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

CLASS II PERMISSIVE CHANGE
(5.2 GHz, 5.3 GHz & 5.6 GHz BAND) TEST REPORT

FOR

802.11a/b/g/n WLAN + BLUETOOTH PCI-E MINI CARD

MODEL NUMBER: BCM943228HMB

FCC ID: QDS-BRCM1058
IC: 4324A-BRCM1058

REPORT NUMBER: 13U16745-1, Revision B

ISSUE DATE: FEBRUARY 25, 2014

Prepared for
BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A.

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	01/23/14	Initial Issue	F. Ibrahim
A	02/11/14	The full word for "BE" changed to Band Edge (5.2)	A.Kanamatsu
B	02/25/14	Revised AG in section 5.3 by changing 0.85 dBi to 1.58 dBi	F. Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BROADCOM CORPORATION
190 MATHILDA PLACE
SUNNYVALE, CA 94086, U.S.A.

EUT DESCRIPTION: 802.11a/b/g/n WLAN + Bluetooth PCI-E Mini Card

MODEL: BCM943228HMB

SERIAL NUMBER: 323C3001119D

DATE TESTED: DECEMBER 30, 2013 - JANUARY 13, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 9	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

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

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

Approved & Released For
UL Verification Services Inc. By:

FRANK IBRAHIM
WiSE PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

Tom Chen
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2009, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

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

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

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, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/b/g/n WLAN + Bluetooth PCI-E Mini card manufactured by Broadcom.

The radio module is manufactured by Broadcom.

5.2. AVERAGE OUTPUT POWER

Average Output power was verified to be within +/- 0.5 dB from original values covered by report number 11U13795-2A. However, power has been reduced on the following specific channels in order to pass radiated Band Edge:

Average output power has been reduced as follows to pass radiated Band Edge:

5.3 GHz BAND

Frequency Range (MHz)	Channel	Frequency (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.3 GHz band, 2TX							
5270 - 5310	62	5310	802.11n HT40 CDD	10.57	11.04	13.82	24.11

5.6 GHz BAND

Frequency Range (MHz)	Channel	Frequency (MHz)	Mode	Power, Chain 0 (dBm)	Power, Chain 1 (dBm)	Output Power (dBm)	Output Power (mW)
5.6 GHz band, 1TX							
5500-5700	140	5700	802.11a	13.75	N/A	13.75	23.71
5.6 GHz band, 2TX							
5500-5700	100	5500	802.11n HT20 CDD	16.51	15.49	19.04	80.17

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

Purpose of C2PC is to add the following antenna:

Antenna Type: Dipole Antenna

Antenna Gain (dBi)		
Band	Chain 0 (TX1)	Chain 1 (TX2)
2.4	-0.45	**1.26**
5.2	-0.36	**1.58**
5.3	-0.36	**1.58**
5.6	-0.07	**1.01**
5.8	0.83	**1.09**

5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was Broadcom, rev. 5.100.82.112.
The test utility software used during testing was BCM Internal, rev. 5.100.RC82.112.

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was tested as an external module installed in a test jig board connected to a host Laptop PC.

Worst-Case data rates were utilized from preliminary testing of the Chipset, worst-case data rates used during the testing are as follows:

All final tests in the 802.11a Legacy mode were made at 6 Mb/s.
All final tests in the 802.11n HT20 MHz mode were made at MCS0.
All final tests in the 802.11n HT40 MHz mode were made at MCS0.

Radiated Emissions test in the frequency range of 30-1000 MHz was performed with the EUT set to transmit in the channel and mode with highest output power as worst-case scenario.

All legacy modes were measured at Aux port, connector J2 (chain 1), antenna TX2, as worst-case scenario; this port is connected to the antenna with higher gain.

Radiated BE, radiated harmonics and spurious testing was performed at a power level per chain that is equal or higher than the power per chain from the original project as covered by report number “11U13795-2A FCC IC UNII WLAN Report”, except for cases where power was reduced to pass radiated BE. For details on those cases refer to section 5.2.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	G560	CBU4473193	DoC
AC Adapter	Lenovo	PA-1650-56LC	11S36001651ZZ40006E2	DoC
Adapter Board	Broadcom	BRCM JUAN01	1788087	N/A

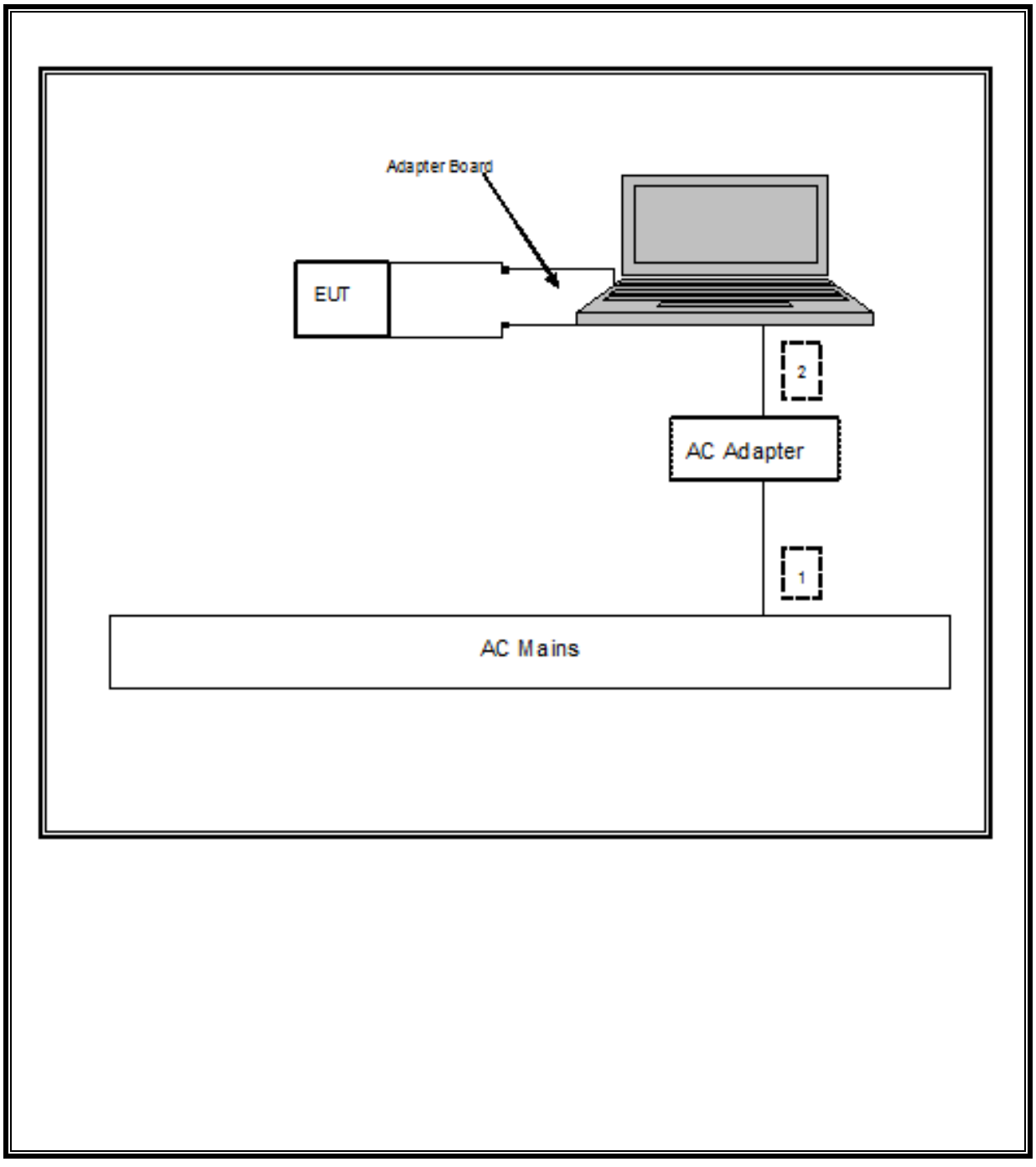
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Shielded	1.5m	NA
2	DC	1	DC	Un-	1.5m	Ferrite at laptop's end

TEST SETUP

The EUT was attached to a jig board which was installed in the PCMCI slot of a host laptop computer during the tests. Test software 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**	**Asset**	**Cal Date**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	02/16/13	02/16/14
Spectrum Analyzer, 40 GHz	Agilent	E4446A	C01159	10/04/13	10/04/14
EMI Test Receiver, 9kHz-7GHz	R&S	ESCI 7	1000741	07/13/13	07/13/14
PXA Signal Analyzer	Agilent	N9030A	14615711	01/22/13	01/22/14
Horn Antenna, 1GHz-18GHz	ETS Lindgren	3117	T345	02/19/13	02/19/14
Antenna, Horn, 18 GHz	EMCO	3115	C01218/1000614	01/18/13	01/18/14
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/13	11/14/14
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/28/13	06/28/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/13	02/13/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C00749	10/19/13	10/19/14
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/20/13	08/20/14
Peak Power Meter	Agilent / HP	N1911A	F00017	04/22/13	04/22/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/13	01/16/14
Low Pass Filter	Micro-Tronics	LPS17541	F00219	06/26/13	06/26/14
High Pass Filter	Micro-Tronics	HPS17542	F00222	06/26/13	06/26/14
High Pass Filter	Micro-Tronics	HPM17543	F00224	06/26/13	06/26/14
LISN, 30 MHz	FCC	50/250-25-2	C00626	08/15/13	08/15/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	01/14/13	01/14/14
Spectrum Analyzer, 40 GHz	Agilent	8564E	C00951	07/29/13	07/29/14
PreAmplifier, 1-26.5GHz	Agilent	8449B	F00167	03/23/13	03/23/14
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	08/20/13	08/20/14
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/26/13	11/26/14
Antenna, Horn, 40 GHz	ARA	MWH-2640/B	C00981	06/28/13	06/28/14

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

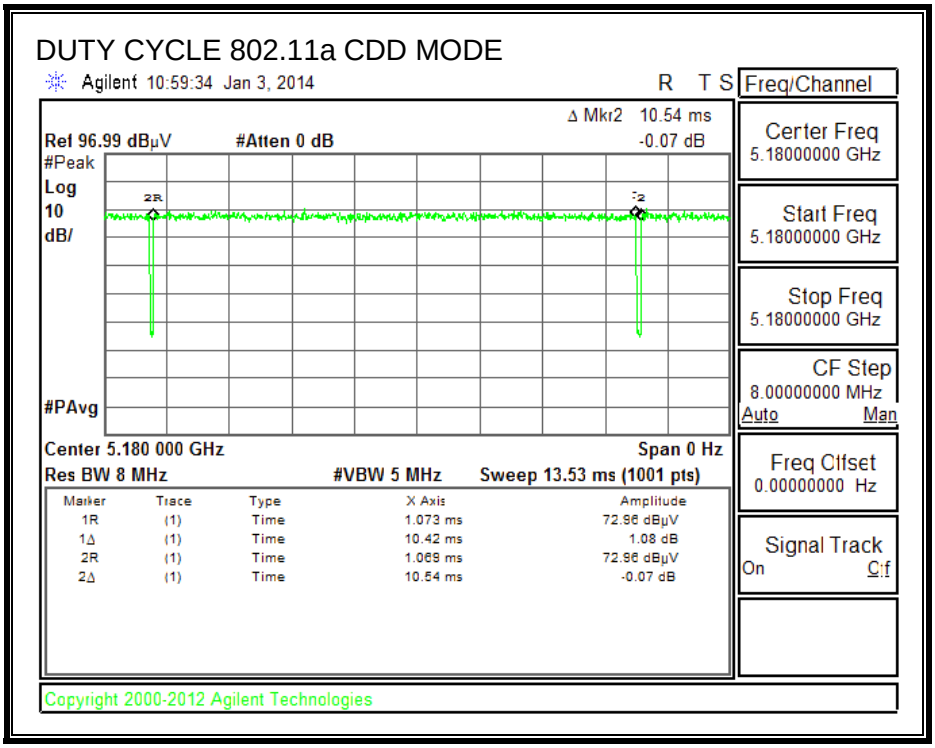
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a CDD	10.420	10.540	0.989	98.86%	0.00	0.010
802.11n HT20 CDD	1.919	1.937	0.991	99.07%	0.00	0.010
802.11n HT40 CDD	0.9336	0.9512	0.981	98.15%	0.00	0.010

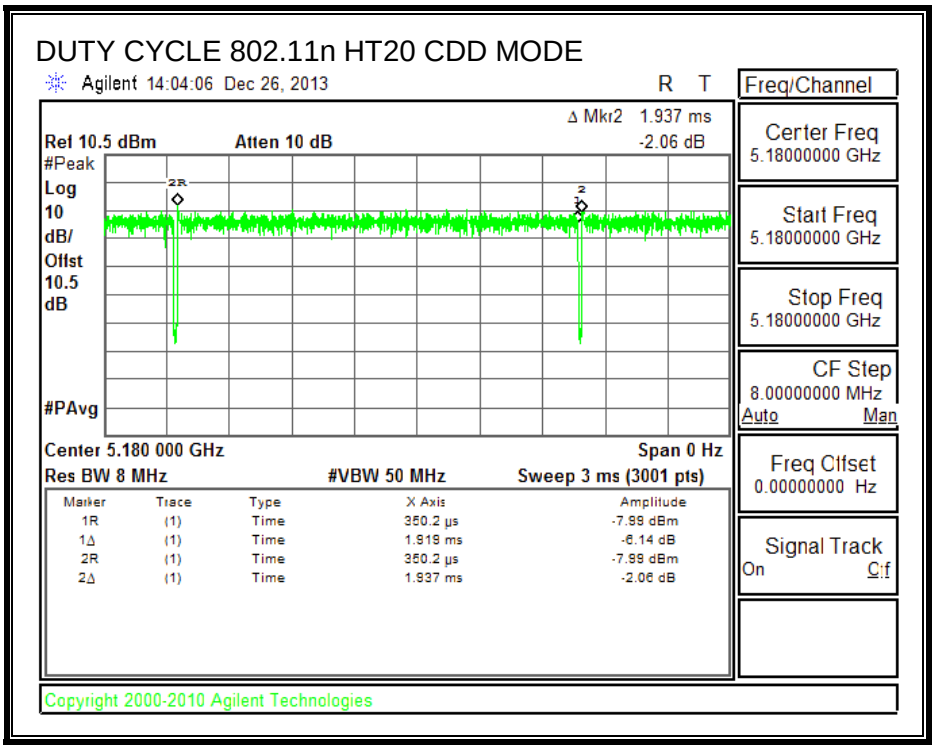
7.2. MEASUREMENT METHODS

Unwanted emissions in restricted bands: KDB 789033 D01 v01r03, Sections H.3, H.4, H.5, and H.6.

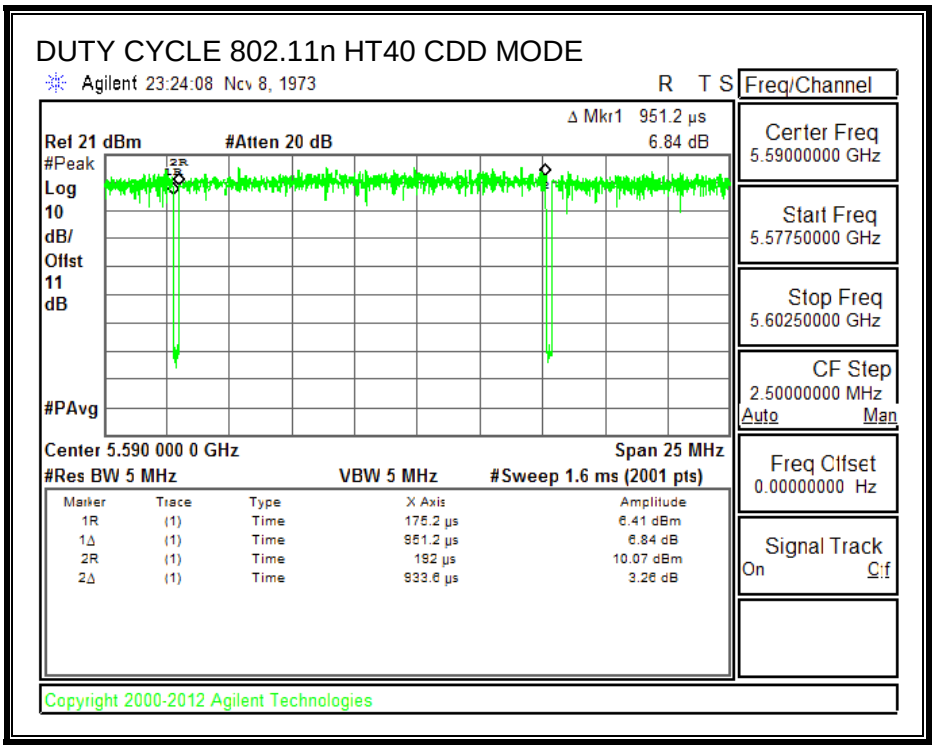
Unwanted emissions in non-restricted bands: KDB 789033 D01 v01r03, Sections H.3, H.4, and H.5.

7.3. DUTY CYCLE PLOTS





DUTY CYCLE 802.11n HT40 CDD MODE



8. RADIATED TEST RESULTS

8.1. TRANSMITTER ABOVE 1 GHz

8.1.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

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 1 MHz for peak measurements and as applicable for average measurements.

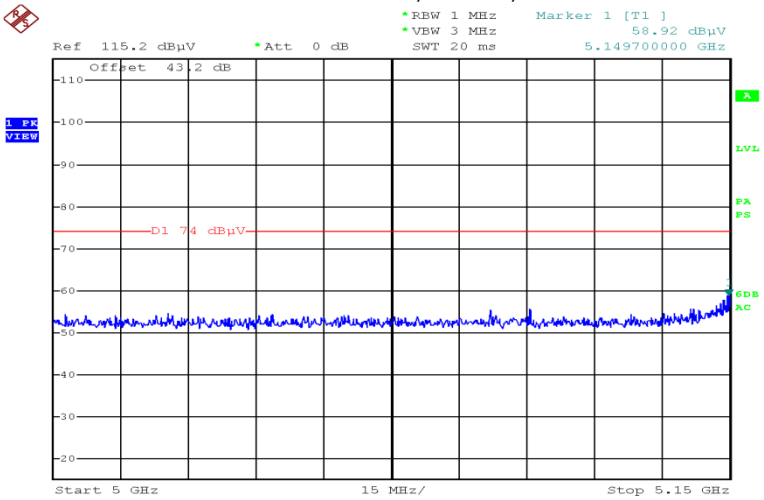
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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

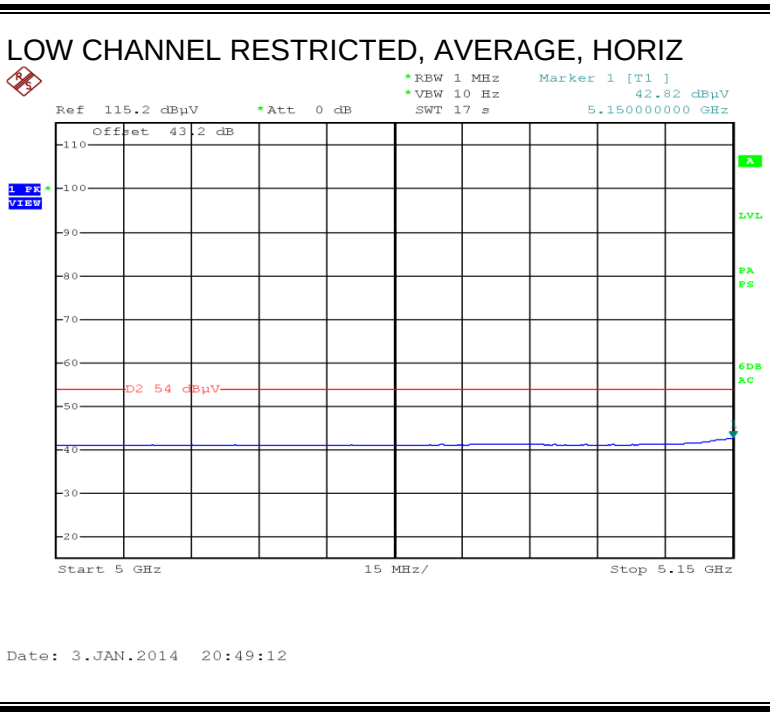
8.1.2. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

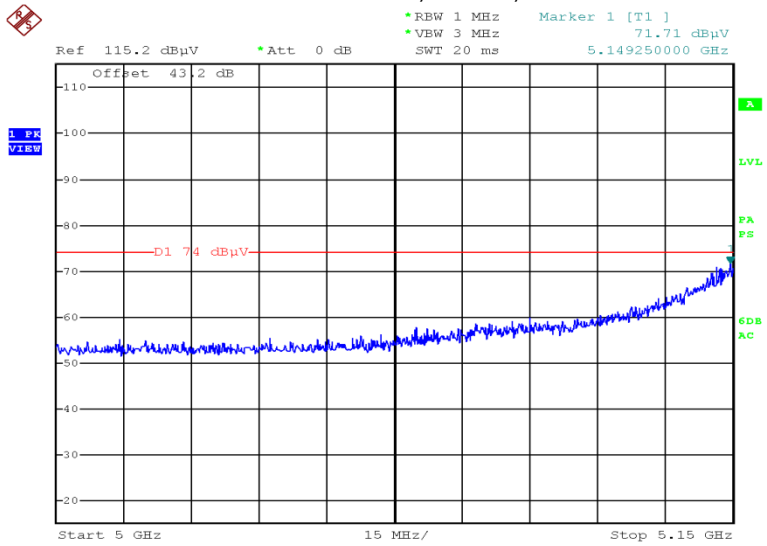
LOW CHANNEL RESTRICTED, PEAK, HORIZ



LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT



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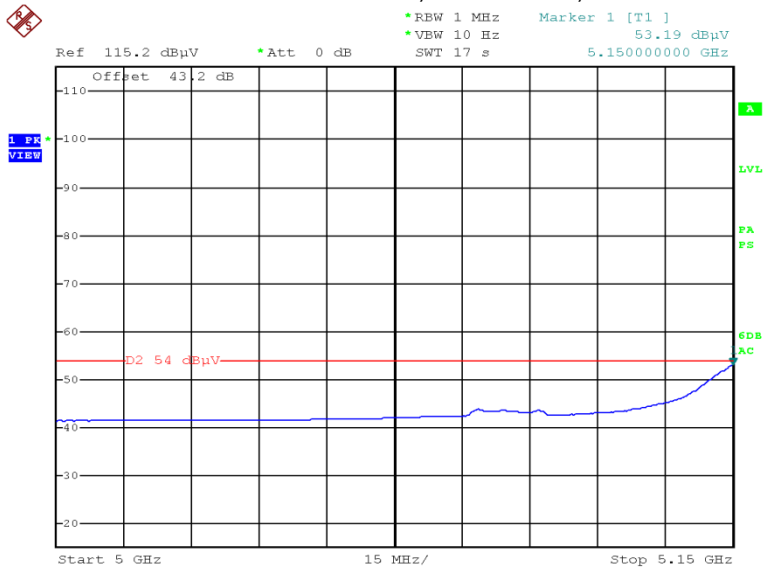
LOW CHANNEL RESTRICTED, AVERAGE, VERT



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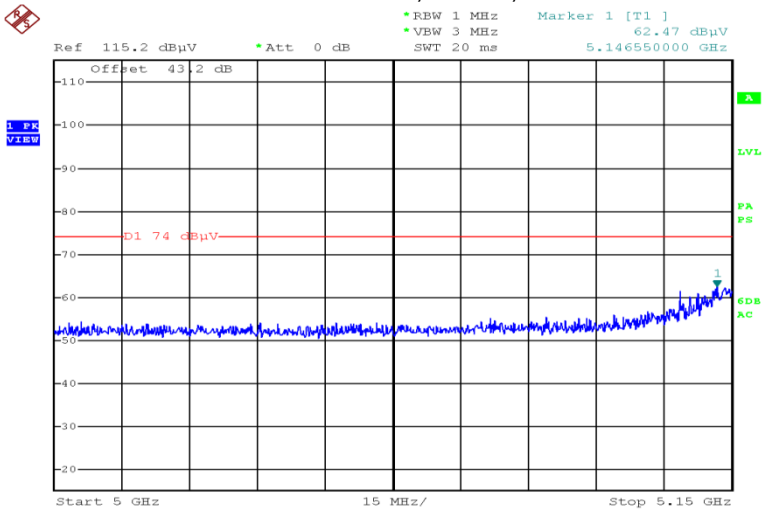
HARMONICS AND SPURIOUS EMISSIONS

Covered by worse case emissions testing of 11n HT20 CDD 2TX at power levels, per transmit chain, greater than or equal to any 1TX and 2TX mode.

