



FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

Bluetooth & 802.11 a/b/g/n/ac 3x3 VIDEO SET TOP BOX

MODEL NUMBER: IPSTB1000, IPC3100

FCC ID: 2ABTE-8G2XL5

REPORT NUMBER: 15U22443-E1V2

ISSUE DATE: 3/16/2016

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2/1/16	Initial Issue	C. Vergonio
V2	3/16/16	Added Below 30MHz data in Section 8.4, updated Section 1, Section 3, and setup photo in Section 10.	C. Vergonio

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Verizon Online LLC
1300 I Street
Washington, DC 20005 U.S.A

EUT DESCRIPTION: Bluetooth & 802.11 a/b/g/n/ac 3x3 Video Set Top Box

MODEL: IPSTB1000, IPC3100

SERIAL NUMBER: MCNZ5Dg60018 (Conducted), Radiated: MCNZ5Dd20040

DATE TESTED: December 28, 2015 – March 16, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	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.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

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
<input checked="" type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input checked="" type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F
	<input type="checkbox"/> Chamber G
	<input type="checkbox"/> Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Radiated Disturbance, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance, 1000 to 6000 MHz	3.86 dB
Radiated Disturbance, 6000 to 18000 MHz	4.23 dB
Radiated Disturbance, 18000 to 26000 MHz	5.30 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth and 802.11 a/b/g/n/ac 3x3 Video Set Top Box.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	-0.24	0.95
2402 - 2480	Enhanced 8PSK	1.11	1.29

Note: GFSK, Pi/4-DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on this mode to showing compliance. For average power data please refer to section 8.7.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a Chip antenna, with a maximum gain of 2.18 dBi.

5.4. SOFTWARE

The test utility software used during testing was OnCue BlueEye, Ver. 1.0.2.0

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The EUT is for desktop applications; all radiated testing was performed with EUT laid out in desktop configuration.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	HP	EliteBook 8440P	CND0451B4G	N/A
Laptop Power Supply	HP	Series PPP016L-E	WASHF0ALLY-2N6	N/A
Power Supply	Delta	IPSTB1000-PS	930-100995-001	N/A

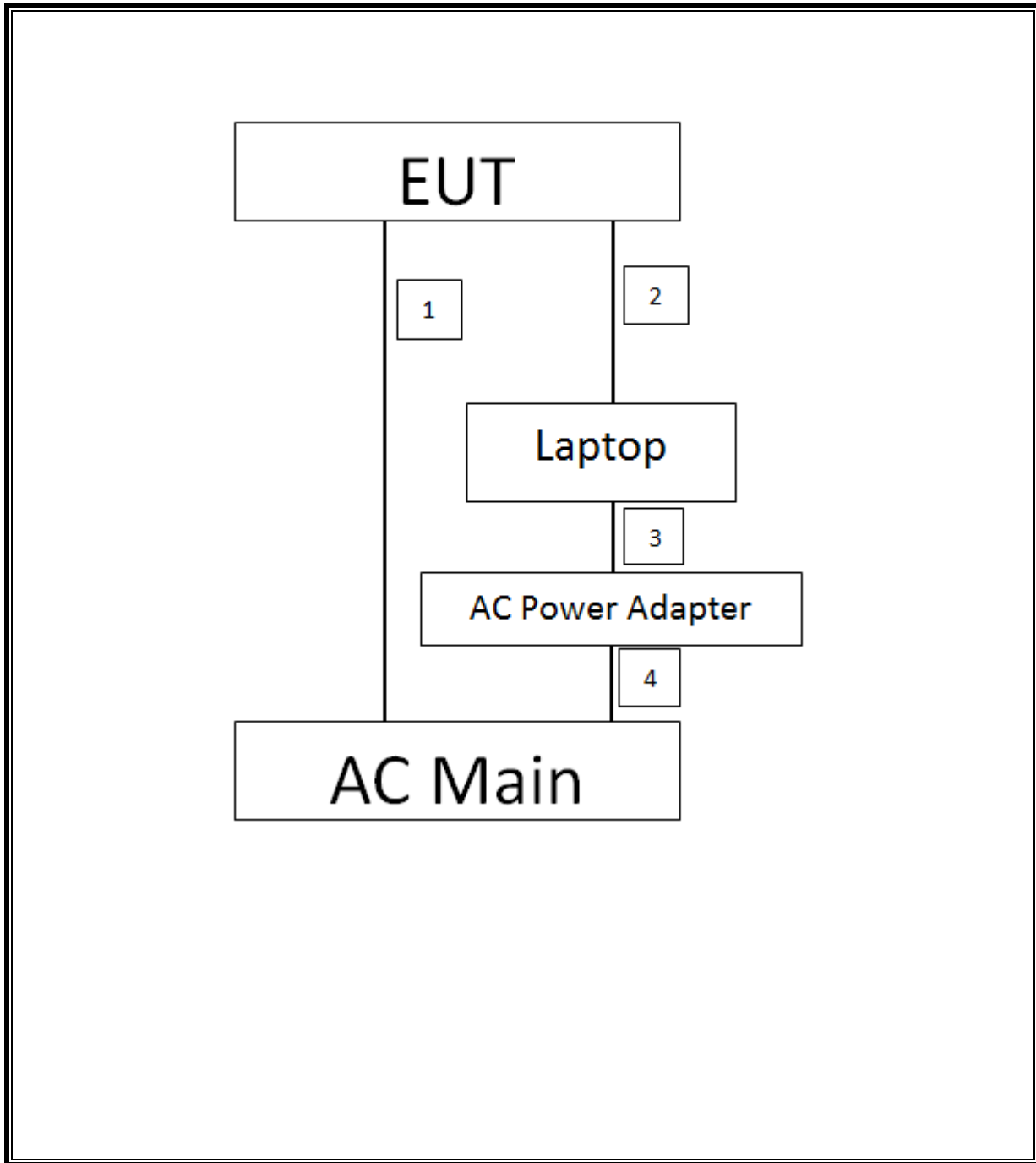
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	DC	Unshielded	0.8	N/A
2	Ethernet	1	RJ45	Unshielded	1.5	N/A
3	DC	1	DC	Unshielded	1.5	Ferrite
4	AC	1	US120V	Unshielded	1.5	N/A

TEST SETUP

The EUT was tested stand alone and the communication was established via Ethernet cable, which test software exercised the radio.

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 Number	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	477	06/10/16
Amplifier, 1 to 26.5GHz, 23.5dB Gain mi	Keysight	8449B	404	06/29/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	136	03/03/16
Antenna, Horn, 26-40 GHz	ARA	MWH-2640/B	90	07/01/16
Antenna, Horn, 18-26 GHz	ARA	MWH-1826	447	05/12/16
RF Preamplifier, 10 KHz-1000 MHz	Sonoma	310N	300	11/05/16
RF Preamplifier, 1GHz - 8GHz	Miteq	AMF-4D-010008	1172	07/20/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	908	03/03/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	146	06/17/16
Spectrum Analyzer, 40 GHz	Keysight	8564E	106	08/14/16
Peak Power Meter	Keysight	N1911A	229	07/30/16
Peak / Average Power Sensor	Keysight	N1921A	1225	04/06/16
EMI Test Receiver, 9Khz to 7GHz	Rohde & Schwarz	ECS17	284	9/10/2016
LISN, 30MHz	FCC	50/250-25-2	24	9/16/2016
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	160	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	898	04/25/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.9, Dec 16, 2015

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	RSS-GEN 4.6	20 dB Occupied Band width	N/A	Conducted	Pass	1.347 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-41.99 dBm
15.247 (b)(1)	RSS-247 5.4.2	TX conducted output power	<21dBm		Pass	1.11 dBm
15.247 (a)(1)	RSS-247 5.1.2	Hopping frequency separation	> 25KHz		Pass	1 MHz
15.247 (a)(1)(iii)	RSS-247 5.1.4	Number of Hopping channels	More than 15 non-overlapping channels		Pass	79 ch.
15.247 (a)(1)(iii)	RSS-247 5.1.4	Avg Time of Occupancy	< 0.4sec		Pass	0.3118s
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	48.49dBuV (AV)
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	50.53 dBuV/m

ANTENNA PORT TEST RESULTS

7.1. ON TIME, DUTY CYCLE

LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

RESULTS

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/T Minimum VBW (kHz)
GFSK	1.000	1.000	1.000	100.00%	0.00	0.010

DUTY CYCLE PLOTS																																										
GFSK																																										
<p>Agilent 11:52:03 Dec 28, 2015 L</p> <p>APV3.9(121615).43574, Conducted B Δ Mkr3 54.68 ms</p> <p>Ref 10 dBm *Atten 20 dB -0.011 dB</p> <p>*Peak</p> <p>Log</p> <p>10</p> <p>dB/</p> <p>Offst</p> <p>11</p> <p>dB</p> <p>*PAvg</p> <p>Center 2.441 000 GHz Span 0 Hz</p> <p>Res BW 8 MHz *VBW 50 MHz Sweep 68.27 ms (1001 pts)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Marker</th> <th>Trace</th> <th>Type</th> <th>X Axis</th> <th>Amplitude</th> </tr> </thead> <tbody> <tr> <td>1R</td> <td>(1)</td> <td>Time</td> <td>6.827 ms</td> <td>-1.09 dBm</td> </tr> <tr> <td>1a</td> <td>(1)</td> <td>Time</td> <td>54.68 ms</td> <td>-0.01 dB</td> </tr> <tr> <td>3R</td> <td>(1)</td> <td>Time</td> <td>6.827 ms</td> <td>-1.09 dBm</td> </tr> <tr> <td>3a</td> <td>(1)</td> <td>Time</td> <td>54.68 ms</td> <td>-0.01 dB</td> </tr> </tbody> </table> <p>Copyright 2000-2011 Agilent Technologies</p>	Marker	Trace	Type	X Axis	Amplitude	1R	(1)	Time	6.827 ms	-1.09 dBm	1a	(1)	Time	54.68 ms	-0.01 dB	3R	(1)	Time	6.827 ms	-1.09 dBm	3a	(1)	Time	54.68 ms	-0.01 dB	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">Freq/Channel</th> </tr> </thead> <tbody> <tr> <td>Center Freq</td> <td>2.44100000 GHz</td> </tr> <tr> <td>Start Freq</td> <td>2.44100000 GHz</td> </tr> <tr> <td>Stop Freq</td> <td>2.44100000 GHz</td> </tr> <tr> <td>CF Step</td> <td>8.00000000 MHz</td> </tr> <tr> <td></td> <td>Auto Man</td> </tr> <tr> <td>Freq Offset</td> <td>0.00000000 Hz</td> </tr> <tr> <td>Signal Track</td> <td>On Off</td> </tr> </tbody> </table>	Freq/Channel		Center Freq	2.44100000 GHz	Start Freq	2.44100000 GHz	Stop Freq	2.44100000 GHz	CF Step	8.00000000 MHz		Auto Man	Freq Offset	0.00000000 Hz	Signal Track	On Off
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Freq Offset	0.00000000 Hz																																									
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NOTE: --

7.2. 20 dB AND 99% BANDWIDTH

LIMIT

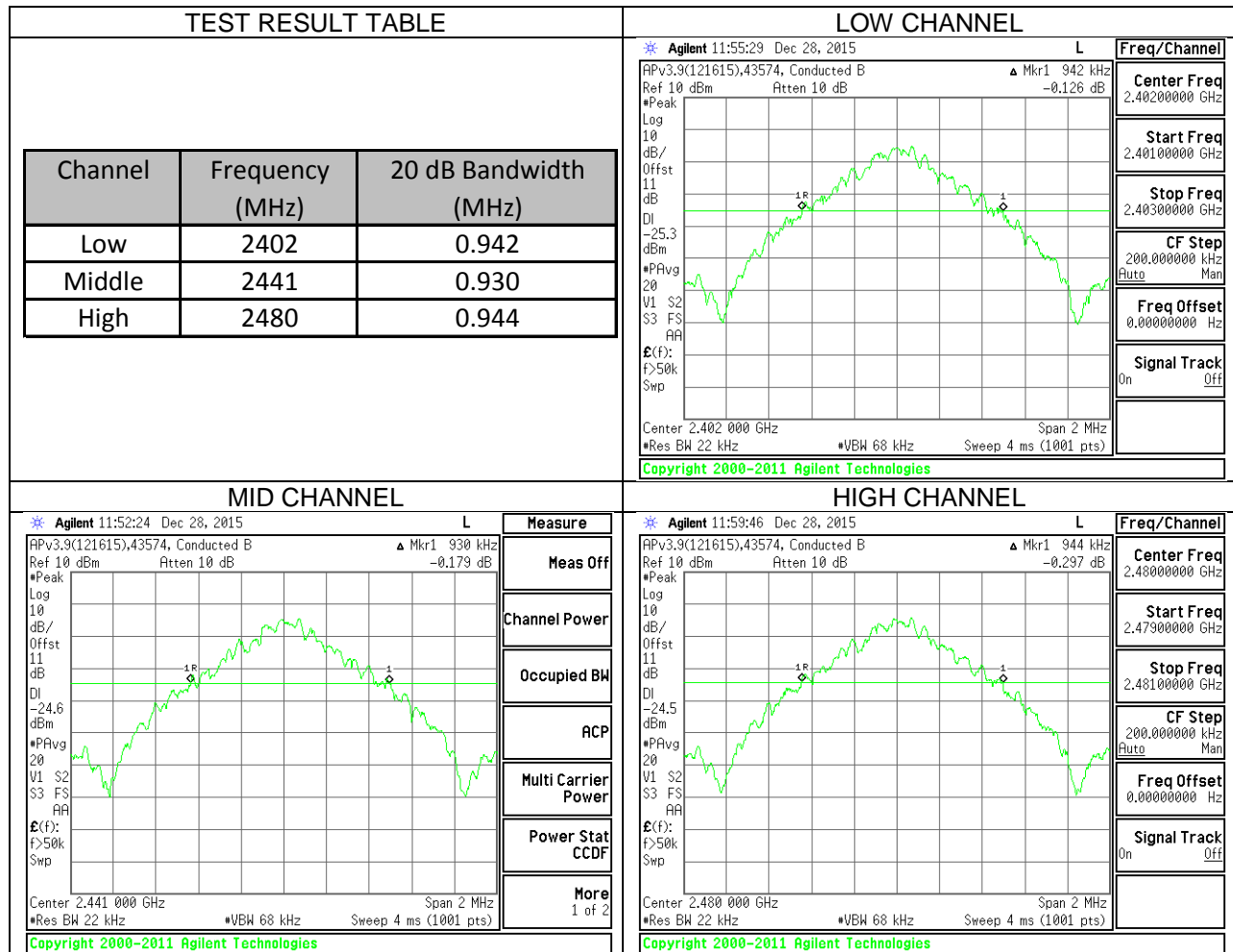
None; for reporting purposes only.

TEST PROCEDURE

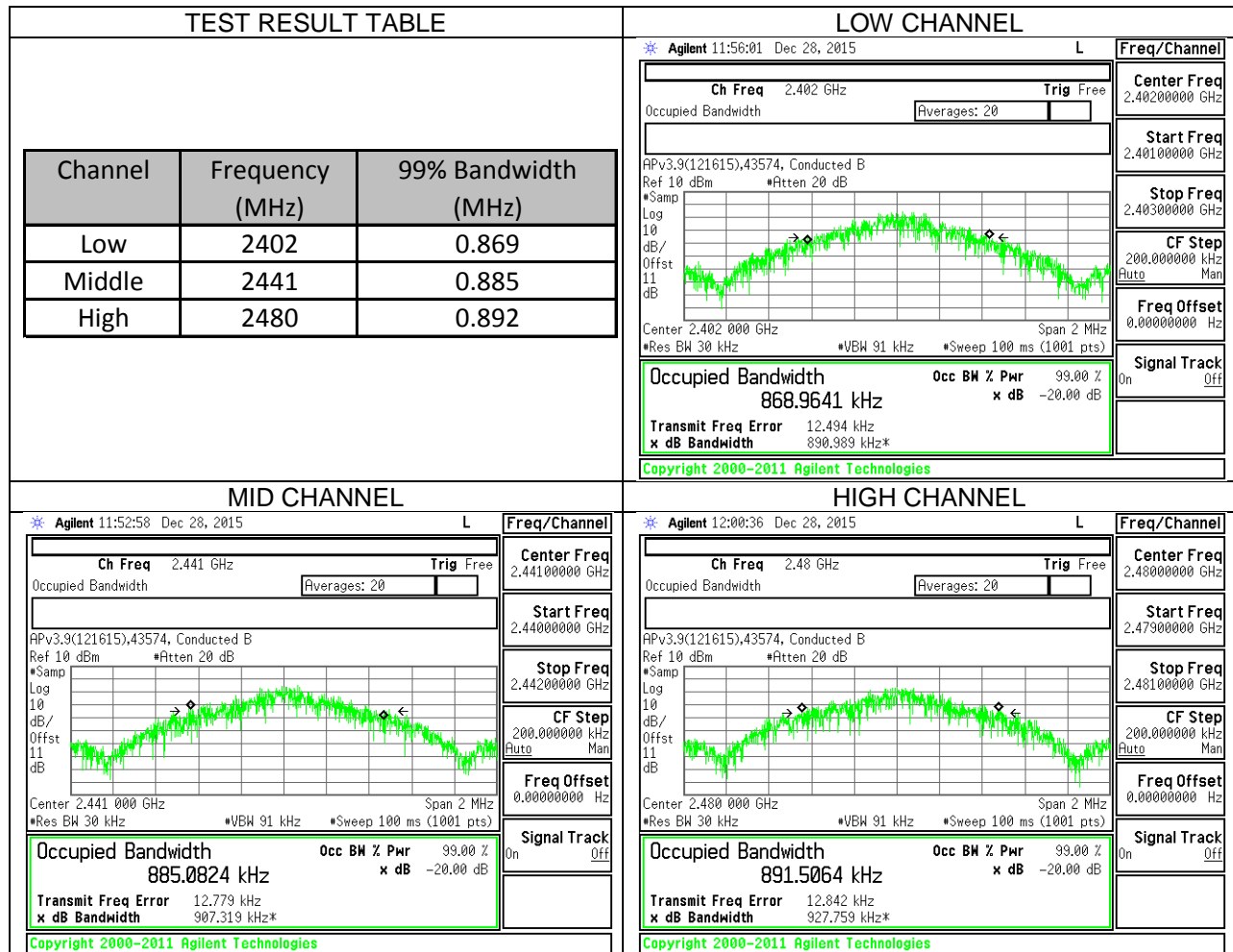
DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to \geq 1% of the 20 dB bandwidth. The VBW is set to \geq RBW. The sweep time is coupled.

