



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

**CERTIFICATION TEST REPORT
FOR
GSM/WCDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n/ac + NFC**

MODEL NUMBER: SM-G710S; SM-G710L; SM-G710K

**FCC ID: A3LSMG710S
IC: 649E-SMG710S**

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--	12/30/13	Initial Issue	P. Kim
A	1/13/14	Updated summary table; Updated limit typo in section 10.4.7 and 10.4.8;	P. Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung

EUT DESCRIPTION: GSM/WCDMA Phone + Bluetooth & WLAN 2.4GHz b/g/n + NFC

MODEL: SM-G710S; SM-G710L; SM-G710K

SERIAL NUMBER: FK-366A, FK-366B, FK-366C, FK-366D

DATE TESTED: December 2 - 30, 2013

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

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

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2009, RSS-GEN Issue 3, FCC KDB 644545 D01 and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 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 a Dual Band phone that also supports BLUETOOTH, WLAN and NFC.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180-5240	802.11a	12.7	18.62
5180-5240	802.11n HT20	12.8	19.05
5190-5230	802.11n HT40	12.7	18.62
5210	802.11ac HT80	9.82	9.59
5260-5320	802.11a	12.6	18.20
5260-5320	802.11n HT20	12.7	18.62
5270-5310	802.11n HT40	12.1	16.22
5290	802.11ac HT80	10.3	10.72
5500-5700	802.11a	12.45	17.58
5500-5700	802.11n HT20	12.56	18.03
5510-5670	802.11n HT40	12.9	19.50
5530	802.11ac HT80	9.63	9.18

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 2.08 dBi for UNII 5.2G; 1.61dBi for UNII 5.3G; 2.09dBi for UNII 5.5G.

5.4. SOFTWARE AND FIRMWARE

Software version was 3.4.0-g9f6ebe1-00072-gcee1ab4b

The firmware used was M8974A-0.0.19.0.01.

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

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

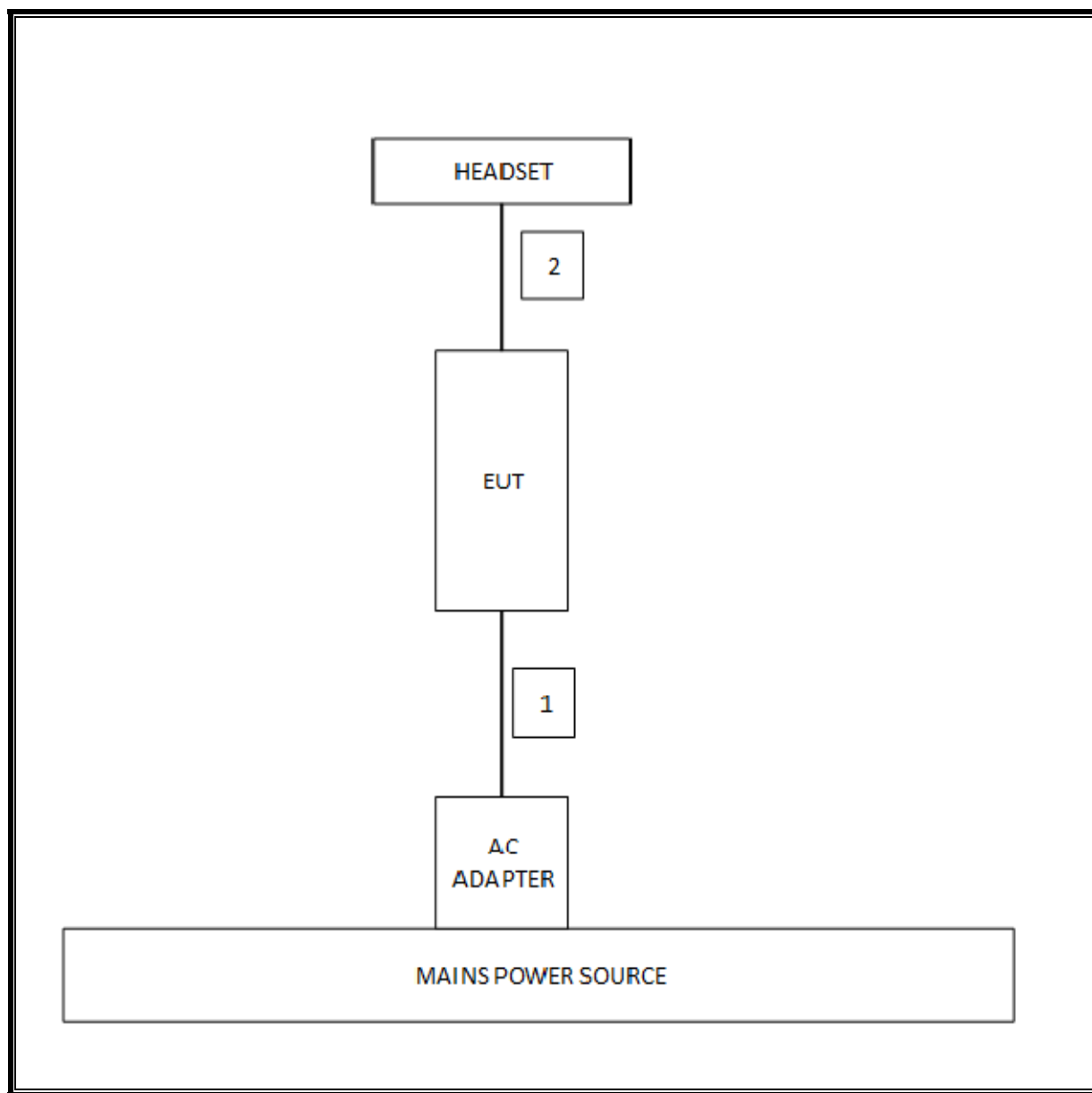
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samusng	SM-G710S	E18KWKTAOU	N/A
Earphone	Samsung	SM-G710S	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