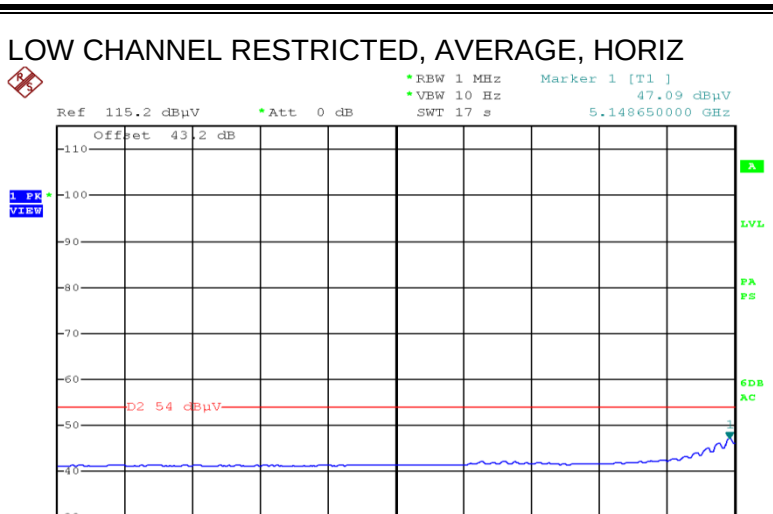
8.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

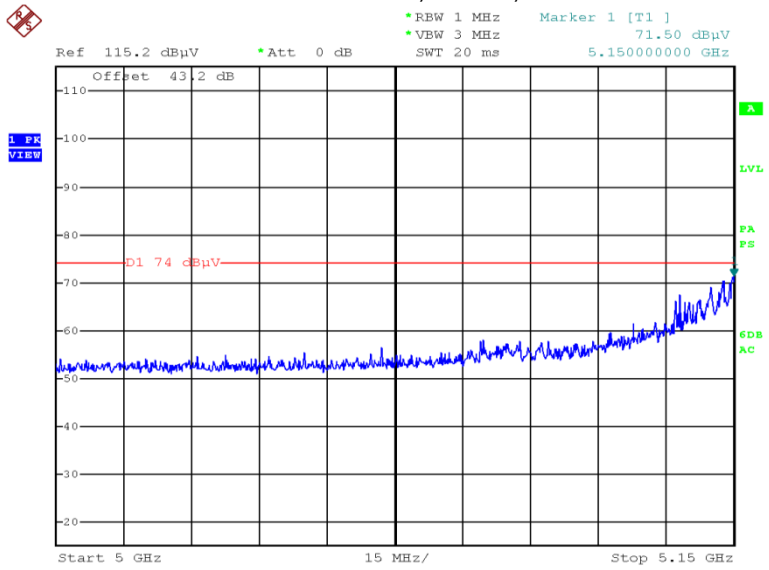
LOW CHANNEL RESTRICTED, PEAK, HORIZ



LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



LOW CHANNEL RESTRICTED, PEAK, VERT



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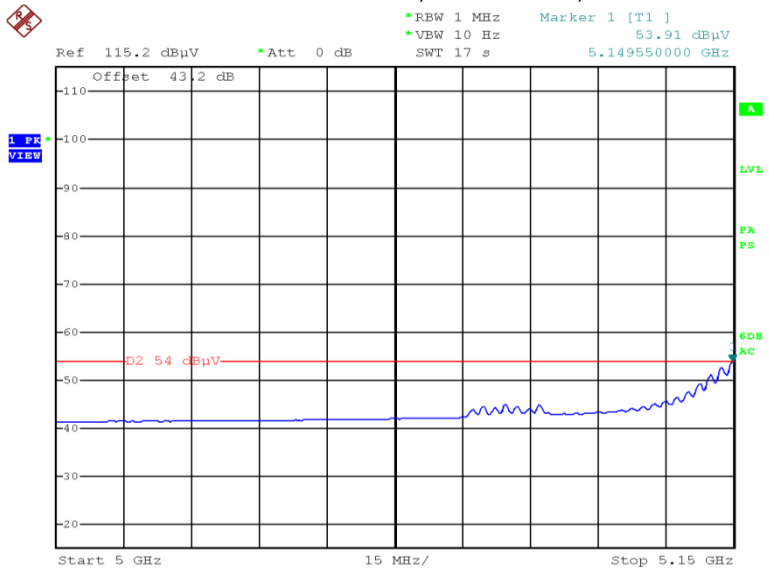
LOW CHANNEL RESTRICTED, AVERAGE, VERT



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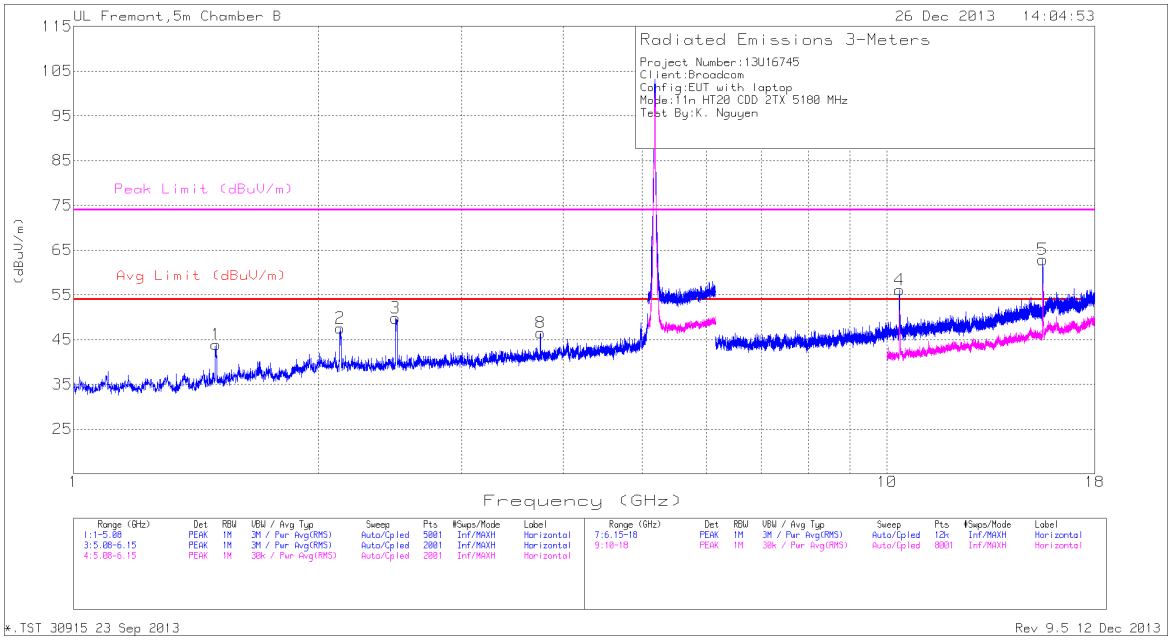
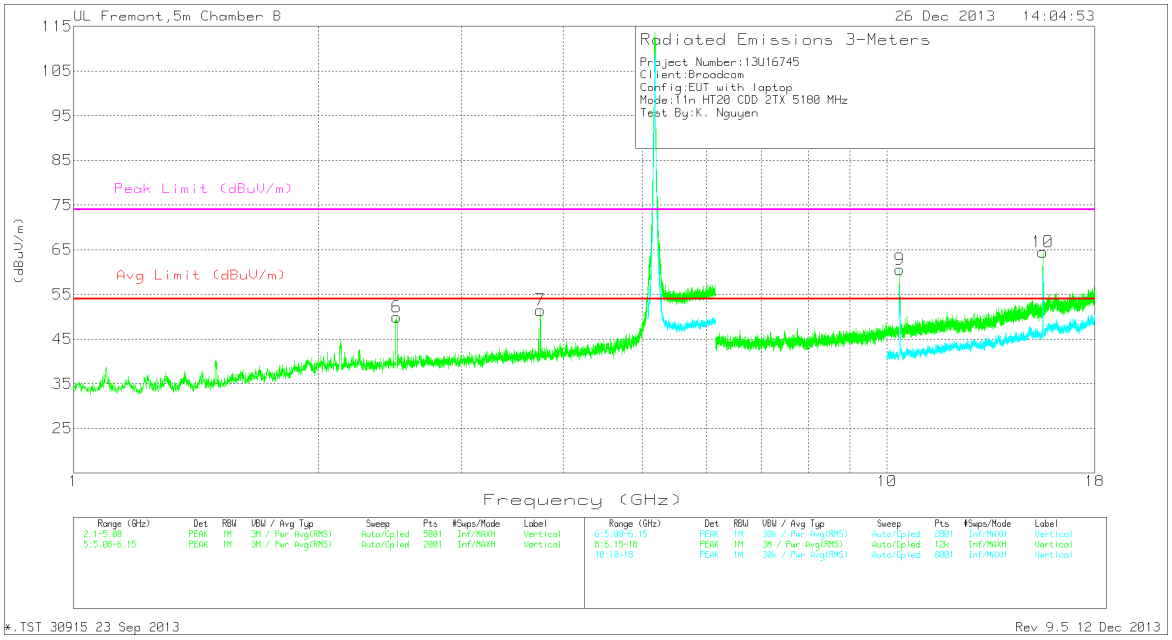
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.497	50.22	PK	28.2	-34.5	43.92	53.97	-10.05	74	-30.08	0-360	100	H
3	* 2.488	49.63	PK	32.5	-32.3	49.83	-	-	74	-24.17	0-360	202	H
8	* 3.753	44.02	PK	33.8	-31.3	46.52	53.97	-7.45	74	-27.48	0-360	100	H
6	* 2.496	49.75	PK	32.5	-32.3	49.95	-	-	74	-24.05	0-360	202	V
7	* 3.747	49.04	PK	33.8	-31.4	51.44	-	-	74	-22.56	0-360	202	V
5	* 15.533	42.69	PK	41	-20.8	62.89	-	-	74	-11.11	0-360	201	H
10	* 15.542	44.4	PK	41	-20.9	64.5	-	-	74	-9.5	0-360	202	V
2	2.126	48.77	PK	32	-33.2	47.57	-	-	68.2	-20.63	0-360	202	H
4	10.357	41.2	PK	38.1	-23.2	56.1	-	-	68.2	-12.1	0-360	201	H
9	10.362	45.58	PK	38.1	-23.1	60.58	-	-	68.2	-7.62	0-360	202	V

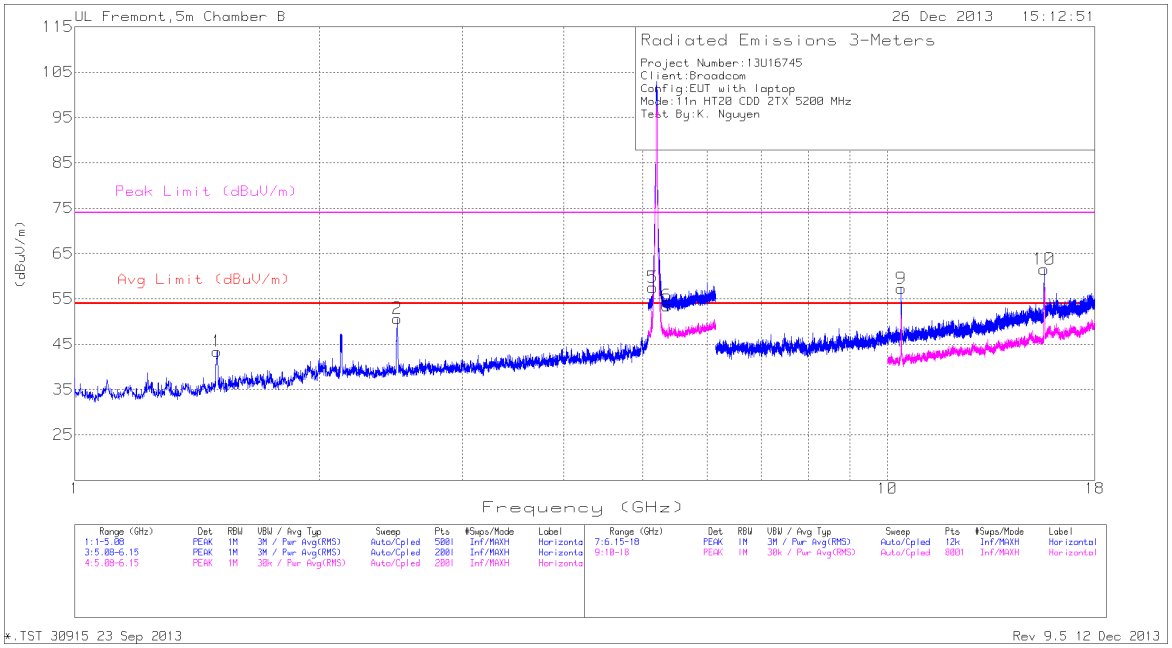
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.488	37.02	VB1	32.5	-32.3	37.22	53.97	-16.75	-	-	265	295	H
* 2.496	40.49	VB1	32.5	-32.3	40.69	53.97	-13.28	-	-	300	221	V
* 3.747	30.78	VB1	33.8	-31.4	33.18	53.97	-20.79	-	-	300	231	V
* 15.542	45.85	PK1	41	-20.8	66.05	-	-	74	-7.95	143	322	V
* 15.542	33.86	VB1	41	-20.9	53.96	53.97	-0.01	-	-	143	322	V
* 15.533	42.57	PK1	41	-20.9	62.67	-	-	74	-11.33	214	321	H
* 15.533	32.12	VB1	41	-20.9	52.22	53.97	-1.75	-	-	214	321	H

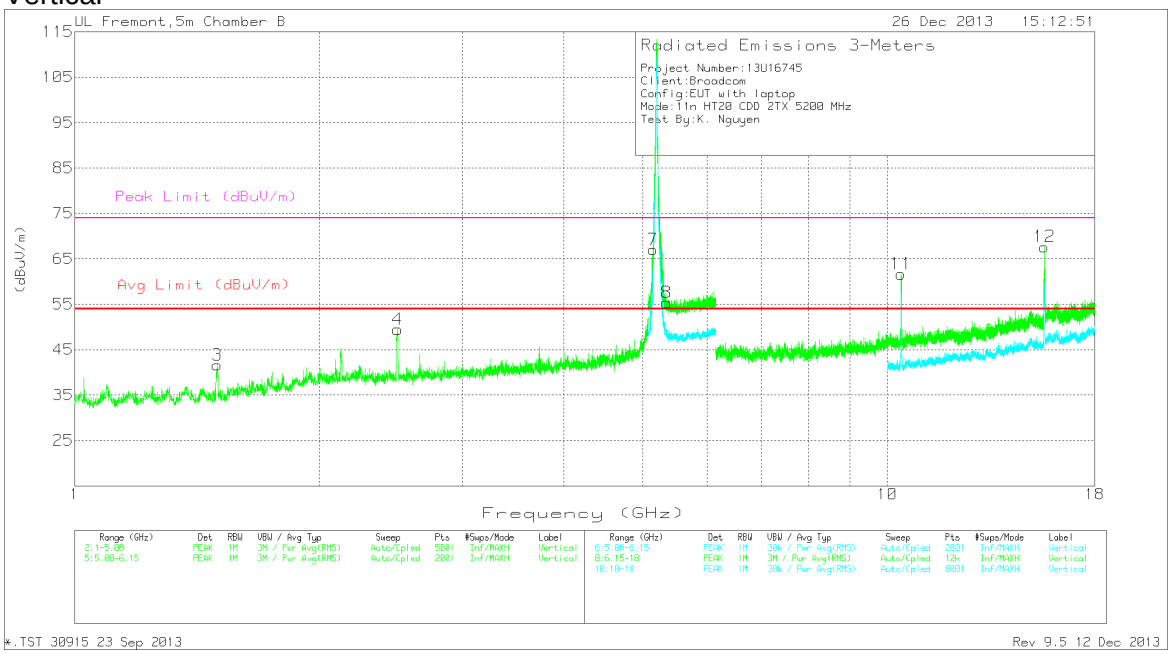
*** - indicates frequency in CFR15.205/IC7.2.2 Restricted Band**
PK - Peak detector
PK1 - KDB 789033 Method: Peak
VB1 - KDB 789033 Method: VB Alternative Reduced Video

Mid Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.497	49.68	PK	28.2	-34.5	43.38	53.97	-10.59	74	-30.62	0-360	99	H
2	* 2.495	50.42	PK	32.5	-32.3	50.62	-	-	74	-23.38	0-360	99	H
3	* 1.499	47.91	PK	28.2	-34.5	41.61	53.97	-12.36	74	-32.39	0-360	202	V
4	* 2.497	49.25	PK	32.5	-32.3	49.45	-	-	74	-24.55	0-360	202	V
5	* 5.147	42.9	PK	34.8	-20.2	57.5	-	-	74	-16.5	0-360	99	H
6	* 5.352	38.51	PK	34.9	-19.9	53.51	-	-	74	-20.49	0-360	99	H
7	* 5.148	52.45	PK	34.8	-20.2	67.05	-	-	74	-6.95	0-360	99	V
8	* 5.351	40.35	PK	34.9	-19.9	55.35	-	-	74	-18.65	0-360	99	V
10	* 15.596	41.42	PK	41.1	-21	61.52	-	-	74	-12.48	0-360	202	H
12	* 15.603	47.52	PK	41.1	-21	67.62	-	-	74	-6.38	0-360	202	V
11	10.397	46.68	PK	38.1	-23.1	61.68	-	-	68.2	-6.52	0-360	202	V
9	10.4	42.28	PK	38.1	-23.1	57.28	-	-	68.2	-10.92	0-360	202	H

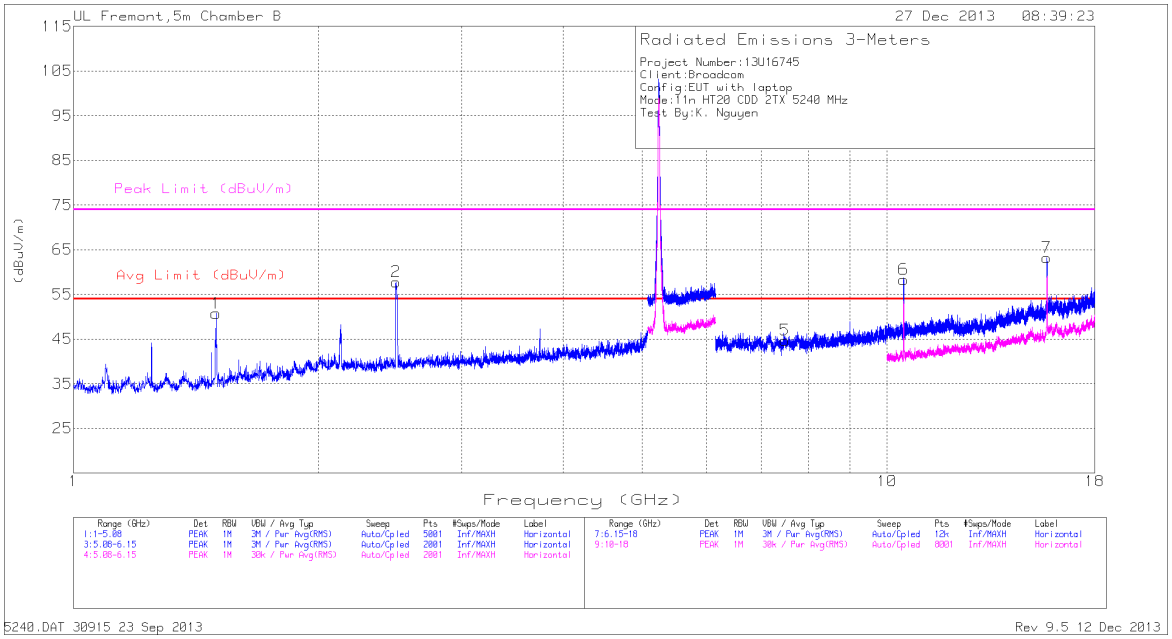
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.499	51.76	PK1	32.5	-32.3	51.96	-	-	74	-22.04	268	290	H
* 2.499	37.4	VB1	32.5	-32.2	37.7	53.97	-16.27	-	-	268	290	H
* 2.496	52.1	PK1	32.5	-32.3	52.3	-	-	74	-21.7	268	226	V
* 2.496	37.28	VB1	32.5	-32.2	37.58	53.97	-16.39	-	-	268	226	V
* 5.15	52.11	PK1	34.8	-20.2	66.71	-	-	74	-7.29	287	192	V
* 5.15	37.72	VB1	34.8	-20.2	52.32	53.97	-1.65	-	-	287	192	V
* 5.147	45.84	PK1	34.8	-20.2	60.44	-	-	74	-13.56	111	359	H
* 5.147	32.89	VB1	34.8	-20.2	47.49	53.97	-6.48	-	-	111	359	H
* 5.351	39.94	PK1	34.9	-19.9	54.94	-	-	74	-19.06	111	359	H
* 5.351	30.24	VB1	34.9	-19.9	45.24	53.97	-8.73	-	-	111	359	H
* 5.363	42.31	PK1	34.9	-19.9	57.31	-	-	74	-16.69	356	264	V
* 5.363	31.19	VB1	34.9	-19.9	46.19	53.97	-7.78	-	-	356	264	V
* 15.595	46.54	PK1	41.1	-21	66.64	-	-	74	-7.36	122	129	V
* 15.595	33.71	VB1	41.1	-21	53.81	53.97	-0.16	-	-	122	129	V
* 15.607	43.86	PK1	41.1	-20.9	64.06	-	-	74	-9.94	159	171	H
* 15.607	32.08	VB1	41.1	-21	52.18	53.97	-1.79	-	-	159	171	H

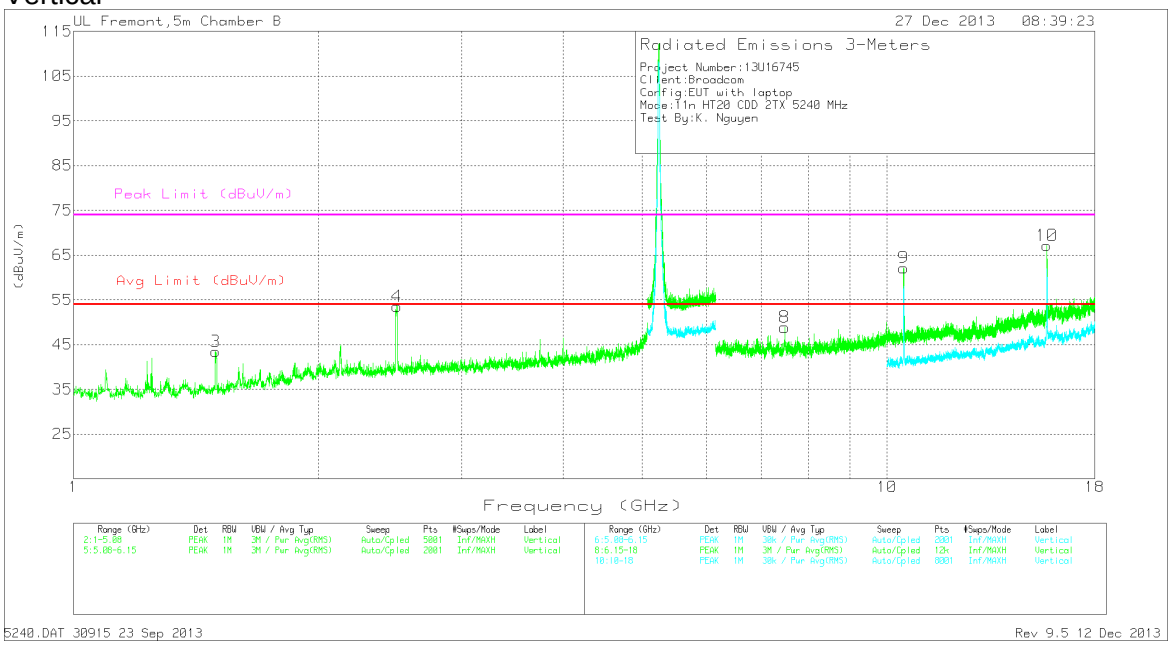
*** - indicates frequency in CFR15.205/IC7.2.2 Restricted Band**
PK - Peak detector
PK1 - KDB 789033 Method: Peak
VB1 - KDB 789033 Method: VB Alternative Reduced Video

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.497	57.05	PK	28.2	-34.5	50.75	-	-	74	-23.25	0-360	99	H
2	* 2.492	57.6	PK	32.5	-32.3	57.8	-	-	74	-16.2	0-360	202	H
3	* 1.494	49.74	PK	28.2	-34.5	43.44	53.97	-10.53	74	-30.56	0-360	202	V
4	* 2.498	53.23	PK	32.5	-32.2	53.53	-	-	74	-20.47	0-360	202	V
5	* 7.485	34.62	PK	36	-25.9	44.72	53.97	-9.25	74	-29.28	0-360	99	H
7	* 15.714	42.43	PK	41.2	-20.4	63.23	-	-	74	-10.77	0-360	202	H
8	* 7.482	38.86	PK	36	-26	48.86	-	-	74	-25.14	0-360	99	V
10	* 15.718	46.35	PK	41.2	-20.4	67.15	-	-	74	-6.85	0-360	202	V
9	10.478	47.76	PK	38.2	-23.8	62.16	-	-	68.2	-6.04	0-360	202	V
6	10.48	43.93	PK	38.2	-23.8	58.33	-	-	68.2	-9.87	0-360	202	H

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.496	58.31	PK1	32.5	-32.3	58.51	-	-	74	-15.49	51	149	H
* 2.498	44.38	VB1	32.5	-32.2	44.68	53.97	-9.29	-	-	51	149	H
* 2.499	58.02	PK1	32.5	-32.3	58.22	-	-	74	-15.78	213	201	V
* 2.498	43.79	VB1	32.5	-32.2	44.09	53.97	-9.88	-	-	213	201	V
* 7.489	38.28	PK1	36	-25.8	48.48	-	-	74	-25.52	0	221	V
* 7.479	26.45	VB1	36	-26.1	36.35	53.97	-17.62	-	-	0	221	V
10.48	50.78	PK1	38.2	-23.8	65.18	-	-	68.2	-3.02	28	268	V
10.483	47.85	PK1	38.2	-23.8	62.25	-	-	68.2	-5.95	230	359	H
* 15.715	45.38	PK1	41.2	-20.4	66.18	-	-	74	-7.82	98	283	V
* 15.719	32.59	VB1	41.3	-20.4	53.49	53.97	-0.48	-	-	98	283	V
* 15.717	40.37	PK1	41.2	-20.4	61.17	-	-	74	-12.83	30	337	H
* 15.72	27.48	VB1	41.3	-20.4	48.38	53.97	-5.59	-	-	30	337	H
* 15.902	39.12	PK1	41.5	-20.1	60.52	-	-	74	-13.48	97	318	H
* 15.901	26.97	VB1	41.5	-20.1	48.37	53.97	-5.6	-	-	97	318	H

*** - indicates frequency in CFR15.205/IC7.2.2 Restricted Band**

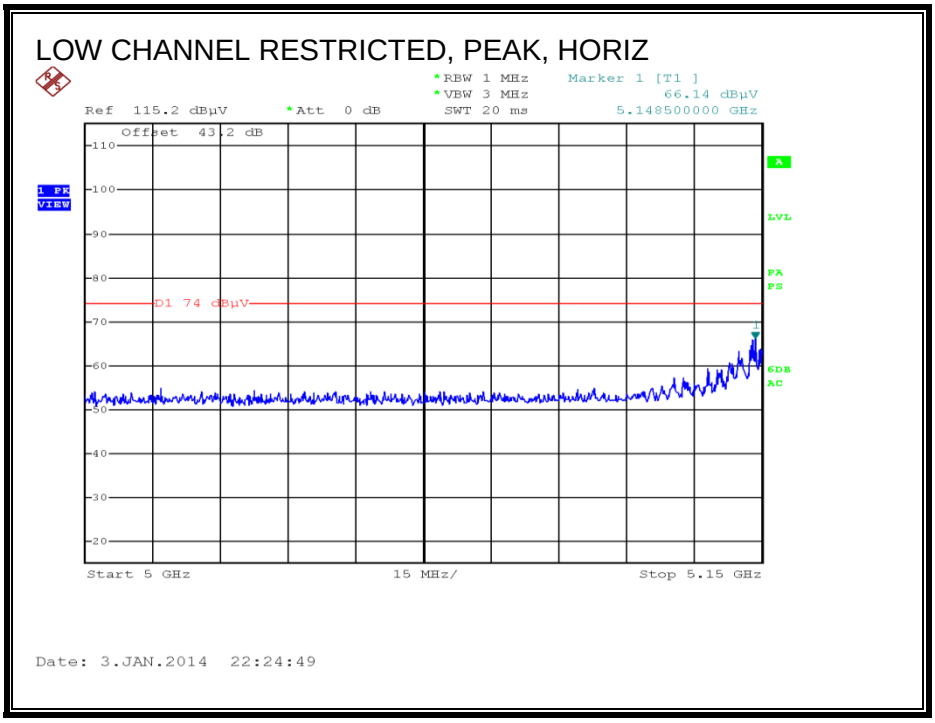
PK - Peak detector

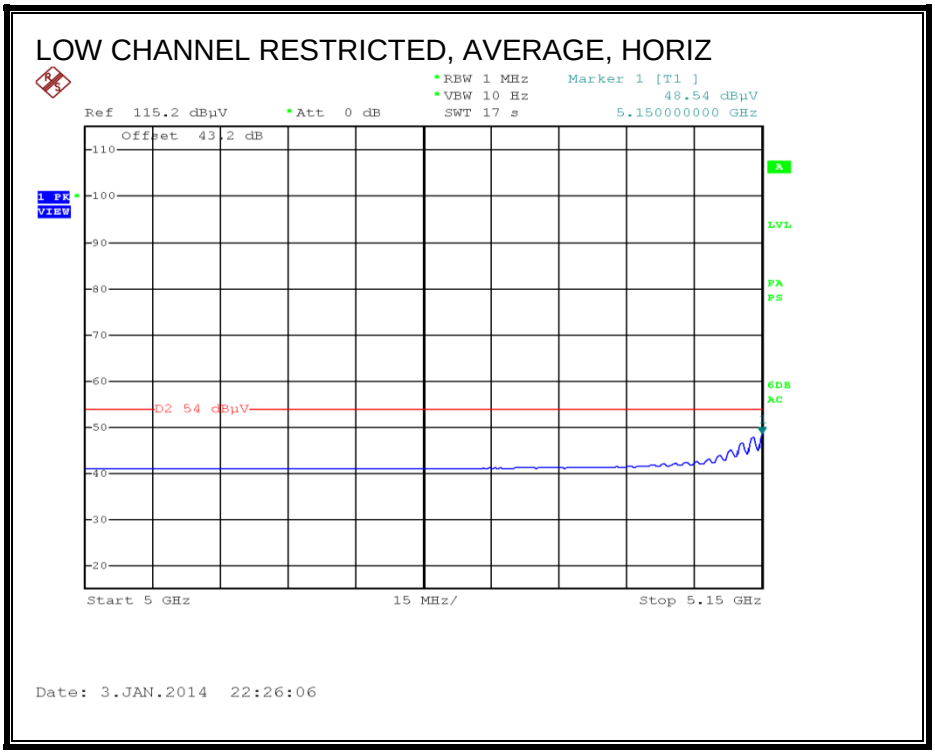
PK1 - KDB 789033 Method: Peak

VB1 - KDB 789033 Method: VB Alternative Reduced Video

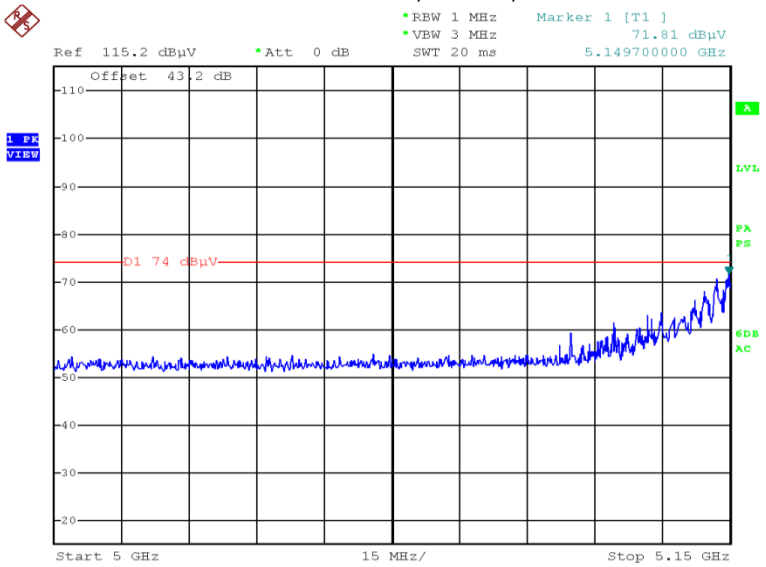
8.1.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)





