FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1

CERTIFICATION TEST REPORT

FOR

WLAN 2.4GHz b/g/n, Bluetooth and BLE Module

MODEL NUMBER: SWOC-T

FCC ID: J9CSWOC-T
IC ID: 2723A-SWOCT

REPORT NUMBER: 16U23207-E3V2

ISSUE DATE: 11/8/2016

Prepared for
QUALCOMM TECHNOLOGIES, INC.
5775 MOREHOUSE DRIVE
SAN DIEGO
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/11/16	Initial Issue	C. Vergonio
V2	11/8/16	Updated Section 5.5	C. Vergonio

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: QUALCOMM TECHNOLOGIES, INC.
5775 Morehouse Drive
San Diego, CA, 92121, USA

EUT DESCRIPTION: WLAN 2.4GHz b/g/n, Bluetooth and BLE Module

MODEL: SWOC-T

SERIAL NUMBER: Conducted Sample: N10ML3B1C
Radiated Sample: N10ML37L3

DATE TESTED: August 17 to October 11, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	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
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CONSUMER TECHNOLOGY DIVISION
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UL Verification Services Inc.

Prepared By:

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, RSS-GEN Issue 4, RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

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

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Radiated Disturbance,1000 to 18000 MHz	4.32 dB
Radiated Disturbance,18000 to 26000 MHz	4.45 dB
Radiated Disturbance,26000 to 40000 MHz	5.24 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WLAN 2.4GHz b/g/n, Bluetooth and BLE Module.

The radio module is manufactured by Qualcomm.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b	18.54	71.45
2412 - 2472	802.11g	16.58	45.50
2412 - 2472	802.11n HT20	16.45	44.16

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna to be used with the device are integral antennas with maximum gain of 0dBi (including gain and path loss).

5.4. SOFTWARE AND FIRMWARE

The product SW version is: MSM8909W.LAW.1.0-00095-512M.PM8916.APQ.INT-1

The EUT driver software installed in the host support equipment during testing was Qualcomm Incorporated, rev. 2.1.2.2.

The test utility software used during testing was Qualcomm Radio Control Toolkit (QRCT), v3.0.54.0.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated bandedge, harmonics, and spurious emissions from 1 GHz to 18GHz were performed with 50 ohm load, terminator method (cabinet). The EUT was set to transmit at the Low/Middle/High channels with designed (target) output powers.

Radiated emission below 1GHz, above 18GHz, and power line conducted emission were also performed with 50 ohm load, terminator method (cabinet). The EUT was set to transmit at the channel with highest output power as worst-case scenario.

Conducted band edge, harmonics, and spurious below, above 1GHz in restricted band were performed to comply with radiated limits.

Worst-case data rates as provided by the client were:

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

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, & Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	HP	Elitebook 8460p	CNU1340PXF	-
Laptop	HP	Elitebook 8460p	CNU2020MMC	-
AC Adapter	HP	PP012L	2112645106	-
AC Adapter	HP	PP012H	F12941129022008	-
DC Power Supply	AMETEK	XT 15-4	1319A00221	-
DC Power Supply	AMETEK	XT 15-4	1319A02778	-

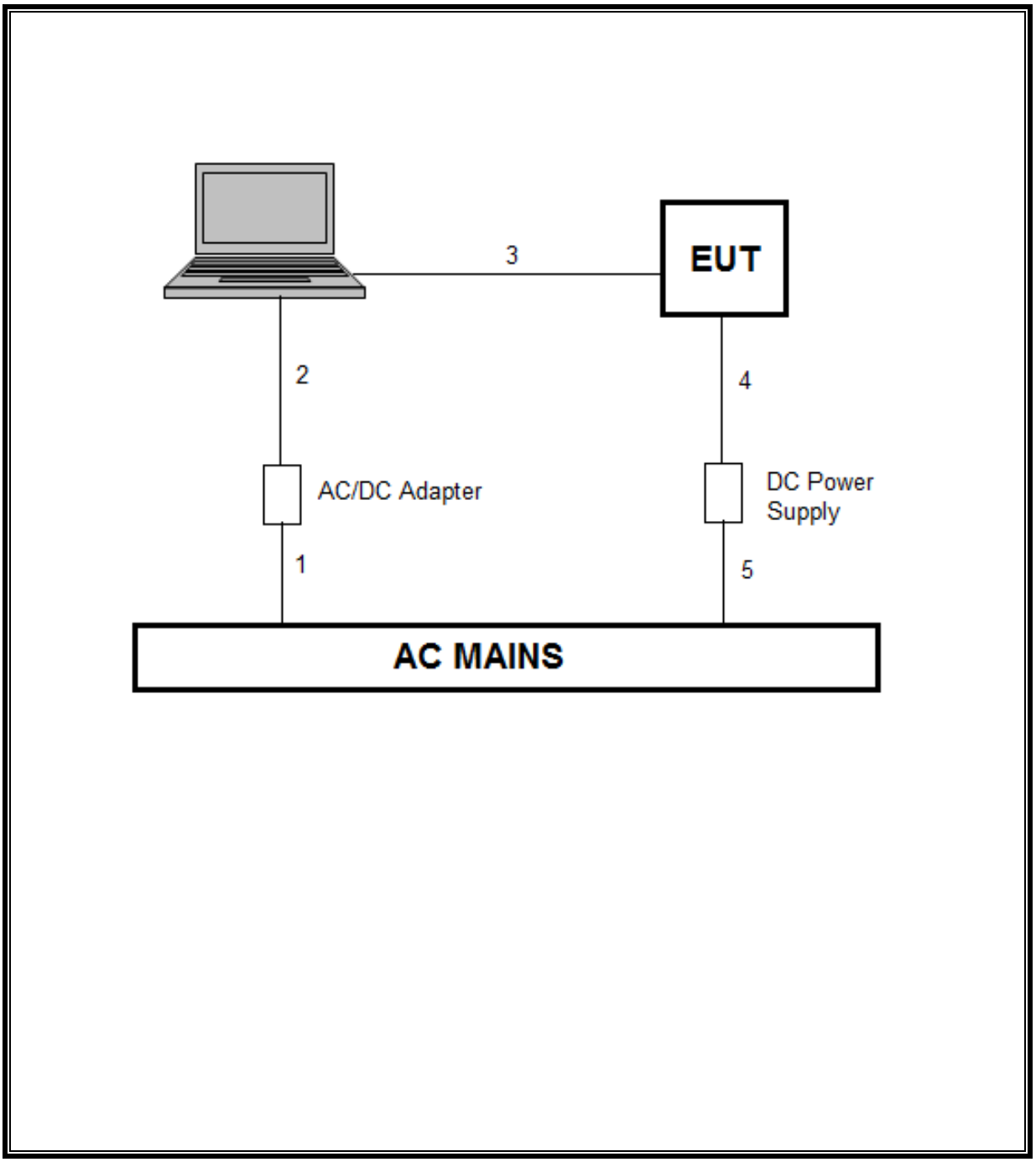
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC Power	1	AC	Unsheilded	1	AC Mains to AC/DC Adapter
2	DC Power	1	BARREL	Sheilded	1.2	AC/DC Adapter to Laptop
3	MicroUSB	1	USB	Unsheilded	1.5	Laptop to EUT
4	DC Power	1	BARREL	Unsheilded	0.3	DC Power to EUT
5	AC Power	1	AC	Unsheilded	1	AC Mains to Power Supply

TEST SETUP

The EUT is connected to the host laptop via USB cable. Test software on the laptop exercised the radio card.

SETUP DIAGRAM FOR 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	T No.	Cal Date	Cal Due
Amplifier, 1 - 18GHz	Miteq	AFS42	T1165	03/09/16	03/09/17
Amplifier, 1 - 18GHz	Miteq	AFS42	T493	03/09/16	03/09/17
Amplifier, 1 - 8GHz	Miteq	N9030A	T1156	03/09/16	03/09/17
Amplifier, 1 - 8GHz	Amplical	AMP1G7-10-27	T1370	11/25/15	11/25/16
Amplifier, 10KHz to 1GHz, 32dB	HP	8447D	T15	08/26/16	08/26/17
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Science	JB1	T122	01/29/16	01/29/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T346	02/22/16	02/22/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T345	03/07/16	03/07/17
EMI Test Receiver 9Khz-7GHz	R&S	ESR7	T1436	12/08/15	12/08/16
LISN for Conducted Emissions	Fischer	50/250-25-2	T1310	06/08/16	06/08/17
Loop Antenna, 10KHz-30MHz	EMCO	6502	35	03/24/16	03/24/17
Power Cable, Line Conducted Emissions	UL	PG1	N/A	07/28/16	07/28/17
Power Meter, P-series single channel	Keysight	N1911A	T1262	07/08/16	07/08/17
Power Sensor, P - series, Wideband	Agilent	N1921A	T751	08/23/16	08/23/17
PSA Spectrum Analyzer 40GHz	Agilent	E4446A	T146	07/13/16	07/13/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T937	04/13/16	04/13/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	PRE0126777	12/21/15	12/21/16
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T907	01/06/16	01/06/17

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Apr 26, 2016
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Antenna Port Software	UL	UL RF	Ver 5.1.1, July 15, 2016

7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v03r05, Section 6.

6 dB Emission BW: KDB 558074 D01 v03r05, Section 8.1.

99% BW: ANSI C63.10-2013, Section 6.9.3.

Conducted Output Power: KDB 558074 D01 v03r05, Section 9.2.3.1 (Method AVGPM-G).

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.3 (Method AVGPSD-1).

Unwanted emissions in restricted bands: KDB 558074 D01 v03r05, Section 12.0, 12.2.2, 12.2.7

Unwanted emissions in non-restricted bands: KDB 558074 D01 v03r05, Section 11.1, 11.2, and 11.3

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2.1	Occupied Bandwidth (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-30dBc		Pass
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass
15.205, 15.209 15.247(d)	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

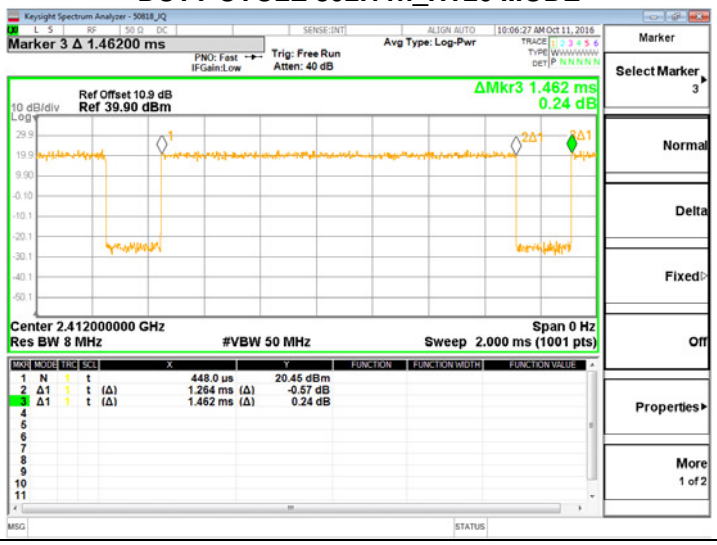
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b 1TX	8.235	8.430	0.977	97.69%	0.10	0.121
802.11g 1TX	1.365	1.565	0.872	87.22%	0.59	0.733
802.11n HT20 1TX	1.264	1.462	0.865	86.46%	0.63	0.791

DUTY CYCLE PLOTS

DUTY CYCLE 802.11b MODE

DUTY CYCLE 802.11g MODE

DUTY CYCLE 802.11n_HT20 MODE



9.2. 802.11b MODE IN THE 2.4 GHz BAND

9.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2.1

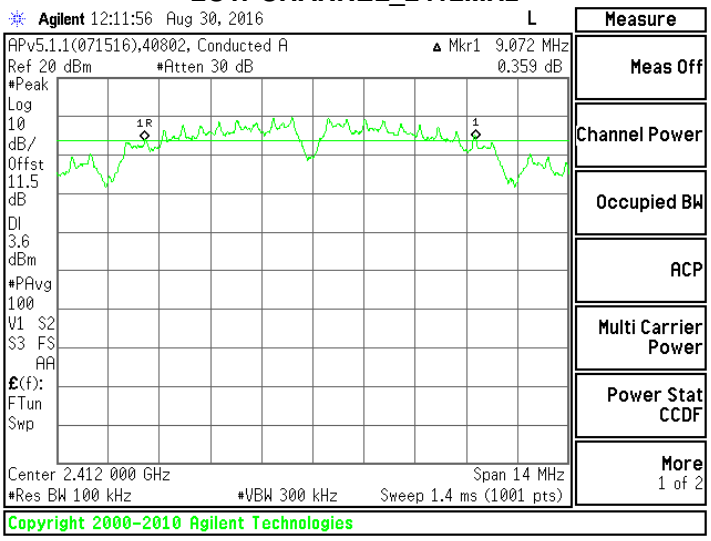
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

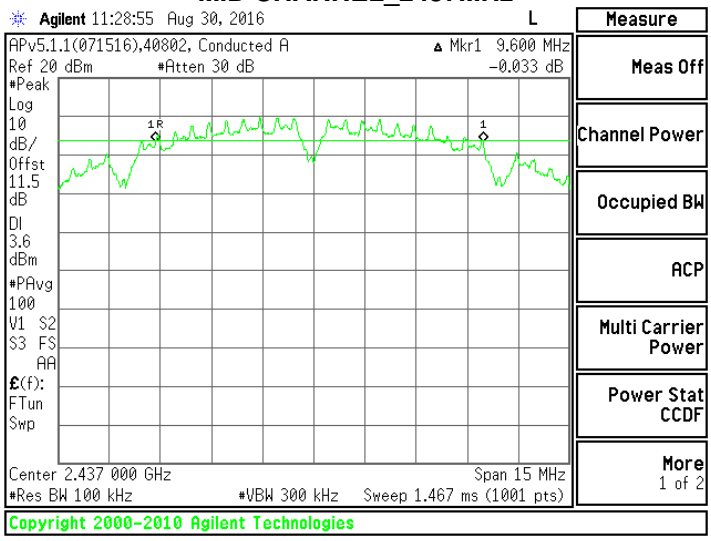
Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	9.072	0.5
Mid	2437	9.600	0.5
High	2462	8.580	0.5
12	2467	9.570	0.5
13	2472	8.606	0.5

6 dB BANDWIDTH

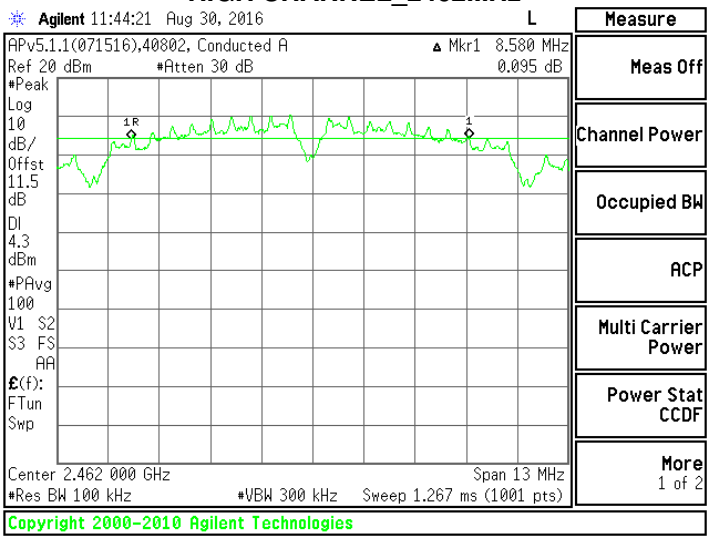
LOW CHANNEL_2412MHz



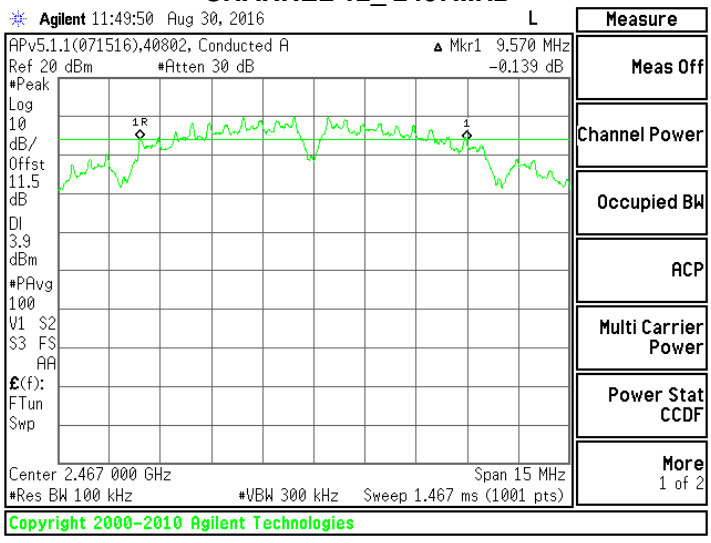
MID CHANNEL_2437MHz



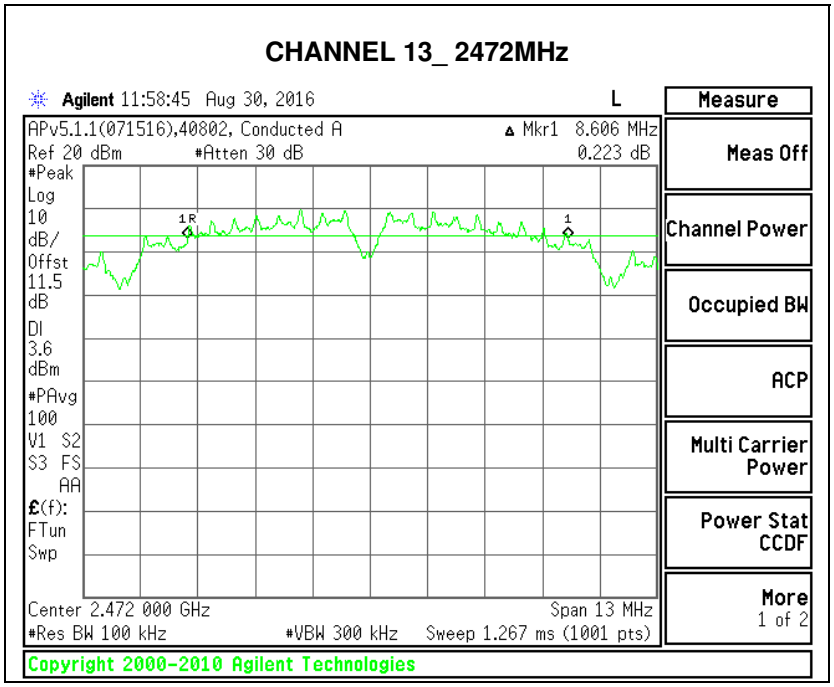
HIGH CHANNEL_2462MHz



CHANNEL 12_ 2467MHz



CHANNEL 13_ 2472MHz



9.2.2. 99% BANDWIDTH

LIMITS

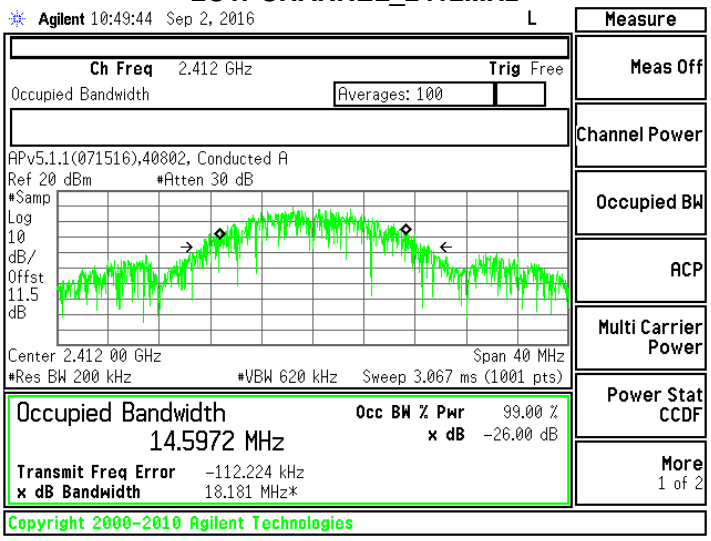
None; for reporting purposes only.

RESULTS

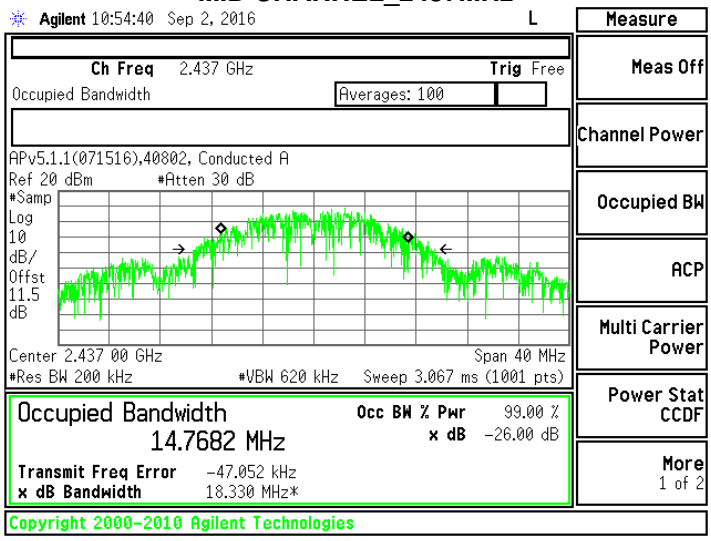
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	2412	14.5972
Mid	2437	14.7682
High	2462	14.1633
12	2467	14.4392
13	2472	14.0847

99% BANDWIDTH

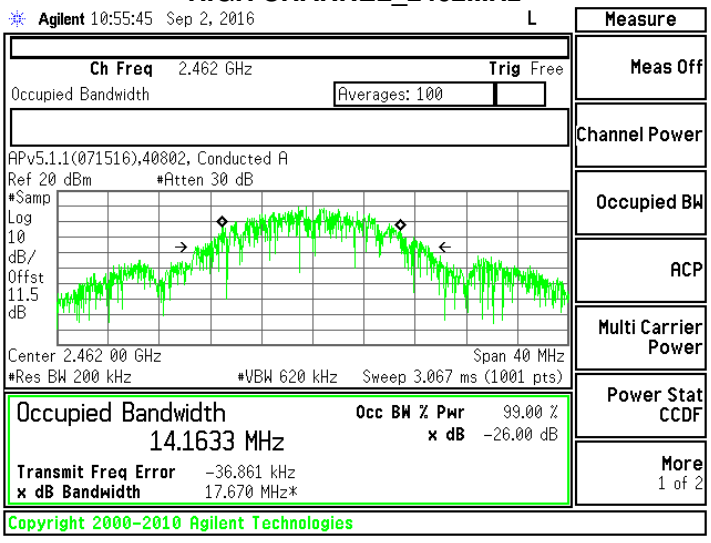
LOW CHANNEL_2412MHz



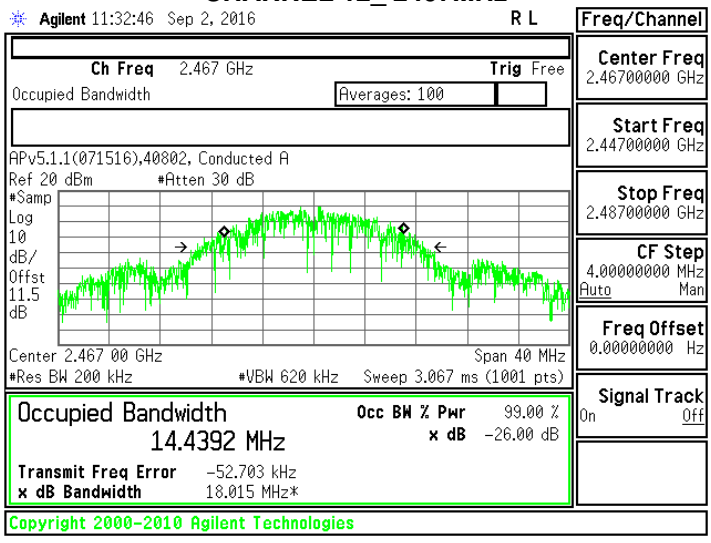
MID CHANNEL_2437MHz

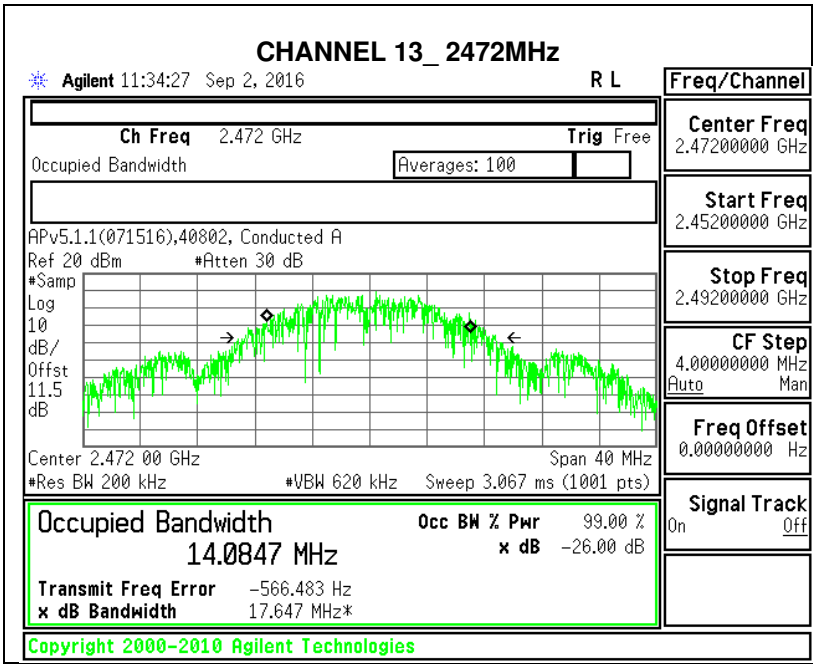


HIGH CHANNEL_2462MHz



CHANNEL 12_ 2467MHz





9.2.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

ID:	40802	Date:	08/18/16

Channel	Frequency (MHz)	Power (dBm)
Low	2412	16.94
2	2417	17.54
3	2422	18.04
Mid	2437	18.08
8	2447	18.54
9	2452	17.49
10	2457	17.65
High	2462	17.51
12	2467	15.67
13	2472	12.75

9.2.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 5.4.4

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

ID:	40802	**Date:**	08/18/16

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	16.94	30	-13.06
2	2417	17.54	30	-12.46
3	2422	18.04	30	-11.96
Mid	2437	18.08	30	-11.92
8	2447	18.54	30	-11.46
9	2452	17.49	30	-12.51
10	2457	17.65	30	-12.35
High	2462	17.51	30	-12.49
12	2467	15.67	30	-14.33
13	2472	12.75	30	-17.25

Note: the power readings above are measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

9.2.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 5.2.2

RESULTS

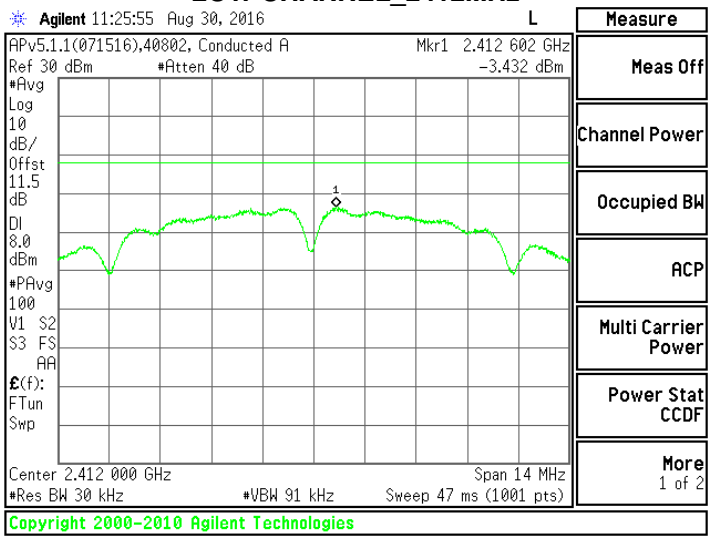
Duty Cycle CF (dB)	0.10	Included in Calculations of Corr'd PSD

PSD Results

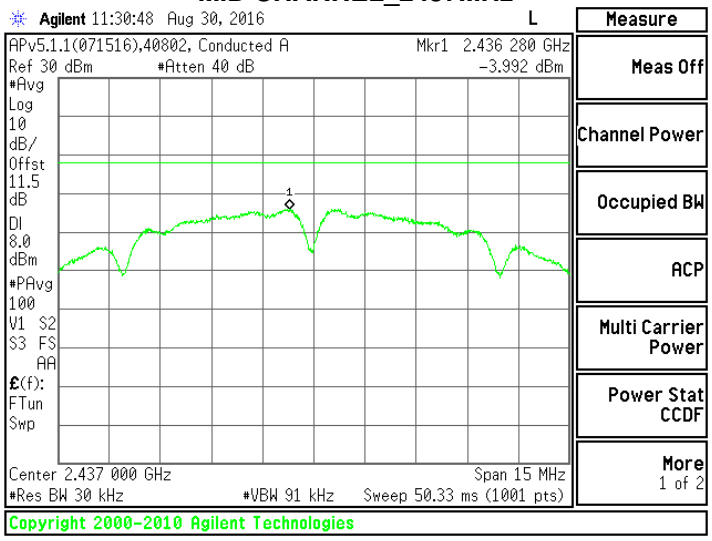
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.432	-3.332	8.0	-11.332
Mid	2437	-3.992	-3.892	8.0	-11.892
High	2462	-3.316	-3.216	8.0	-11.216
12	2467	-3.539	-3.439	8.0	-11.439
13	2472	-3.706	-3.606	8.0	-11.606

PDS, Chain 0

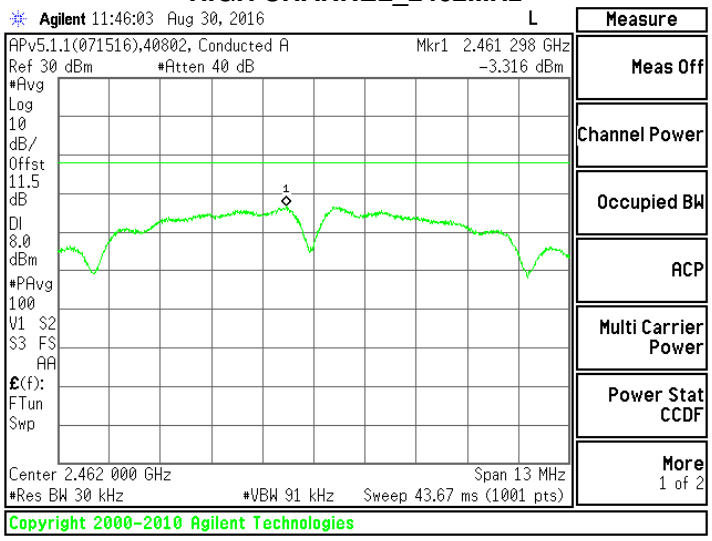
LOW CHANNEL_2412MHz



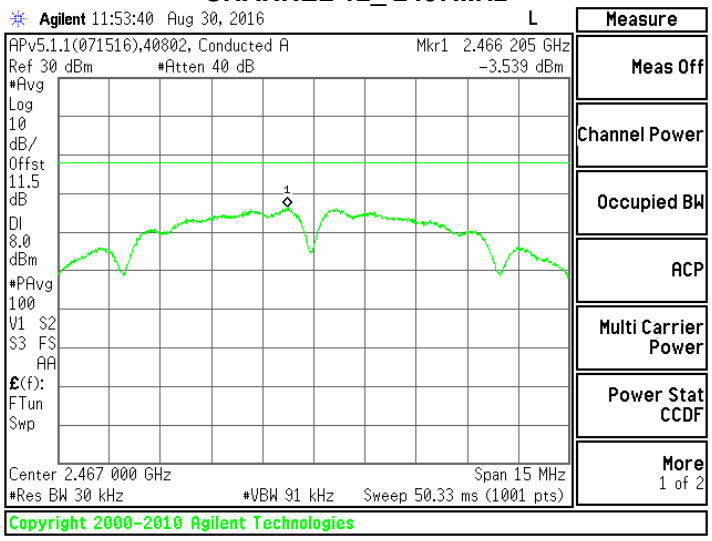
MID CHANNEL_2437MHz

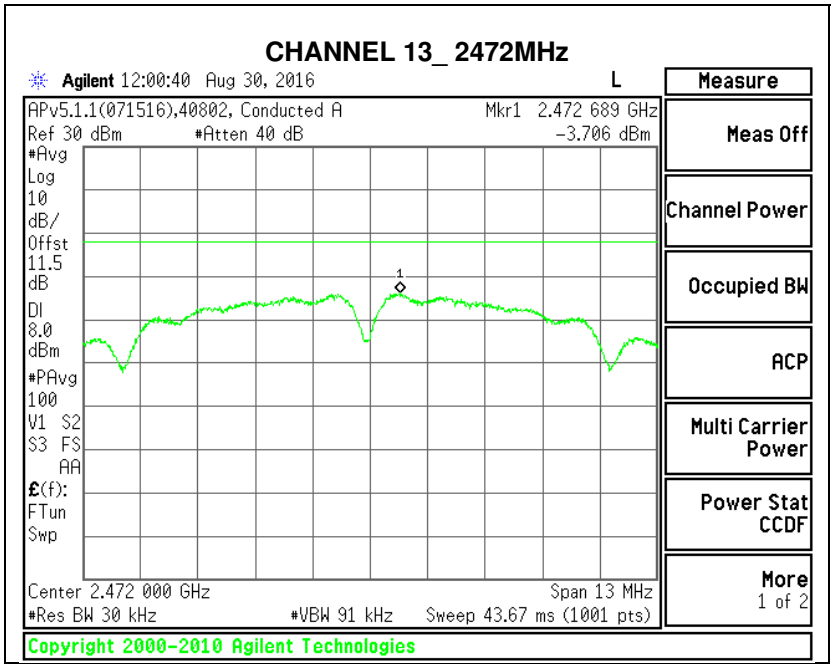


HIGH CHANNEL_2462MHz



CHANNEL 12_ 2467MHz





9.2.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

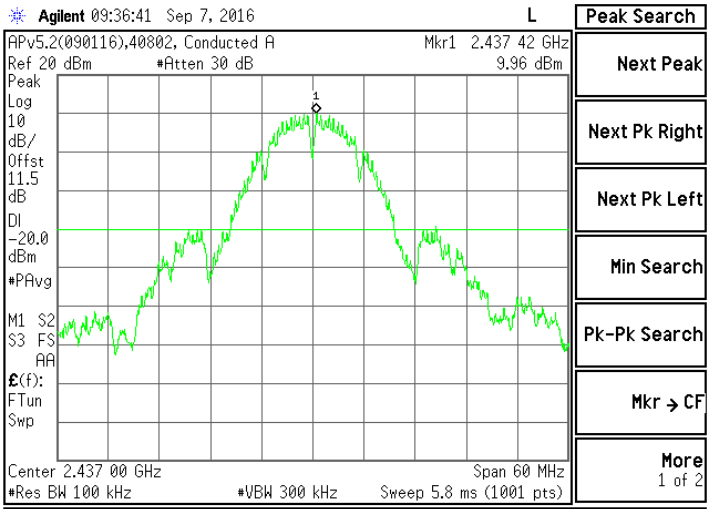
IC RSS-247 5.5

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.

