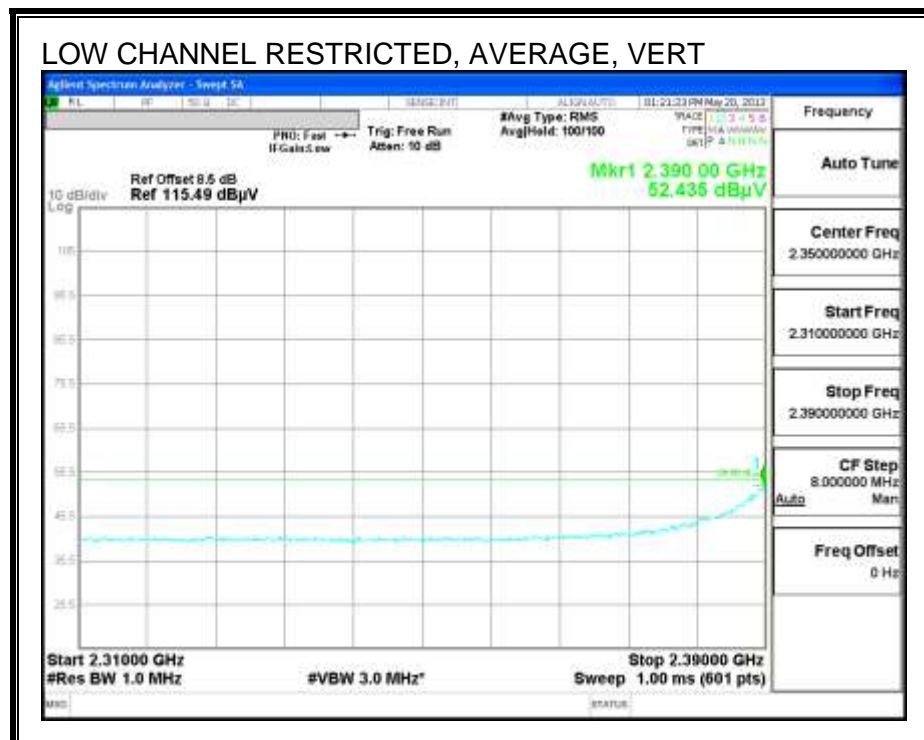
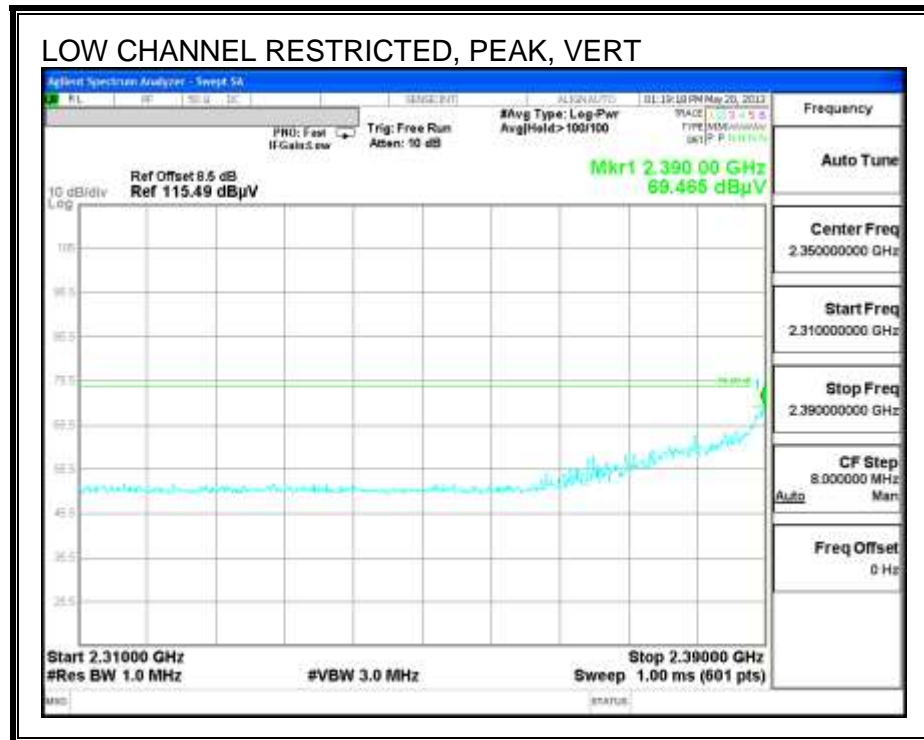
6 mode low ch DAT Rev 8.5 13 Jun 13

| Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | Corrected Reading dB(uVolts/ meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------------|----------|------------------------|-----------------------------|-------------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Horizontal 3000 - 18000MHz | | | | | | | | | | | |
| 4788.234 | 41 | PK | 34.4 | -31.4 | 44 | 53.97 | -9.97 | 74 | -30 | 401 | Horz |

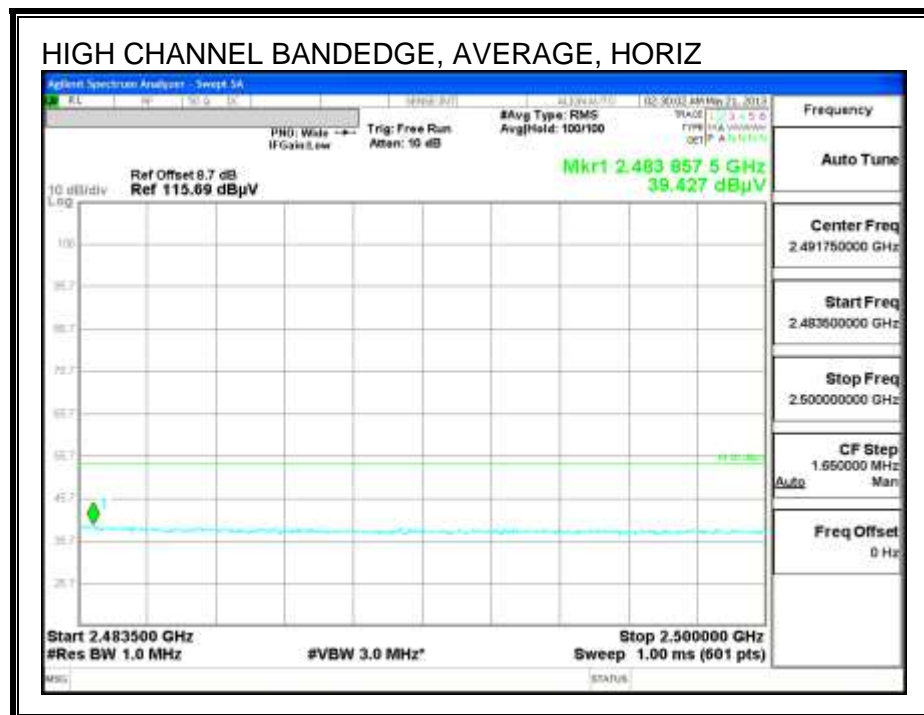
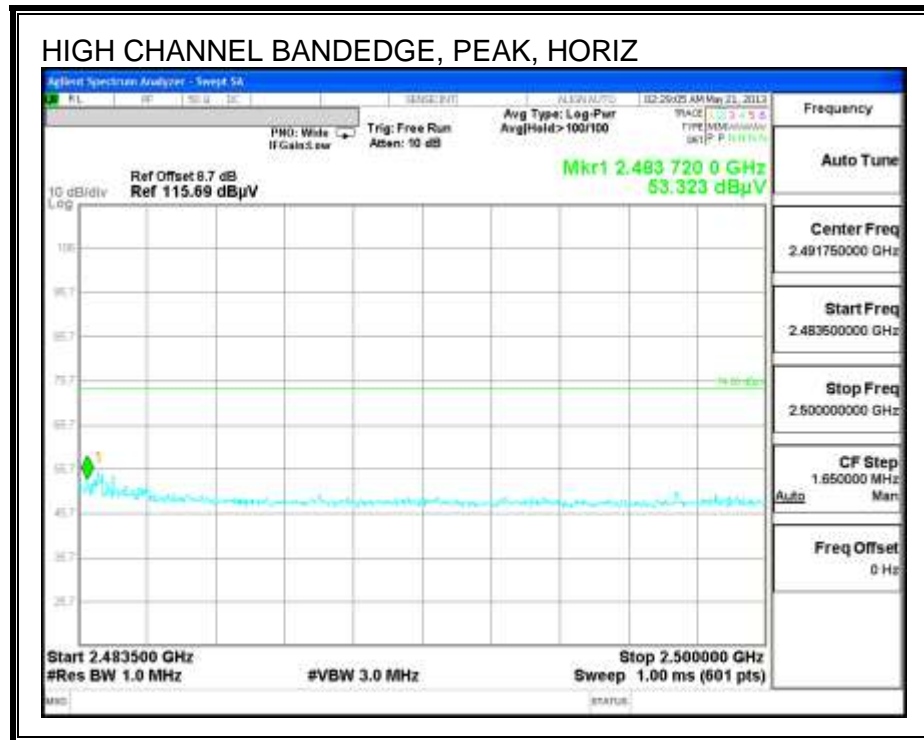


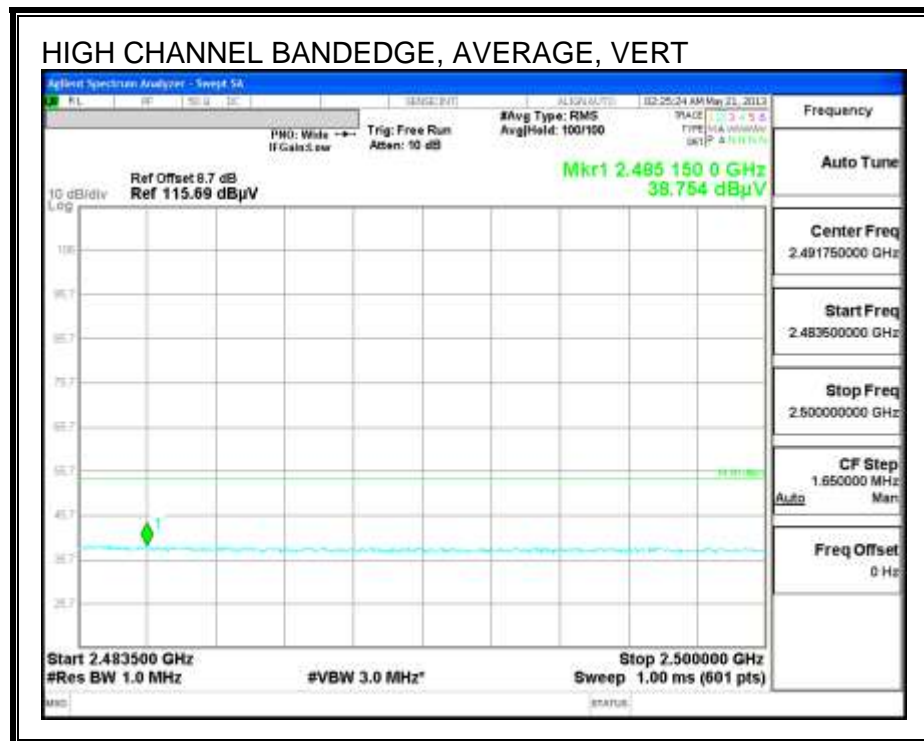
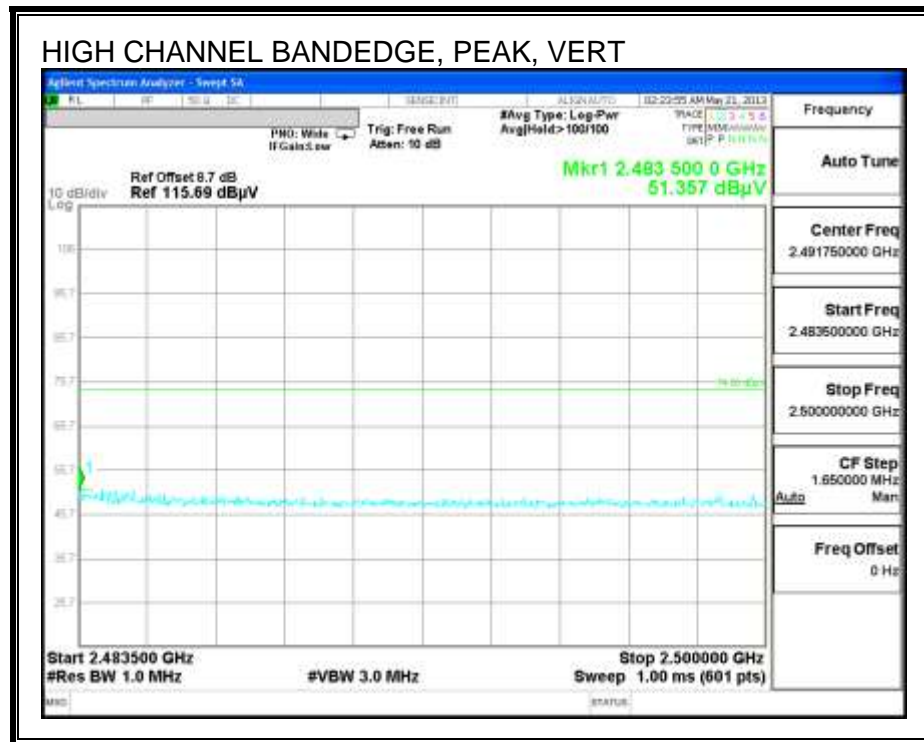


| Vertical 3000 - 18000MHz | | | | | | | | | | | | |
|--------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolts /meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| 4 | 4944.892 | 43.08 | PK | 34.4 | -31.3 | 46.18 | 53.97 | -7.79 | 74 | -27.82 | 400 | Vert |
| 5 | 7421.421 | 40.43 | PK | 36.1 | -28.9 | 47.63 | 53.97 | -6.34 | 74 | -26.37 | 400 | Vert |
| *6 | 9847.953 | 42.27 | PK | 37.8 | -26 | 54.07 | 53.97 | 0.1 | 74 | -19.93 | 300 | Vert |
| * Not in Restricted band | | | | | | | | | | | | |
| PK - Peak detector | | | | | | | | | | | | |