LOW CHANNEL RESTRICTED, PEAK, VERT



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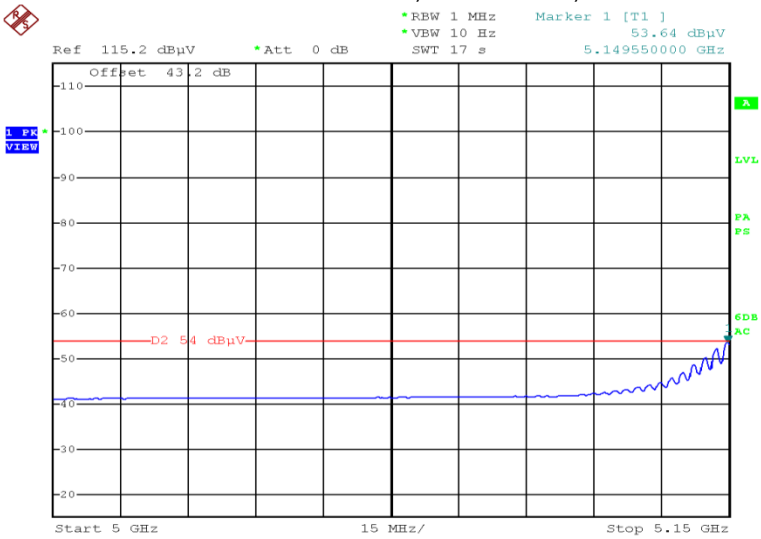
LOW CHANNEL RESTRICTED, AVERAGE, VERT



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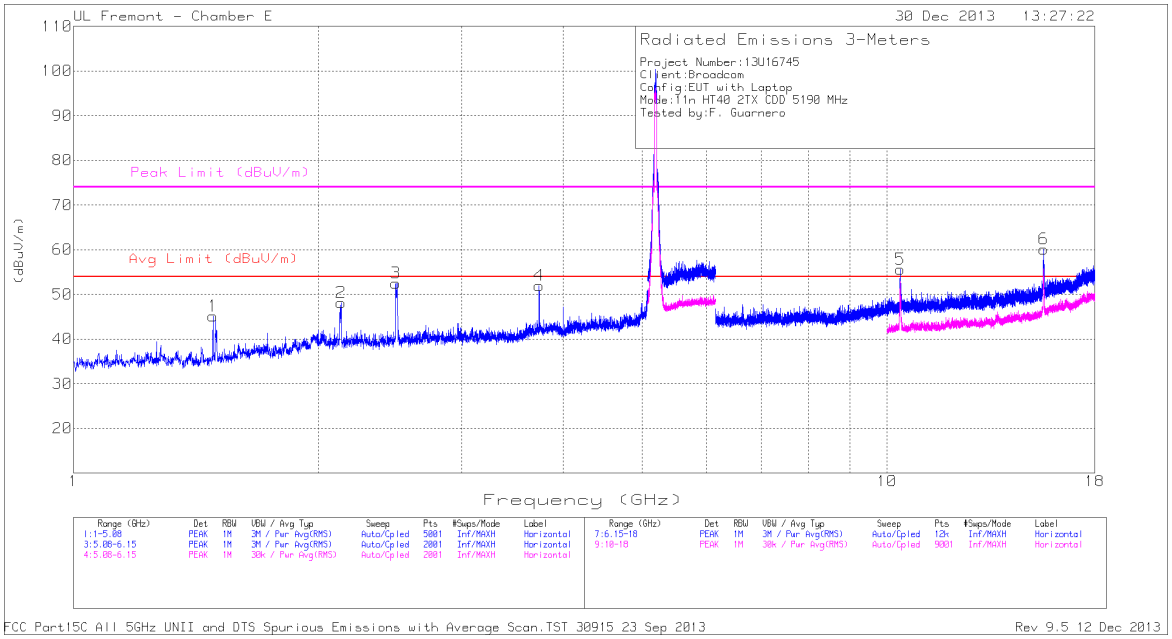
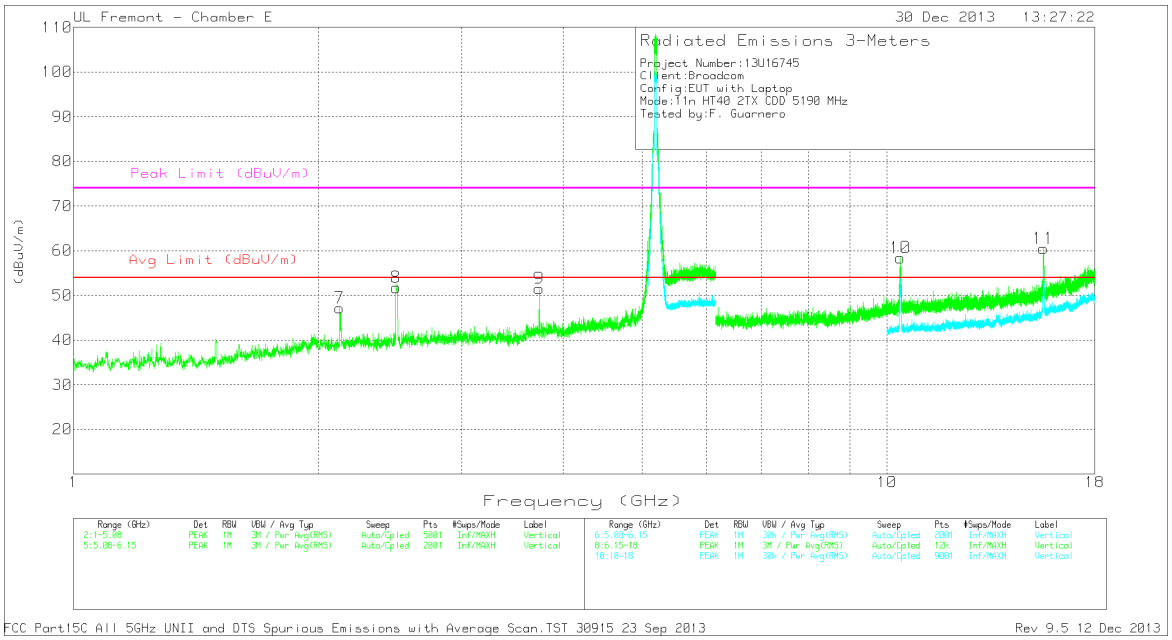
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1*	1.484	51.26	PK	28.8	-34.9	0	45.16	53.97	-8.81	74	-28.84	0-360	101	H
2	2.133	49.78	PK	32.3	-33.9	0	48.18	53.97	-5.79	68.2	-20.02	0-360	101	H
3*	2.489	52.23	PK	32.7	-32.4	0	52.53	-	-	74	-21.47	0-360	200	H
4*	3.734	50.47	PK	33.7	-32.2	0	51.97	-	-	74	-22.03	0-360	200	H
5	10.38	41.79	PK	38.4	-24.6	0	55.59	-	-	68.2	-12.61	0-360	199	H
6*	15.57	43.04	PK	40.6	-23.5	0	60.14	-	-	74	-13.86	0-360	199	H
7	2.124	48.9	PK	32.2	-33.9	0	47.2	53.97	-6.77	68.2	-21	0-360	200	V
8*	2.492	51.37	PK	32.7	-32.3	0	51.77	-	-	74	-22.23	0-360	200	V
9*	3.735	50.07	PK	33.7	-32.2	0	51.57	-	-	74	-22.43	0-360	101	V
10	10.38	44.62	PK	38.4	-24.6	0	58.42	-	-	68.2	-9.78	0-360	200	V
11*	15.566	43.53	PK	40.6	-23.6	0	60.53	-	-	74	-13.47	0-360	101	V

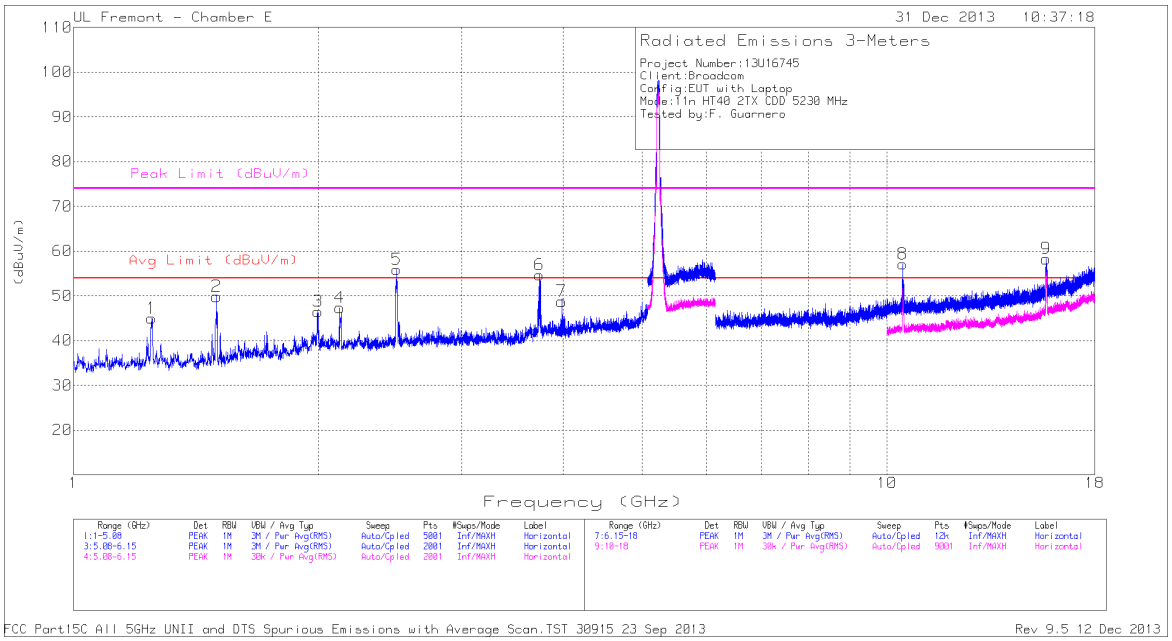
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*3.74	32.28	VB1	33.7	-32.3	0.1	33.78	53.97	-20.19	-	-	23	152	H
*2.498	45.16	VB1	32.7	-32.3	0.1	45.66	53.97	-8.31	-	-	102	234	H
*3.74	32.48	VB1	33.7	-32.3	0.1	33.98	53.97	-19.99	-	-	242	278	V
*2.498	43.39	VB1	32.7	-32.3	0.1	43.89	53.97	-10.08	-	-	102	266	V
*15.571	31.13	VB1	40.6	-23.5	0.1	48.33	53.97	-5.64	-	-	7	233	H
*15.572	33.96	VB1	40.6	-23.5	0.1	51.16	53.97	-2.81	-	-	275	382	V

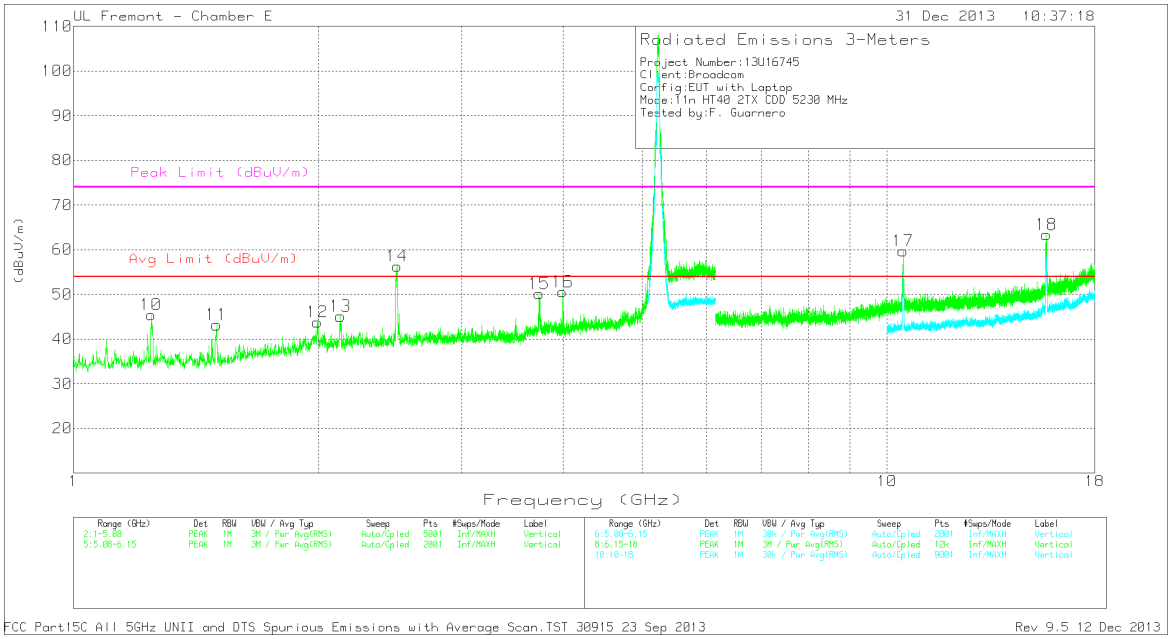
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
VB1 - KDB 789033 Method: VB Alternative Reduced Video
FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.247	50.59	PK	29.2	-34.8	0	44.99	53.97	-8.98	68.2	-23.21	0-360	101	H
2	1.499	55.75	PK	28.8	-34.7	0	49.85	-	-	68.2	-18.35	0-360	101	H
3	1.997	47.43	PK	32.1	-33	0	46.53	53.97	-7.44	68.2	-21.67	0-360	101	H
4	2.124	49.07	PK	32.2	-33.9	0	47.37	53.97	-6.6	68.2	-20.83	0-360	199	H
5*	2.497	55.5	PK	32.7	-32.3	0	55.9	-	-	74	-18.1	0-360	199	H
6*	3.738	53.2	PK	33.7	-32.2	0	54.7	-	-	74	-19.3	0-360	101	H
7*	3.982	46.95	PK	33.8	-32	0	48.75	-	-	74	-25.25	0-360	101	H
10	1.246	51.05	PK	29.2	-34.8	0	45.45	53.97	-8.52	68.2	-22.75	0-360	200	V
11	1.499	49.1	PK	28.8	-34.7	0	43.2	53.97	-10.77	68.2	-25	0-360	200	V
12	1.995	44.73	PK	32.1	-33	0	43.83	53.97	-10.14	68.2	-24.37	0-360	101	V
13	2.129	46.7	PK	32.3	-33.9	0	45.1	53.97	-8.87	68.2	-23.1	0-360	101	V
14*	2.499	55.94	PK	32.7	-32.3	0	56.34	-	-	74	-17.66	0-360	200	V
15*	3.734	48.65	PK	33.7	-32.2	0	50.15	-	-	74	-23.85	0-360	200	V
16*	3.992	48.69	PK	33.8	-31.9	0	50.59	-	-	74	-23.41	0-360	200	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	10.456	43	PK	38.4	-24.3	0	57.1	-	-	74	-16.9	0-360	199	H
9*	15.688	41.99	PK	40.8	-24.5	0	58.29	-	-	74	-15.71	0-360	199	H
17	10.466	46.04	PK	38.4	-24.7	0	59.74	-	-	74	-14.26	0-360	101	V
18*	15.695	47.08	PK	40.8	-24.5	0	63.38	-	-	74	-10.62	0-360	101	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*3.982	48.33	PK1	33.8	-32	0	50.13	-	-	74	-23.87	209	154	H
*3.981	31.38	VB1	33.8	-32	0.1	33.28	53.97	-20.69	-	-	209	154	H
*3.738	48	PK1	33.7	-32.3	0	49.4	-	-	74	-24.6	275	393	H
*3.74	31.52	VB1	33.7	-32.3	0.1	33.02	53.97	-20.95	-	-	275	393	H
*2.5	57.67	PK1	32.7	-32.3	0	58.07	-	-	74	-15.93	357	386	H
*2.498	43.76	VB1	32.7	-32.3	0.1	44.26	53.97	-9.71	-	-	357	386	H
*1.497	53.53	PK1	28.8	-34.8	0	47.53	-	-	74	-26.47	7	166	H
*1.494	38.79	VB1	28.8	-34.8	0.1	32.89	53.97	-21.08	-	-	7	166	H
*3.989	49.82	PK1	33.8	-31.9	0	51.72	-	-	74	-22.28	308	154	V
*3.99	31.88	VB1	33.8	-31.9	0.1	33.88	53.97	-20.09	-	-	308	154	V
*3.734	49.83	PK1	33.7	-32.2	0	51.33	53.97	-	-	-22.67	237	192	V
*3.733	32.48	VB1	33.7	-32.2	0.1	34.08	53.97	-19.89	-	-	237	192	V
*2.5	57.8	PK1	32.7	-32.3	0	58.2	-	-	74	-15.8	169	154	V
*2.498	43.92	VB1	32.7	-32.3	0.1	44.42	53.97	-9.55	-	-	169	154	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*15.687	31.9	VB1	40.8	-24.5	0.1	48.3	53.97	-5.67	-	-	200	132	H
*15.697	42.82	PK1	40.8	-24.5	0	59.12	-	-	74	-14.88	200	132	H
*15.687	36.63	VB1	40.8	-24.5	0.1	53.03	53.97	-0.94	-	-	267	101	V
*15.688	47.99	PK1	40.8	-24.5	0	64.29	-	-	74	-9.71	267	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

PK1 - KDB 789033 Method: Peak

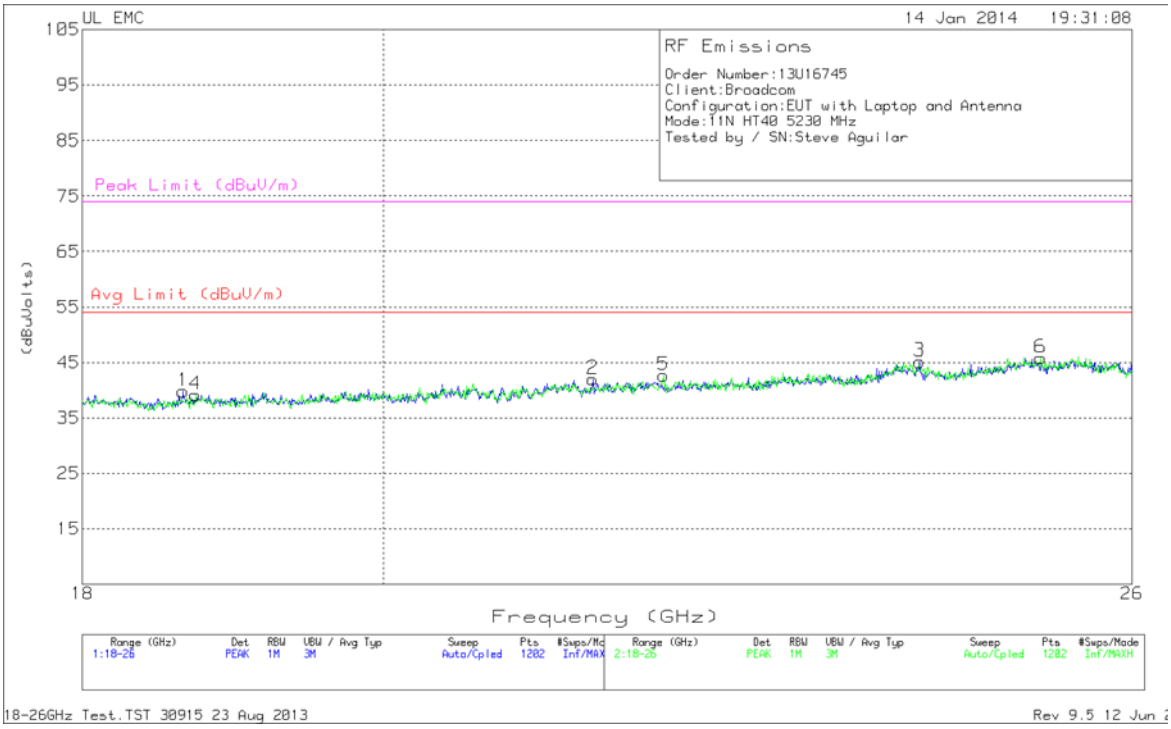
VB1 - KDB 789033 Method: VB Alternative Reduced Video

FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

5.2 GHz Low Channel 18-26 GHz

Worst case test mode and channel: HT40, High channel.

HIGH CHANNEL PLOT



HIGH CHANNEL DATA

Trace Markers

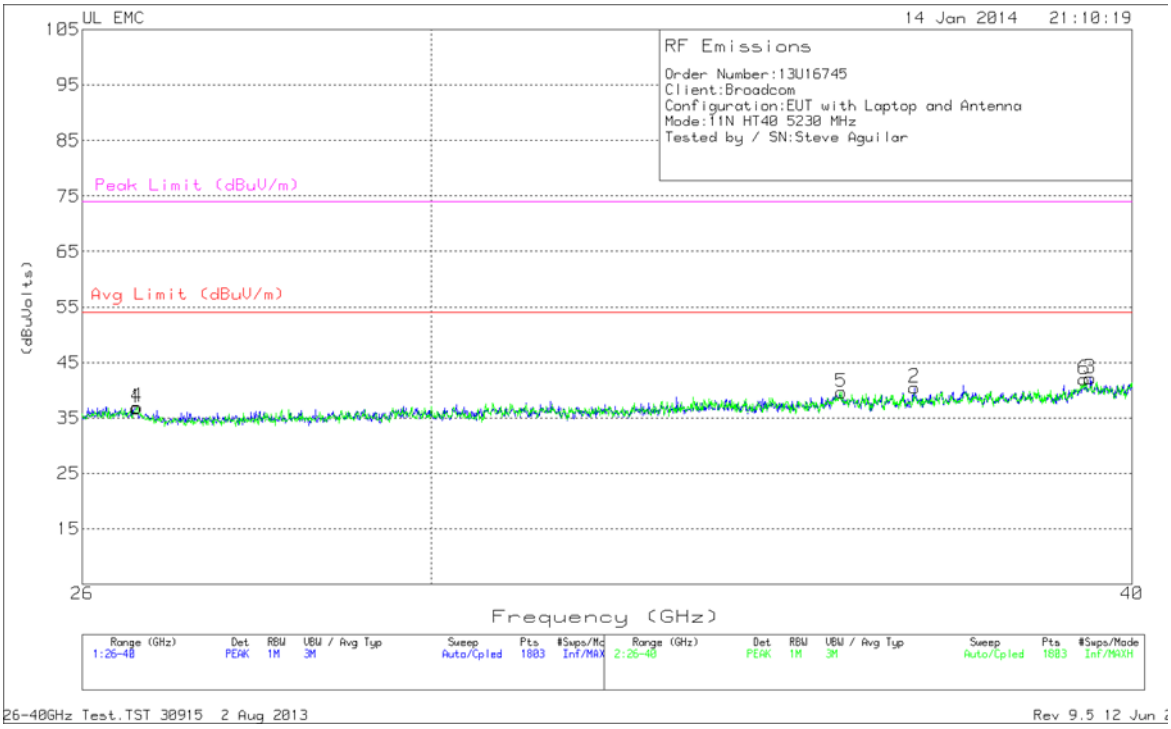
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.646	40.73	PK	32.5	-23.9	-9.5	39.83	54	-14.16	74	-34.16
2	21.524	42.7	PK	32.9	-24.1	-9.5	42	54	-12	74	-32
3	24.135	43.67	PK	33.7	-22.7	-9.5	45.16	54	-8.83	74	-28.83
4	18.726	40.27	PK	32.5	-24.1	-9.5	39.16	54	-14.83	74	-34.83
5	22.063	42.47	PK	33.3	-23.6	-9.5	42.66	54	-11.33	74	-31.33
6	25.181	44.33	PK	33.9	-22.9	-9.5	45.83	54	-8.16	74	-28.16

PK - Peak detector

5.2 GHz Low Channel 26 – 40 GHz

Worst case test mode and channel: HT40, High channel.