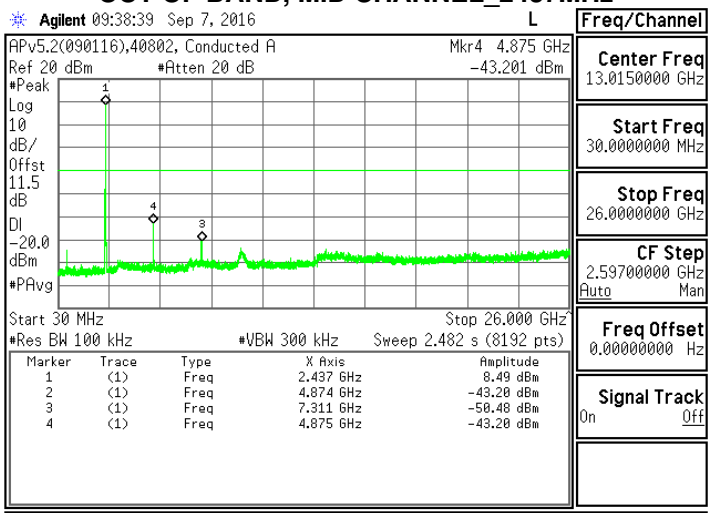
RESULTS

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH

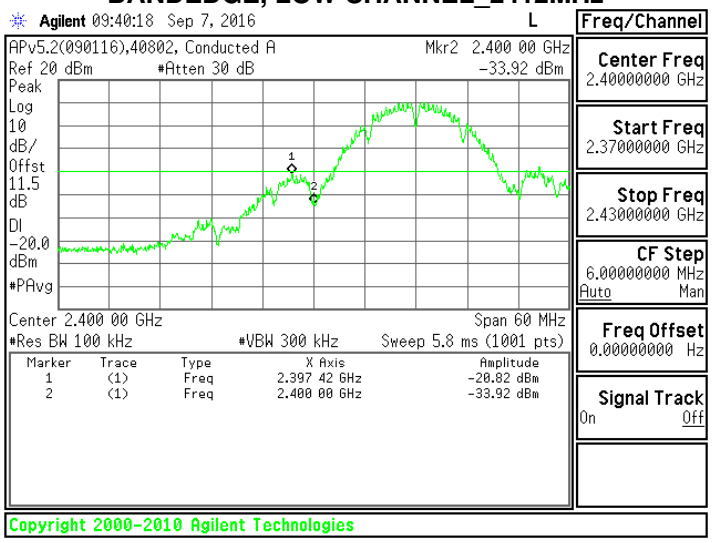


OUT OF BAND, MID CHANNEL_2437MHz

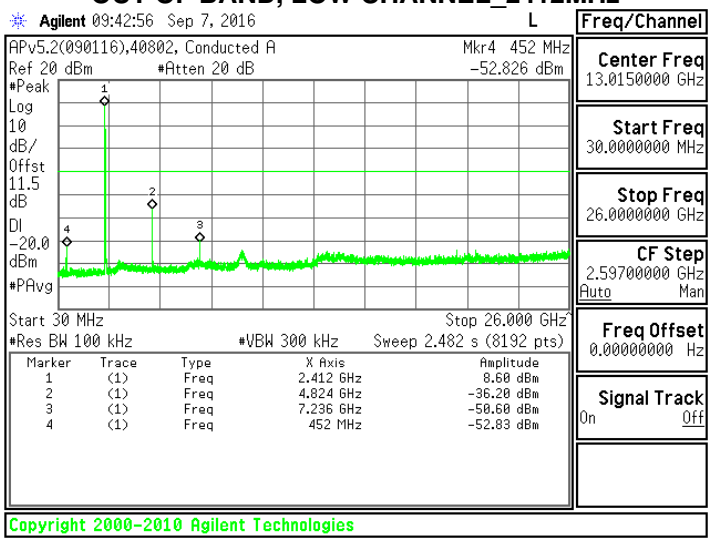


BANDEDGE & OUT-OF-BAND EMISSIONS

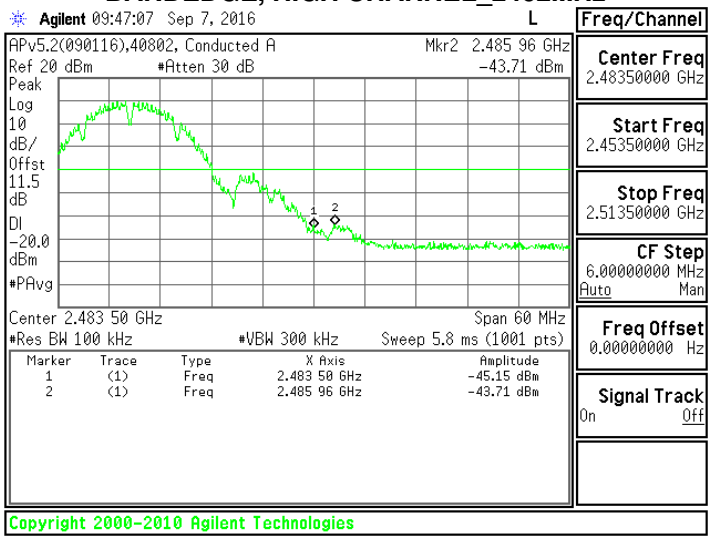
BANDEDGE, LOW CHANNEL_2412MHz



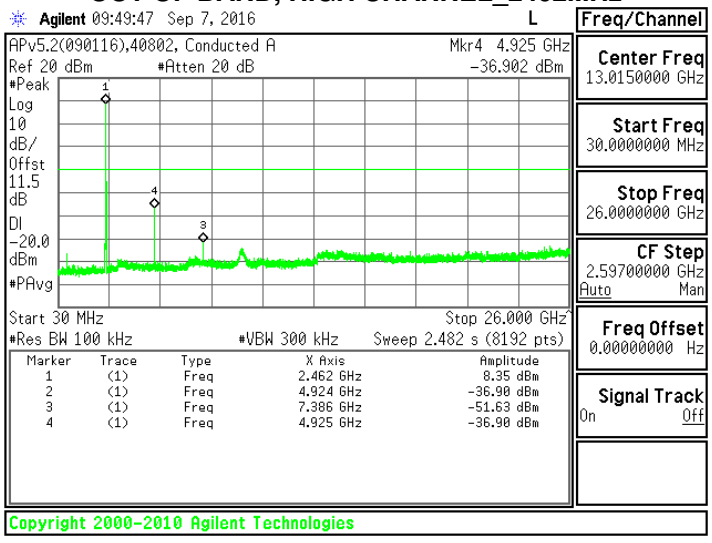
OUT OF BAND, LOW CHANNEL_2412MHz



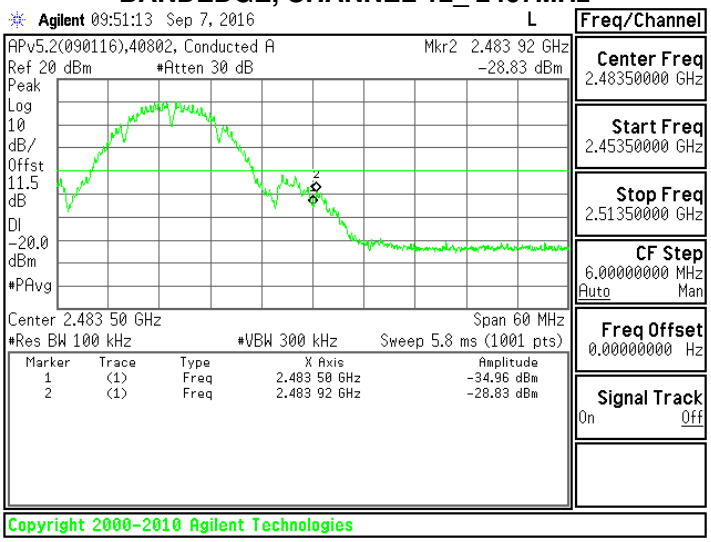
BANDEDGE, HIGH CHANNEL_2462MHz



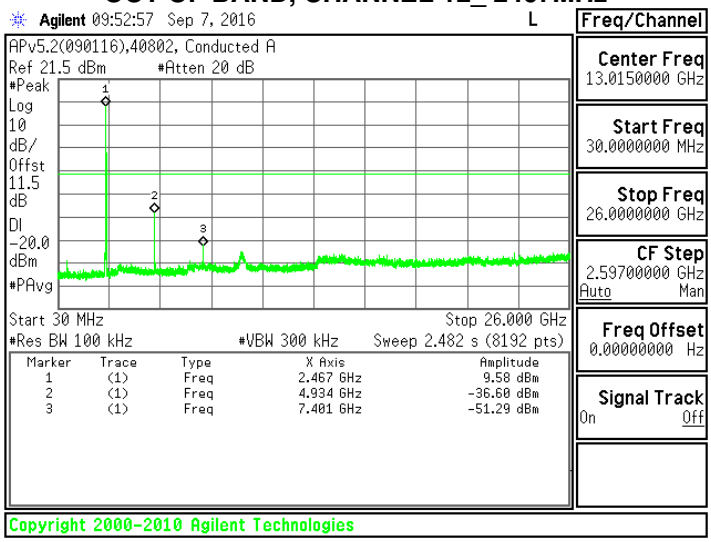
OUT OF BAND, HIGH CHANNEL_2462MHz



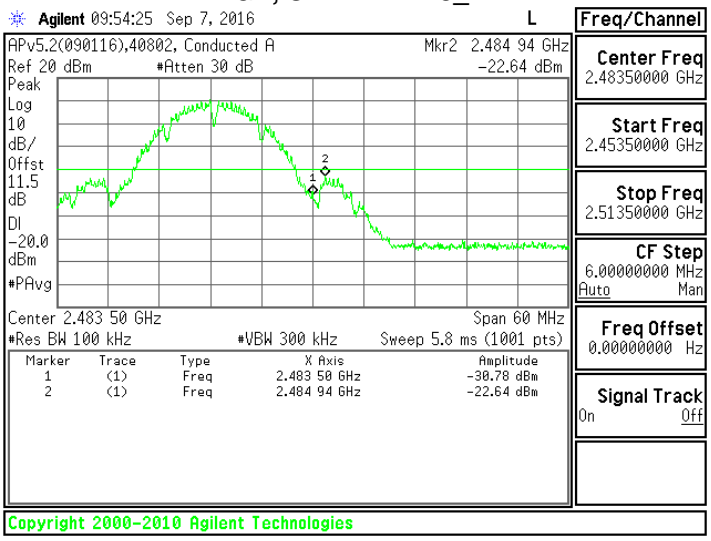
BANDEDGE, CHANNEL 12_ 2467MHz



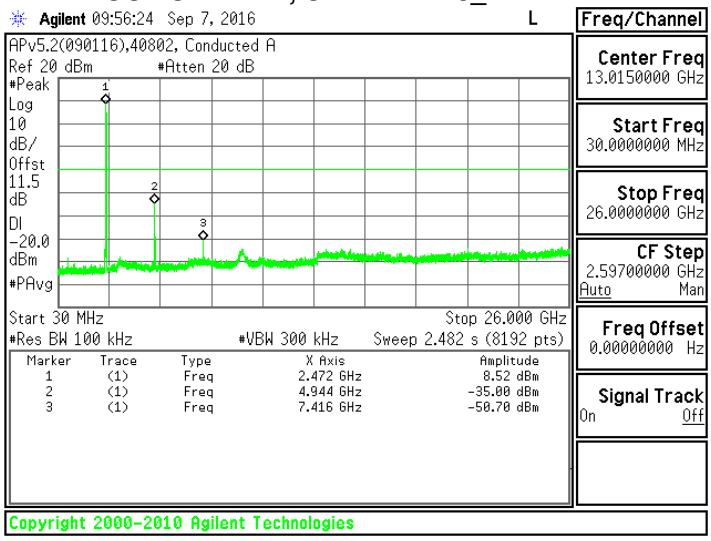
OUT OF BAND, CHANNEL 12_ 2467MHz



BANDEDGE, CHANNEL 13_ 2472MHz



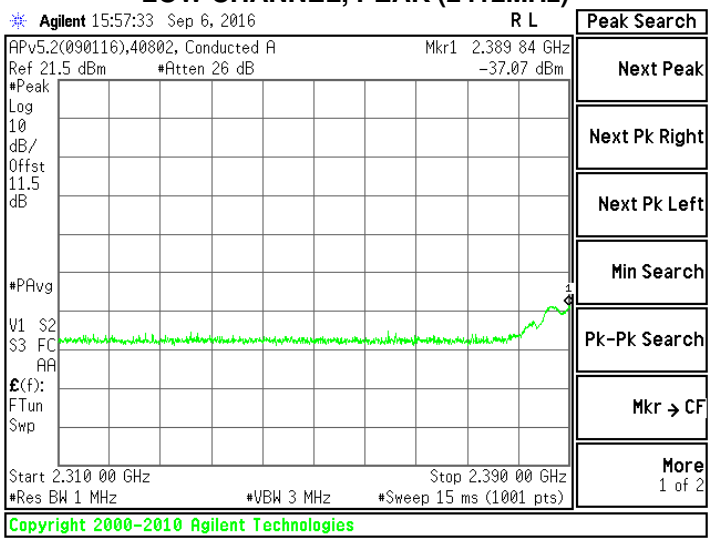
OUT OF BAND, CHANNEL 13_ 2472MHz



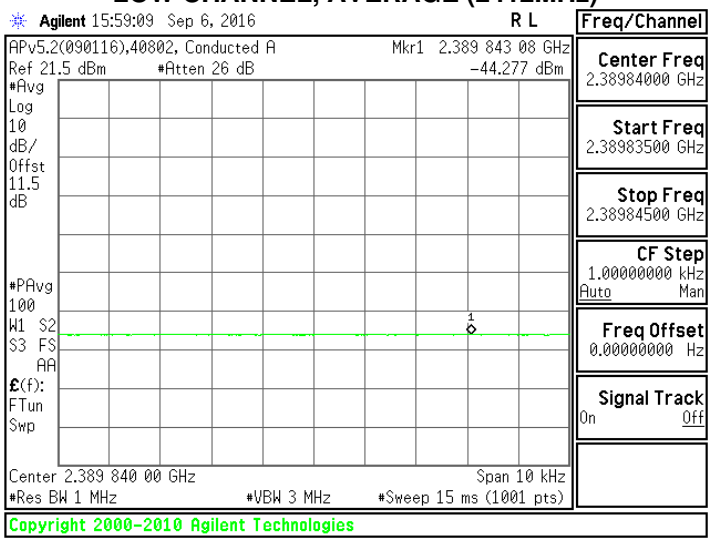
9.2.7. CONDUCTED BANDEDGE and HARMONICS/SPURIOUS IN RESTRICTED BANDS

BANDEDGE PLOTS

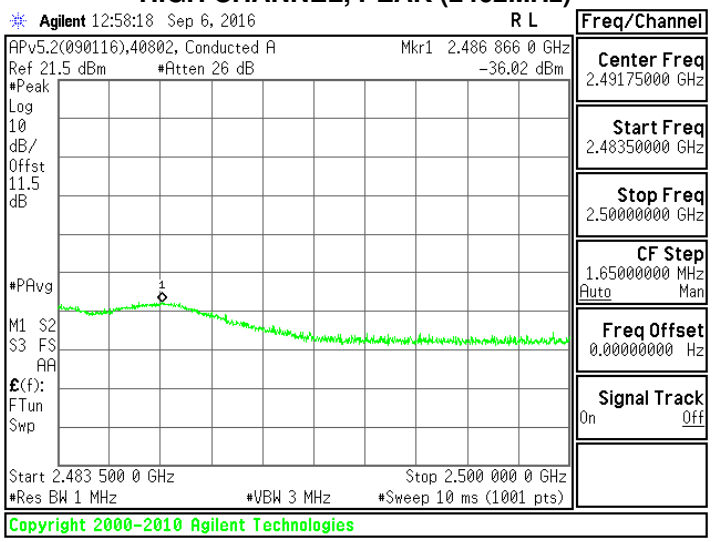
LOW CHANNEL, PEAK (2412MHz)



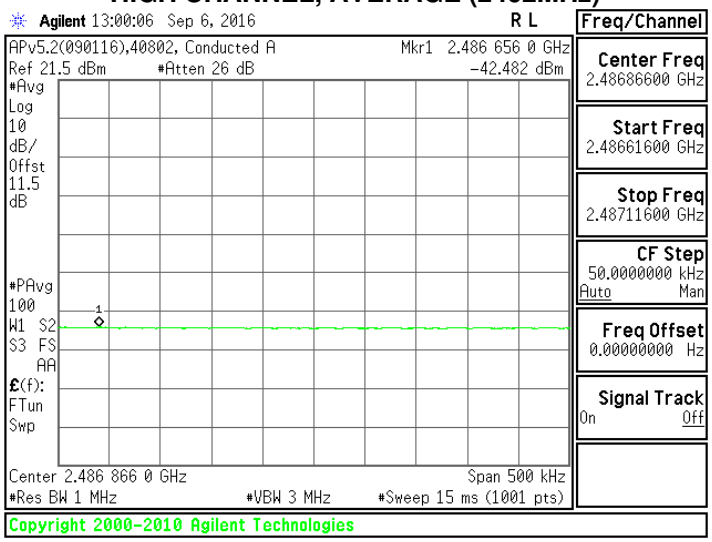
LOW CHANNEL, AVERAGE (2412MHz)



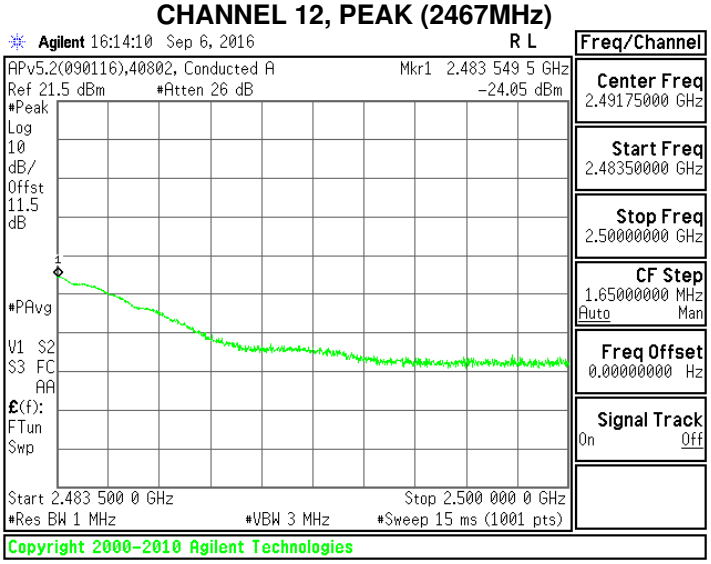
HIGH CHANNEL, PEAK (2462MHz)



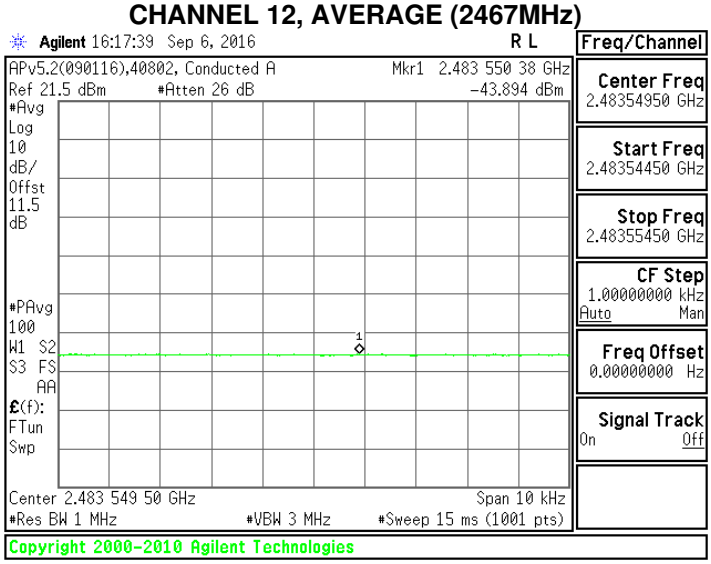
HIGH CHANNEL, AVERAGE (2462MHz)



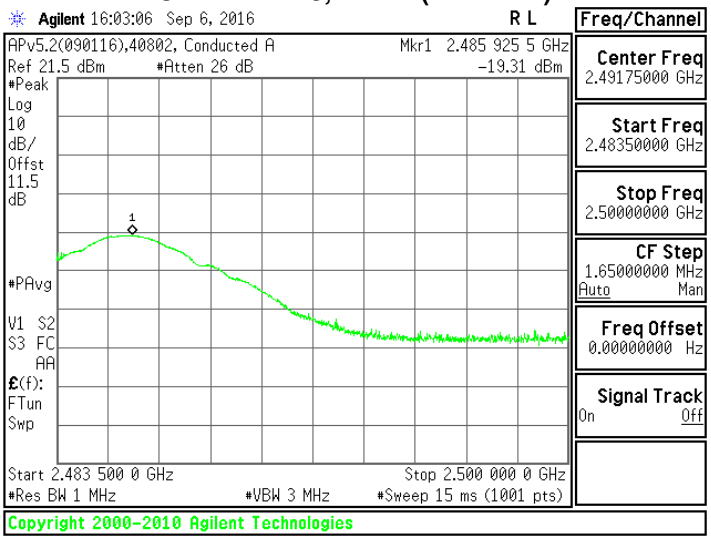
CHANNEL 12, PEAK (2467MHz)



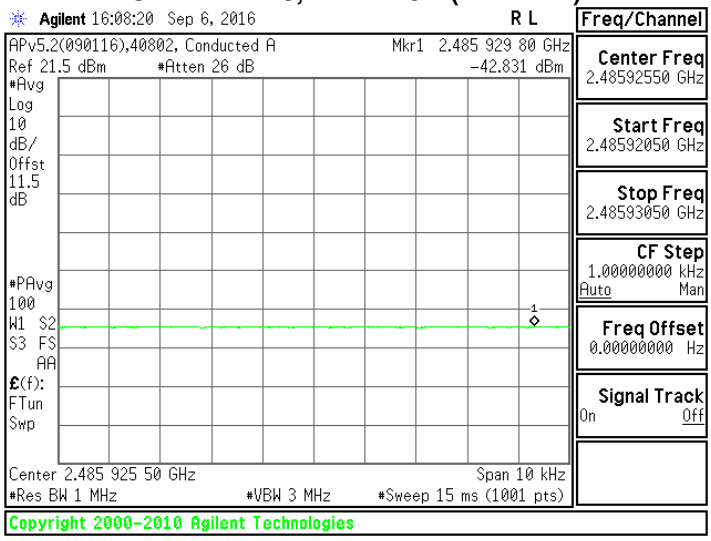
CHANNEL 12, AVERAGE (2467MHz)



CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



BANDEDGE DATA

Date: 9/2/2016
Test Engineer: 40802_TP
Client: QUALCOMM
Project Number: 16U23207
Configuration: EUT With Support Equipments
Mode of operation: BE_DTS-WLAN_B mode

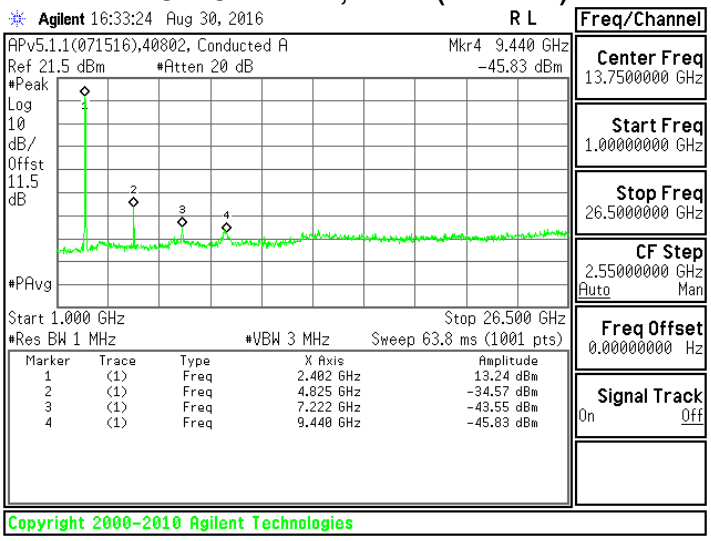
Note: if the PK margin is greater than 20 dB, there is no need to get AVG reading.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2389.84	-37.07	0	-37.07	-21.2	-15.87	14.00	18.29
CH11, 2462MHz							
2486.866	-36.02	0	-36.02	-21.2	-14.82	14.00	18.29
CH12, 2467MHz							
2483.5495	-24.05	0	-24.05	-21.2	-2.85	14.00	18.30
CH13, 2472MHz							
2485.9255	-19.31	0	-19.31	-21.2	1.89	14.00	18.19

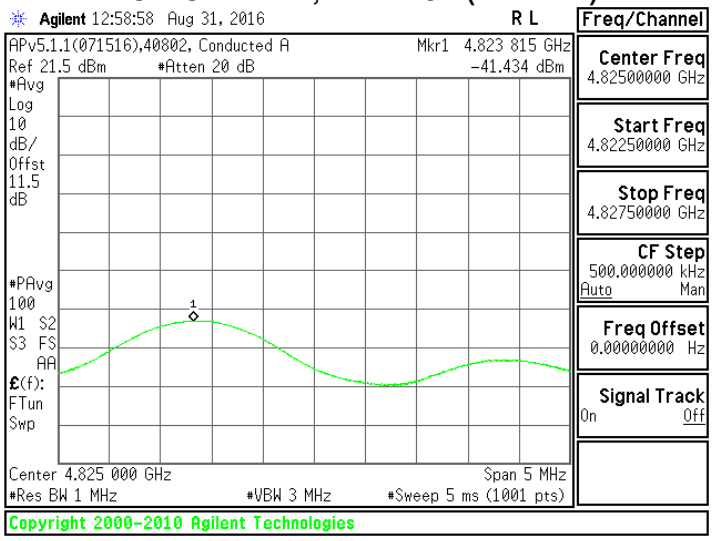
Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2389.84	-44.277	0	-44.28	-41.2	-3.08	14.00	18.29
CH11, 2462MHz							
2486.866	-42.482	0	-42.48	-41.2	-1.28	14.00	18.29
CH12, 2467MHz							
2483.5495	-43.894	0	-43.89	-41.2	-2.69	10.00	15.67
CH13, 2472MHz							
2485.9255	-42.831	0	-42.83	-41.2	-1.63	8.00	13.71

HARMONICS AND SPURIOUS

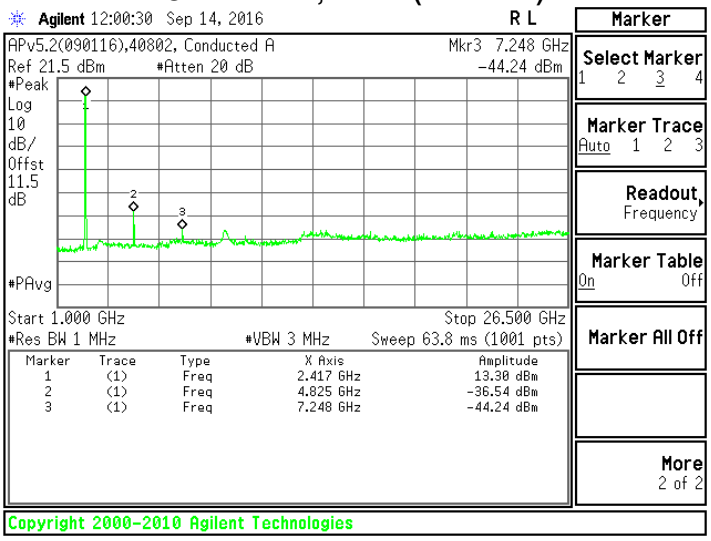
LOW CHANNEL, PEAK (2412MHz)



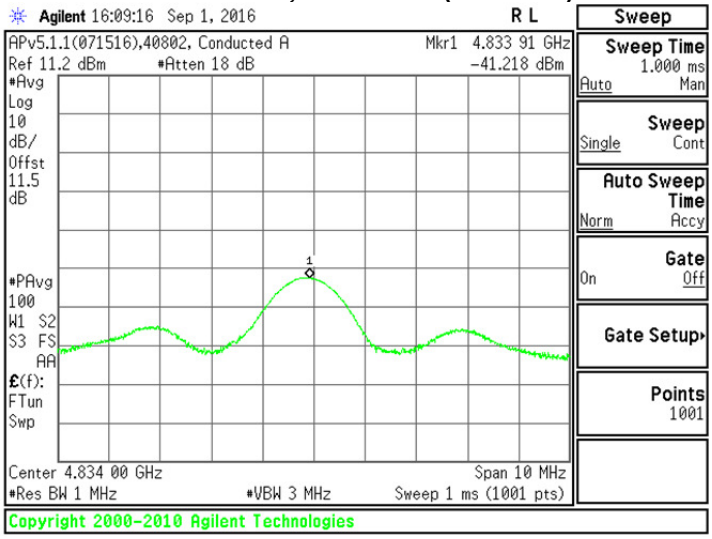
LOW CHANNEL, AVERAGE (2412MHz)



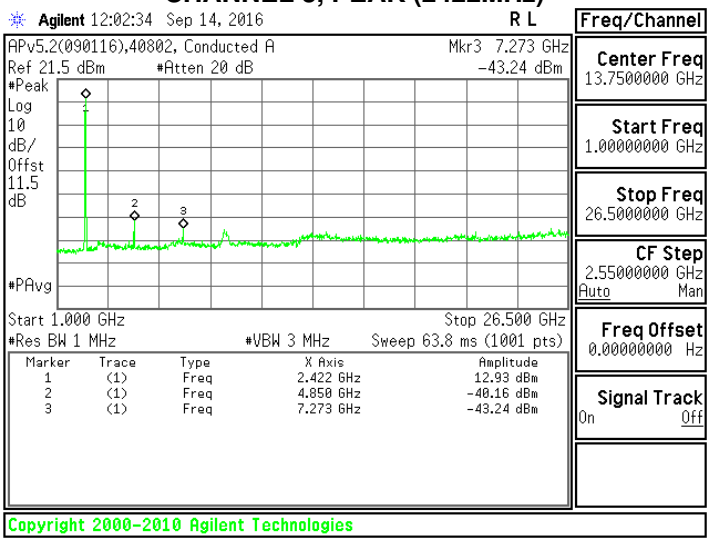
CHANNEL 2, PEAK (2417MHz)



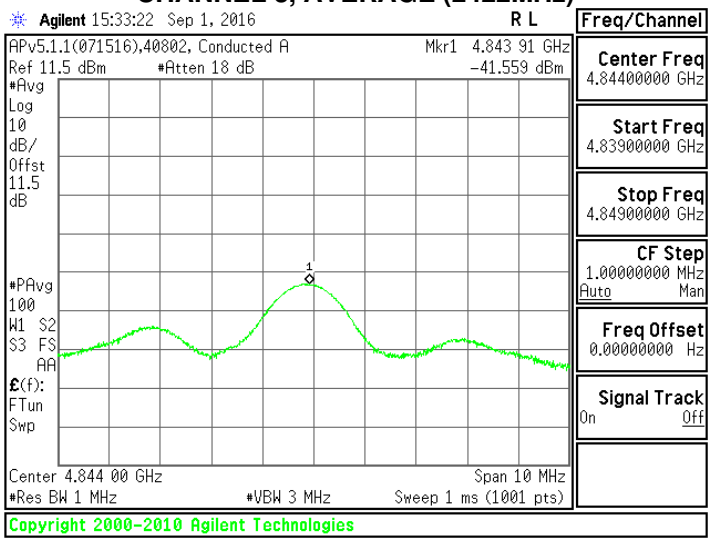
CHANNEL 2, AVERAGE (2417MHz)



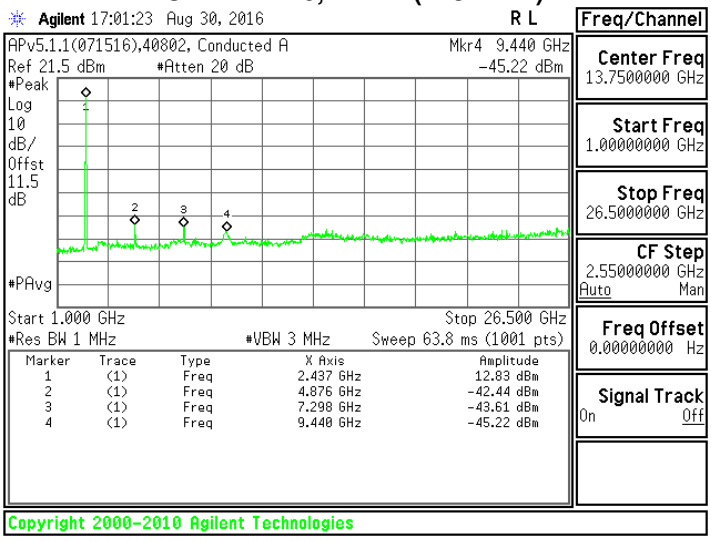
CHANNEL 3, PEAK (2422MHz)



CHANNEL 3, AVERAGE (2422MHz)

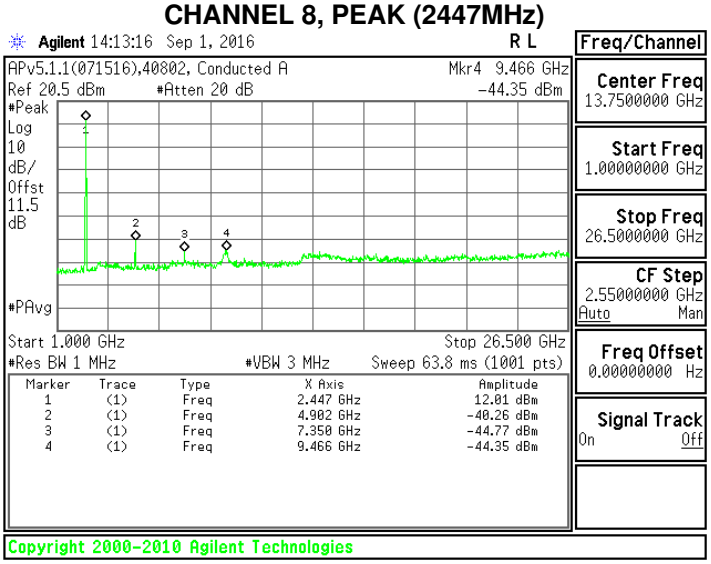


CHANNEL 6, PEAK (2437MHz)

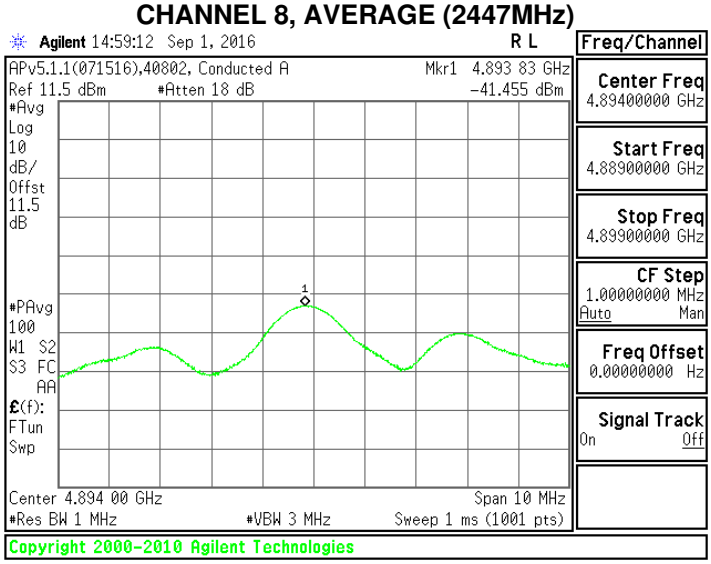


Intentionally leave blank

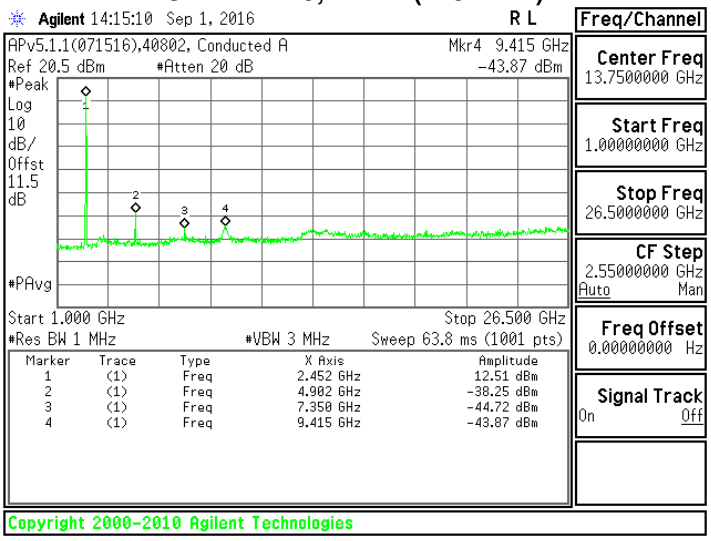
CHANNEL 8, PEAK (2447MHz)



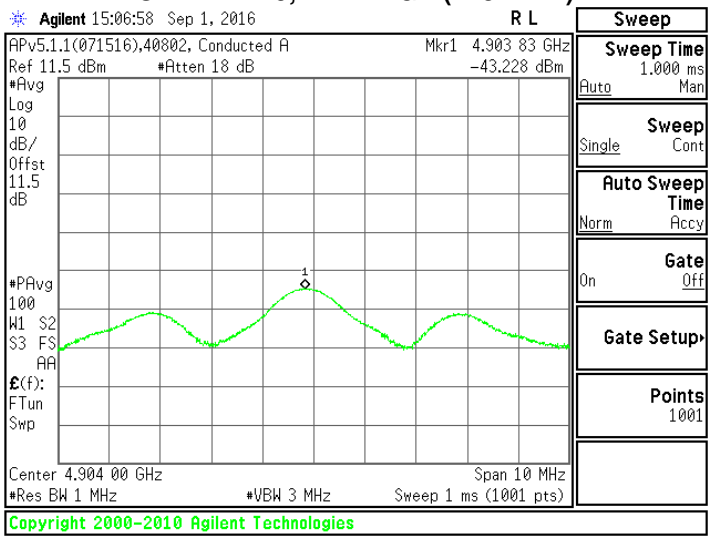
CHANNEL 8, AVERAGE (2447MHz)



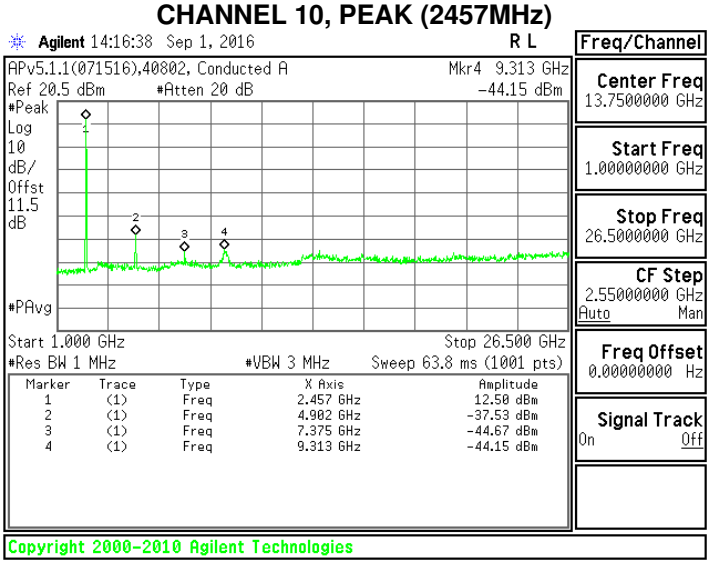
CHANNEL 9, PEAK (2452MHz)



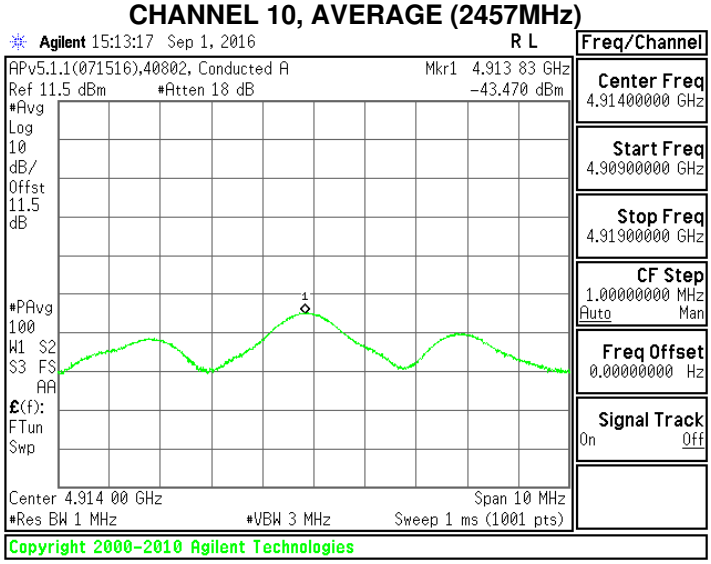
CHANNEL 9, AVERAGE (2452MHz)



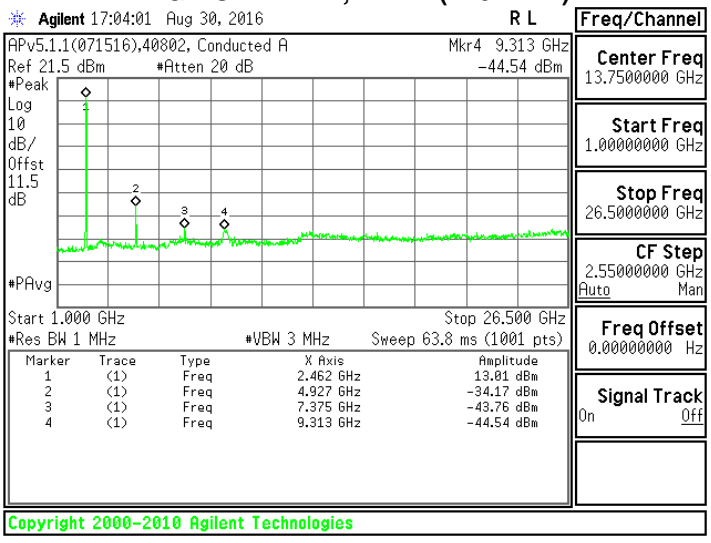
CHANNEL 10, PEAK (2457MHz)



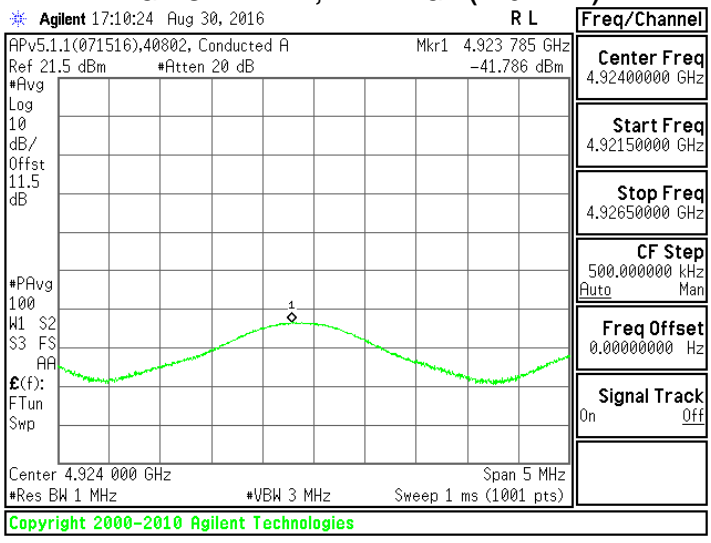
CHANNEL 10, AVERAGE (2457MHz)



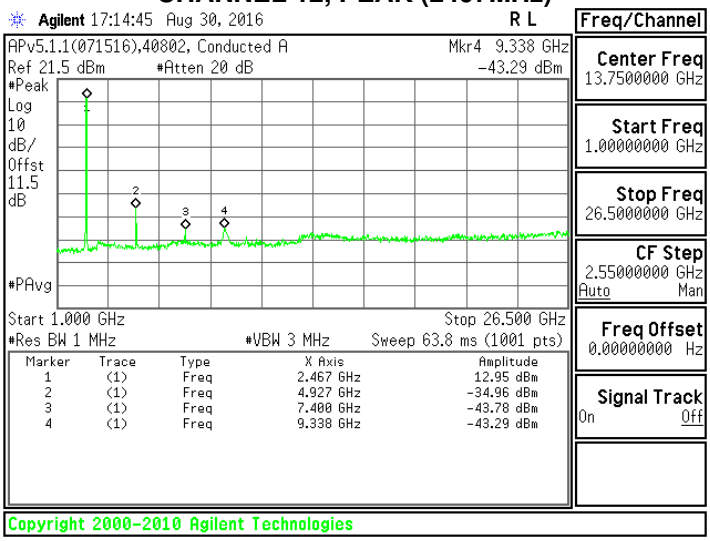
HIGH CHANNEL, PEAK (2462MHz)



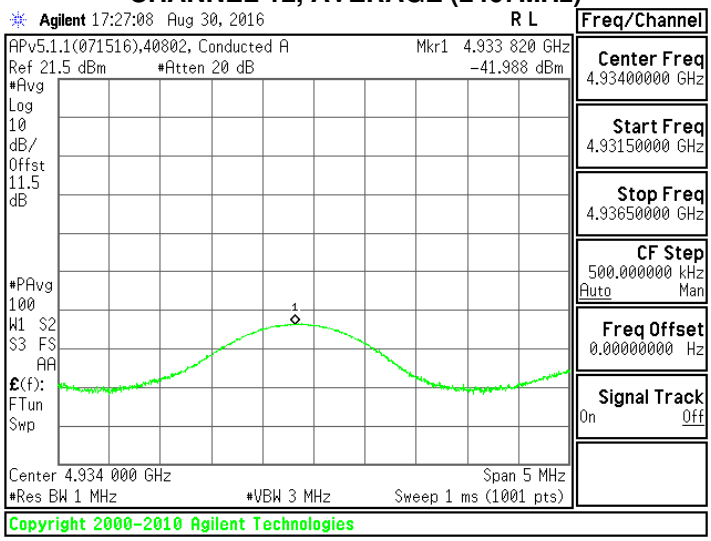
HIGH CHANNEL, AVERAGE (2462MHz)



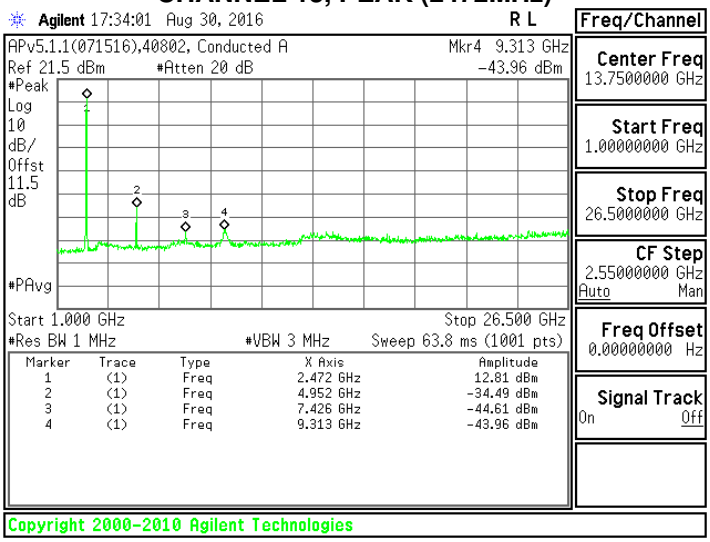
CHANNEL 12, PEAK (2467MHz)



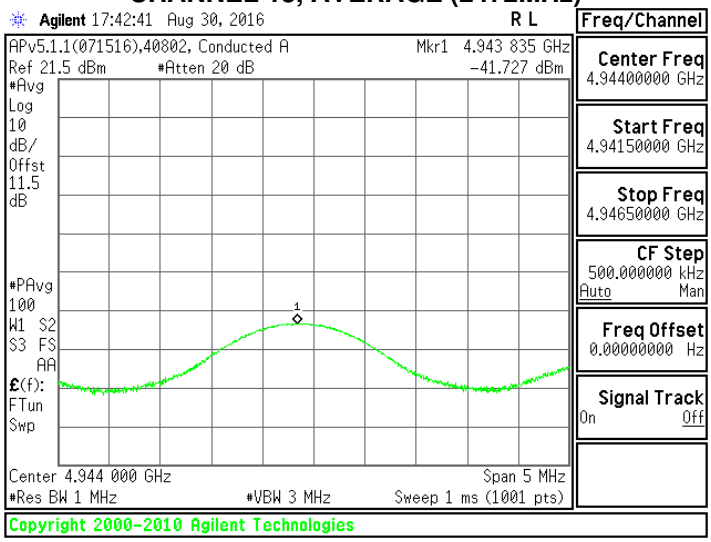
CHANNEL 12, AVERAGE (2467MHz)



CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



HARMONICS AND SPURIOUS DATA

Date:	8/31/2016
Test Engineer:	40802_TP
Client:	QUALCOMM
Project Number:	16U23207
Configuration:	EUT with Support Equipments
Mode of operation:	11b mode