RESULTS

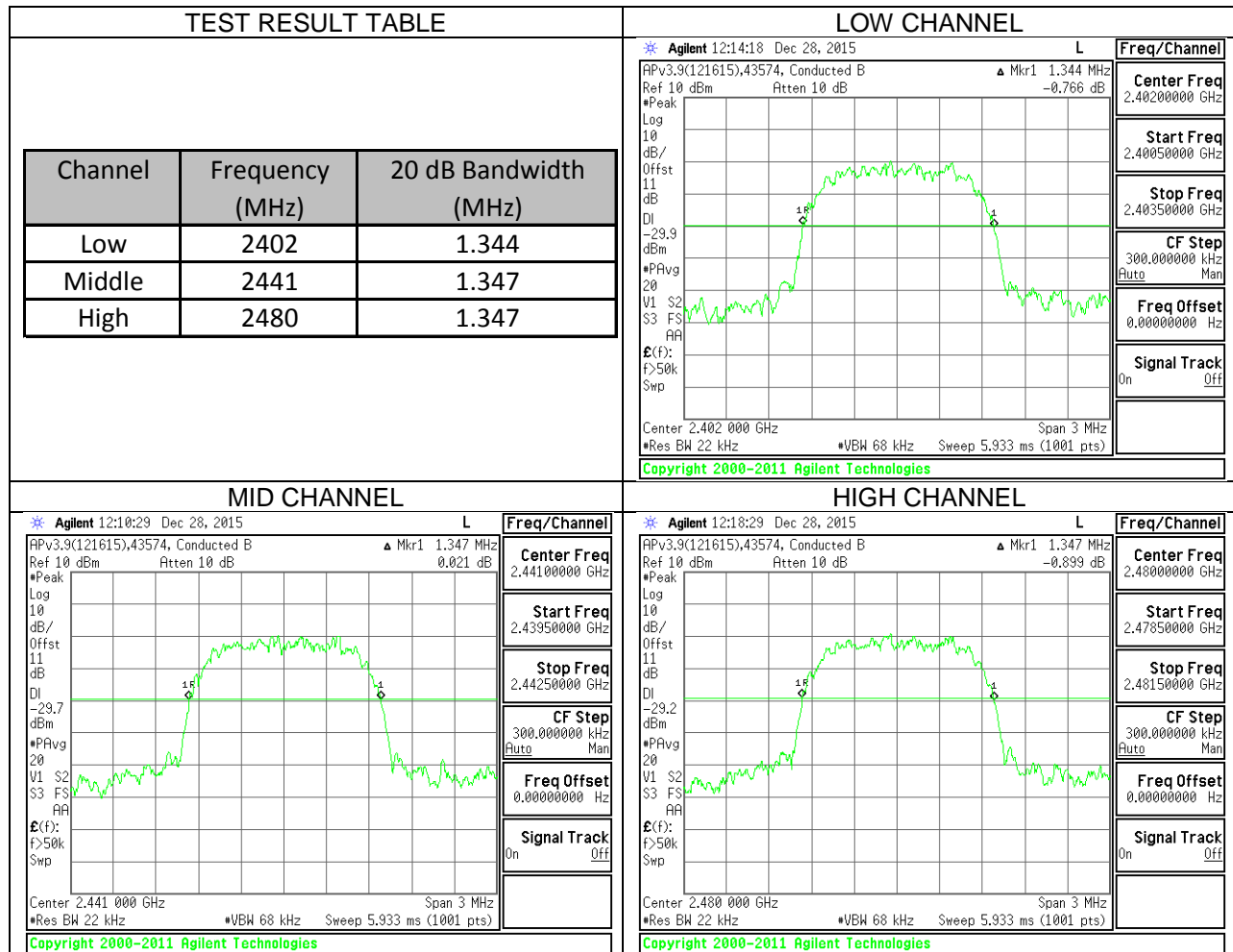
7.2.1. GFSK 20 dB BANDWIDTH PLOTS AND TABLE



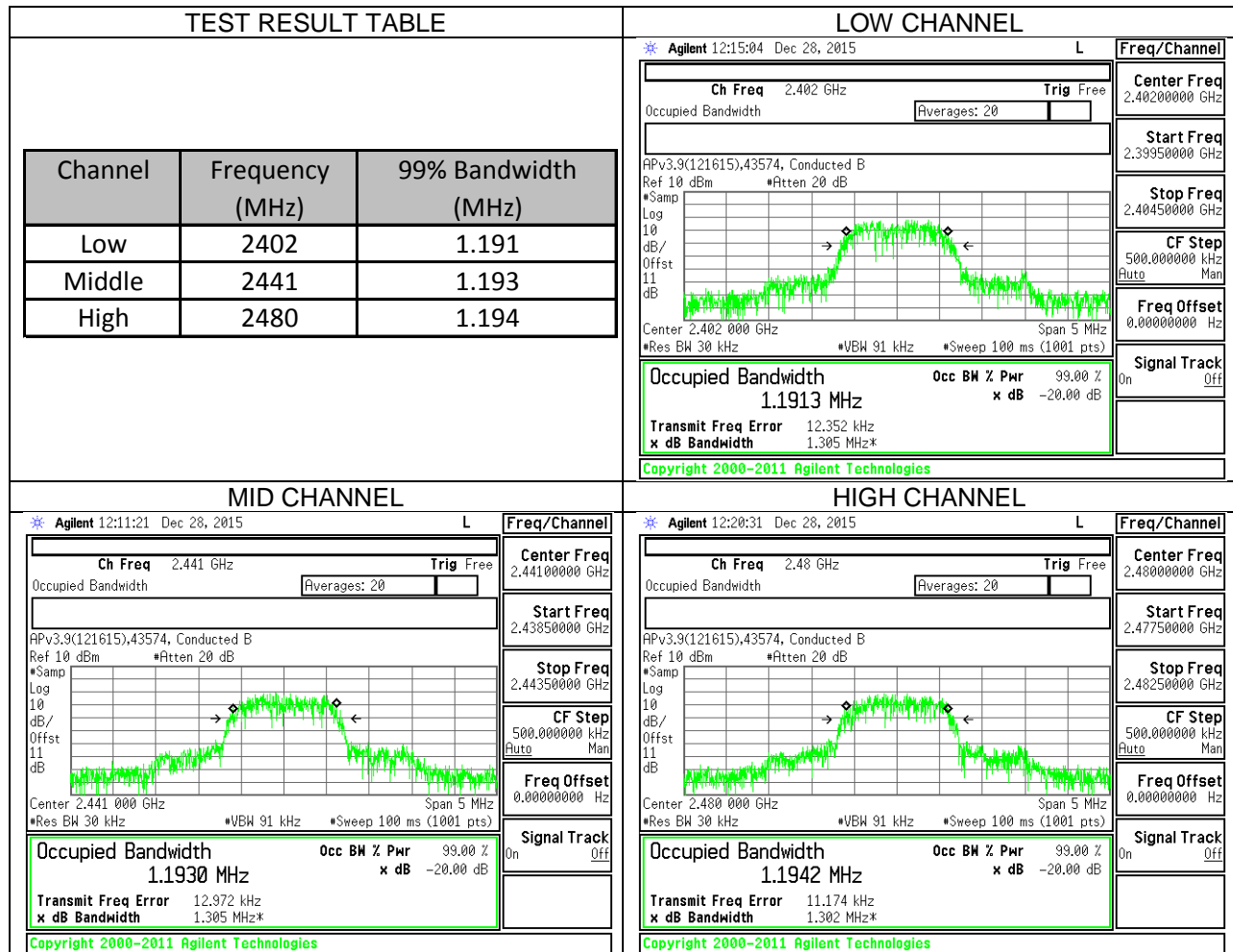
7.2.2. GFSK 99% BANDWIDTH PLOTS AND TABLE



7.2.3. 8PSK 20 dB BANDWIDTH PLOTS AND TABLE



7.2.4. 8PSK 99% BANDWIDTH PLOTS AND TABLE



7.3. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

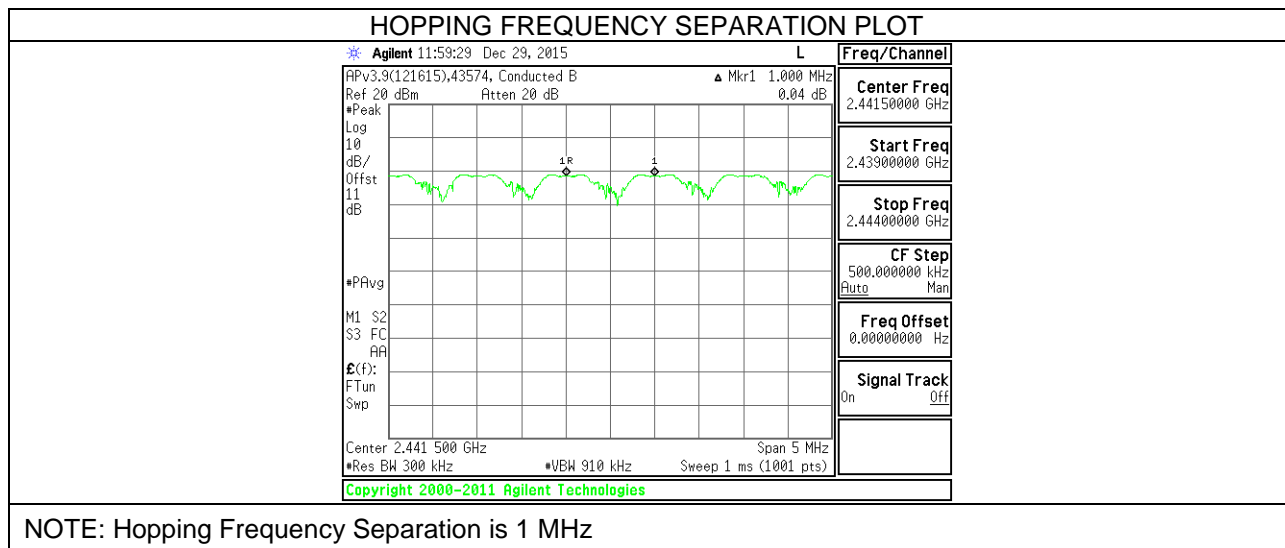
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 910 kHz. The sweep time is coupled.

RESULTS



7.4. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

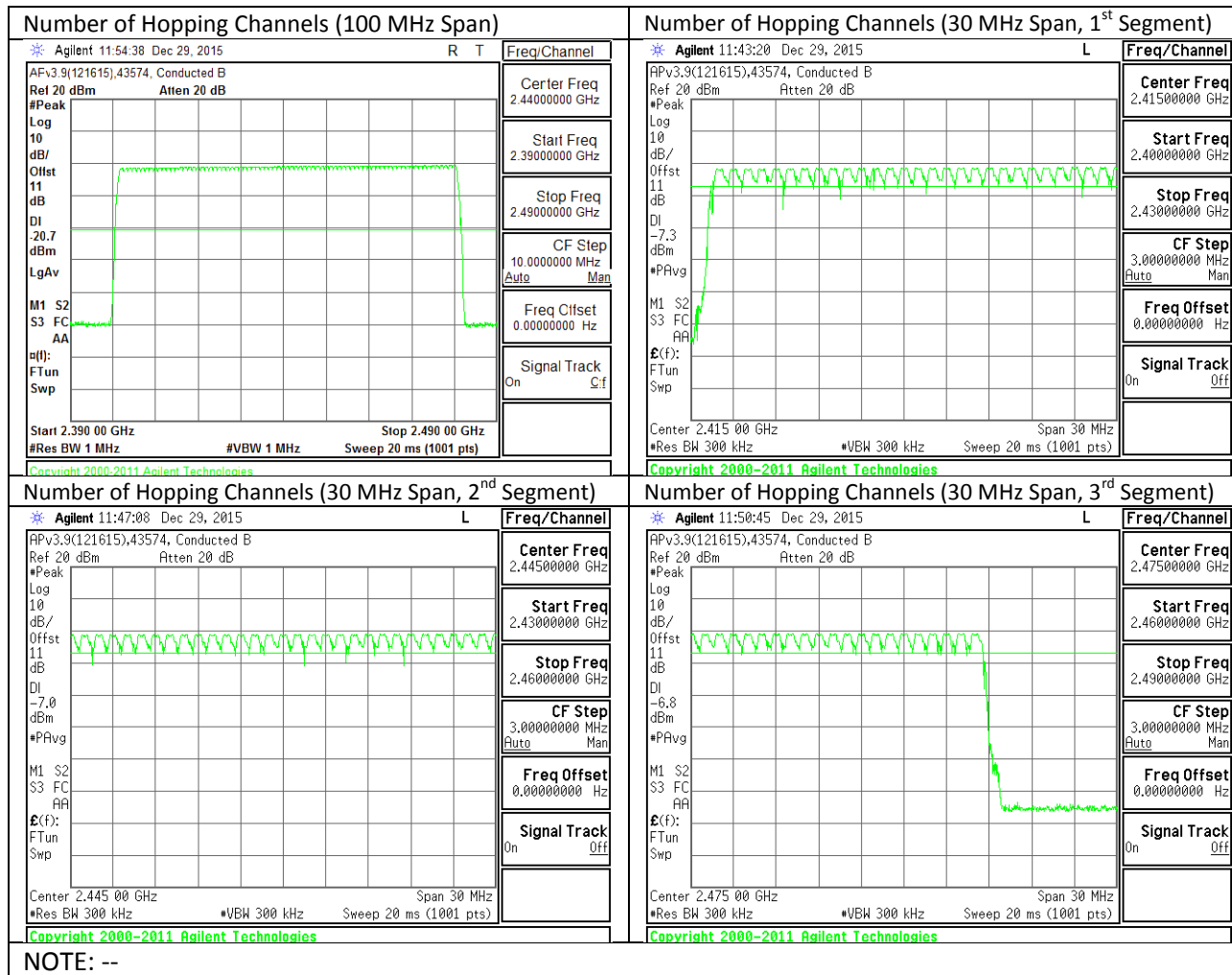
TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

Normal Mode: 79 Channels observed.

7.4.1. NUMBER OF HOPPING CHANNELS PLOTS



NOTE: --

7.5. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

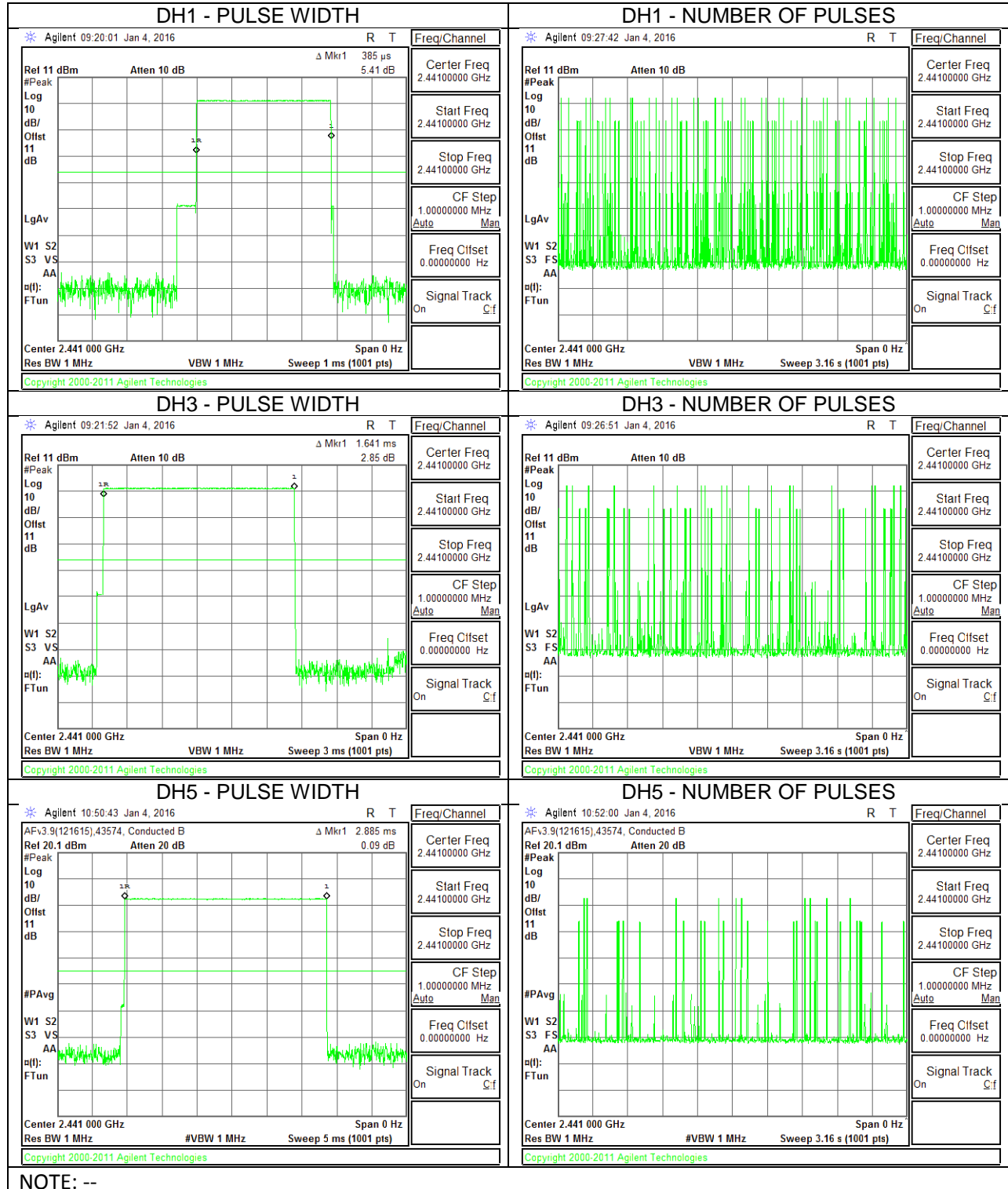
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{ pulse width}$.