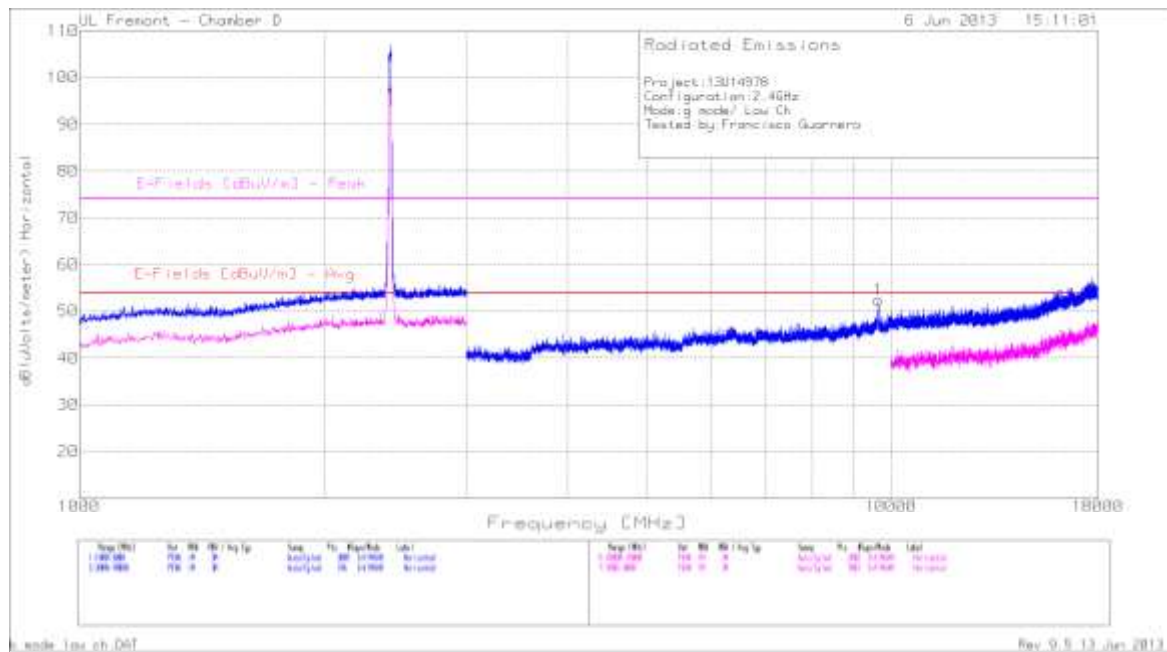
RESTRICTED BANDEDGE (HIGH CHANNEL)





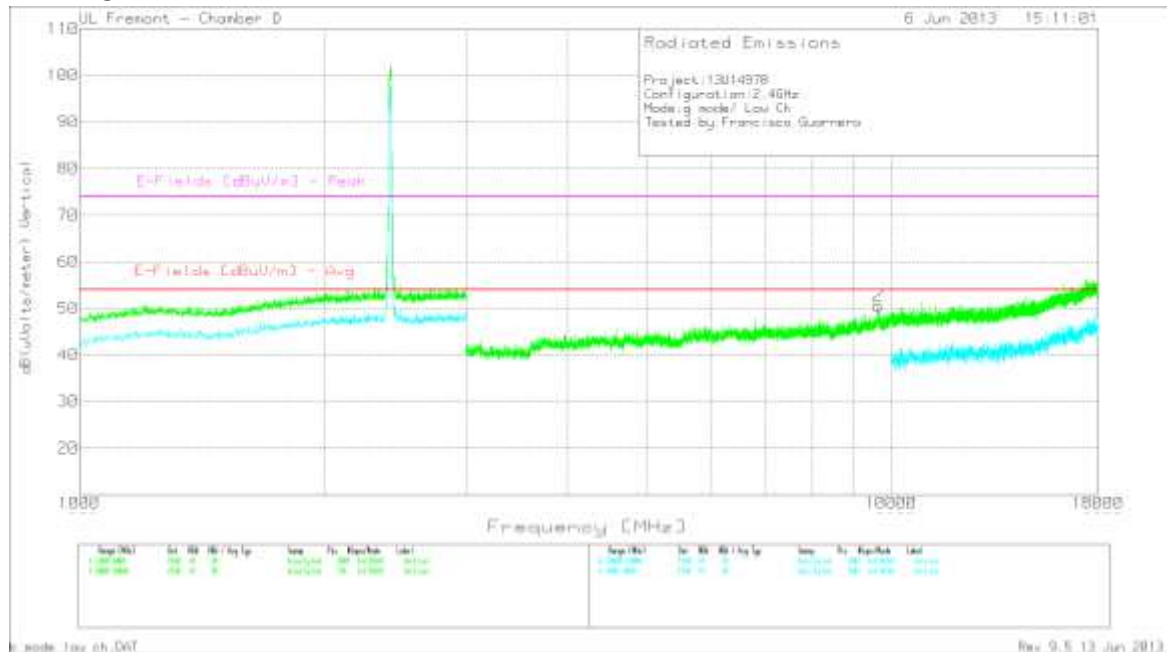
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESTRICTED, HORIZONTAL



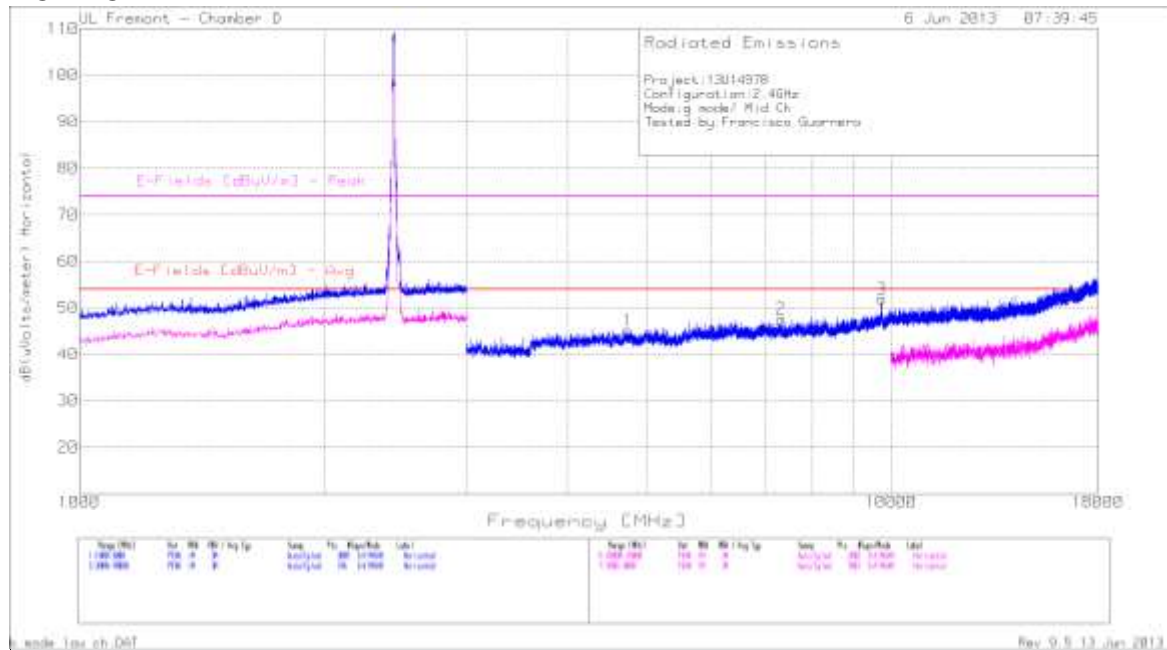
| Horizontal 3000 - 18000MHz | | | | | | | | | | | | |
|----------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolt s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| *1 | 9651.297 | 39.94 | PK | 37.6 | -25.1 | 52.44 | 53.97 | -1.53 | 74 | -21.56 | 199 | Horz |
| PK - Peak detector | | | | | | | | | | | | |
| * Not in Restricted Band | | | | | | | | | | | | |

LOW CHANNEL RESTRICTED, VERTICAL



| Vertical 3000 - 18000MHz | | | | | | | | | | | | |
|--------------------------|----------------|---------------|----------|------------------------|-----------------------------|----------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uV s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| *2 | 9642.964 | 38.23 | PK | 37.6 | -25.3 | 50.53 | 53.97 | -3.44 | 74 | -23.47 | 300 | Vert |
| PK - Peak detector | | | | | | | | | | | | |
| * Not in Restricted Band | | | | | | | | | | | | |

MID CHANNEL RESTRICTED, HORIZONTAL

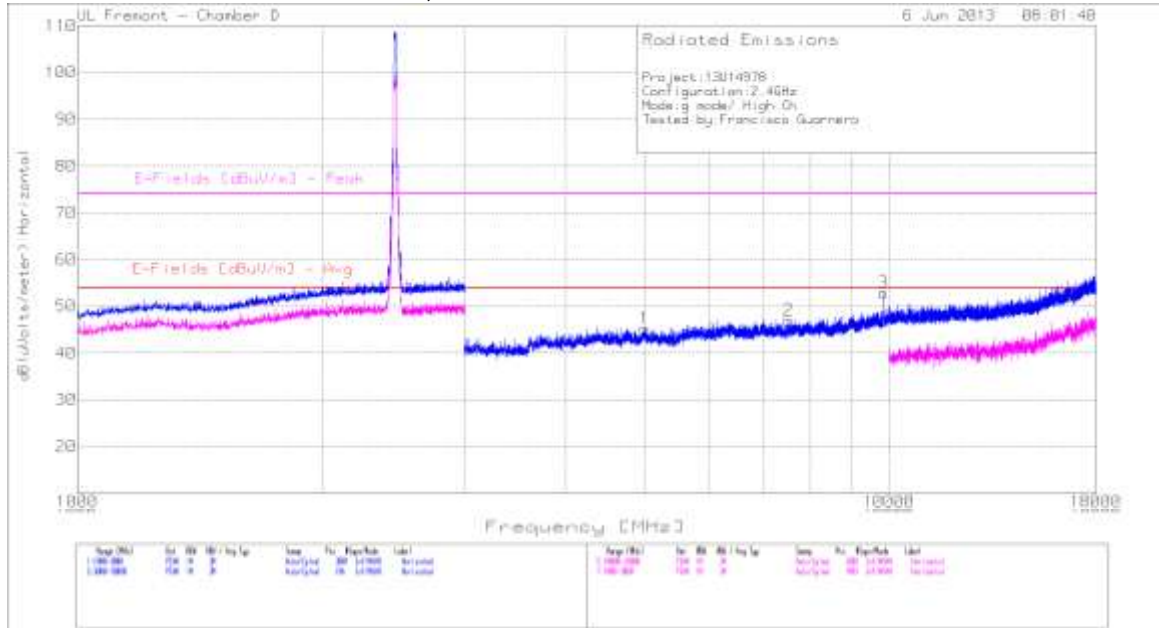


| Horizontal 3000 - 18000MHz | | | | | | | | | | | | |
|----------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolts /meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| 1 | 4744.07 | 41.81 | PK | 34.4 | -31.1 | 45.11 | 53.97 | -8.86 | 74 | -28.89 | 399 | Horz |
| 2 | 7328.093 | 39.86 | PK | 36 | -28.3 | 47.56 | 53.97 | -6.41 | 74 | -26.44 | 399 | Horz |
| *3 | 9752.958 | 40.19 | PK | 37.6 | -25.9 | 51.89 | 53.97 | -2.08 | 74 | -22.11 | 199 | Horz |
| * Not in Restricted Band | | | | | | | | | | | | |
| PK - Peak detector | | | | | | | | | | | | |

[illegible]

| Vertical 3000 - 18000MHz | | | | | | | | | | | | |
|--------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolts /meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| 4 | 4978.223 | 44.07 | PK | 34.4 | -31.3 | 47.17 | 53.97 | -6.8 | 74 | -26.83 | 300 | Vert |
| 5 | 7271.429 | 39.89 | PK | 36 | -28.9 | 46.99 | 53.97 | -6.98 | 74 | -27.01 | 200 | Vert |
| *6 | 9759.624 | 40.19 | PK | 37.6 | -25.9 | 51.89 | 53.97 | -2.08 | 74 | -22.11 | 200 | Vert |
| * Not in Restricted Band | | | | | | | | | | | | |
| PK - Peak detector | | | | | | | | | | | | |