Note: if the PK margin is greater than 20 dB, there is no need to get AVG reading.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
4825	-34.57	0	-34.57	-21.2	-13.37	14.00	
7222	-43.55	0	-43.55	-21.2	-22.35	14.00	
9440	-45.83	0	-45.83	-21.2	-24.63	14.00	
CH2, 2417MHz							
4825	-36.54	0	-36.54	-21.2	-15.34	14.00	
7248	-44.24	0	-44.24	-21.2	-23.04	14.00	
CH3, 2422MHz							
4850	-40.16	0	-40.16	-21.2	-18.96	14.00	
7273	-43.24	0	-43.24	-21.2	-22.04	14.00	
CH6, 2437MHz							
4874	-42.44	0	-42.44	-21.2	-21.24	15.00	
7298	-43.61	0	-43.61	-21.2	-22.41	15.00	
9440	-45.22	0	-45.22	-21.2	-24.02	15.00	
CH8, 2447MHz							
4902	-40.26	0	-40.26	-21.2	-19.06	14	
7350	-44.77	0	-44.77	-21.2	-23.57	14	
9466	-44.35	0	-44.35	-21.2	-23.15	14	
CH9, 2452MHz							
4902	-38.25	0	-38.25	-21.2	-17.05	14	
7350	-44.72	0	-44.72	-21.2	-23.52	14	
9415	-43.87	0	-43.87	-21.2	-22.67	14	
CH10, 2457MHz							
4902	-37.53	0	-37.53	-21.2	-16.33	14	
7375	-44.67	0	-44.67	-21.2	-23.47	14	
9313	-44.15	0	-44.15	-21.2	-22.95	14	
CH11, 2462MHz							
4927	-34.17	0	-34.17	-21.2	-12.97	14.00	
7375	-43.76	0	-43.76	-21.2	-22.56	14.00	
9313	-44.54	0	-44.54	-21.2	-23.34	14.00	
CH12, 2467							
4927	-34.96	0	-34.96	-21.2	-13.76	14.00	
7400	-43.78	0	-43.78	-21.2	-22.58	14.00	
9338	-43.29	0	-43.29	-21.2	-22.09	14.00	
CH13, 2472MHz							
4952	-34.49	0	-34.49	-21.2	-13.29	14.00	
7426	-44.61	0	-44.61	-21.2	-23.41	14.00	
9313	-43.96	0	-43.96	-21.2	-22.76	14.00	

Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
4825	-41.434	0	-41.43	-41.2	-0.23	11.00	16.94
CH2, 2417MHz							
4834	-41.218	0	-41.22	-41.2	-0.02	13.00	17.54
CH3, 2422MHz							
4844	-41.559	0	-41.56	-41.2	-0.36	14.00	18.04
CH8, 2447MHz							
4894	-41.455	0	-41.455	-41.2	-0.255	14.00	18.54
CH9, 2452MHz							
4904	-43.228	0	-43.228	-41.2	-2.028	13.00	17.49
CH10, 2457MHz							
4914	-43.47	0	-43.47	-41.2	-2.27	13.00	17.65
CH11, 2462MHz							
4927	-41.786	0	-41.79	-41.2	-0.59	12.00	17.51
CH12, 2467MHz							
4934	-41.988	0	-41.99	-41.2	-0.79	10.00	15.68
CH13, 2472Mhz							
4952	-41.727	0	-41.73	-41.2	-0.53	7.00	12.75

9.3. 802.11g MODE IN THE 2.4 GHz BAND

9.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2.1

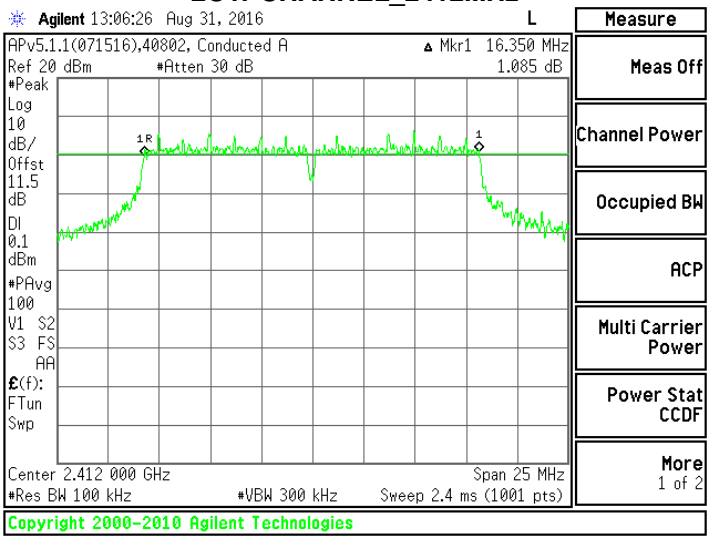
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

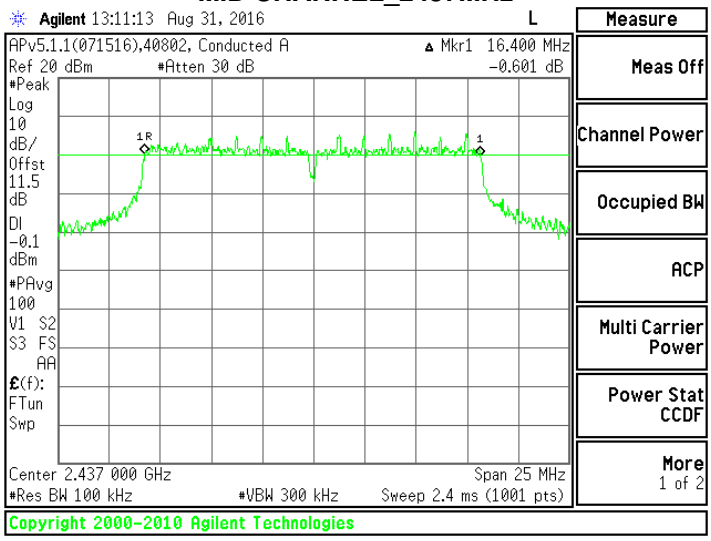
Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	16.350	0.5
Mid	2437	16.400	0.5
High	2462	16.350	0.5
12	2467	16.350	0.5
13	2472	16.350	0.5

6 dB BANDWIDTH

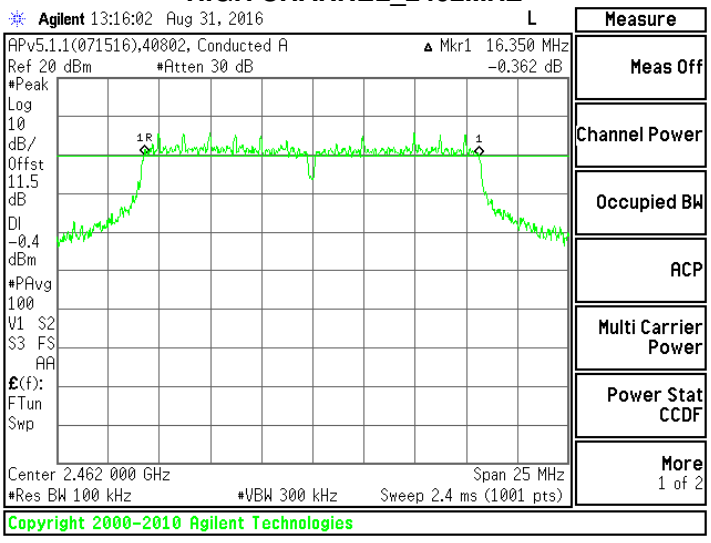
LOW CHANNEL_2412MHz



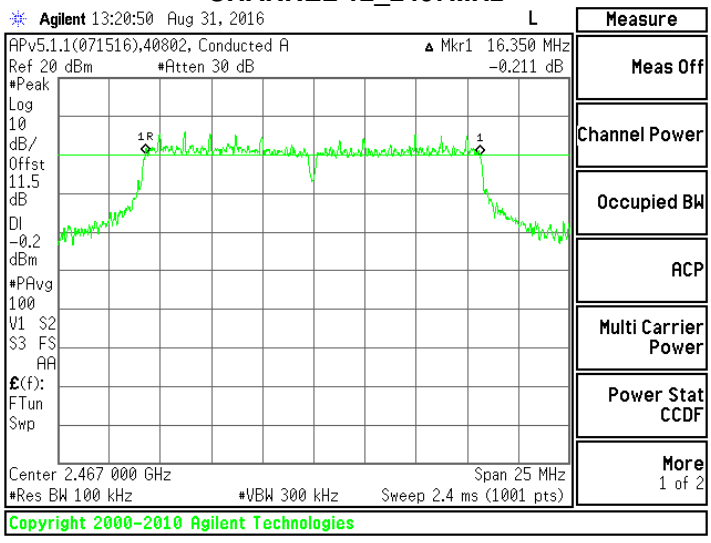
MID CHANNEL_2437MHz

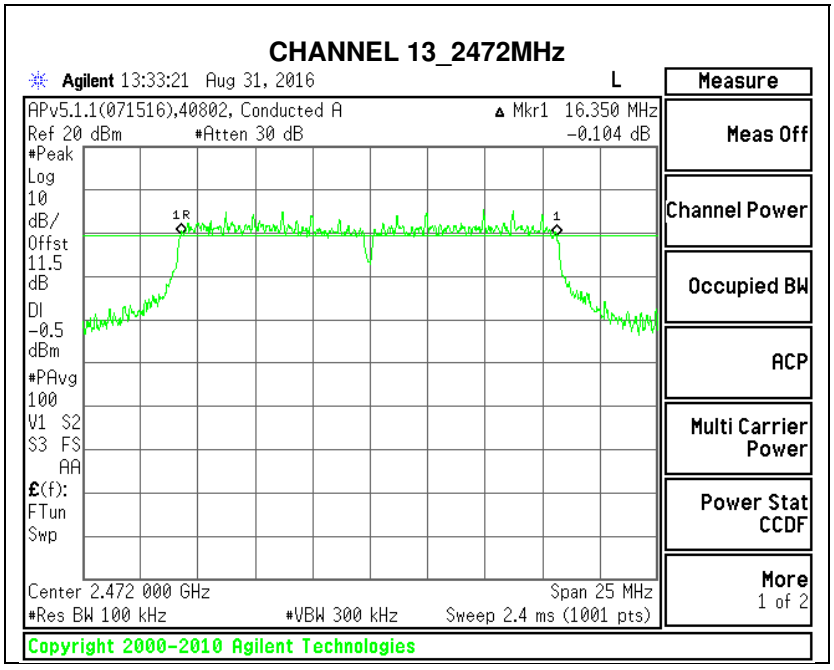


HIGH CHANNEL_2462MHZ



CHANNEL 12_2467MHz





9.3.2. 99% BANDWIDTH

LIMITS

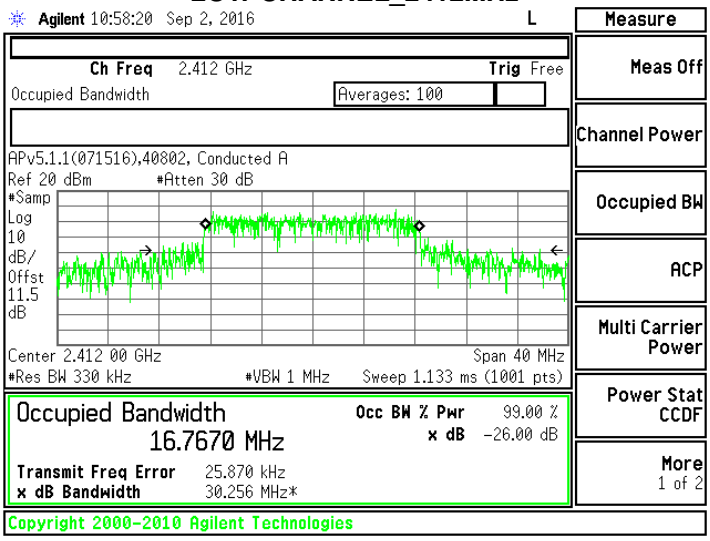
None; for reporting purposes only.

RESULTS

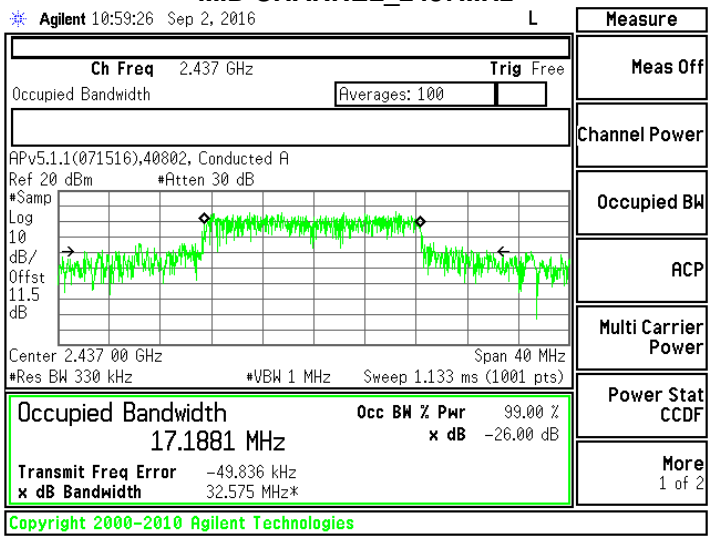
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	2412	16.7670
Mid	2437	17.1881
High	2462	16.2424
12	2467	16.2221
13	2472	16.9706

99% BANDWIDTH

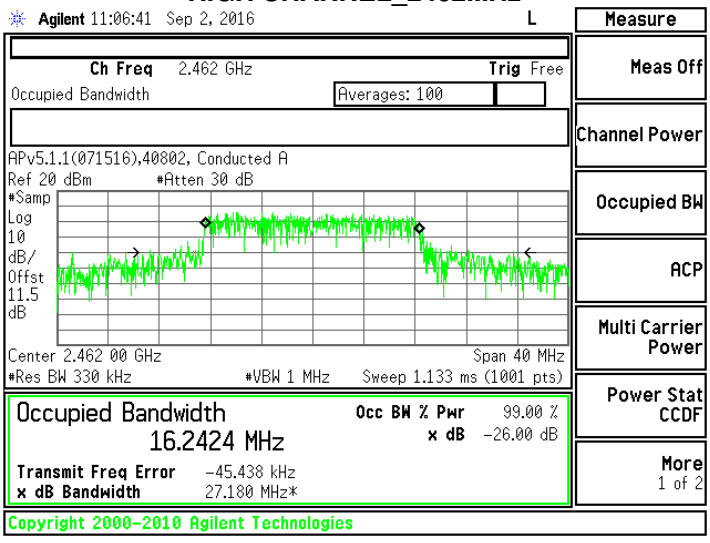
LOW CHANNEL_2412MHz



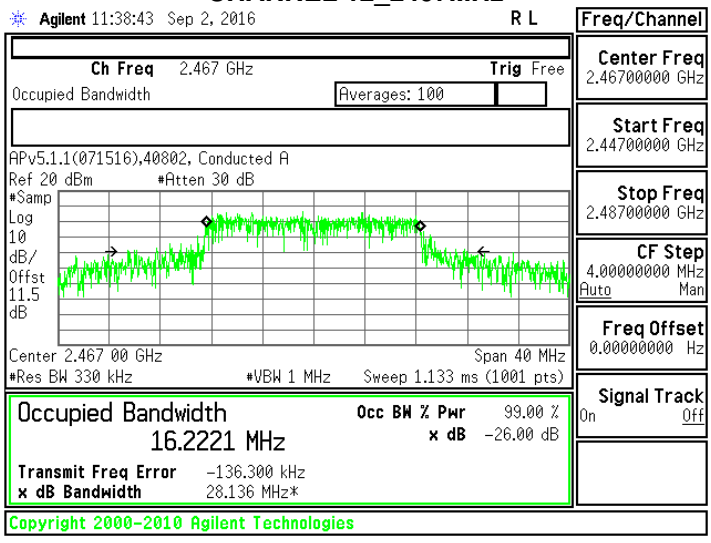
MID CHANNEL_2437MHz

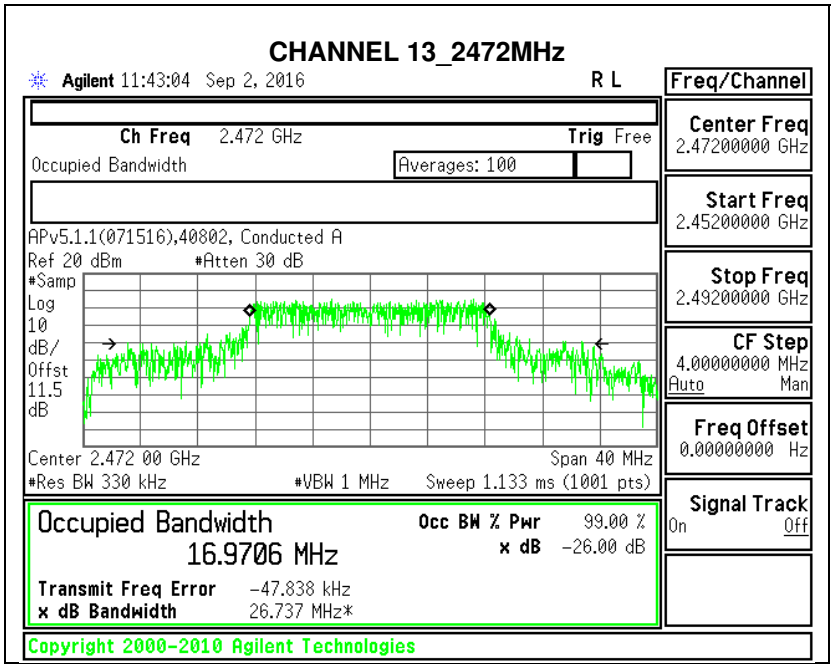


HIGH CHANNEL_2462MHz



CHANNEL 12_2467MHz





9.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

ID:	40802	Date:	08/31/16

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.32
2	2417	15.03
3	2422	16.54
Mid	2437	16.58
9	2452	16.48
10	2457	15.74
High	2462	14.32
12	2467	11.21
13	2472	6.15

9.3.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 5.4.4

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

ID:	40802	Date:	08/31/16

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	14.32	30	-15.68
2	2417	15.03	30	-14.97
3	2422	16.54	30	-13.46
Mid	2437	16.58	30	-13.42
9	2452	16.48	30	-13.52
10	2457	15.74	30	-14.26
High	2462	14.32	30	-15.68
12	2467	11.21	30	-18.79
13	2472	6.15	30	-23.85

Note: the power readings above are measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

9.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

RESULTS

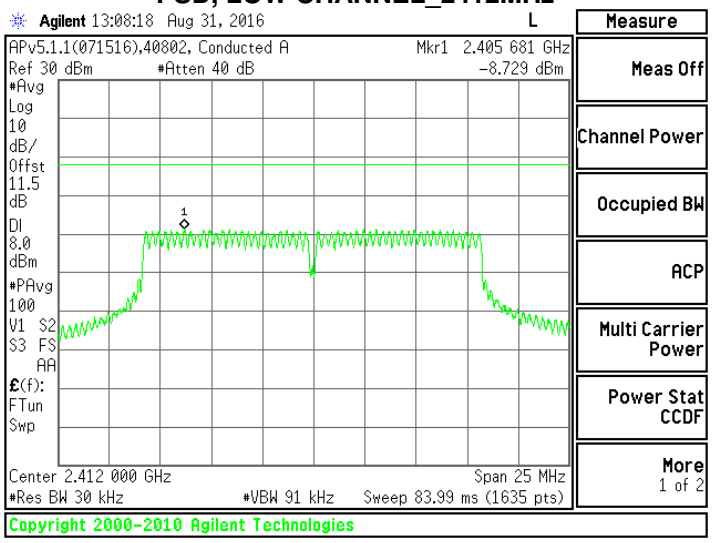
Duty Cycle CF (dB)	0.59	Included in Calculations of Corr'd PSD

PSD Results

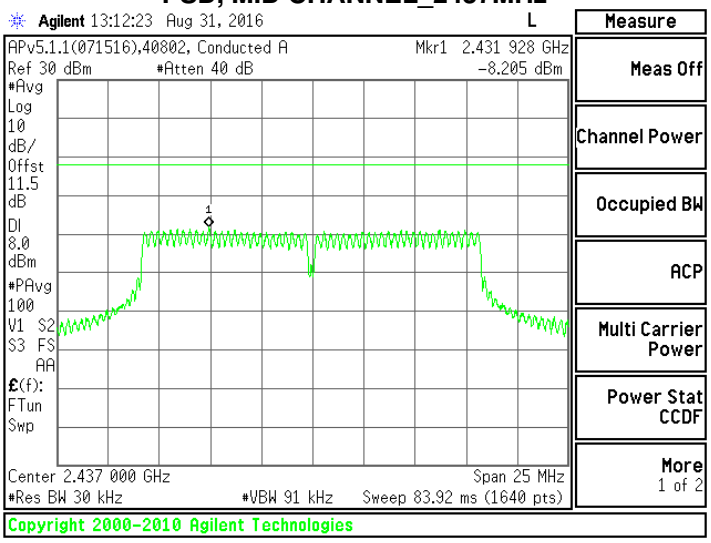
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.729	-8.139	8.0	-16.139
Mid	2437	-8.205	-7.615	8.0	-15.615
High	2462	-8.443	-7.853	8.0	-15.853
12	2467	-8.691	-8.101	8.0	-16.101
13	2472	-8.880	-8.290	8.0	-16.290

PDS, Chain 0

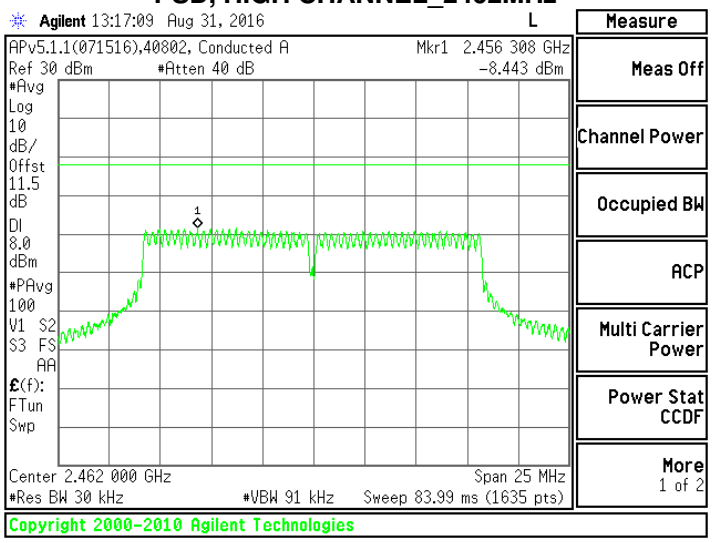
PSD, LOW CHANNEL_2412MHz



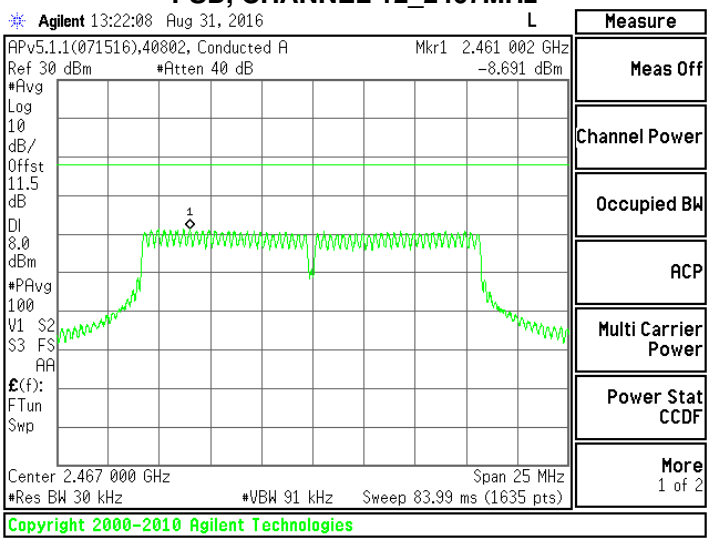
PSD, MID CHANNEL_2437MHz

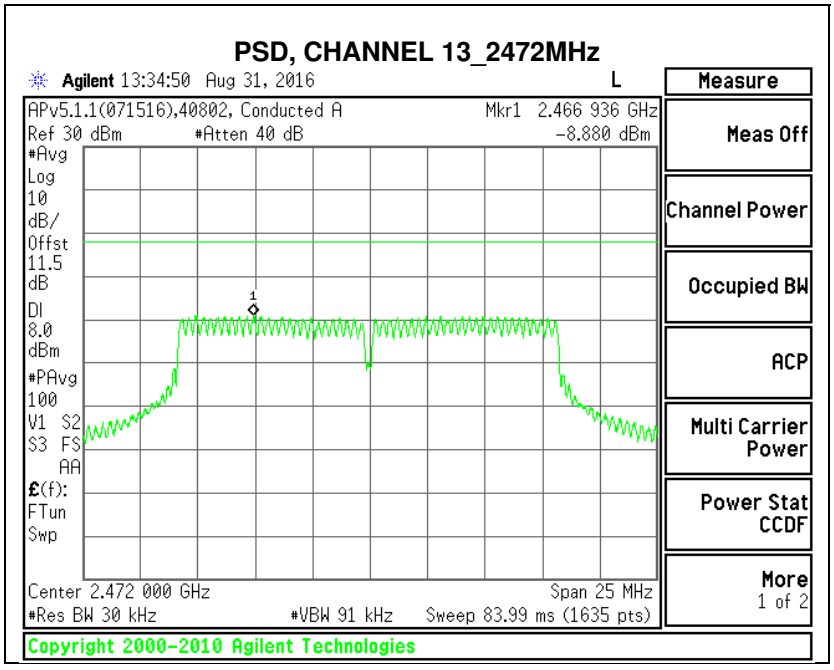


PSD, HIGH CHANNEL_2462MHz



PSD, CHANNEL 12_2467MHz





9.3.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

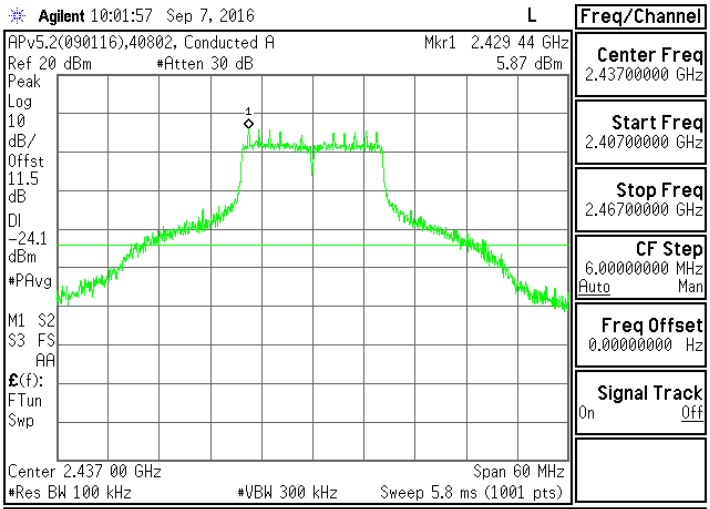
IC RSS-247 5.5

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.

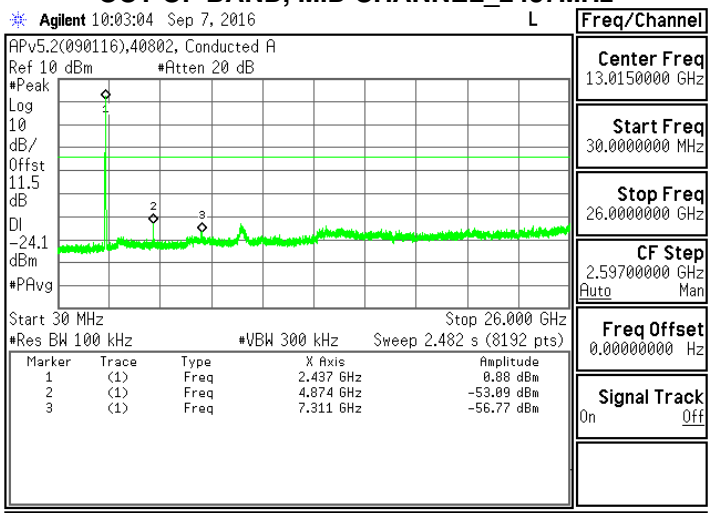
RESULTS

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH

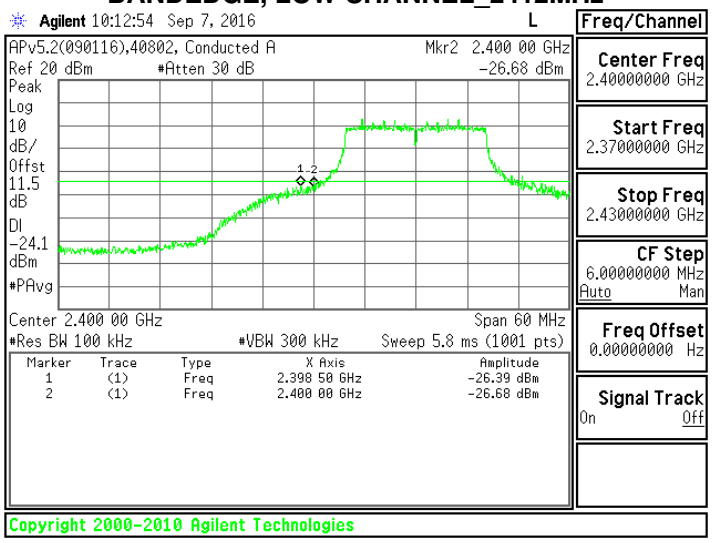


OUT OF BAND, MID CHANNEL_2437MHz

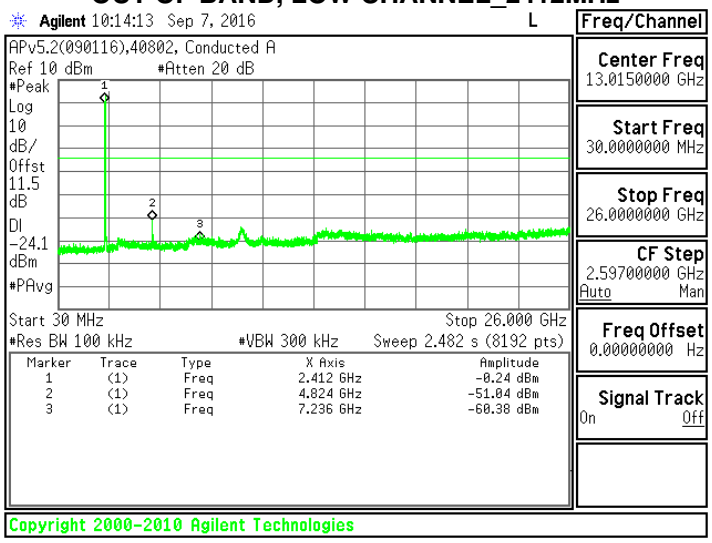


BANDEDGE & OUT-OF-BAND EMISSIONS

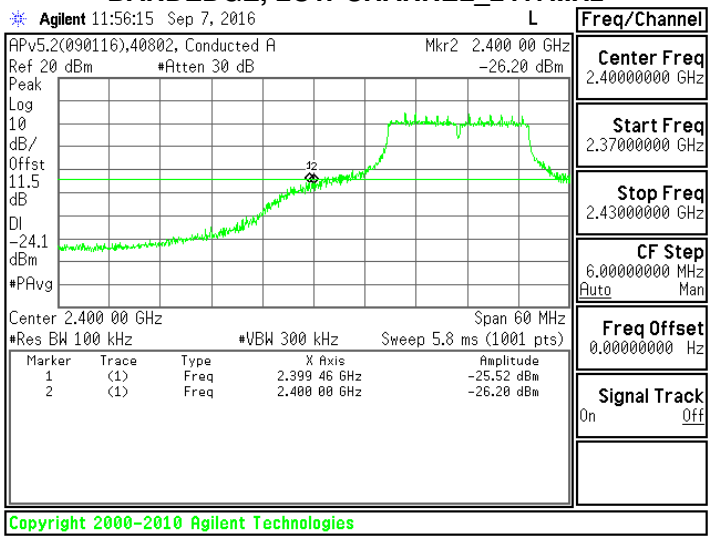
BANDEDGE, LOW CHANNEL_2412MHz



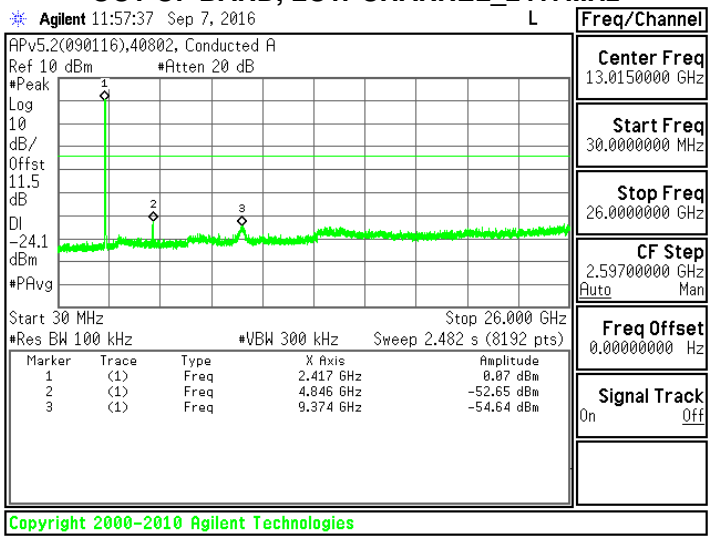
OUT OF BAND, LOW CHANNEL_2412MHz



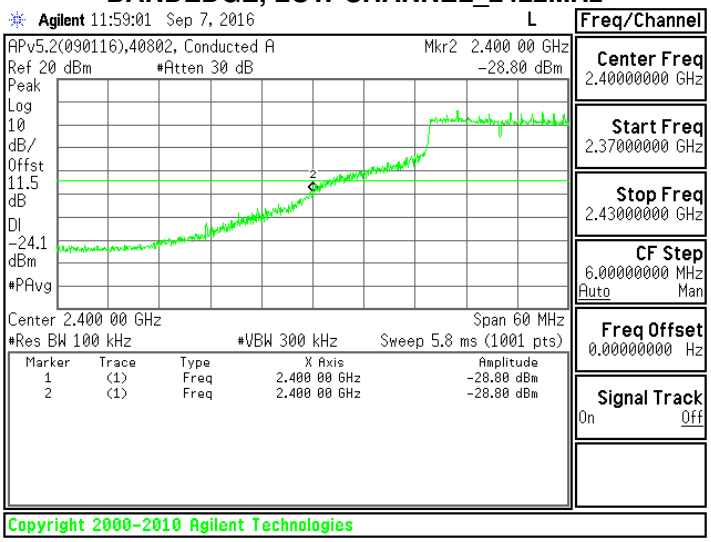
BANDEDGE, LOW CHANNEL_2417MHz



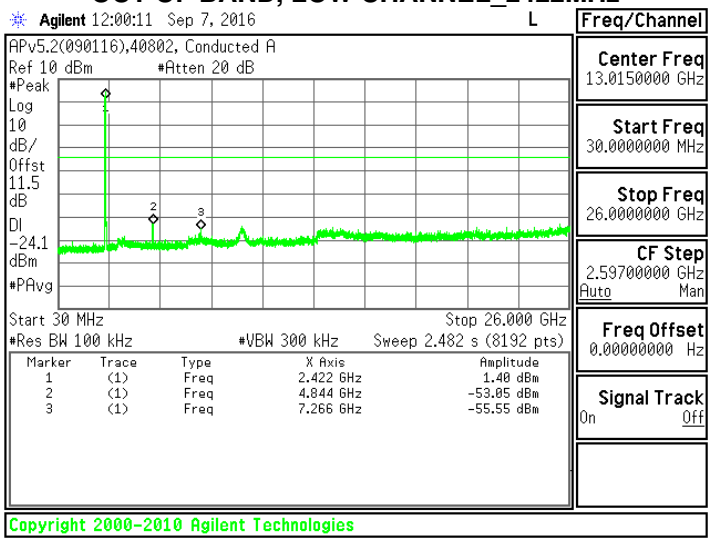
OUT OF BAND, LOW CHANNEL_2417MHz



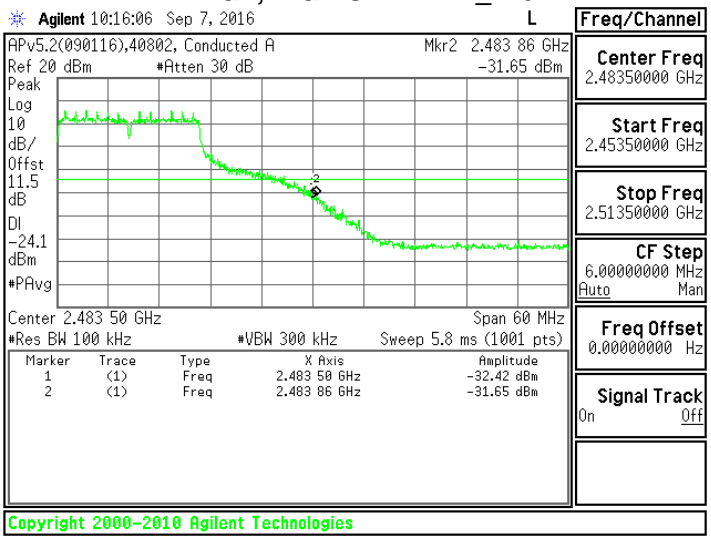
BANDEDGE, LOW CHANNEL_2422MHz



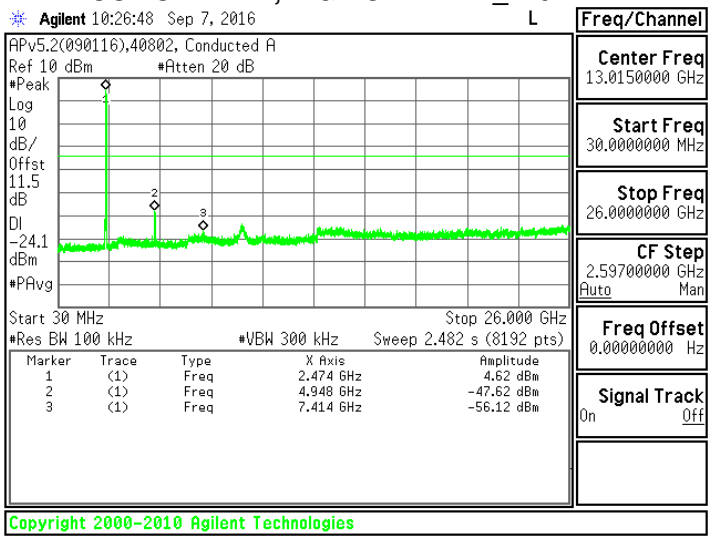
OUT OF BAND, LOW CHANNEL_2422MHz



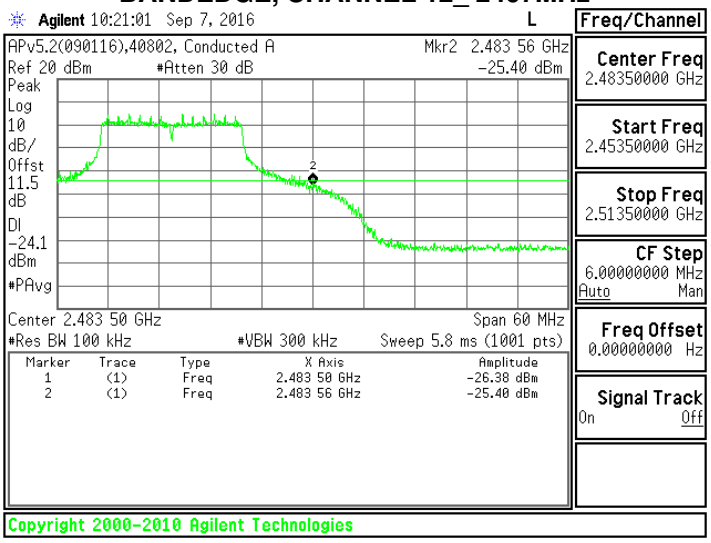
BANDEDGE, HIGH CHANNEL_2462MHz



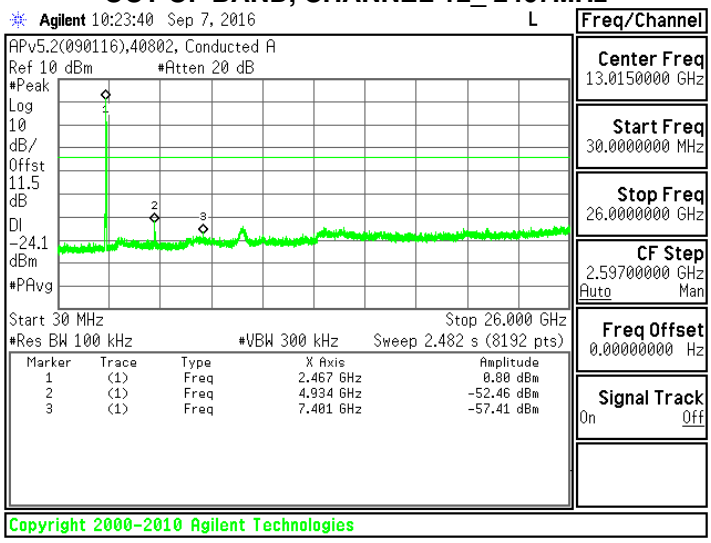
OUT OF BAND, HIGH CHANNEL_2462MHz



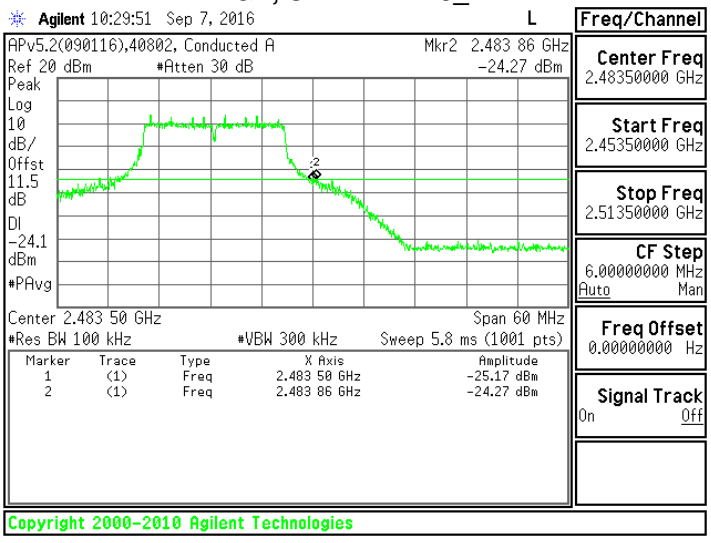
BANDEDGE, CHANNEL 12_ 2467MHz



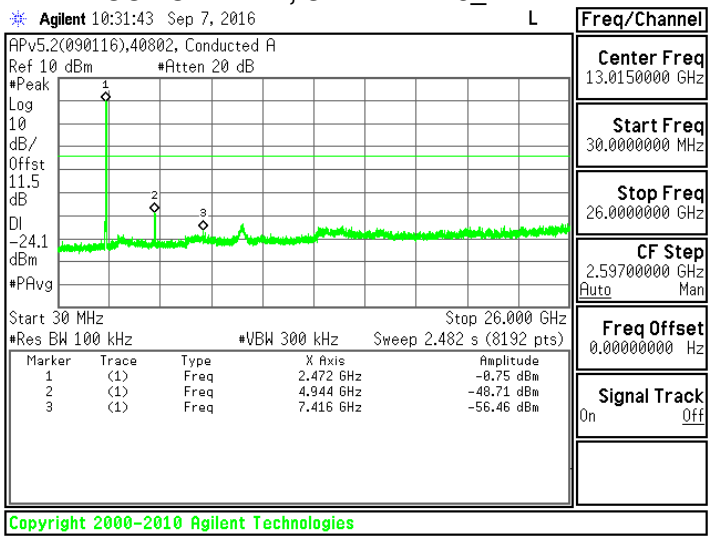
OUT OF BAND, CHANNEL 12_ 2467MHz



BANDEDGE, CHANNEL 13_ 2472MHz



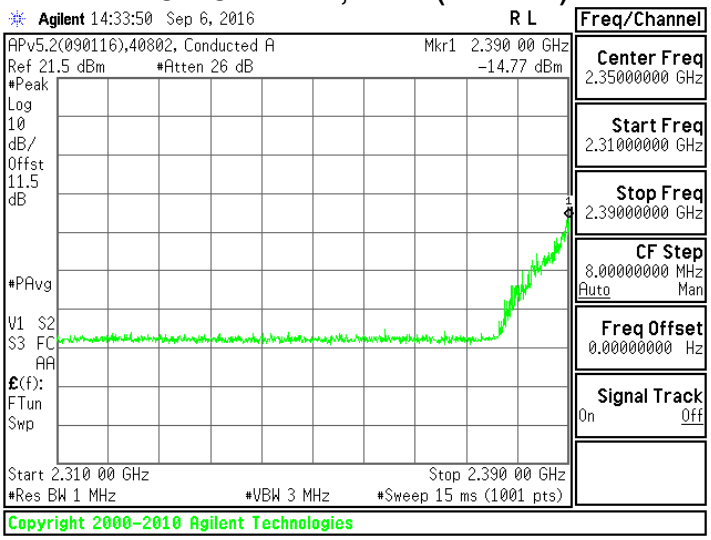
OUT OF BAND, CHANNEL 13_ 2472MHz



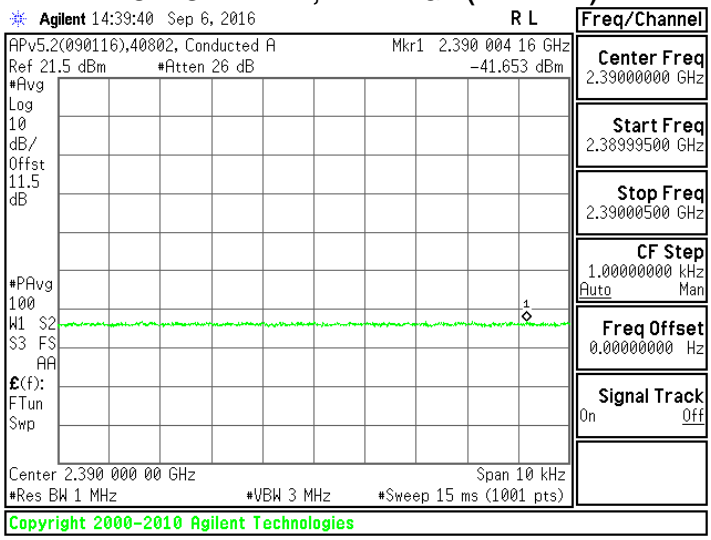
9.3.7. CONDUCTED BANDEDGE and HARMONICS/SPURIOUS IN RESTRICTED BANDS