RESULTS

AVERAGE TIME OF OCCUPANCY						
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)	
GFSK Normal Mode						
DH1	0.385	32	0.1232	0.4	-0.2768	
DH3	1.641	19	0.3118	0.4	-0.0882	
DH5	2.885	10	0.2885	0.4	-0.1115	
GFSK AFH Mode						
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)	
DH1	0.385	8	0.03080	0.4	-0.3692	
DH3	1.641	4.75	0.07795	0.4	-0.3221	
DH5	2.885	2.5	0.07213	0.4	-0.3279	
NOTE: --						

PULSE WIDTH and NUMBER of PULSES in 3.16 SECONDS PERIOD PLOTS



NOTE: --

7.6. OUTPUT POWER

LIMIT

§15.247 (b) (1)

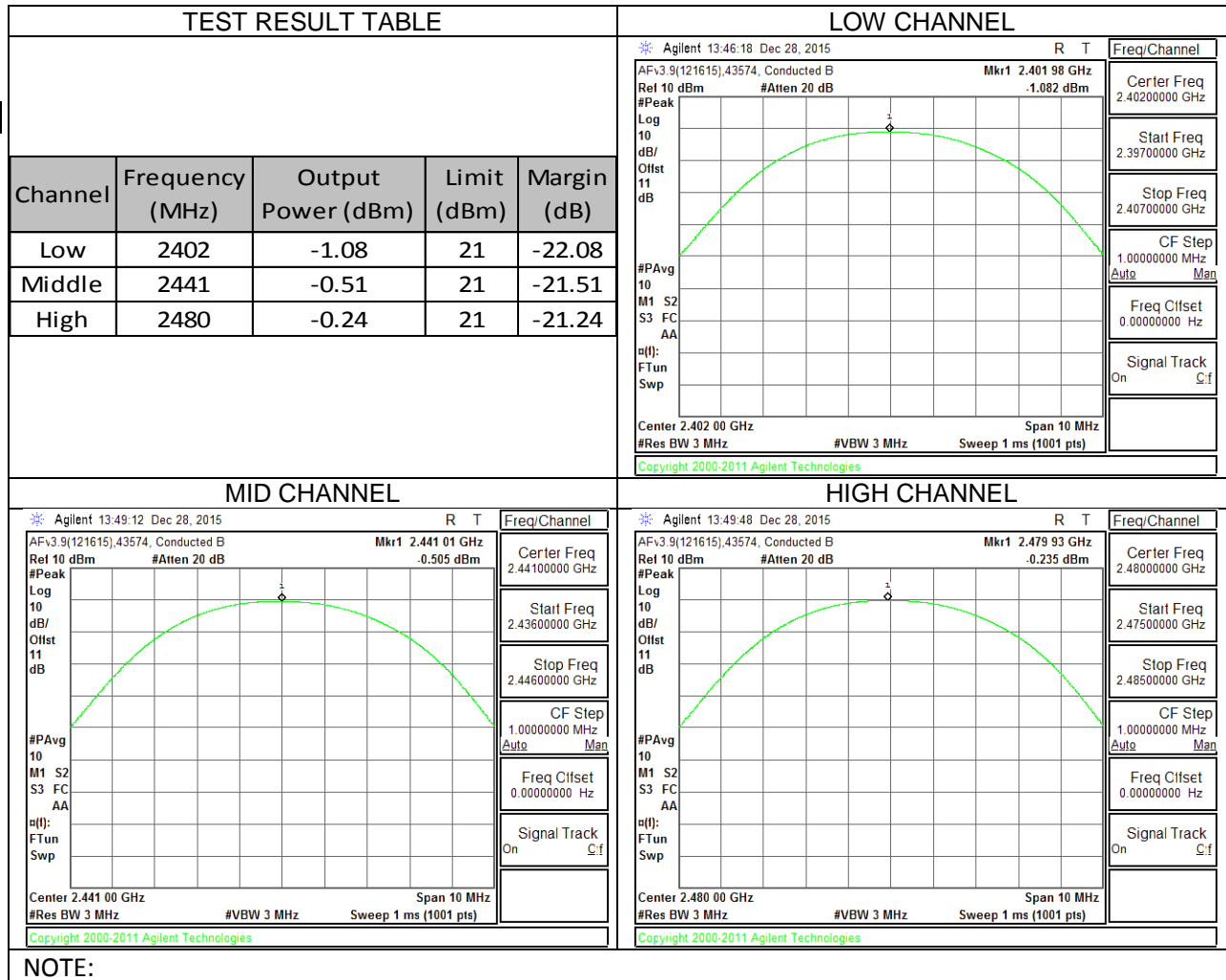
The maximum antenna gain is less than 6 dBi, therefore the limit is 21 dBm.

TEST PROCEDURE

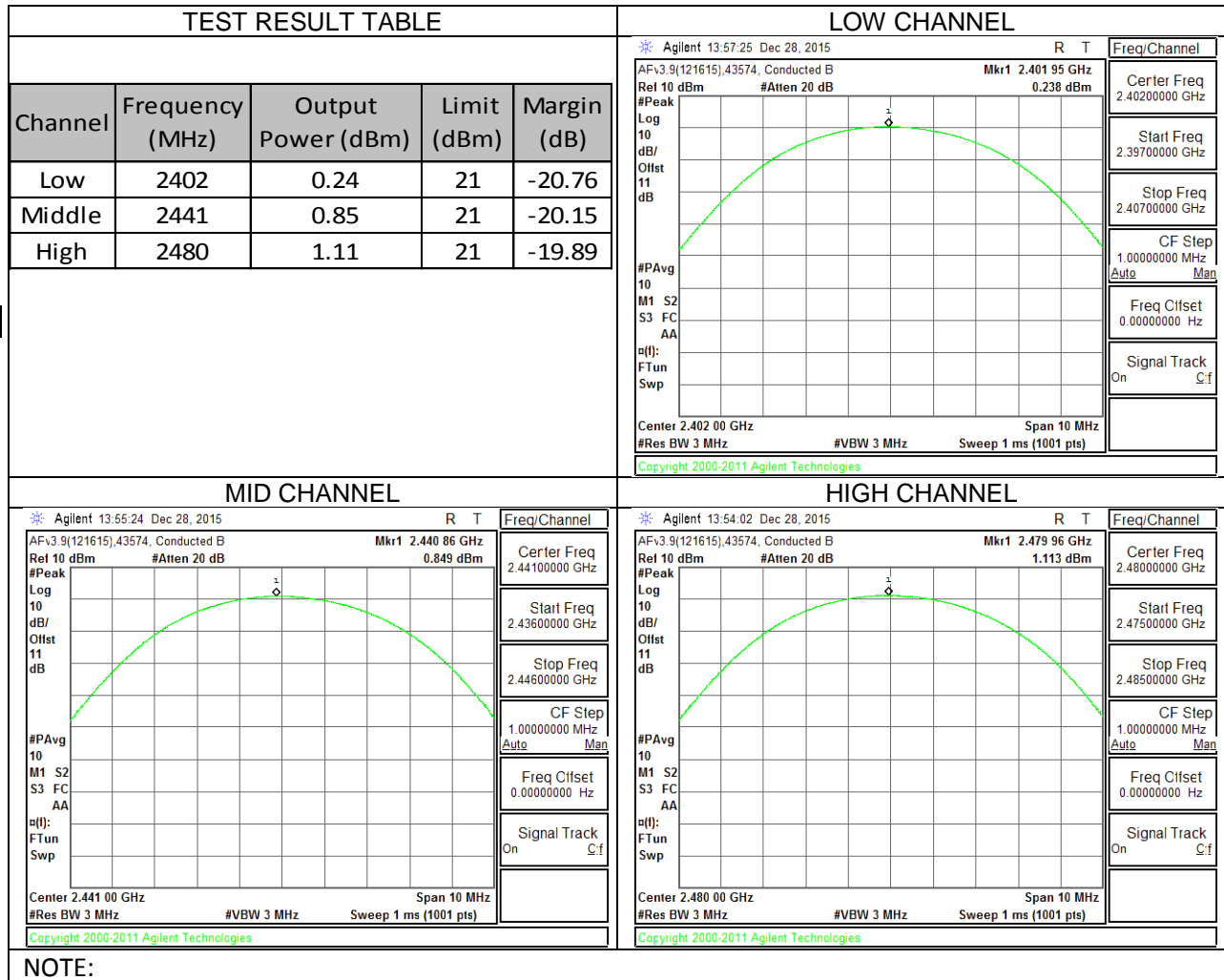
DA 00-705: The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

7.6.1. GFSK OUTPUT POWER PLOTS AND TABLE



7.6.2. 8PSK OUTPUT POWER PLOTS AND TABLE



7.7. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a power meter.

RESULTS

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

GFSK		
Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	-1.6
Middle	2441	-1.1
High	2480	-0.8
Worst		-0.8

8PSK		
Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	-3.2
Middle	2441	-2.6
High	2480	-2.4
Worst		-2.4

NOTE: --

7.8. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Limit = -20 dBc

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

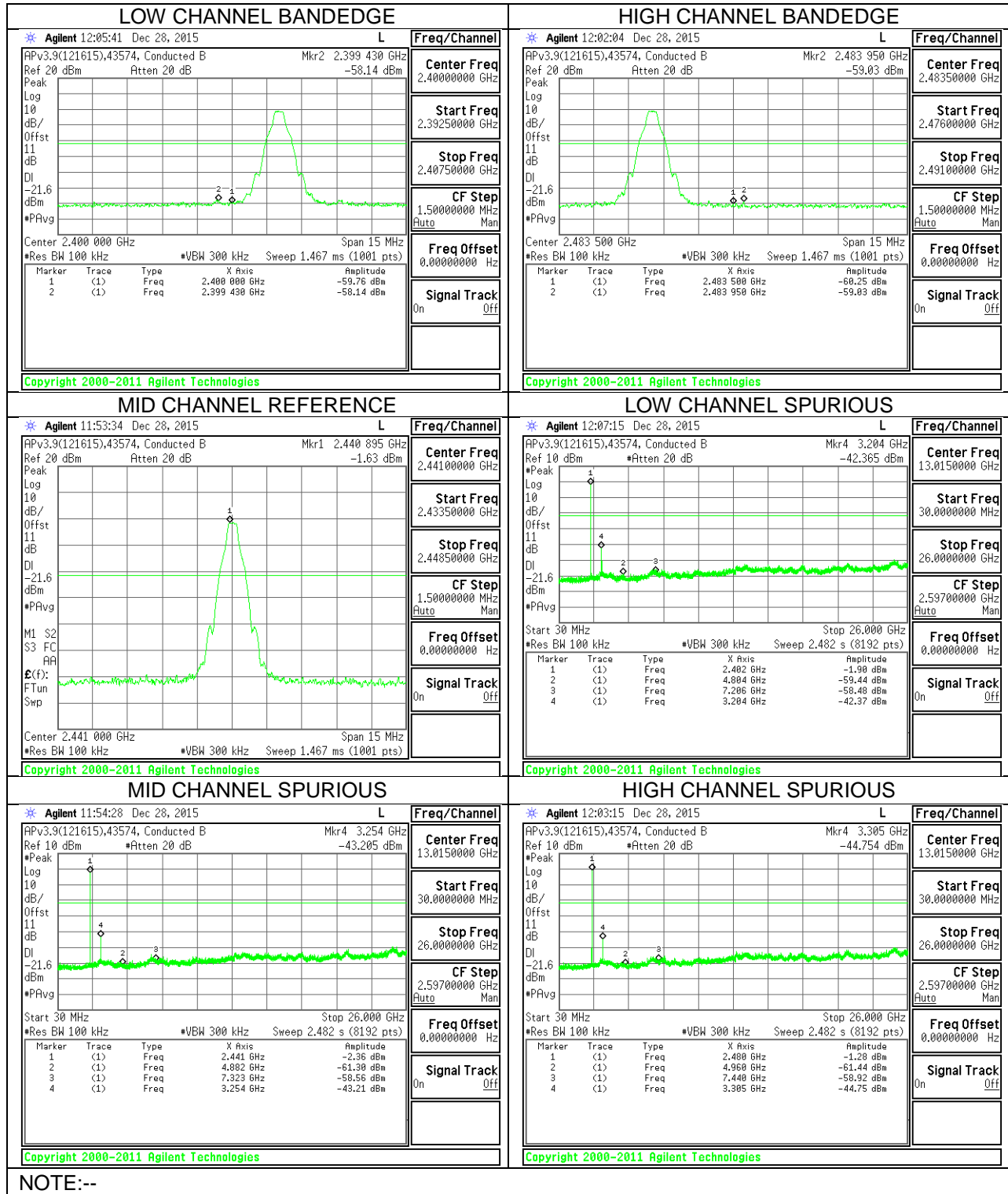
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

7.8.1. GFSK MODULATION NON-HOPPING MODE

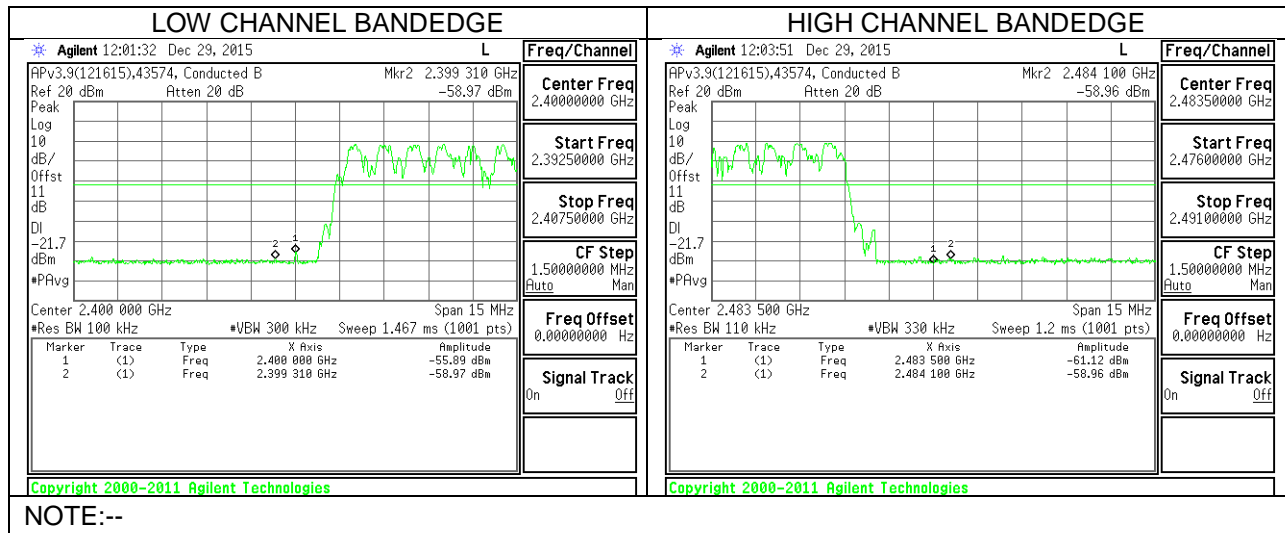
BANDEDGE AND SPURIOUS EMISSIONS PLOTS



NOTE:--

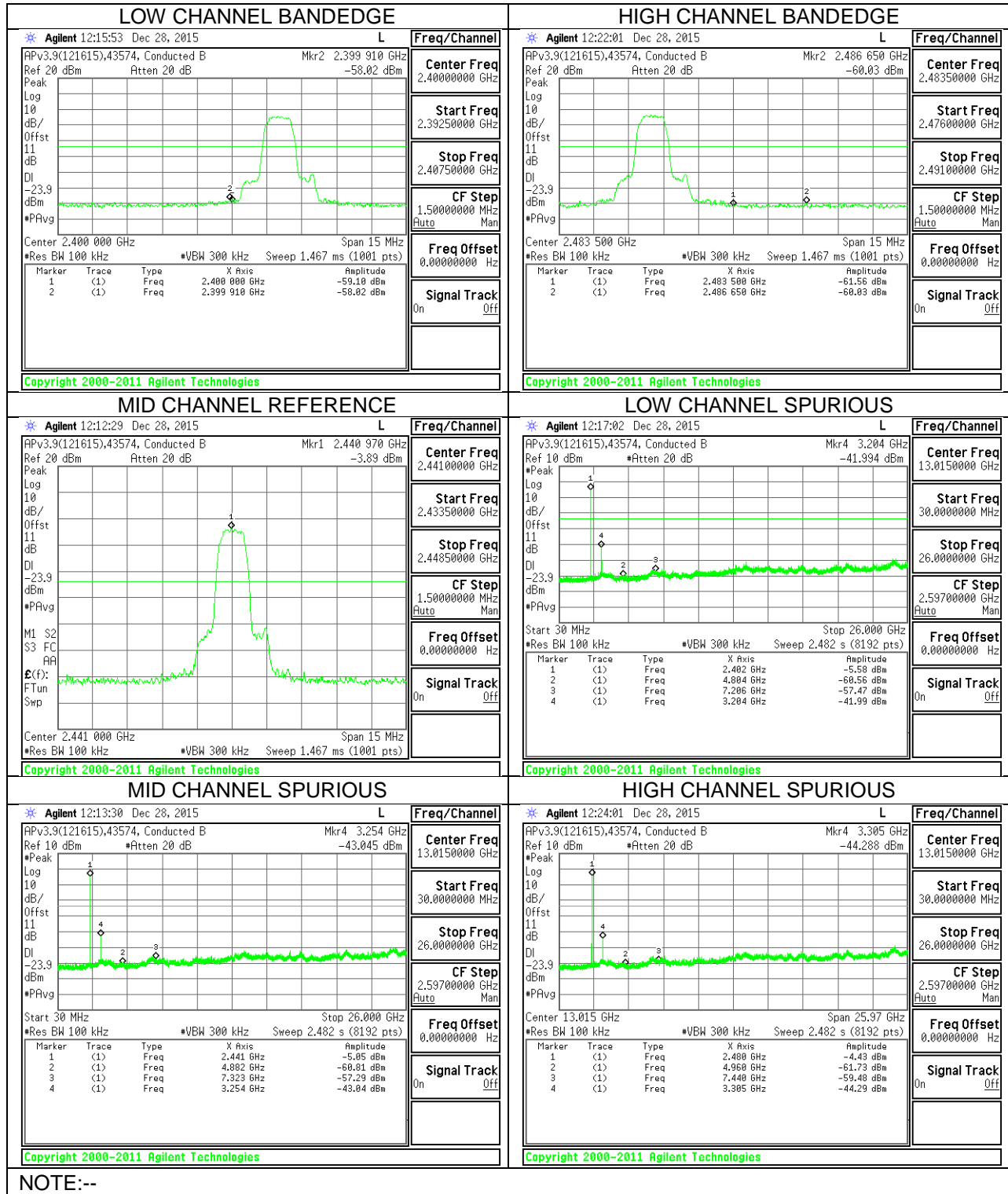
7.8.2. GFSK MODULATION HOPPING MODE

SPURIOUS BANDEGE EMISSIONS PLOTS



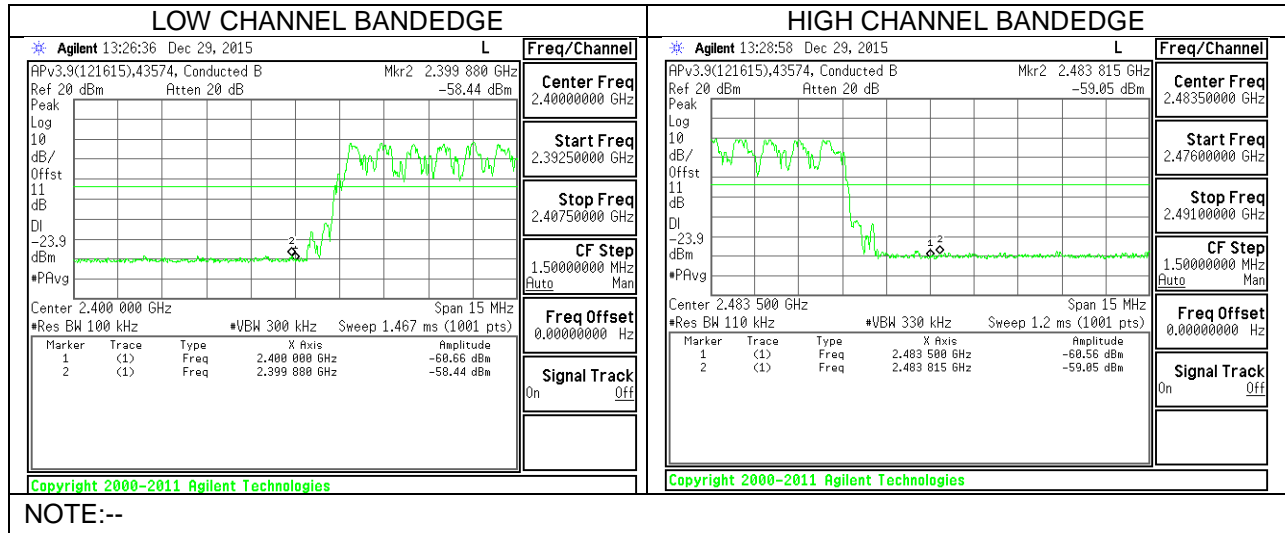
7.8.3. 8PSK MODULATION NON-HOPPING MODE

BANDEDGE AND SPURIOUS EMISSIONS PLOTS



7.8.4. 8PSK MODULATION HOPPING MODE

SPURIOUS BANDEDGE EMISSIONS PLOTS



8. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm 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 band edge measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for Peak and Average measurement.