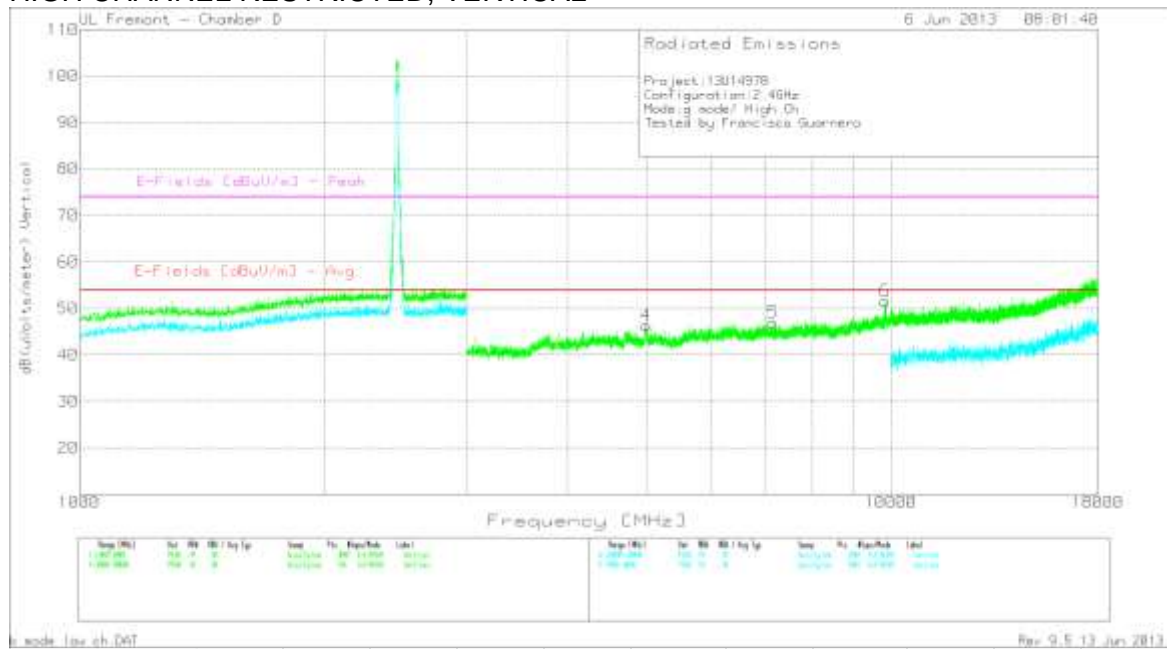
HIGH CHANNEL RESTRICTED, HORIZONTAL



Horizontal 3000 - 18000MHz

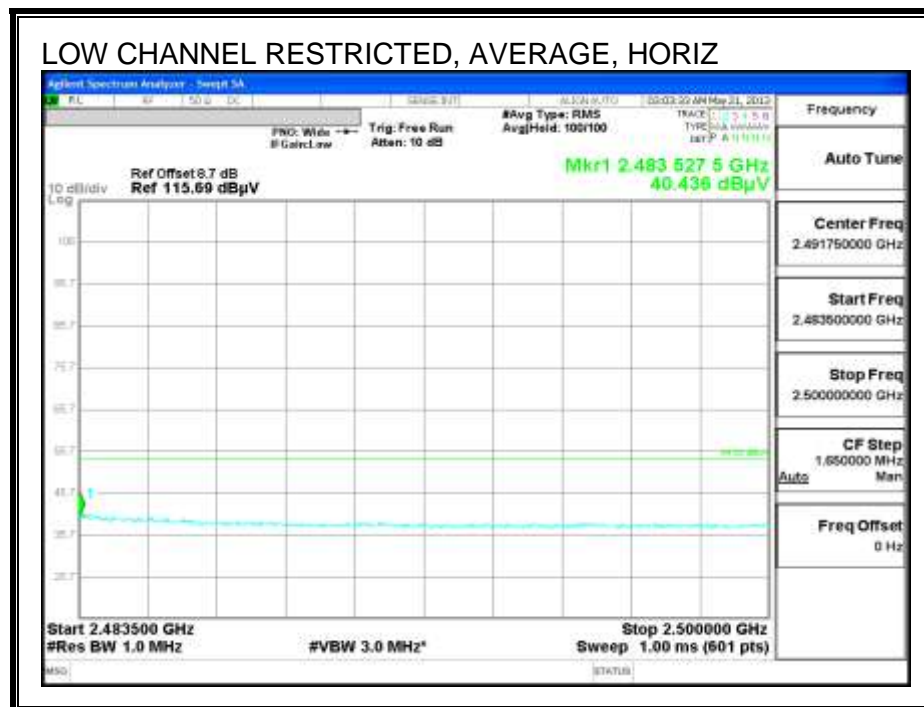
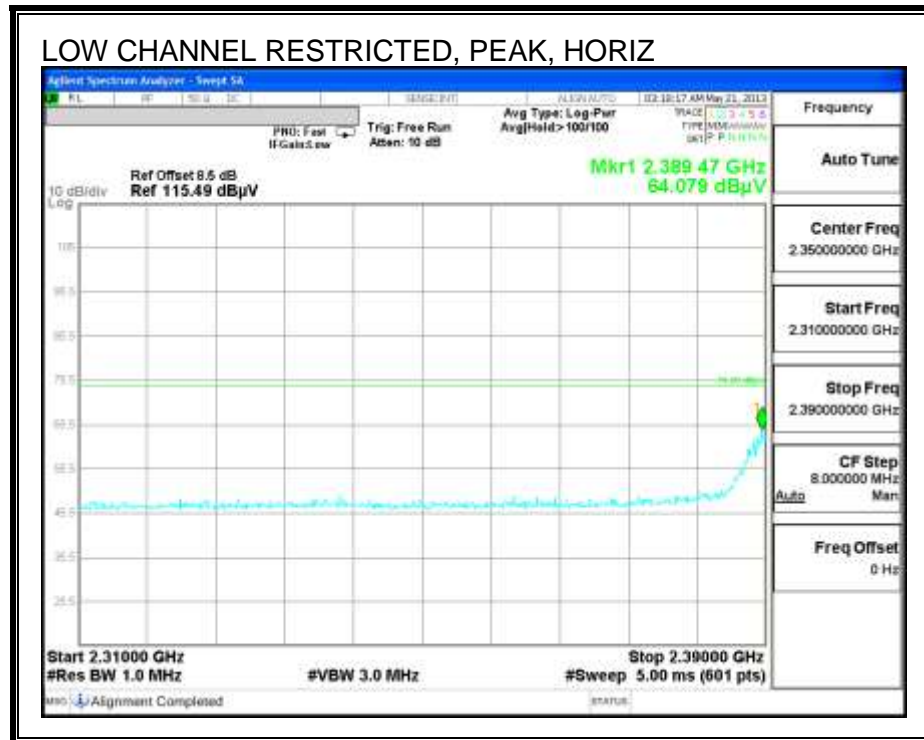
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uV/s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|------------|----------------|---------------|----------|------------------------|-----------------------------|----------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| 1 | 4997.389 | 41.78 | PK | 34.4 | -31 | 45.18 | 53.97 | -8.79 | 74 | -28.82 | 199 | Horz |
| 2 | 7525.582 | 39.7 | PK | 36.1 | -28.9 | 46.9 | 53.97 | -7.07 | 74 | -27.1 | 299 | Horz |
| 3 | 9852.953 | 41.09 | PK | 37.8 | -26 | 52.89 | 53.97 | -1.08 | 74 | -21.11 | 199 | Horz |

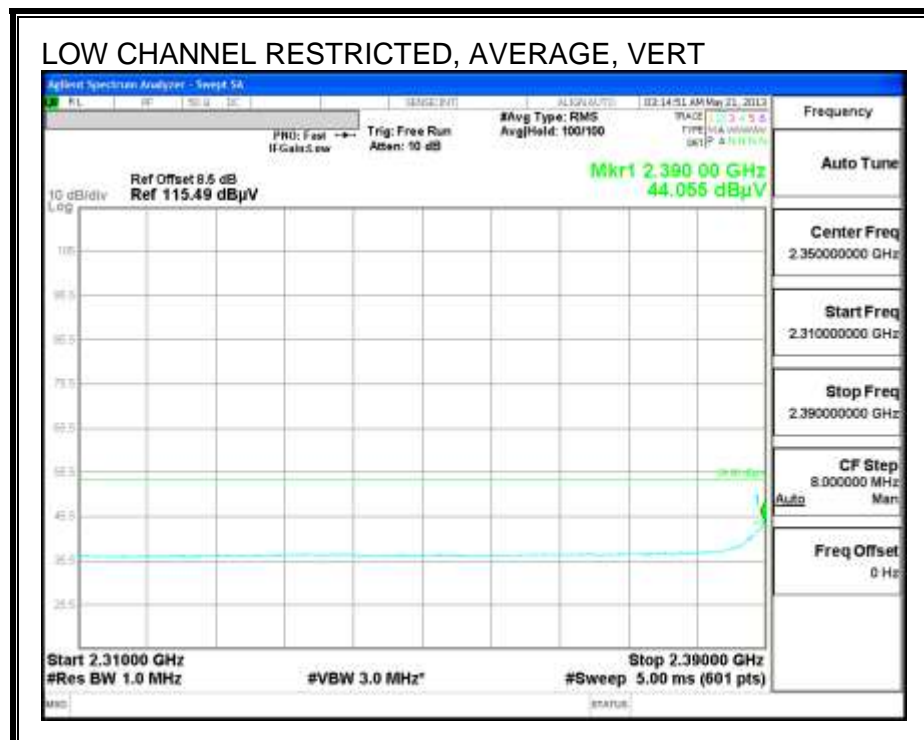
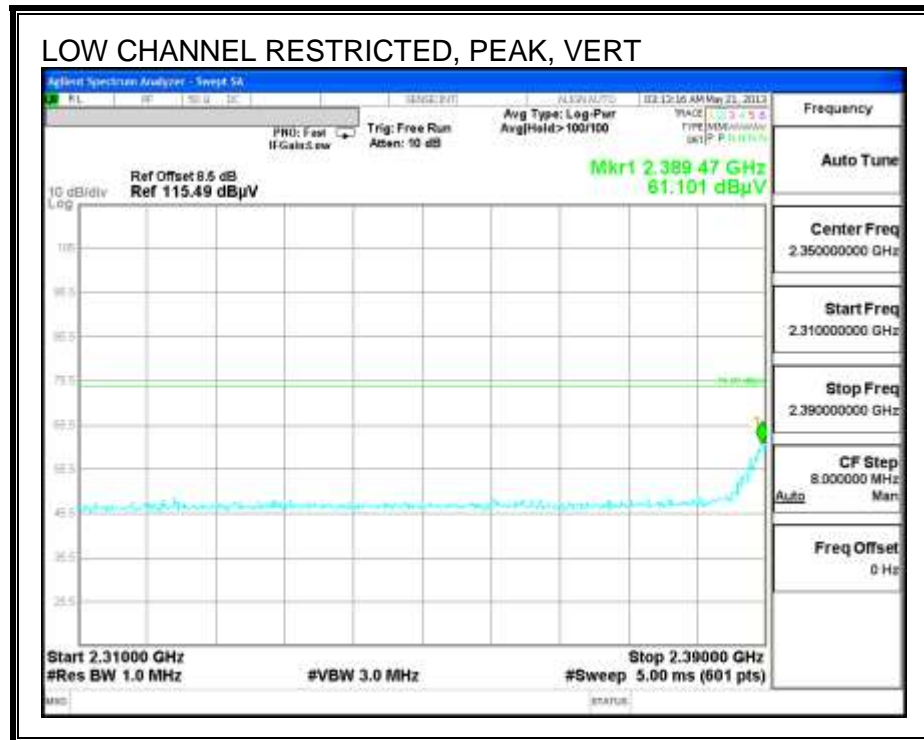
PK - Peak detector

[illegible]

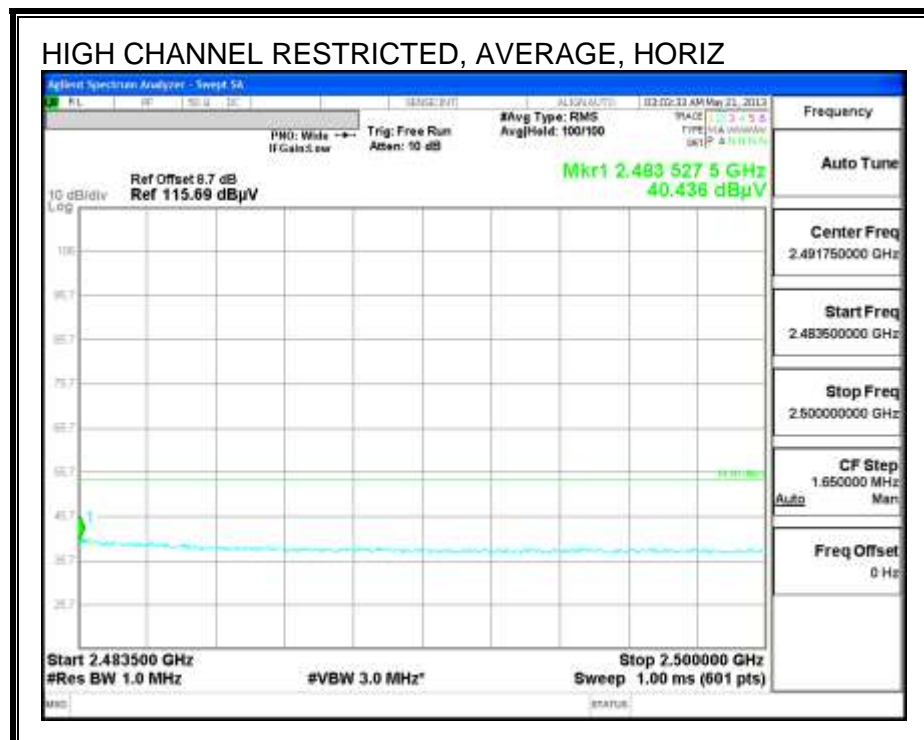
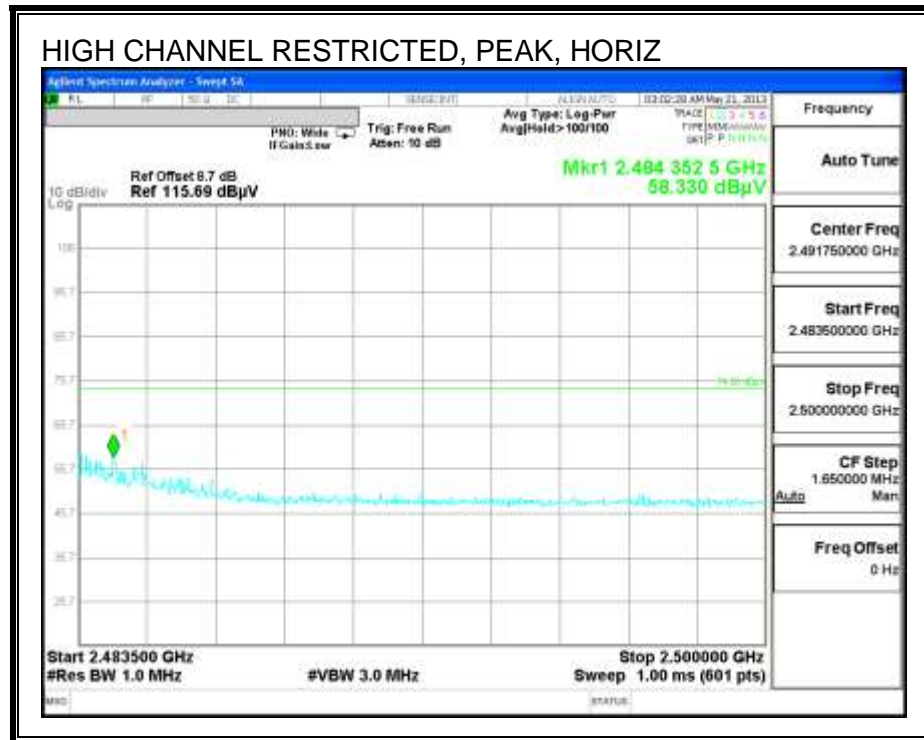
8.4. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