BANDEDGE PLOTS

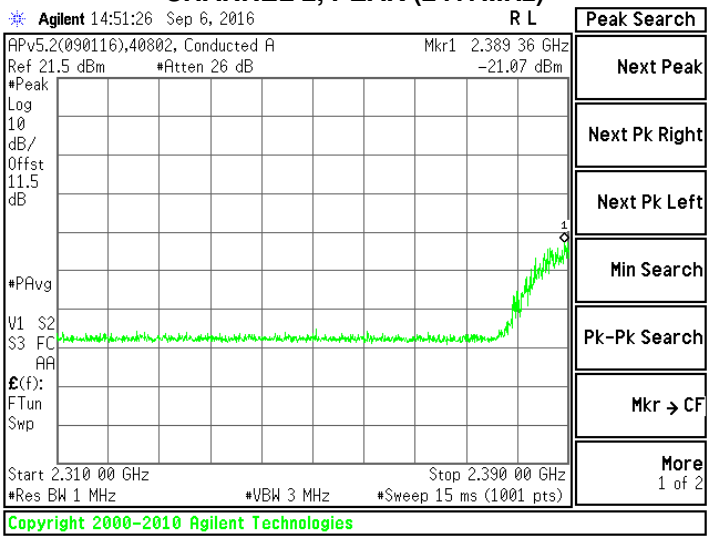
LOW CHANNEL, PEAK (2412MHz)



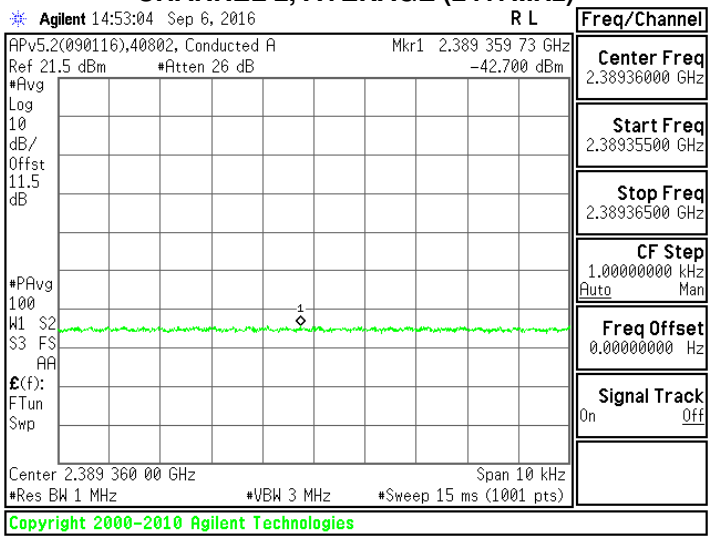
LOW CHANNEL, AVERAGE (2412MHz)



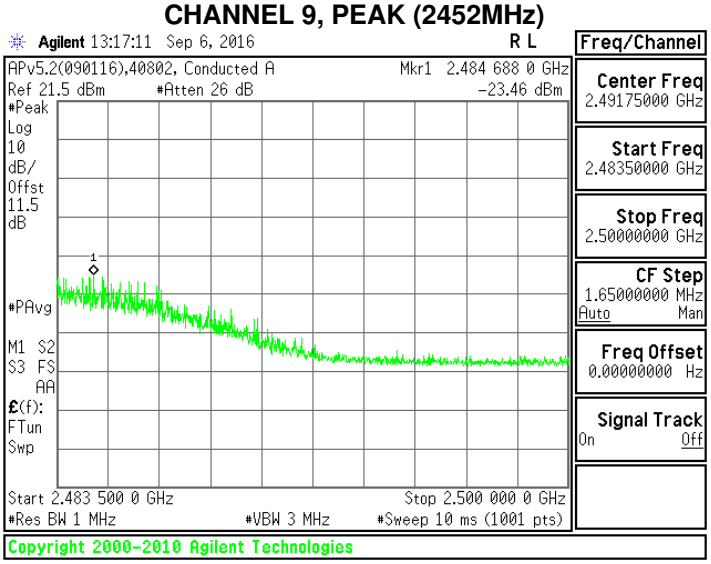
CHANNEL 2, PEAK (2417MHz)



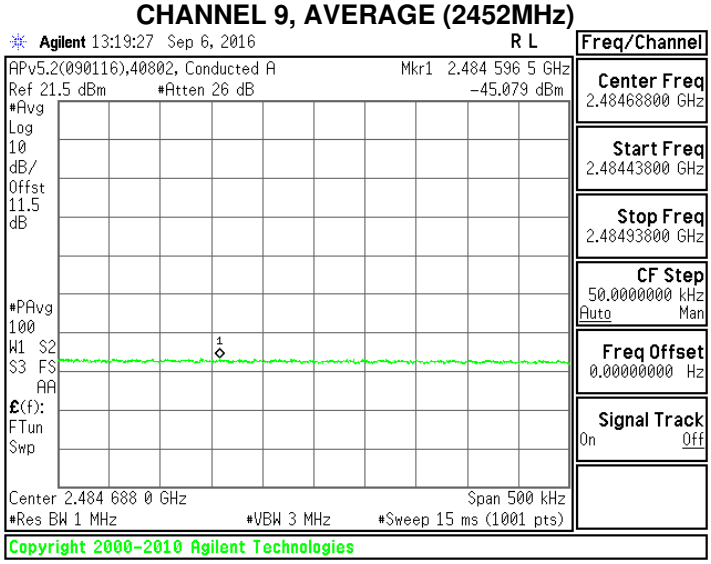
CHANNEL 2, AVERAGE (2417MHz)



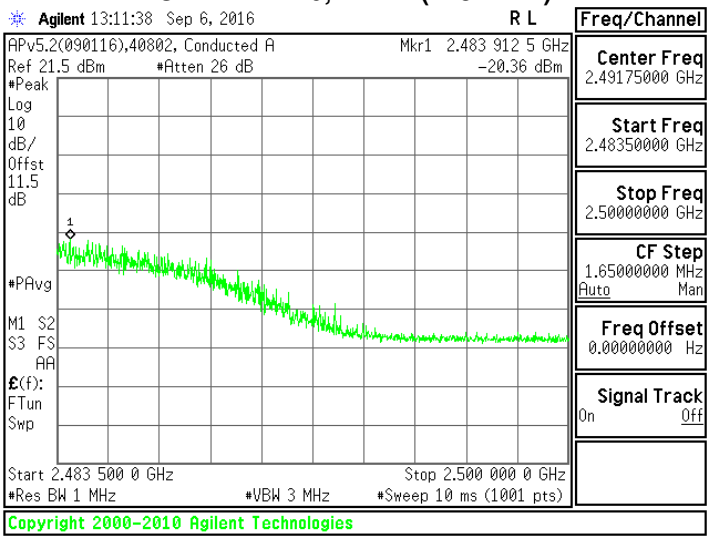
CHANNEL 9, PEAK (2452MHz)



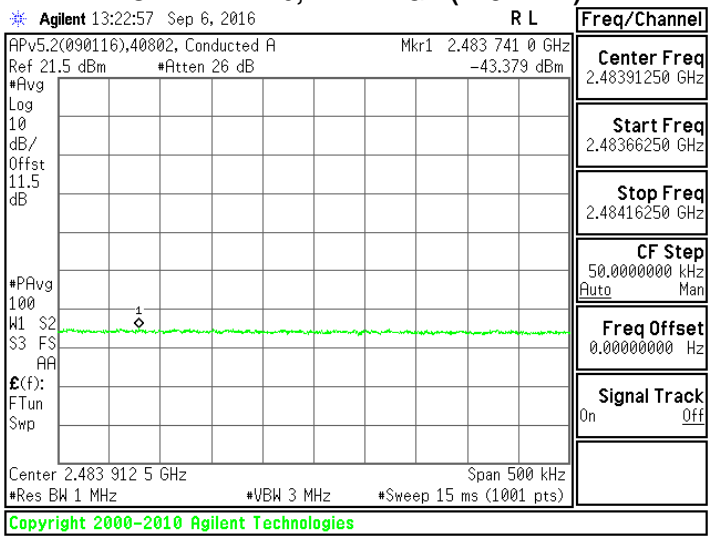
CHANNEL 9, AVERAGE (2452MHz)



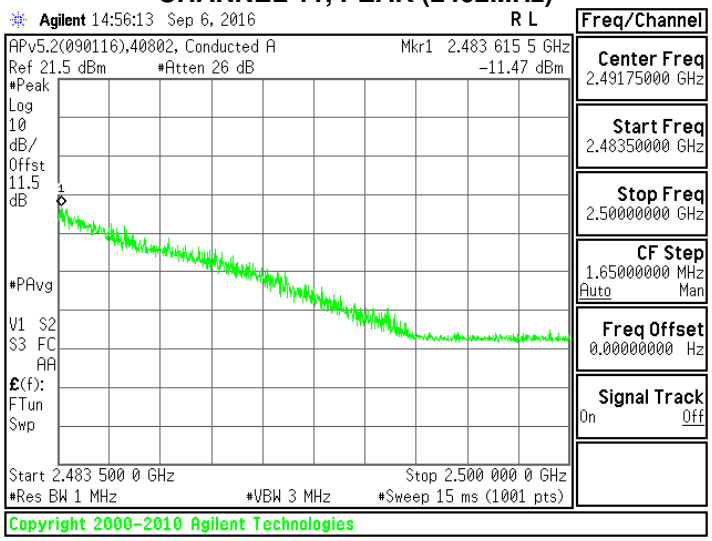
CHANNEL 10, PEAK (2457MHz)



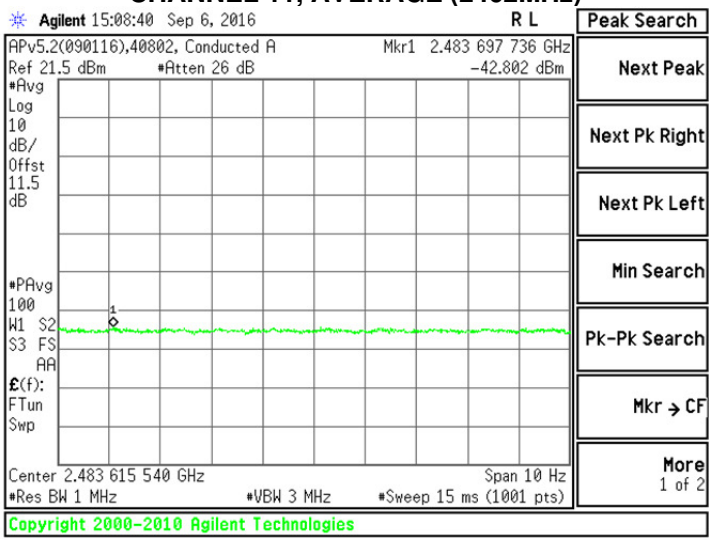
CHANNEL 10, AVERAGE (2457MHz)



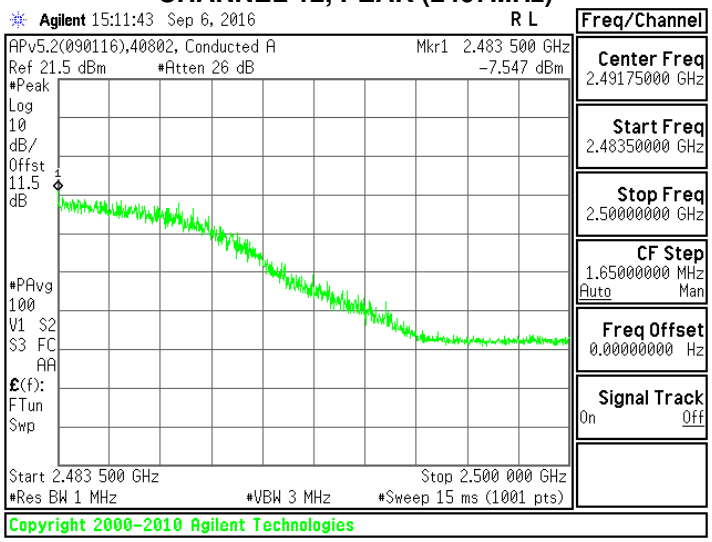
CHANNEL 11, PEAK (2462MHz)



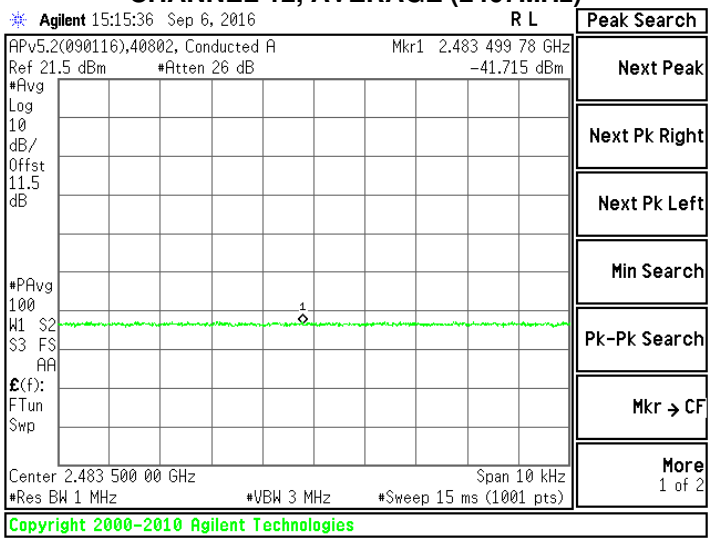
CHANNEL 11, AVERAGE (2462MHz)



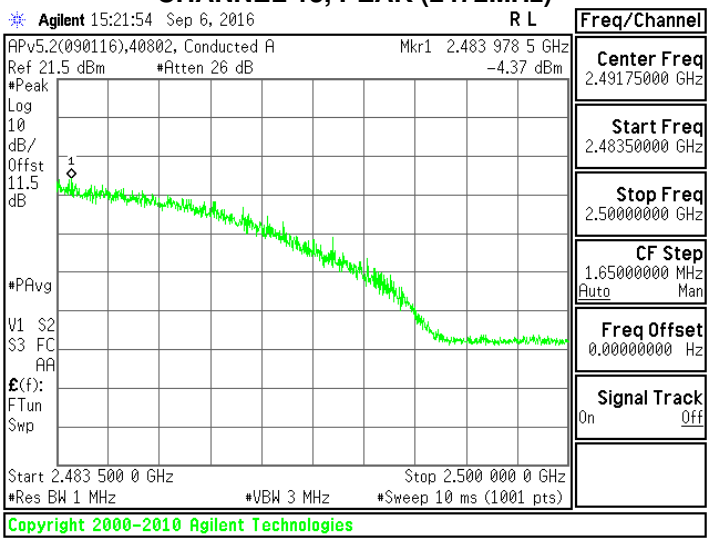
CHANNEL 12, PEAK (2467MHz)



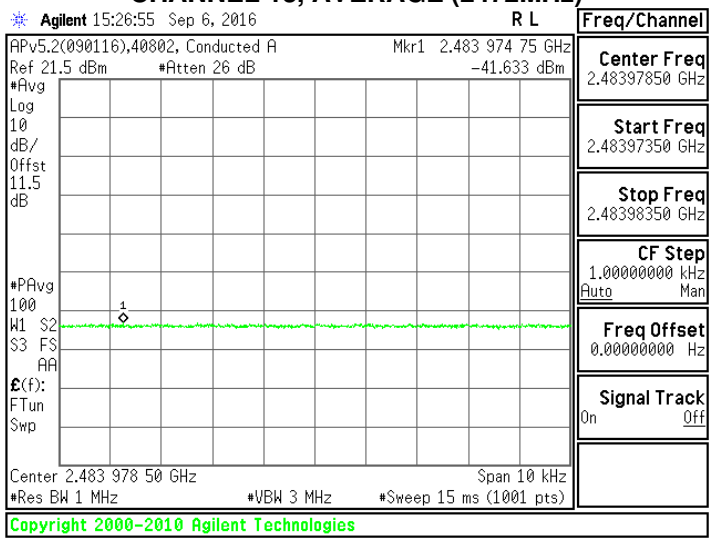
CHANNEL 12, AVERAGE (2467MHz)



CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



BANDEDGE DATA

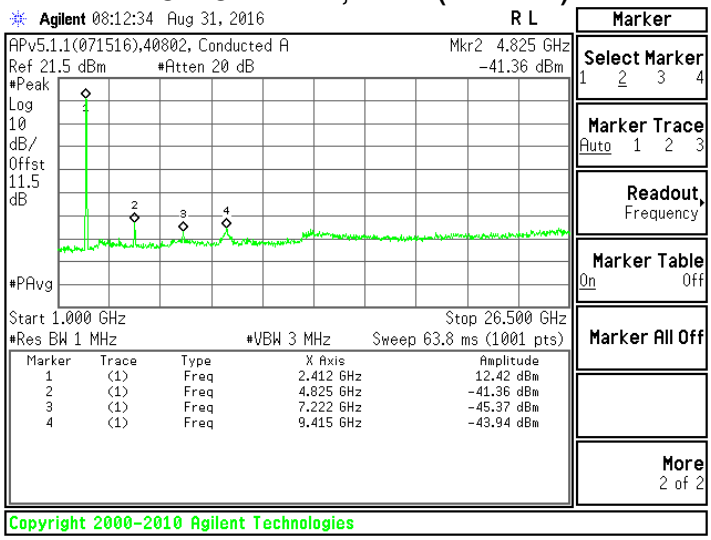
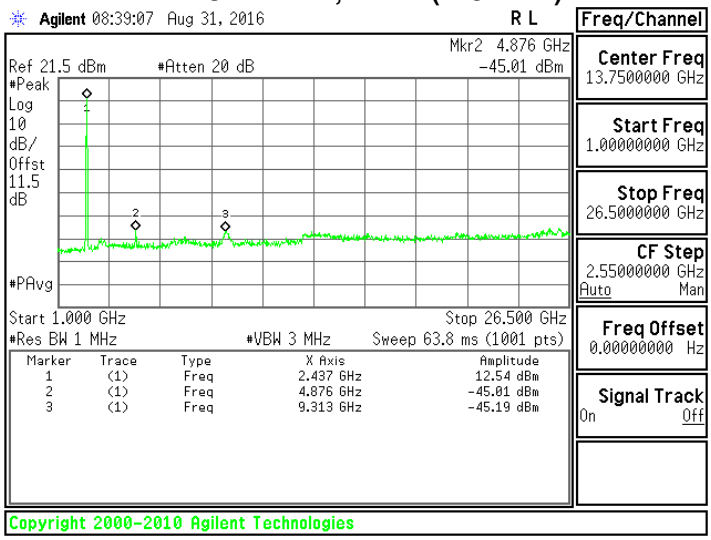
Date: 9/2/2016
Test Engineer: 40802_TP
Client: QUALCOMM
Project Number: 16U23207
Configuration: EUT With Support Equipments
Mode of operation: BE_Wlan_DTS- g mode

Note: if the PK margin is greater than 20 dB, there is no need to get AVG reading.

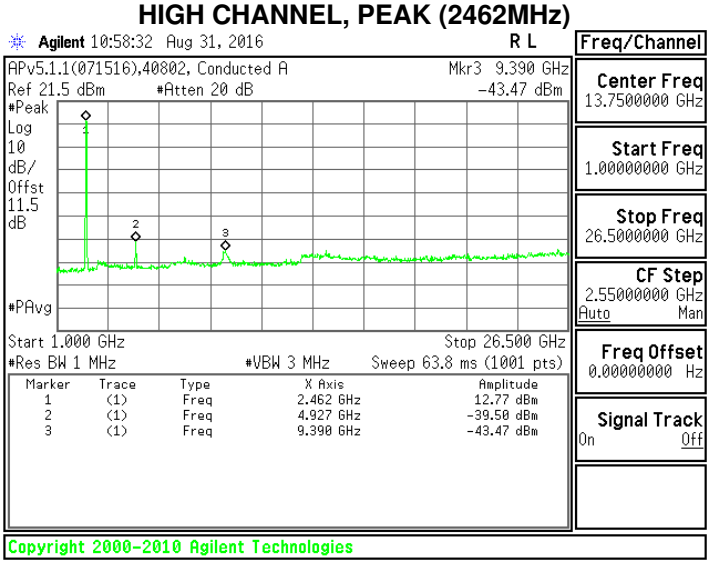
Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2390	-14.77	0	-14.77	-21.2	6.43	13.00	16.52
CH2, 2417MHz							
2389.36	-21.07	0	-21.07	-21.2	0.13	13.00	16.52
CH9, 2452MHz							
2484.688	-23.46	0	-23.46	-21.2	-2.26	13.00	
CH10, 2457MHz							
2483.9125	-20.36	0	-20.36	-21.2	0.84	13.00	
CH11, 2462MHz							
2483.6155	-11.47	0	-11.47	-21.2	9.73	13.00	16.47
CH12, 2467MHz							
2483.5	-7.547	0	-7.55	-21.2	13.65	13.00	16.31
CH13, 2472MHz							
2483.9785	-4.37	0	-4.37	-21.2	16.83	13.00	16.25

Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2390	-41.653	0	-41.65	-41.2	-0.45	10.00	14.32
CH2, 2417MHz							
2389.36	-42.7	0	-42.70	-41.2	-1.50	13.00	16.54
CH9, 2452MHz							
2484.688	-45.079	0	-45.08	-41.2	-3.88	13.00	16.48
CH10, 2457MHz							
2483.9125	-43.379	0	-43.38	-41.2	-2.18	12.00	15.74
CH11, 2462MHz							
2483.6974	-42.802	0	-42.80	-41.2	-1.60	9.00	13.30
CH12, 2467MHz							
2483.5	-41.715	0	-41.72	-41.2	-0.52	7.00	11.21
CH13, 2472MHz							
2483.9785	-41.633	0	-41.63	-41.2	-0.43	2.00	6.15

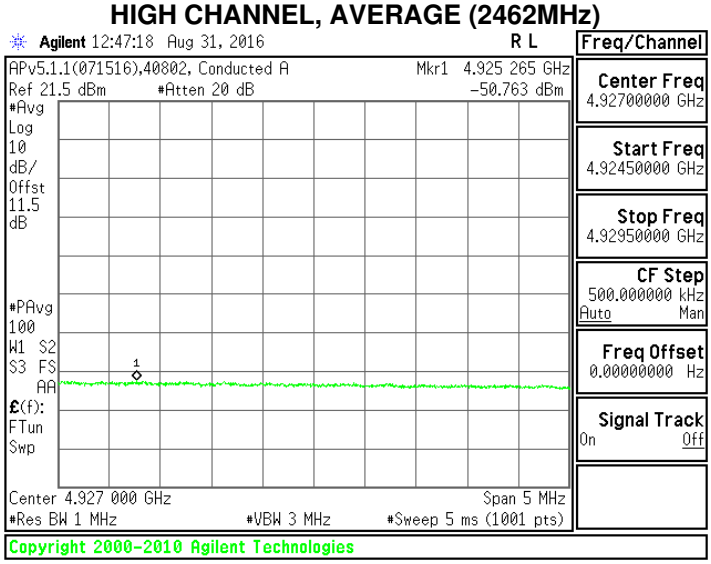
HARMONICS AND SPURIOUS

LOW CHANNEL, PEAK (2412MHz) 	**Intentionally leave blank**
MID CHANNEL, PEAK (2437MHz) 	**Intentionally leave blank**

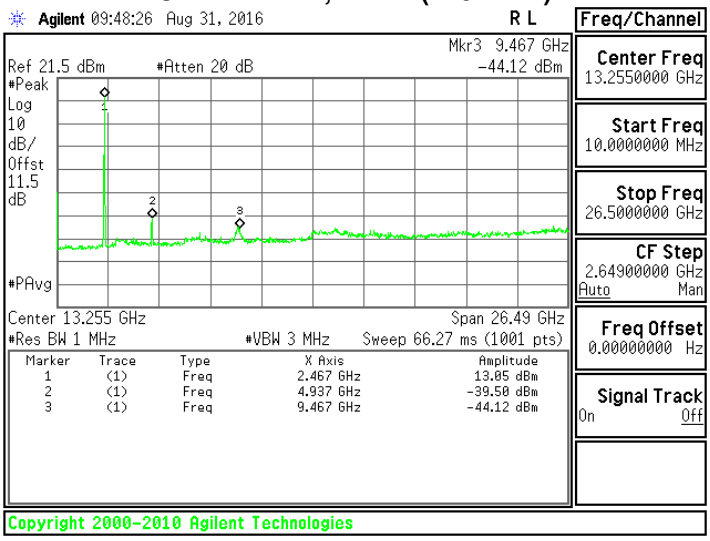
HIGH CHANNEL, PEAK (2462MHz)



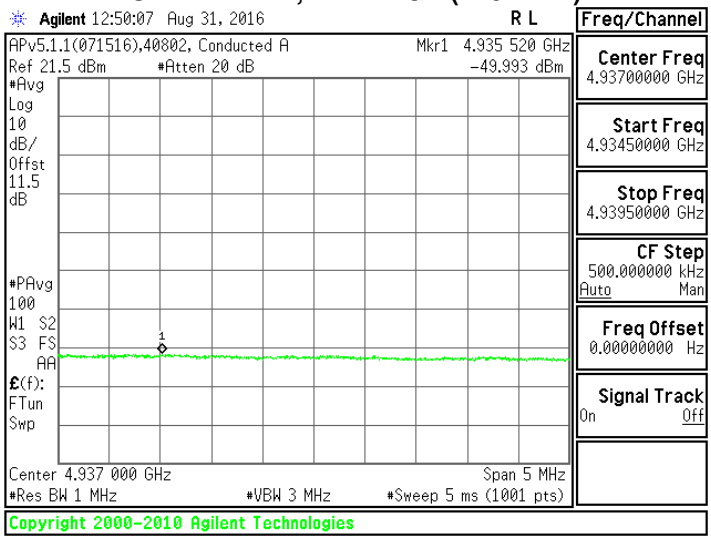
HIGH CHANNEL, AVERAGE (2462MHz)



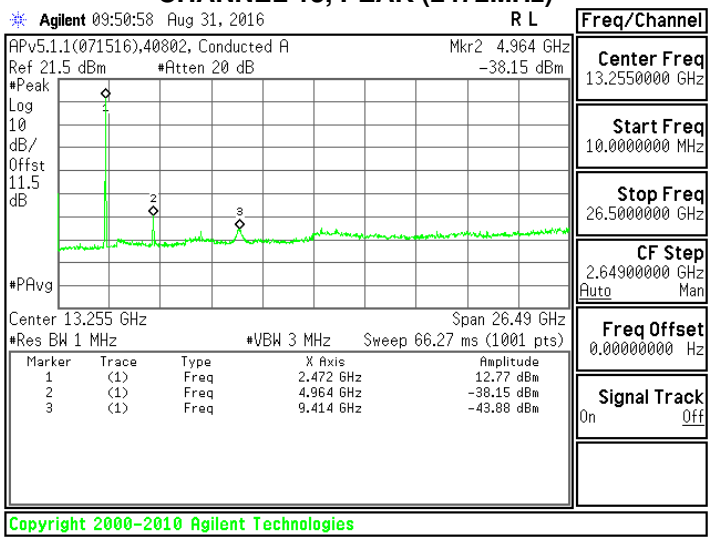
CHANNEL 12, PEAK (2467MHz)



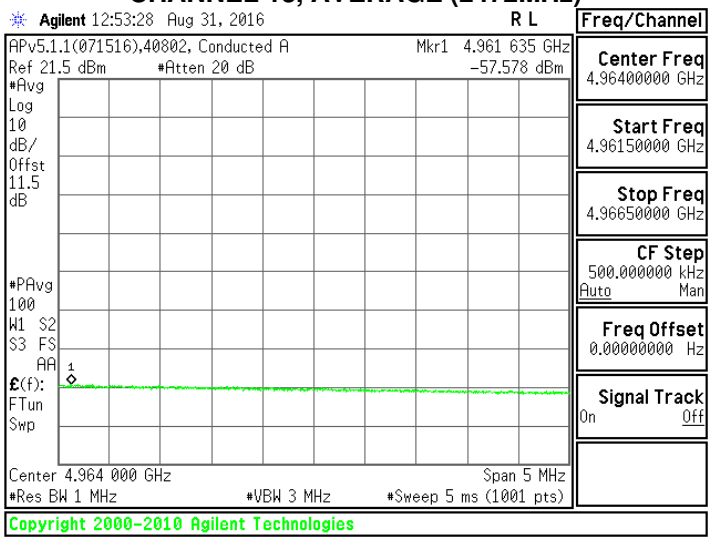
CHANNEL 12, AVERAGE (2467MHz)



CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



HARMONIC AND SPURIOUS DATA

Date: 8/31/2016
Test Engineer: 40802_TP
Client: QUALCOMM
Project Number: 16U23207
Configuration: EUT With Support Equipments
Mode of operation: 11g mode

Note: if the PK margin is greater than 20 dB, there is no need to get AVG reading.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
4824	-41.36	0	-41.36	-21.2	-20.16	13.00	
7222	-45.37	0	-45.37	-21.2	-24.17	13.00	
9415	-43.94	0	-43.94	-21.2	-22.74	13.00	
CH6, 2437MHz							
4876	-45.01	0	-45.01	-21.2	-23.81	14.00	
9313	-45.19	0	-45.19	-21.2	-23.99	14.00	
CH11, 2462MHz							
4927	-39.5	0	-39.50	-21.2	-18.30	13.00	
9390	-43.47	0	-43.47	-21.2	-22.27	13.00	
CH12, 2467MHz							
4937	-39.5	0	-39.50	-21.2	-18.30	13.00	
9467	-44.12	0	-44.12	-21.2	-22.92	13.00	
CH13, 2472MHz							
4964	-38.15	0	-38.15	-21.2	-16.95	13.00	
9414	-43.88	0	-43.88	-21.2	-22.68	13.00	

Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH11, 2462MHz							
4927	-50.763	0	-50.76	-41.2	-9.56	13.00	
CH12, 2467MHz							
4937	-49.993	0	-49.99	-41.2	-8.79	13.00	
CH13, 2472MHz							
4964	-57.578	0	-57.58	-41.2	-16.38	13.00	

9.4. 802.11n HT20 MODE IN THE 2.4 GHz BAND

9.4.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2.1

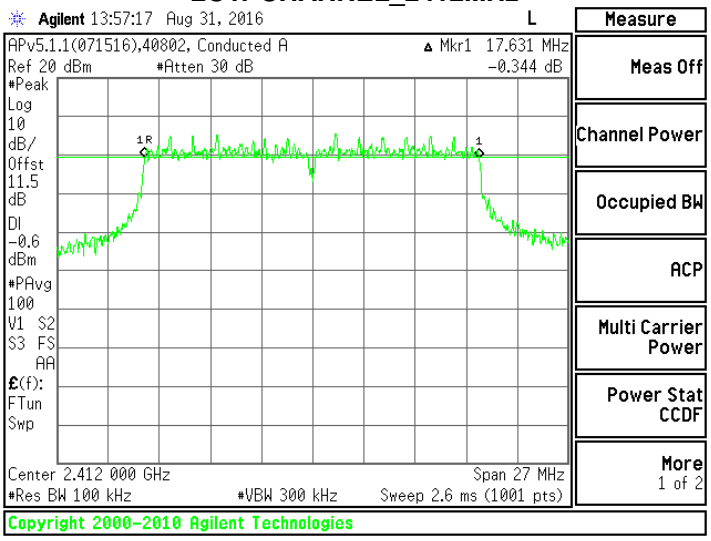
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

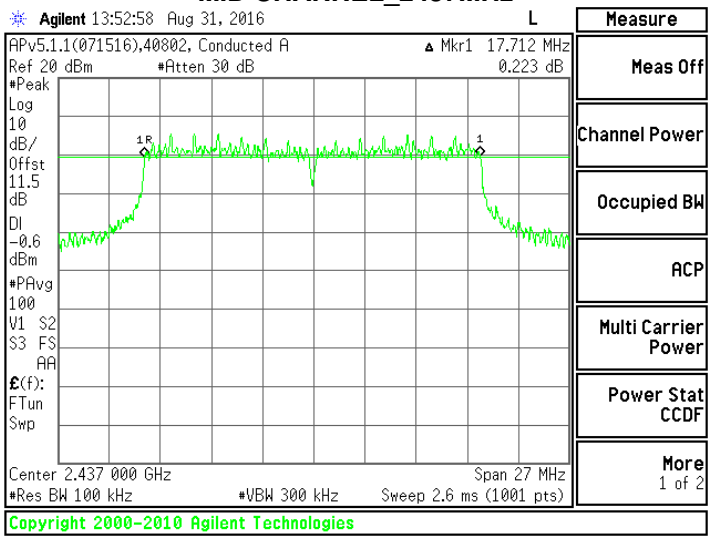
Channel	Frequency	6 dB Bandwidth	Minimum Limit
	(MHz)	(MHz)	(MHz)
Low	2412	17.631	0.5
Mid	2437	17.712	0.5
High	2462	17.685	0.5
12	2467	17.685	0.5
13	2472	17.685	0.5

6 dB BANDWIDTH

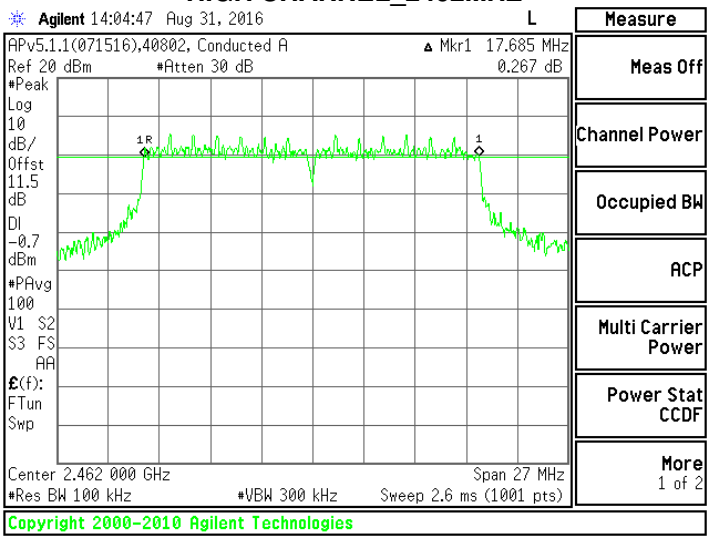
LOW CHANNEL_2412MHz



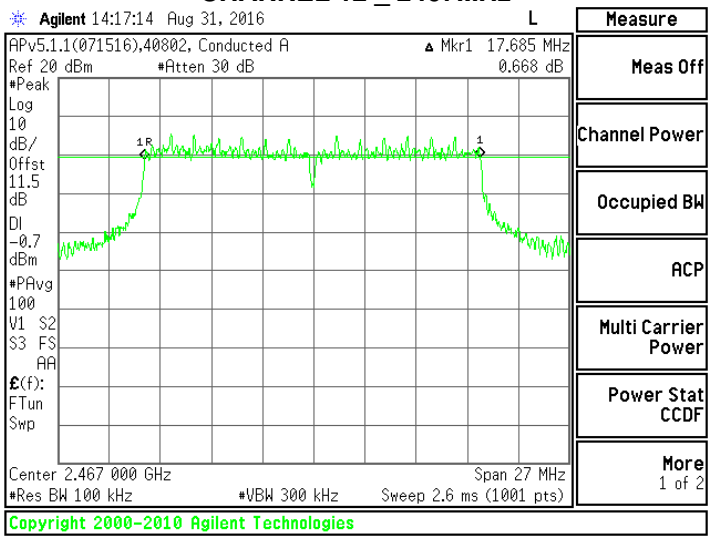
MID CHANNEL_2437MHz

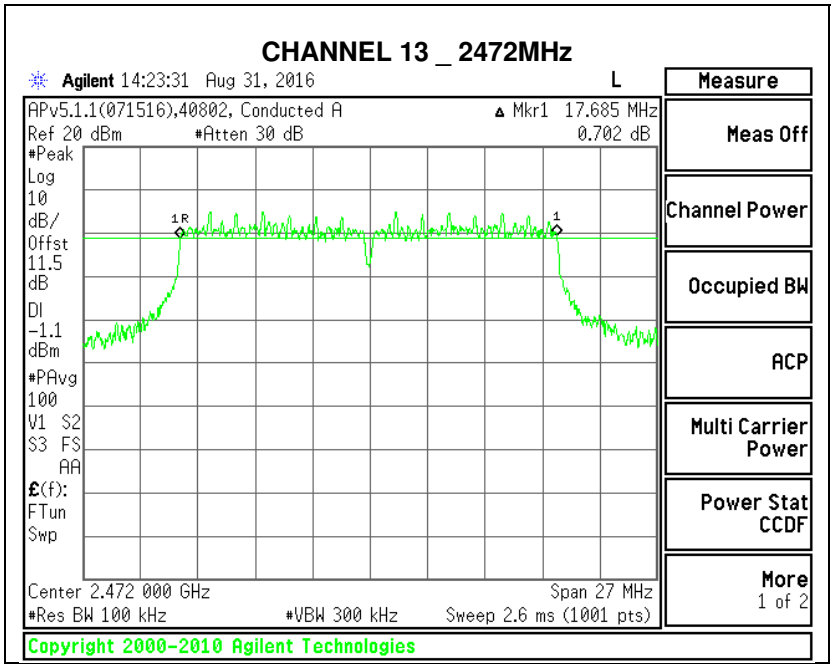


HIGH CHANNEL_2462MHZ



CHANNEL 12 _ 2467MHz





9.4.2. 99% BANDWIDTH

LIMITS

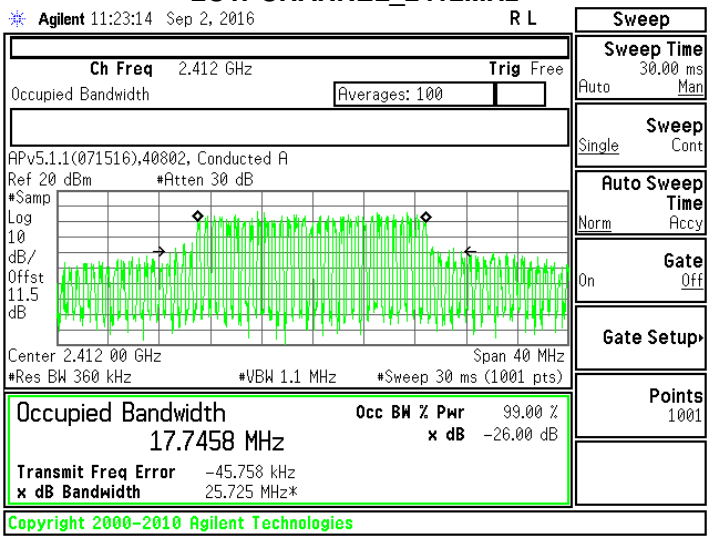
None; for reporting purposes only.