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

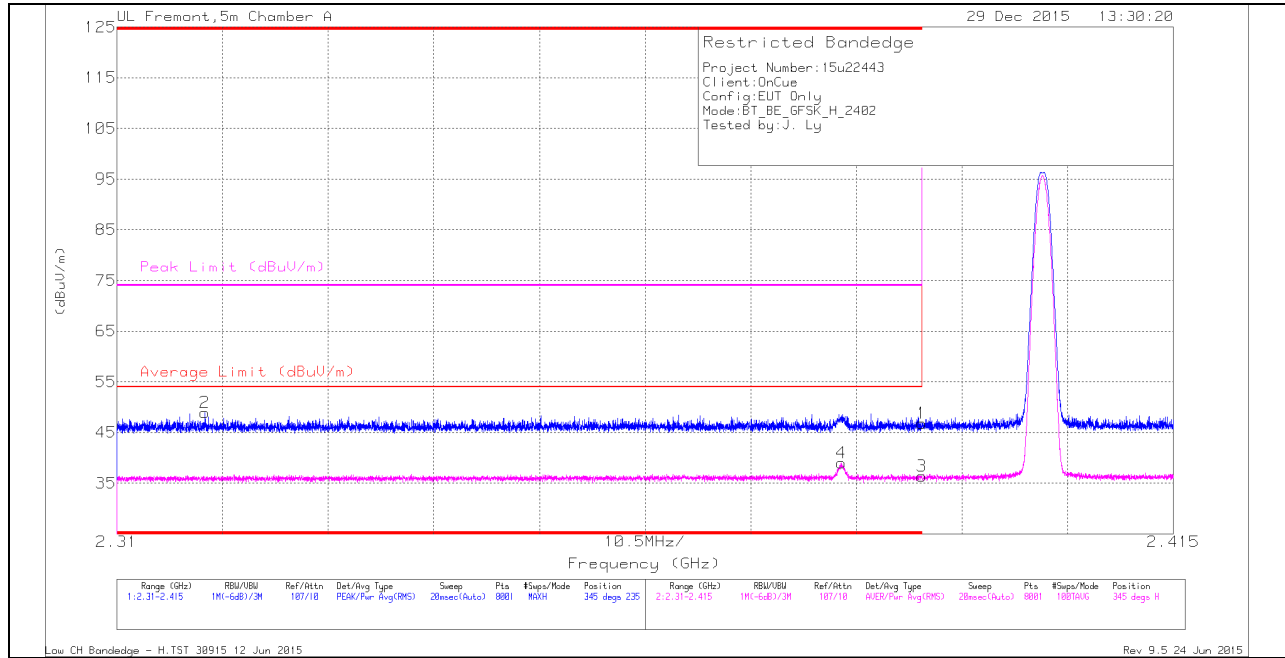
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.1. TRANSMITTER ABOVE 1 GHz

8.1.1. GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

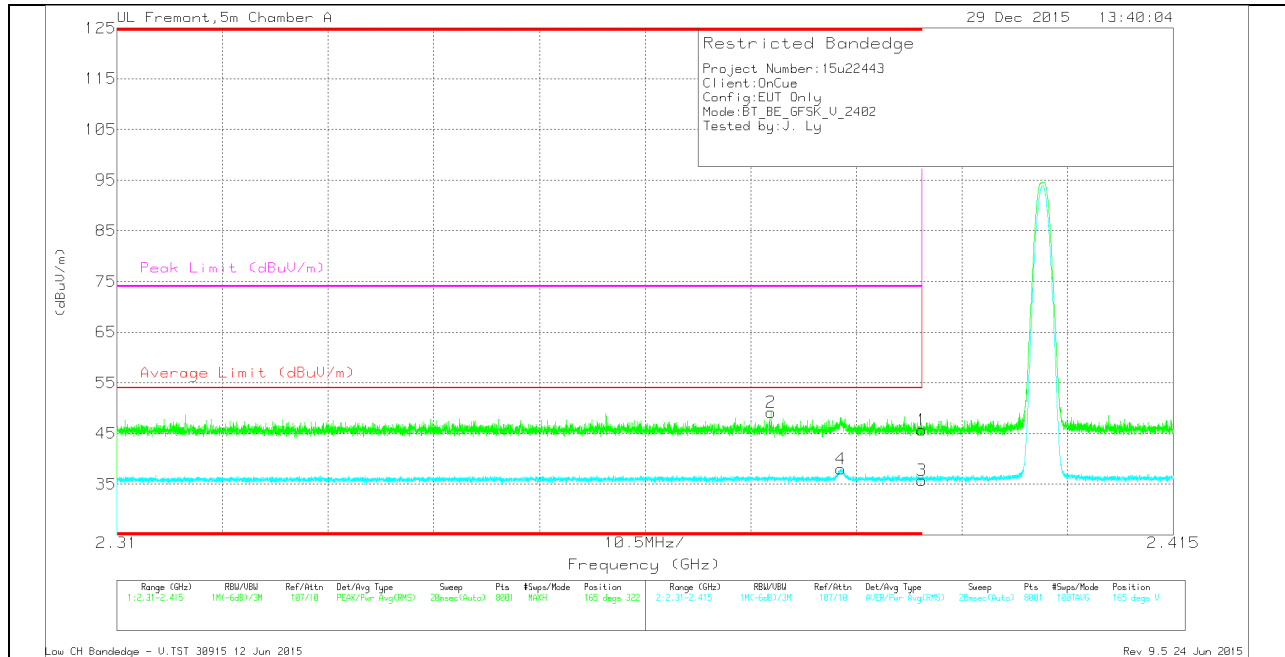
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.319	36.67	Pk	31.9	-19.7	0	48.87	-	-	74	-25.13	345	235	H
4	* 2.382	27.01	RMS	31.9	-19.9	0	39.01	54	-14.99	-	-	345	235	H
1	* 2.39	34.68	Pk	32	-19.9	0	46.78	-	-	74	-27.22	345	235	H
3	* 2.39	24.28	RMS	32	-19.9	0	36.38	54	-17.62	-	-	345	235	H

* - indicates frequency in Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Fitter/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
2	* 2.375	37.05	Pk	31.9	-19.8	0	49.15	-	-	74	-24.85	165	322	V
4	* 2.382	25.98	RMS	31.9	-19.9	0	37.98	54	-16.02	-	-	165	322	V
1	* 2.39	33.56	Pk	32	-19.9	0	45.66	-	-	74	-28.34	165	322	V
3	* 2.39	23.71	RMS	32	-19.9	0	35.81	54	-18.19	-	-	165	322	V

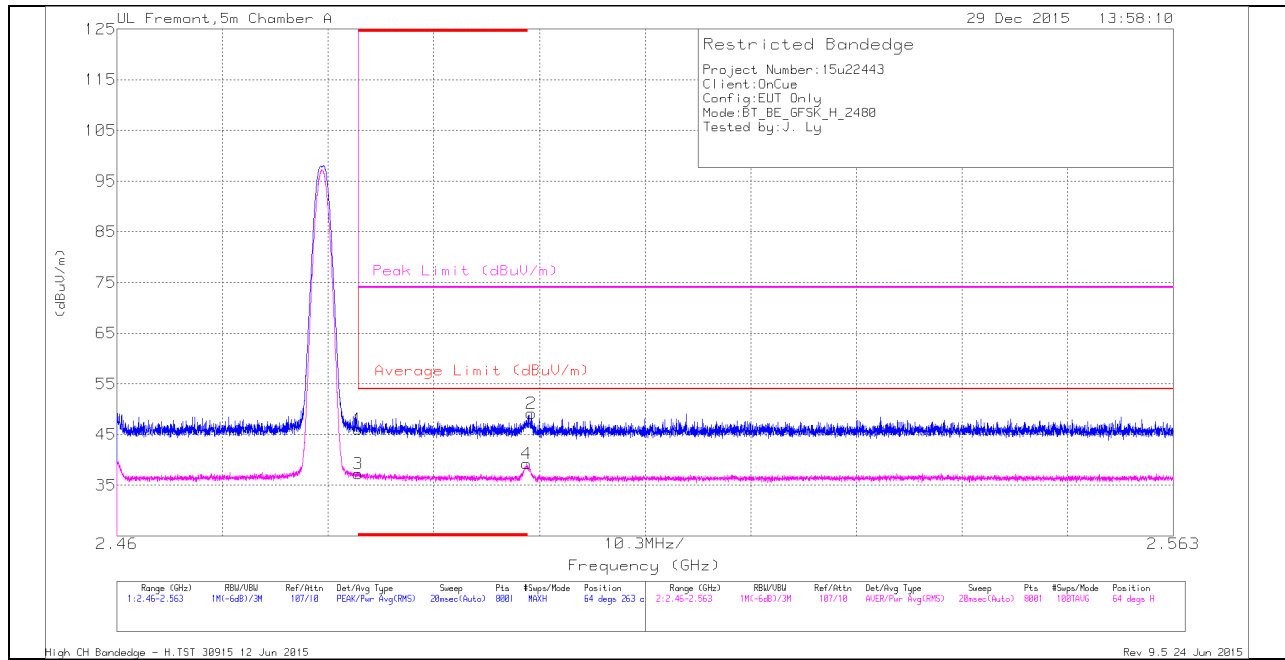
* - indicates frequency in Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

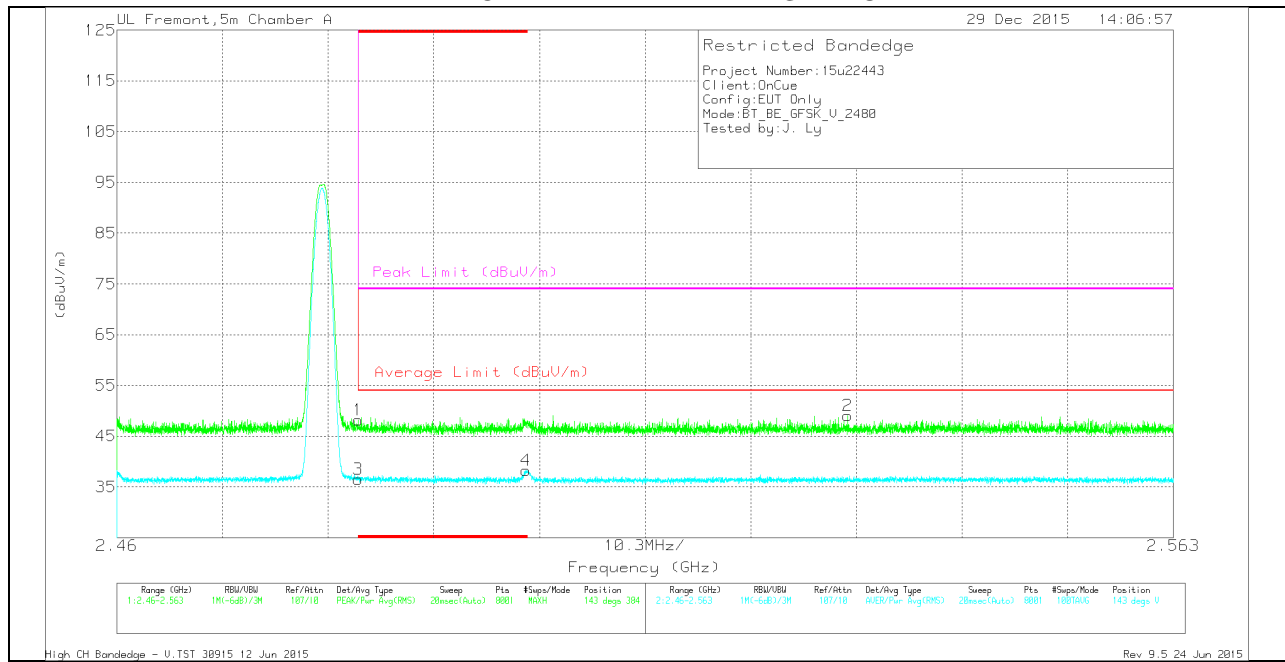
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	33.95	Pk	32.1	-20	0	46.05	-	-	74	-27.95	64	263	H
3	* 2.484	25.11	RMS	32.1	-20	0	37.21	54	-16.79	-	-	64	263	H
2	2.5	37.22	Pk	32.1	-20.1	0	49.22	-	-	74	-24.78	64	263	H
4	* 2.5	27.2	RMS	32.1	-20.1	0	39.2	54	-14.8	-	-	64	263	H

* - indicates frequency in Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filter/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	36.05	Pk	32.1	-20	0	48.15	-	-	74	-25.85	143	384	V
3	* 2.484	24.44	RMS	32.1	-20	0	36.54	54	-17.46	-	-	143	384	V
2	2.531	37.08	Pk	32.1	-20.1	0	49.08	-	-	74	-24.92	143	384	V
4	* 2.5	26.2	RMS	32.1	-20.1	0	38.2	54	-15.8	-	-	143	384	V

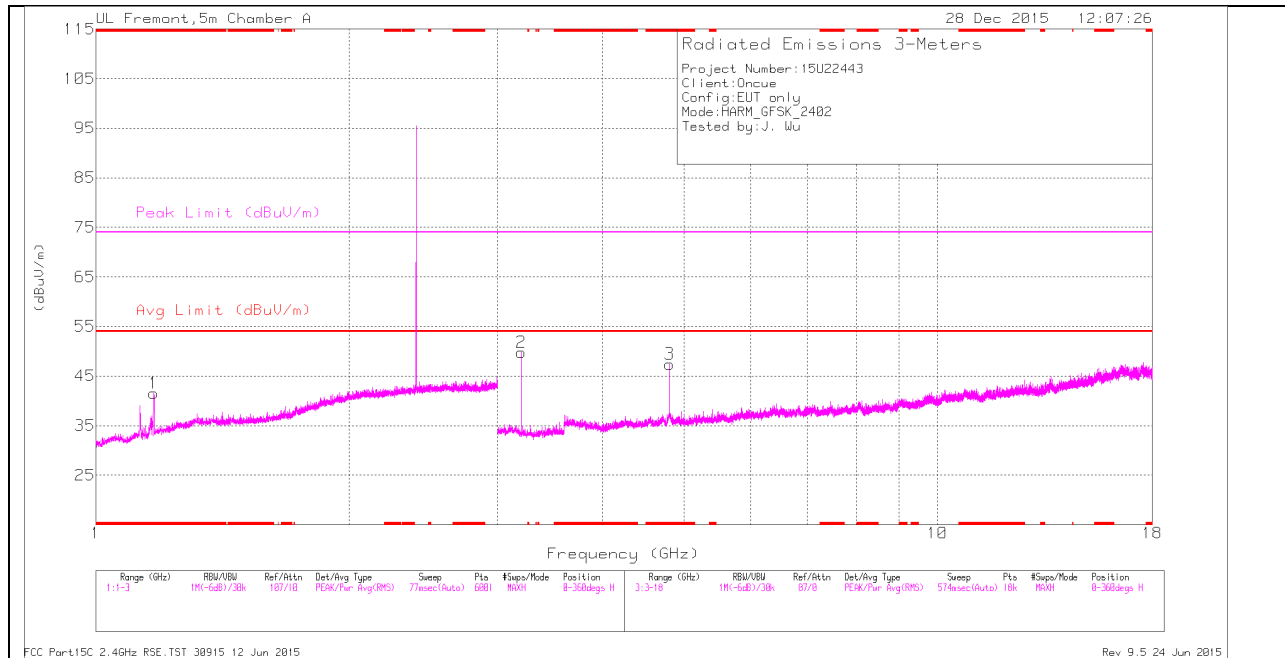
* - indicates frequency in Restricted Band

Pk - Peak detector

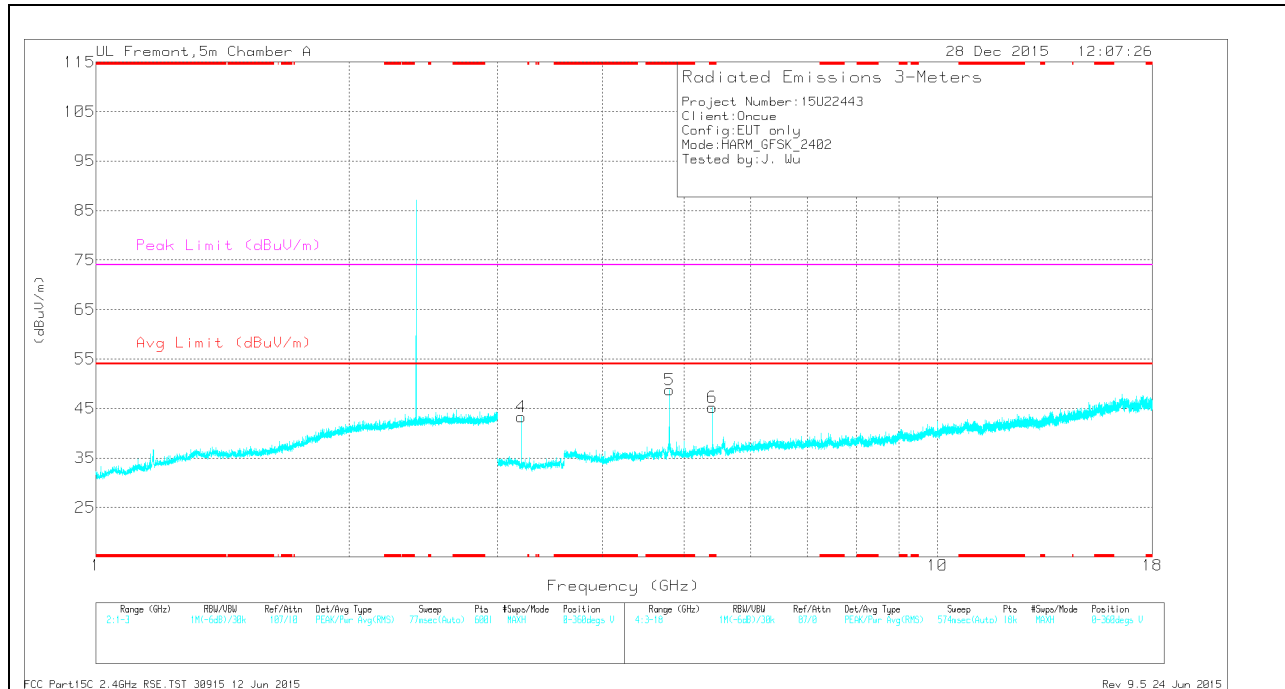
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/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	* 1.171	35.82	Pk	27.8	-22.1	0	41.52	-	-	74	-32.48	0-360	201	H
3	* 4.804	43.24	Pk	34	-29.8	0	47.44	-	-	74	-26.56	0-360	100	H
5	* 4.804	44.56	Pk	34	-29.8	0	48.76	-	-	74	-25.24	0-360	100	V
6	* 5.4	40.04	Pk	34.6	-29.4	0	45.24	-	-	74	-28.76	0-360	100	V
2	3.202	49.11	Pk	32.7	-32	0	49.81	-	-	74	-24.19	0-360	100	H
4	3.202	42.6	Pk	32.7	-32	0	43.3	-	-	74	-30.7	0-360	200	V