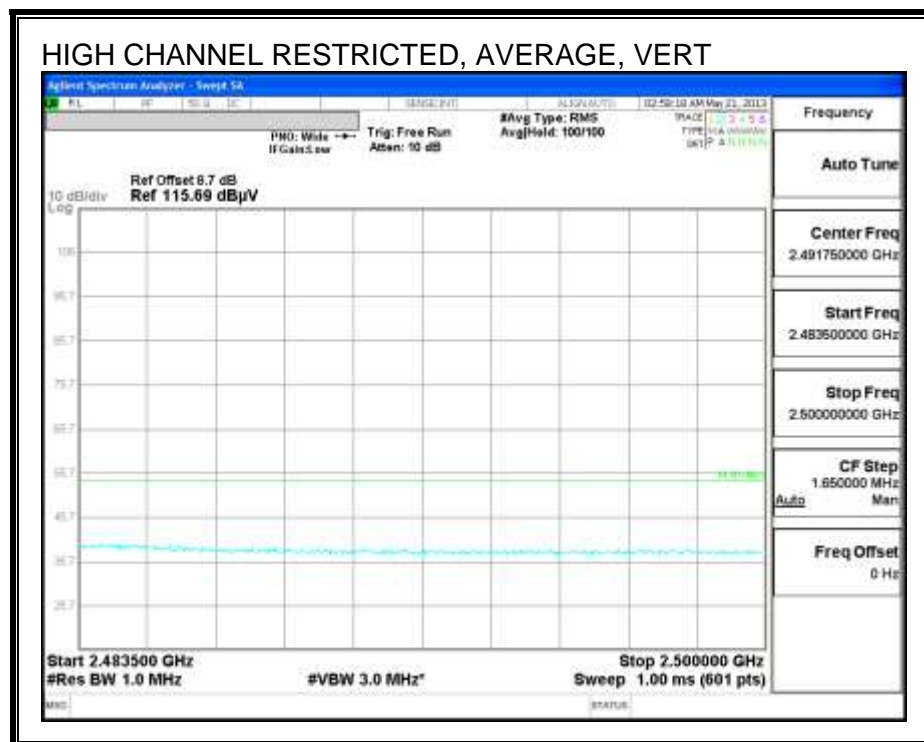
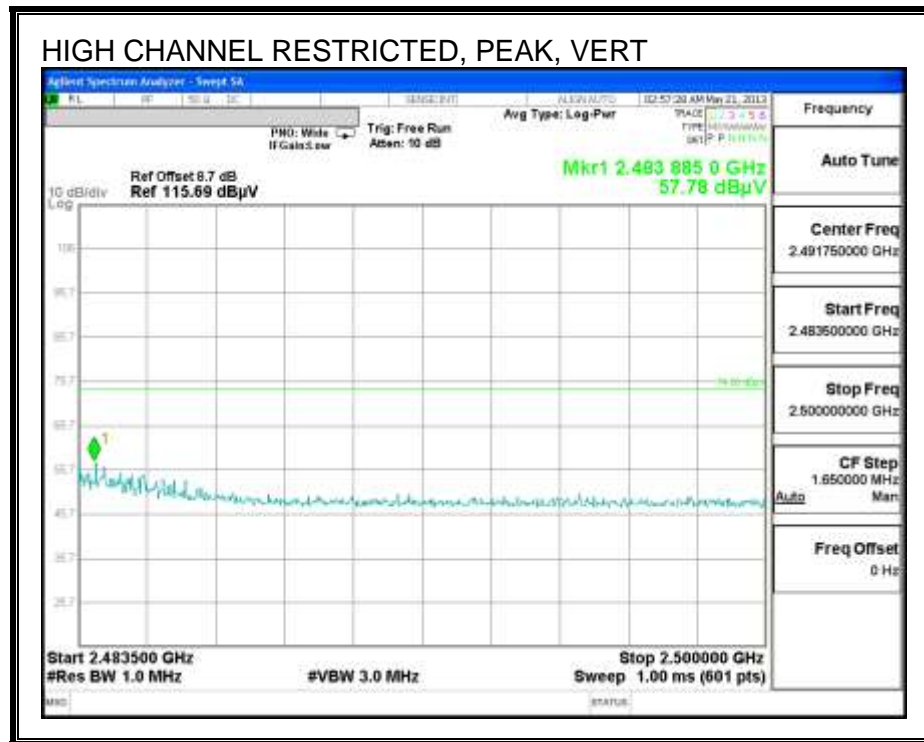
RESTRICTED BANDEDGE (LOW CHANNEL)





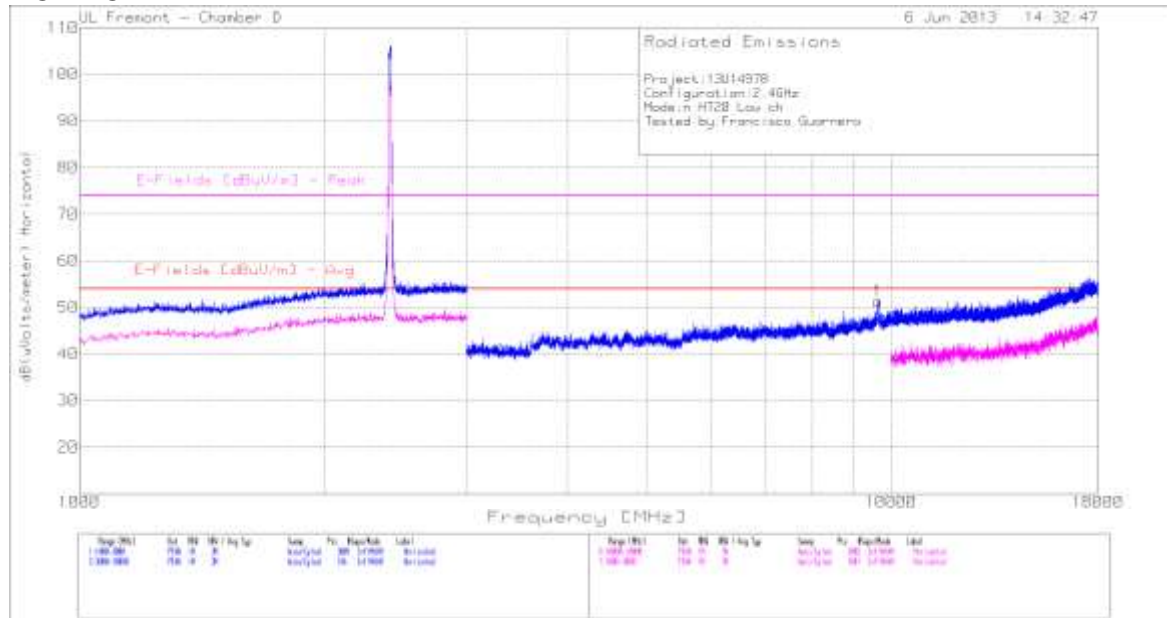
RESTRICTED BANEDGE (HIGH CHANNEL)





HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESTRICTED, HORIZONTAL



| Horizontal 3000 - 18000MHz | | | | | | | | | | | | |
|----------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolt s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| *1 | 9637.965 | 38.97 | PK | 37.6 | -25.3 | 51.27 | 53.97 | -2.7 | 74 | -22.73 | 199 | Horz |
| PK - Peak detector | | | | | | | | | | | | |
| * Not in Restricted Band | | | | | | | | | | | | |

UL Front - Chamber D

6 Jun 2013 14:32:47

Radiated Emissions

Project: 13014978
 Configuration: 2.4GHz
 Mode: n HT28 Low ch
 Tested by: Francisco Guerrero

E-Field (dBuV/m) - Peak

E-Field (dBuV/m) - Avg

dBuV/meter (Vertical)

Frequency [MHz]

| Step (Hz) | UL | FR | FR / Log Sp | Step | FR | FR / Log Sp | UL | Step (Hz) | FR | FR / Log Sp | Step | FR | FR / Log Sp | UL |
|-----------|----|----|-------------|-----------|----|-------------|----|-----------|----|-------------|-----------|----|-------------|----|
| 1.500 MHz | 20 | 4 | 8 | 1.500 MHz | 20 | 4 | 8 | 1.500 MHz | 20 | 4 | 1.500 MHz | 20 | 4 | 8 |
| 1.500 MHz | 20 | 4 | 8 | 1.500 MHz | 20 | 4 | 8 | 1.500 MHz | 20 | 4 | 1.500 MHz | 20 | 4 | 8 |

UL mode - low ch.DAT

Rev: 9.5.13 Jun 2011

| Vertical 3000 - 18000MHz | | | | | | | | | | | | |
|--------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------------|-----------------------------|-------------|------------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB[μ Volt s/meter) | E-Fields [dB μ V/m] Avg | Margin (dB) | E-Fields [dB μ V/m] Peak | Margin (dB) | Height [cm] | Polarity |
| *2 | 9659.63 | 39.01 | PK | 37.6 | -24.9 | 51.71 | 53.97 | -2.26 | 74 | -22.29 | 200 | Vert |
| PK - Peak detector | | | | | | | | | | | | |
| * Not in Restricted Band | | | | | | | | | | | | |

Radiated Emissions

Project: 13U14978
 Configuration: 2.4GHz
 Mode: n HT28 Mid ch
 Tested by: Francisco Guerrero

| Sweep | F _{Start} | F _{Stop} | Resolution BW | Ref. Level | Unit |
|-------|--------------------|-------------------|---------------|------------|--------|
| 1 | 1.000 MHz | 10.000 MHz | 9 kHz | -30 dB | dBuV/m |
| 2 | 1.000 MHz | 10.000 MHz | 9 kHz | -30 dB | dBuV/m |

MID CHANNEL RESTRICTED, VERTICAL

UL Frontent - Chamber D 6 Jun 2013 08:45:58

Radiated Emissions
 Project: 13014978
 Configuration: 2.4GHz
 Mode: n HT2B Mid.ch
 Tested by: Francisco Guerrero

E-Fields [dBuV/m] - Peak
E-Fields [dBuV/m] - Avg.

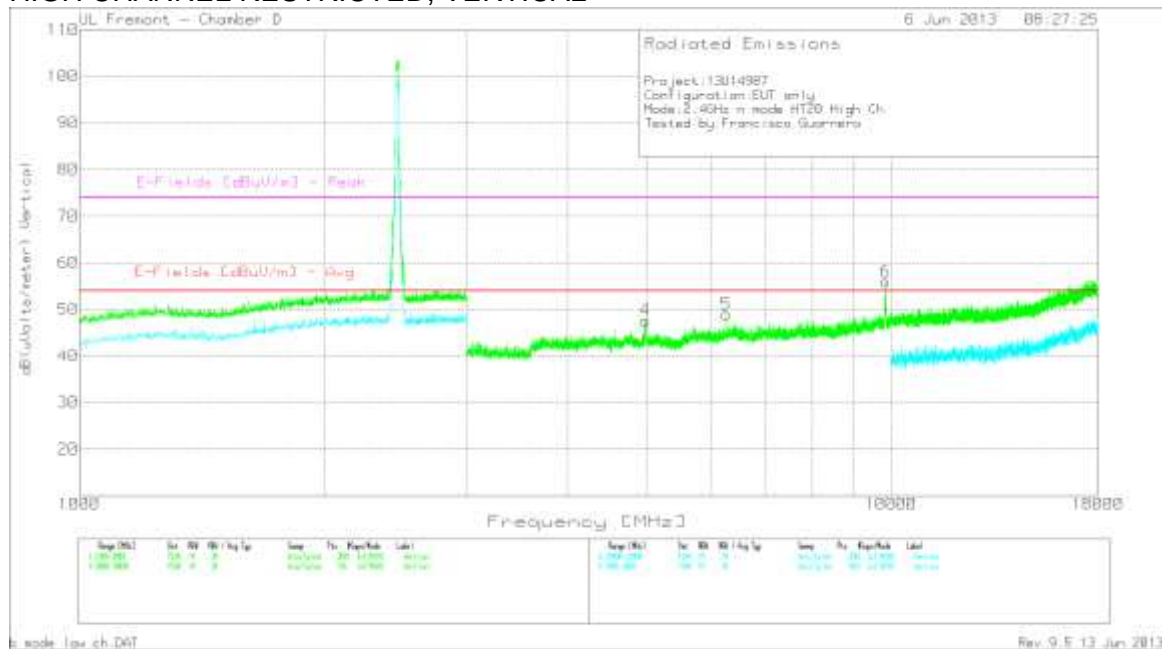
Frequency [MHz]

| Temp (MHz) | Ref. (dB) | Ref. (dB) / Log (dB) | Temp | Ref. (dB) | Ref. (dB) / Log (dB) | Temp | Ref. (dB) | Ref. (dB) / Log (dB) | Temp | Ref. (dB) | Ref. (dB) / Log (dB) |
|------------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|----------|-----------|----------------------|
| 1800.000 | 44.16 | 44.16 | 1800.000 | 44.16 | 44.16 | 1800.000 | 44.16 | 44.16 | 1800.000 | 44.16 | 44.16 |
| 1848.047 | 39.92 | 39.92 | 1848.047 | 39.92 | 39.92 | 1848.047 | 39.92 | 39.92 | 1848.047 | 39.92 | 39.92 |
| 1874.792 | 40.06 | 40.06 | 1874.792 | 40.06 | 40.06 | 1874.792 | 40.06 | 40.06 | 1874.792 | 40.06 | 40.06 |

Mode: Low ch: DAT Rev: 9.5.13 Jun 2013

| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolts /meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| 4 | 4989.056 | 44.16 | PK | 34.4 | -31.1 | 47.46 | 53.97 | -6.51 | 74 | -26.54 | 200 | Vert |
| 5 | 8148.047 | 39.92 | PK | 36.2 | -28.5 | 47.62 | 53.97 | -6.35 | 74 | -26.38 | 100 | Vert |
| 6 | 9748.792 | 40.06 | PK | 37.6 | -25.9 | 51.76 | 53.97 | -2.21 | 74 | -22.24 | 300 | Vert |

PK - Peak detector

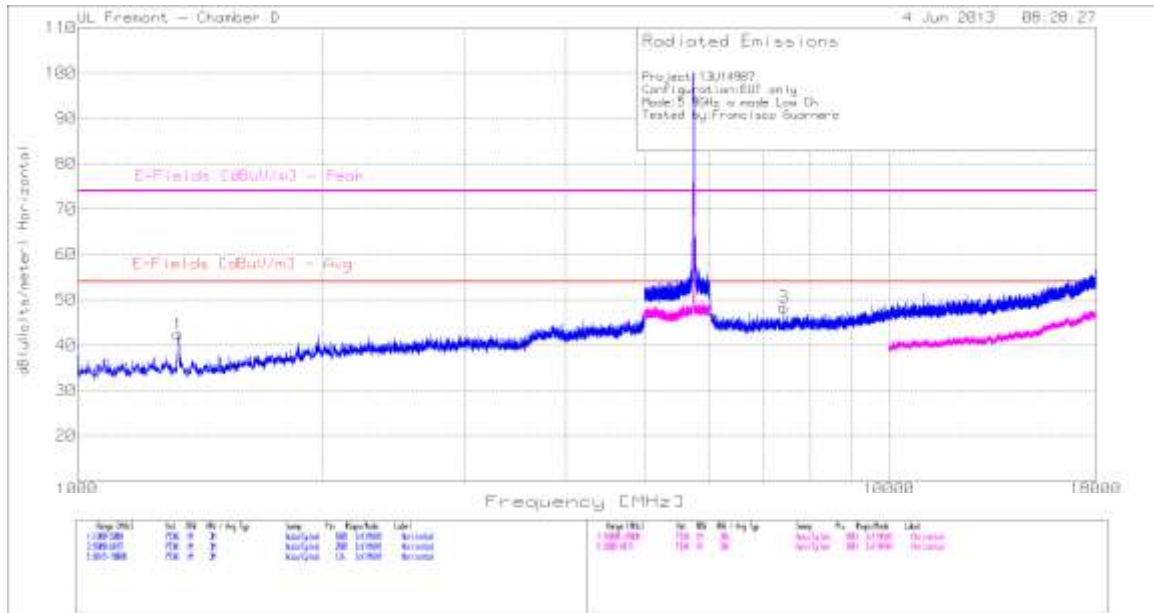


| Vertical 3000 - 18000MHz | | | | | | | | | | | | |
|--------------------------|----------------|---------------|----------|------------------------|-----------------------------|-------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Marker No. | Test Frequency | Meter Reading | Detector | T346 Ant Factor [dB/m] | 3.6GHz HPF Preamp/ Cable dB | dB(uVolts/ meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
| 4 | 4984.056 | 44.32 | PK | 34.4 | -31.1 | 47.62 | 53.97 | -6.35 | 74 | -26.38 | 101 | Vert |
| 5 | 6269.818 | 42.87 | PK | 35.9 | -29.8 | 48.97 | 53.97 | -5 | 74 | -25.03 | 300 | Vert |
| 6 | 9855.452 | 44.03 | PK | 37.8 | -25.9 | 55.93 | 53.97 | 1.96 | 74 | -18.07 | 300 | Vert |
| PK - Peak detector | | | | | | | | | | | | |