HIGH CHANNEL PLOT



HIGH CHANNEL DATA

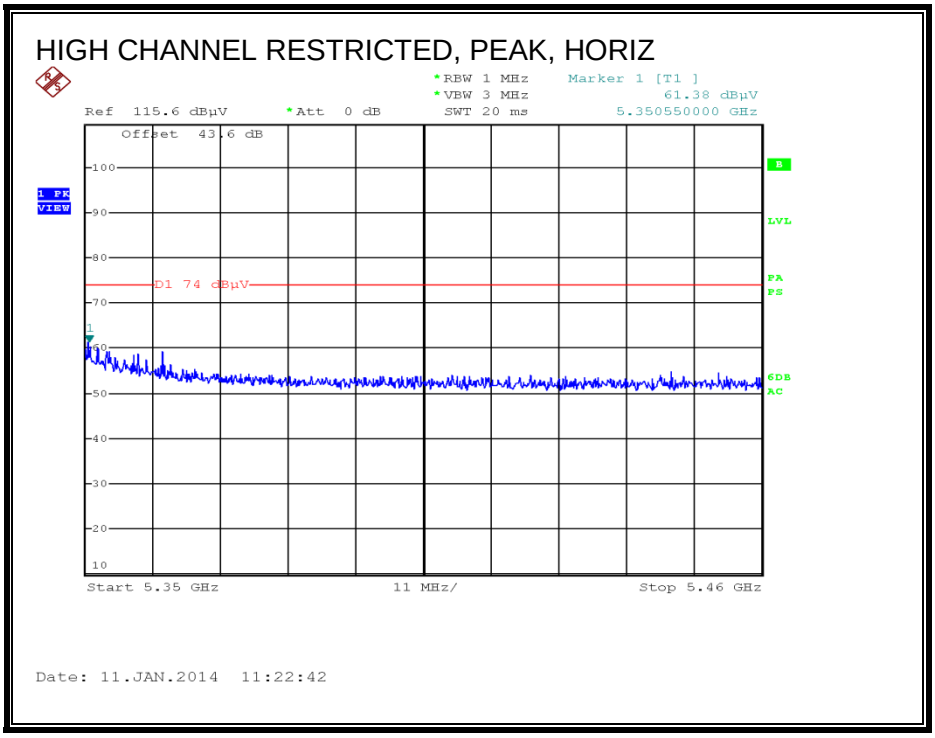
Trace Markers

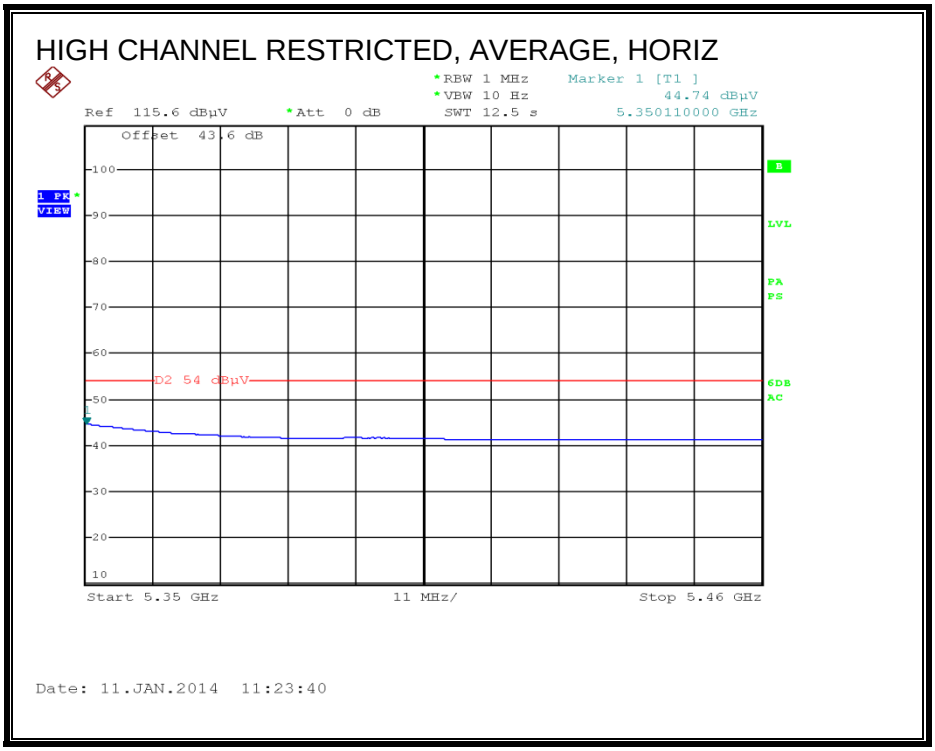
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	26.583	44.33	PK	35.4	-33.4	-9.5	36.83	54	-17.16	74	-37.16
2	36.582	50.7	PK	37.1	-37.8	-9.5	40.5	54	-13.5	74	-33.5
3	39.316	49.77	PK	38.3	-36.4	-9.5	42.16	54	-11.83	74	-31.83
4	26.59	44.6	PK	35.4	-33.5	-9.5	37	54	-17	74	-37
5	35.502	48.57	PK	37.9	-37.3	-9.5	39.66	54	-14.33	74	-34.33
6	39.223	49	PK	38.5	-36	-9.5	42	54	-12	74	-32

PK - Peak detector

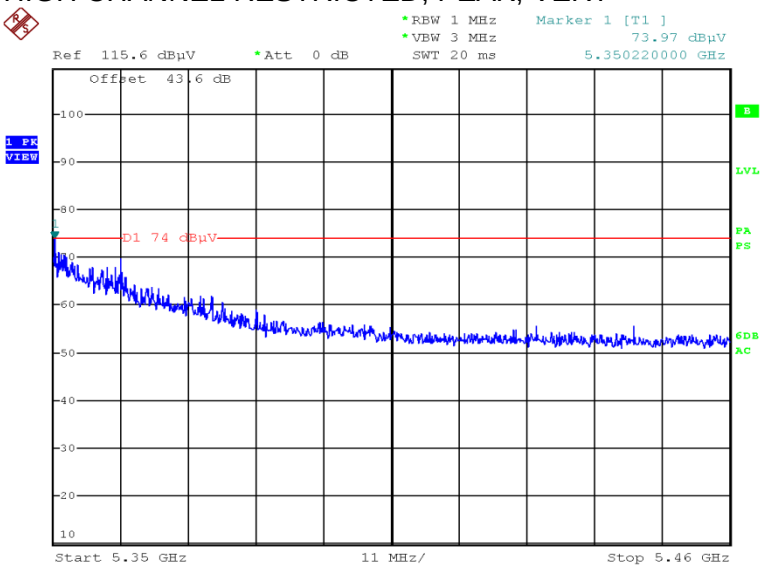
8.1.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

RESTRICTED BANDEDGE (HIGH CHANNEL)



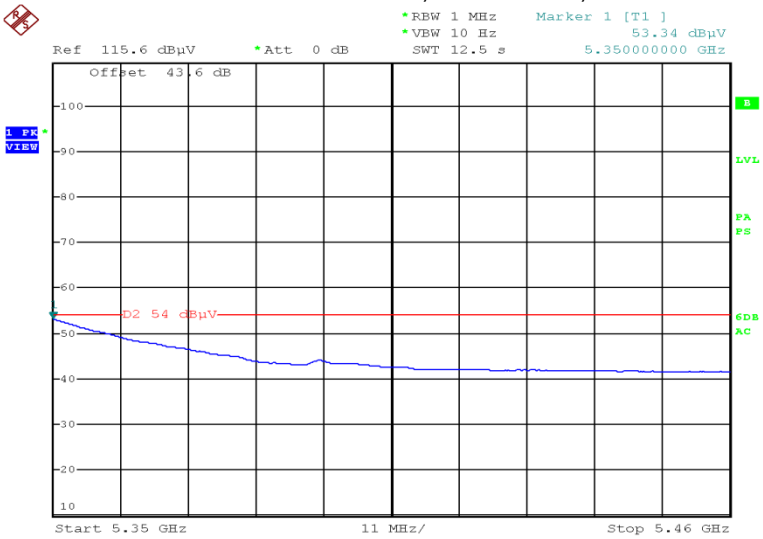


HIGH CHANNEL RESTRICTED, PEAK, VERT



Date: 11.JAN.2014 11:16:52

HIGH CHANNEL RESTRICTED, AVERAGE, VERT



Date: 11.JAN.2014 11:15:31

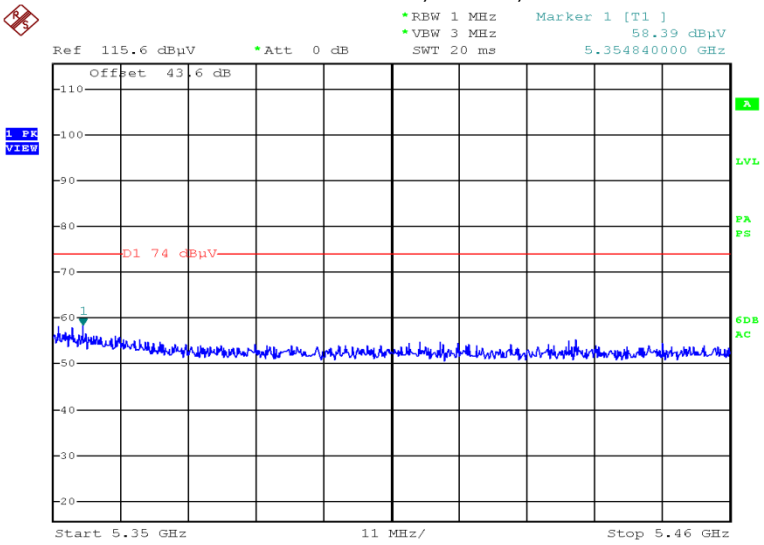
HARMONICS AND SPURIOUS EMISSIONS

Covered by worse case emissions testing of 11n HT20 CDD 2TX at power levels, per transmit chain, greater than or equal to any 1TX and 2TX mode.

8.1.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

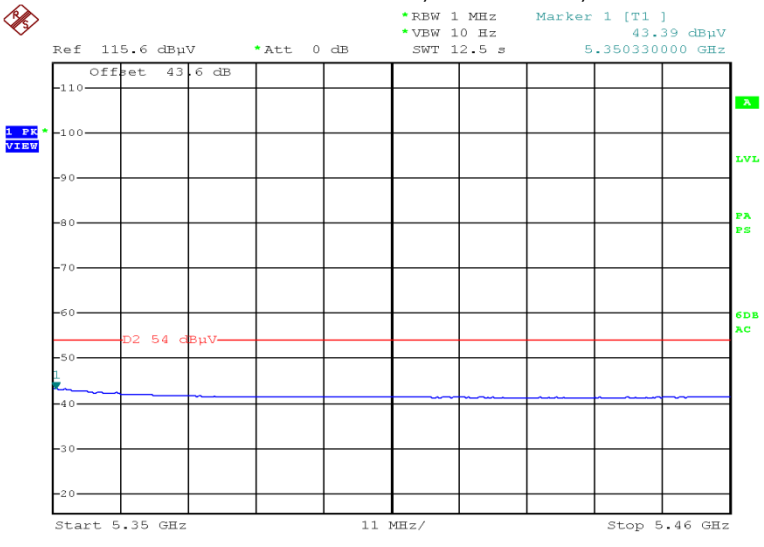
RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ



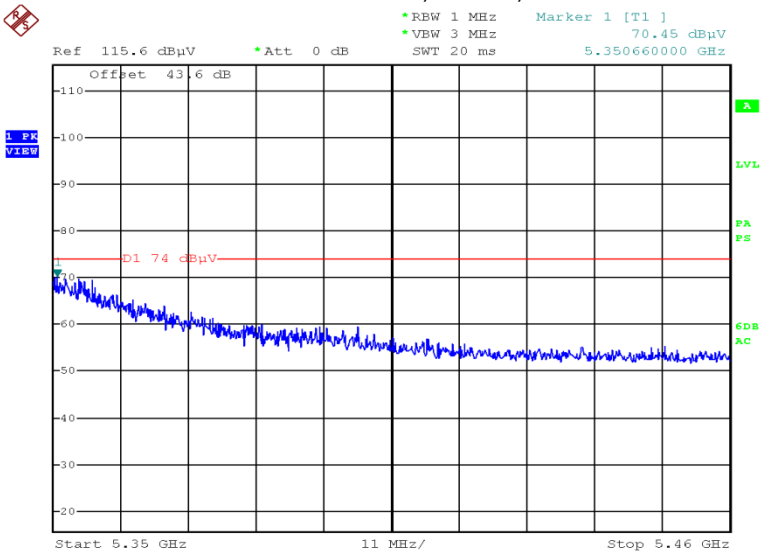
Date: 3.JAN.2014 23:33:00

HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



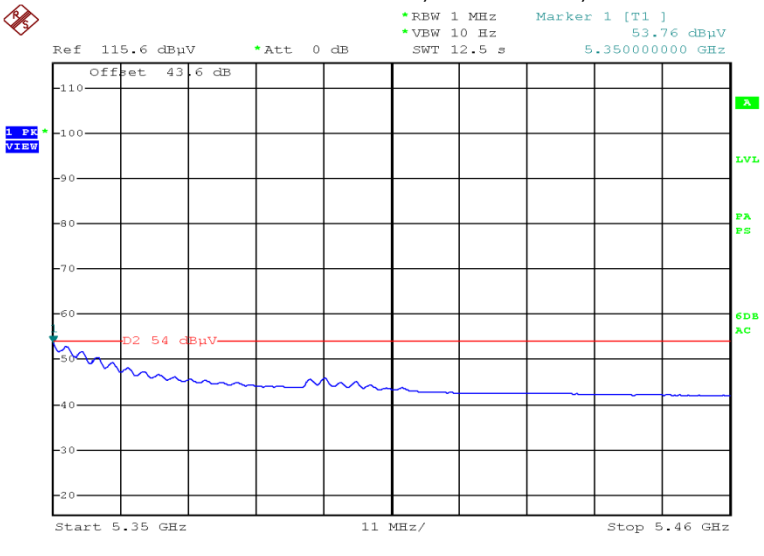
Date: 3.JAN.2014 23:33:50

HIGH CHANNEL RESTRICTED, PEAK, VERT



Date: 3.JAN.2014 23:32:04

HIGH CHANNEL RESTRICTED, AVERAGE, VERT

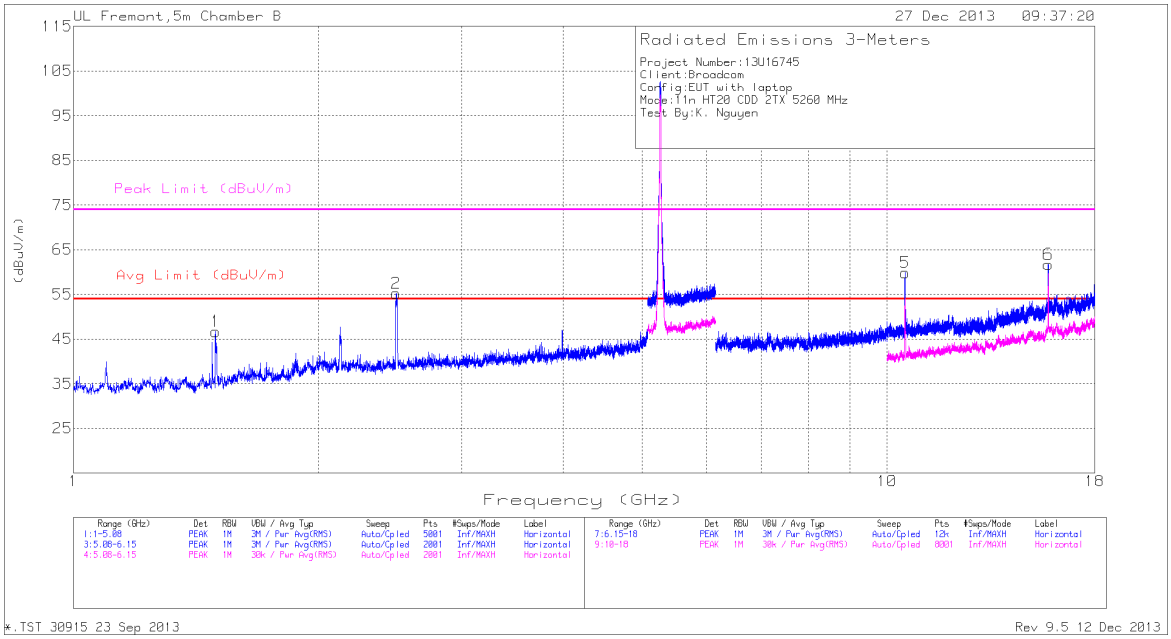


Date: 3.JAN.2014 23:31:31

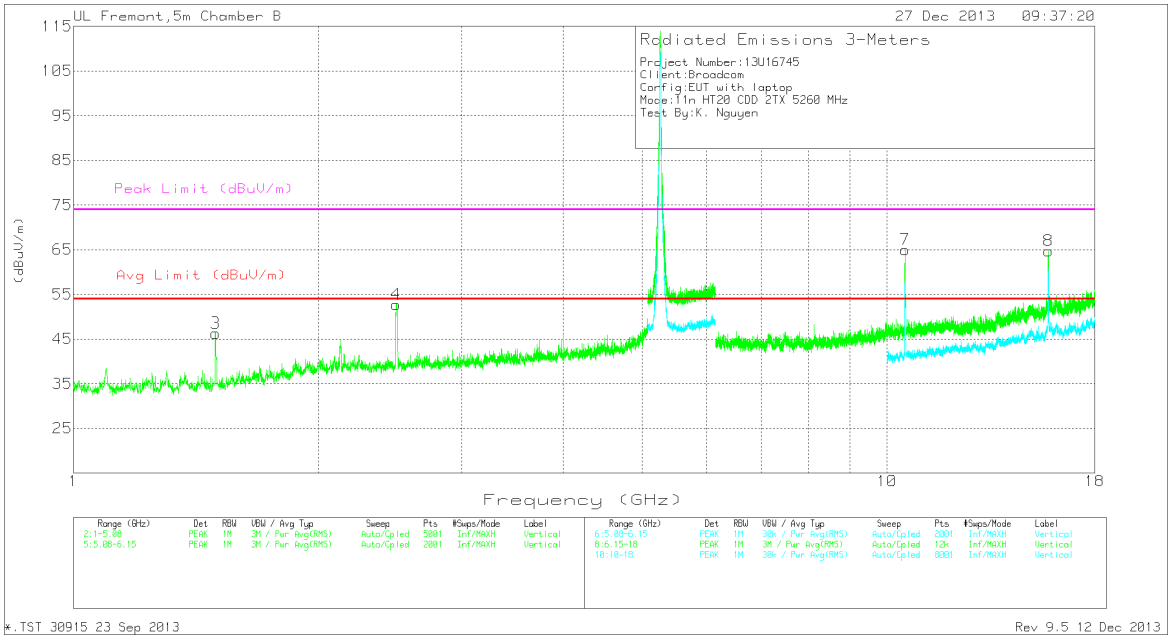
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.494	52.99	PK	28.2	-34.5	46.69	53.97	-7.28	68.2	-21.51	0-360	99	H
3	1.494	52.57	PK	28.2	-34.5	46.27	53.97	-7.7	68.2	-21.93	0-360	202	V
2*	2.492	55.03	PK	32.5	-32.3	55.23	-	-	74	-18.77	0-360	202	H
4*	2.492	52.53	PK	32.5	-32.3	52.73	-	-	74	-21.27	0-360	202	V
5	10.52	45.46	PK	38.2	-23.8	59.86	-	-	68.2	-8.34	0-360	202	H
7	10.52	50.62	PK	38.2	-23.8	65.02	-	-	68.2	-3.18	0-360	202	V
6*	15.783	40.71	PK	41.3	-20.3	61.71	-	-	74	-12.29	0-360	202	H
8*	15.786	43.65	PK	41.3	-20.2	64.75	-	-	74	-9.25	0-360	202	V

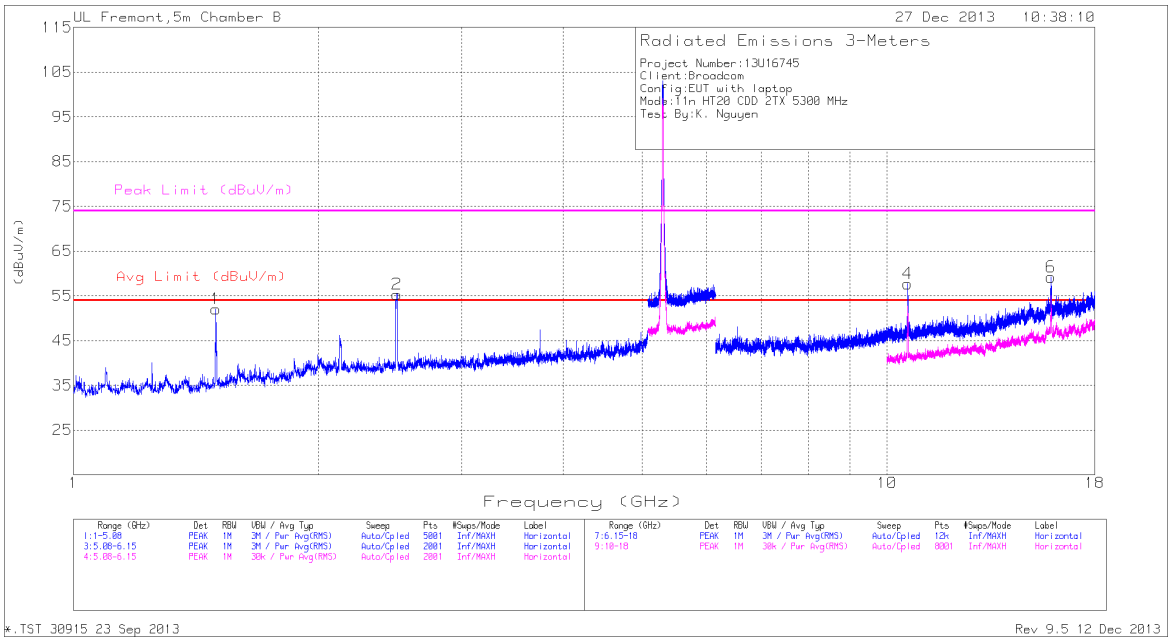
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.496	55.77	PK1	32.5	-32.3	55.97	-	-	74	-18.03	16	337	V
2.498	41.76	VB1	32.5	-32.2	42.06	53.97	-11.91	-	-	16	337	V
2.499	49.87	PK1	32.5	-32.3	50.07	-	-	74	-23.93	2	149	H
2.499	35.32	VB1	32.5	-32.3	35.52	53.97	-18.45	-	-	2	149	H
10.518	51.73	PK1	38.2	-23.9	66.03	-	-	74	-7.97	14	287	V
15.773	45.22	PK1	41.3	-20.4	66.12	-	-	74	-7.88	21	197	V
15.778	32.86	VB1	41.3	-20.3	53.86	53.97	-0.11	-	-	21	197	V
15.78	29.96	VB1	41.3	-20.3	50.96	53.97	-3.01	-	-	22	386	H
15.783	40.97	PK1	41.3	-20.3	61.97	-	-	74	-12.03	22	386	H

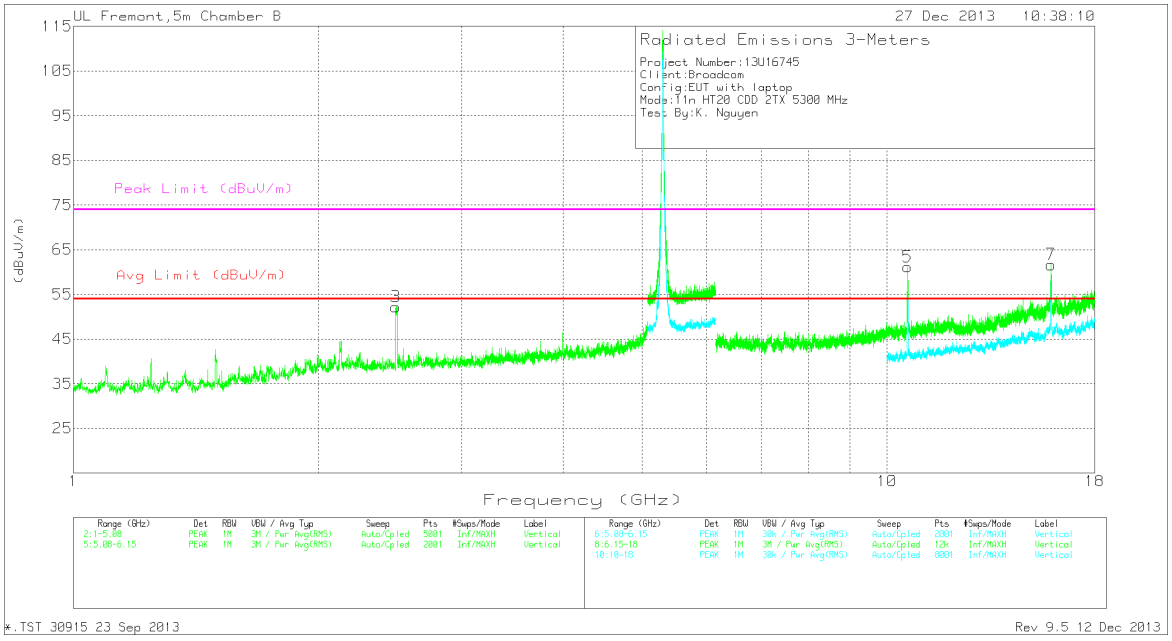
Note: Frequencies marked (*) In Restricted Band
PK - Peak detector
PK1 - KDB 789033 Method: Peak
VB1 - KDB 789033 Method: VB Alternative Reduced Video
*.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

Mid Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.496	58.39	PK	28.2	-34.5	52.09	-	-	68.2	-16.11	0-360	99	H
2*	2.497	55.05	PK	32.5	-32.2	55.35	-	-	74	-18.65	0-360	201	H
3*	2.489	52.02	PK	32.5	-32.3	52.22	-	-	74	-21.78	0-360	202	V
6*	15.901	37.92	PK	41.5	-20.2	59.22	-	-	74	-14.78	0-360	201	H
7*	15.898	40.36	PK	41.5	-20.2	61.66	-	-	74	-12.34	0-360	202	V
5	10.598	46.17	PK	38.2	-23.2	61.17	-	-	68.2	-7.03	0-360	202	V
4	10.599	42.72	PK	38.2	-23.2	57.72	-	-	68.2	-10.48	0-360	201	H

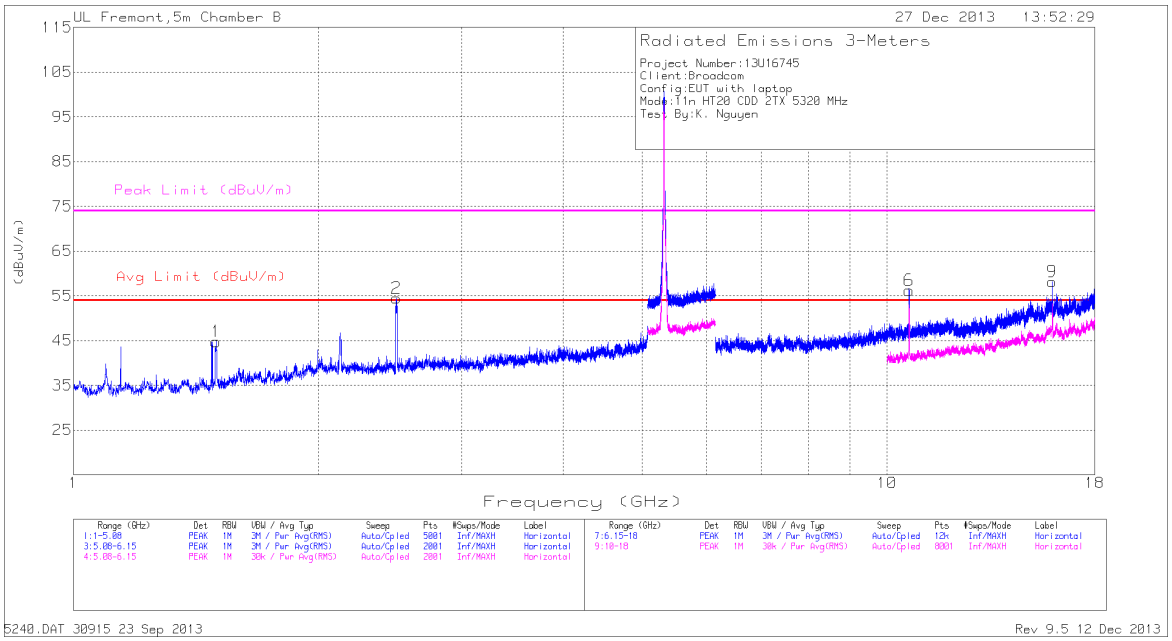
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1498	58.17	PK1	28.2	-34.5	51.87	-	-	68.2	-16.33	303	132	H
1494	39.67	VB1	28.2	-34.5	33.37	53.97	-20.6	-	-	303	132	H
*2.488	50.71	PK1	32.5	-32.3	50.91	-	-	74	-23.09	356	167	H
*2.489	36.27	VB1	32.5	-32.3	36.47	53.97	-17.5	-	-	356	167	H
*2.495	52.85	PK1	32.5	-32.3	53.05	-	-	74	-20.95	3	167	V
*2.498	39.06	VB1	32.5	-32.2	39.36	53.97	-14.61	-	-	3	167	V
*10.6	50.3	PK1	38.2	-23.2	65.3	-	-	74	-8.7	129	154	V
*10.6	38.58	VB1	38.2	-23.2	53.58	53.97	-0.39	-	-	129	154	V
*10.6	45.04	PK1	38.2	-23.2	60.04	-	-	74	-13.96	177	312	H
*10.6	34.37	VB1	38.2	-23.2	49.37	53.97	-4.6	-	-	177	312	H
*15.902	32.28	VB1	41.5	-20.1	53.68	53.97	-0.29	-	-	98	268	V
*15.899	44.6	PK1	41.5	-20.2	65.9	-	-	74	-8.1	98	268	V
*15.902	39.12	PK1	41.5	-20.1	60.52	-	-	74	-13.48	97	318	H
*15.901	26.97	VB1	41.5	-20.1	48.37	53.97	-5.6	-	-	97	318	H