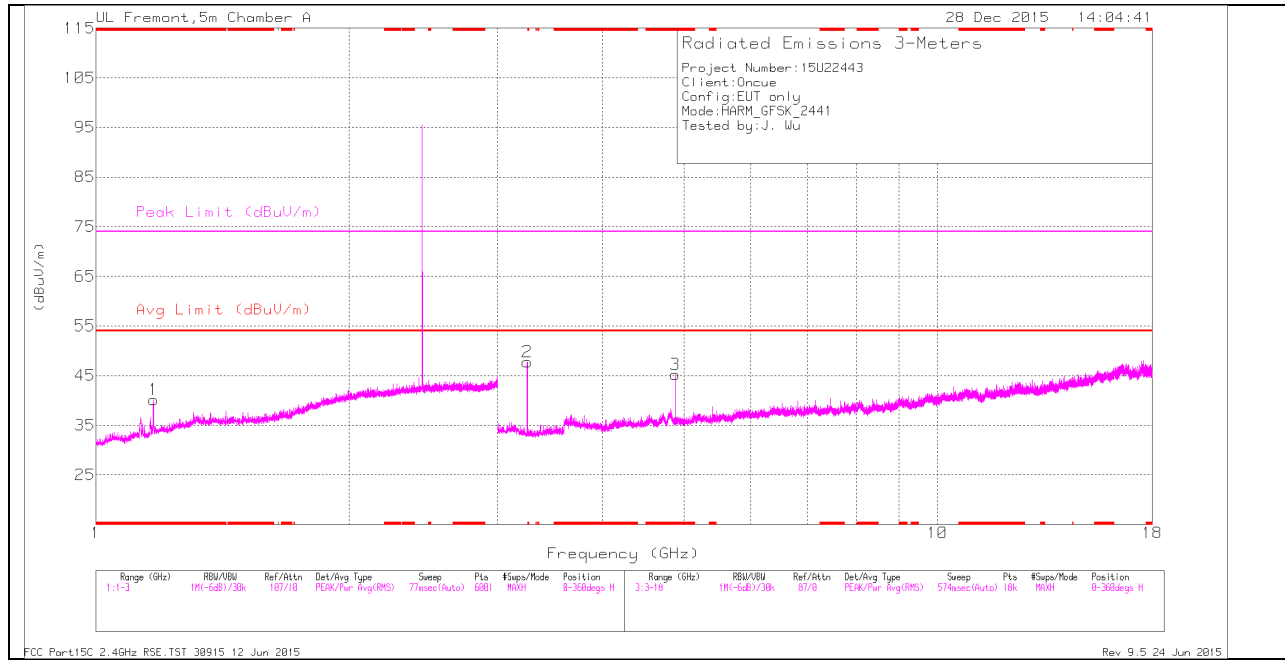
* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

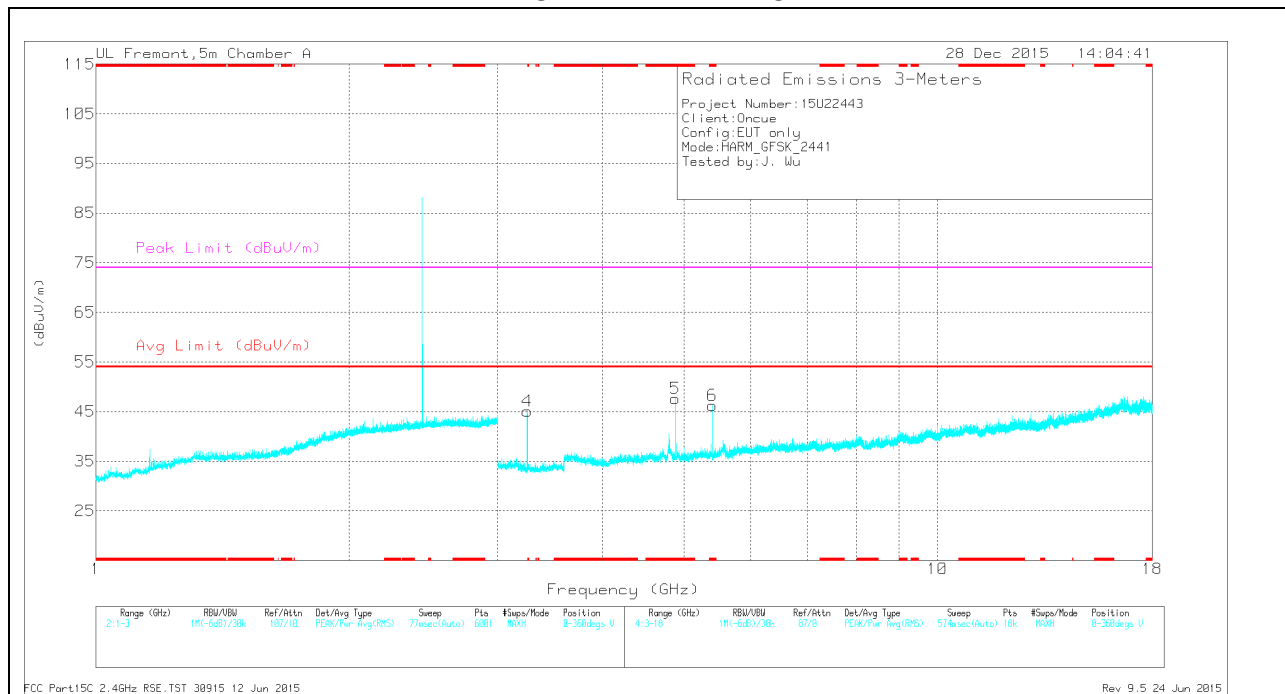
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.172	44.97	PK2	27.8	-22.1	0	50.67	-	-	74	-23.33	327	256	H
* 1.169	25.37	MAv1	27.8	-22.1	0	31.07	54	-22.93	-	-	327	256	H
* 4.804	47.57	PK2	34	-29.8	0	51.77	-	-	74	-22.23	353	100	H
* 4.804	43.46	MAv1	34	-29.8	0	47.66	54	-6.34	-	-	353	100	H
* 4.804	48.01	PK2	34	-29.8	0	52.21	-	-	74	-21.79	150	348	V
* 4.804	44.25	MAv1	34	-29.8	0	48.45	54	-5.55	-	-	150	348	V
* 5.4	45.34	PK2	34.6	-29.4	0	50.54	-	-	74	-23.46	36	100	V
* 5.4	39.97	MAv1	34.6	-29.4	0	45.17	54	-8.83	-	-	36	100	V
3.203	51.88	PK2	32.7	-32	0	52.58	-	-	74	-21.42	335	173	H
3.203	49.3	MAv1	32.7	-32	0	50	54	-4	-	-	335	173	H
3.203	51.22	PK2	32.7	-32	0	51.92	-	-	74	-22.08	89	315	V
3.203	48.25	MAv1	32.7	-32	0	48.95	54	-5.05	-	-	89	315	V

* - indicates frequency in Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filtr /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	* 1.171	34.48	Pk	27.8	-22.1	0	40.18	-	-	74	-33.82	0-360	100	H
3	* 4.882	40.58	Pk	33.9	-29.3	0	45.18	-	-	74	-28.82	0-360	100	H
5	* 4.882	42.99	Pk	33.9	-29.3	0	47.59	-	-	74	-26.41	0-360	200	V
6	* 5.4	41.03	Pk	34.6	-29.4	0	46.23	-	-	74	-27.77	0-360	100	V
2	3.255	47.52	Pk	32.8	-32.6	0	47.72	-	-	74	-26.28	0-360	100	H
4	3.255	44.91	Pk	32.8	-32.6	0	45.11	-	-	74	-28.89	0-360	200	V

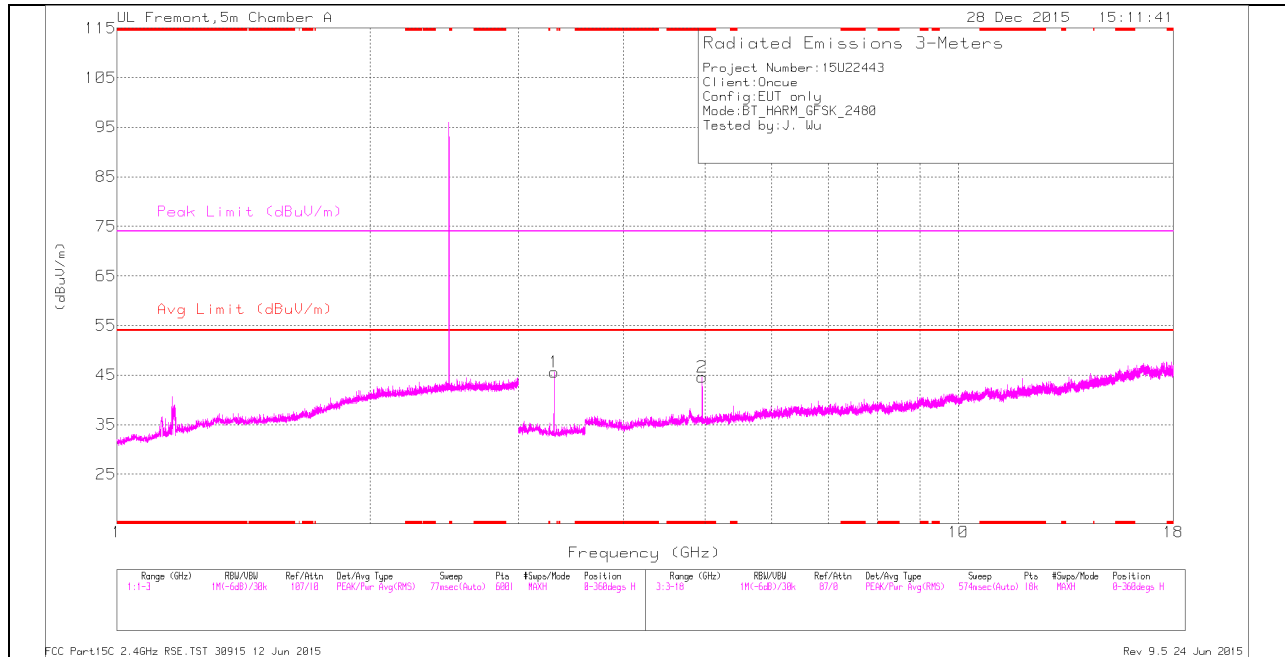
* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

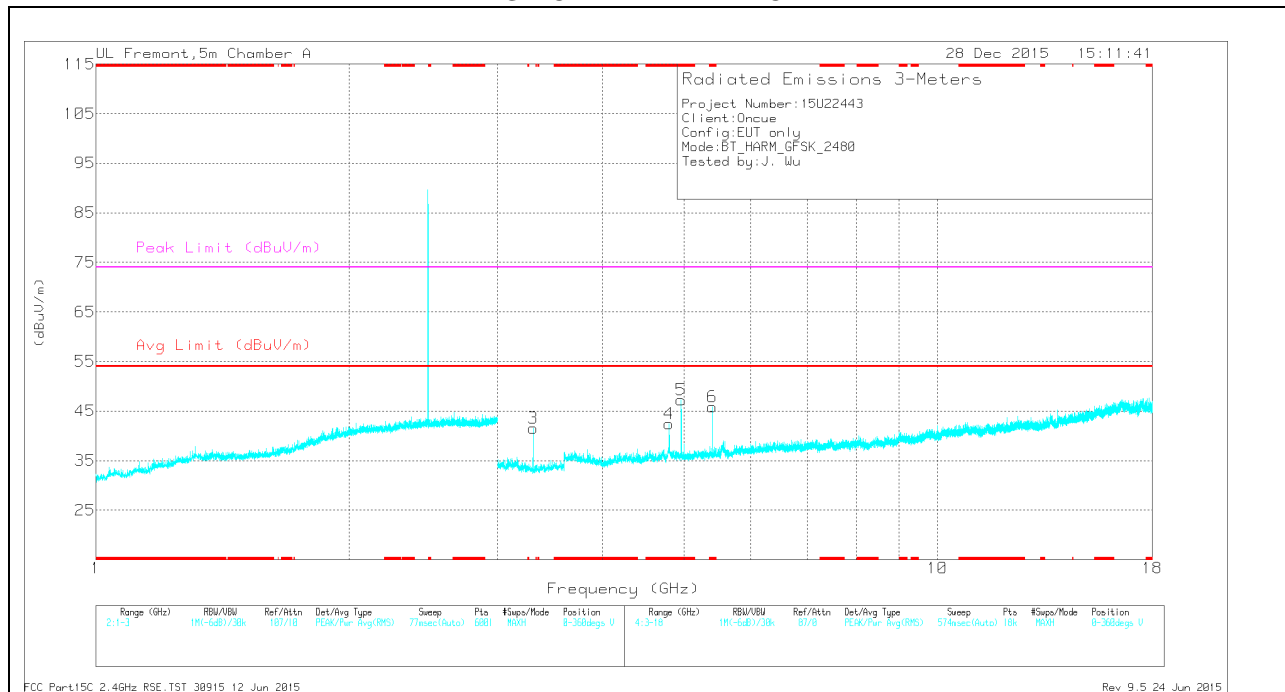
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.17	45.58	PK2	27.8	-22.1	0	51.28	-	-	74	-22.72	321	329	H
* 1.171	25.83	MAv1	27.8	-22.1	0	31.53	54	-22.47	-	-	321	329	H
* 4.882	45.35	PK2	33.9	-29.3	0	49.95	-	-	74	-24.05	358	108	H
* 4.882	40.6	MAv1	33.9	-29.3	0	45.2	54	-8.8	-	-	358	108	H
* 4.882	47.66	PK2	33.9	-29.3	0	52.26	-	-	74	-21.74	100	245	V
* 4.882	43.99	MAv1	33.9	-29.3	0	48.59	54	-5.41	-	-	100	245	V
* 5.4	45.01	PK2	34.6	-29.4	0	50.21	-	-	74	-23.79	24	108	V
* 5.4	39.22	MAv1	34.6	-29.4	0	44.42	54	-9.58	-	-	24	108	V
3.255	51.17	PK2	32.8	-32.6	0	51.37	-	-	74	-22.63	337	206	H
3.255	48.23	MAv1	32.8	-32.6	0	48.43	54	-5.57	-	-	337	206	H
3.255	50.68	PK2	32.8	-32.6	0	50.88	-	-	74	-23.12	86	329	V
3.255	47.5	MAv1	32.8	-32.6	0	47.7	54	-6.3	-	-	86	329	V

* - indicates frequency in Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.96	40.73	Pk	33.9	-30.1	44.53	-	-	74	-29.47	0-360	201	H
4	* 4.8	38.18	Pk	34	-29.8	42.38	-	-	74	-31.62	0-360	100	V
5	* 4.96	43.49	Pk	33.9	-30.1	47.29	-	-	74	-26.71	0-360	200	V
6	* 5.4	40.66	Pk	34.6	-29.4	45.86	-	-	74	-28.14	0-360	100	V
1	3.307	45.56	Pk	32.8	-32.8	45.56	-	-	74	-28.44	0-360	201	H
3	3.307	41.56	Pk	32.8	-32.8	41.56	-	-	74	-32.44	0-360	200	V

* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

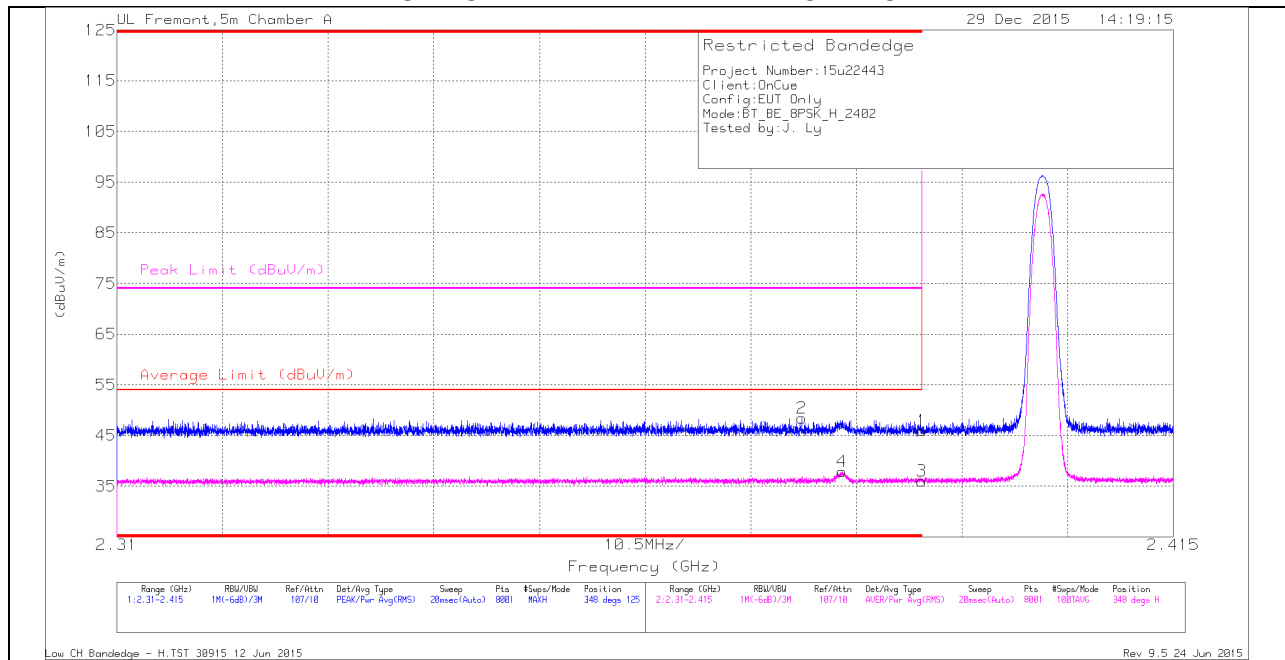
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	46.02	PK2	33.9	-30.1	49.82	-	-	74	-24.18	224	261	H
* 4.96	41.63	MAV1	33.9	-30.1	45.43	54	-8.57	-	-	224	261	H
* 4.8	43.75	PK2	34	-29.8	47.95	-	-	74	-26.05	89	100	V
* 4.8	33.94	MAV1	34	-29.8	38.14	54	-15.86	-	-	89	100	V
* 4.96	49.15	PK2	33.9	-30.1	52.95	-	-	74	-21.05	81	283	V
* 4.96	46.24	MAV1	33.9	-30.1	50.04	54	-3.96	-	-	81	283	V
* 5.4	44.51	PK2	34.6	-29.4	49.71	-	-	74	-24.29	28	100	V
* 5.4	39.43	MAV1	34.6	-29.4	44.63	54	-9.37	-	-	28	100	V
3.307	50.24	PK2	32.8	-32.8	50.24	-	-	74	-23.76	338	125	H
3.307	46.98	MAV1	32.8	-32.8	46.98	54	-7.02	-	-	338	125	H
3.307	48.96	PK2	32.8	-32.8	48.96	-	-	74	-25.04	90	320	V
3.307	45.15	MAV1	32.8	-32.8	45.15	54	-8.85	-	-	90	320	V