RESULTS

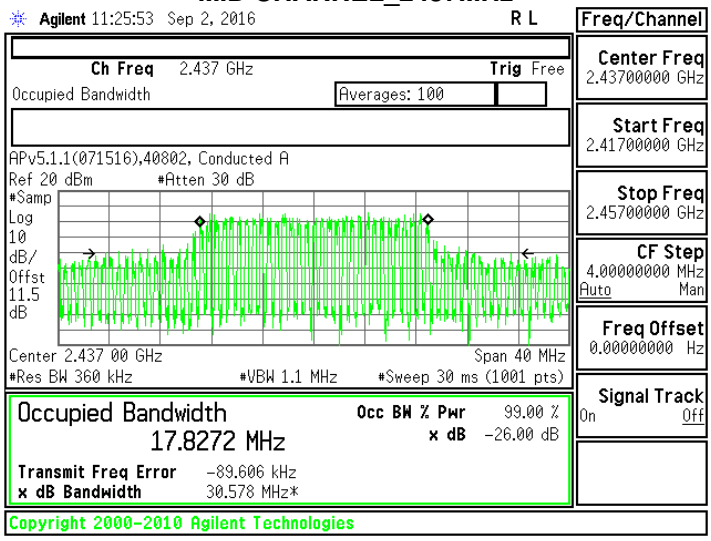
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)
Low	2412	17.7458
Mid	2437	17.8272
High	2462	17.7133
12	2467	17.7034
13	2472	17.7209

99% BANDWIDTH

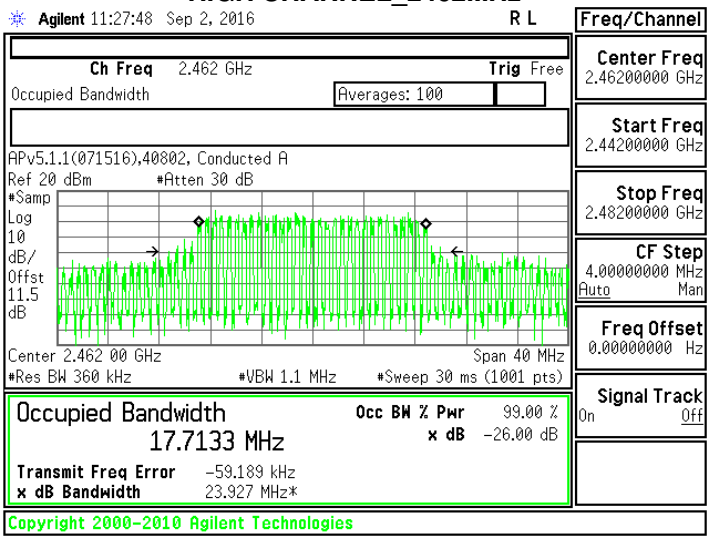
LOW CHANNEL_2412MHz



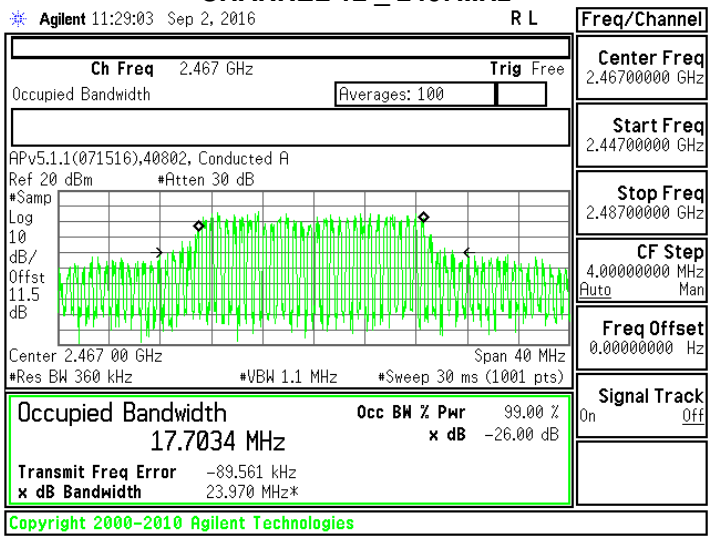
MID CHANNEL_2437MHz

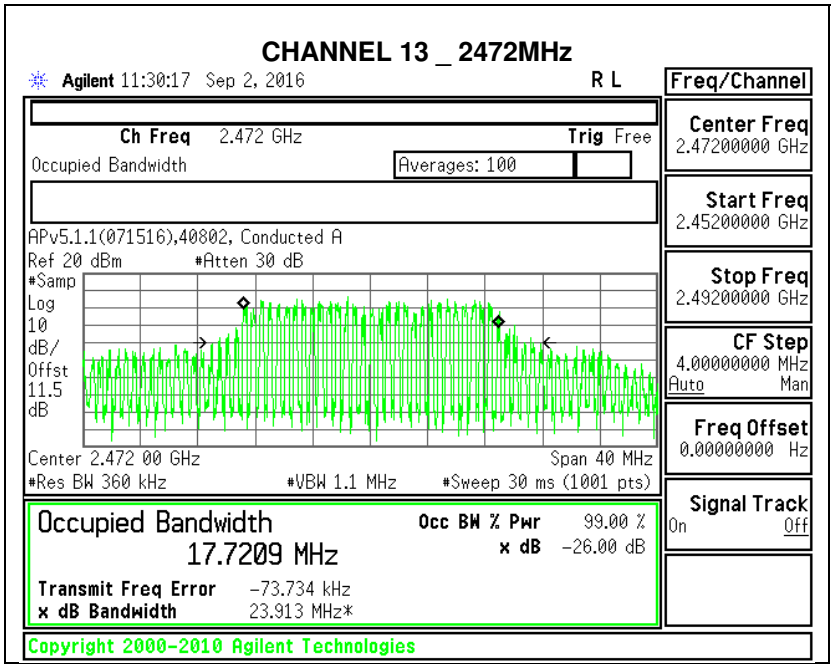


HIGH CHANNEL_2462MHz



CHANNEL 12 _ 2467MHz





9.4.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

ID:	40802	Date:	08/31/16

Channel	Frequency (MHz)	Power (dBm)
Low	2412	14.71
2	2417	15.43
3	2422	16.12
Mid	2437	16.21
10	2457	16.45
High	2462	13.52
12	2467	11.42
13	2472	6.54

9.4.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 5.4.4

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

ID:	40802	**Date:**	08/31/16

Channel	Frequency (MHz)	Power (dBm)	Limit (dBm)	Margin (dB)
Low	2412	14.71	30	-15.29
2	2417	15.43	30	-14.57
3	2422	16.12	30	-13.88
Mid	2437	16.21	30	-13.79
10	2457	16.45	30	-13.55
High	2462	13.52	30	-16.48
12	2467	11.42	30	-18.58
13	2472	6.54	30	-23.46

Note: the power readings above are measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

9.4.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

RESULTS

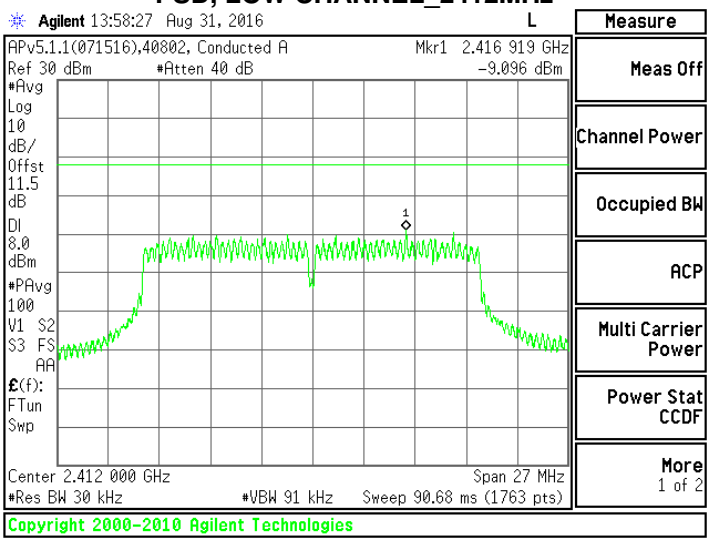
Duty Cycle CF (dB)	0.63	Included in Calculations of Corr'd PSD

PSD Results

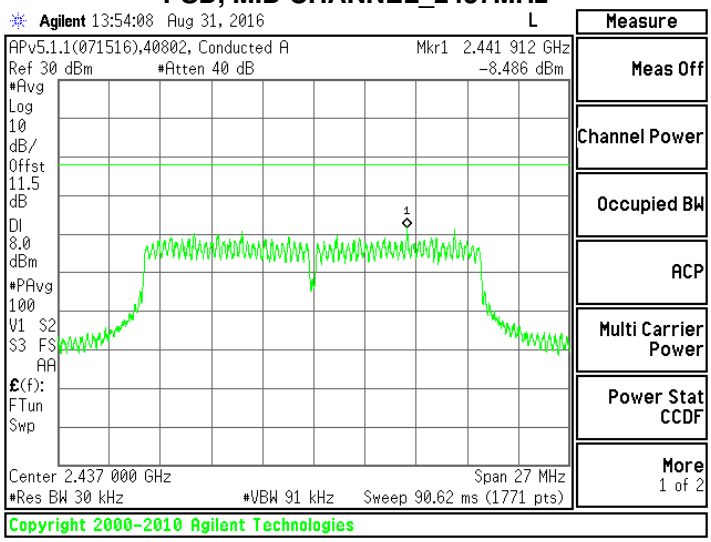
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.096	-8.466	8.0	-16.466
Mid	2437	-8.486	-7.856	8.0	-15.856
High	2462	-9.074	-8.444	8.0	-16.444
12	2467	-8.899	-8.269	8.0	-16.269
13	2472	-9.615	-8.985	8.0	-16.985

PDS, Chain 0

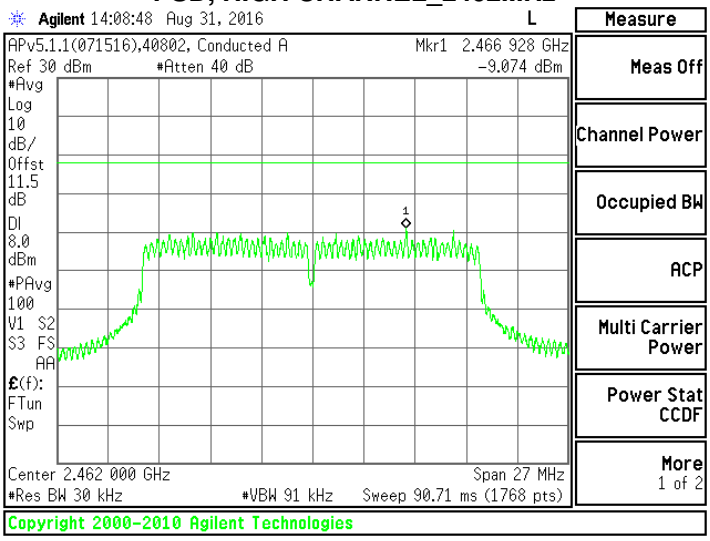
PSD, LOW CHANNEL_2412MHz



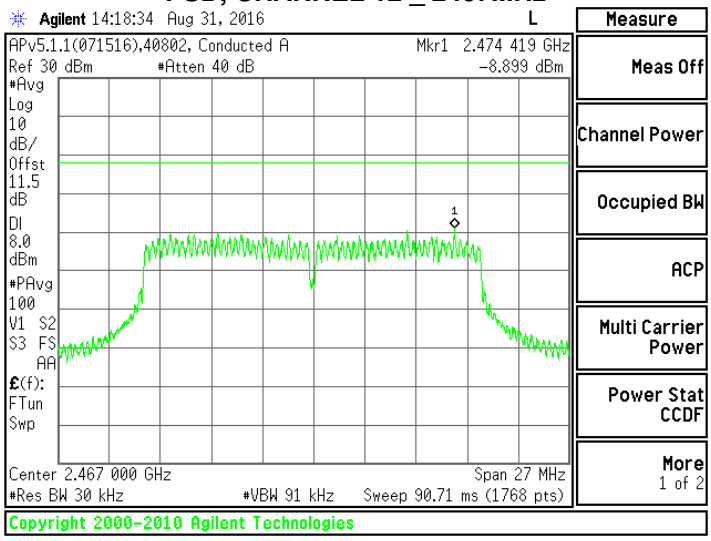
PSD, MID CHANNEL_2437MHz

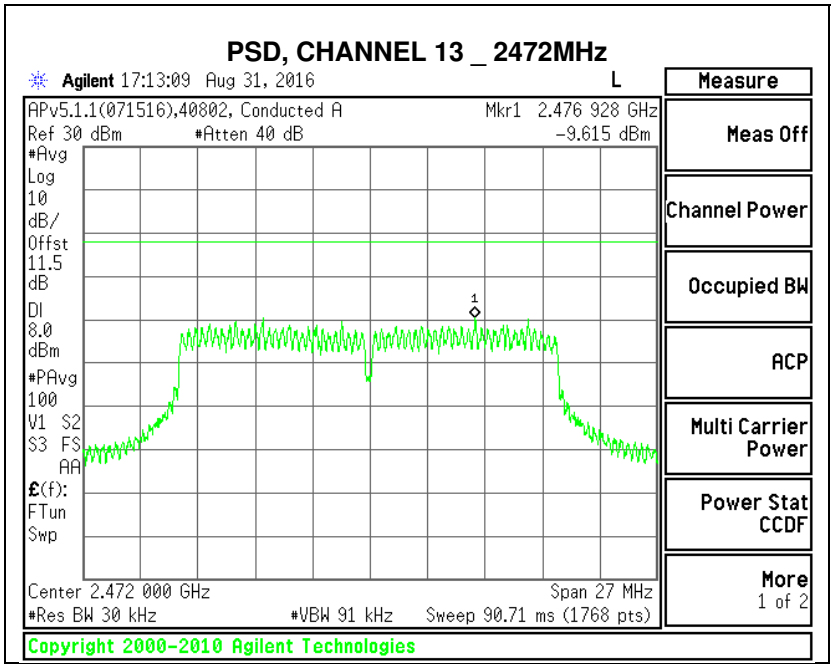


PSD, HIGH CHANNEL_2462MHz



PSD, CHANNEL 12 _ 2467MHz





9.4.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

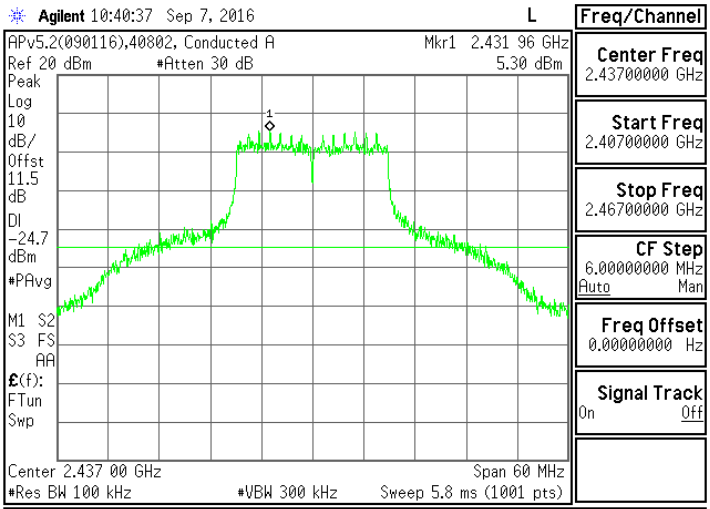
IC RSS-247 5.5

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.

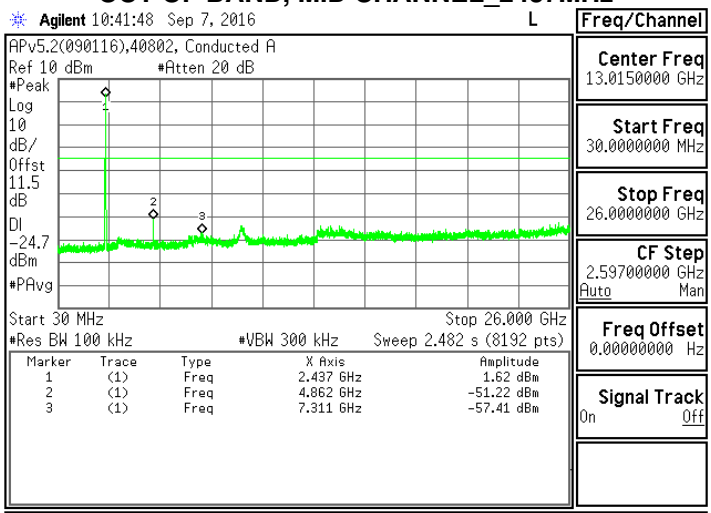
RESULTS

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH

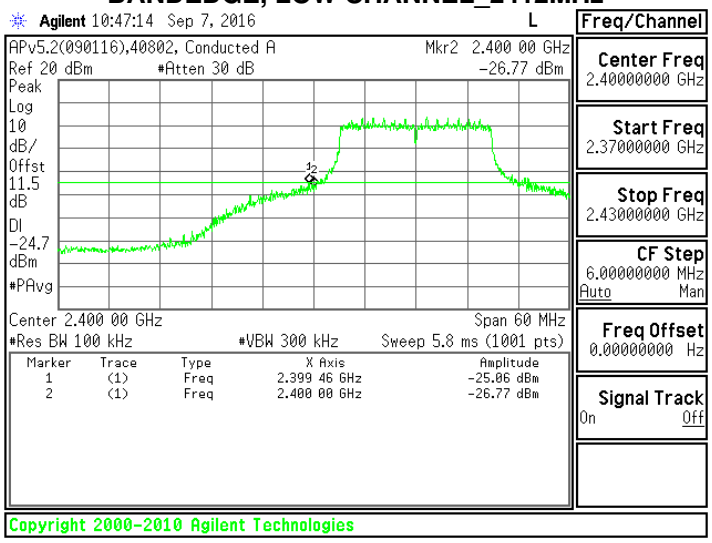


OUT OF BAND, MID CHANNEL_2437MHz

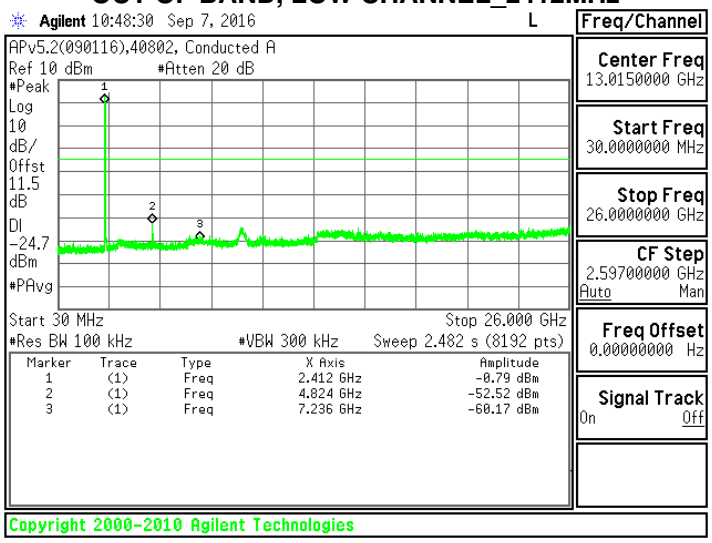


BANDEDGE & OUT-OF-BAND EMISSIONS

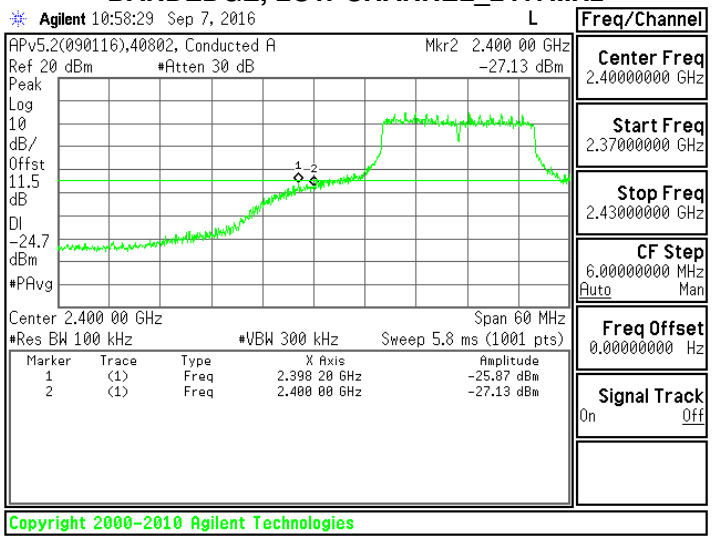
BANDEDGE, LOW CHANNEL_2412MHz



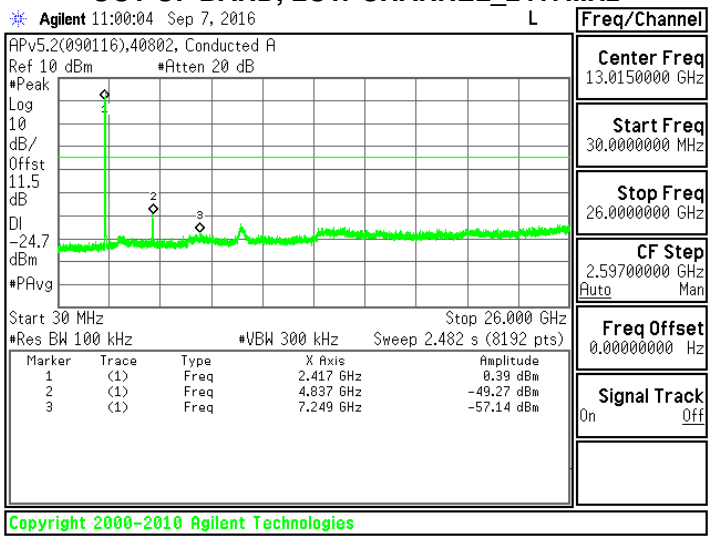
OUT OF BAND, LOW CHANNEL_2412MHz



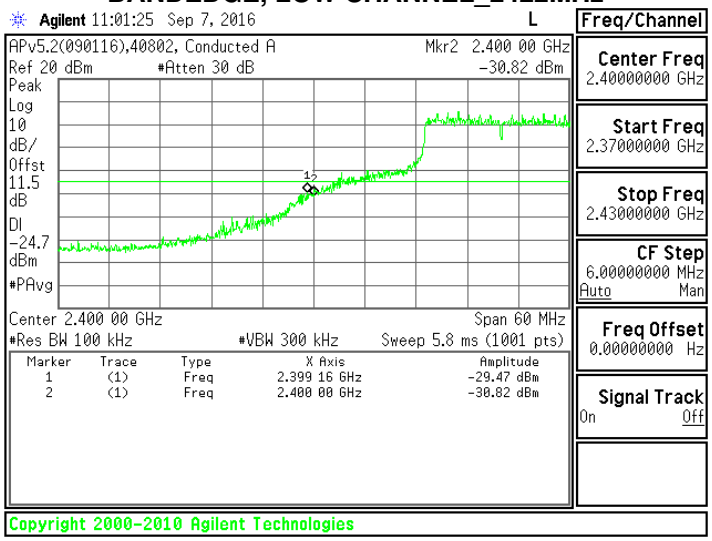
BANDEDGE, LOW CHANNEL_2417MHz



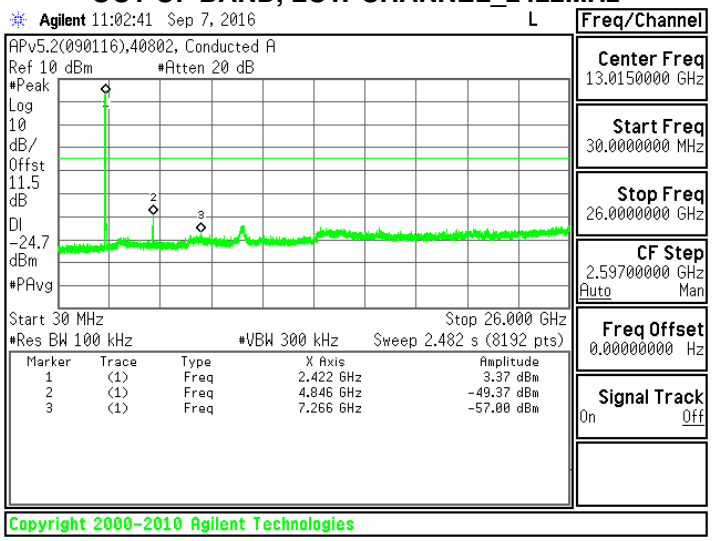
OUT OF BAND, LOW CHANNEL_2417MHz



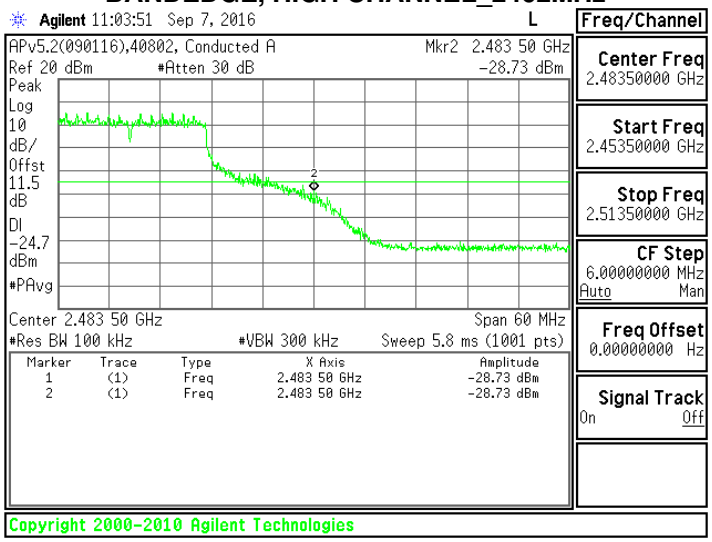
BANDEDGE, LOW CHANNEL_2422MHz



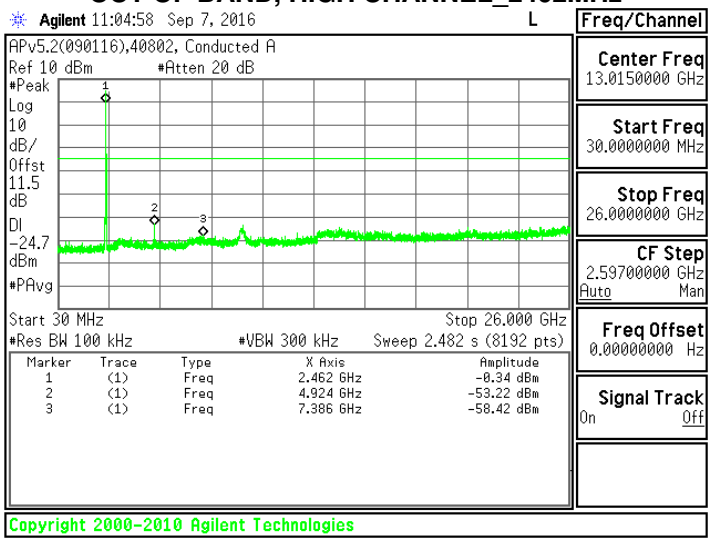
OUT OF BAND, LOW CHANNEL_2422MHz



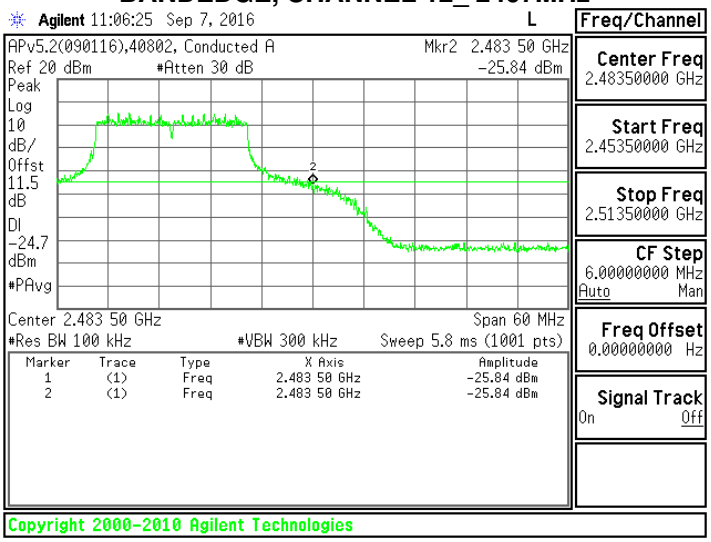
BANDEDGE, HIGH CHANNEL_2462MHz



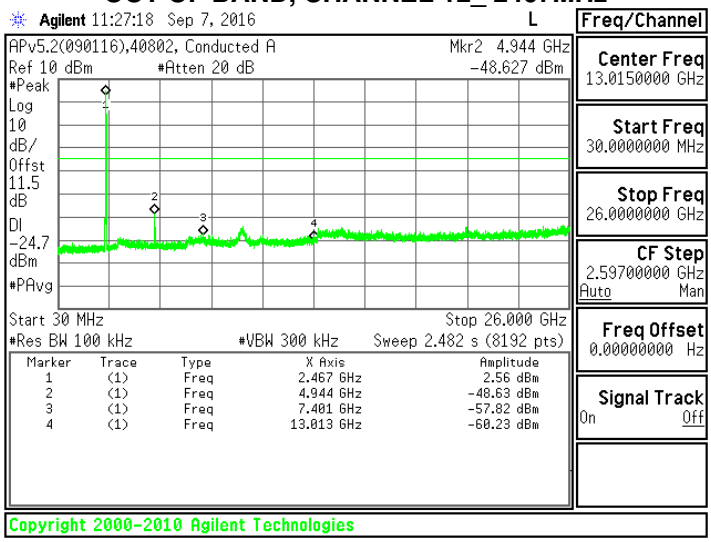
OUT OF BAND, HIGH CHANNEL_2462MHz



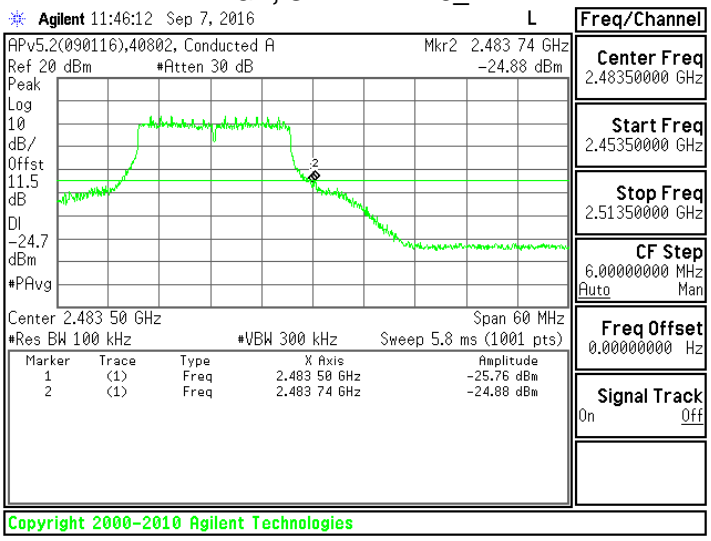
BANDEDGE, CHANNEL 12_ 2467MHz



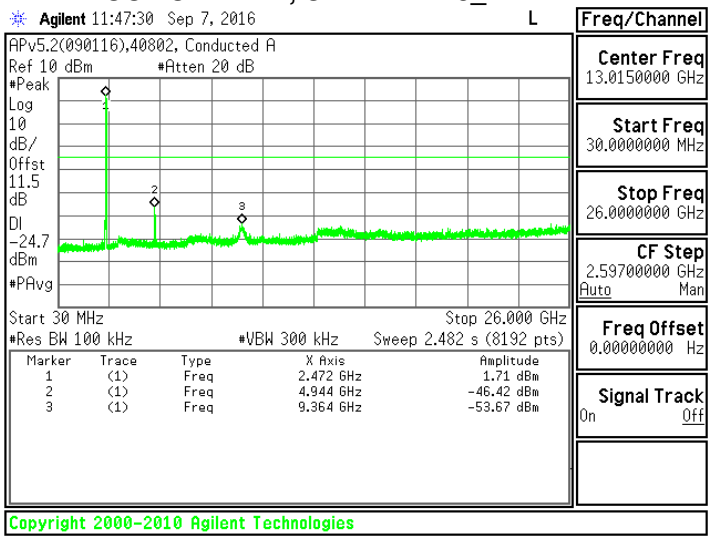
OUT OF BAND, CHANNEL 12_ 2467MHz



BANDEDGE, CHANNEL 13_ 2472MHz



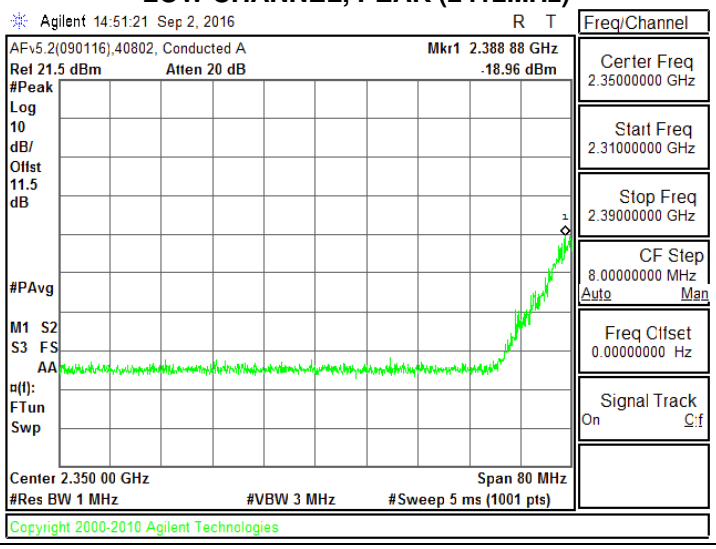
OUT OF BAND, CHANNEL 13_ 2472MHz



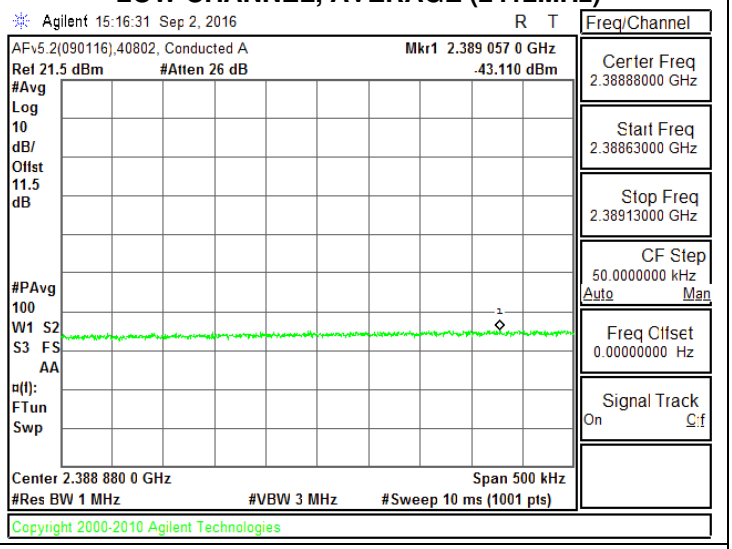
9.4.7. CONDUCTED BANDEDGE and HARMONICS/SPURIOUS IN RESTRICTED BANDS

BANDEDGE PLOTS

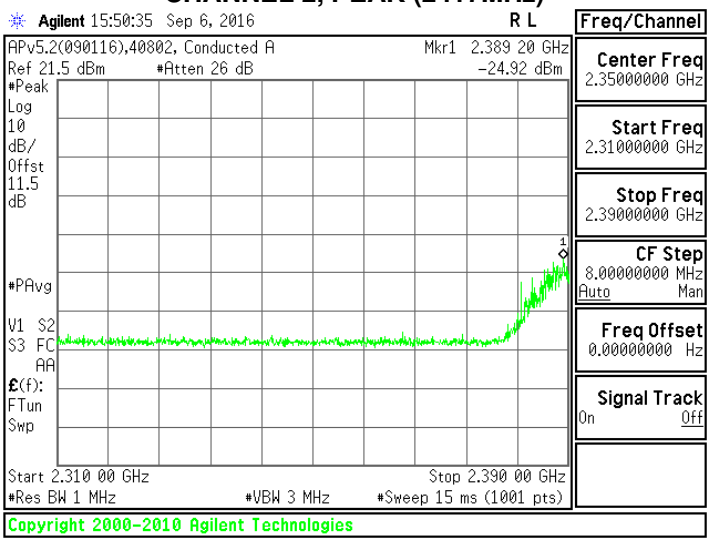
LOW CHANNEL, PEAK (2412MHz)



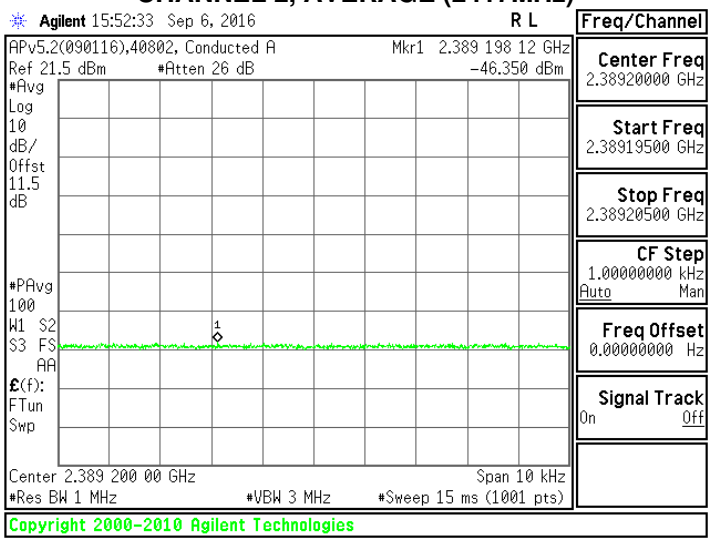
LOW CHANNEL, AVERAGE (2412MHz)



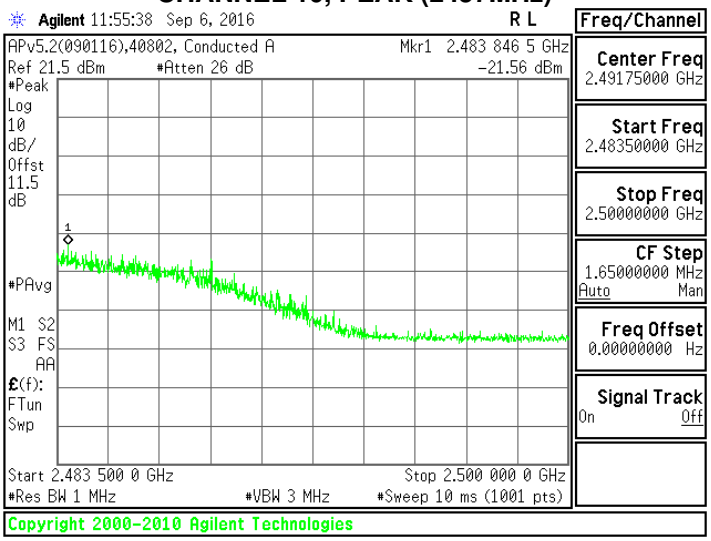
CHANNEL 2, PEAK (2417MHz)



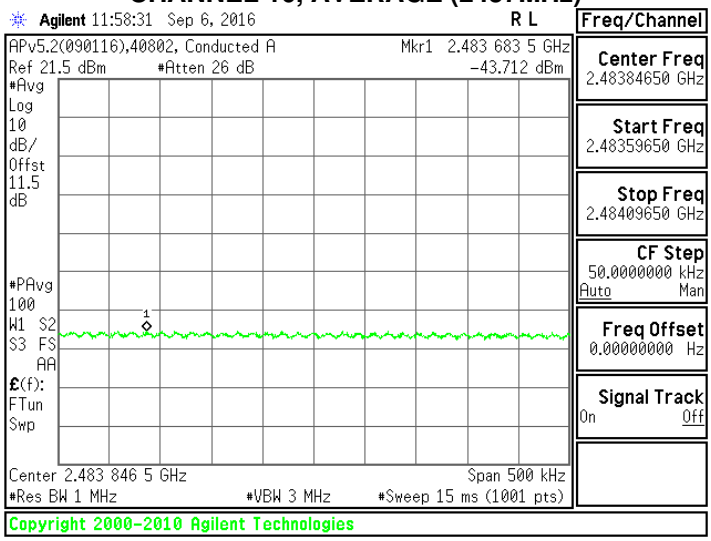
CHANNEL 2, AVERAGE (2417MHz)



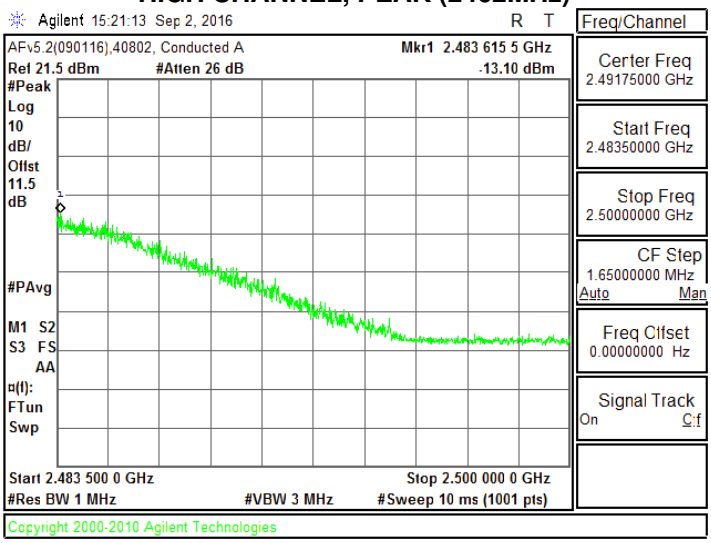
CHANNEL 10, PEAK (2457MHz)