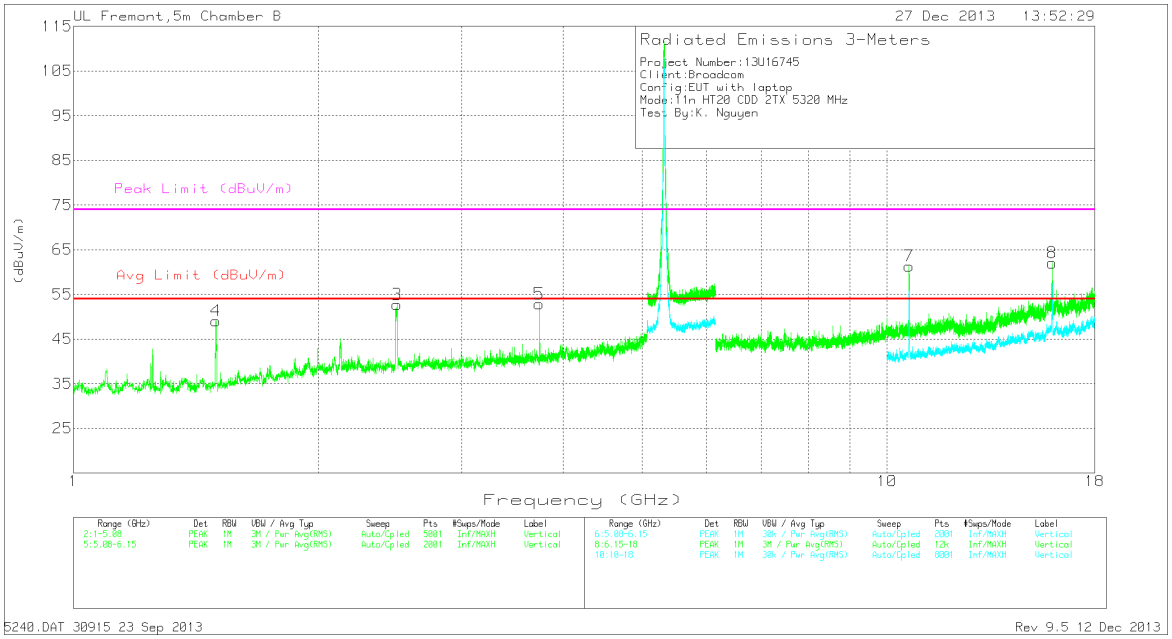
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
PK1 - KDB 789033 Method: Peak
VB1 - KDB 789033 Method: VB Alternative Reduced Video
*.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.497	51.07	PK	28.2	-34.5	44.77	53.97	-9.2	68.2	-23.43	0-360	99	H
2*	2.494	54.27	PK	32.5	-32.3	54.47	-	-	74	-19.53	0-360	202	H
3*	2.498	52.42	PK	32.5	-32.2	52.72	-	-	74	-21.28	0-360	202	V
4	1.496	55.38	PK	28.2	-34.5	49.08	-	-	68.2	-19.12	0-360	202	V
5*	3.736	50.64	PK	33.8	-31.6	52.84	-	-	74	-21.16	0-360	202	V
6*	10.64	41.1	PK	38.3	-23.2	56.2	-	-	74	-17.8	0-360	202	H
9*	15.953	36.99	PK	41.5	-20.3	58.19	-	-	74	-15.81	0-360	202	H
7*	10.64	46.25	PK	38.3	-23.2	61.35	-	-	74	-12.65	0-360	202	V
8*	15.96	40.85	PK	41.6	-20.4	62.05	-	-	74	-11.95	0-360	202	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1496	56.85	PK1	28.2	-34.5	50.55	-	-	68.2	-17.65	7	322	V
1494	39.66	VB1	28.2	-34.5	33.36	53.97	-20.61	-	-	7	322	V
*2.499	55.03	PK1	32.5	-32.3	55.23	-	-	74	-18.77	120	330	V
*2.498	41.15	VB1	32.5	-32.2	41.45	53.97	-12.52	-	-	120	330	V
*2.496	57.49	PK1	32.5	-32.3	57.69	-	-	74	-16.31	99	203	H
*2.498	43.23	VB1	32.5	-32.2	43.53	53.97	-10.44	-	-	99	203	H
*3.733	50.31	PK1	33.8	-31.6	52.51	-	-	74	-21.49	37	272	V
*3.723	30.29	VB1	33.7	-31.5	32.49	53.97	-21.48	-	-	37	272	V
*15.959	42.59	PK1	41.6	-20.4	63.79	-	-	74	-10.21	353	199	V
*15.958	30.48	VB1	41.5	-20.4	51.58	53.97	-2.39	-	-	353	199	V
*15.956	39.5	PK1	41.5	-20.3	60.7	-	-	74	-13.3	10	219	H
*15.958	28.9	VB1	41.5	-20.4	50	53.97	-3.97	-	-	10	219	H
*10.637	45.26	PK1	38.3	-23.2	60.36	-	-	74	-13.64	174	285	H
*10.64	34.07	VB1	38.3	-23.2	49.17	53.97	-4.8	-	-	174	285	H
*10.64	48.13	PK1	38.3	-23.2	63.23	-	-	74	-10.77	8	226	V
*10.64	37.17	VB1	38.3	-23.2	52.27	53.97	-17	-	-	8	226	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

PK1 - KDB 789033 Method: Peak

VB1 - KDB 789033 Method: VB Alternative Reduced Video

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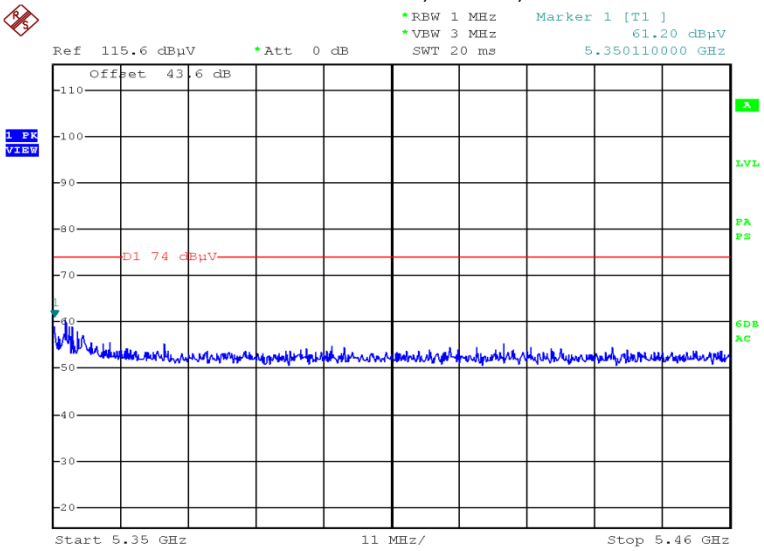
8.1.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

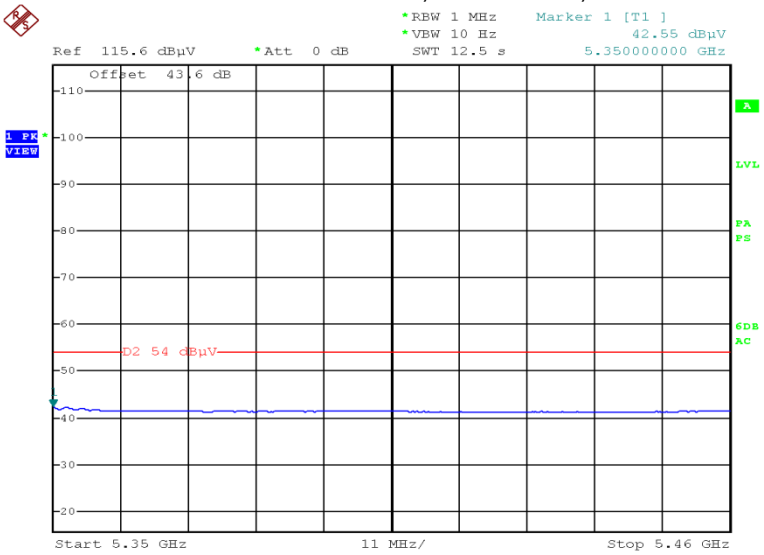
RESTRICTED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK, HORIZ



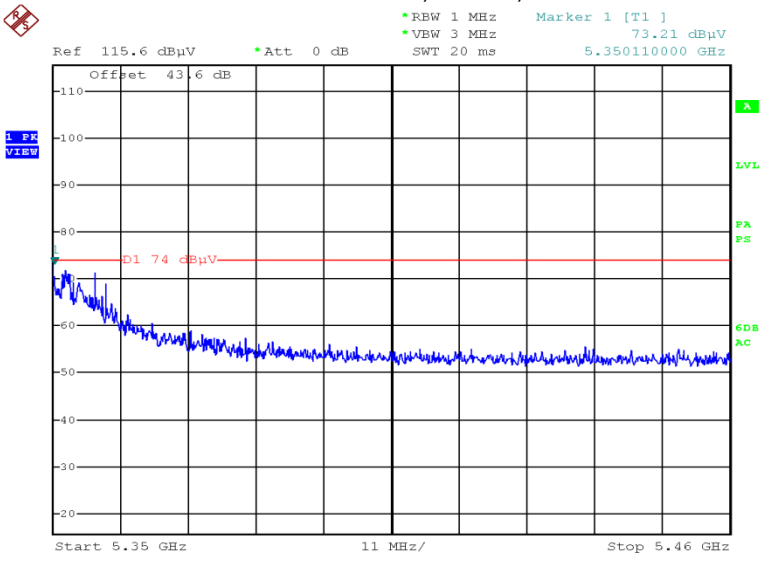
Date: 3.JAN.2014 23:20:49

HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



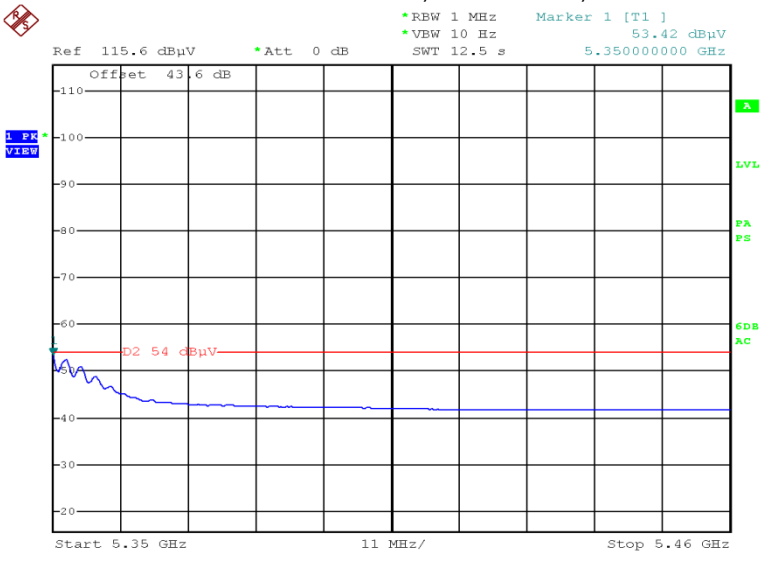
Date: 3.JAN.2014 23:21:38

HIGH CHANNEL RESTRICTED, PEAK, VERT



Date: 3.JAN.2014 23:19:54

HIGH CHANNEL RESTRICTED, AVERAGE, VERT

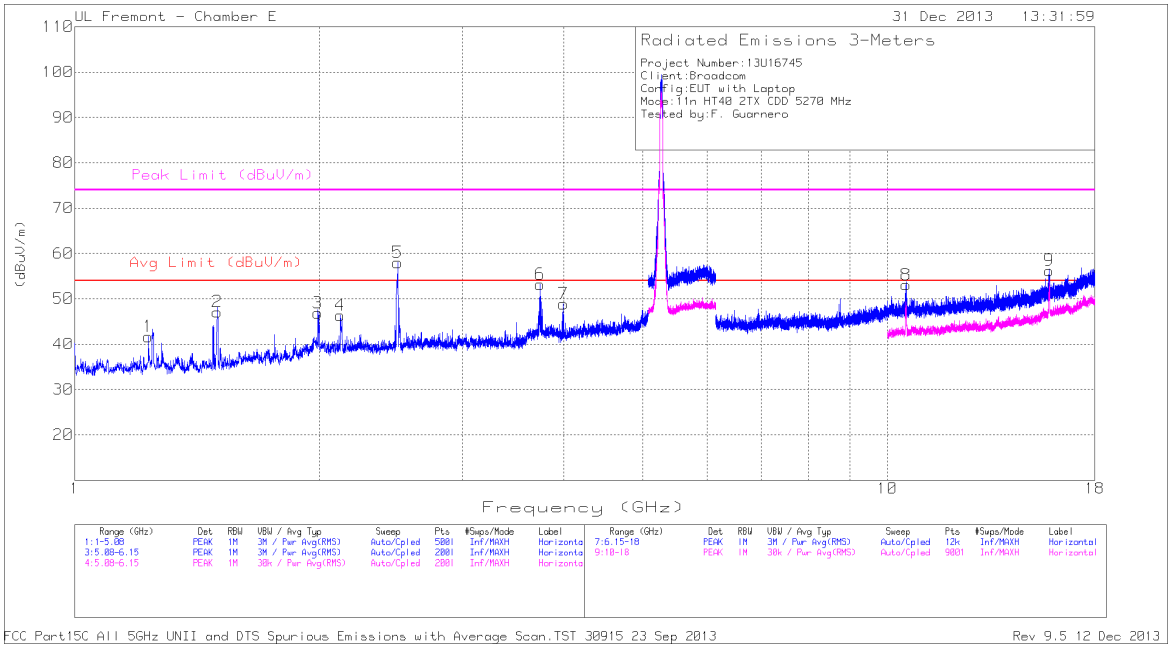


Date: 3.JAN.2014 23:18:24

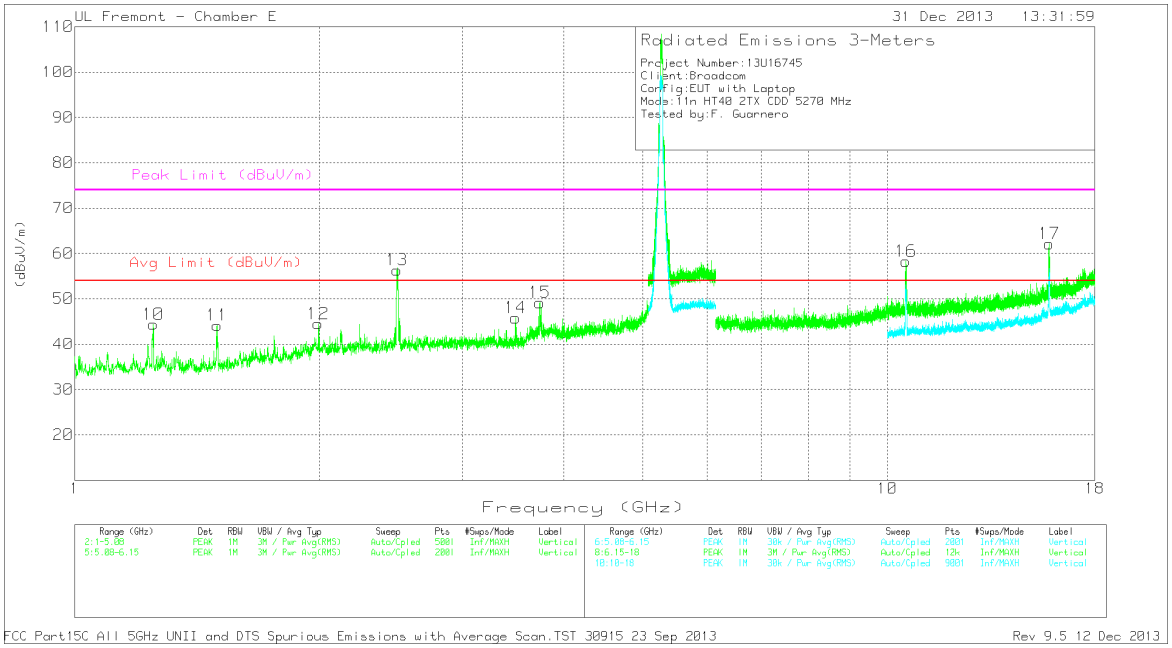
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1*	1.232	47.36	PK	29.1	-34.8	0	41.66	53.97	-12.31	74	-32.34	0-360	101	H
2*	1.499	53	PK	28.8	-34.7	0	47.1	53.97	-6.87	74	-26.9	0-360	101	H
3	1.991	47.76	PK	32	-32.9	0	46.86	53.97	-7.11	68.2	-21.34	0-360	199	H
4	2.123	48.04	PK	32.2	-33.9	0	46.34	53.97	-7.63	68.2	-21.86	0-360	199	H
5*	2.498	57.57	PK	32.7	-32.3	0	57.97	-	-	74	-16.03	0-360	101	H
6*	3.738	51.78	PK	33.7	-32.3	0	53.18	-	-	74	-20.82	0-360	101	H
7*	3.993	47.09	PK	33.8	-32	0	48.89	-	-	74	-25.11	0-360	101	H
10	1.25	49.87	PK	29.2	-34.7	0	44.37	53.97	-9.6	68.2	-23.83	0-360	200	V
11	1.499	50.03	PK	28.8	-34.7	0	44.13	53.97	-9.84	68.2	-24.07	0-360	101	V
12	1.994	45.41	PK	32.1	-33	0	44.51	53.97	-9.46	68.2	-23.69	0-360	200	V
13*	2.492	55.91	PK	32.7	-32.3	0	56.31	-	-	74	-17.69	0-360	200	V
14	3.487	44.91	PK	33.1	-32.2	0	45.81	53.97	-8.16	68.2	-22.39	0-360	101	V
15*	3.737	47.66	PK	33.7	-32.2	0	49.16	-	-	74	-24.84	0-360	101	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	10.544	39.67	PK	38.4	-25	0	53.07	-	-	74	-20.93	0-360	199	H
9	*15.819	38.79	PK	41	-23.6	0	56.19	-	-	74	-17.81	0-360	101	H
16	10.538	44.98	PK	38.4	-25.1	0	58.28	-	-	74	-15.72	0-360	200	V
17	*15.822	44.74	PK	41	-23.6	0	62.14	-	-	74	-11.86	0-360	200	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*3.992	31.78	VB1	33.8	-31.9	0.1	33.78	53.97	-20.19	-	-	190	314	H
*3.733	32.63	VB1	33.7	-32.2	0.1	34.23	53.97	-19.74	-	-	216	173	H
*2.498	41.63	VB1	32.7	-32.3	0.1	42.13	53.97	-11.84	-	-	269	121	H
*3.733	33.5	VB1	33.7	-32.2	0.1	35.1	53.97	-18.87	-	-	177	377	V
*2.497	42.15	VB1	32.7	-32.3	0.1	42.65	53.97	-11.32	-	-	34	266	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*15.814	32.86	VB1	41	-23.7	0.1	50.26	53.97	-3.71	-	-	179	193	H
*15.815	34.23	VB1	41	-23.7	0.1	51.63	53.97	-2.34	-	-	96	156	V

* - Indicates frequency in CFR15.205/IC7.2.2 Restricted Band

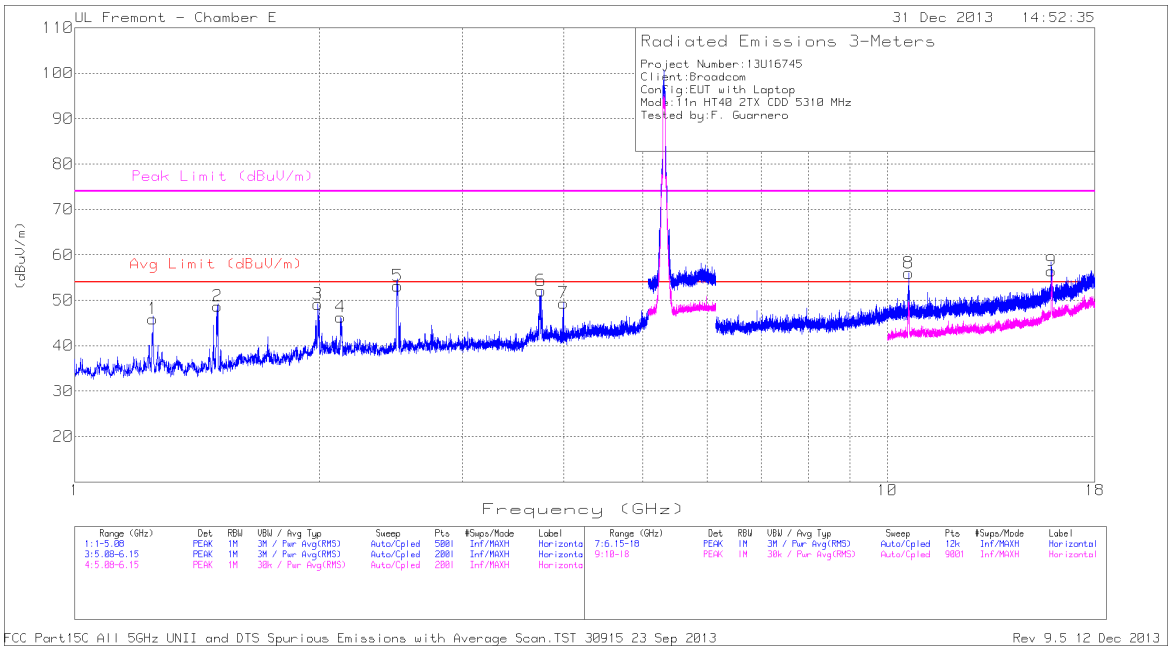
PK - Peak detector

VB1 - KDB 789033 Method: VB Alternative Reduced Video

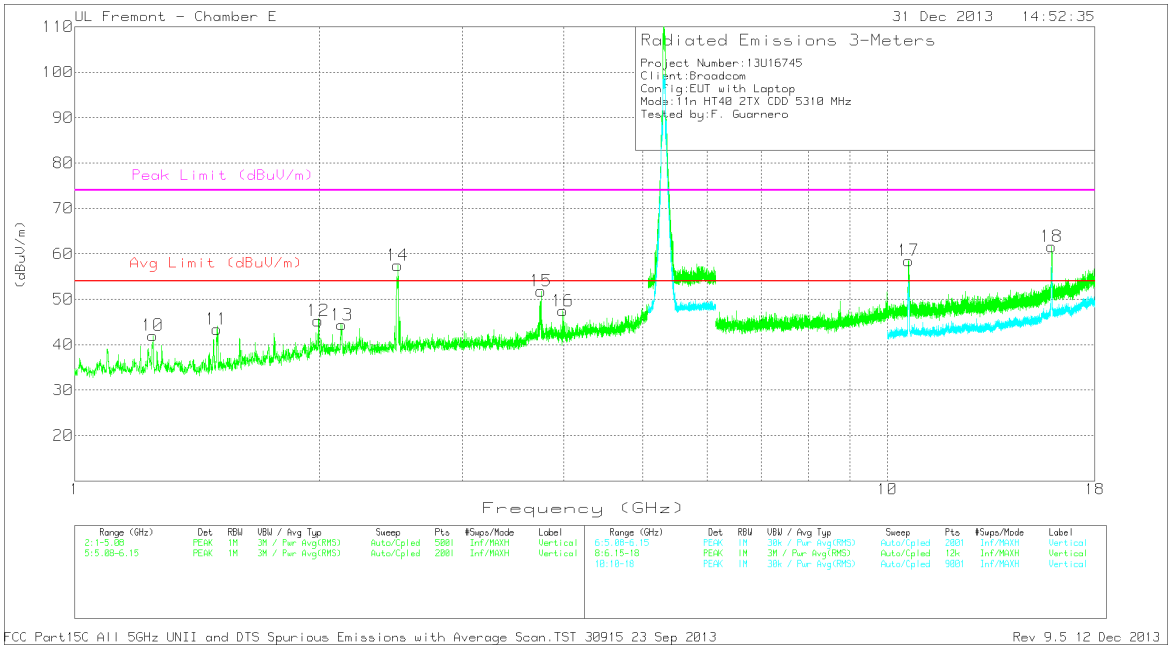
FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.248	51.47	PK	29.2	-34.8	0	45.87	53.97	-8.1	68.2	-22.33	0-360	200	H
2	1.499	54.58	PK	28.8	-34.7	0	48.68	-	-	68.2	-19.52	0-360	101	H
3	1.991	50.04	PK	32	-32.9	0	49.14	-	-	68.2	-19.06	0-360	200	H
4	2.124	48	PK	32.2	-33.9	0	46.3	53.97	-7.67	74	-27.7	0-360	200	H
5*	2.498	52.76	PK	32.7	-32.3	0	53.16	-	-	74	-20.84	0-360	200	H
6*	3.749	50.62	PK	33.7	-32.2	0	52.12	-	-	74	-21.88	0-360	101	H
7*	3.996	47.58	PK	33.8	-32	0	49.38	-	-	74	-24.62	0-360	101	H
10	1.248	47.6	PK	29.2	-34.8	0	42	53.97	-11.97	68.2	-26.2	0-360	101	V
11	1.496	49.38	PK	28.8	-34.8	0	43.38	53.97	-10.59	68.2	-24.82	0-360	200	V
12	1.994	46.15	PK	32.1	-33	0	45.25	-	-	68.2	-22.95	0-360	200	V
13	2.133	45.97	PK	32.3	-33.9	0	44.37	53.97	-9.6	68.2	-23.83	0-360	200	V
14*	2.498	57.06	PK	32.7	-32.3	0	57.46	-	-	74	-16.54	0-360	200	V
15*	3.749	50.3	PK	33.7	-32.2	0	51.8	-	-	74	-22.2	0-360	200	V
16*	3.987	45.55	PK	33.8	-31.9	0	47.45	53.97	-6.52	74	-26.55	0-360	101	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8*	10.621	42.58	PK	38.4	-25	0	55.98	-	-	74	-18.02	0-360	200	H
9*	15.923	38.54	PK	41.2	-23.3	0	56.44	-	-	74	-17.56	0-360	200	H
17*	10.618	44.97	PK	38.4	-24.9	0	58.47	-	-	74	-15.53	0-360	200	V
18*	15.925	43.7	PK	41.2	-23.3	0	61.6	-	-	74	-12.4	0-360	200	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*3.994	30.8	VB1	33.8	-32	0.1	32.7	53.97	-21.27	-	-	225	223	H
*3.748	32.73	VB1	33.7	-32.2	0.1	34.33	53.97	-19.64	-	-	72	115	H
*2.498	41.68	VB1	32.7	-32.3	0.1	42.18	53.97	-11.79	-	-	117	113	H
*1.494	41.07	VB1	28.8	-34.8	0.1	35.17	53.97	-18.8	-	-	83	319	H
*3.735	31.91	VB1	33.7	-32.2	0.1	33.51	53.97	-20.46	-	-	87	177	V
*2.498	42.75	VB1	32.7	-32.3	0.1	43.25	53.97	-10.72	-	-	310	196	V

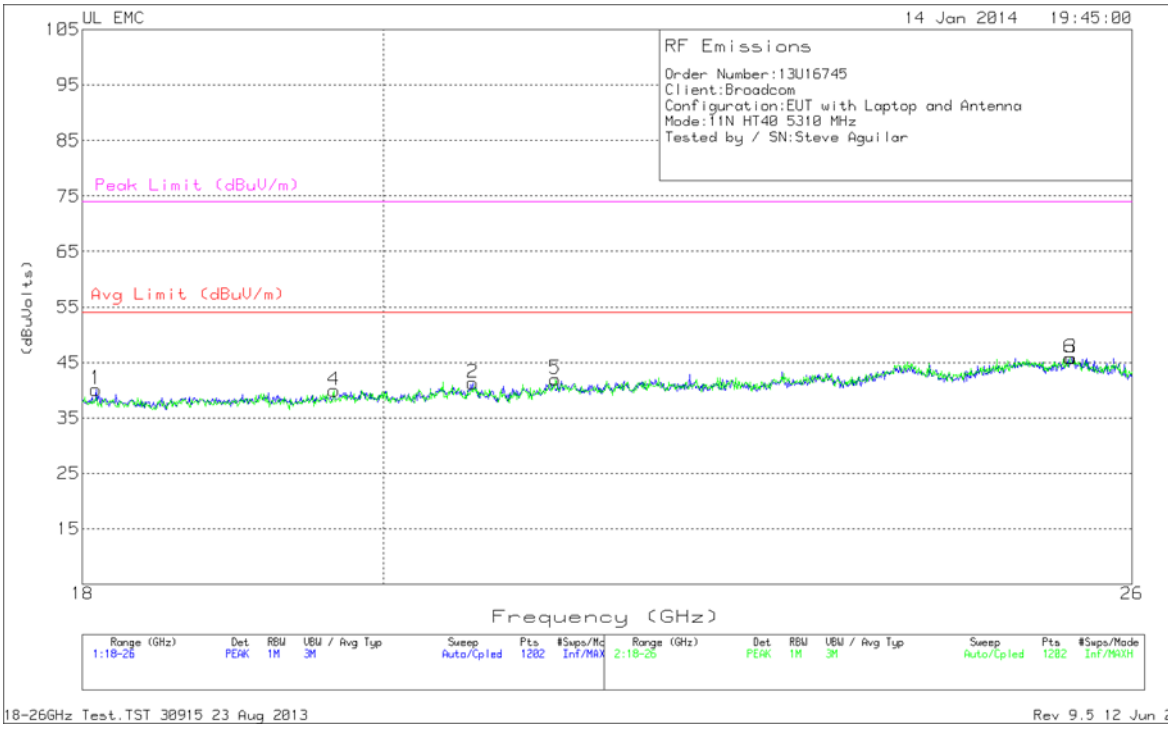
Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*10.62	35.56	VB1	38.4	-25	0.1	49.06	53.97	-4.91	-	-	247	207	H
*10.62	35.29	VB1	38.4	-25	0.1	48.79	53.97	-5.18	-	-	237	202	V
*15.928	35.72	VB1	41.2	-23.3	0.1	53.72	53.97	-0.25	-	-	266	119	V
*15.933	32.93	VB1	41.2	-23.3	0.1	50.93	53.97	-3.04	-	-	274	228	H

* - Indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
VB1 - KDB 789033 Method: VB Alternative Reduced Video
FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

5.3 GHz Low Channel 18-26 GHz

Worst case test mode and channel: HT40, High channel.