* - indicates frequency in Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

8.1.2. 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

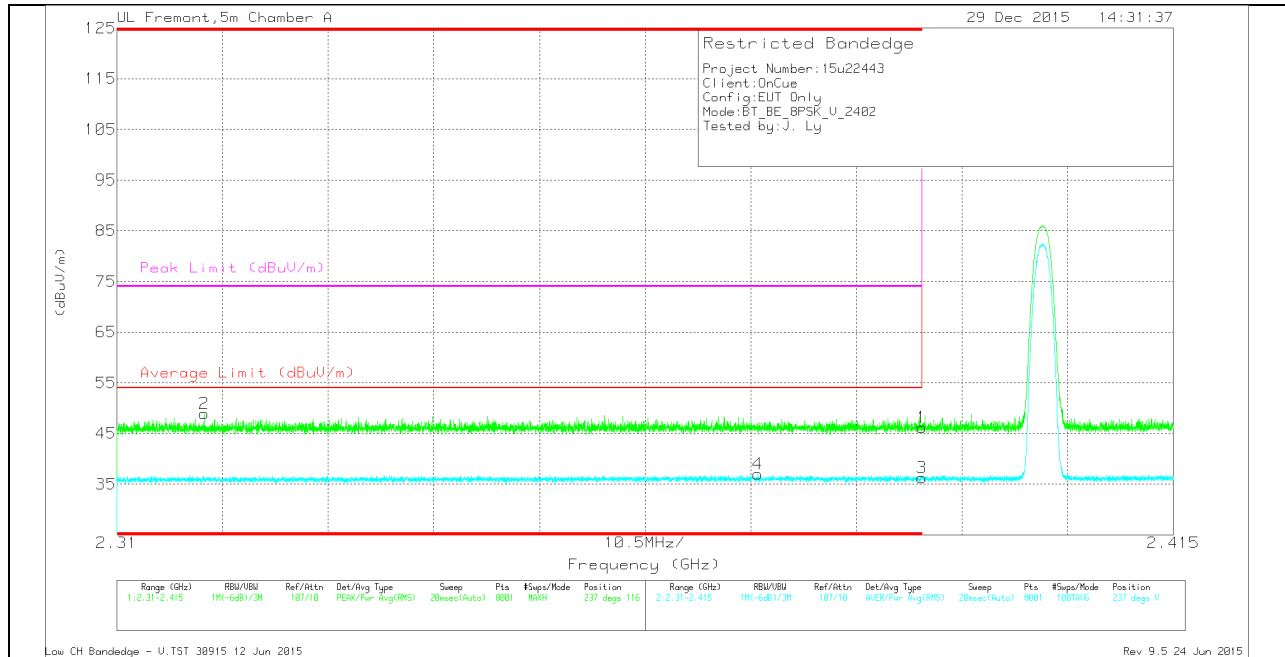
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.378	36.29	Pk	31.9	-19.8	0	48.39	-	-	74	-25.61	348	125	H
4	* 2.382	25.84	RMS	31.9	-19.9	0	37.84	54	-16.16	-	-	348	125	H
1	* 2.39	33.89	Pk	32	-19.9	0	45.99	-	-	74	-28.01	348	125	H
3	* 2.39	23.87	RMS	32	-19.9	0	35.97	54	-18.03	-	-	348	125	H

* - indicates frequency in Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Filter/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
2	* 2.319	36.72	Pk	31.9	-19.7	0	48.92	-	-	74	-25.08	237	116	V
4	* 2.374	24.86	RMS	31.9	-19.8	0	36.96	54	-17.04	-	-	237	116	V
1	* 2.39	34.07	Pk	32	-19.9	0	46.17	-	-	74	-27.83	237	116	V
3	* 2.39	24.11	RMS	32	-19.9	0	36.21	54	-17.79	-	-	237	116	V

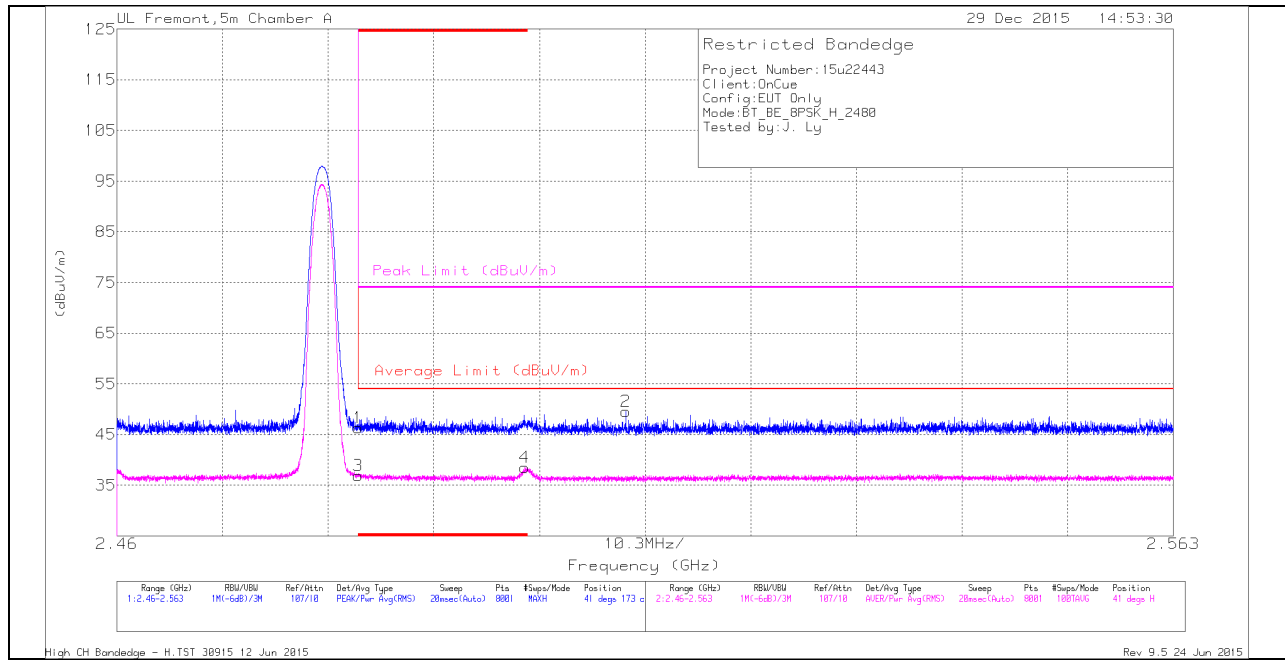
* - indicates frequency in Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



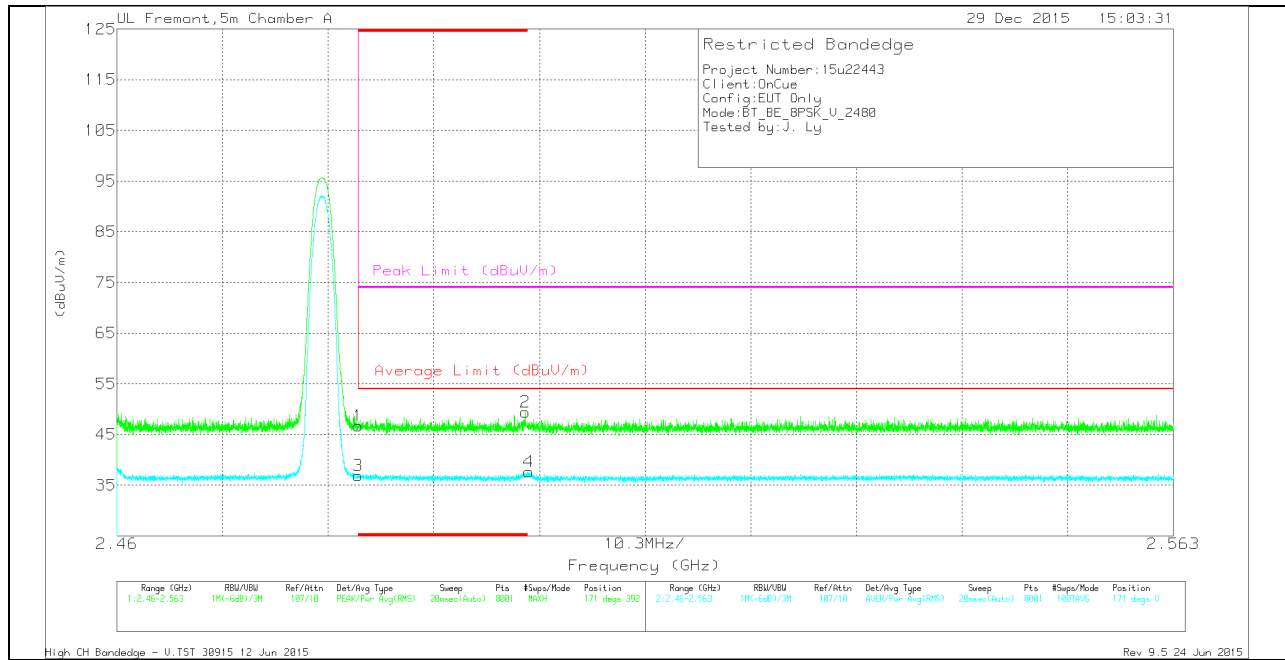
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Fit r/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	34.2	Pk	32.1	-20	0	46.3	-	-	74	-27.7	41	173	H
3	* 2.484	24.75	RMS	32.1	-20	0	36.85	54	-17.15	-	-	41	173	H
2	2.51	37.55	Pk	32.1	-20.1	0	49.55	-	-	74	-24.45	41	173	H
4	* 2.5	26.44	RMS	32.1	-20.1	0	38.44	54	-15.56	-	-	41	173	H

* - indicates frequency in Restricted Band
 Pk - Peak detector
 RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Fit r/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	34.56	Pk	32.1	-20	0	46.66	-	-	74	-27.34	171	392	V
3	* 2.484	24.73	RMS	32.1	-20	0	36.83	54	-17.17	-	-	171	392	V
2	* 2.5	37.37	Pk	32.1	-20.1	0	49.37	-	-	74	-24.63	171	392	V
4	2.5	25.64	RMS	32.1	-20.1	0	37.64	54	-16.36	-	-	171	392	V

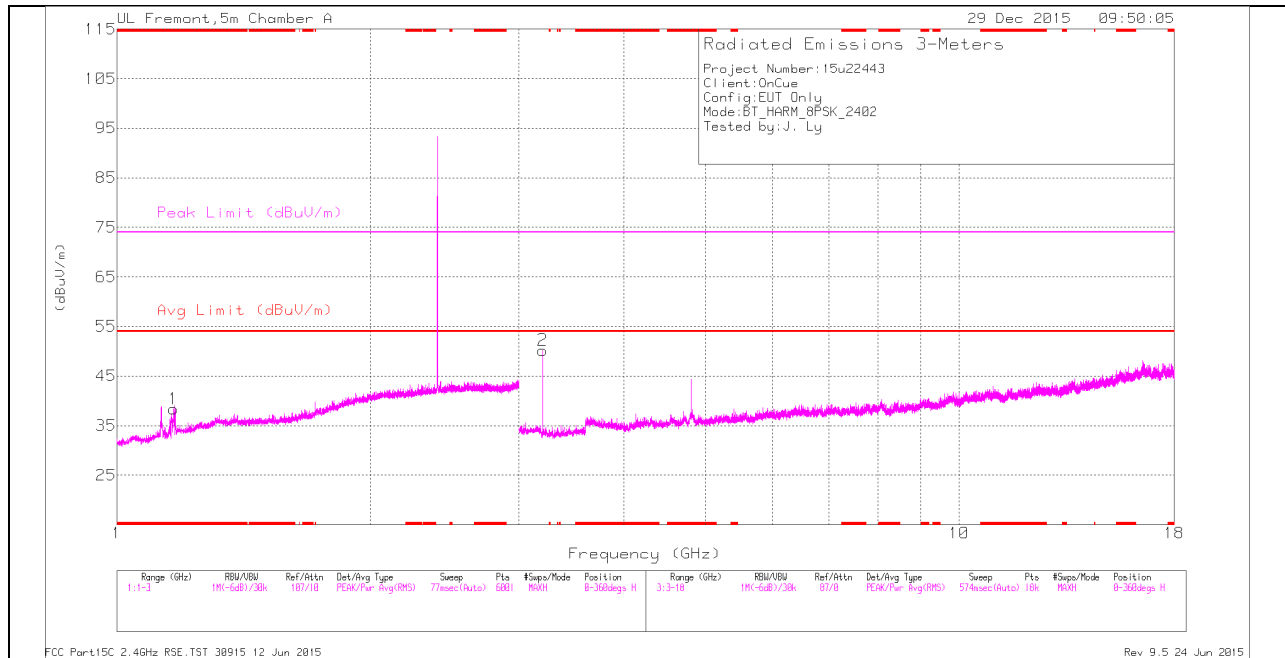
* - indicates frequency in Restricted Band

Pk - Peak detector

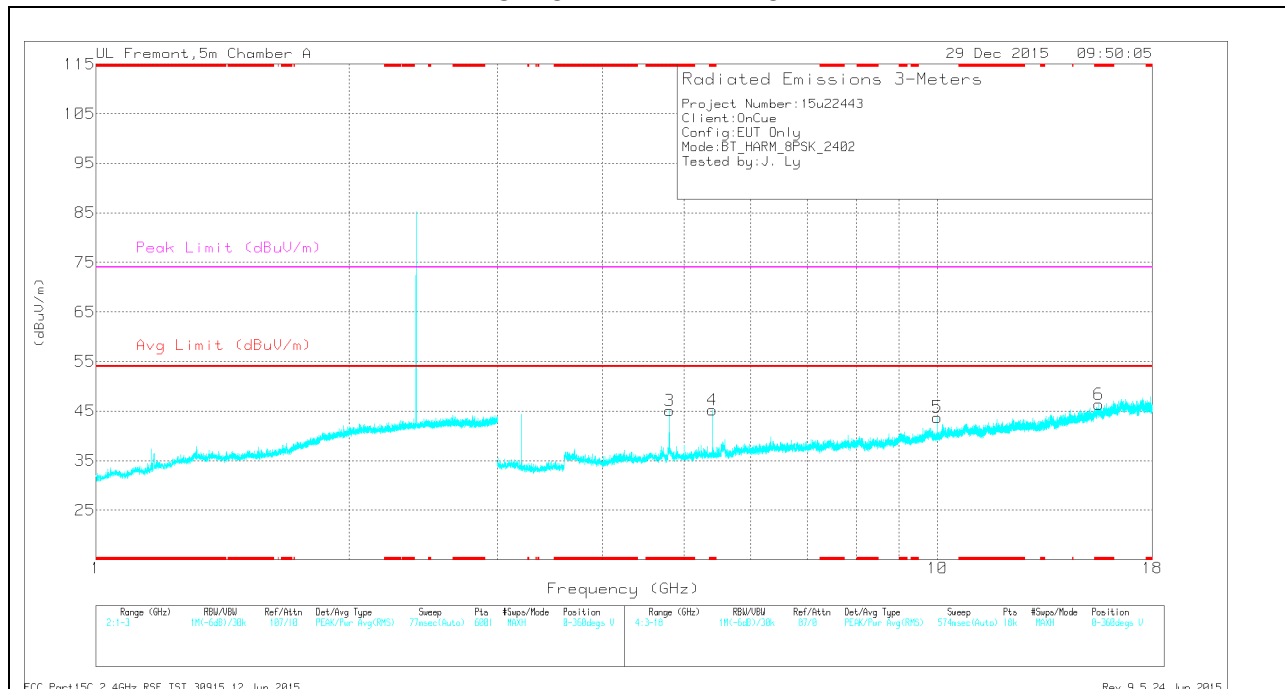
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/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	* 1.167	32.63	Pk	27.8	-22.1	0	38.33	-	-	74	-35.67	0-360	100	H
3	* 4.804	40.88	Pk	34	-29.8	0	45.08	-	-	74	-28.92	0-360	100	V
4	* 5.4	40.03	Pk	34.6	-29.4	0	45.23	-	-	74	-28.77	0-360	100	V
6	* 15.555	26.93	Pk	40.3	-20.9	0	46.33	-	-	74	-27.67	0-360	200	V
2	3.202	49.53	Pk	32.7	-32	0	50.23	-	-	74	-23.77	0-360	201	H
5	10	29.96	Pk	37	-23.2	0	43.76	-	-	74	-30.24	0-360	200	V

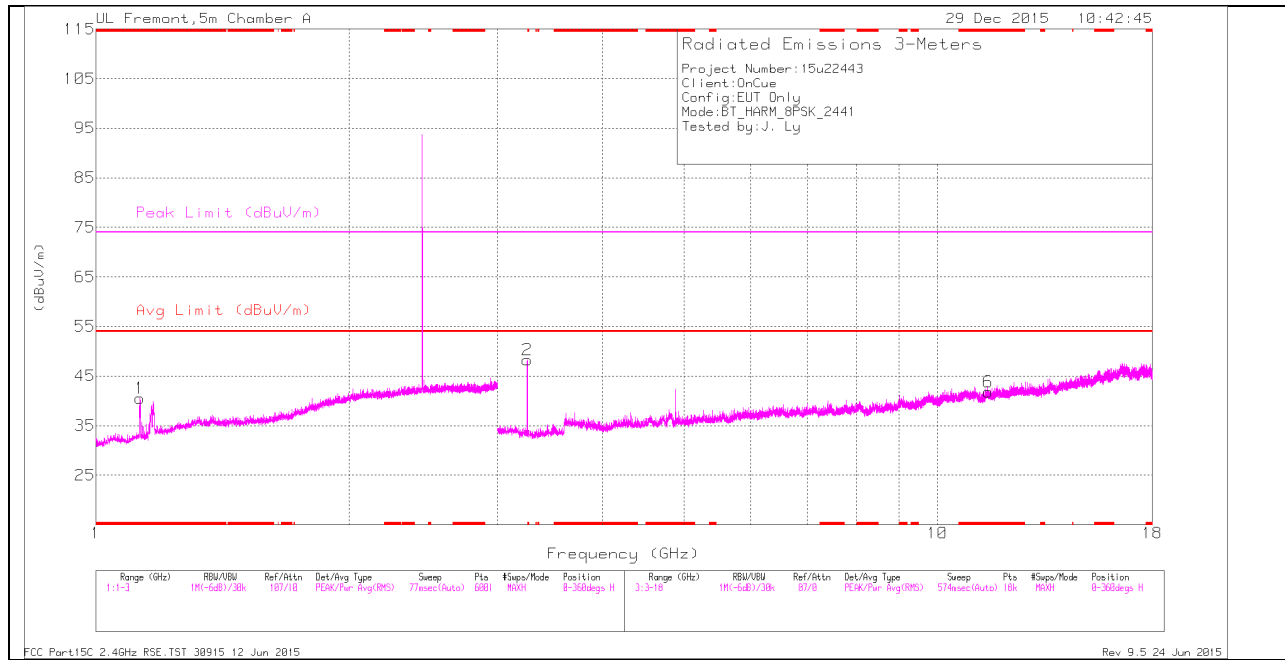
* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