8.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESTRICTED,
HORIZONTAL



FCC Part 15C All 5GHz UNII and DFS Spurious Emissions with Average Spurr-TS1 30015 19 Jun 2013

Rev 9.5 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/m eter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------|----------------------|----------|------------------------|---------------------------|-------------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Horizontal 1000 - 5000MHz | | | | | | | | | | | | |
| 1 | 1330.667 | 47.97 | PK | 29.1 | -34.7 | 42.37 | 53.97 | -11.6 | 74 | -31.63 | 199 | Horz |
| Horizontal 6015 - 18000MHz | | | | | | | | | | | | |
| 3 | 7421.123 | 41.51 | PK | 36.1 | -29.3 | 48.31 | 53.97 | -5.66 | 74 | -25.69 | 299 | Horz |

UL Front - Chamber D

4 Jun 2013 06:28:27

Radiated Emissions

Project: 13U4887
Configuration: EUT only
Mode: 5.0GHz is made Low On
Tested by: Francisco Guerrero

E-Fields (dBuV/m) - Peak

E-Fields (dBuV/m) - Avg

dBuV/m (meter³) Vertical

Frequency [MHz]

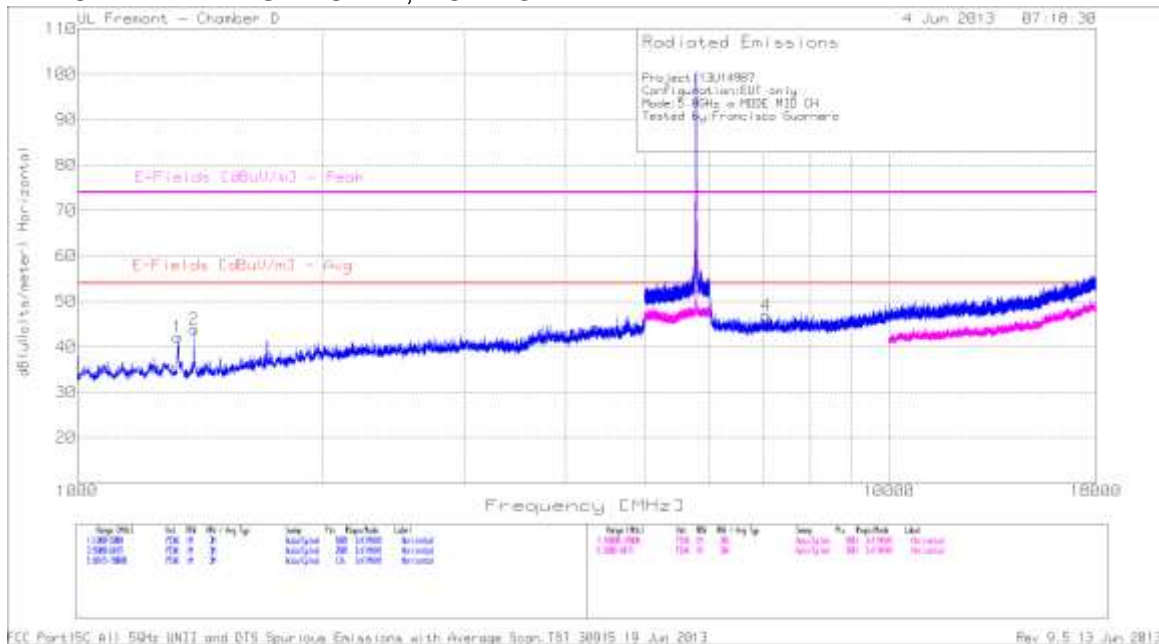
| Step (Hz) | Ref. (dB) | Ref. (dB) | Ref. (dB) | Step | Ref. (dB) | Ref. (dB) | Ref. (dB) | Label |
|-----------|-----------|-----------|-----------|---------|-----------|-----------|-----------|---------|
| 1000000 | 100 | 100 | 100 | 1000000 | 100 | 100 | 100 | 1000000 |
| 1000000 | 100 | 100 | 100 | 1000000 | 100 | 100 | 100 | 1000000 |

FCC Part 15C All 5GHz UNII and DFS Spurious Emissions with Average Scan, TST 30015 18 Jun 2013

Rev 9, E 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading [dBuV] | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dBUV/m eter) | E-Fields [dBUV/m] - Avg | Margin (dB) | E-Fields [dBUV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|--------------------------|----------------|----------------------|----------|------------------------|---------------------------|--------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Vertical 1000 - 5000MHz | | | | | | | | | | | | |
| 2 | 1332.667 | 52.02 | PK | 29.1 | -34.7 | 46.42 | 53.97 | -7.55 | 74 | -27.58 | 200 | Vert |
| Vertical 6015 - 18000MHz | | | | | | | | | | | | |
| 4 | 7554.944 | 40.02 | PK | 36.1 | -29 | 47.12 | 53.97 | -6.85 | 74 | -26.88 | 399 | Vert |

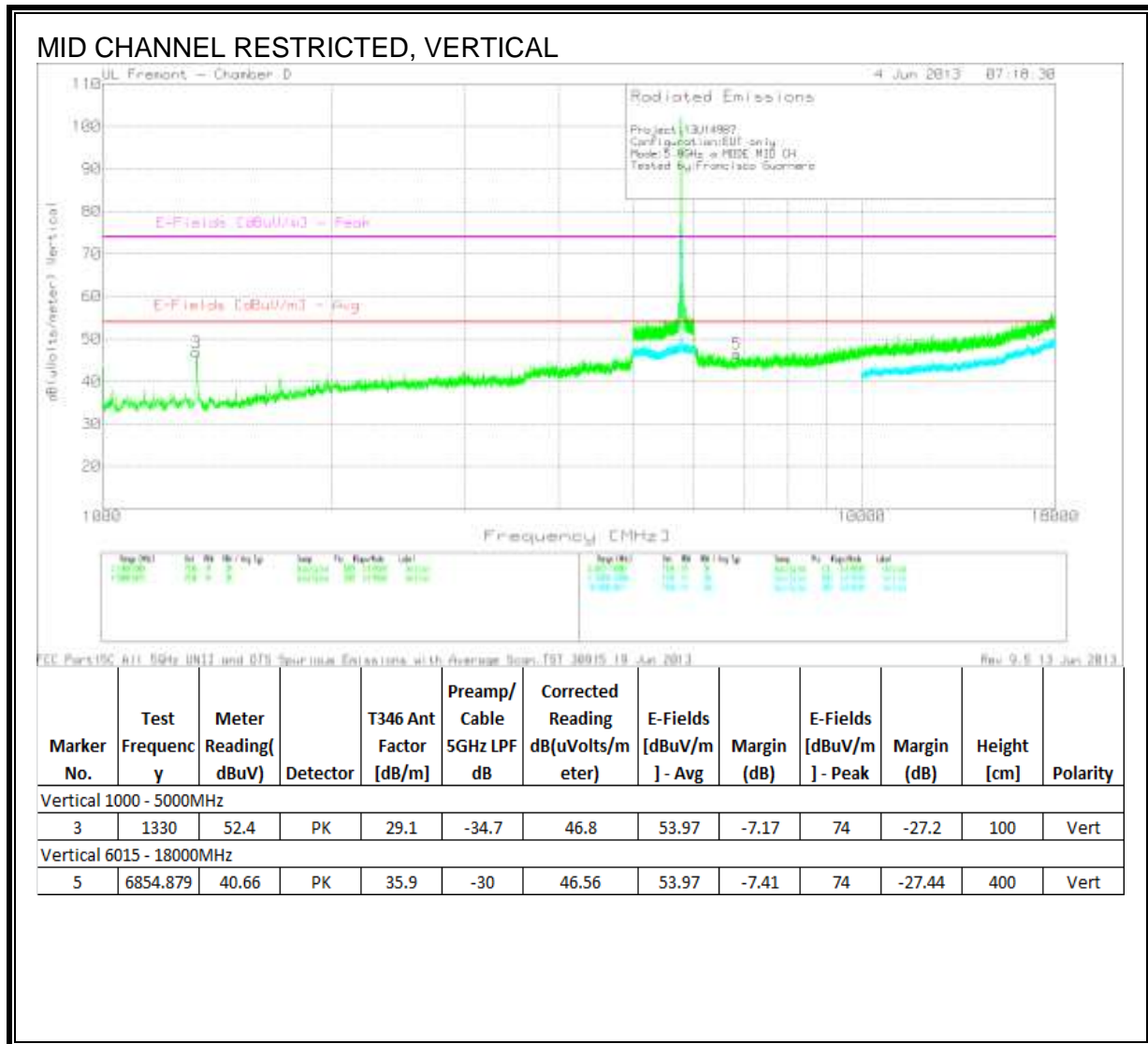
MID CHANNEL RESTRICTED, HORIZONTAL



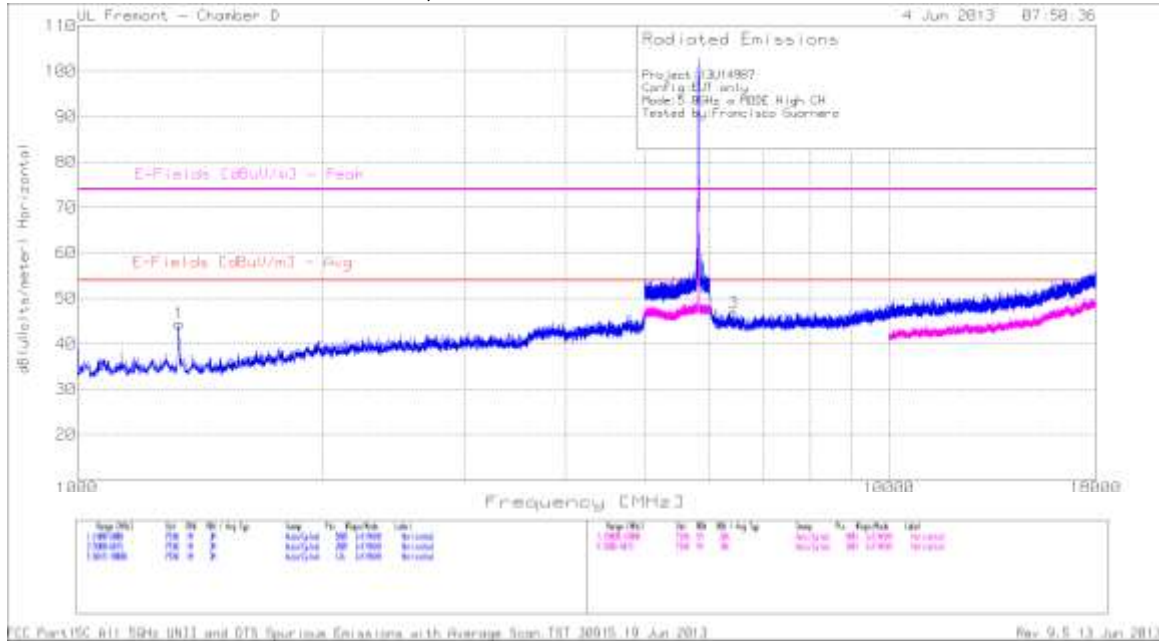
FCC Part 15C, All 5GHz UNII and DFS Spurious Emissions with Average Span: TST 30015 19 Jul 2013

Rev: 9.5 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/m eter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------|----------------------|----------|------------------------|---------------------------|-------------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Horizontal 1000 - 5000MHz | | | | | | | | | | | | |
| 1 | 1328.667 | 47.72 | PK | 29.1 | -34.7 | 42.12 | 53.97 | -11.85 | 74 | -31.88 | 399 | Horz |
| 2 | 1392 | 49.76 | PK | 29 | -34.9 | 43.86 | 53.97 | -10.11 | 74 | -30.14 | 199 | Horz |
| Horizontal 6015 - 18000MHz | | | | | | | | | | | | |
| 4 | 7064.599 | 40.09 | PK | 36 | -29.2 | 46.89 | 53.97 | -7.08 | 74 | -27.11 | 200 | Horz |



HIGH CHANNEL RESTRICTED, HORIZONTAL

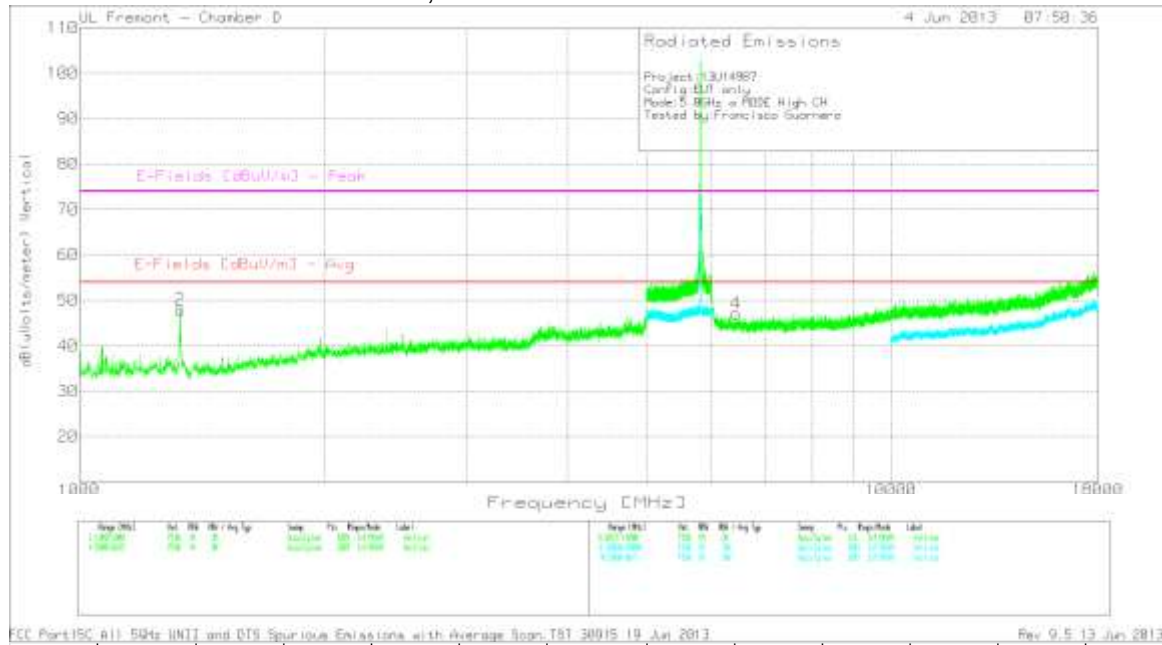


FCC Part 15C, All 5GHz (UNII) and DFS Spurious Emissions with Average Scope, TRT 30015, 10 Jun 2013