HIGH CHANNEL PLOT



HIGH CHANNEL DATA

Trace Markers

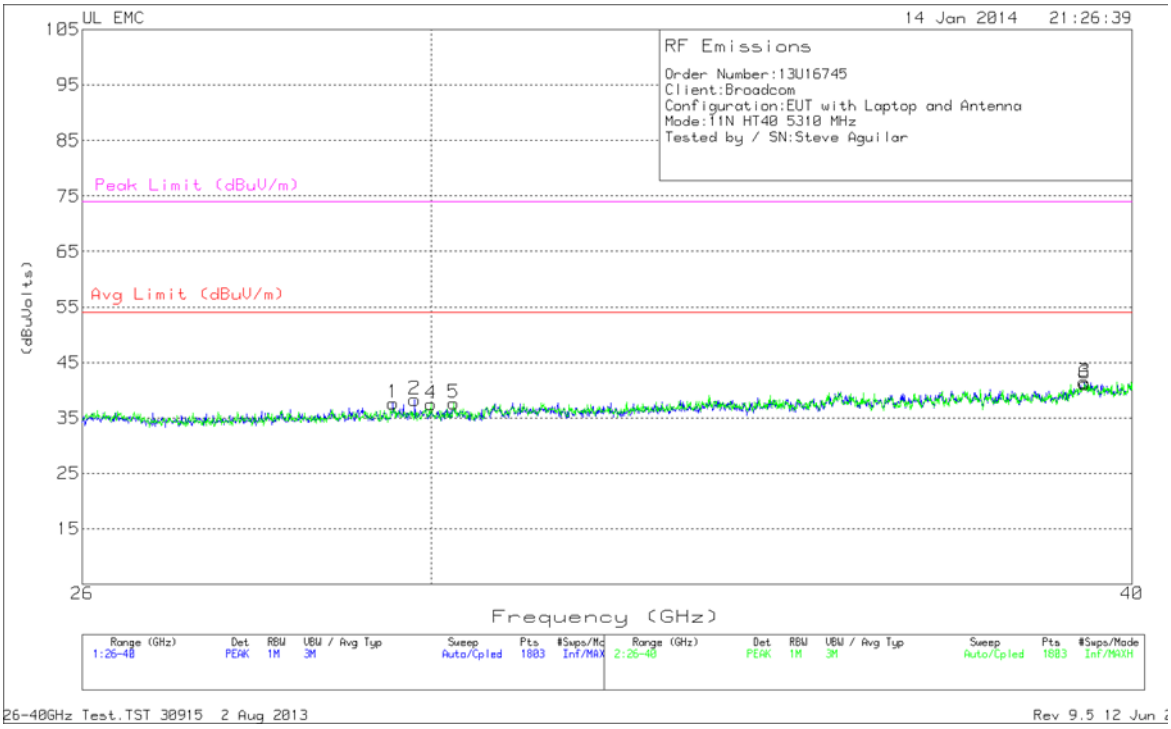
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.087	42.17	PK	32.4	-24.9	-9.5	40.16	54	-13.83	74	-33.83
2	20.638	41.23	PK	32.9	-23.3	-9.5	41.33	54	-12.66	74	-32.66
3	25.454	43.73	PK	34.1	-22.5	-9.5	45.83	54	-8.16	74	-28.16
4	19.659	41.1	PK	32.6	-24.2	-9.5	40	54	-14	74	-34
5	21.244	42.2	PK	33	-23.7	-9.5	42	54	-12	74	-32
6	25.44	44.23	PK	34.1	-23	-9.5	45.83	54	-8.16	74	-28.16

PK - Peak detector

5.3 GHz Low Channel 26 – 40 GHz

Worst case test mode and channel: HT40, High channel.

HIGH CHANNEL PLOT



HIGH CHANNEL DATA

Trace Markers

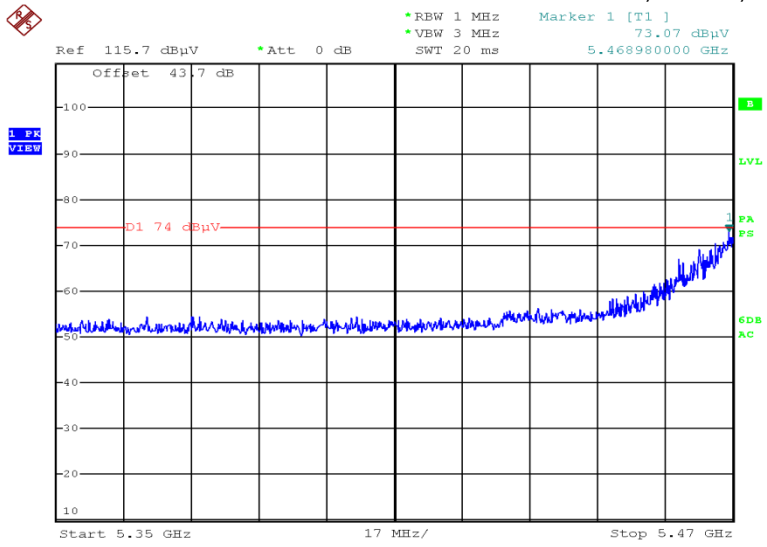
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	29.535	46.27	PK	35.9	-35	-9.5	37.66	54	-16.33	74	-36.33
2	29.799	47.33	PK	36.1	-35.6	-9.5	38.33	54	-15.66	74	-35.66
3	39.223	48.5	PK	38.5	-36	-9.5	41.5	54	-12.5	74	-32.5
4	30.001	46.7	PK	36	-35.7	-9.5	37.5	54	-16.5	74	-36.5
5	30.281	46.57	PK	35.8	-35.2	-9.5	37.66	54	-16.33	74	-36.33
6	39.231	48.37	PK	38.5	-36.2	-9.5	41.16	54	-12.83	74	-32.83

PK - Peak detector

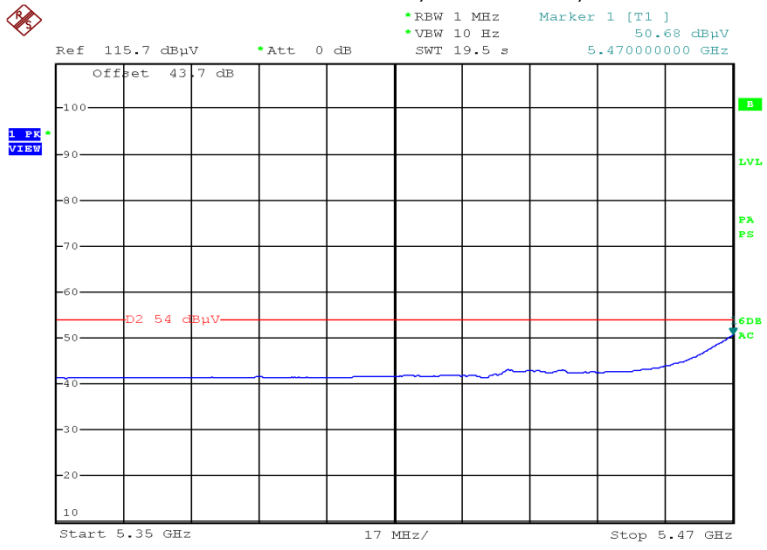
8.1.8. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

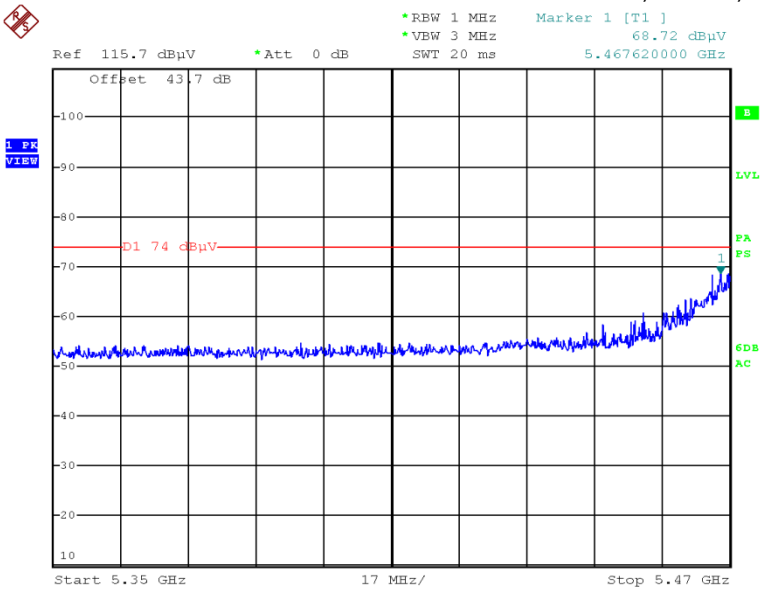
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



LOW CHANNEL RESTRICTED, AVERAGE, HORIZ

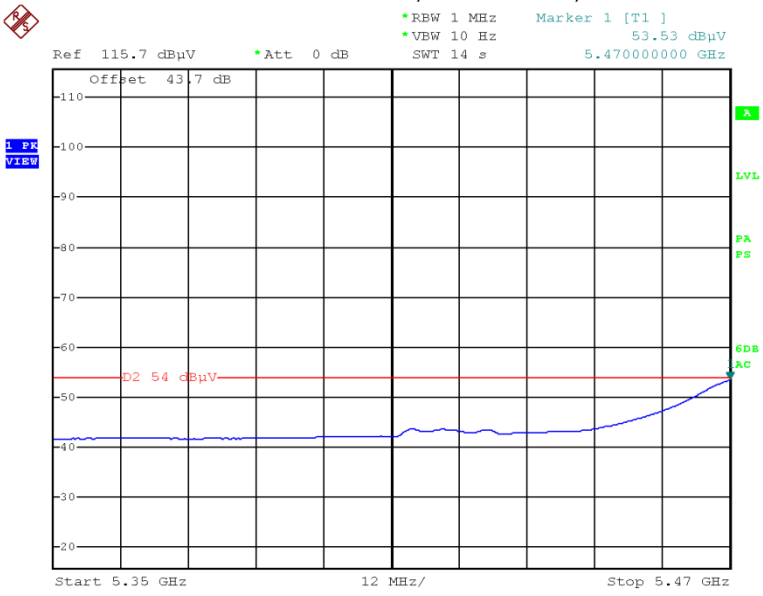


LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT



Date: 11.JAN.2014 11:43:48

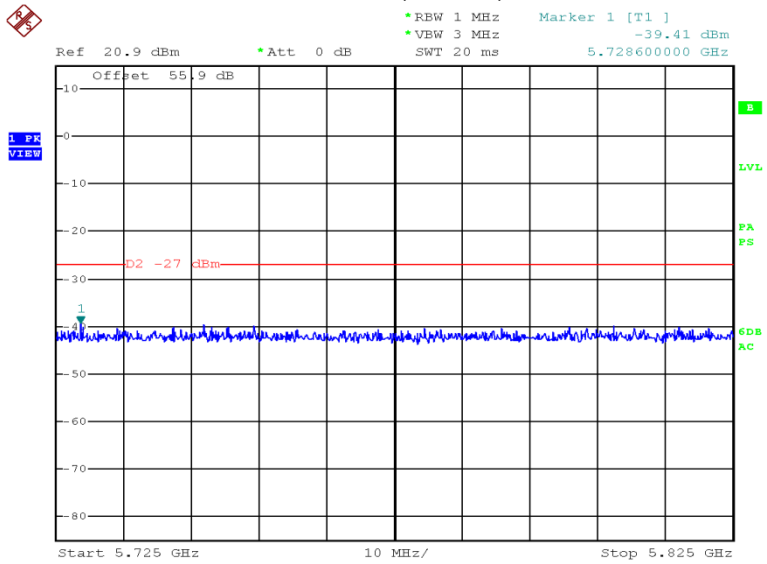
LOW CHANNEL RESTRICTED, AVERAGE, VERT



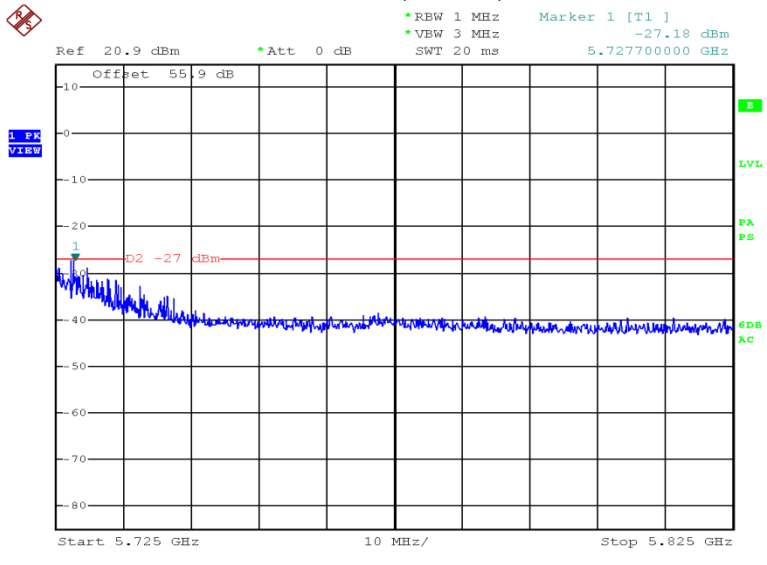
Date: 13.JAN.2014 15:56:31

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, PEAK, HORIZ



HIGH CHANNEL BANDEDGE, PEAK, VERT



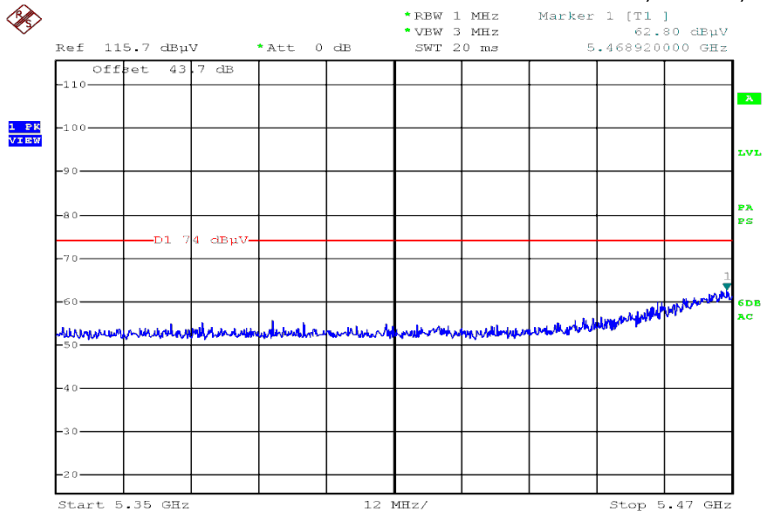
HARMONICS AND SPURIOUS EMISSIONS

Covered by worse case emissions testing of 11n HT20 CDD 2TX at power levels, per transmit chain, greater than or equal to any 1TX and 2TX mode.

8.1.9. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

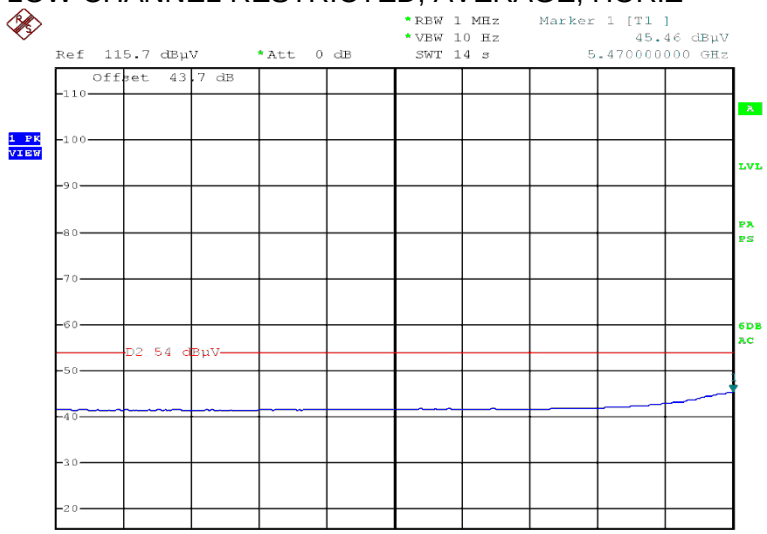
RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



Date: 7.JAN.2014 23:35:40

LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



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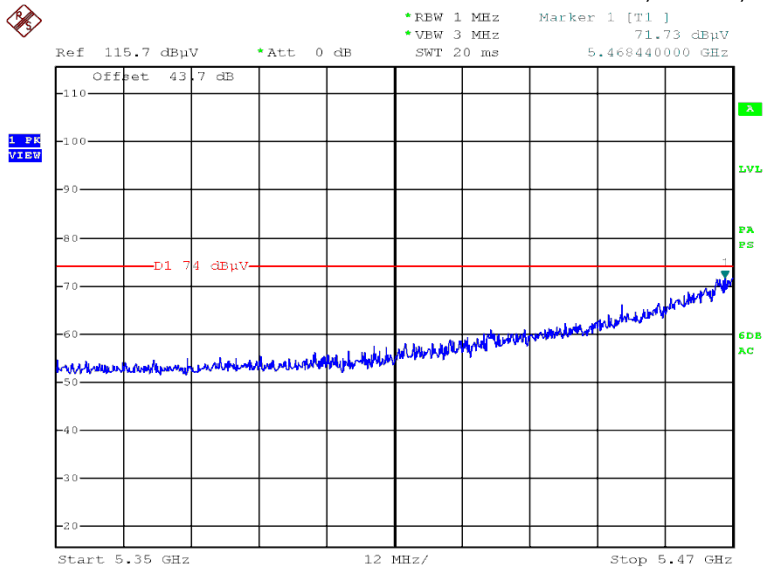
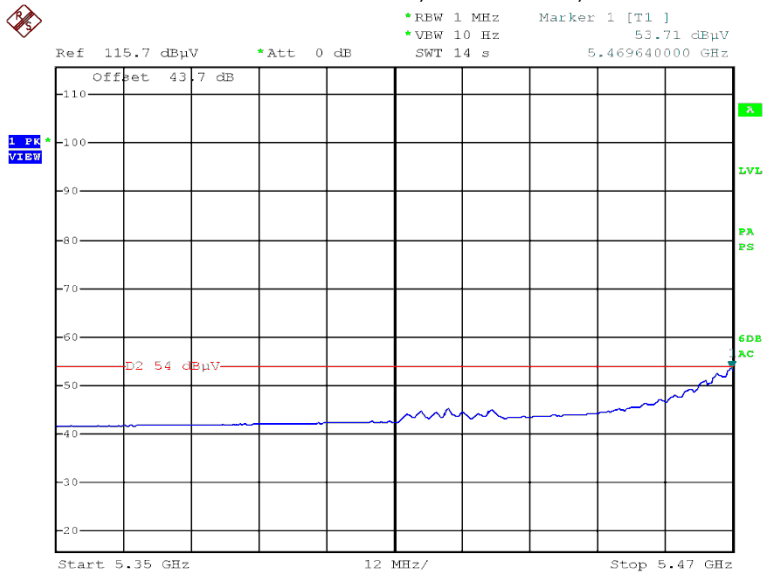
LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT



Date: 7.JAN.2014 23:29:23

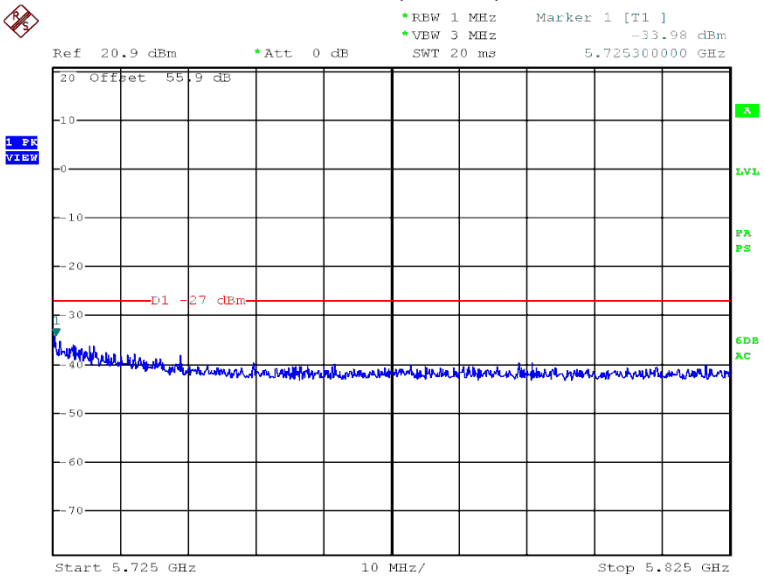
LOW CHANNEL RESTRICTED, AVERAGE, VERT



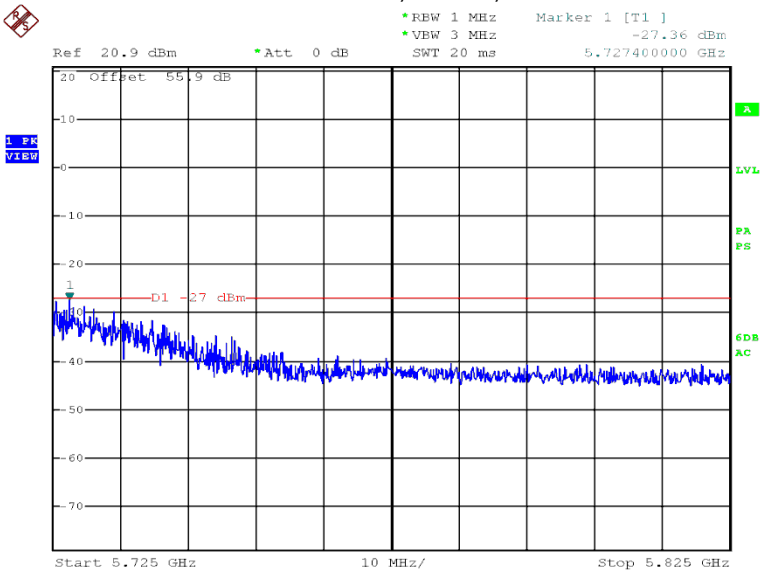
Date: 7.JAN.2014 23:27:56

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, PEAK, HORIZ



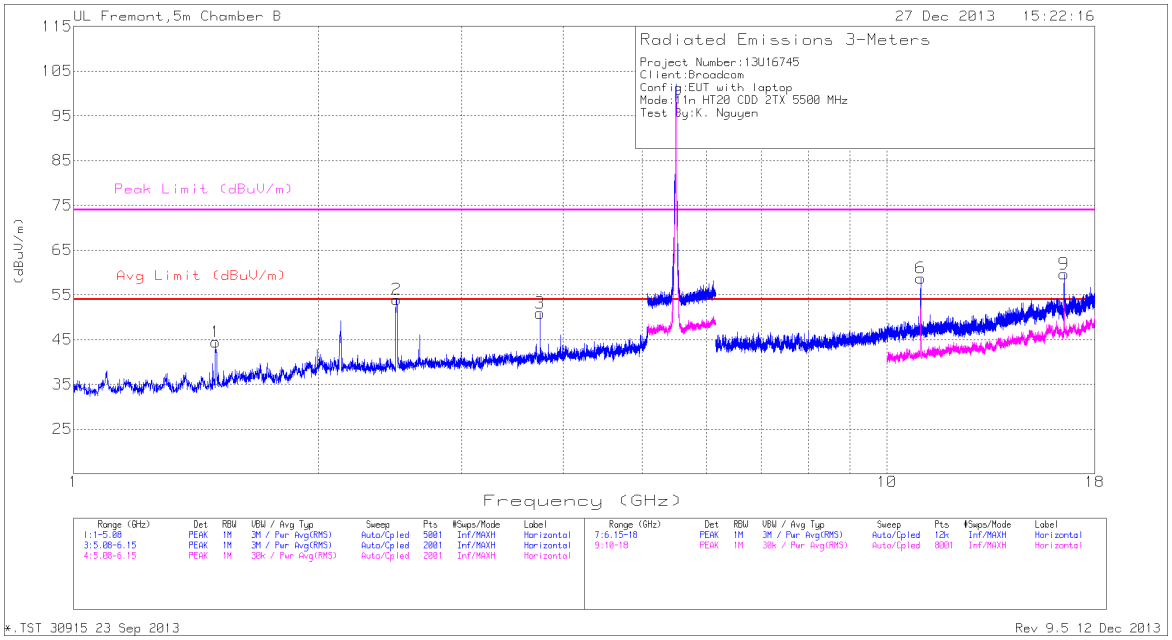
HIGH CHANNEL BANDEDGE, PEAK, VERT



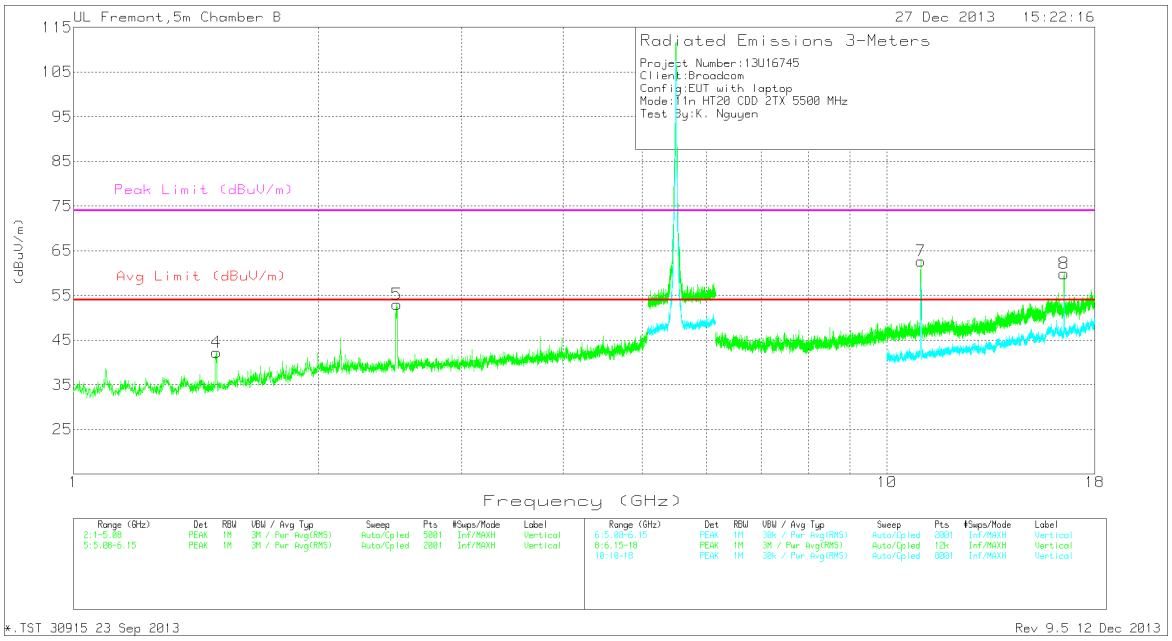
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.495	50.78	PK	28.2	-34.5	44.48	53.97	-9.49	68.2	-23.72	0-360	202	H
2*	2.495	53.78	PK	32.5	-32.3	53.98	-	-	74	-20.02	0-360	202	H
3*	3.743	48.51	PK	33.8	-31.4	50.91	-	-	74	-23.09	0-360	202	H
4	1.499	48.57	PK	28.2	-34.5	42.27	53.97	-11.7	74	-31.73	0-360	202	V
5*	2.497	52.67	PK	32.5	-32.2	52.97	-	-	74	-21.03	0-360	202	V
6*	11	43.75	PK	38.3	-23.3	58.75	-	-	74	-15.25	0-360	202	H
7*	11.001	47.7	PK	38.3	-23.3	62.7	-	-	74	-11.3	0-360	99	V
9	16.5	38.87	PK	41.4	-20.6	59.67	-	-	68.2	-8.53	0-360	202	H
8	16.503	38.99	PK	41.4	-20.5	59.89	-	-	68.2	-8.31	0-360	202	V