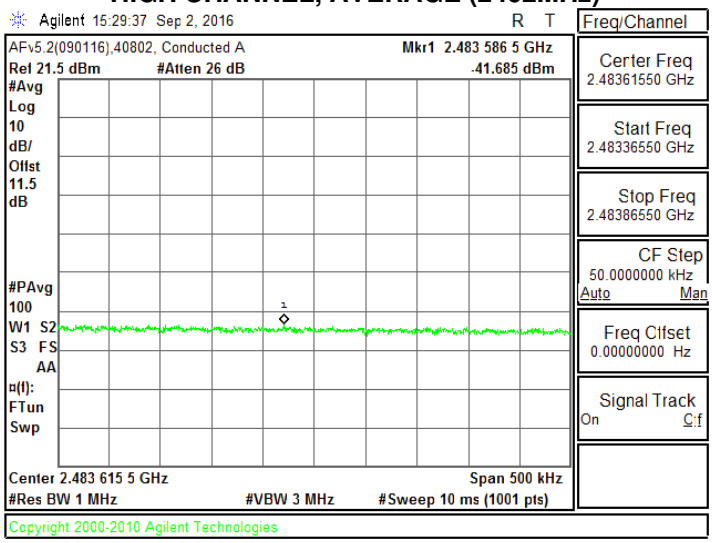
CHANNEL 10, AVERAGE (2457MHz)



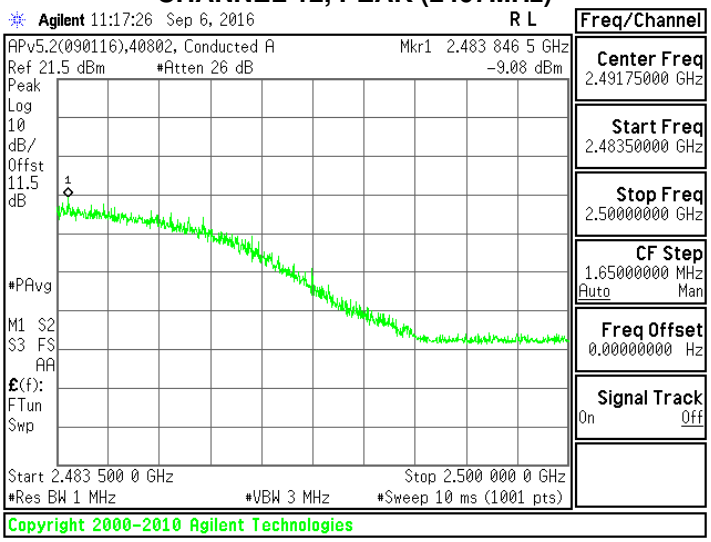
HIGH CHANNEL, PEAK (2462MHz)



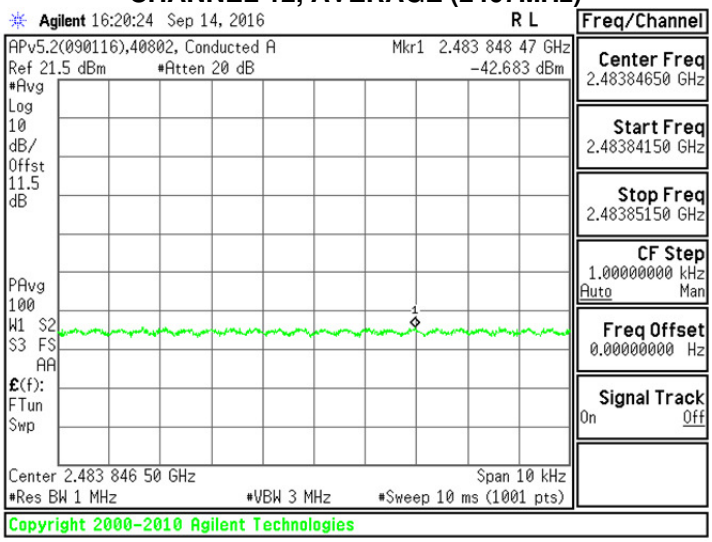
HIGH CHANNEL, AVERAGE (2462MHz)



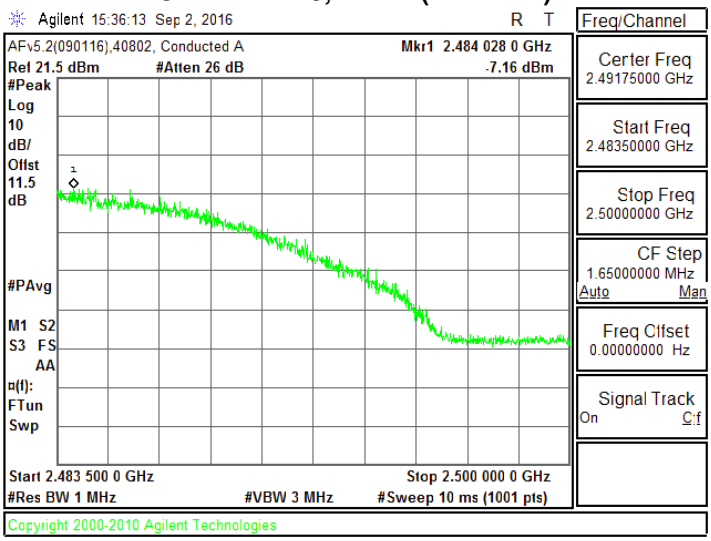
CHANNEL 12, PEAK (2467MHz)



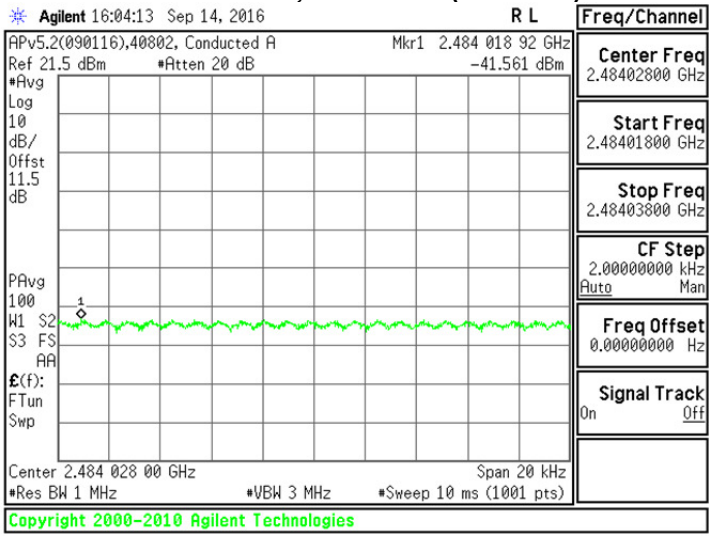
CHANNEL 12, AVERAGE (2467MHz)



CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



BANDEDGE DATA

Date: 9/2/2016
Test Engineer: 40802_TP
Client: QUALCOMM
Project Number: 16U23207
Configuration: EUT With support Equipments
Mode of operation: BE_DTS_WLAN - n mode

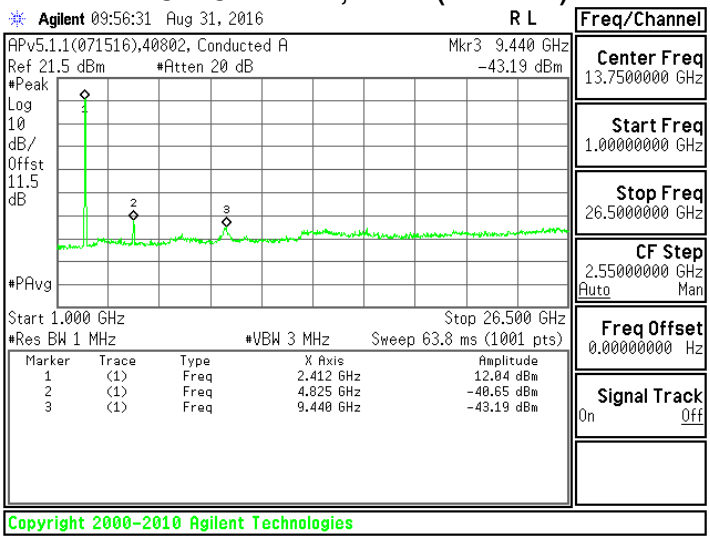
Note : if the PK margin is greater than 20 dB, there is no need to get AVG reading.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2388.88	-18.96	0	-18.96	-21.2	2.24	12.00	
CH2, 2417MHz							
2389.2	-24.92	0	-24.92	-21.2	-3.72	12.00	
CH10, 2457MHz							
2483.8465	-21.56	0	-21.56	-21.2	-0.36	12.00	
CH11, 2462MHz							
2483.6155	-13.1	0	-13.10	-21.2	8.10	12.00	
CH12, 2467MHz							
2483.8465	-9.08	0	-9.08	-21.2	12.12	12.00	
CH13, 2472MHz							
2484.028	-7.16	0	-7.16	-21.2	14.04	12.00	

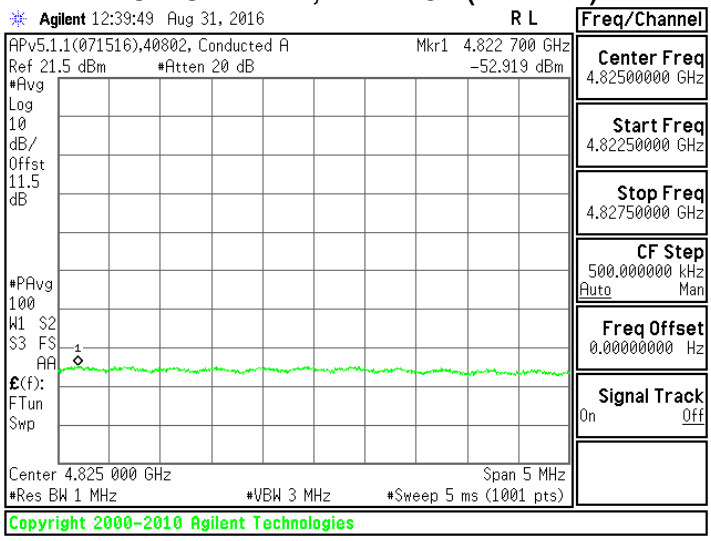
Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
2388.88	-43.11	0	-43.11	-41.2	-1.91	10.00	14.71
CH2, 2417MHz							
2389.2	-46.35	0	-46.35	-41.2	-5.15	13.00	16.05
CH10, 2457MHz							
2483.8465	-43.712	0	-43.71	-41.2	-2.51	12.00	16.45
CH11, 2462MHz							
2483.6155	-41.685	0	-41.69	-41.2	-0.48	9.00	13.52
CH12, 2467MHz							
2483.8465	-42.683	0	-42.68	-41.2	-1.48	7.00	11.56
CH13, 2472							
2484.028	-41.561	0	-41.56	-41.2	-0.36	2.00	6.54

HARMONICS AND SPURIOUS

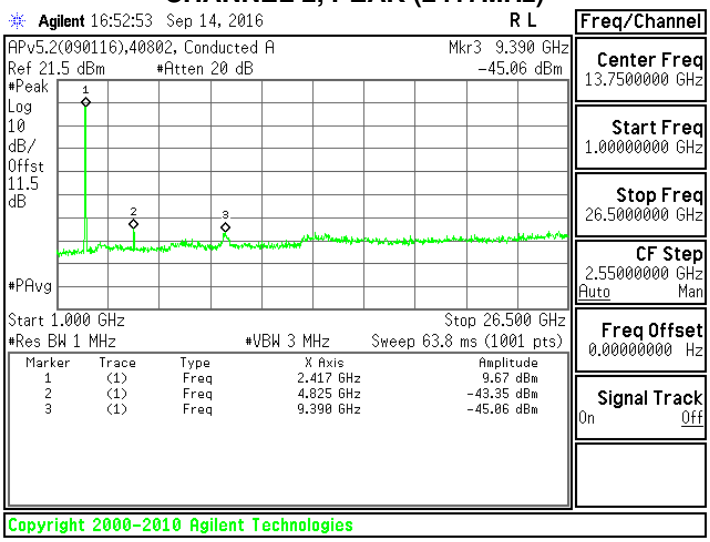
LOW CHANNEL, PEAK (2412MHz)



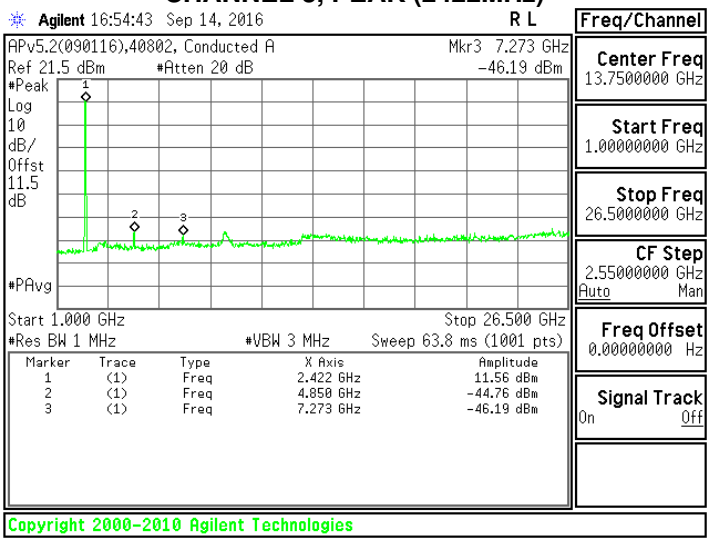
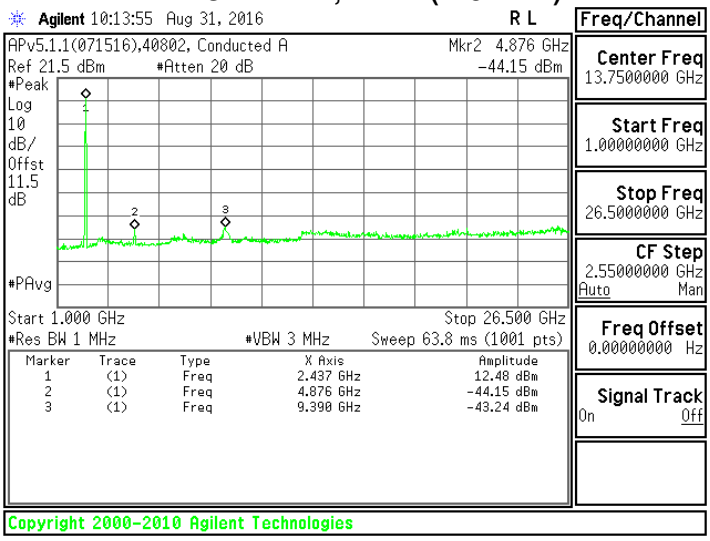
LOW CHANNEL, AVERAGE (2412MHz)



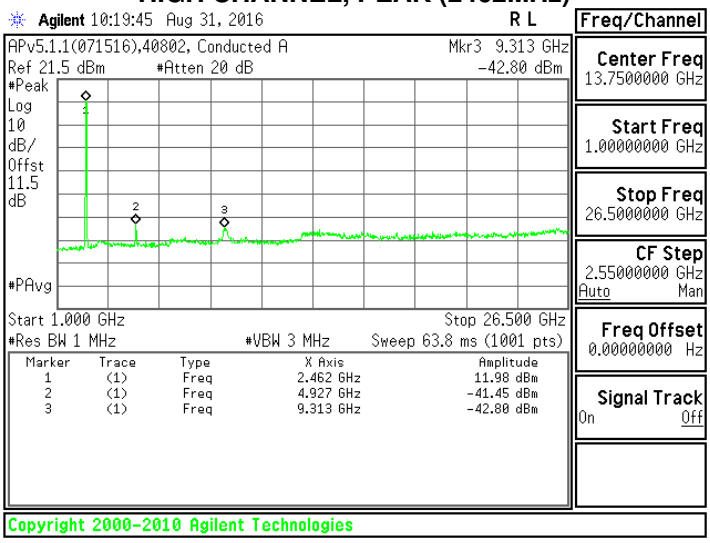
CHANNEL 2, PEAK (2417MHz)



Intentionally leave blank

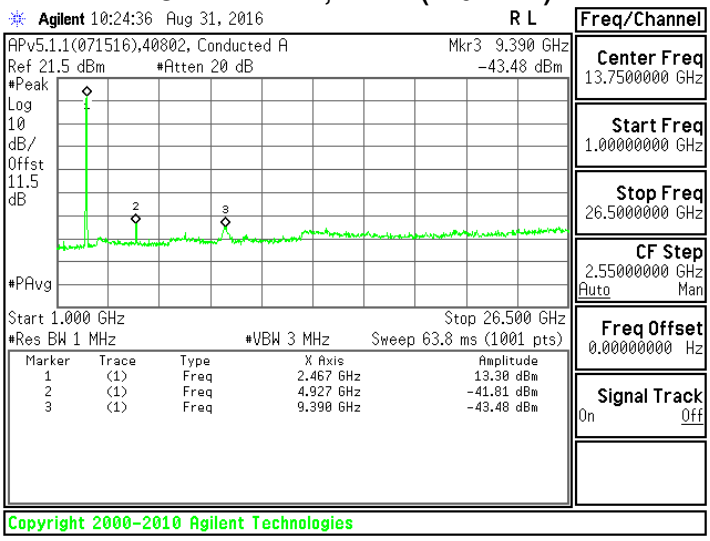
CHANNEL 3, PEAK (2422MHz) 	**Intentionally leave blank**
MID CHANNEL, PEAK (2437MHz) 	**Intentionally leave blank**

HIGH CHANNEL, PEAK (2462MHz)



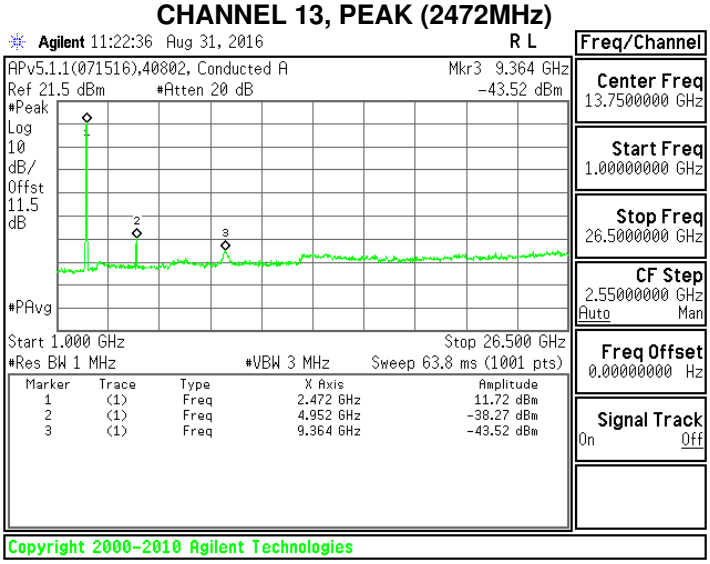
Intentionally leave blank

CHANNEL 12, PEAK (2467MHz)

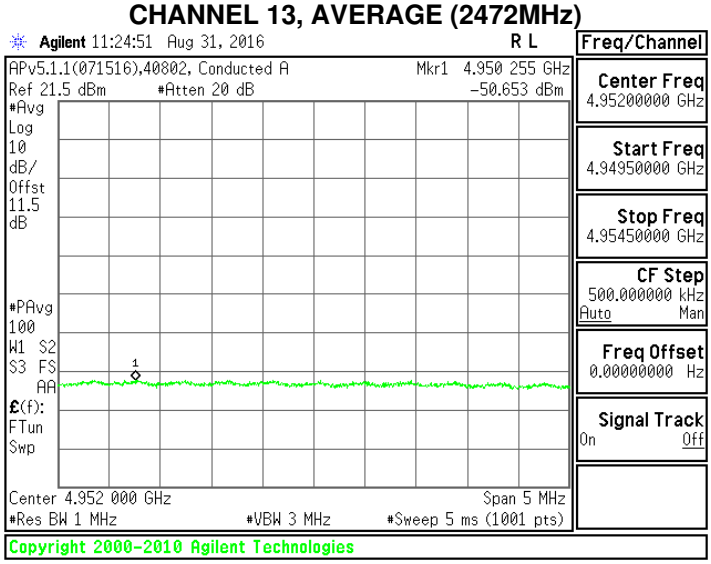


Intentionally leave blank

CHANNEL 13, PEAK (2472MHz)



CHANNEL 13, AVERAGE (2472MHz)



HARMONIC AND SPURIOUS DATA

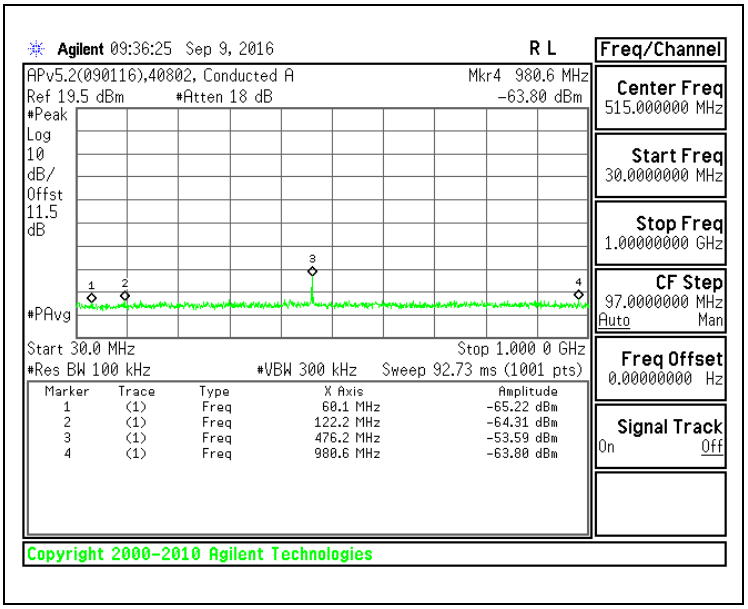
Date: 8/31/2016
Test Engineer: 40802_TP
Client: QUALCOMM
Project Number: 16U23207
Configuration: EUT With Support Equipments
Mode of operation: n mode HT20

Note: if the PK margin is greater than 20 dB, there is no need to get AVG reading.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	PK E-field Limit (dBm)	PK E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
4825	-40.65	0	-40.65	-21.2	-19.45		
9440	-43.19	0	-43.19	-21.2	-21.99		
CH2, 2417MHz							
4825	-43.35	0	-43.35	-21.2	-22.15		
9390	-45.06	0	-45.06	-21.2	-23.86		
CH3, 2422MHz							
4850	-44.76	0	-44.76	-21.2	-23.56		
7273	-46.19	0	-46.19	-21.2	-24.99		
CH6, 2437MHz							
4876	-44.15	0	-44.15	-21.2	-22.95		
9390	-43.24	0	-43.24	-21.2	-22.04		
CH11, 2462MHz							
4927	-41.45	0	-41.45	-21.2	-20.25		
9313	-42.8	0	-42.80	-21.2	-21.60		
CH12, 2467MHz							
4927	-41.81	0	-41.81	-21.2	-20.61		
9390	-43.48	0	-43.48	-21.2	-22.28		
CH13, 2472MHz							
4952	-38.27	0	-38.27	-21.2	-17.07		
9364	-43.52	0	-43.52	-21.2	-22.32		

Frequency (MHz)	Meter AVG Reading Chain 0 (dBm)	AG Chain 0 (dBi)	AVG EIRP (dBm)	AVG E-field Limit (dBm)	AVG E-field Margin (dB)	Software Setting Chain 0	AVG Power Meter Reading Chain 0 (dBm)
CH1, 2412MHz							
4825	-52.919	0	-52.92	-41.2	-11.72	12.00	
CH13, 2472MHz							
4952	-50.653	0	-50.65	-41.2	-9.45	12.00	

HARMONICS AND SPURIOUS BELOW 1G



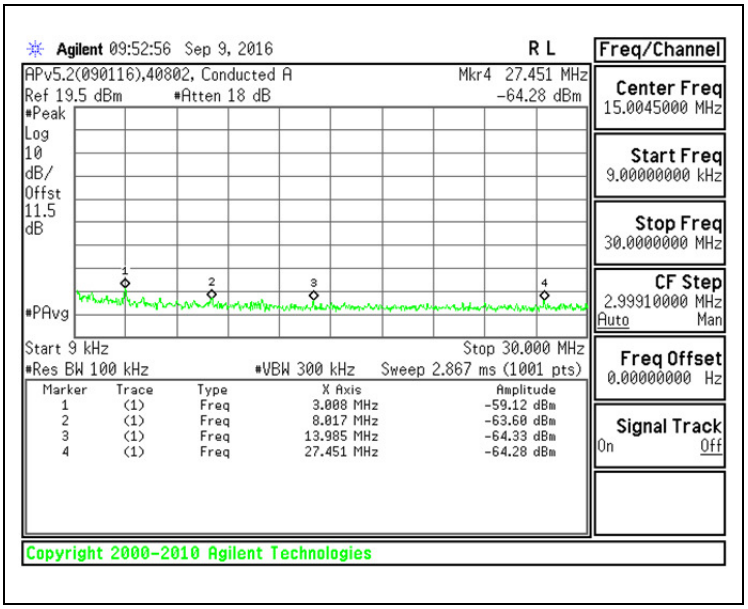
HARMONIC & SPUR_BELOW 1G_DATA

Date:	9/1/2016
Test Engineer:	40802_TP
Client:	Qualcomm Tech
Project Number:	16U23207
Configuration:	EUT with Support Equipment
Mode of operation:	Worst Case

Note: if the QP margin is passing there is no need to get QP measurement.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	QP E-field Limit (dBm)	QP E-field Margin (dB)
60.1	-65.22	0	-65.22	-55.2	-10.02
122.2	-64.31	0	-64.31	-51.68	-12.63
476.2	-53.59	0	-53.59	-49.18	-4.41
980.6	-63.8	0	-63.80	-41.22	-22.58

HARMONICS AND SPURIOUS BELOW 30MHz



HARMONIC & SPUR_BELOW 30MHz_DATA

Date: 09/09/2016
Test Engineer: 40802_TP
Client: Qualcomm Tech
Project Number: 16U23207
Configuration: EUT with Support Equipments
Mode of operation: Worst Case

Note: if the QP margin is passing there is no need to get QP measurement.

Frequency (MHz)	Meter PK Reading Chain 0 (dBm)	AG Chain 0 (dBi)	PK EIRP (dBm)	QP/AVG E-field Limit (dBm)	QP/AVG E-field Margin (dB)
3.008	-59.12	0	-53.12	-30	-23.12
8.017	-63.6	0	-57.60	-30	-27.60
13.985	-64.33	0	-58.33	-30	-28.33
27.451	-64.28	0	-58.28	-30	-28.28

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7.1.2 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009 – 0.490	2400/F (kHz)	2400/F (kHz)
0.490 – 1.705	24000/F (kHz)	24000/F (kHz)
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 for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. 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; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Please refer to test report section 9.1 for duty cycle factor information. Note: The pre-scan measurements above 1GHz the VBW is set to 30 kHz.

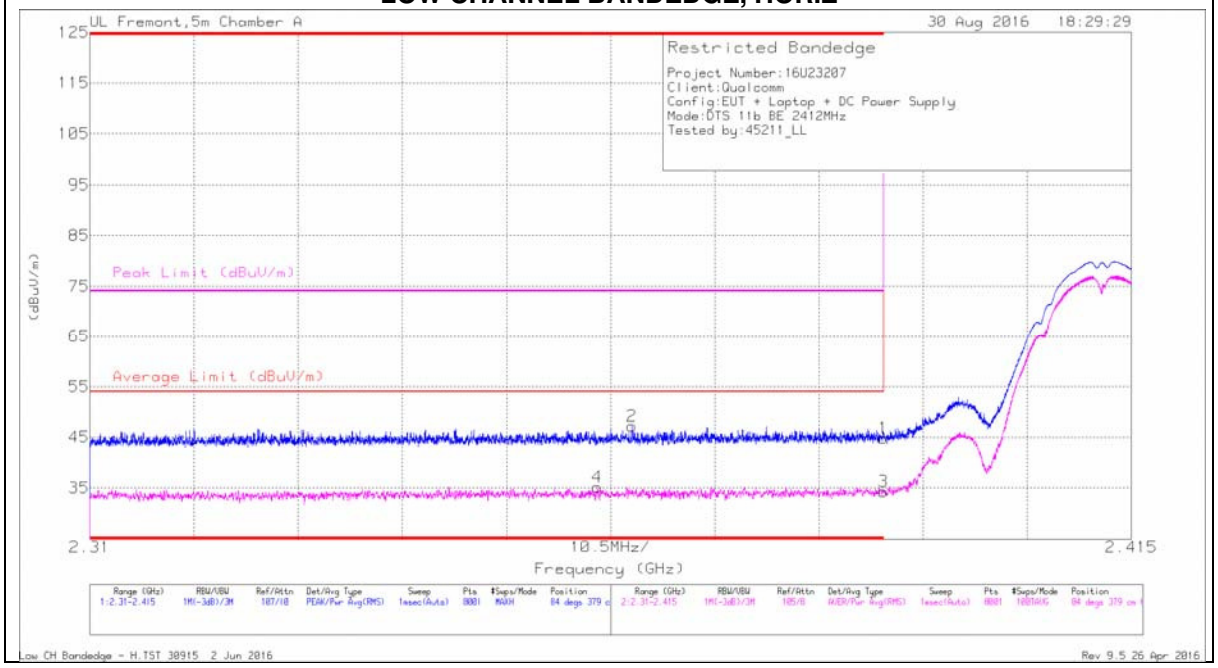
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

10.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL BANDEDGE, HORIZ

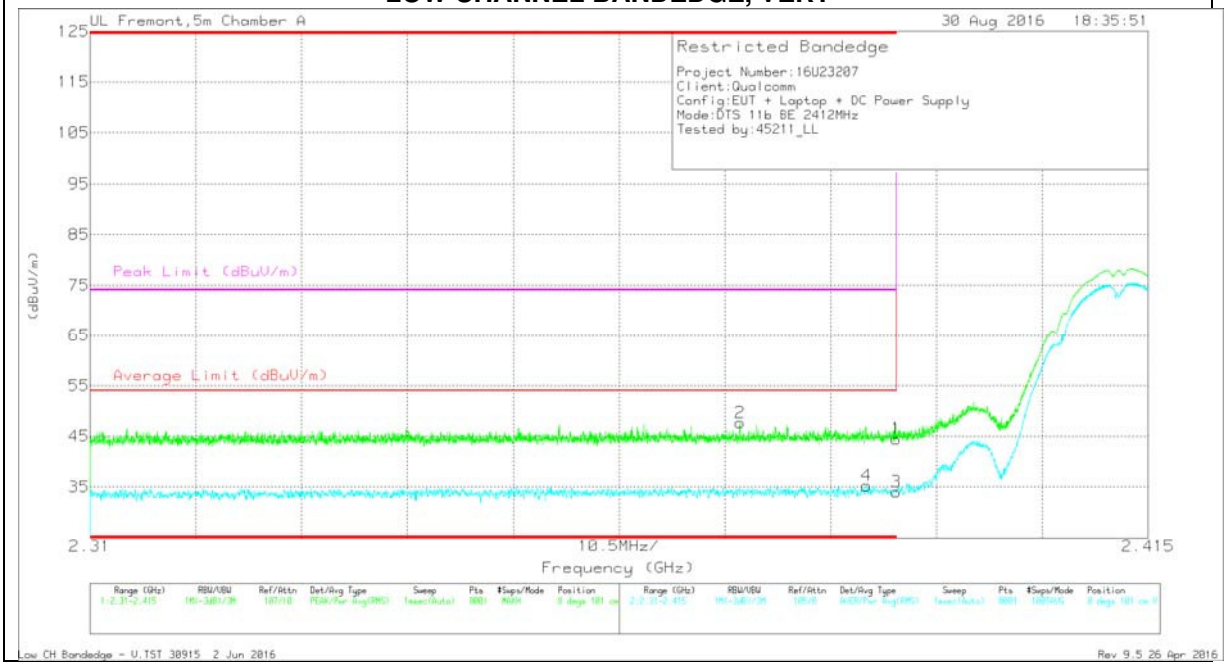


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.26	Pk	32.3	-23.7	0	44.86	-	-	74	-29.14	84	379	H
2	* 2.365	38.94	Pk	32.1	-23.8	0	47.24	-	-	74	-26.76	84	379	H
3	* 2.39	25.56	RMS	32.3	-23.7	.1	34.26	54	-19.74	-	-	84	379	H
4	* 2.361	26.69	RMS	32.1	-23.7	.1	35.19	54	-18.81	-	-	84	379	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL BANDEDGE, VERT



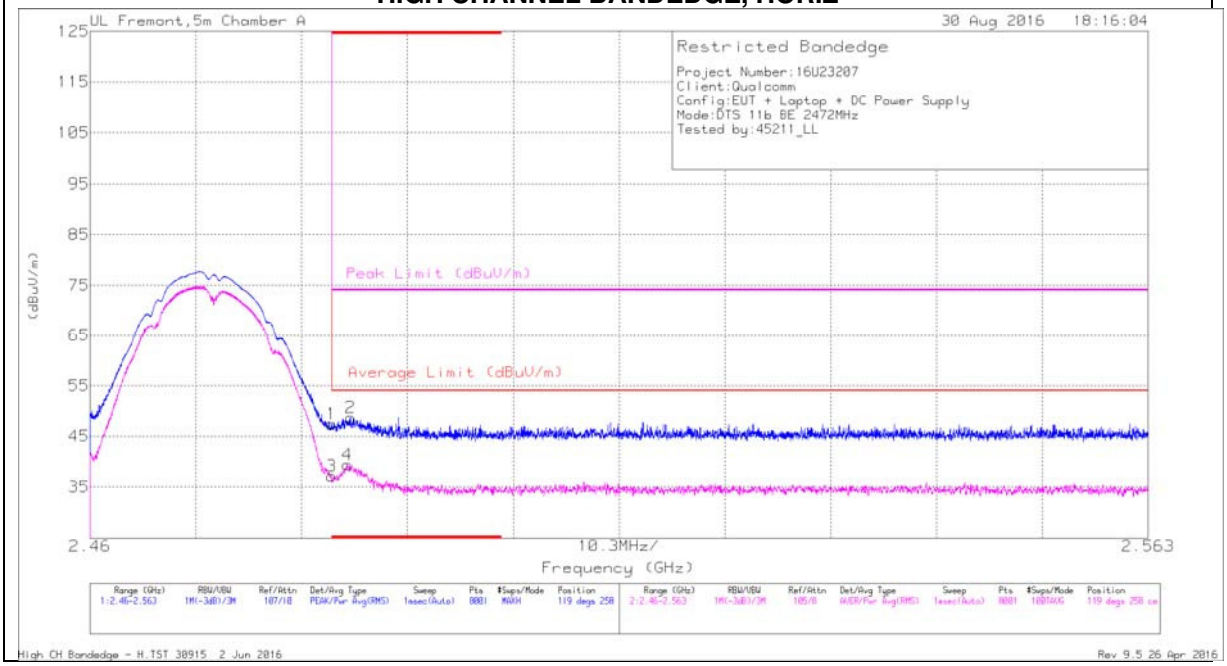
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	35.92	Pk	32.3	-23.7	0	44.52	-	-	74	-29.48	8	101	V
2	* 2.375	39.22	Pk	32.2	-23.7	0	47.72	-	-	74	-26.28	8	101	V
3	* 2.39	25.34	RMS	32.3	-23.7	.1	34.04	54	-19.96	-	-	8	101	V
4	* 2.387	26.51	RMS	32.3	-23.7	.1	35.21	54	-18.79	-	-	8	101	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZ

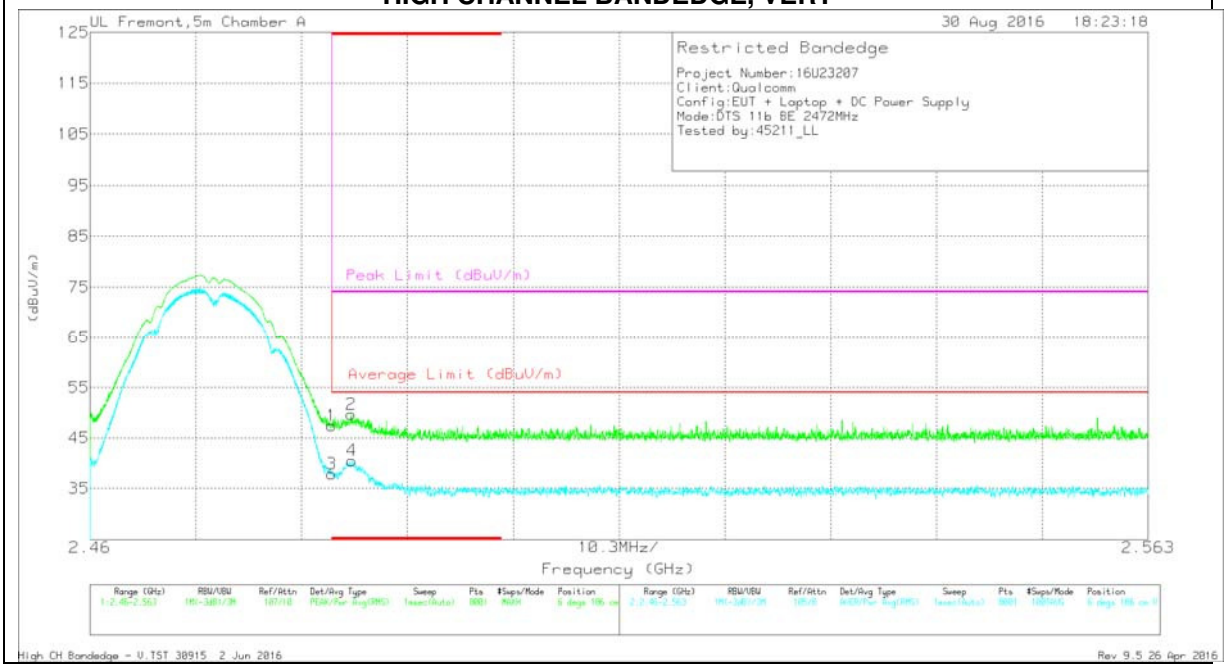


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.61	Pk	32.4	-23.6	0	47.41	-	-	74	-26.59	119	258	H
2	* 2.485	40.01	Pk	32.4	-23.7	0	48.71	-	-	74	-25.29	119	258	H
3	* 2.484	28.25	RMS	32.4	-23.6	.1	37.15	54	-16.85	-	-	119	258	H
4	* 2.485	30.62	RMS	32.4	-23.7	.1	39.42	54	-14.58	-	-	119	258	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HIGH CHANNEL BANDEDGE, VERT



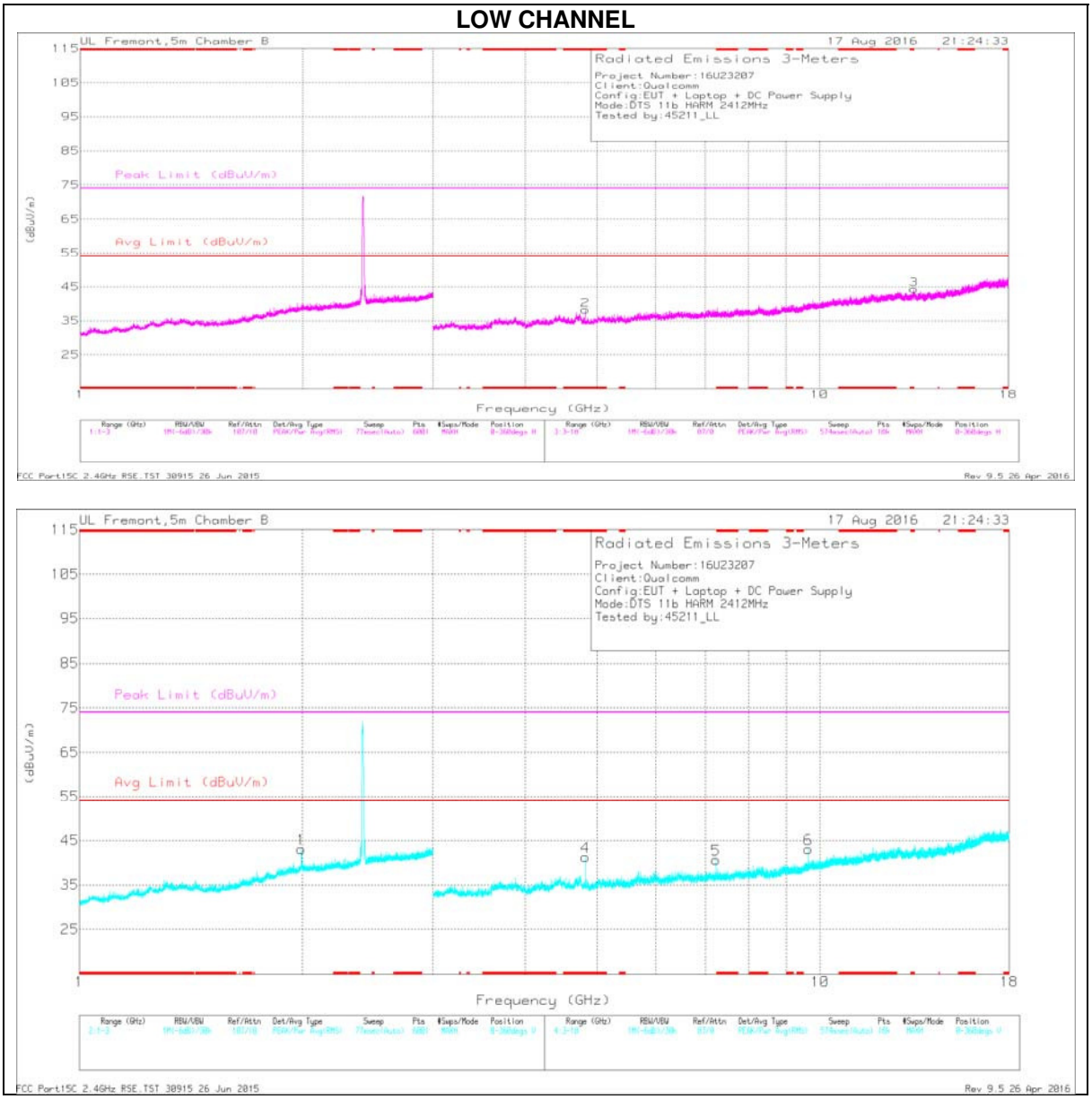
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.69	Pk	32.4	-23.6	0	47.49	-	-	74	-26.51	6	186	V
2	* 2.485	41.02	Pk	32.4	-23.7	0	49.72	-	-	74	-24.28	6	186	V
3	* 2.484	28.95	RMS	32.4	-23.6	.1	37.85	54	-16.15	-	-	6	186	V
4	* 2.485	31.74	RMS	32.4	-23.7	.1	40.54	54	-13.46	-	-	6	186	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL



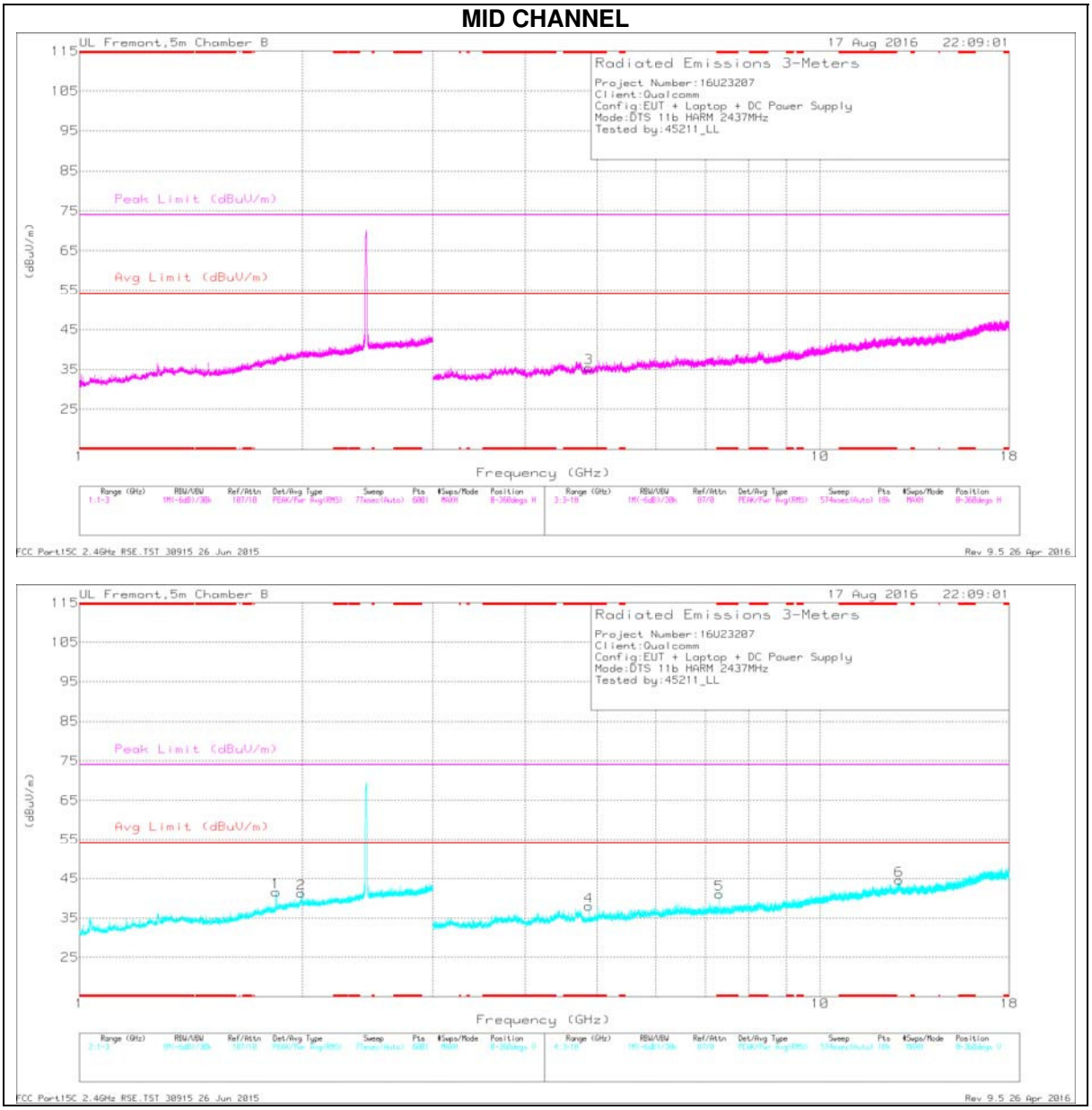
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	41.87	PK2	33.8	-31.8	0	43.87	-	-	74	-30.13	134	102	H
* 4.824	35.09	MAv1	33.8	-31.8	.1	37.19	54	-16.81	-	-	134	102	H
* 4.824	43.15	PK2	33.8	-31.8	0	45.15	-	-	74	-28.85	99	233	V
* 4.824	38.31	MAv1	33.8	-31.8	.1	40.41	54	-13.59	-	-	99	233	V
1.993	37.93	PK2	31.5	-22.1	0	47.33	-	-	74	-26.67	126	186	V
7.239	41.72	PK2	35.6	-30.1	0	47.22	-	-	74	-26.78	345	260	V
9.648	37.53	PK2	36.8	-26.8	0	47.53	-	-	74	-26.47	245	371	V
13.421	34.21	PK2	39.1	-24	0	49.31	-	-	74	-24.69	134	263	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL



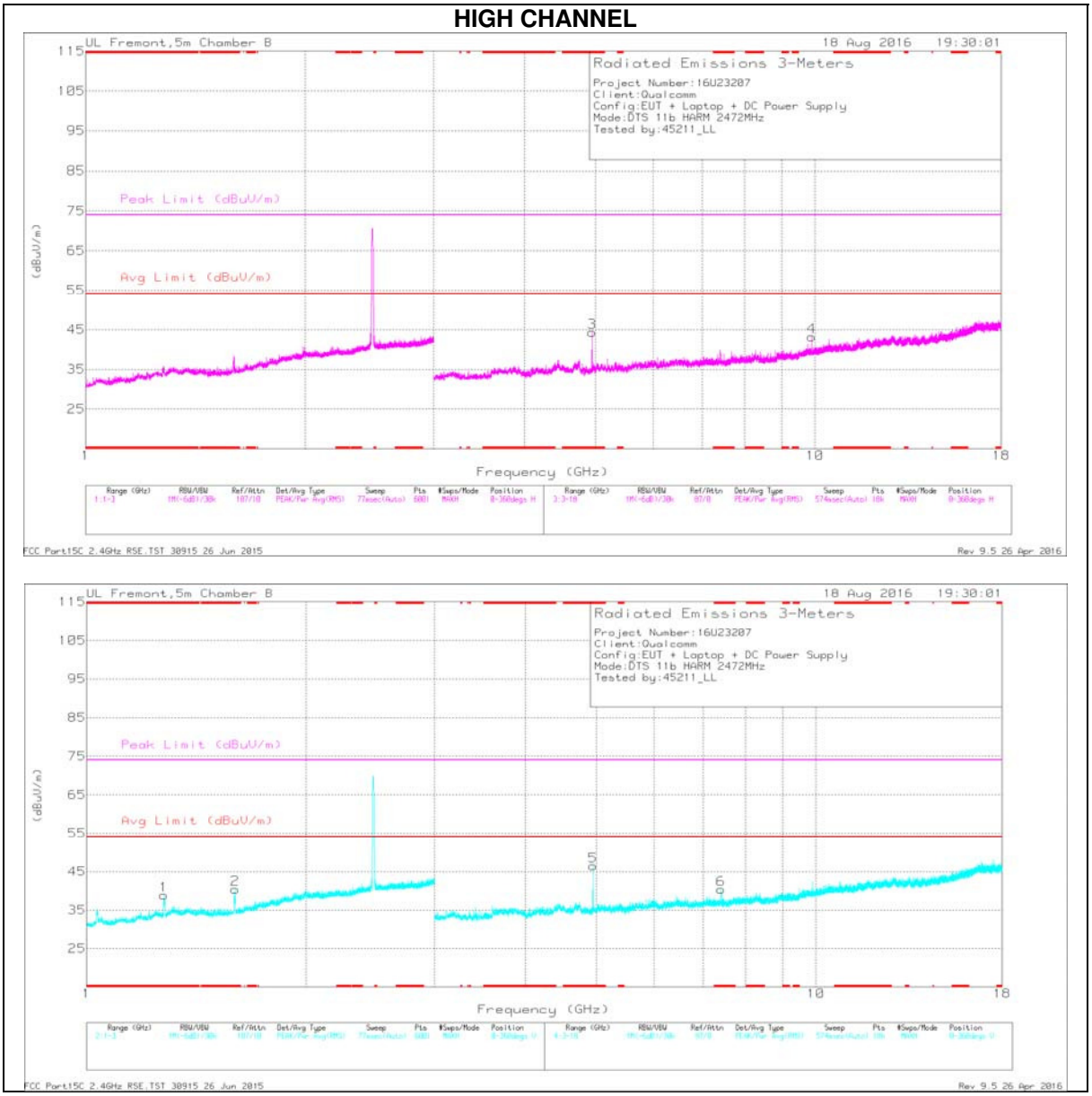
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	40.43	PK2	33.8	-32.7	0	41.53	-	-	74	-32.47	115	142	H
* 4.874	30.97	MAv1	33.8	-32.7	.1	32.17	54	-21.83	-	-	115	142	H
* 4.874	43.22	PK2	33.8	-32.7	0	44.32	-	-	74	-29.68	334	308	V
* 4.874	36.87	MAv1	33.8	-32.7	.1	38.07	54	-15.93	-	-	334	308	V
* 7.31	41.73	PK2	35.6	-30.5	0	46.83	-	-	74	-27.17	345	293	V
* 7.31	34.35	MAv1	35.6	-30.5	.1	39.55	54	-14.45	-	-	345	293	V
1.844	35.71	PK2	30.4	-22.1	0	44.01	-	-	74	-29.99	247	293	V
1.994	40.12	PK2	31.5	-22.1	0	49.52	-	-	74	-24.48	251	237	V
12.79	34.19	PK2	39.4	-24.5	0	49.09	-	-	74	-24.91	7	335	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

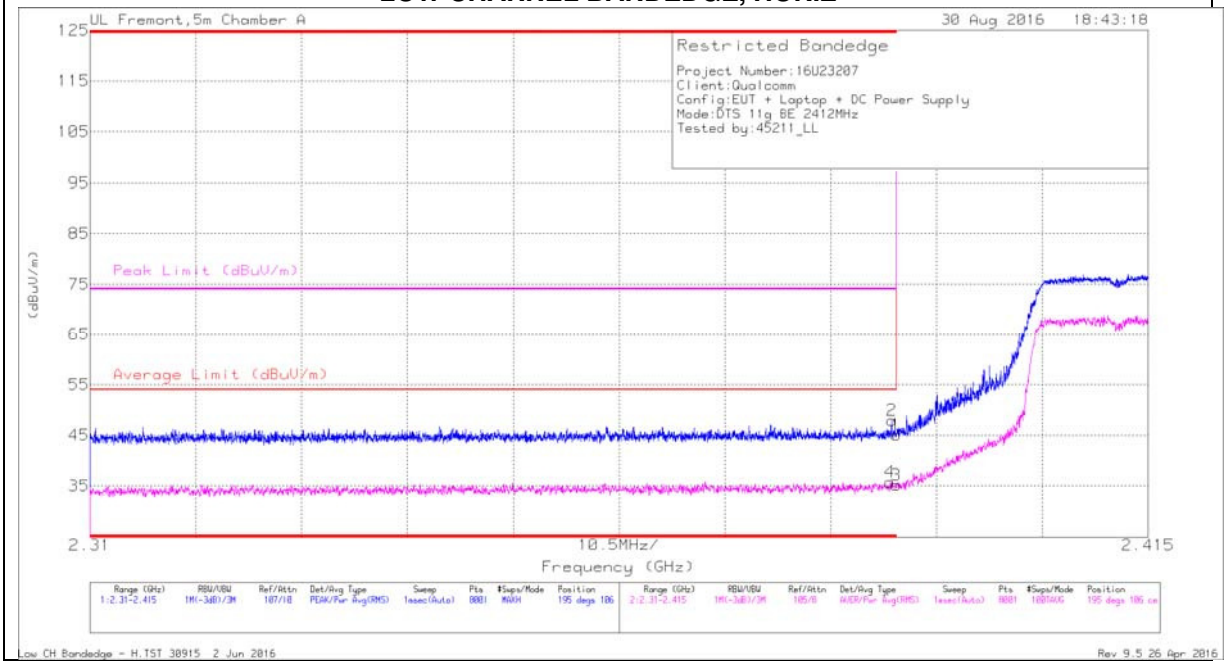
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.278	35.11	PK2	28.8	-23.1	0	40.81	-	-	74	-33.19	358	183	V
* 1.274	23.39	MAv1	28.8	-23	.1	29.29	54	-24.71	-	-	358	183	V
* 1.597	45.43	PK2	28.1	-22.3	0	51.23	-	-	74	-22.77	42	224	V
* 1.599	26.42	MAv1	28.1	-22.3	.1	32.32	54	-21.68	-	-	42	224	V
* 4.944	46.68	PK2	33.9	-32.6	0	47.98	-	-	74	-26.02	321	105	H
* 4.944	42.91	MAv1	33.9	-32.6	.1	44.31	54	-9.69	-	-	321	105	H
* 4.944	47.91	PK2	33.9	-32.6	0	49.21	-	-	74	-24.79	260	119	V
* 4.944	44.66	MAv1	33.9	-32.6	.1	46.06	54	-7.94	-	-	260	119	V
* 7.414	39.47	PK2	35.6	-29.4	0	45.67	-	-	74	-28.33	309	189	V
* 7.417	31.71	MAv1	35.6	-29.4	.1	38.01	54	-15.99	-	-	309	189	V
9.887	37.98	PK2	37.2	-26.6	0	48.58	-	-	74	-25.42	318	101	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL BANDEDGE, HORIZ

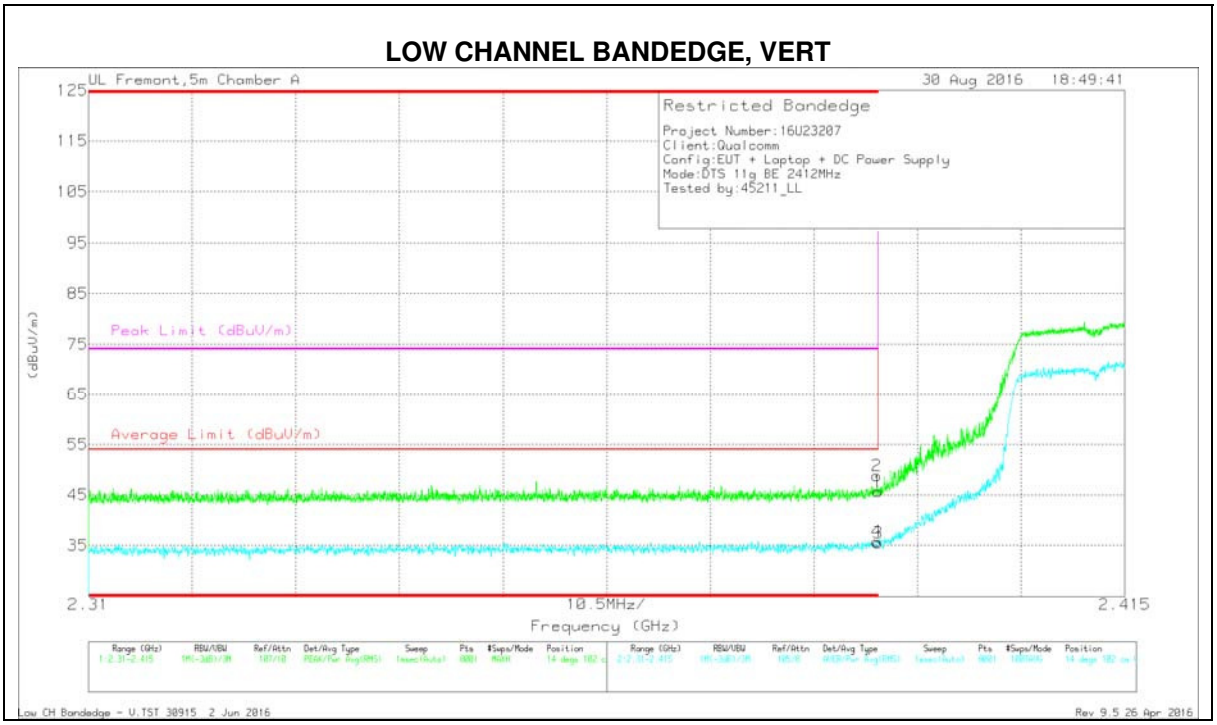


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.48	Pk	32.3	-23.7	0	45.08	-	-	74	-28.92	195	106	H
2	* 2.39	39.35	Pk	32.3	-23.7	0	47.95	-	-	74	-26.05	195	106	H
3	* 2.39	25.93	RMS	32.3	-23.7	.59	35.12	54	-18.88	-	-	195	106	H
4	* 2.389	26.59	RMS	32.3	-23.7	.59	35.78	54	-18.22	-	-	195	106	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL BANDEDGE, VERT

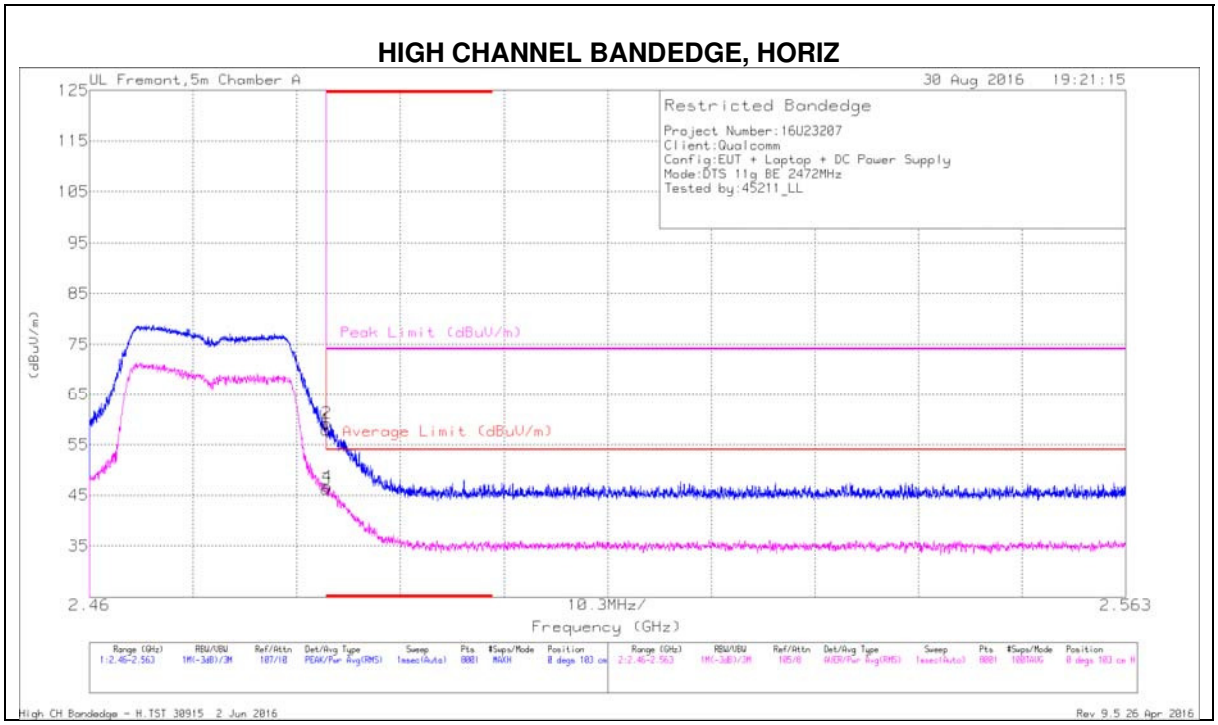


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.05	Pk	32.3	-23.7	0	45.65	-	-	74	-28.35	14	102	V
2	* 2.39	40.15	Pk	32.3	-23.7	0	48.75	-	-	74	-25.25	14	102	V
3	* 2.39	26.36	RMS	32.3	-23.7	.59	35.55	54	-18.45	-	-	14	102	V
4	* 2.39	26.57	RMS	32.3	-23.7	.59	35.76	54	-18.24	-	-	14	102	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL)

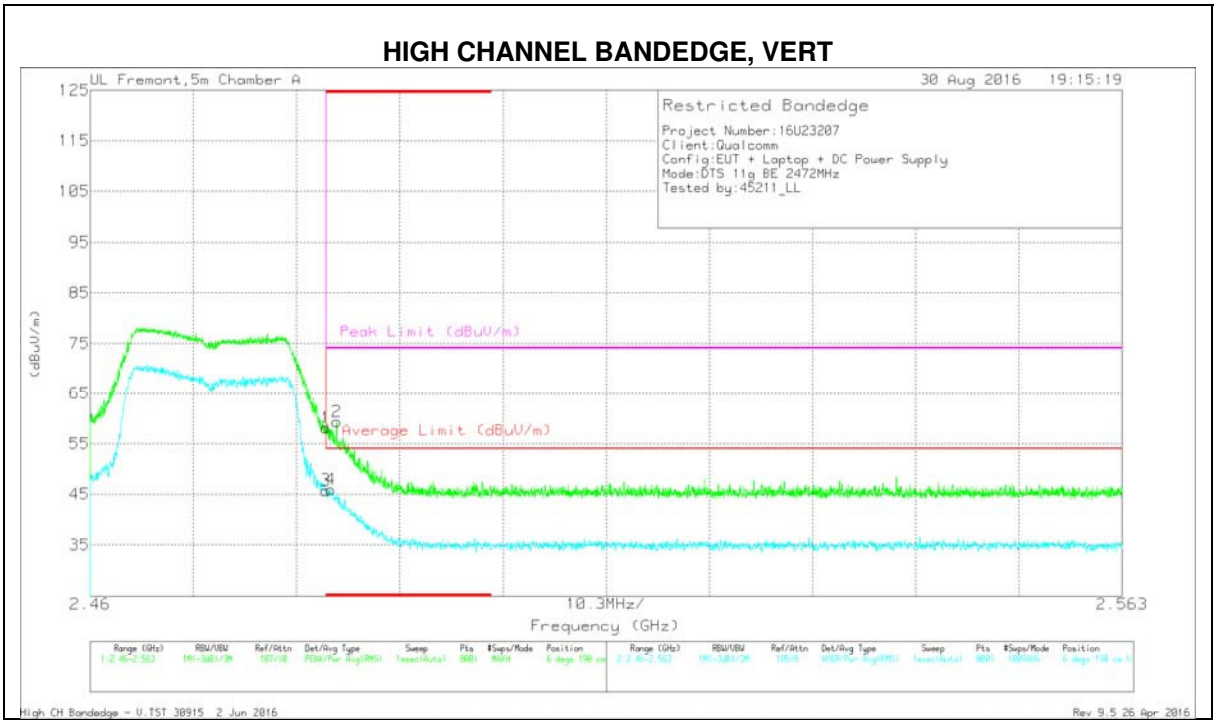


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	49.07	Pk	32.4	-23.6	0	57.87	-	-	74	-16.13	0	103	H
2	* 2.484	50.41	Pk	32.4	-23.6	0	59.21	-	-	74	-14.79	0	103	H
3	* 2.484	36.76	RMS	32.4	-23.6	.59	46.15	54	-7.85	-	-	0	103	H
4	* 2.484	37.31	RMS	32.4	-23.6	.59	46.7	54	-7.3	-	-	0	103	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HIGH CHANNEL BANDEDGE, VERT



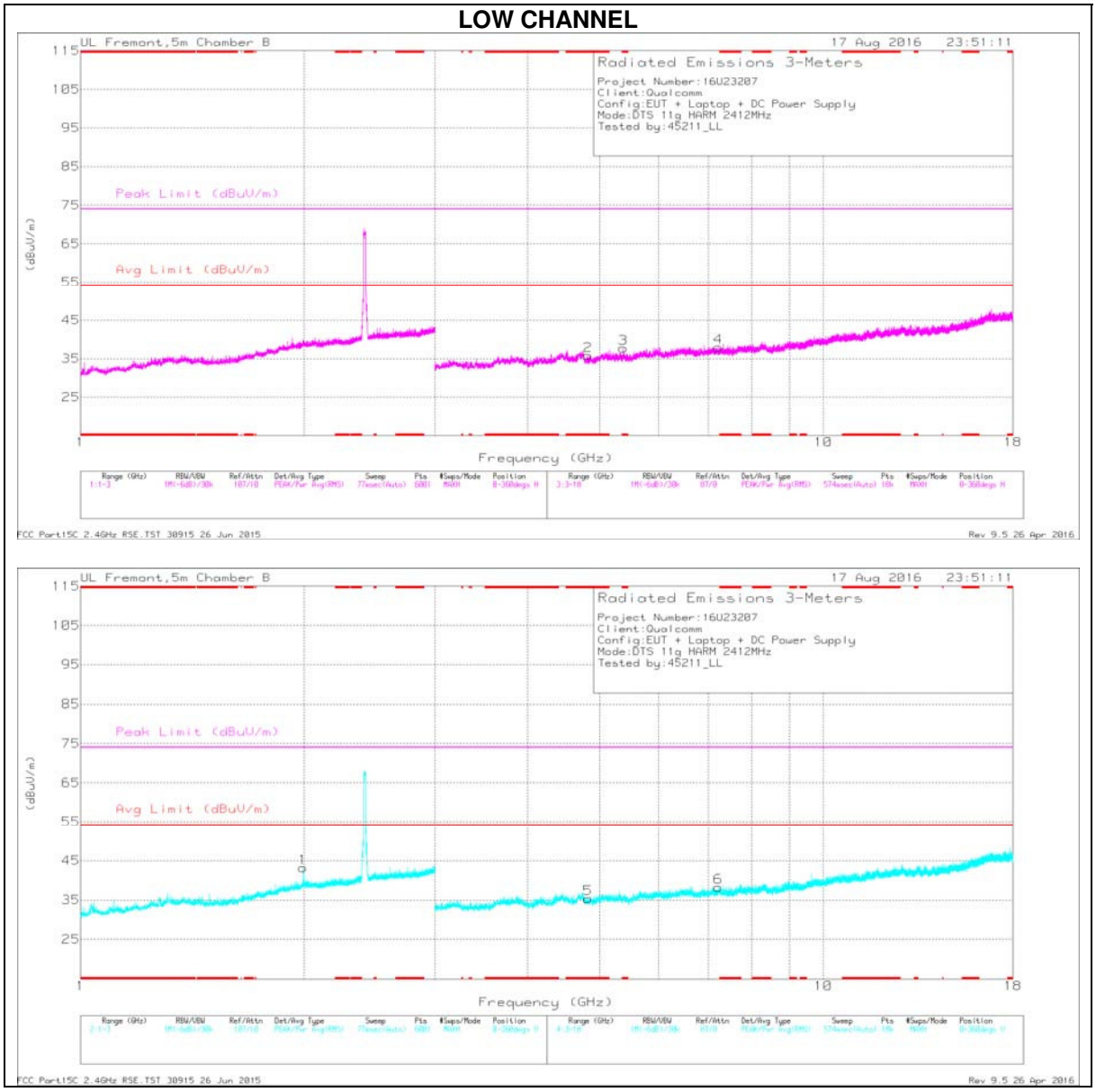
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	49.28	Pk	32.4	-23.6	0	58.08	-	-	74	-15.92	6	190	V
2	* 2.485	50.66	Pk	32.4	-23.7	0	59.36	-	-	74	-14.64	6	190	V
3	* 2.484	36.37	RMS	32.4	-23.6	.59	45.76	54	-8.24	-	-	6	190	V
4	* 2.484	36.5	RMS	32.4	-23.6	.59	45.89	54	-8.11	-	-	6	190	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL



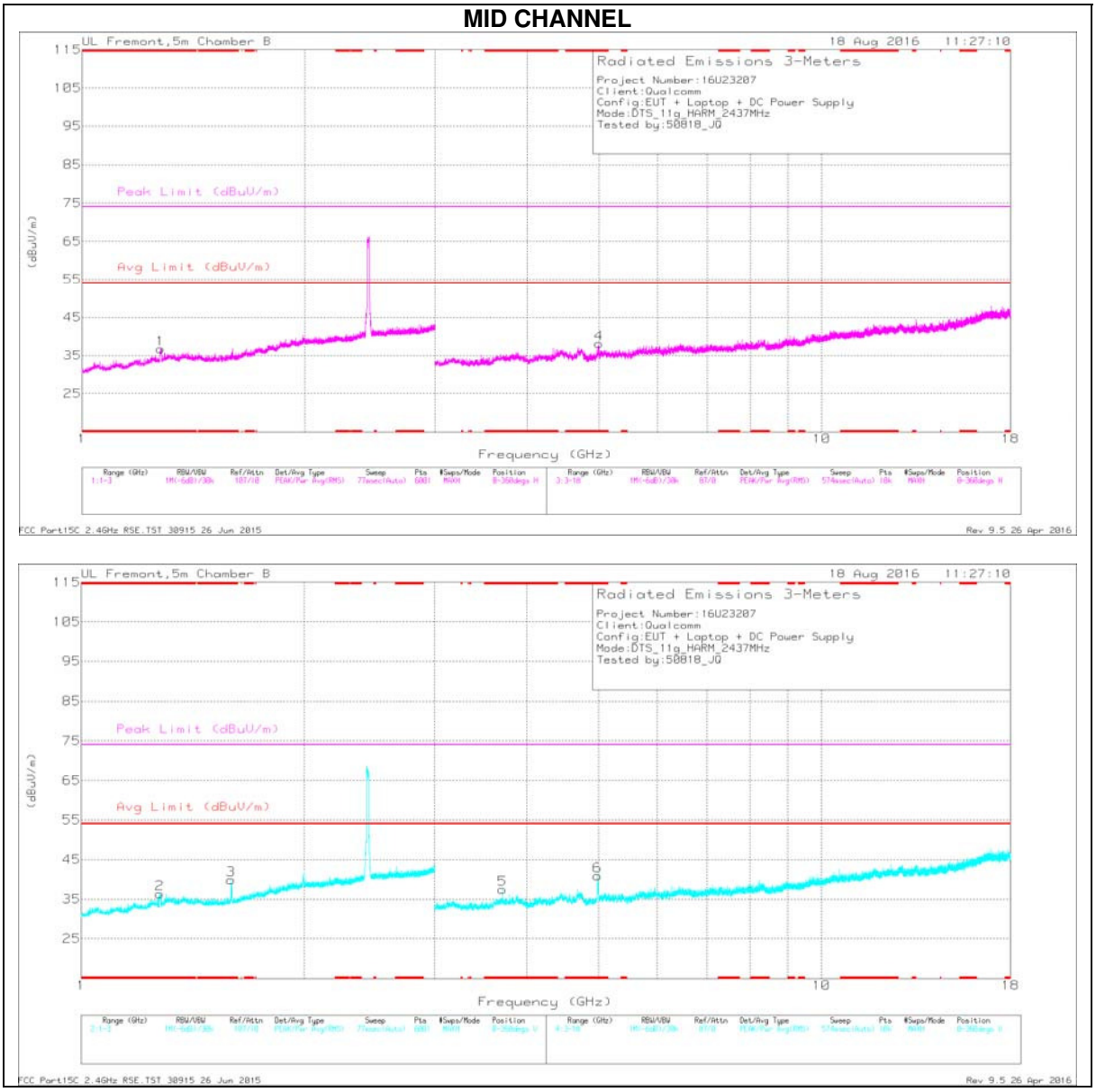
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.82	38.99	PK2	33.8	-31.7	0	41.09	-	-	74	-32.91	4	367	H
* 4.816	28.36	MAv1	33.8	-31.6	.59	31.15	54	-22.85	-	-	4	367	H
* 5.375	39.08	PK2	34.5	-31.2	0	42.38	-	-	74	-31.62	303	284	H
* 5.376	27.94	MAv1	34.5	-31.2	.59	31.83	54	-22.17	-	-	303	284	H
* 4.822	40.37	PK2	33.8	-31.8	0	42.37	-	-	74	-31.63	7	356	V
* 4.822	29.38	MAv1	33.8	-31.7	.59	32.07	54	-21.93	-	-	7	356	V
1.993	41.06	PK2	31.5	-22.1	0	50.46	-	-	74	-23.54	258	157	V
7.226	38.49	PK2	35.6	-29.9	0	44.19	-	-	74	-29.81	303	307	V
7.227	37.12	PK2	35.6	-29.9	0	42.82	-	-	74	-31.18	23	245	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL



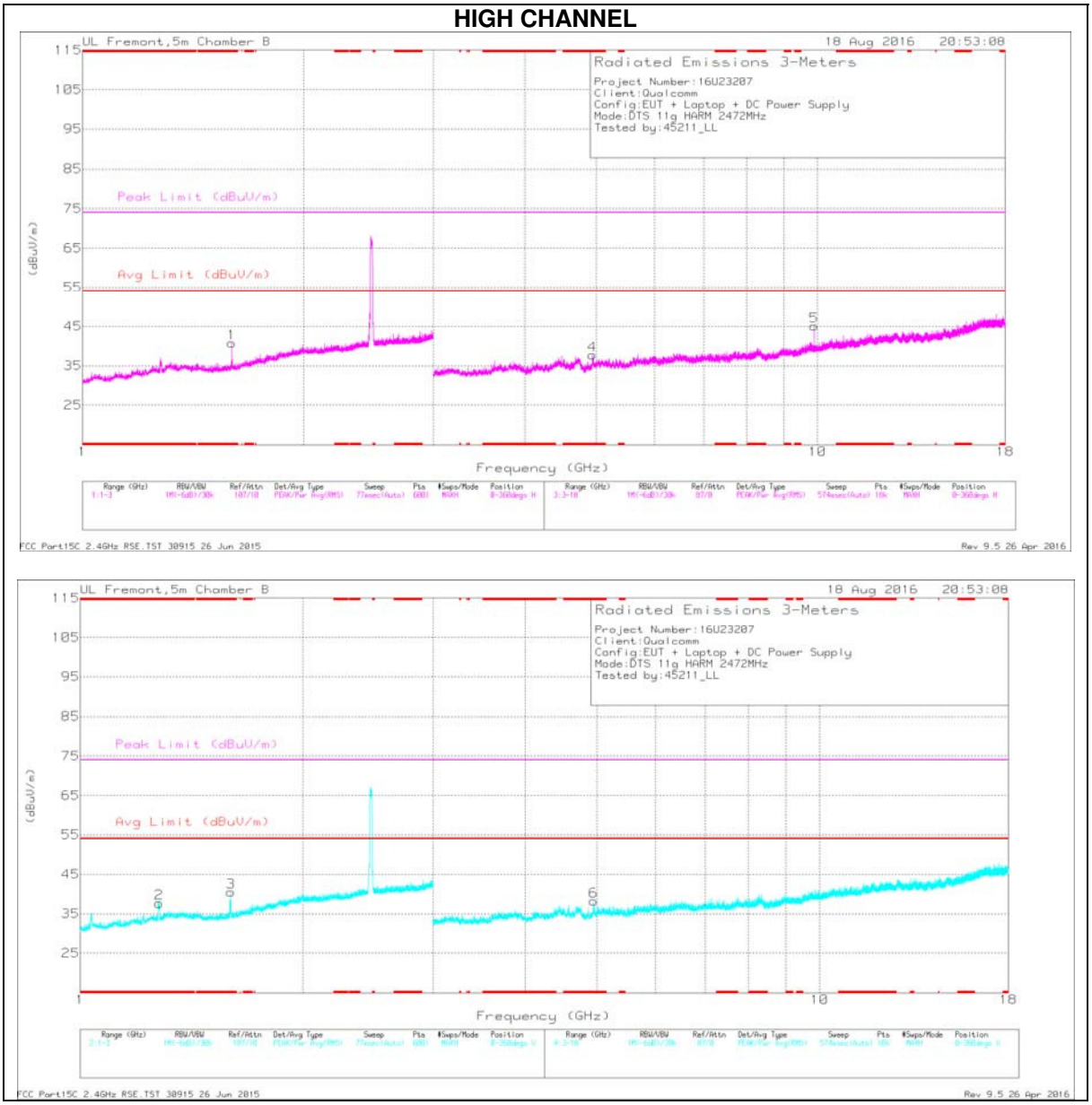
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.274	35.46	PK2	28.8	-23	0	41.26	-	-	74	-32.74	185	292	H
* 1.275	23.32	MAv1	28.8	-23	.59	29.71	54	-24.29	-	-	185	292	H
* 1.277	34.6	PK2	28.8	-23.1	0	40.3	-	-	74	-33.7	204	175	V
* 1.277	23.51	MAv1	28.8	-23.1	.59	29.8	54	-24.2	-	-	204	175	V
* 1.593	43.85	PK2	28.1	-22.3	0	49.65	-	-	74	-24.35	154	187	V
* 1.594	25.38	MAv1	28.1	-22.3	.59	31.77	54	-22.23	-	-	154	187	V
* 4.995	43.7	PK2	34.1	-31.6	0	46.2	-	-	74	-27.8	192	101	H
* 4.992	31.62	MAv1	34	-31.7	.59	34.51	54	-19.49	-	-	192	101	H
* 3.708	40.29	PK2	33.4	-32.8	0	40.89	-	-	74	-33.11	57	253	V
* 3.695	29.7	MAv1	33.4	-32.8	.59	30.89	54	-23.11	-	-	57	253	V
* 4.988	45.07	PK2	34	-31.8	0	47.27	-	-	74	-26.73	168	102	V
* 4.979	33	MAv1	34	-31.9	.59	35.69	54	-18.31	-	-	168	102	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

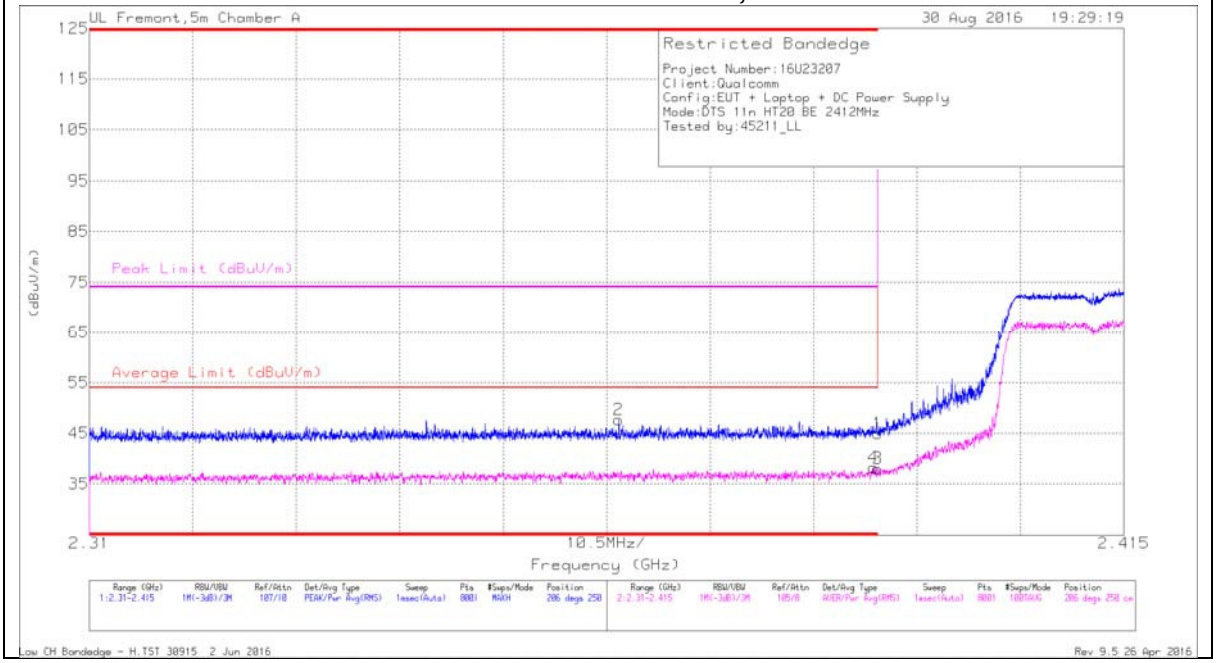
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.594	43.11	PK2	28.1	-22.3	0	48.91	-	-	74	-25.09	79	167	H
* 1.599	24.98	MAv1	28.1	-22.3	.59	31.37	54	-22.63	-	-	79	167	H
* 1.275	35.45	PK2	28.8	-23	0	41.25	-	-	74	-32.75	232	178	V
* 1.283	23.37	MAv1	28.9	-23.1	.59	29.76	54	-24.24	-	-	232	178	V
* 1.595	44.63	PK2	28.1	-22.3	0	50.43	-	-	74	-23.57	42	237	V
* 1.596	25.55	MAv1	28.1	-22.3	.59	31.94	54	-22.06	-	-	42	237	V
* 4.945	43.15	PK2	33.9	-32.6	0	44.45	-	-	74	-29.55	320	113	H
* 4.945	31.84	MAv1	33.9	-32.6	.59	33.73	54	-20.27	-	-	320	113	H
* 4.945	44.14	PK2	33.9	-32.6	0	45.44	-	-	74	-28.56	263	117	V
* 4.945	32.81	MAv1	33.9	-32.6	.59	34.7	54	-19.3	-	-	263	117	V
9.888	39.52	PK2	37.2	-26.6	0	50.12	-	-	74	-23.88	323	248	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL BANDEDGE, HORIZ