Rev 9.5, 13 Jun 2013

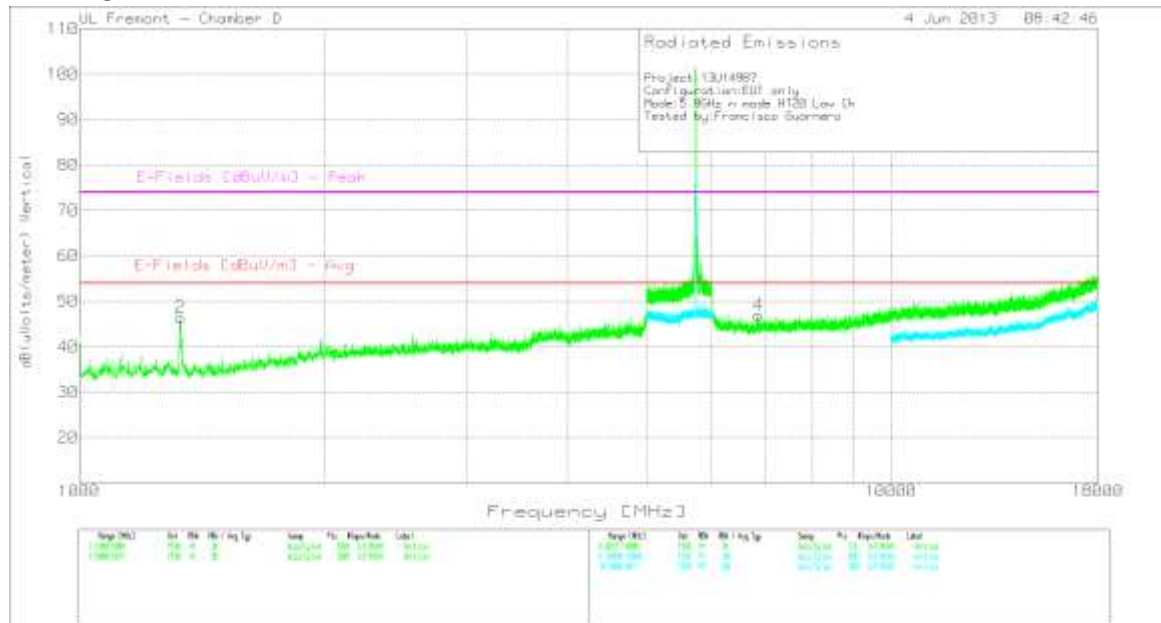
| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/ meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------|----------------------|----------|------------------------|---------------------------|-------------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Horizontal 1000 - 5000MHz | | | | | | | | | | | | |
| 1 | 1334 | 49.99 | PK | 29.1 | -34.7 | 44.39 | 53.97 | -9.58 | 74 | -29.61 | 399 | Horz |
| Horizontal 6015 - 18000MHz | | | | | | | | | | | | |
| 3 | 6439.433 | 41.3 | PK | 35.8 | -30.4 | 46.7 | 53.97 | -7.27 | 74 | -27.3 | 299 | Horz |

HIGH CHANNEL RESTRICTED, VERTICAL



| Marker No. | Test Frequency | Meter Reading [dBuV] | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/ meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|--------------------------|----------------|----------------------|----------|------------------------|---------------------------|-------------------------------------|--------------------------|-------------|---------------------------|-------------|-------------|----------|
| Vertical 1000 - 5000MHz | | | | | | | | | | | | |
| 2 | 1331.333 | 53.52 | PK | 29.1 | -34.7 | 47.92 | 53.97 | -6.05 | 74 | -26.08 | 100 | Vert |
| Vertical 6015 - 18000MHz | | | | | | | | | | | | |
| 4 | 6444.427 | 41.61 | PK | 35.8 | -30.3 | 47.11 | 53.97 | -6.86 | 74 | -26.89 | 200 | Vert |

LOW CHANNEL RESTRICTED, VERTICAL

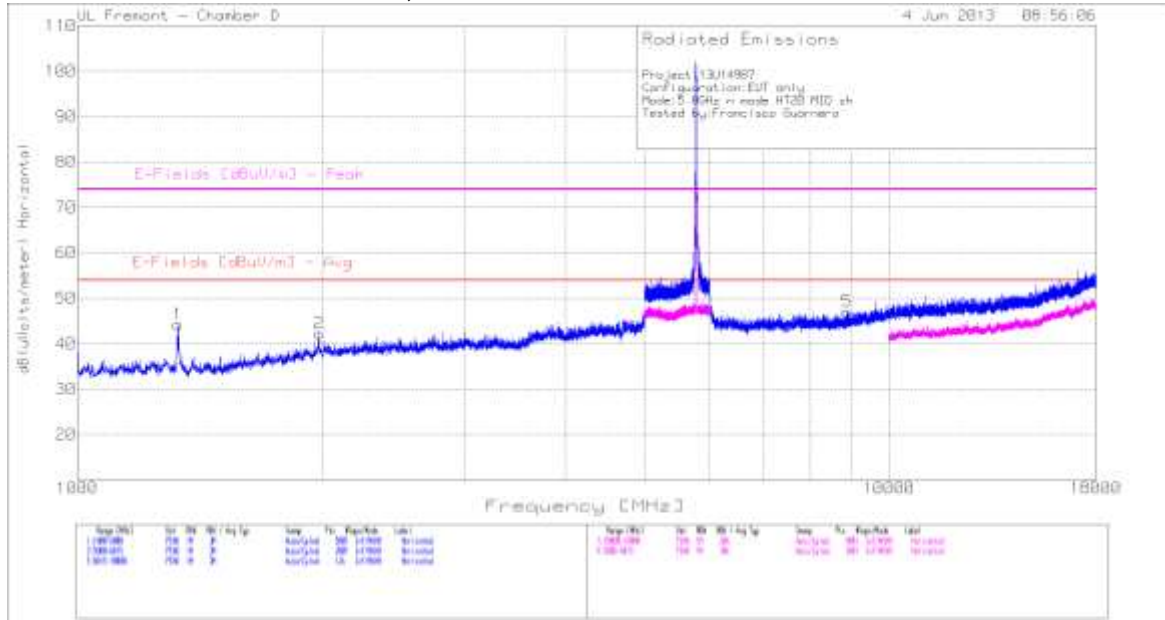


FCC Part 15C All 5GHz UNII and DFS Spurious Emissions with Average Scan: TST_20915 18 Jun 2013

Rev 9.5 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading [dBuV] | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVols/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|--------------------------|----------------|----------------------|----------|------------------------|---------------------------|-----------------------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Vertical 1000 - 5000MHz | | | | | | | | | | | | |
| 2 | 1332 | 52.02 | PK | 29.1 | -34.7 | 46.42 | 53.97 | -7.55 | 74 | -27.58 | 200 | Vert |
| Vertical 6015 - 18000MHz | | | | | | | | | | | | |
| 4 | 6867.861 | 41.06 | PK | 35.9 | -30 | 46.96 | 53.97 | -7.01 | 74 | -27.04 | 200 | Vert |

MID CHANNEL RESTRICTED, HORIZONTAL

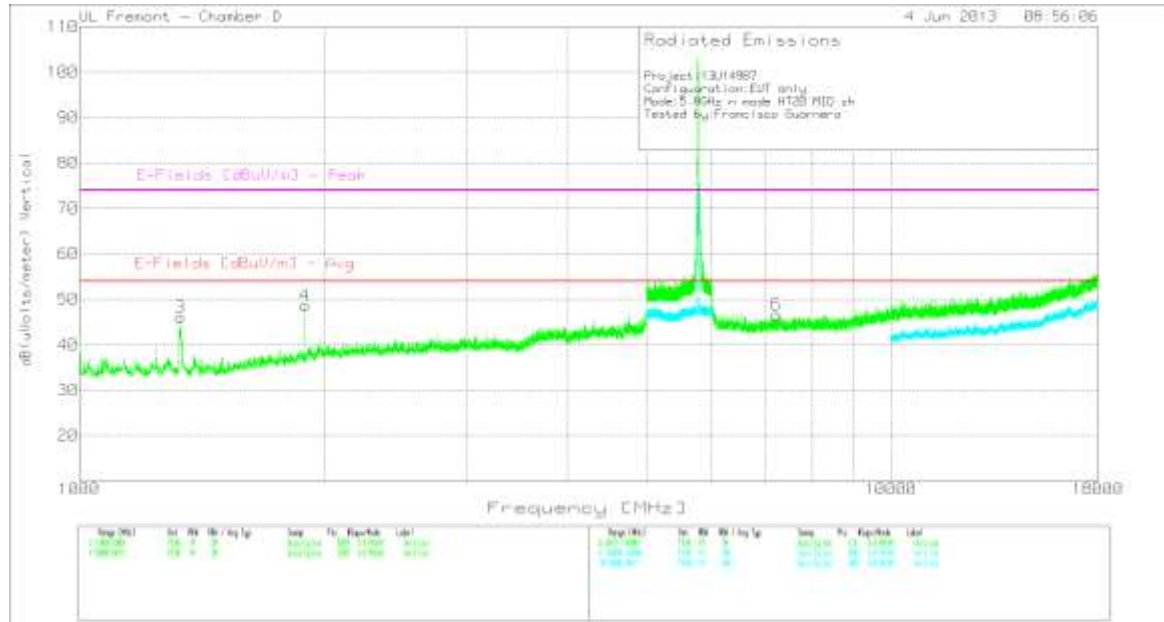


FCC Part 15C B11 504s UNII and DTS Spurious Emissions with Average Scan TBT 30015 10 Jun 2013

Rev 9.5 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uV/s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------|----------------------|----------|------------------------|---------------------------|----------------------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Horizontal 1000 - 5000MHz | | | | | | | | | | | | |
| 1 | 1330 | 49.87 | PK | 29.1 | -34.7 | 44.27 | 53.97 | -9.7 | 74 | -29.73 | 199 | Horz |
| 2 | 1985.333 | 43.79 | PK | 32 | -33.5 | 42.29 | 53.97 | -11.68 | 74 | -31.71 | 199 | Horz |
| Horizontal 6015 - 18000MHz | | | | | | | | | | | | |
| 5 | 8879.176 | 37.86 | PK | 36.7 | -27.5 | 47.06 | 53.97 | -6.91 | 74 | -26.94 | 299 | Horz |

MID CHANNEL RESTRICTED,
VERTICAL

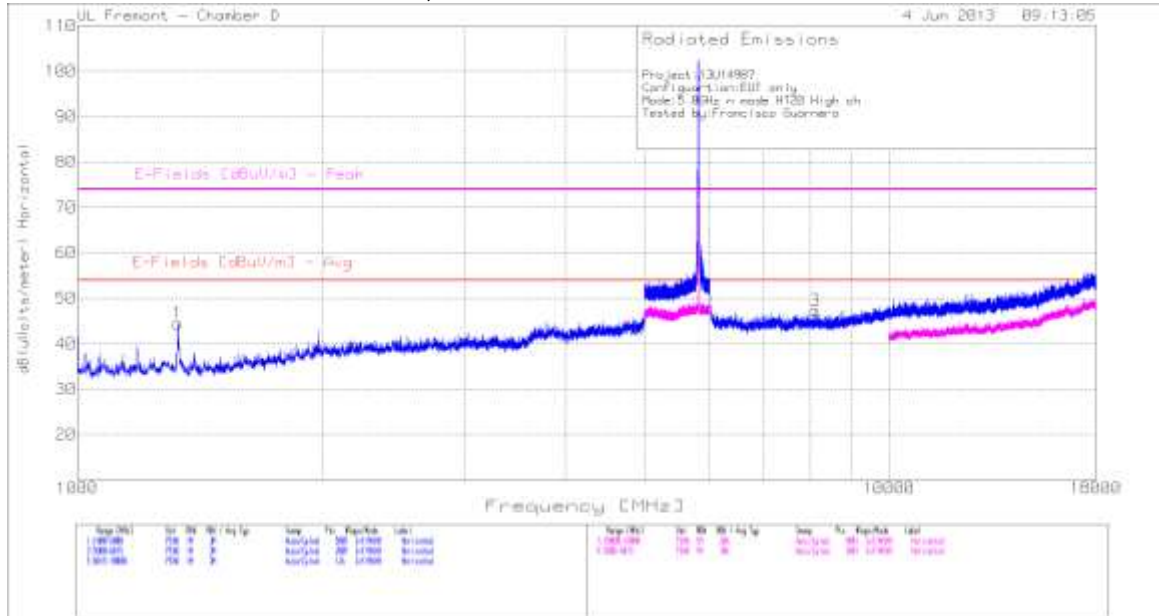


FCC Part 15C, All 5GHz UNII and DTG Services Emissions with Average Scores, TST 30015 10 Jun 2013

Rev 9.9 13 Jun 2013

| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uV/s/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|--------------------------|----------------|----------------------|----------|------------------------|---------------------------|----------------------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Vertical 1000 - 5000MHz | | | | | | | | | | | | |
| 3 | 1332 | 51.62 | PK | 29.1 | -34.7 | 46.02 | 53.97 | -7.95 | 74 | -27.98 | 100 | Vert |
| 4 | 1897.333 | 51.01 | PK | 31.4 | -33.8 | 48.61 | 53.97 | -5.36 | 74 | -25.39 | 200 | Vert |
| Vertical 6015 - 18000MHz | | | | | | | | | | | | |
| 6 | 7221.389 | 39.81 | PK | 36 | -29.2 | 46.61 | 53.97 | -7.36 | 74 | -27.39 | 100 | Vert |