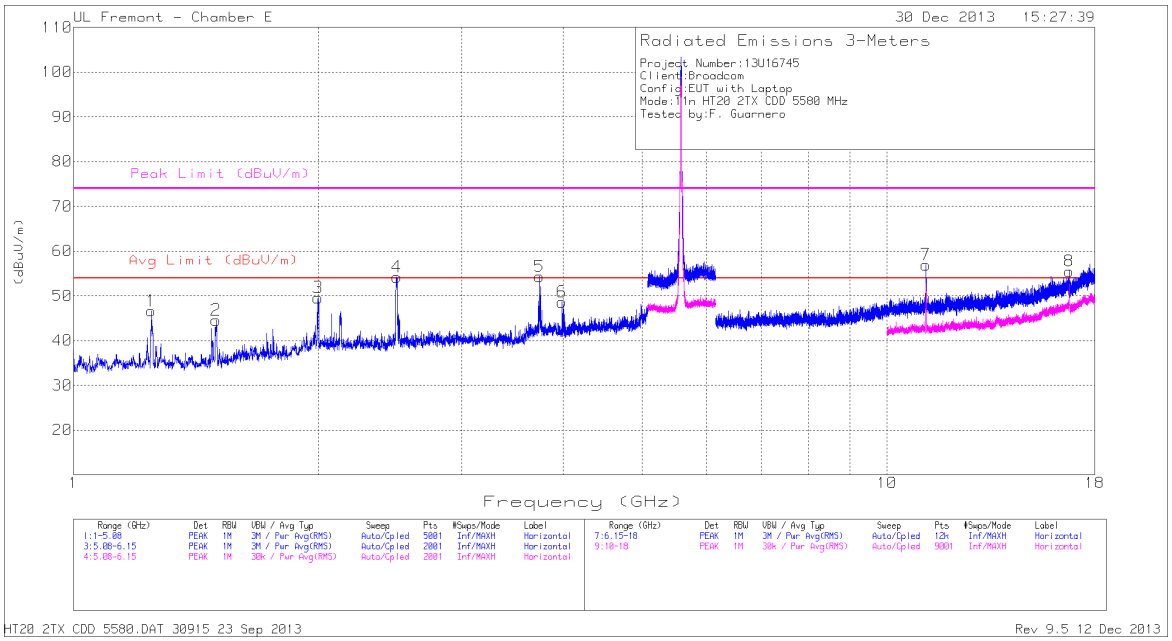
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*2.496	57.41	PK1	32.5	-32.3	57.61	-	-	74	-16.39	50	153	H
*2.498	43.37	VB1	32.5	-32.2	43.67	53.97	-10.3	-	-	50	153	H
*2.494	54.96	PK1	32.5	-32.3	55.16	-	-	74	-18.84	121	272	V
*2.489	41.17	VB1	32.5	-32.3	41.37	53.97	-12.6	-	-	121	272	V
*3.745	46.01	PK1	33.8	-31.4	48.41	53.97	-5.56	74	-25.59	78	210	H
*3.755	29.78	VB1	33.8	-31.3	32.28	53.97	-21.69	-	-	78	210	H
*10.999	47.34	PK1	38.3	-23.3	62.34	-	-	74	-11.66	232	318	H
*10.999	34.09	VB1	38.3	-23.3	49.09	53.97	-4.88	-	-	232	318	H
*10.999	38.63	VB1	38.3	-23.3	53.63	53.97	-0.34	-	-	231	341	V
*11.002	51.7	PK1	38.3	-23.3	66.7	-	-	74	-7.3	231	341	V

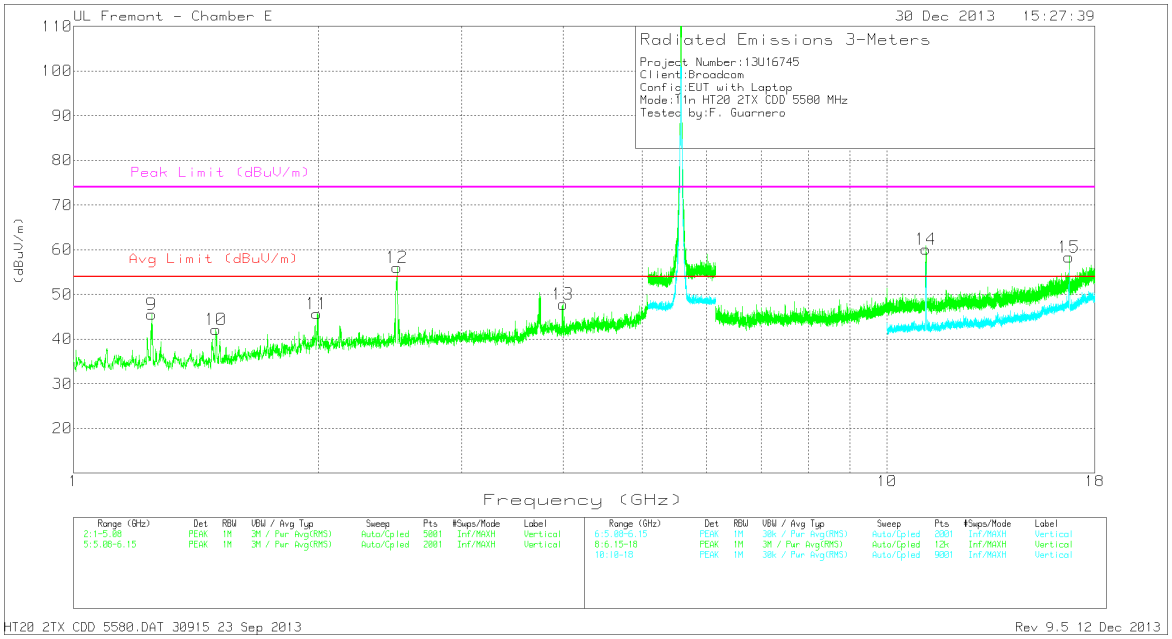
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
PK1 - KDB 789033 Method: Peak
VB1 - KDB 789033 Method: VB Alternative Reduced Video
*.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

Mid Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.246	52.23	PK	29.2	-34.8	0	46.63	53.97	-7.34	68.2	-21.57	0-360	101	H
2	1.497	50.56	PK	28.8	-34.8	0	44.56	53.97	-9.41	68.2	-23.64	0-360	200	H
3	1.998	50.48	PK	32.1	-33	0	49.58	-	-	68.2	-18.62	0-360	101	H
4*	2.497	53.82	PK	32.7	-32.3	0	54.22	-	-	74	-19.78	0-360	101	H
5*	3.737	52.82	PK	33.7	-32.2	0	54.32	-	-	74	-19.68	0-360	200	H
6*	3.984	46.84	PK	33.8	-32	0	48.64	-	-	74	-25.36	0-360	200	H
9	1.247	51.13	PK	29.2	-34.8	0	45.53	53.97	-8.44	68.2	-22.67	0-360	200	V
10	1.496	48.15	PK	28.8	-34.8	0	42.15	53.97	-11.82	68.2	-26.05	0-360	200	V
11	1.991	46.58	PK	32	-32.9	0	45.68	53.97	-8.29	68.2	-22.52	0-360	200	V
12*	2.498	55.61	PK	32.7	-32.3	0	56.01	-	-	74	-17.99	0-360	200	V
13*	3.996	46.01	PK	33.8	-32	0	47.81	53.97	-6.16	74	-26.19	0-360	200	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7*	11.158	42.82	PK	38.6	-24.5	0	56.92	-	-	74	-17.08	0-360	200	H
8	16.743	35.92	PK	41.4	-21.8	0	55.52	-	-	68.2	-12.68	0-360	200	H
14*	11.157	45.99	PK	38.6	-24.5	0	60.09	-	-	74	-13.91	0-360	200	V
15	16.733	38.74	PK	41.4	-21.8	0	58.34	-	-	68.2	-9.86	0-360	200	V

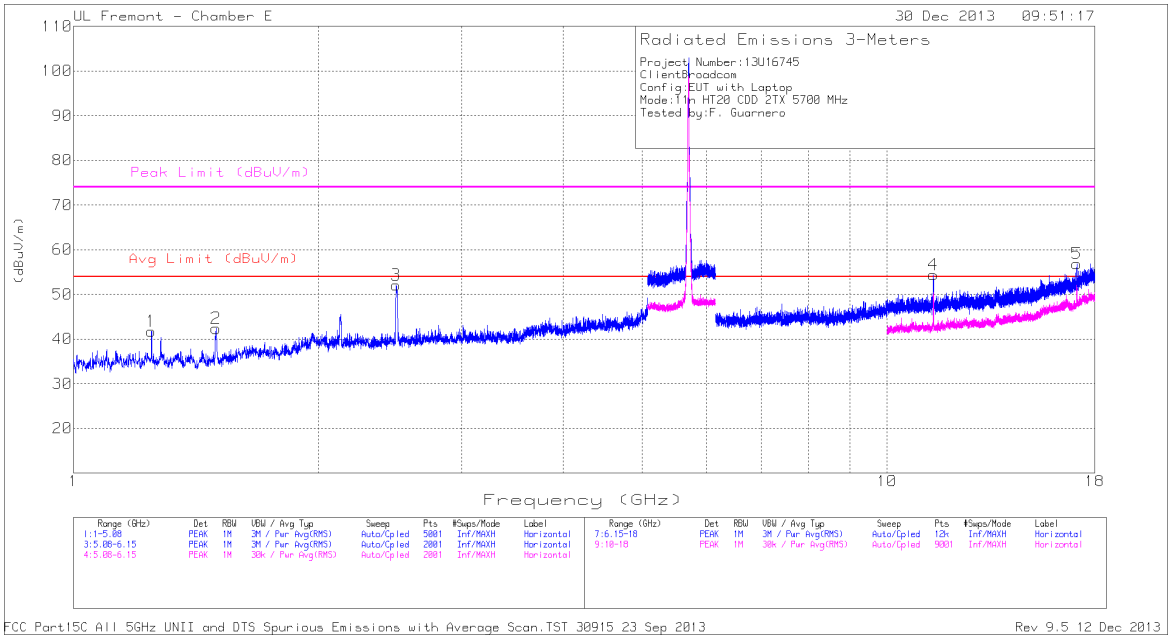
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.984	30.44	VB1	33.8	-32	0	32.24	53.97	-21.73	-	-	189	219	H
* 3.72	34.43	VB1	33.6	-32	0	36.03	53.97	-17.94	-	-	238	215	H
* 2.498	42.15	VB1	32.7	-32.3	0	42.55	53.97	-11.42	-	-	132	218	H
* 2.498	42.18	VB1	32.7	-32.3	0	42.58	53.97	-11.39	-	-	343	313	V

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.159	36.13	VB1	38.6	-24.5	0	50.23	53.97	-3.74	-	-	207	392	H
* 11.159	38.97	VB1	38.6	-24.5	0	53.07	53.97	-0.9	-	-	197	293	V

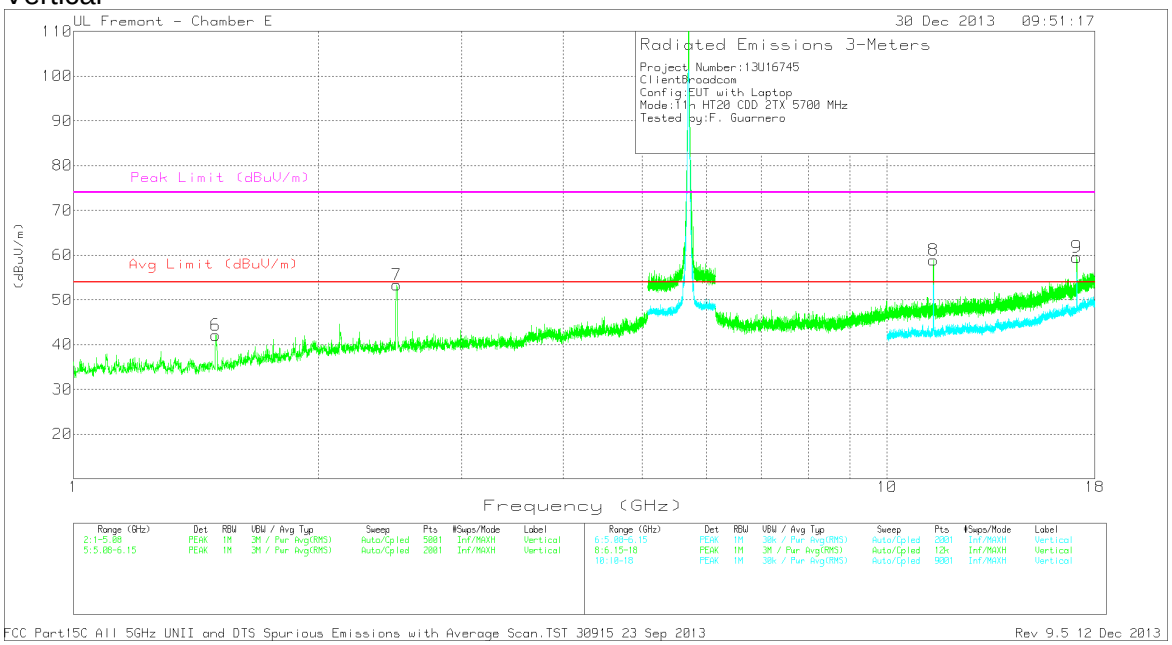
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
VB1 - KDB 789033 Method: VB Alternative Reduced Video
HT20 2TX CDD 5580.DAT 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.246	47.33	PK	29.2	-34.8	41.73	53.97	-12.24	68.2	-26.47	0-360	99	H
2	1.497	48.38	PK	28.8	-34.8	42.38	53.97	-11.59	68.2	-25.82	0-360	99	H
3*	2.492	51.8	PK	32.7	-32.4	52.1	-	-	74	-21.9	0-360	99	H
4*	11.398	40.09	PK	38.7	-24.4	54.39	-	-	74	-19.61	0-360	199	H
5	17.107	36.87	PK	41.3	-21.3	56.87	-	-	68.2	-11.33	0-360	199	H
6	1.495	48.11	PK	28.8	-34.8	42.11	53.97	-11.86	68.2	-26.09	0-360	200	V
7*	2.496	52.96	PK	32.7	-32.3	53.36	-	-	74	-20.64	0-360	200	V
8*	11.4	44.6	PK	38.7	-24.4	58.9	-	-	74	-15.1	0-360	101	V
9	17.103	39.52	PK	41.3	-21.3	59.52	-	-	68.2	-8.68	0-360	200	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/5 GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
*2.498	40.17	VB1	32.7	-32.3	40.57	53.97	-13.4	-	-	245	327	H
*2.498	42.64	VB1	32.7	-32.3	43.04	53.97	-10.93	-	-	321	365	V
*11.399	32.44	VB1	38.7	-24.4	46.74	53.97	-7.23	-	-	32	359	H
*11.399	36.6	VB1	38.7	-24.4	50.9	53.97	-3.07	-	-	269	143	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

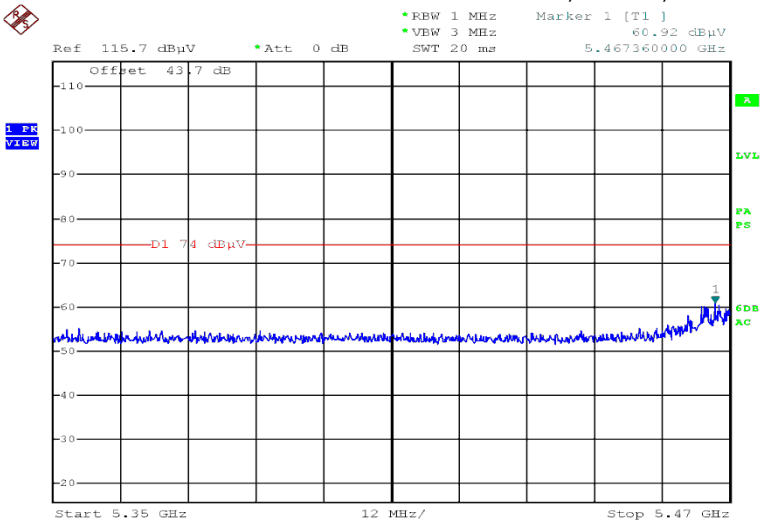
VB1 - KDB 789033 Method: VB Alternative Reduced Video

FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

8.1.10. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.6 GHz BAND

RESTRICTED & AUTHORIZED BANDEDGE (LOW CHANNEL)

CHANNEL RESTRICTED & AUTHORIZED, PEAK, HORIZ



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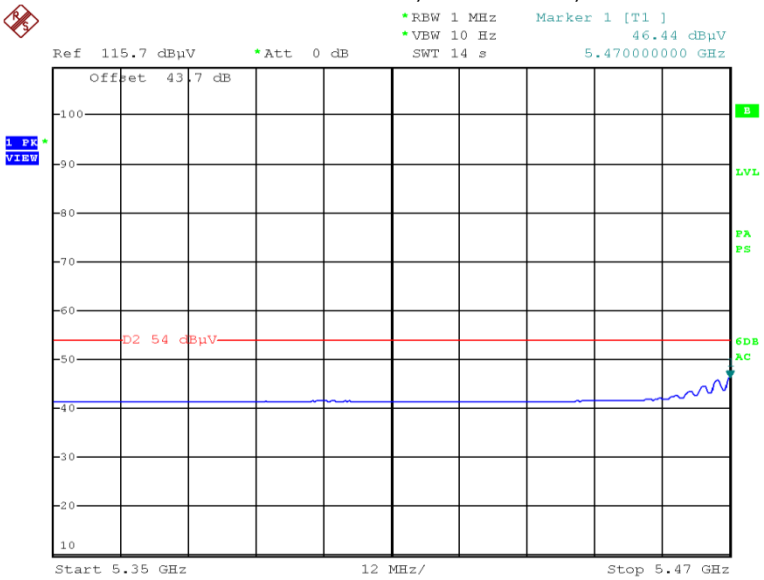
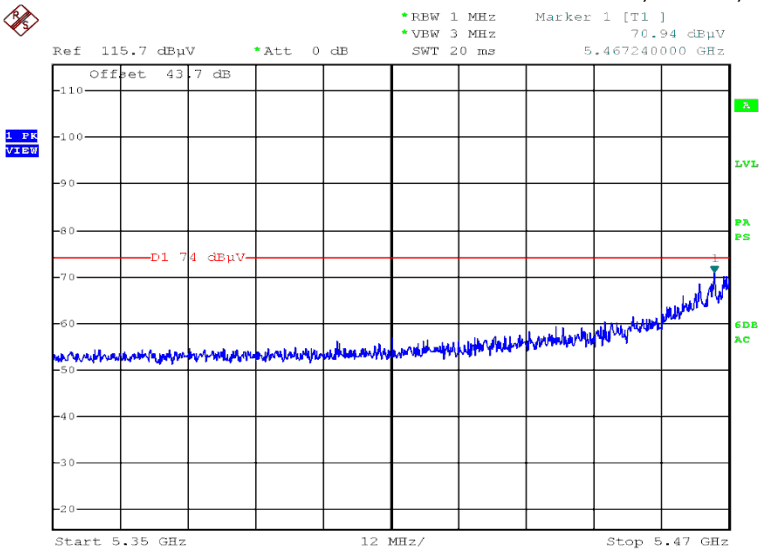
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



Date: 11.JAN.2014 13:05:11

LOW CHANNEL RESTRICTED & AUTHORIZED, PEAK, VERT



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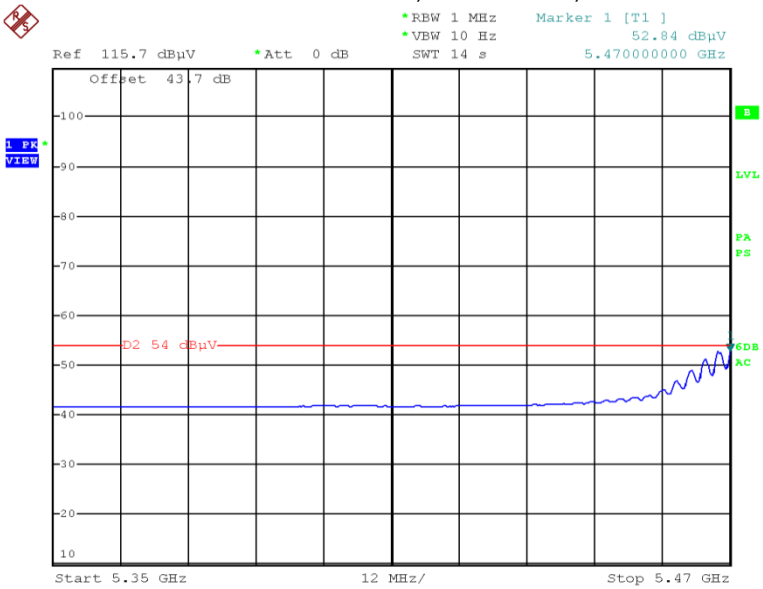
LOW CHANNEL RESTRICTED, AVERAGE, VERT



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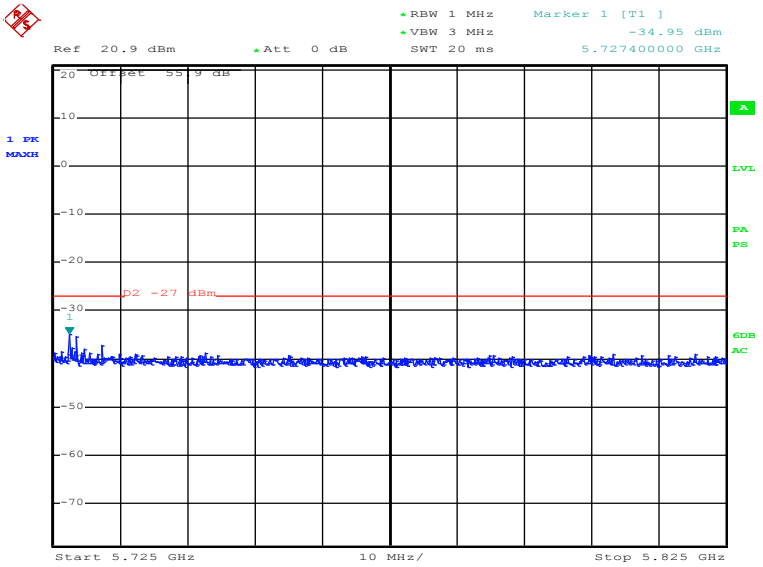
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, PEAK, HORIZ



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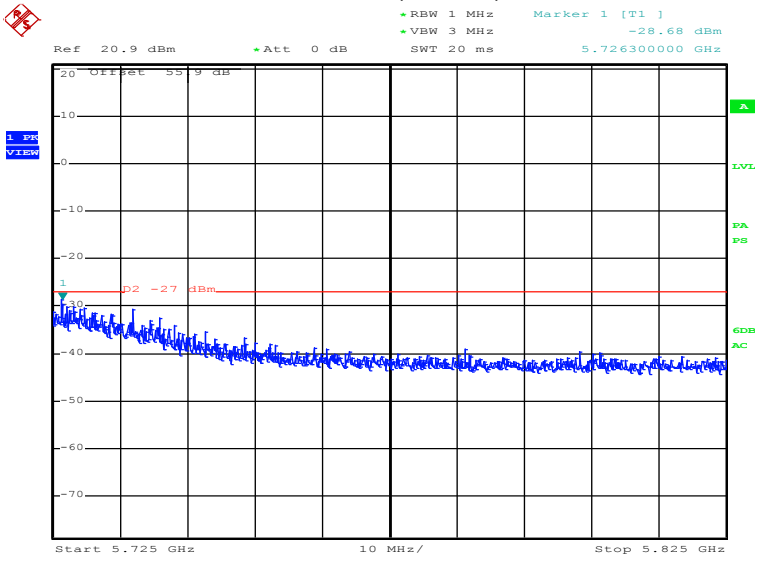
HIGH CHANNEL BANDEDGE, PEAK, VERT