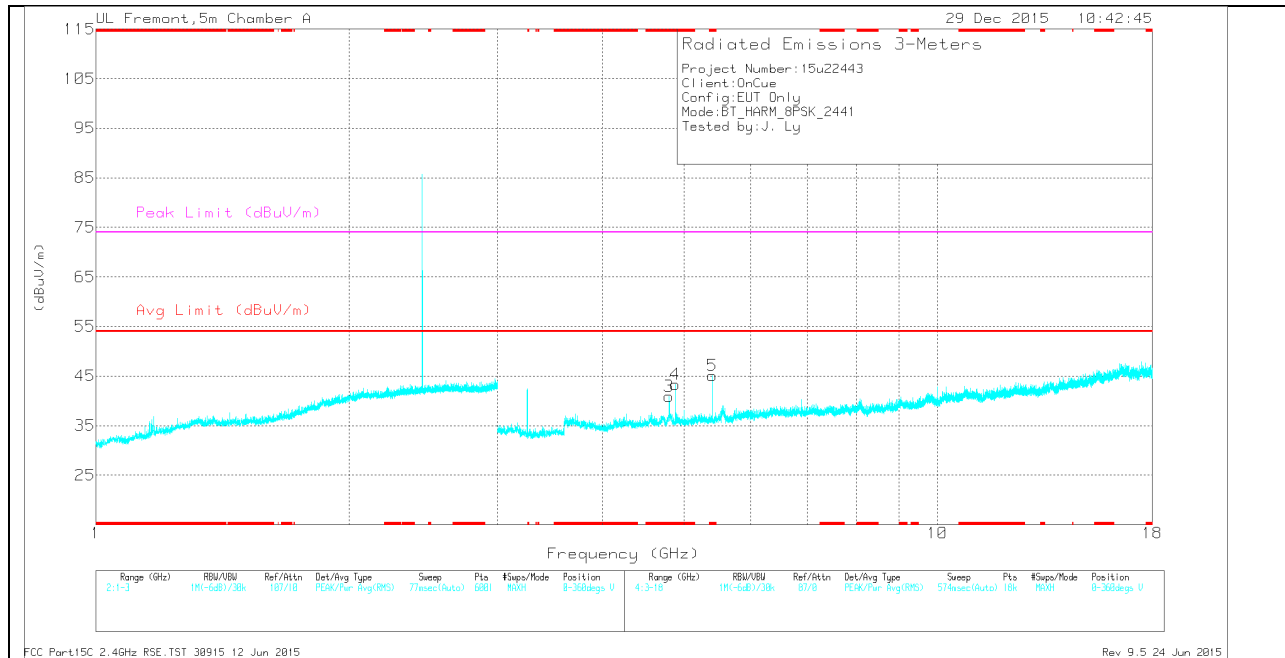
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.168	37.57	PK2	27.8	-22.1	0	43.27	-	-	74	-30.73	355	211	H
* 1.168	25.09	MAv1	27.8	-22.1	0	30.79	54	-23.21	-	-	355	211	H
* 4.804	50.2	PK2	34	-29.8	0	54.4	-	-	74	-19.6	189	301	V
* 4.804	42.12	MAv1	34	-29.8	0	46.32	54	-7.68	-	-	189	301	V
* 5.4	44.36	PK2	34.6	-29.4	0	49.56	-	-	74	-24.44	112	103	V
* 5.4	39.09	MAv1	34.6	-29.4	0	44.29	54	-9.71	-	-	112	103	V
* 15.557	34.25	PK2	40.3	-20.9	0	53.65	-	-	74	-20.35	186	321	V
* 15.555	23.2	MAv1	40.3	-20.9	0	42.6	54	-11.4	-	-	186	321	V
3.203	52.19	PK2	32.7	-32	0	52.89	-	-	74	-21.11	63	329	H
3.203	49.83	MAv1	32.7	-32	0	50.53	54	-3.47	-	-	63	329	H
10	36.3	PK2	37	-23.2	0	50.1	-	-	74	-23.9	186	321	V
10	28.26	MAv1	37	-23.2	0	42.06	54	-11.94	-	-	186	321	V

* - indicates frequency in Restricted Band
 Pk - Peak detector
 Av - Average detection

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/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	* 1.128	35.26	Pk	27.5	-22.2	0	40.56	-	-	74	-33.44	0-360	100	H
6	* 11.489	25.59	Pk	38	-21.8	0	41.79	-	-	74	-32.21	0-360	201	H
3	* 4.8	36.76	Pk	34	-29.8	0	40.96	-	-	74	-33.04	0-360	100	V
4	* 4.882	38.71	Pk	33.9	-29.3	0	43.31	-	-	74	-30.69	0-360	200	V
5	* 5.4	39.87	Pk	34.6	-29.4	0	45.07	-	-	74	-28.93	0-360	100	V
2	3.255	48.08	Pk	32.8	-32.6	0	48.28	-	-	74	-25.72	0-360	100	H

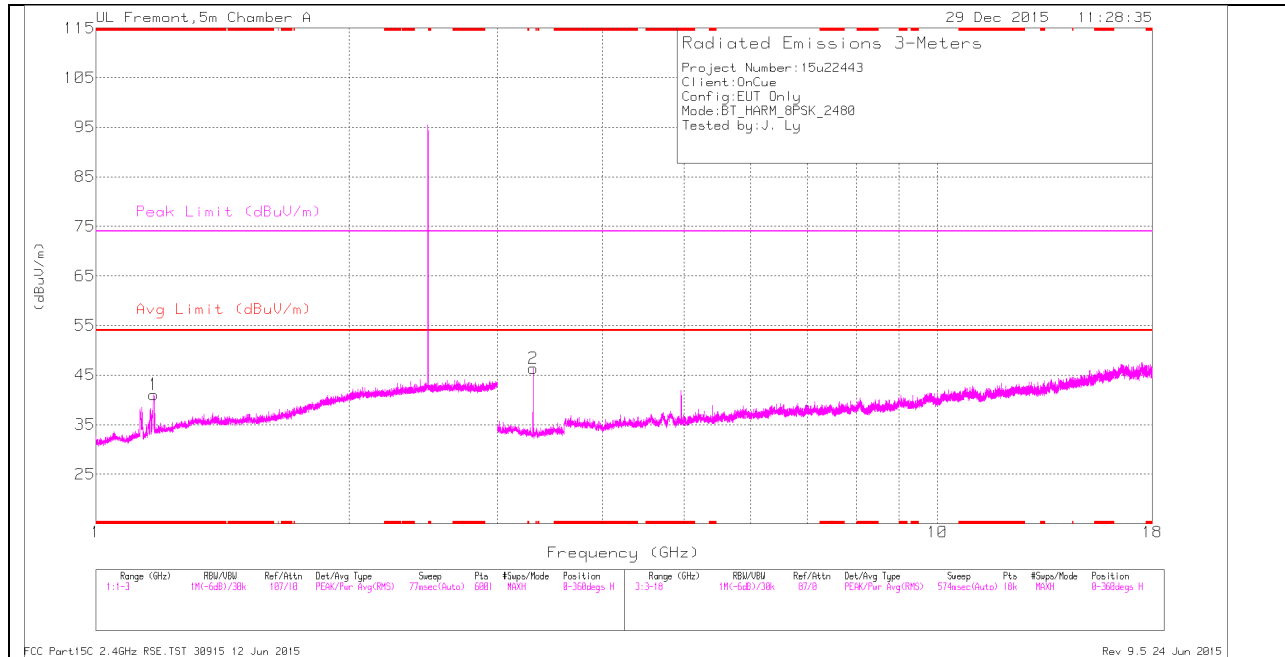
* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

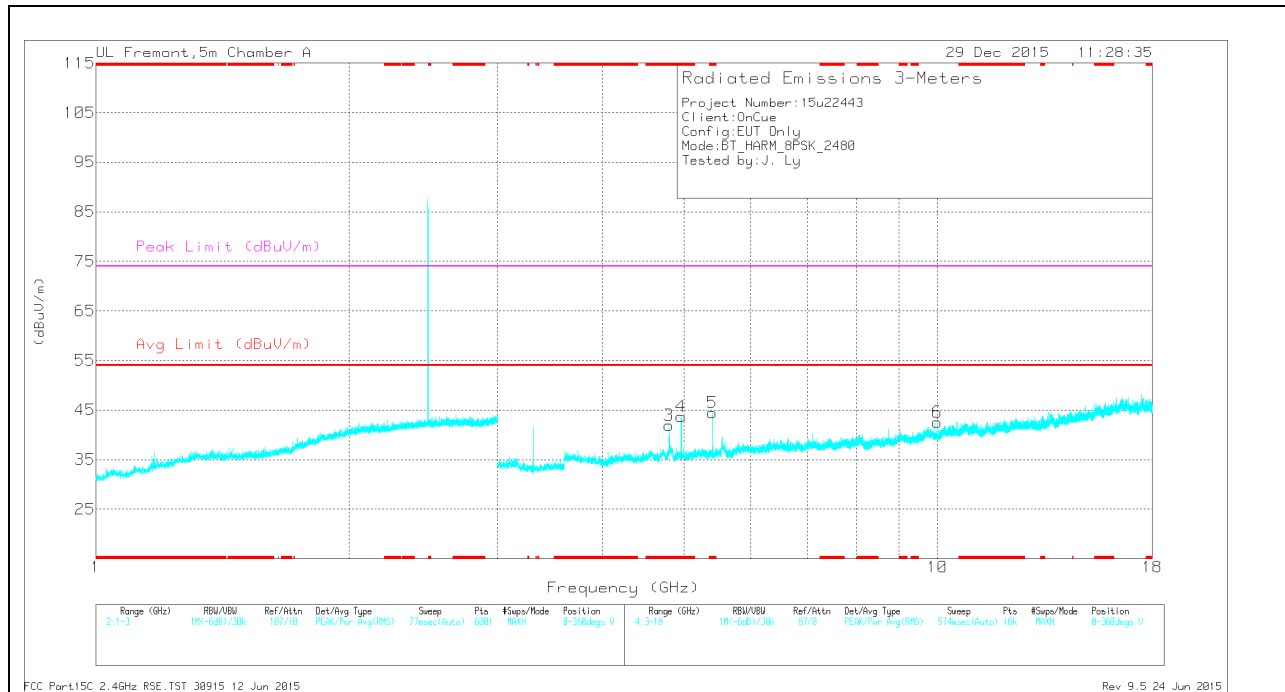
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.129	44.3	PK2	27.5	-22.2	0	49.6	-	-	74	-24.4	113	126	H
* 1.128	25.03	MAv1	27.5	-22.2	0	30.33	54	-23.67	-	-	113	126	H
* 11.487	33.89	PK2	38	-21.8	0	50.09	-	-	74	-23.91	111	102	H
* 11.487	22.64	MAv1	38	-21.8	0	38.84	54	-15.16	-	-	111	102	H
* 4.8	43.3	PK2	34	-29.8	0	47.5	-	-	74	-26.5	187	100	V
* 4.8	34.15	MAv1	34	-29.8	0	38.35	54	-15.65	-	-	187	100	V
* 4.882	48.19	PK2	33.9	-29.3	0	52.79	-	-	74	-21.21	235	262	V
* 4.882	39.72	MAv1	33.9	-29.3	0	44.32	54	-9.68	-	-	235	262	V
* 5.4	44.17	PK2	34.6	-29.4	0	49.37	-	-	74	-24.63	111	102	V
* 5.4	38.85	MAv1	34.6	-29.4	0	44.05	54	-9.95	-	-	111	102	V
3.255	51.16	PK2	32.8	-32.6	0	51.36	-	-	74	-22.64	61	348	H
3.255	48.2	MAv1	32.8	-32.6	0	48.4	54	-5.6	-	-	61	348	H

* - indicates frequency in Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filtr /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	* 1.172	35.39	Pk	27.8	-22.1	0	41.09	-	-	74	-32.91	0-360	201	H
3	* 4.8	37.75	Pk	34	-29.8	0	41.95	-	-	74	-32.05	0-360	100	V
4	* 4.96	39.93	Pk	33.9	-30.1	0	43.73	-	-	74	-30.27	0-360	200	V
5	* 5.4	39.22	Pk	34.6	-29.4	0	44.42	-	-	74	-29.58	0-360	100	V
2	3.307	46.4	Pk	32.8	-32.8	0	46.4	-	-	74	-27.6	0-360	100	H
6	10	28.74	Pk	37	-23.2	0	42.54	-	-	74	-31.46	0-360	200	V

* - indicates frequency in Restricted Band
 Pk - Peak detector

Radiated Emissions

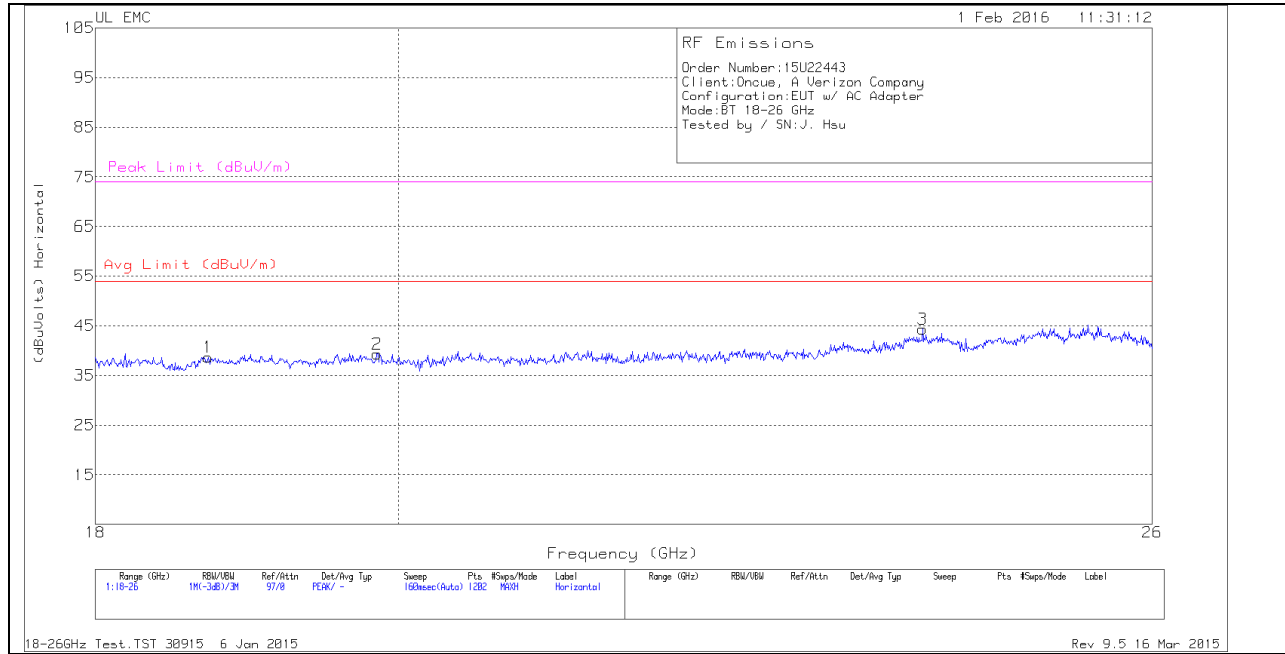
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.171	42.74	PK2	27.8	-22.1	0	48.44	-	-	74	-25.56	109	264	H
* 1.171	25.13	MAv1	27.8	-22.1	0	30.83	54	-23.17	-	-	109	264	H
* 4.8	43.24	PK2	34	-29.8	0	47.44	-	-	74	-26.56	3	114	V
* 4.8	33.48	MAv1	34	-29.8	0	37.68	54	-16.32	-	-	3	114	V
* 4.96	49.99	PK2	33.9	-30.1	0	53.79	-	-	74	-20.21	178	278	V
* 4.96	42.08	MAv1	33.9	-30.1	0	45.88	54	-8.12	-	-	178	278	V
* 5.4	44.72	PK2	34.6	-29.4	0	49.92	-	-	74	-24.08	113	130	V
* 5.4	39.12	MAv1	34.6	-29.4	0	44.32	54	-9.68	-	-	113	130	V
3.307	50.23	PK2	32.8	-32.8	0	50.23	-	-	74	-23.77	63	118	H
3.307	46.94	MAv1	32.8	-32.8	0	46.94	54	-7.06	-	-	63	118	H
9.998	34.8	PK2	37	-23.2	0	48.6	-	-	74	-25.4	113	130	V
10	24.49	MAv1	37	-23.2	0	38.29	54	-15.71	-	-	113	130	V