HIGH CHANNEL RESTRICTED, HORIZONTAL



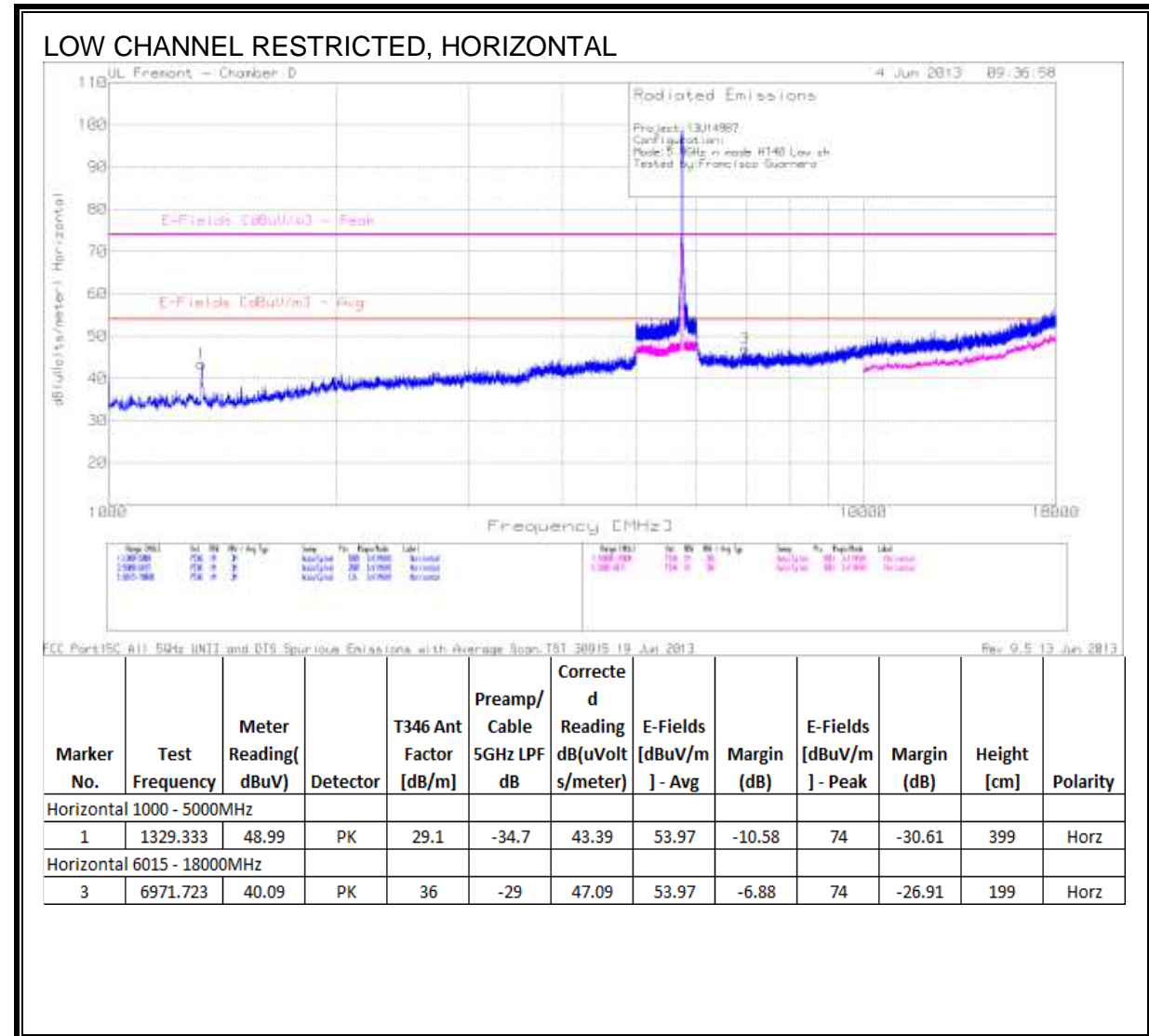
FCC Part 15C B11 50Hz UN11 and DTS Spurious Emissions with Average Scan TRT 30015 10 Jun 2013

Rev 9.5 13 Jun 2013

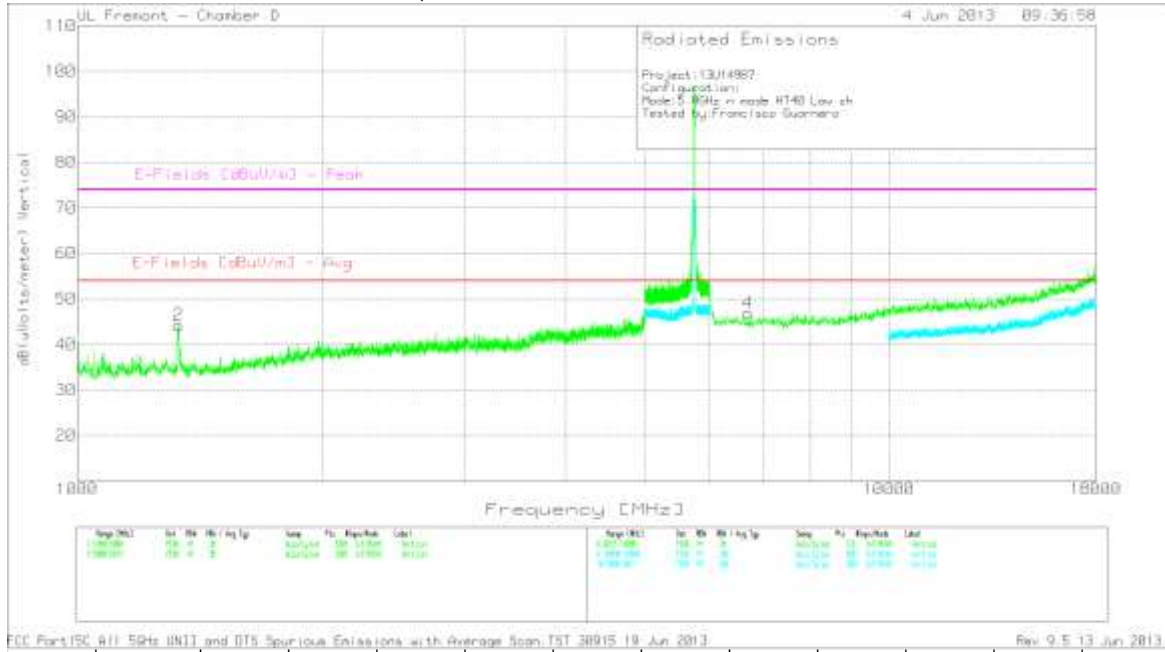
| Marker No. | Test Frequency | Meter Reading [dBuV] | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|----------------------------|----------------|----------------------|----------|------------------------|---------------------------|------------------------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Horizontal 1000 - 5000MHz | | | | | | | | | | | | |
| 1 | 1329.333 | 50.05 | PK | 29.1 | -34.7 | 44.45 | 53.97 | -9.52 | 74 | -29.55 | 100 | Horz |
| Horizontal 6015 - 18000MHz | | | | | | | | | | | | |
| 3 | 8123.186 | 39.72 | PK | 36.2 | -28.6 | 47.32 | 53.97 | -6.65 | 74 | -26.68 | 100 | Horz |

8.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

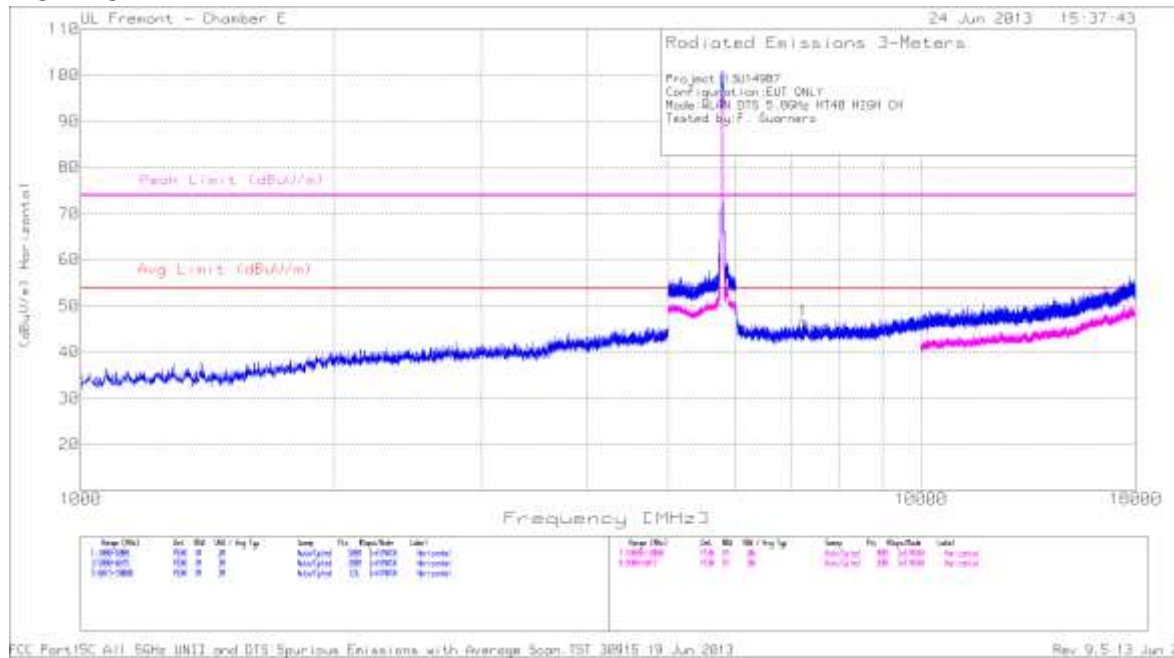


LOW CHANNEL RESTRICTED, VERTICAL



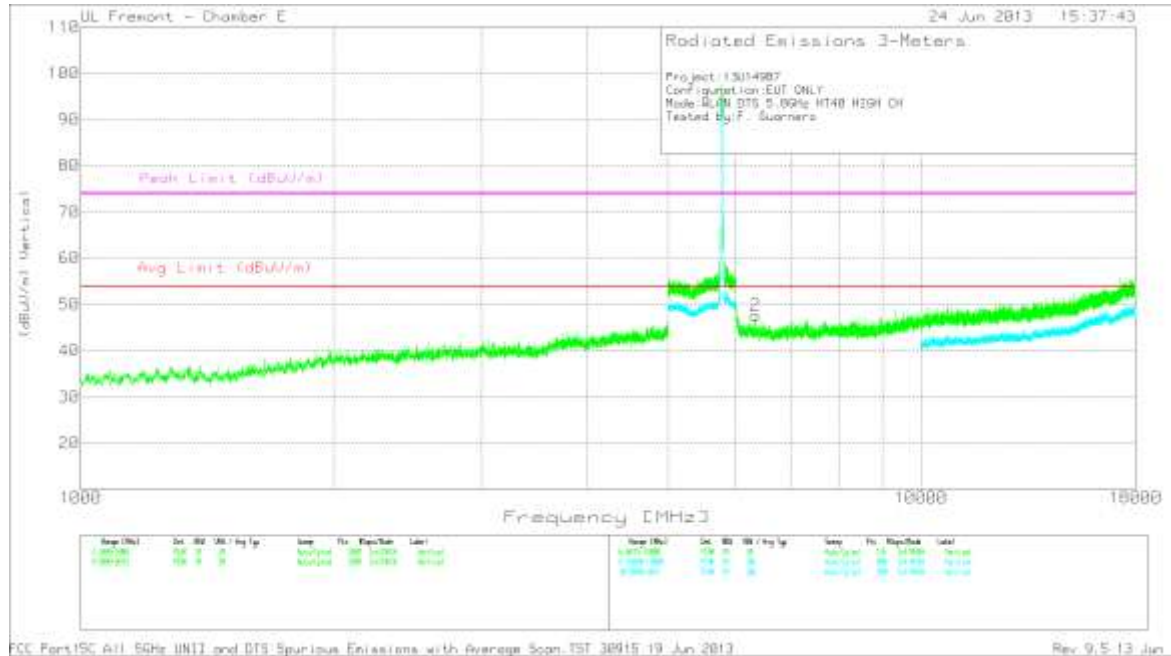
| Marker No. | Test Frequency | Meter Reading (dBuV) | Detector | T346 Ant Factor [dB/m] | Preamp/ Cable 5GHz LPF dB | Corrected Reading dB(uVolts/meter) | E-Fields [dBuV/m] - Avg | Margin (dB) | E-Fields [dBuV/m] - Peak | Margin (dB) | Height [cm] | Polarity |
|--------------------------|----------------|----------------------|----------|------------------------|---------------------------|------------------------------------|-------------------------|-------------|--------------------------|-------------|-------------|----------|
| Vertical 1000 - 5000MHz | | | | | | | | | | | | |
| 2 | 1332 | 49.82 | PK | 29.1 | -34.7 | 44.22 | 53.97 | -9.75 | 74 | -29.78 | 100 | Vert |
| Vertical 6015 - 18000MHz | | | | | | | | | | | | |
| 4 | 6709.783 | 41.07 | PK | 35.8 | -30 | 46.87 | 53.97 | -7.1 | 74 | -27.13 | 199 | Vert |

HIGH CHANNEL RESTRICTED, HORIZONTAL



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Cbl/6 GHz HPF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Height (cm) | Polarity |
|--------------------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|-------------|-------------|----------|
| 1 | 7.248 | 39.77 | PK | 36 | -29.2 | 46.57 | 53.97 | -7.4 | 74 | -27.43 | 199 | H |
| PK - Peak detector | | | | | | | | | | | | |