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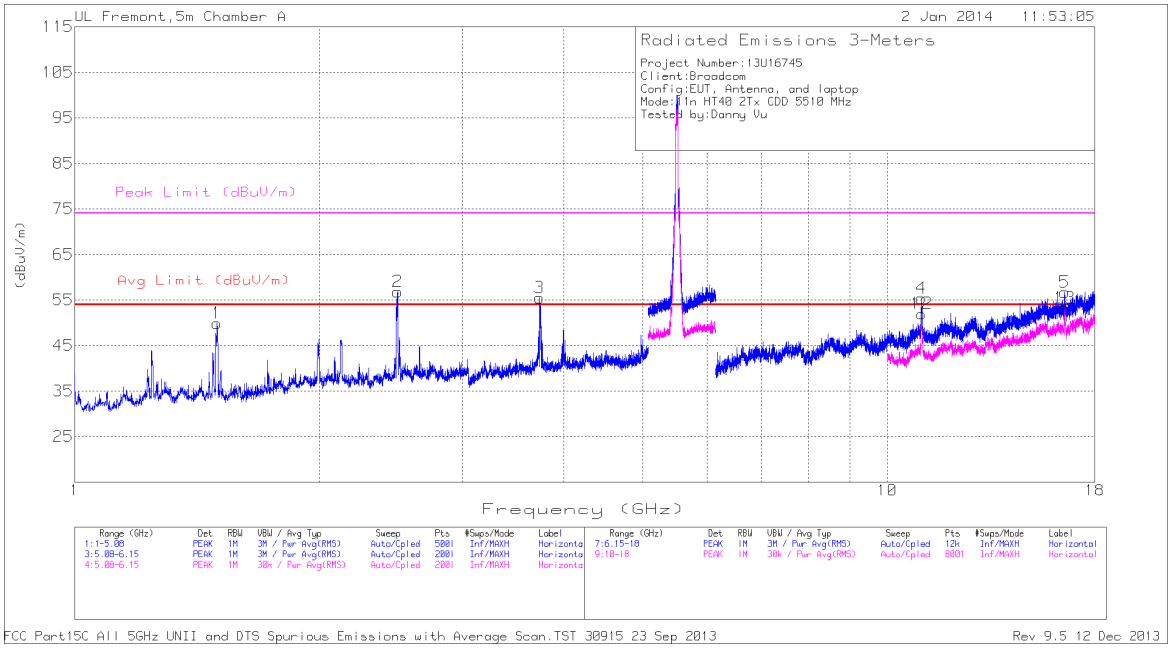
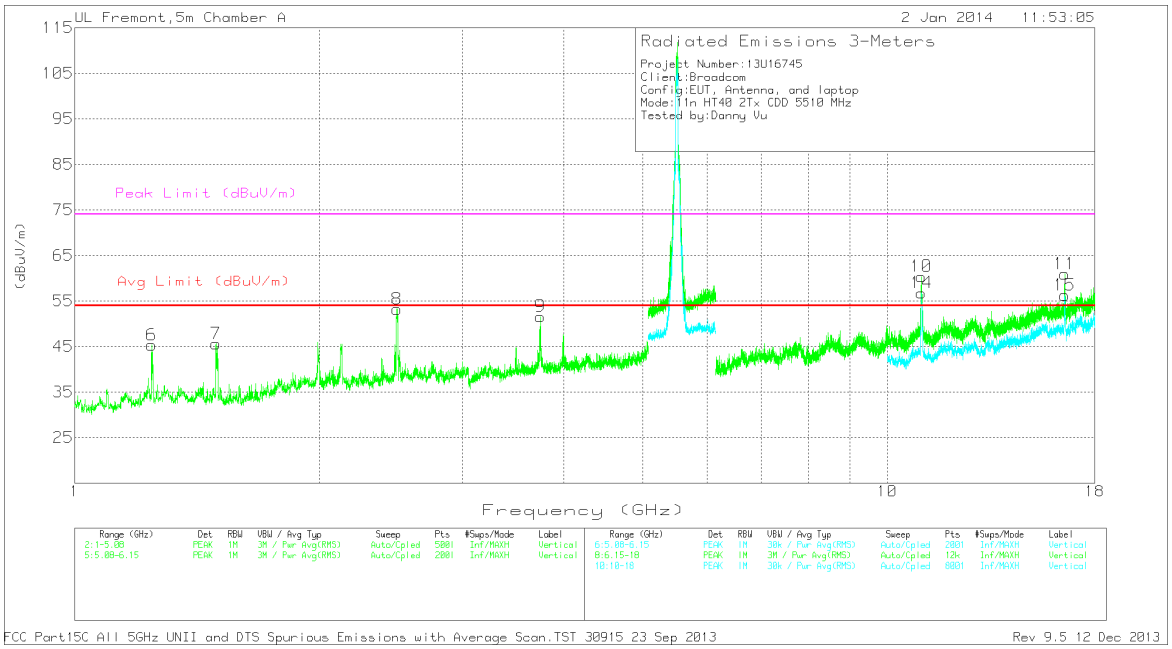
HARMONICS AND SPURIOUS EMISSIONS

Low Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	1.244	52.53	PK	29.9	-37.1	0	45.33	53.97	-8.64	74	-28.67	0-360	200	V
7	1.493	52.82	PK	29	-36.2	0	45.62	53.97	-8.35	74	-28.38	0-360	200	V
1	1.496	57.37	PK	28.9	-36.4	0	49.87	-	-	68.2	-18.33	0-360	200	H
8*	2.493	54.28	PK	32.6	-33.7	0	53.18	-	-	74	-20.82	0-360	200	V
2*	2.498	58	PK	32.6	-33.8	0	56.8	-	-	74	-17.2	0-360	200	H
3*	3.732	52.09	PK	33.4	-30	0	55.49	-	-	74	-18.51	0-360	200	H
9*	3.743	47.96	PK	33.4	-29.8	0	51.56	-	-	74	-22.44	0-360	100	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4*	11.01	40.06	PK	37.8	-22.5	0	55.36	-	-	74	-18.64	0-360	200	H
10*	11.014	44.94	PK	37.8	-22.4	0	60.34	-	-	74	-13.66	0-360	200	V
14*	11.017	40.23	Avg	37.8	-22.3	1	53.73	53.97	-0.24	-	-	0-360	201	V
12*	11.02	35.35	Avg	37.8	-22.2	1	51.95	53.97	-2.02	-	-	0-360	200	H
15	16.523	34.94	Avg	40.7	-20.4	1	53.24	53.97	-0.73	-	-	0-360	201	V
5	16.524	36.35	PK	40.7	-20.4	0	56.65	-	-	68.2	-11.55	0-360	200	H
11	16.528	40.51	PK	40.7	-20.3	0	60.91	-	-	68.2	-7.29	0-360	200	V
13	16.53	31.7	Avg	40.7	-20.2	1	53.2	53.97	-0.77	-	-	0-360	200	H

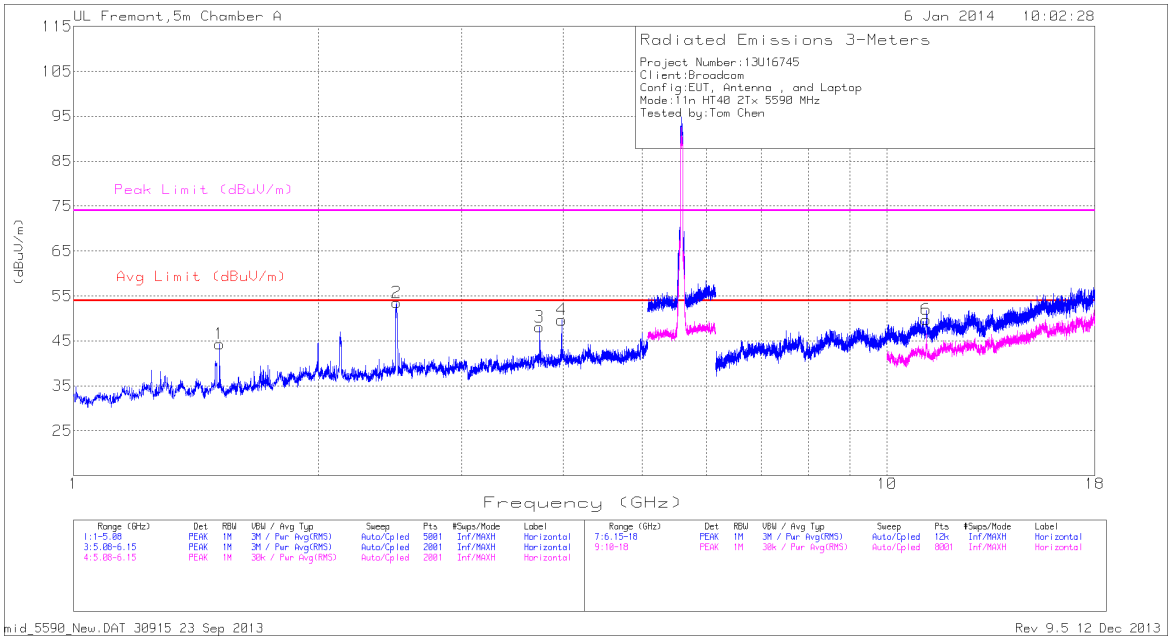
Radiated Emissions

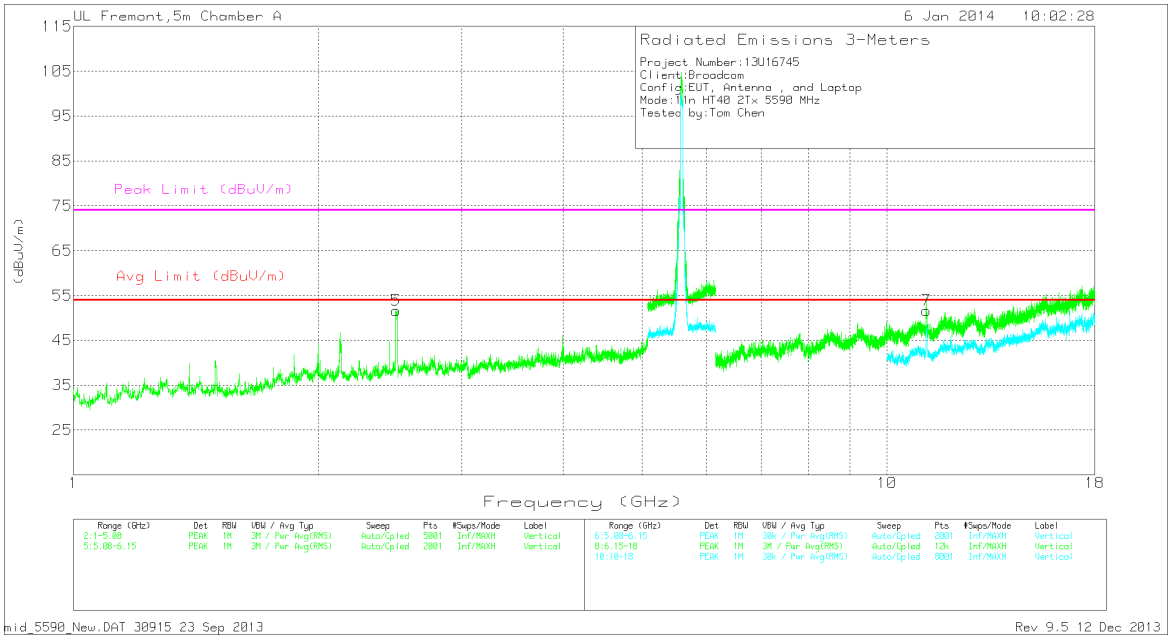
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/5GHz LPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.497	40.04	VB1	28.9	-36.5	1	33.44	53.97	-20.53	-	-	227	376	H
2.489	43.31	VB1	32.5	-33.5	1	43.31	53.97	-10.66	-	-	24	301	H
2.498	37.96	VB1	32.6	-33.8	1	37.76	53.97	-16.21	-	-	0	149	V
3.747	29.01	VB1	33.4	-30.2	1	33.21	53.97	-20.76	-	-	152	356	V
3.748	29.24	VB1	33.4	-30.2	1	33.44	53.97	-20.53	-	-	74	314	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/6GHz HPF	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
11.012	31.41	VB1	37.8	-22.5	1	47.71	53.97	-6.26	-	-	138	290	H
11.02	34.69	VB1	37.8	-22.2	1	51.29	53.97	-2.68	-	-	297	296	V
16.528	25.52	VB1	40.7	-20.3	1	46.92	53.97	-7.05	-	-	0	105	H
16.532	29.86	VB1	40.7	-20.1	1	51.46	53.97	-2.51	-	-	37	176	V

Note: Frequencies marked (*) In Restricted Band
PK - Peak detector
Avg - Video bandwidth < Resolution bandwidth
VB1 - KDB 789033 Method: VB Alternative Reduced Video
FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

Mid Channel





Mid Channel 5590MHz

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.512	51.14	PK	28.8	-35.6	44.34	53.97	-9.63	74	-29.66	0-360	200	H
5	2.492	52.66	PK	32.6	-33.6	51.66	_	_	74	-22.34	0-360	200	V
2	2.497	54.74	PK	32.6	-33.8	53.54	-	-	74	-20.46	0-360	200	H
3	3.74	44.39	PK	33.4	-29.7	48.09	-	-	74	-25.91	0-360	101	H
4	3.981	46.08	PK	33.8	-30.2	49.68	-	-	74	-24.32	0-360	200	H
*6	11.171	34.38	PK	37.9	-22.5	49.78	-	-	74	-24.22	0-360	200	H
*7	11.178	36.57	PK	37.9	-22.8	51.67	-	-	74	-22.33	0-360	100	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.489	34.4	VB1	32.5	-33.5	33.4	53.97	-20.57	-	-	0	173	V
2.498	38.66	VB1	32.6	-33.8	37.46	53.97	-16.51	-	-	196	114	H
3.737	28.4	VB1	33.4	-29.8	32	53.97	-21.97	-	-	257	321	H
3.978	29.26	VB1	33.8	-30.2	32.86	53.97	-21.11	-	-	265	175	H
*11.179	31.35	VB1	37.9	-22.9	46.35	53.97	-7.62	-	-	127	267	V
*11.18	29.13	VB1	37.9	-22.9	44.13	53.97	-9.84	-	-	164	348	H

Note: Frequencies marked (*) In Restricted Band

PK - Peak detector

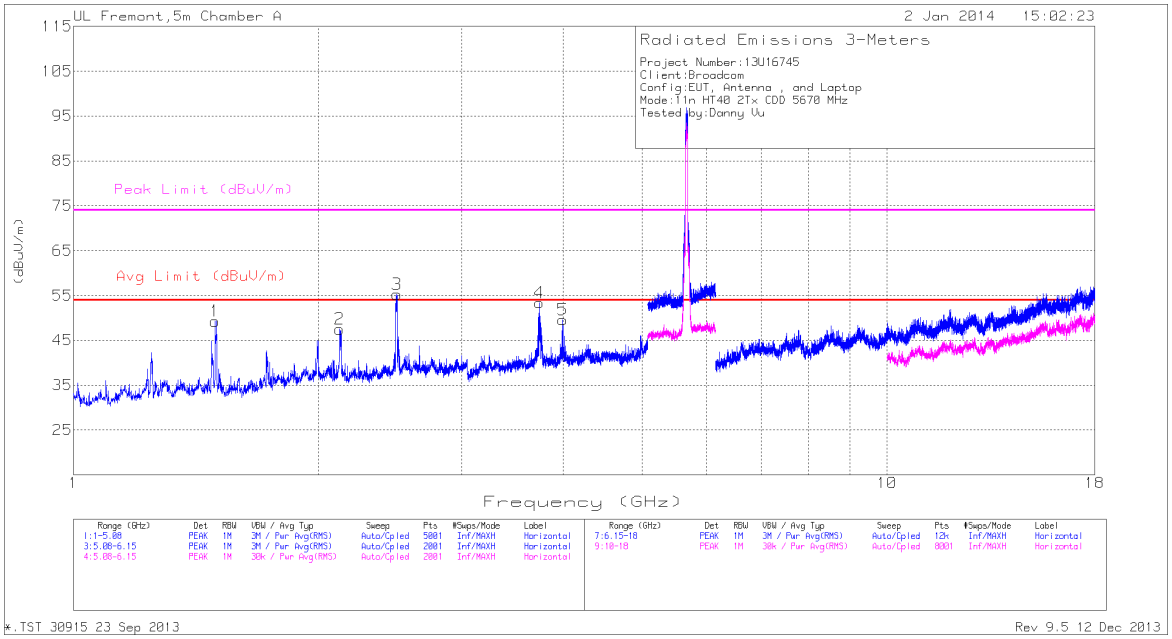
Avg - Video bandwidth < Resolution bandwidth

VB1 - KDB 789033 Method: VB Alternative Reduced Video

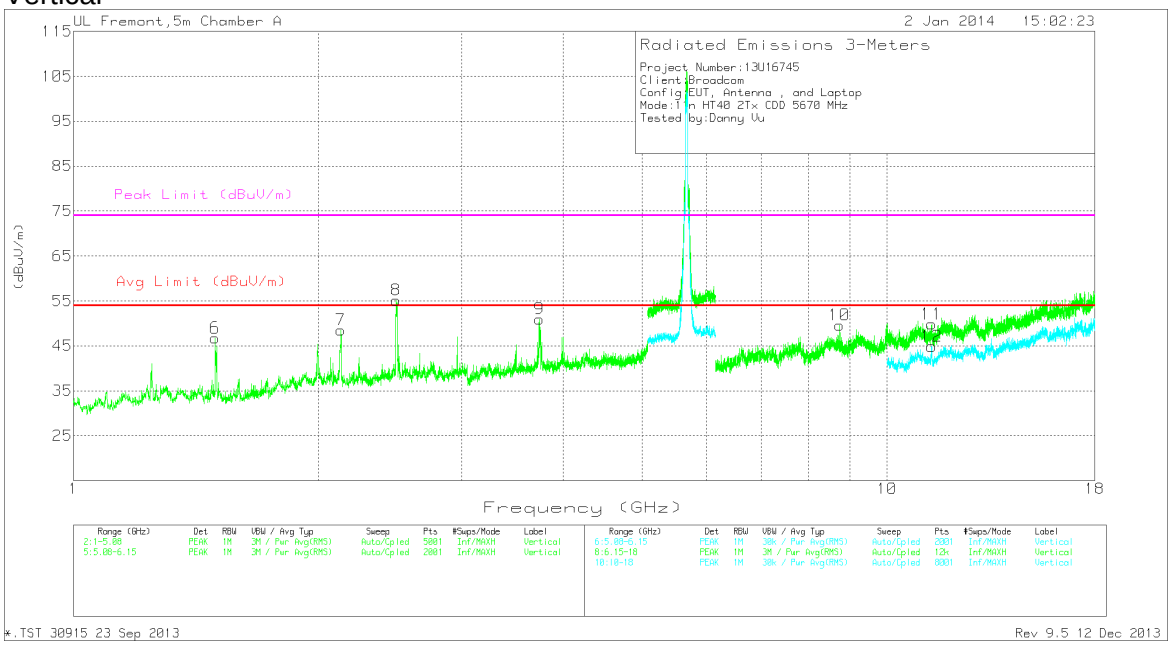
mid_5590_New.DAT 30915 23 Sep 2013 Rev 9.5 12 Dec 2013

High Channel

Horizontal



Vertical



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.492	56.36	PK	29	-36.1	49.26	-	-	68.2	-18.94	0-360	200	H
6	1.493	53.94	PK	29	-36.2	46.74	53.97	-7.23	74	-27.26	0-360	100	V
2	2.123	50.12	PK	31.6	-34.2	47.52	53.97	-6.45	74	-26.48	0-360	200	H
7	2.131	51.05	PK	31.6	-34.1	48.55	-	-	68.2	-19.65	0-360	100	V
8*	2.492	56.18	PK	32.6	-33.6	55.18	-	-	74	-18.82	0-360	200	V
3*	2.497	56.45	PK	32.6	-33.8	55.25	-	-	74	-18.75	0-360	200	H
4*	3.738	49.78	PK	33.4	-29.8	53.38	-	-	74	-20.62	0-360	200	H
9*	3.738	47.39	PK	33.4	-29.8	50.99	-	-	74	-23.01	0-360	200	V
5*	3.993	45.59	PK	33.8	-29.8	49.59	-	-	74	-24.41	0-360	100	H

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10	8.738	39.52	PK	35.8	-25.7	49.62	-	-	68.2	-18.58	0-360	201	V
11*	11.342	34.56	PK	38.1	-22.8	49.86	-	-	74	-24.14	0-360	100	V
12	11.344	29.71	Avg	38.1	-22.9	44.91	53.97	-9.06	-	-	0-360	200	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1492	41.13	VB1	29	-36.3	33.83	53.97	-20.14	-	-	250	199	H
2.124	35.73	VB1	31.6	-34.3	33.03	53.97	-20.94	-	-	0	315	V
2.497	36.81	VB1	32.5	-33.5	35.81	53.97	-18.16	-	-	11	369	H
2.492	41.46	VB1	32.6	-33.8	40.26	53.97	-13.71	-	-	351	208	V
3.738	29.43	VB1	33.4	-30	32.83	53.97	-21.14	-	-	209	228	V
3.738	28.75	VB1	33.4	-29.9	32.25	53.97	-21.72	-	-	348	304	H
3.993	28.74	VB1	33.8	-30.2	32.34	53.97	-21.63	-	-	0	211	H

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8.731	25.55	VB1	35.8	-25.9	35.45	53.97	-18.52	-	-	0	265	V

Note: Frequencies marked (*) In Restricted Band
PK - Peak detector
Avg - Video bandwidth < Resolution bandwidth
VB1 - KDB 789033 Method: VB Alternative Reduced Video
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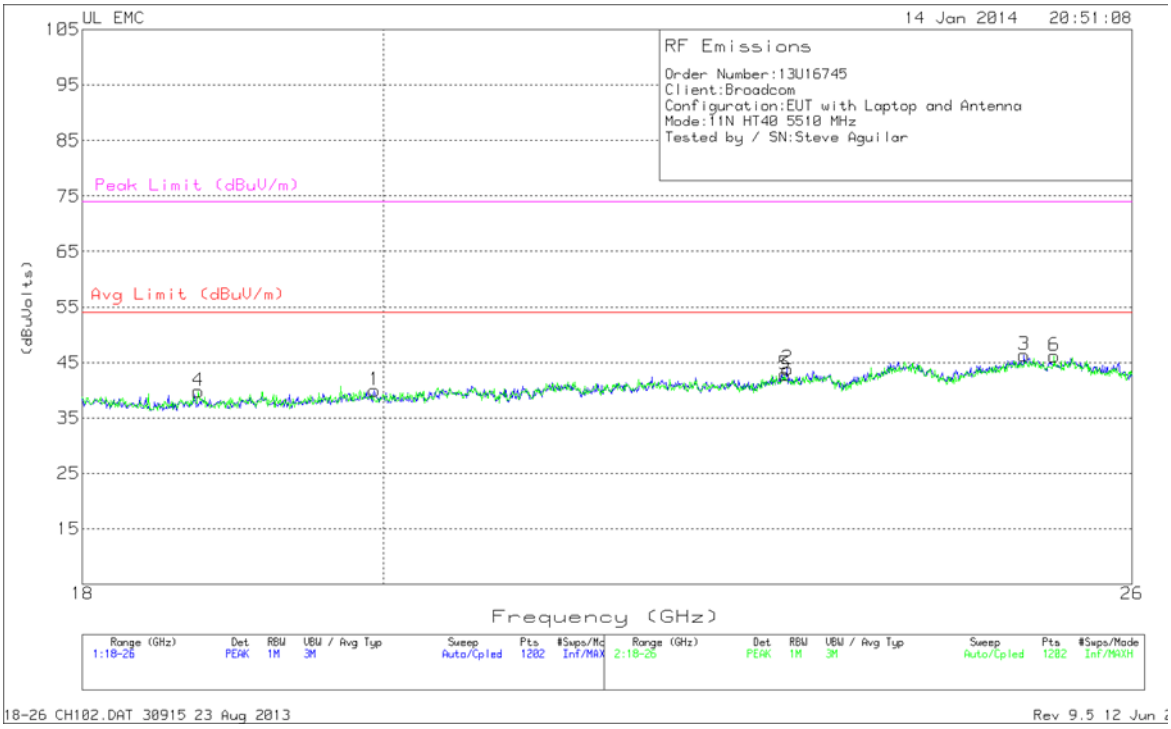
5.6 GHz Low Channel 18-26 GHz

Worst case test mode and channel: HT40, Low channel.

LOW CHANNEL PLOT



LOW CHANNEL DATA

Trace Markers

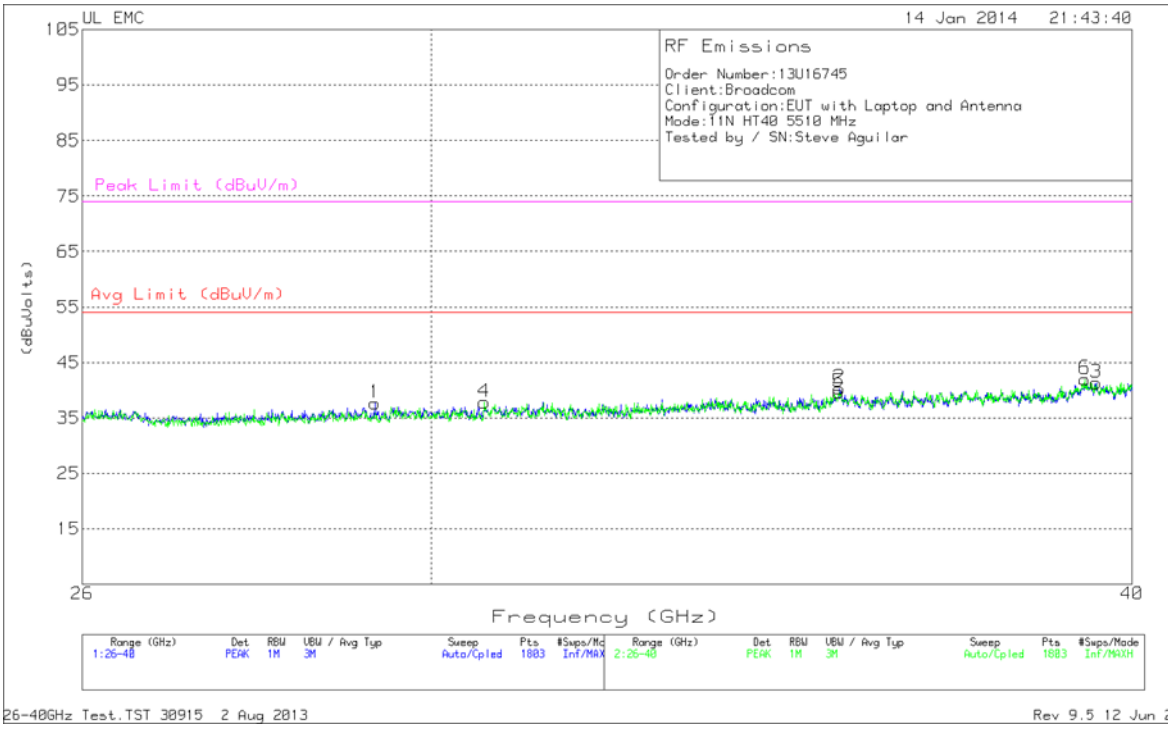
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T89 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.938	41	PK	32.8	-24.3	-9.5	40	54	-14	74	-34
2	23.042	43.13	PK	33.5	-23.3	-9.5	43.83	54	-10.16	74	-30.16
3	25.034	44.63	PK	34	-22.8	-9.5	46.33	54	-7.66	74	-27.66
4	18.746	41.23	PK	32.5	-24.4	-9.5	39.83	54	-14.16	74	-34.16
5	23.022	42.13	PK	33.6	-23.4	-9.5	42.83	54	-11.16	74	-31.16
6	25.301	44.17	PK	33.9	-22.4	-9.5	46.16	54	-7.83	74	-27.83

PK - Peak detector

5.6 GHz Low Channel 26 – 40 GHz

Worst case test mode and channel: HT40, Low channel.

LOW CHANNEL PLOT



LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 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	29.317	46.27	PK	35.9	-35	-9.5	37.66	54	-16.33	74	-36.33
2	35.471	49.23	PK	37.9	-37.3	-9.5	40.33	54	-13.66	74	-33.66
3	39.417	48.63	PK	37.7	-35.5	-9.5	41.33	54	-12.66	74	-32.66
4	30.661	46.83	PK	36.1	-35.6	-9.5	37.83	54	-16.16	74	-36.16
5	35.463	48.67	PK	37.9	-37.4	-9.5	39.66	54	-14.33	74	-34.33
6	39.231	49.2	PK	38.5	-36.2	-9.5	42	54	-12	74	-32

PK - Peak detector

8.2. WORST-CASE BELOW 1 GHz

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

HORIZONTAL AND VERTICAL DATA

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
54.9475	55.1	PK	7	-27.3	34.8	40	-5.2	0-360	101	H
63.1075	58.48	PK	7.6	-27.2	38.88	40	-1.12	0-360	400	H
71.905	55.9	PK	8.3	-27.1	37.1	40	-2.9	0-360	101	V
181.555	55.49	PK	11.3	-26.2	40.59	43.52	-2.93	0-360	200	H
225.8	57.56	PK	10.7	-25.9	42.36	46.02	-3.66	0-360	101	H
896.2	45.81	PK	21.9	-22.6	45.11	46.02	-0.91	0-360	200	V

Radiated Emissions with QP

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
55.0203	32	QP	7	-27.3	11.7	40	-28.3	161	360	H
64.17	45.25	QP	7.8	-27.3	25.75	40	-14.25	158	364	H
68.4125	40.88	QP	8.1	-27.2	21.78	40	-18.22	158	364	V
74.115	41.61	QP	8.2	-27.1	22.71	40	-17.29	163	101	V
199.9395	32.96	QP	12.3	-26.1	19.16	40	-24.36	124	206	V
895.9885	16.39	QP	21.9	-22.6	15.69	40	-30.33	40	224	H

PK - Peak detector

QP - Quasi-Peak detector

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