* - indicates frequency in Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

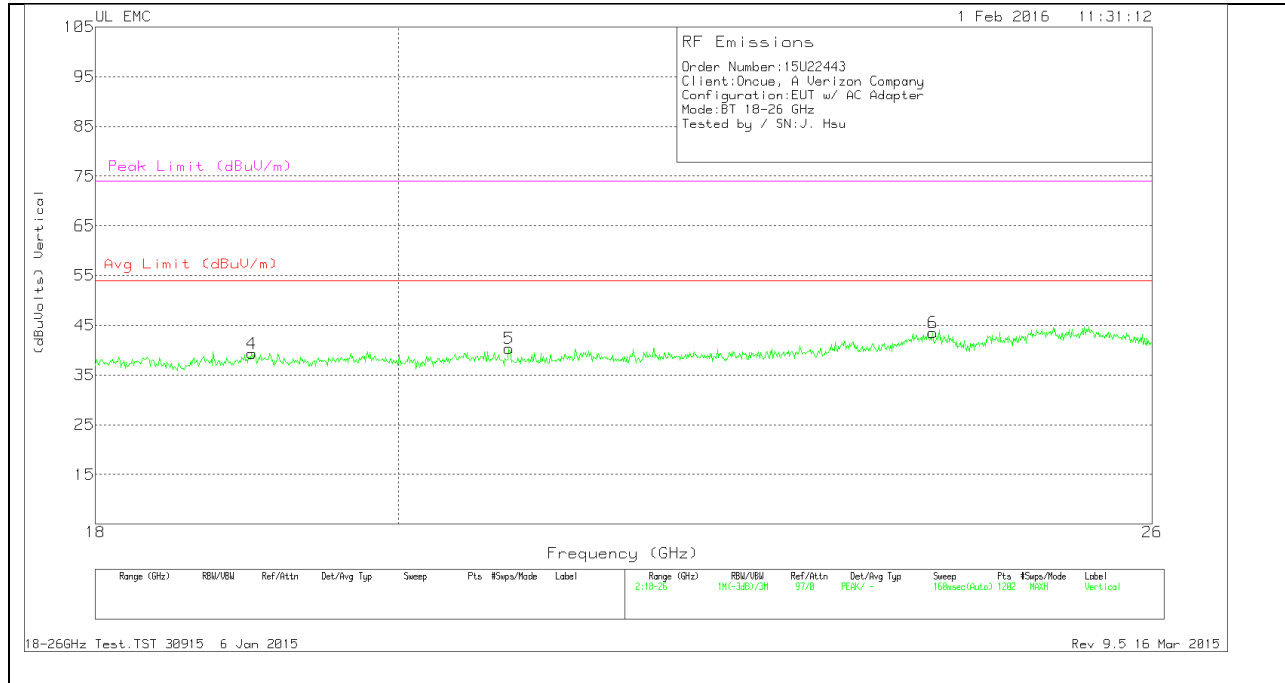
8.2. WORST-CASE 18-26GHz

HARMONICS and SPURIOUS EMISSIONS

HORIZONTAL



VERTICAL



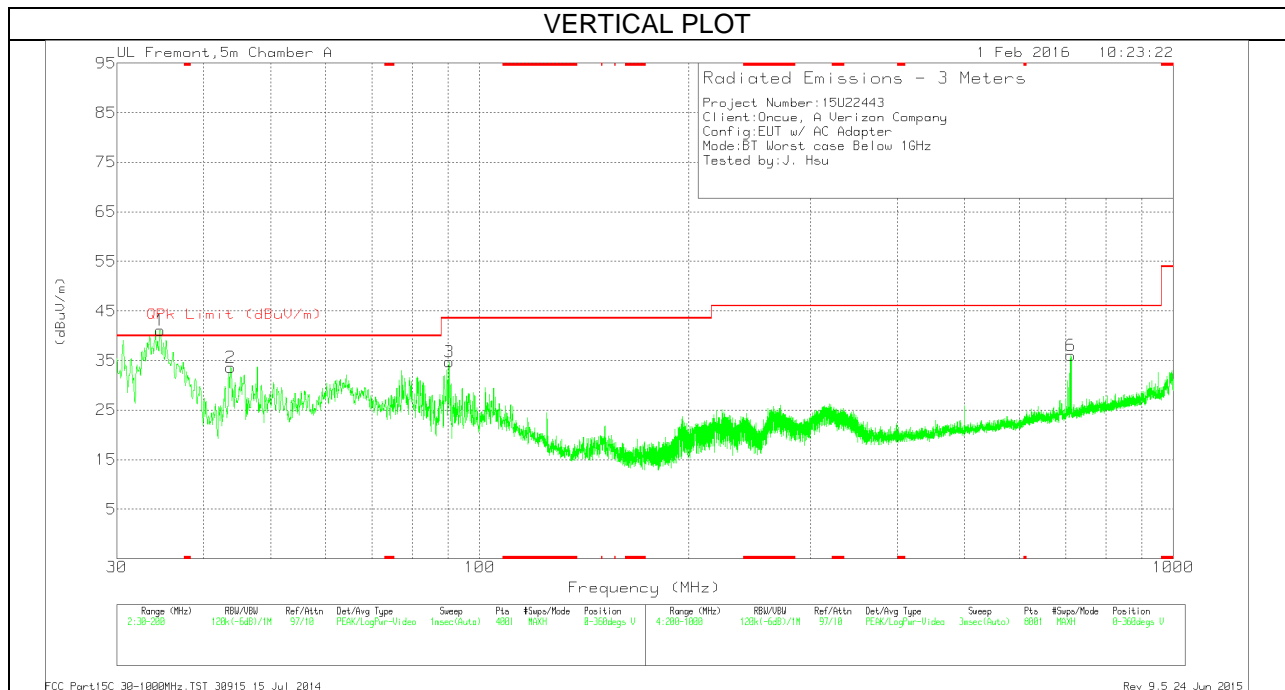
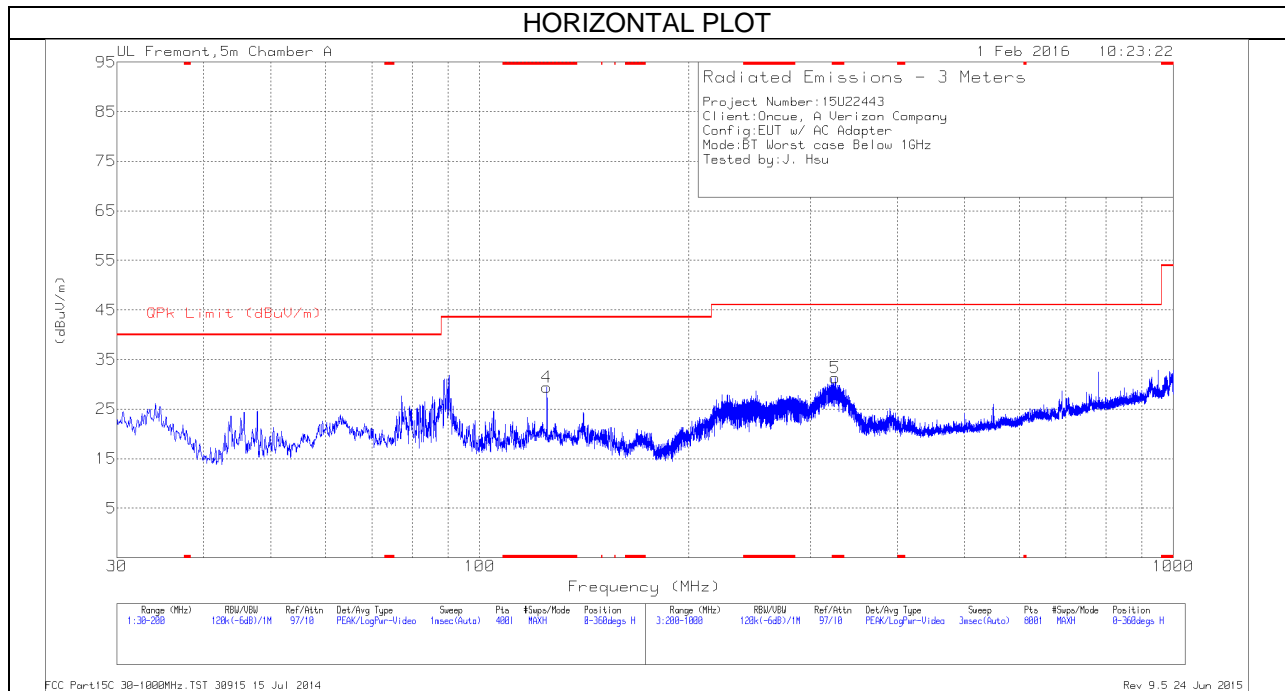
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T477 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.719	40.57	Pk	32.3	-24.7	-9.5	38.67	54	-15.33	74	-35.33
2	19.855	41.13	Pk	32.7	-25	-9.5	39.33	54	-14.67	74	-34.67
3	24.002	44.63	Pk	33.6	-24.4	-9.5	44.33	54	-9.67	74	-29.67
4	19.006	41.13	Pk	32.5	-24.8	-9.5	39.33	54	-14.67	74	-34.67
5	20.784	41.73	Pk	32.9	-24.8	-9.5	40.33	54	-13.67	74	-33.67
6	24.088	43.6	Pk	33.7	-24.3	-9.5	43.5	54	-10.5	74	-30.5

Pk - Peak detector

8.3. WORST-CASE BELOW 1 GHz

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



BELOW 1 GHz TABLE

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 124.9875	42.03	Pk	17.8	-30.4	29.43	43.52	-14.09	0-360	199	H
5	* 325.3	42.65	Pk	17.9	-29.2	31.35	46.02	-14.67	0-360	101	H
1	34.6113	50.45	Pk	21.8	-31.2	41.05	40	1.05	0-360	101	V
2	43.77	49.52	Pk	15.2	-31.1	33.62	40	-6.38	0-360	101	V
3	90.35	53.74	Pk	11.6	-30.6	34.74	43.52	-8.78	0-360	101	V
6	712.2	39.96	Pk	24.4	-28.3	36.06	46.02	-9.96	0-360	199	V

* - indicates frequency in Restricted Band

Pk - Peak detector

Radiated Emissions

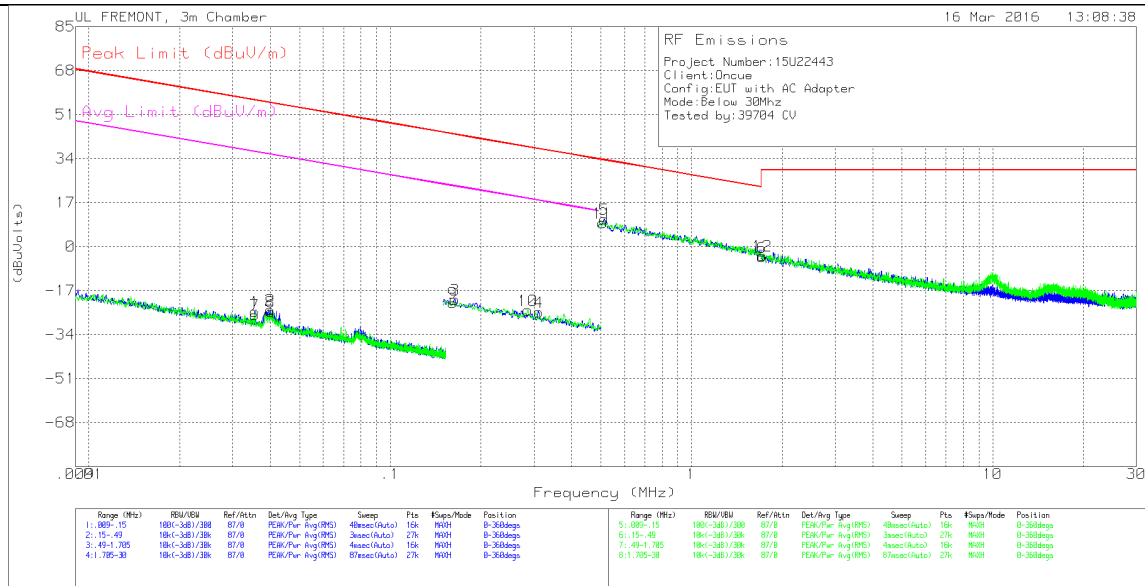
Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
34.6478	46.42	Qp	21.8	-31.2	37.02	40	-2.98	71	151	V

* - indicates frequency in Restricted Band

Qp - Quasi-Peak detector

8.4 WORST-CASE BELOW 30 MHz

RESULTS



FCC 15.209 Below 30MHz.TST

Rev. 9.5.26 Feb. 2016

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
7	.03551	39.64	Pk	12.5	1.4	-80	-26.46	56.6	-83.06	36.6	-63.06	0-360
1	.03554	40.99	Pk	12.5	1.4	-80	-25.11	56.59	-81.7	36.59	-61.7	0-360
2	.03998	41.99	Pk	12.1	1.4	-80	-24.51	55.57	-80.08	35.57	-60.08	0-360
8	.04012	41.26	Pk	12.1	1.4	-80	-25.24	55.54	-80.78	35.54	-60.78	0-360
9	.16147	45.9	Pk	10.8	1.5	-80	-21.8	43.44	-65.24	23.44	-45.24	0-360
3	.16412	47.18	Pk	10.8	1.5	-80	-20.52	43.3	-63.82	23.3	-43.82	0-360
10	.28651	43.02	Pk	10.8	1.5	-80	-24.68	38.46	-63.14	18.46	-43.14	0-360
4	.31146	42.31	Pk	10.8	1.5	-80	-25.39	37.74	-63.13	17.74	-43.13	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
11	.50718	37.01	Pk	10.6	1.5	-40	9.11	33.5	-24.39	-	-	0-360
5	.51345	38.43	Pk	10.6	1.5	-40	10.53	33.39	-22.86	-	-	0-360
6	1.71443	23.53	Pk	10.8	1.5	-40	-4.17	29.54	-33.71	-	-	0-360
12	1.71967	24.11	Pk	10.8	1.5	-40	-3.59	29.54	-33.13	-	-	0-360

Pk - Peak detector

FCC 15.209 Below 30MHz.TST

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

9. AC POWER LINE CONDUCTED EMISSIONS LIMITS

FCC §15.207 (a)

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

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 C63.10

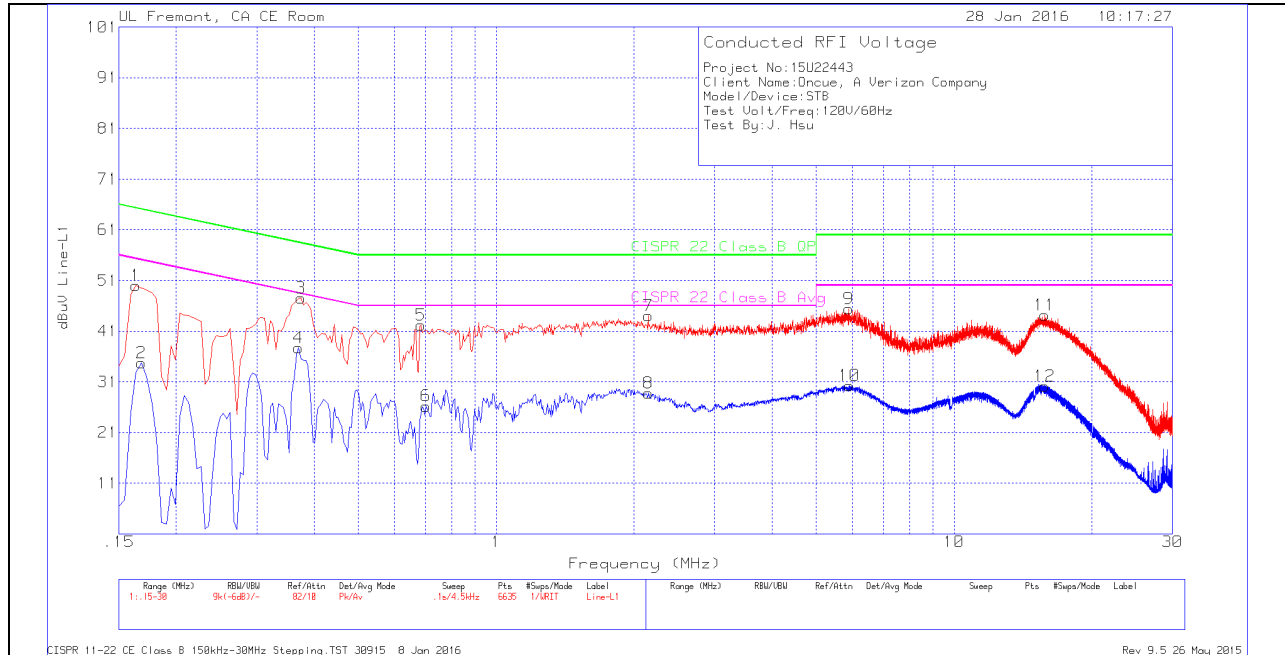
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULT

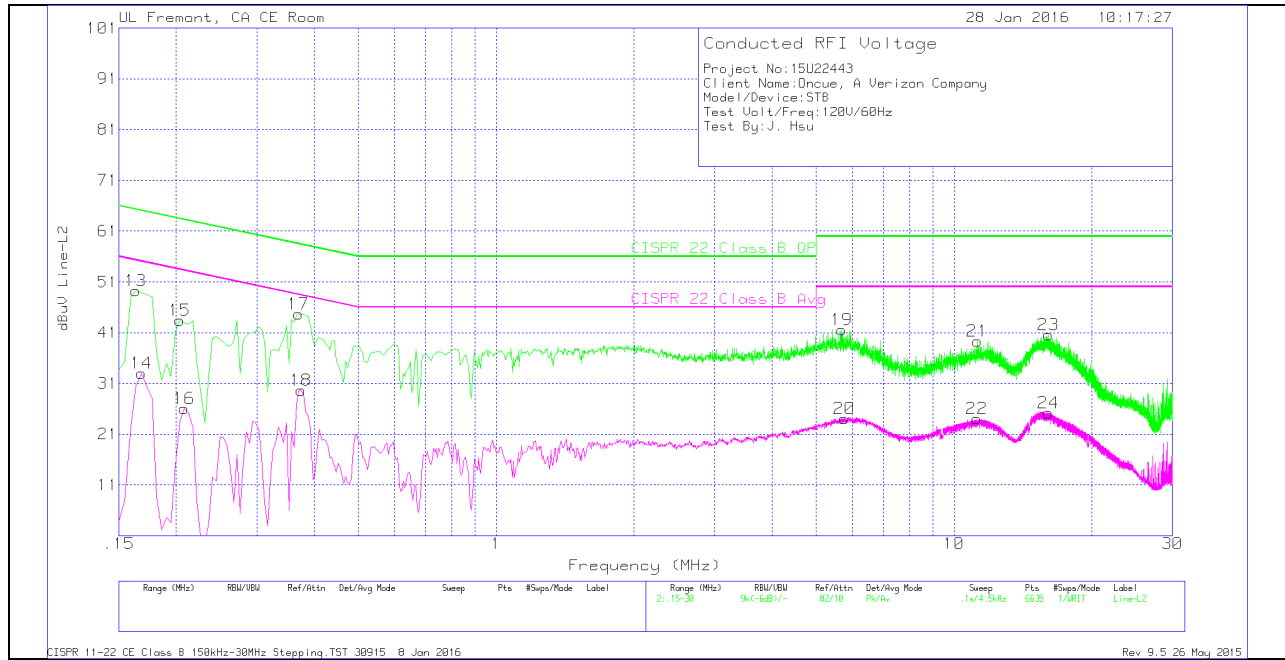
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L1	LC Cables 1&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.1635	50.06	Pk	0	0	50.06	65.28	-15.22		
2	.168	34.75	Av	0	0	34.75	-	-	55.06	-20.31
3	.375	47.52	Pk	0	0	47.52	58.39	-10.87		
4	.3705	37.72	Av	0	0	37.72	-	-	48.49	-10.77
5	.6855	42.15	Pk	0	0	42.15	56	-13.85		
6	.7035	26.23	Av	0	0	26.23	-	-	46	-19.77
7	2.148	43.92	Pk	0	.1	44.02	56	-11.98		
8	2.1525	28.68	Av	0	.1	28.78	-	-	46	-17.22
9	5.892	45.35	Pk	0	.1	45.45	60	-14.55		
10	5.91	30.13	Av	0	.1	30.23	-	-	50	-19.77
11	15.7965	43.94	Pk	0	.2	44.14	60	-15.86		
12	15.801	29.93	Av	0	.2	30.13	-	-	50	-19.87

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULT

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L2	LC Cables 2&3	Corrected Reading dBuV	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
13	.1635	49.26	Pk	0	0	49.26	65.28	-16.02		
14	.168	32.95	Av	0	0	32.95	-	-	55.06	-22.11
15	.204	43.43	Pk	0	0	43.43	63.45	-20.02		
16	.2085	26.08	Av	0	0	26.08	-	-	53.26	-27.18
17	.3705	44.65	Pk	0	0	44.65	58.49	-13.84		
18	.375	29.6	Av	0	0	29.6	-	-	48.39	-18.79
19	5.6895	41.5	Pk	0	.1	41.6	60	-18.4		
20	5.766	23.94	Av	0	.1	24.04	-	-	50	-25.96
21	11.2695	39.11	Pk	0	.2	39.31	60	-20.69		
22	11.2155	23.87	Av	0	.2	24.07	-	-	50	-25.93
23	16.08	40.39	Pk	0	.2	40.59	60	-19.41		
24	16.1025	24.98	Av	0	.2	25.18	-	-	50	-24.82

Pk - Peak detector

Av - Average detection

CISPR 11-22 CE Class B 150kHz-30MHz Stepping.TST 30915 8 Jan 2016