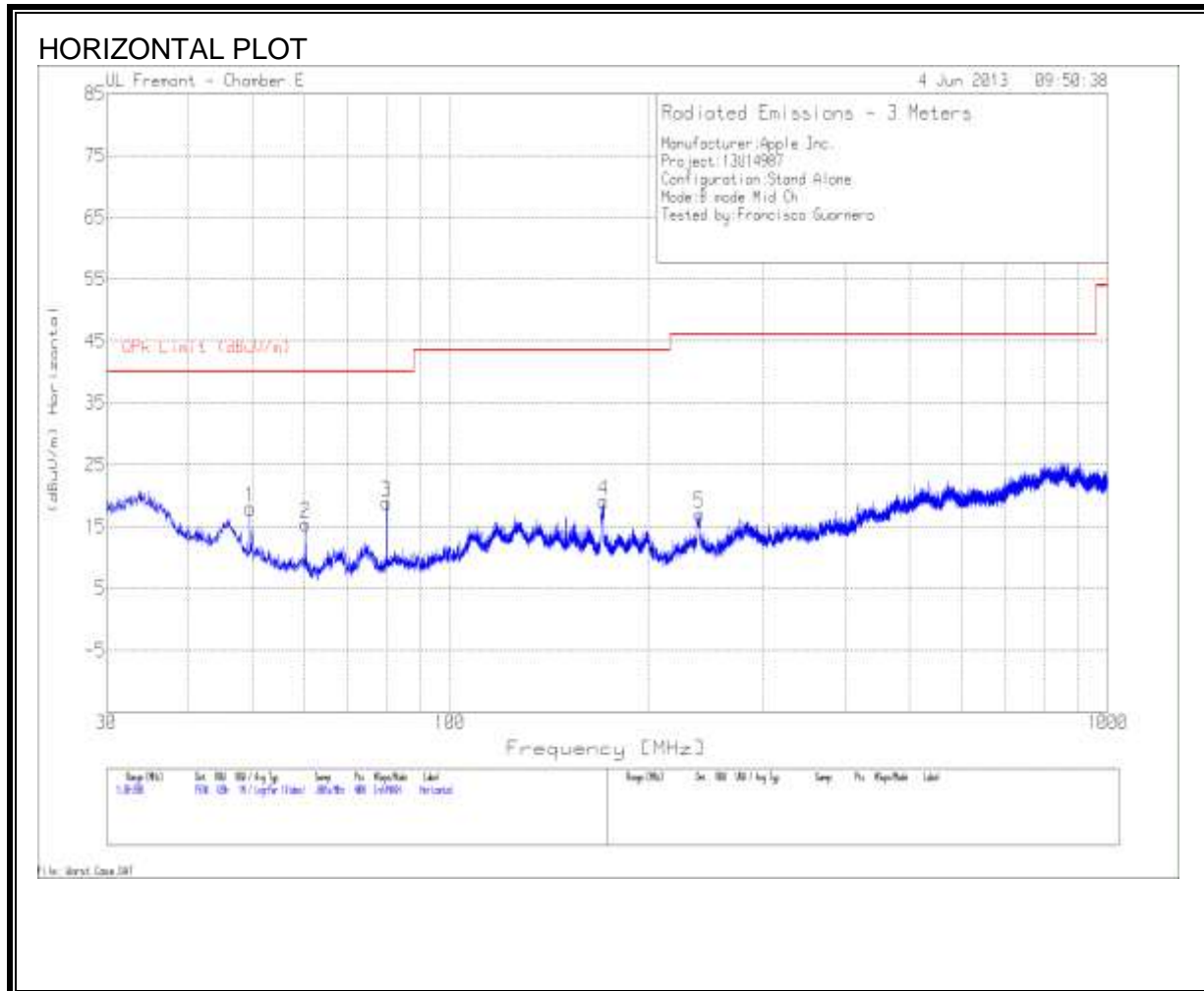
HIGH CHANNEL RESTRICTED, VERTICAL



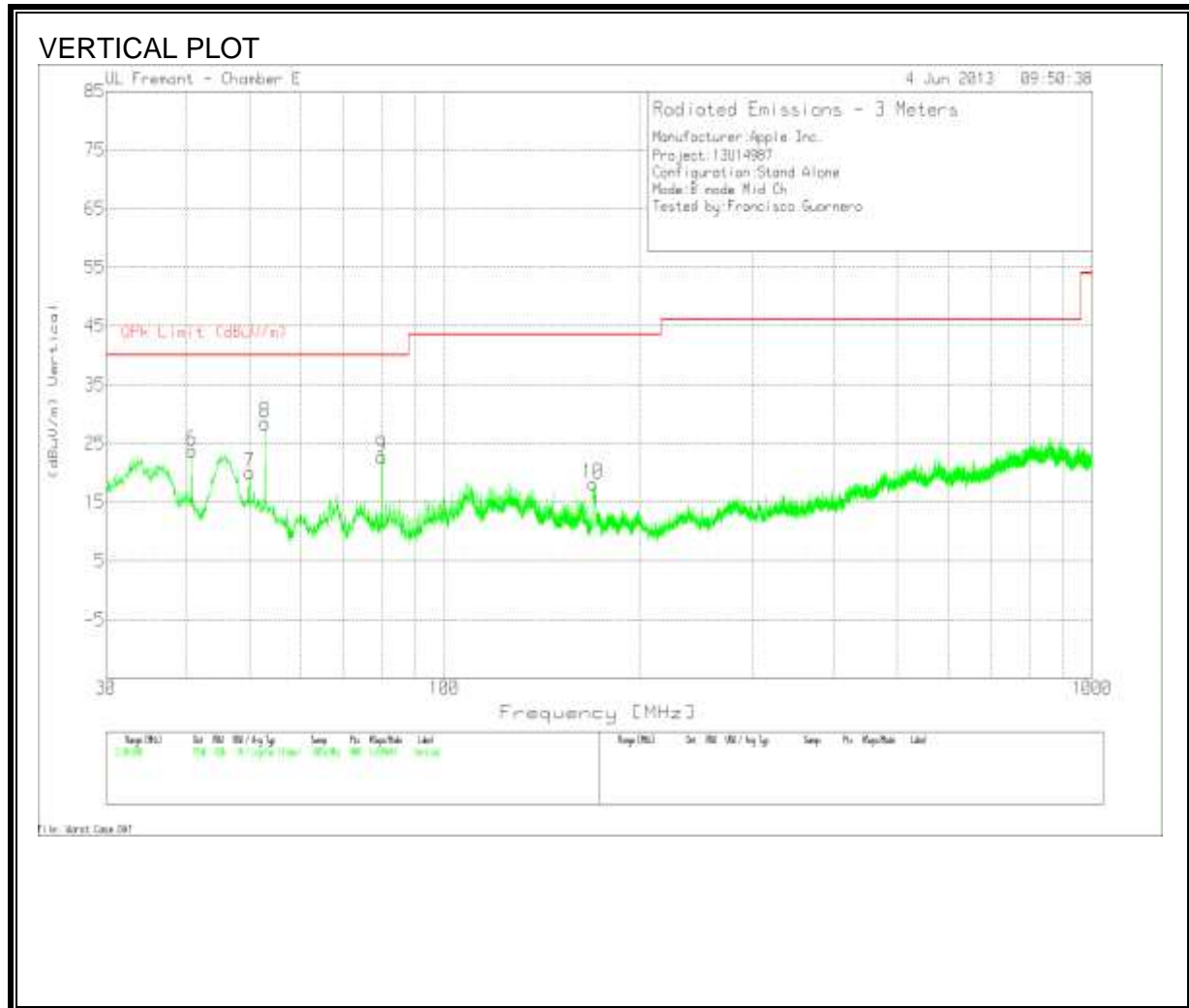
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dB/m) | Amp/Cbl/6 GHz HPF (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Height (cm) | Polarity |
|--------------------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|-------------|-------------|----------|
| 2 | 6.357 | 40.79 | PK | 35.9 | -29.1 | 47.59 | 53.97 | -6.38 | 74 | -26.41 | 199 | V |
| PK - Peak detector | | | | | | | | | | | | |

8.8. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)



HORIZONTAL AND VERTICAL DATA

Manufacturer: Apple Inc

Project:13U14987

Configuration:Stand Alone

Mode:B mode Mid Ch

Tested by:Francisco Guarnero

| Marker No. | Test Frequency | Meter Reading | Detector | AF T408 (dB/m) | Amp/Cbl (dB) | (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Height [cm] | Polarity |
|---------------------------------|----------------|---------------|----------|----------------|--------------|----------|--------------------|-------------|-------------|----------|
| Horizontal 30 - 200MHz | | | | | | | | | | |
| 1 | 49.5925 | 37.5 | PK | 8.1 | -27.6 | 18 | 40 | -22 | 200 | Horz |
| 2 | 60.26 | 35.91 | PK | 7.4 | -27.9 | 15.41 | 40 | -24.59 | 200 | Horz |
| 3 | 80.0225 | 38.87 | PK | 7.7 | -27.7 | 18.87 | 40 | -21.13 | 400 | Horz |
| 4 | 171.0575 | 34.72 | PK | 11.7 | -27.3 | 19.12 | 43.52 | -24.4 | 98 | Horz |
| Horizontal 200 - 1000MHz | | | | | | | | | | |
| 5 | 239.5 | 31.85 | PK | 11.5 | -26.3 | 17.05 | 46.02 | -28.97 | 99 | Horz |
| Vertical 30 - 200MHz | | | | | | | | | | |
| 6 | 40.7525 | 37.77 | PK | 13.3 | -27.3 | 23.77 | 40 | -16.23 | 100 | Vert |
| 7 | 50.0175 | 39.84 | PK | 7.9 | -27.7 | 20.04 | 40 | -19.96 | 100 | Vert |
| 8 | 52.8225 | 48.77 | PK | 7.3 | -27.6 | 28.47 | 40 | -11.53 | 100 | Vert |
| 9 | 80.0225 | 42.72 | PK | 7.7 | -27.7 | 22.72 | 40 | -17.28 | 100 | Vert |
| 10 | 169.57 | 33.85 | PK | 11.7 | -27.4 | 18.15 | 43.52 | -25.37 | 100 | Vert |

PK - Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

| Frequency of Emission (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 PROCEDURE

ANSI C63.4

RESULTS

6 WORST EMISSIONS

Line-L1 .15 - 30MHz

| Test Frequency | Meter Reading | Detector | T24 IL L1.TXT (dB) | LC Cables 1&3.TXT (dB) | dB(uVolts) | CISPR 11/22 Class B Quasi-peak | Margin | CISPR 11/22 Class B Average | Margin |
|----------------|---------------|----------|--------------------|------------------------|------------|--------------------------------|--------|-----------------------------|--------|
| 0.159 | 54.38 | QP | 0.1 | 0 | 54.48 | 65.52 | -11.04 | - | - |
| 0.159 | 48.7 | Av | 0.1 | 0 | 48.8 | - | - | 55.5 | -6.7 |
| 0.8295 | 48.8 | PK | 0.1 | 0 | 48.9 | 56 | -7.1 | - | - |
| 0.8295 | 30.76 | Av | 0.1 | 0 | 30.86 | - | - | 46 | -15.14 |
| 7.278 | 39.71 | PK | 0.1 | 0.1 | 39.91 | 60 | -20.09 | - | - |
| 7.278 | 25.72 | Av | 0.1 | 0.1 | 25.92 | - | - | 50 | -24.08 |
| 16.854 | 45.42 | PK | 0.2 | 0.2 | 45.82 | 60 | -14.18 | - | - |
| 16.854 | 28.85 | Av | 0.2 | 0.2 | 29.25 | - | - | 50 | -20.75 |

Line-L2 .15 - 30MHz

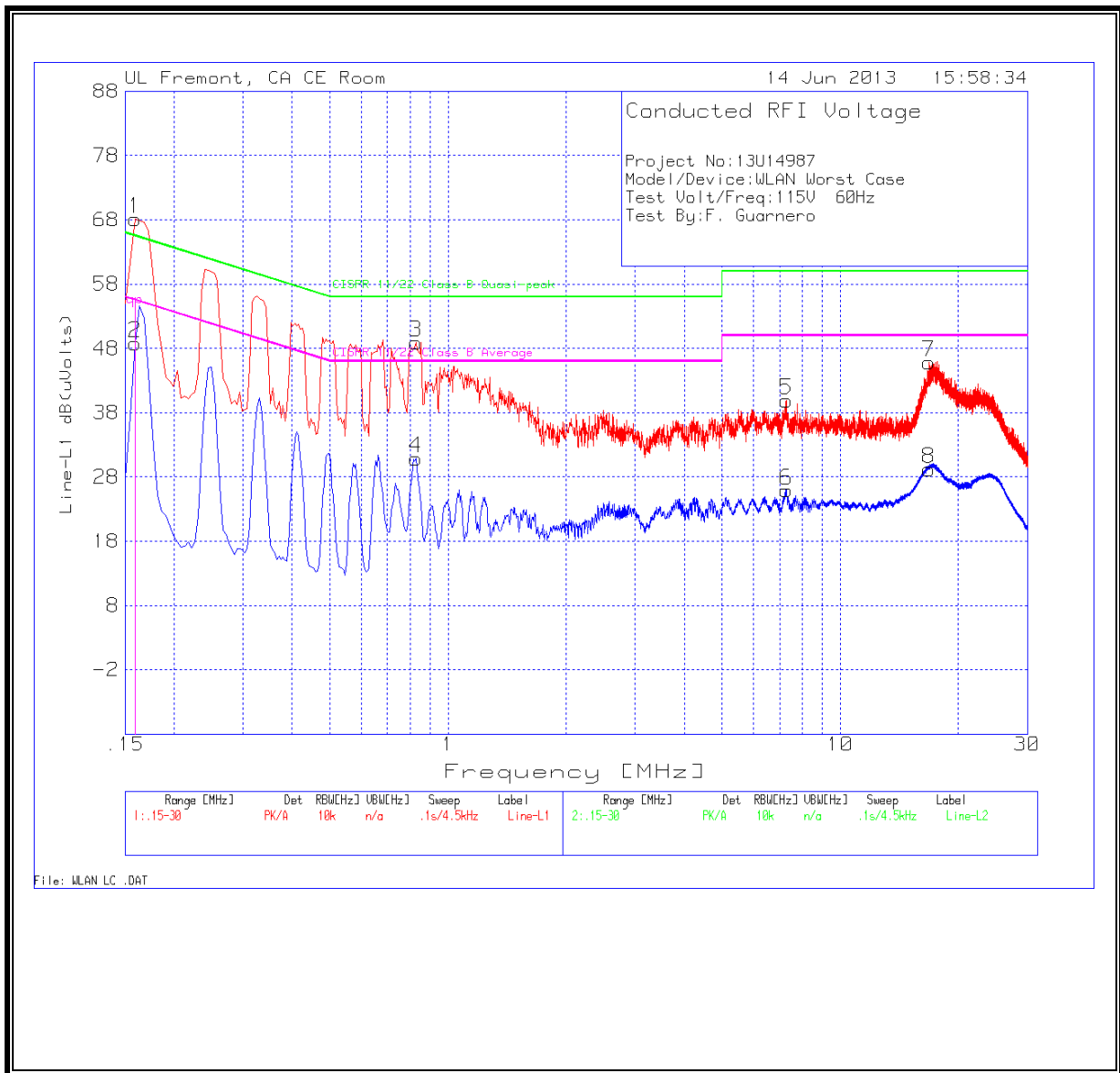
| Test Frequency | Meter Reading | Detector | T24 IL L2.TXT (dB) | LC Cables 2&3.TXT (dB) | dB(uVolts) | CISPR 11/22 Class B Quasi-peak | Margin | CISPR 11/22 Class B Average | Margin |
|----------------|---------------|----------|--------------------|------------------------|------------|--------------------------------|--------|-----------------------------|--------|
| 0.1545 | 54.75 | PK | 0.1 | 0 | 54.85 | 65.8 | -10.95 | - | - |
| 0.1545 | 40.25 | Av | 0.1 | 0 | 40.35 | - | - | 55.8 | -15.45 |
| 0.78 | 42.3 | PK | 0.1 | 0 | 42.4 | 56 | -13.6 | - | - |
| 0.78 | 24.89 | Av | 0.1 | 0 | 24.99 | - | - | 46 | -21.01 |
| 2.4585 | 35.55 | PK | 0.1 | 0.1 | 35.75 | 56 | -20.25 | - | - |
| 2.4585 | 22.07 | Av | 0.1 | 0.1 | 22.27 | - | - | 46 | -23.73 |
| 17.5425 | 42 | PK | 0.2 | 0.2 | 42.4 | 60 | -17.6 | - | - |
| 17.5425 | 29.72 | Av | 0.2 | 0.2 | 30.12 | - | - | 50 | -19.88 |

PK - Peak detector

QP - Quasi-Peak detector

Av - Average detector

LINE 1 RESULTS



LINE 2 RESULTS