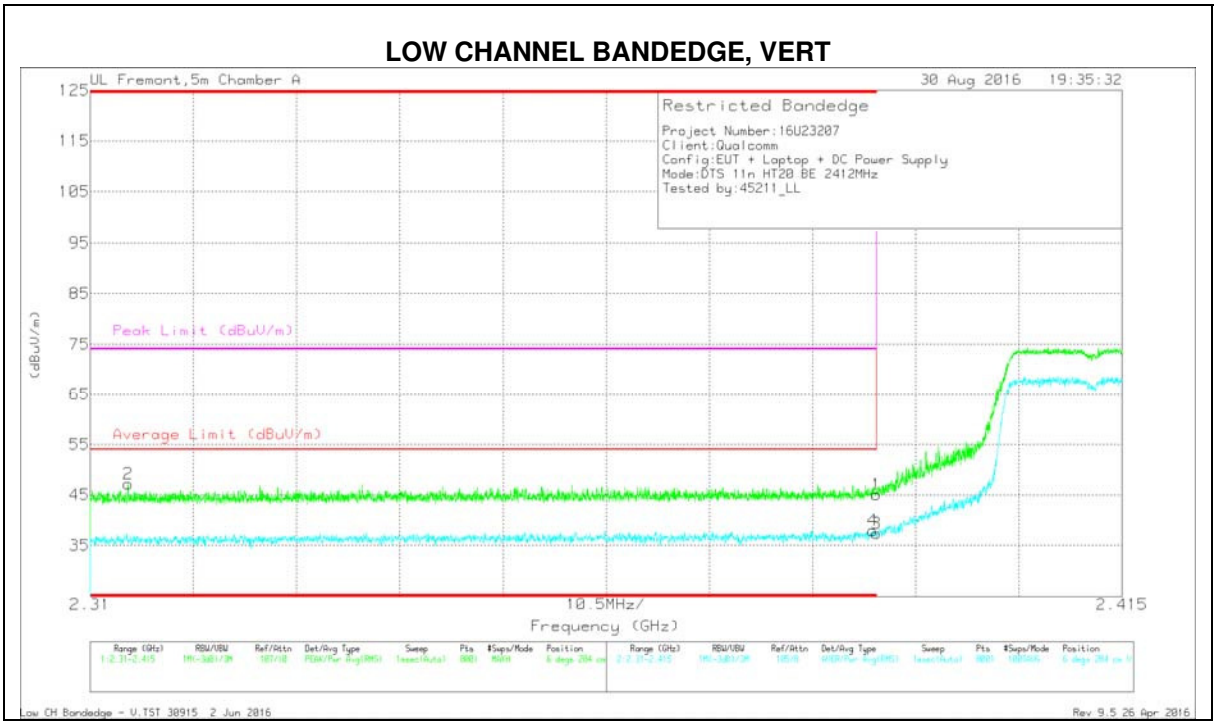


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.31	Pk	32.3	-23.7	0	44.91	-	-	74	-29.09	206	250	H
2	* 2.364	39.28	Pk	32.1	-23.7	0	47.68	-	-	74	-26.32	206	250	H
3	* 2.39	26.76	RMS	32.3	-23.7	.63	35.99	54	-18.01	-	-	206	250	H
4	* 2.39	26.95	RMS	32.3	-23.7	.63	36.18	54	-17.82	-	-	206	250	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL BANDEDGE, VERT

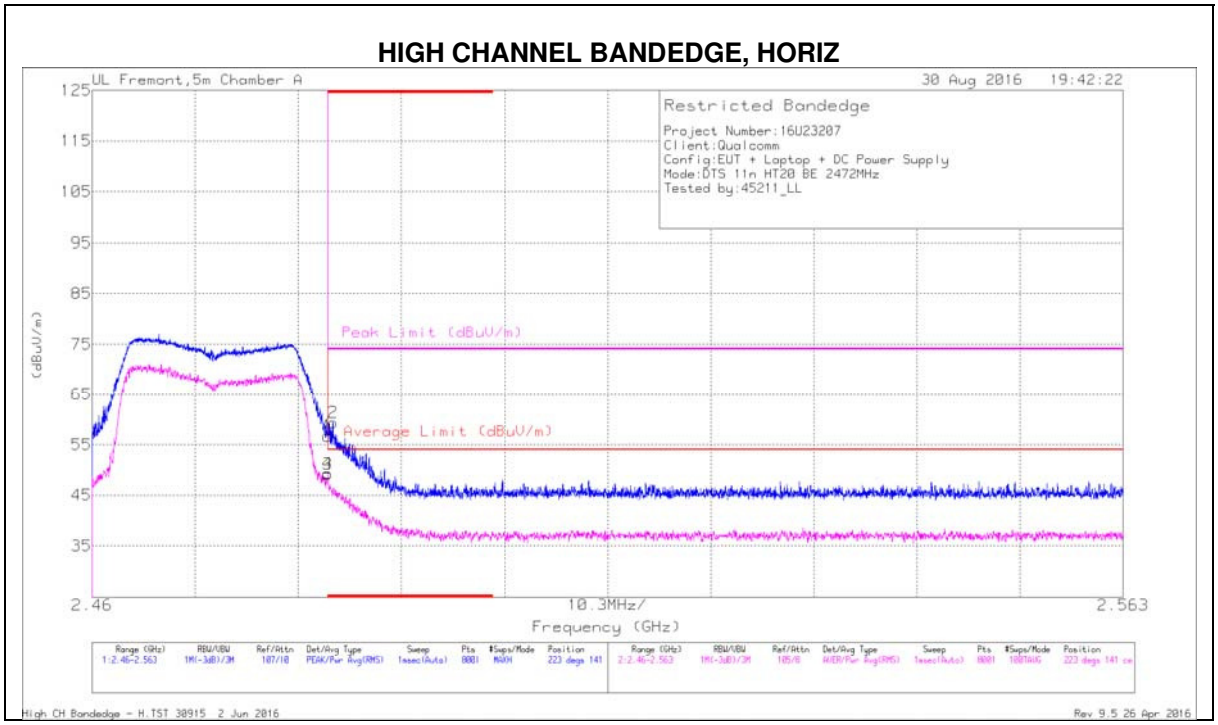


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.52	Pk	32.3	-23.7	0	45.12	-	-	74	-28.88	6	284	V
2	* 2.314	39.08	Pk	31.8	-23.7	0	47.18	-	-	74	-26.82	6	284	V
3	* 2.39	26.08	RMS	32.3	-23.7	.63	35.31	54	-18.69	-	-	6	284	V
4	* 2.39	26.64	RMS	32.3	-23.7	.63	35.87	54	-18.13	-	-	6	284	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL)

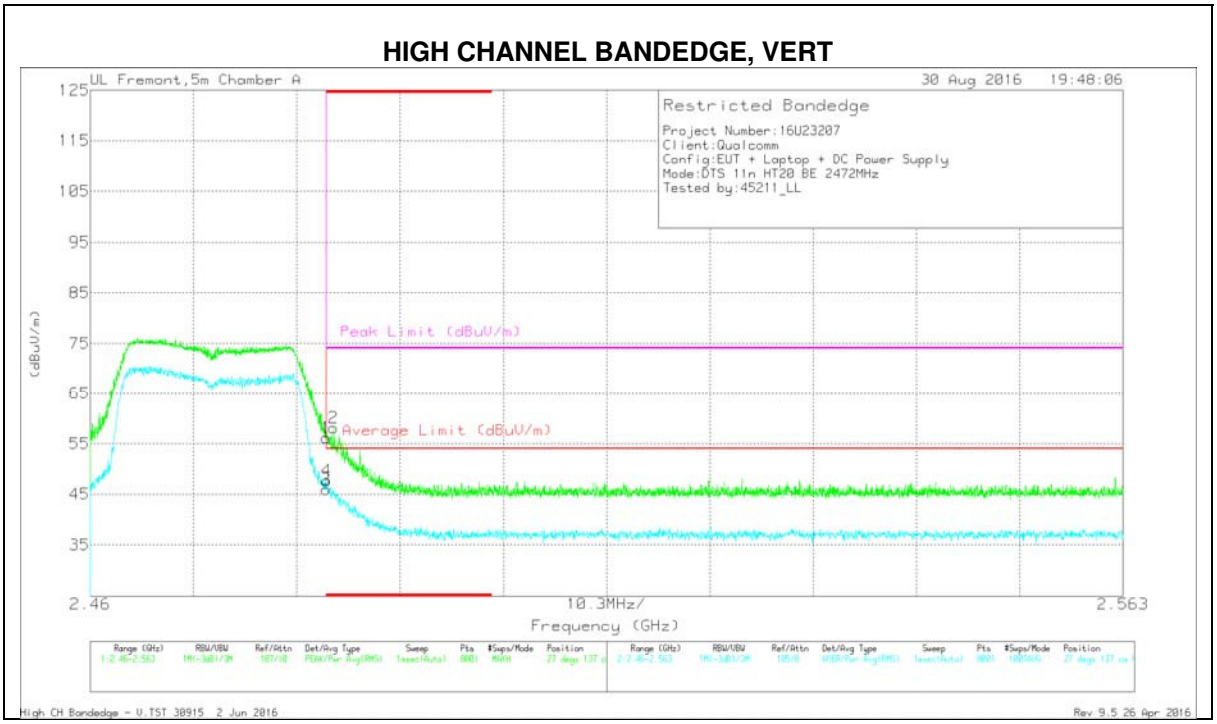


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.89	Pk	32.4	-23.6	0	56.69	-	-	74	-17.31	223	141	H
2	* 2.484	50.53	Pk	32.4	-23.6	0	59.33	-	-	74	-14.67	223	141	H
3	* 2.484	37.64	RMS	32.4	-23.6	.63	47.07	54	-6.93	-	-	223	141	H
4	* 2.484	37.76	RMS	32.4	-23.6	.63	47.19	54	-6.81	-	-	223	141	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HIGH CHANNEL BANDEDGE, VERT



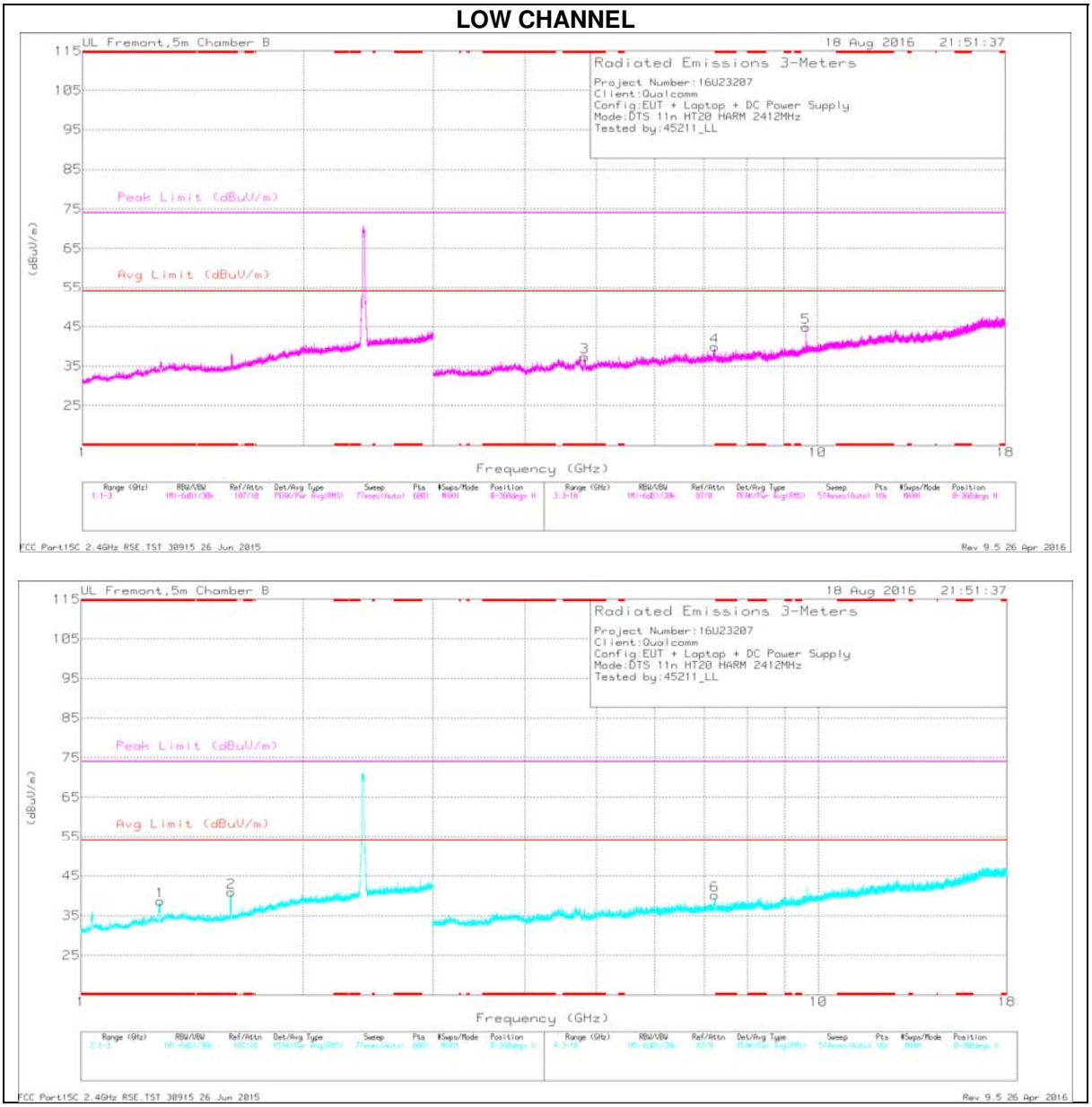
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.29	Pk	32.4	-23.6	0	56.09	-	-	74	-17.91	27	137	V
2	* 2.484	49.34	Pk	32.4	-23.6	0	58.14	-	-	74	-15.86	27	137	V
3	* 2.484	34.47	RMS	32.4	-23.6	.63	43.9	54	-10.1	-	-	27	137	V
4	* 2.484	36.22	RMS	32.4	-23.6	.63	45.65	54	-8.35	-	-	27	137	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL



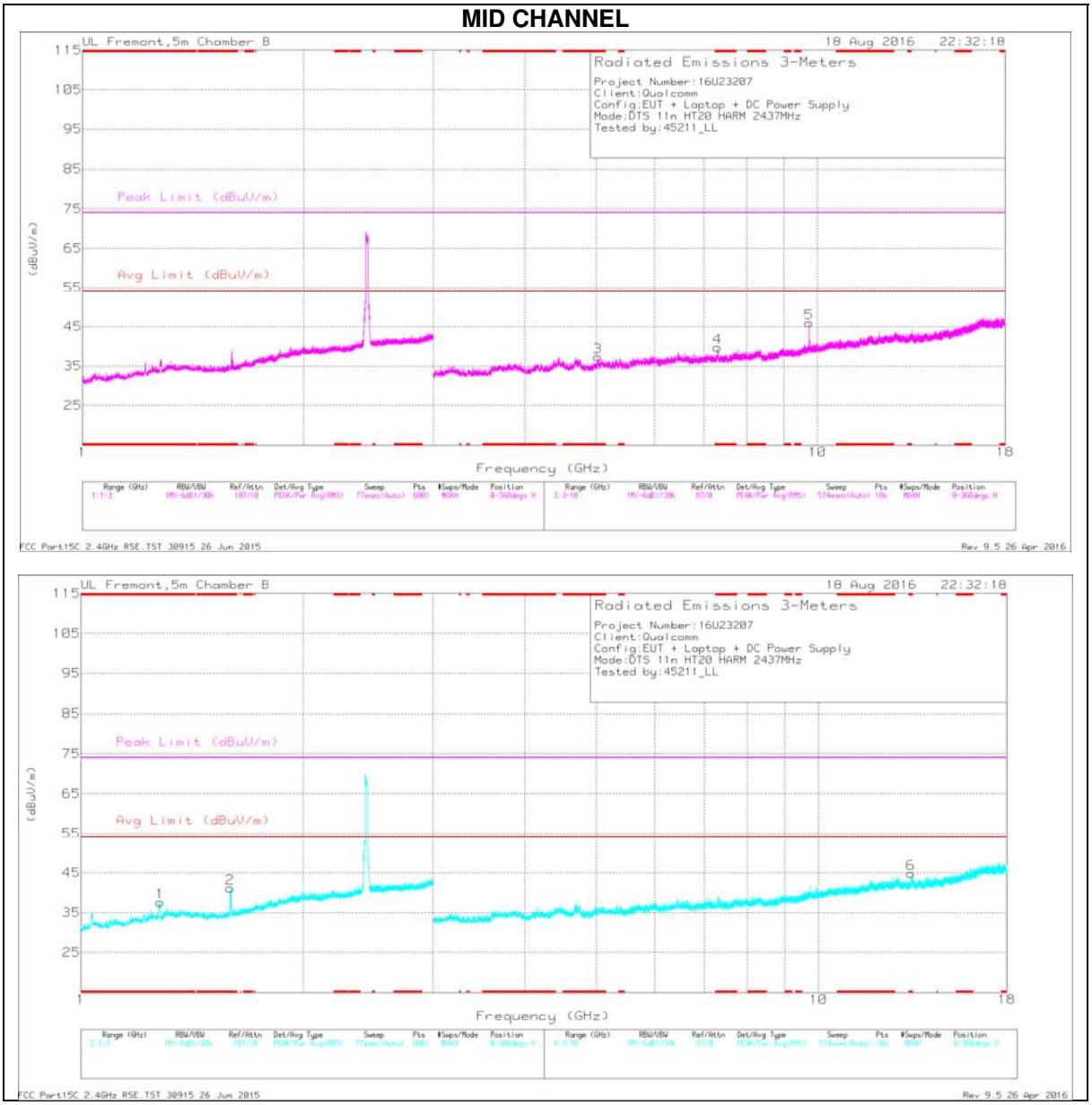
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.277	34.48	PK2	28.8	-23.1	0	40.18	-	-	74	-33.82	251	283	V
* 1.281	23.13	MAv1	28.9	-23.1	.63	29.56	54	-24.44	-	-	251	283	V
* 1.599	43.54	PK2	28.1	-22.3	0	49.34	-	-	74	-24.66	123	110	V
* 1.598	25.49	MAv1	28.1	-22.3	.63	31.92	54	-22.08	-	-	123	110	V
* 4.824	41.91	PK2	33.8	-31.8	0	43.91	-	-	74	-30.09	355	135	H
* 4.822	30.33	MAv1	33.8	-31.7	.63	33.06	54	-20.94	-	-	355	135	H
7.241	39.69	PK2	35.6	-30.1	0	45.19	-	-	74	-28.81	5	181	H
7.241	40.88	PK2	35.6	-30.1	0	46.38	-	-	74	-27.62	310	114	V
9.648	40.15	PK2	36.8	-26.8	0	50.15	-	-	74	-23.85	334	205	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL



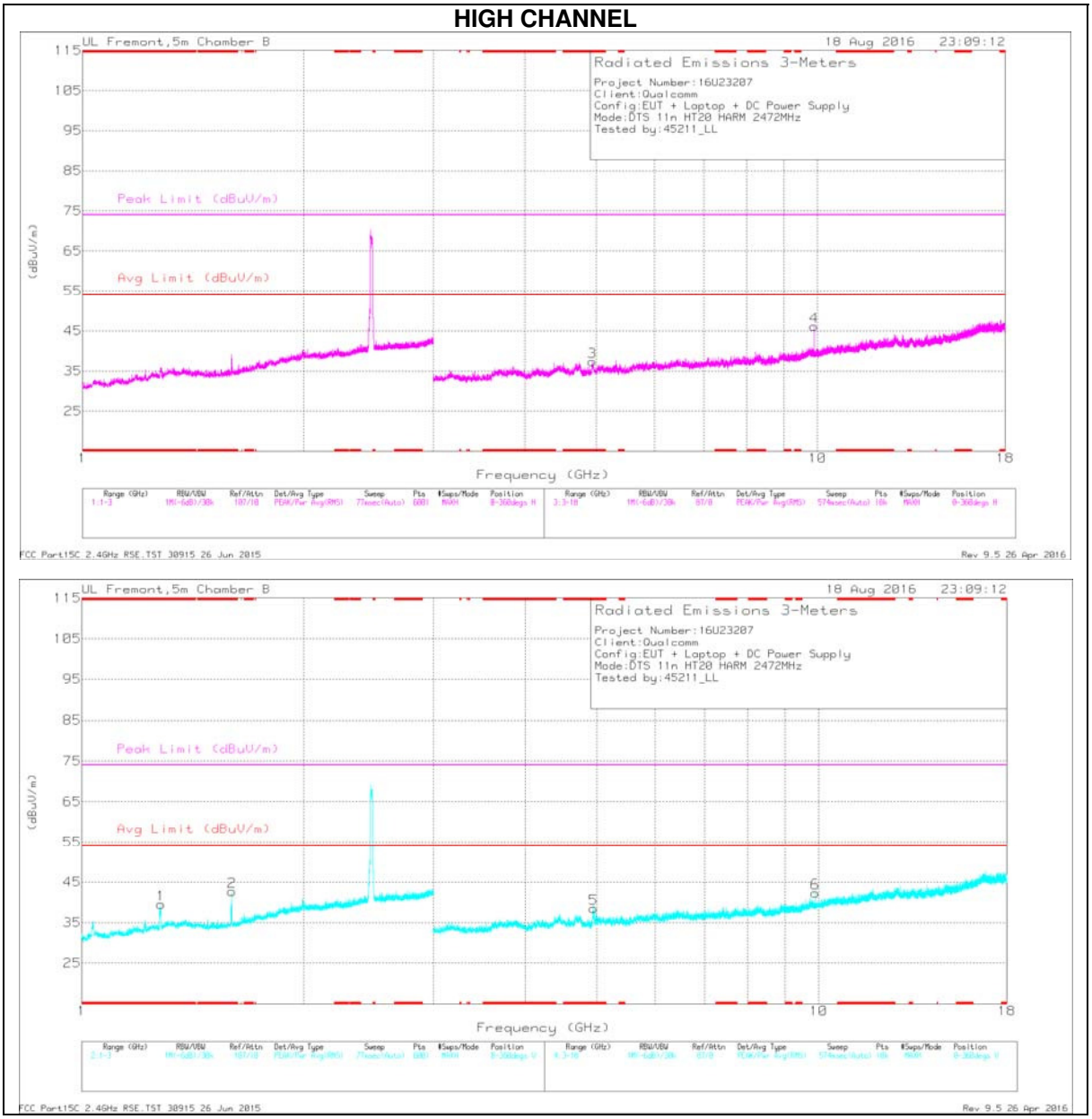
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.278	33.97	PK2	28.8	-23.1	0	39.67	-	-	74	-34.33	208	158	V
* 1.282	23.14	MAv1	28.9	-23.1	.63	29.57	54	-24.43	-	-	208	158	V
* 1.597	43.92	PK2	28.1	-22.4	0	49.62	-	-	74	-24.38	51	234	V
* 1.593	25.4	MAv1	28.1	-22.3	.63	31.83	54	-22.17	-	-	51	234	V
* 5.03	38.94	PK2	34.1	-30.8	0	42.24	-	-	74	-31.76	219	311	H
* 5.027	28.22	MAv1	34.1	-30.8	.63	32.15	54	-21.85	-	-	219	311	H
* 7.315	40.2	PK2	35.6	-30.5	0	45.3	-	-	74	-28.7	319	122	H
* 7.311	29.18	MAv1	35.6	-30.5	.63	34.91	54	-19.09	-	-	319	122	H
* 13.339	34.59	PK2	39.1	-24.8	0	48.89	-	-	74	-25.11	73	140	V
* 13.341	23.53	MAv1	39.1	-24.7	.63	38.56	54	-15.44	-	-	73	140	V
9.748	39.87	PK2	36.9	-26.5	0	50.27	-	-	74	-23.73	331	248	H

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.283	34.03	PK2	28.9	-23.1	0	39.83	-	-	74	-34.17	161	123	V
* 1.284	23.16	MAv1	28.9	-23	.63	29.69	54	-24.31	-	-	161	123	V
* 1.598	43.56	PK2	28.1	-22.3	0	49.36	-	-	74	-24.64	34	209	V
* 1.598	25.03	MAv1	28.1	-22.3	.63	31.46	54	-22.54	-	-	34	209	V
* 4.943	43.57	PK2	33.9	-32.6	0	44.87	-	-	74	-29.13	317	141	H
* 4.942	31.88	MAv1	33.9	-32.6	.63	33.81	54	-20.19	-	-	317	141	H
* 4.946	44.64	PK2	33.9	-32.6	0	45.94	-	-	74	-28.06	263	108	V
* 4.943	32.86	MAv1	33.9	-32.6	.63	34.79	54	-19.21	-	-	263	108	V
9.888	39.52	PK2	37.2	-26.6	0	50.12	-	-	74	-23.88	327	252	H
9.888	36.95	PK2	37.2	-26.6	0	47.55	-	-	74	-26.45	259	187	V

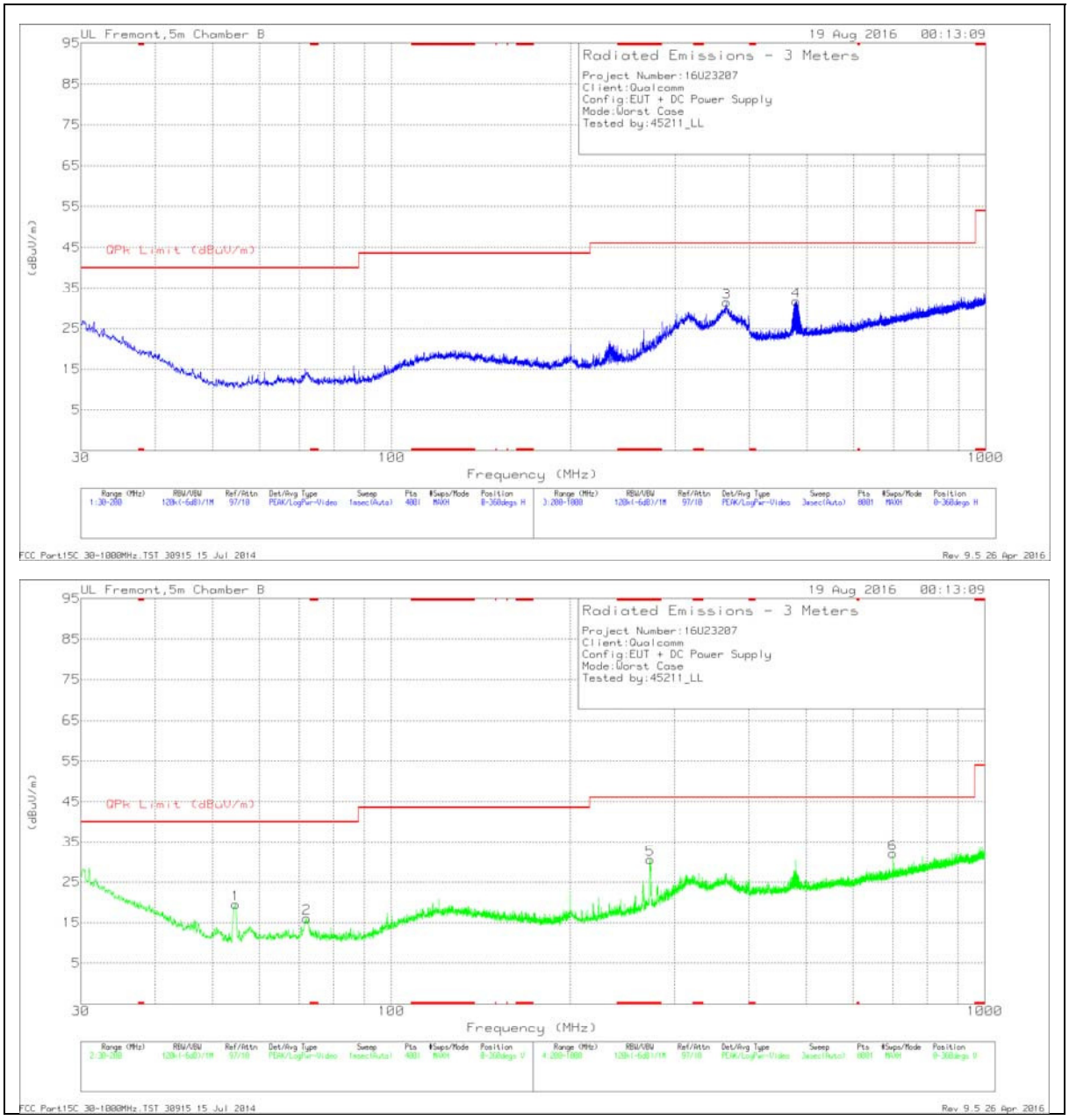
* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST-CASE BELOW 1 GHz

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



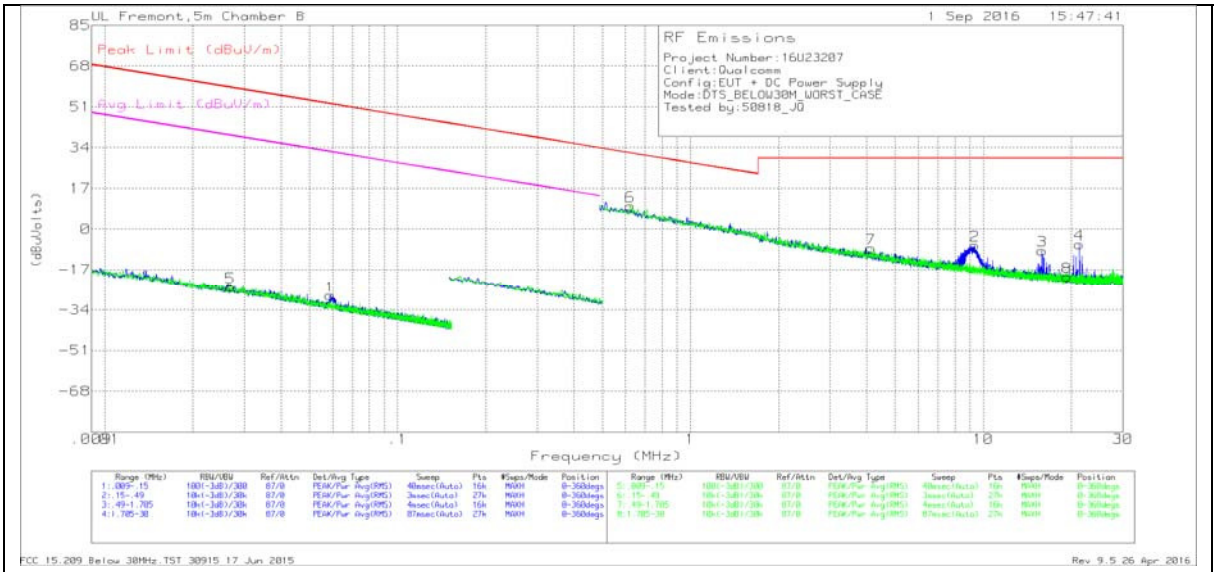
Trace Markers

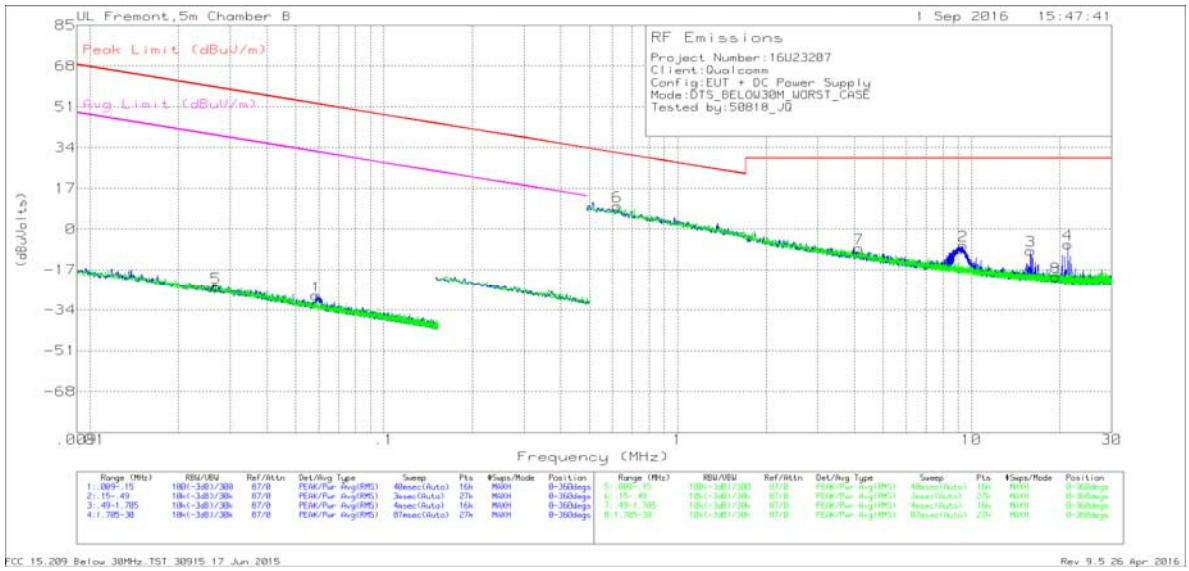
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 273.3	39.75	Pk	17.2	-26.4	30.55	46.02	-15.47	0-360	200	V
1	54.65	36.91	Pk	11.1	-28.5	19.51	40	-20.49	0-360	100	V
2	71.99	32.42	Pk	12	-28.4	16.02	40	-23.98	0-360	100	V
3	366.5	38.87	Pk	18.8	-26.2	31.47	46.02	-14.55	0-360	300	H
4	480	36.45	Pk	21.6	-26.3	31.75	46.02	-14.27	0-360	200	H
6	699.7	33.22	Pk	24.2	-25.4	32.02	46.02	-14	0-360	300	V

* - indicates frequency in CFR15.205/IC 8.10 RSS-Restricted Band
Pk - Peak detector

10.4. WORST-CASE BELOW 30MHz

SPURIOUS EMISSIONS (WORST-CASE CONFIGURATION)





Note: The anechoic chamber has been properly calibrated so that the measurement results correspond to what would be obtained from an open field sites.

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.02679	41.03	Pk	13.2	1.4	-80	-24.37	59.04	-83.41	39.04	-63.41	0-360
1	.05883	39.43	Pk	11.2	1.4	-80	-27.97	52.21	-80.18	32.21	-60.18	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
6	.62365	37.53	Pk	10.6	1.5	-40	9.63	31.71	-22.08	-	-	0-360
7	4.13636	19.56	Pk	10.9	1.5	-40	-8.04	29.54	-37.58	-	-	0-360
2	9.35121	20.89	Pk	10.8	1.5	-40	-6.81	29.54	-36.35	-	-	0-360
3	15.87868	18.94	Pk	10.5	1.6	-40	-8.96	29.54	-38.5	-	-	0-360
8	19.31716	8.18	Pk	10.2	1.6	-40	-20.02	29.54	-49.56	-	-	0-360
4	21.30208	22.08	Pk	9.9	1.7	-40	-6.32	29.54	-35.86	-	-	0-360

Pk - Peak detector

11. 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 C63.10

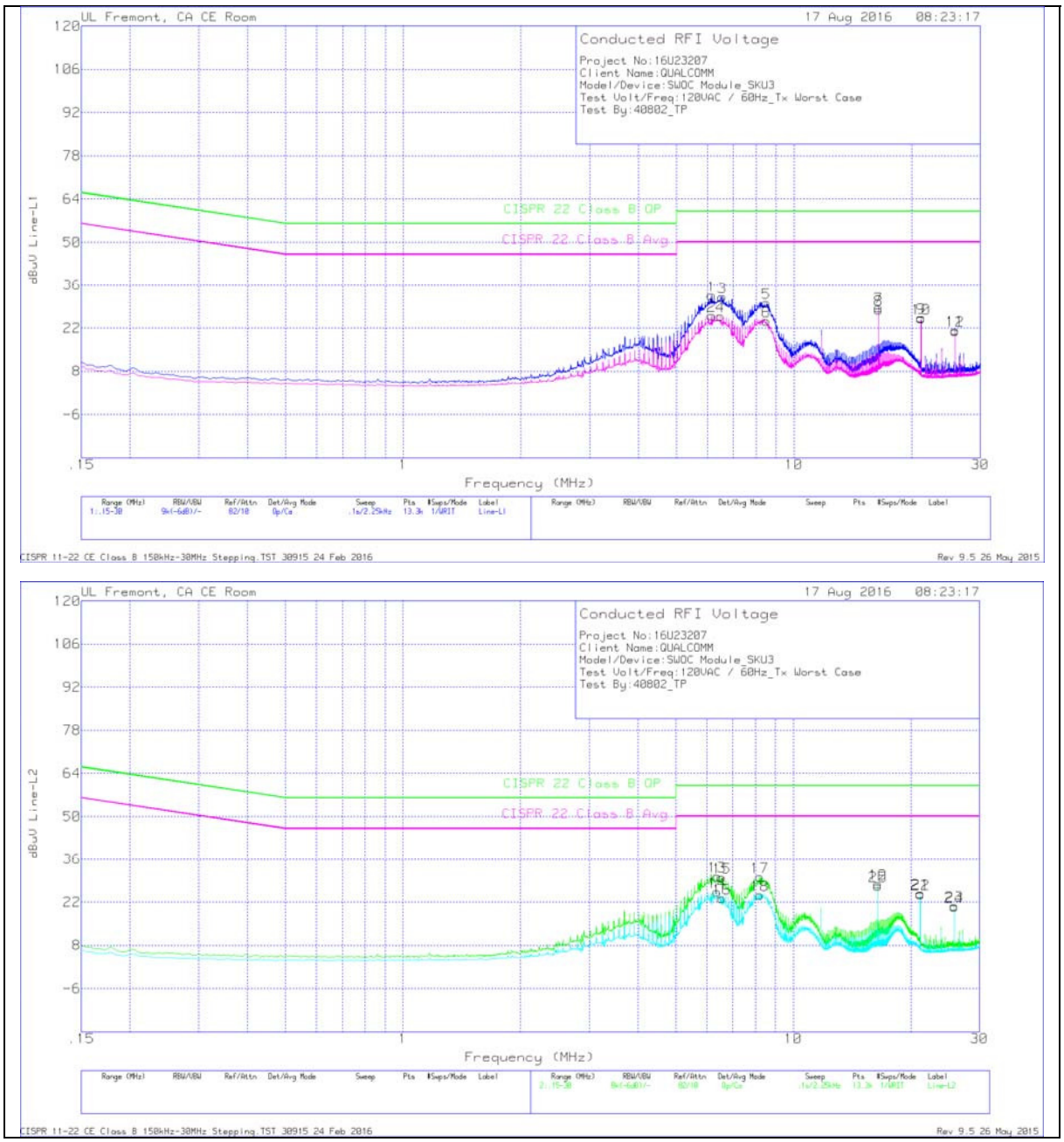
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

LINE RESULTS



LINE RESULTS DATA

Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables 1&3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	6.153	22.32	Qp	0	.1	10.2	32.62	60	-27.38	-	-
2	6.153	15.69	Ca	0	.1	10.2	25.99	-	-	50	-24.01
3	6.5535	21.85	Qp	0	.1	10.2	32.15	60	-27.85	-	-
4	6.48825	15.58	Ca	0	.1	10.2	25.88	-	-	50	-24.12
5	8.502	19.87	Qp	0	.1	10.2	30.17	60	-29.83	-	-
6	8.502	13.94	Ca	0	.1	10.2	24.24	-	-	50	-25.76
7	16.46475	18.21	Qp	0	.2	10.3	28.71	60	-31.29	-	-
8	16.46475	17.48	Ca	0	.2	10.3	27.98	-	-	50	-22.02
9	21.16725	14.75	Qp	0	.2	10.4	25.35	60	-34.65	-	-
10	21.16725	14.6	Ca	0	.2	10.4	25.2	-	-	50	-24.8
11	25.872	10.43	Qp	.1	.3	10.5	21.33	60	-38.67	-	-
12	25.872	10.16	Ca	.1	.3	10.5	21.06	-	-	50	-28.94

Qp - Quasi-Peak detector

Ca - CISPR average detection

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables 2&3	Limiter (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
13	6.37575	20.05	Qp	0	.1	10.2	30.35	60	-29.65	-	-
14	6.37575	15.08	Ca	0	.1	10.2	25.38	-	-	50	-24.62
15	6.55575	19.75	Qp	0	.1	10.2	30.05	60	-29.95	-	-
16	6.55913	12.89	Ca	0	.1	10.2	23.19	-	-	50	-26.81
17	8.22075	19.86	Qp	0	.1	10.2	30.16	60	-29.84	-	-
18	8.22075	13.96	Ca	0	.1	10.2	24.26	-	-	50	-25.74
19	16.46475	17.46	Qp	0	.2	10.3	27.96	60	-32.04	-	-
20	16.46475	16.65	Ca	0	.2	10.3	27.15	-	-	50	-22.85
21	21.16725	14.13	Qp	0	.2	10.4	24.73	60	-35.27	-	-
22	21.16725	13.94	Ca	0	.2	10.4	24.54	-	-	50	-25.46
23	25.872	9.9	Qp	.1	.3	10.5	20.8	60	-39.2	-	-
24	25.872	9.52	Ca	.1	.3	10.5	20.42	-	-	50	-29.58

Qp - Quasi-Peak detector

Ca - CISPR average detection

CISPR 11-22 CE Class B 150kHz-30MHz Stepping.TST 30915 24 Feb 2016

Rev 9.5 26 May 2015

12. POWER SETTING

Mode	802.11b (Test Data Rate: 1Mbps, Target power 18dBm)			
Channel	Frequency	Setting	Power (dBm)	Notes
1	2412	11	16.94	
2	2417	13	17.54	
3	2422	14	18.04	
6	2437	15	18.08	
8	2447	14	18.54	
9	2452	13	17.49	
10	2457	13	17.65	
11	2462	12	17.51	
12	2467	10	15.67	
13	2472	7	12.75	

Mode	802.11g (Test Data Rate: 6Mbps, Target power 16dBm)			
Channel	Frequency	Setting	Power (dBm)	Notes
1	2412	10	14.32	
2	2417	11	15.03	
3	2422	13	16.54	
6	2437	14	16.58	
9	2452	13	16.48	
10	2457	12	15.74	
11	2462	10	14.32	
12	2467	7	11.21	
13	2472	2	6.15	

Mode	802.11n (Test Data Rate: MCS0, Target power 16dBm)			
Channel	Frequency	Setting	Power (dBm)	Notes
1	2412	10	14.71	
2	2417	11	15.43	
3	2422	12	16.12	
6	2437	13	16.21	
10	2457	12	16.45	
11	2462	9	13.52	
12	2467	7	11.42	
13	2472	2	6.54	