The EUT is setup as a stand-alone device.



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 Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	4/1/2014
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	2/26/2014
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/8/2014
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	1/28/2014
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/2014
Preamplifier, 40 GHz	Miteq	NSP4000-SP2	C00990	8/2/2014
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	N/A	3/6/2014
Antenna, Horn, 18 GHz	ETS	3117	C01022	2/21/2014
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/2014
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2014
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2014
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/14
Reject Filter, 5.725-5.825 GHz	Micro-Tronics	BRC13192	N02676	CNR

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	84.3MHz
15.407 (a)(1)	TX Cond. Power 5.15-2.25	<17dBm		Pass	13.36dBm
15.407 (a)(2)	TX Cond. Power 5.25-5.35 & 5.47-5.725	<24dBm		Pass	13.04dBm
15.407 (a)(5)	PSD	<4dBm for HT40/80 <11dBm for HT20		Pass	1.61dBm
15.407 (a)(6)	Peak Excursion Ratio	13dB		Pass	8.41dB
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Pass	30.62dBuV (AV)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	48.78dBuV/m(AV)
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	N/A

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

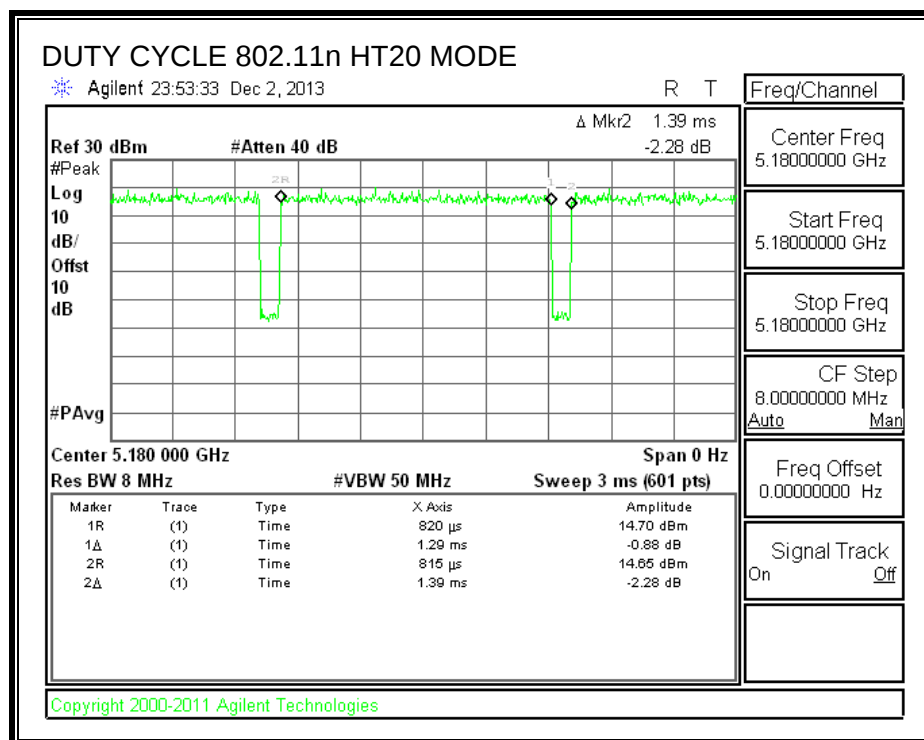
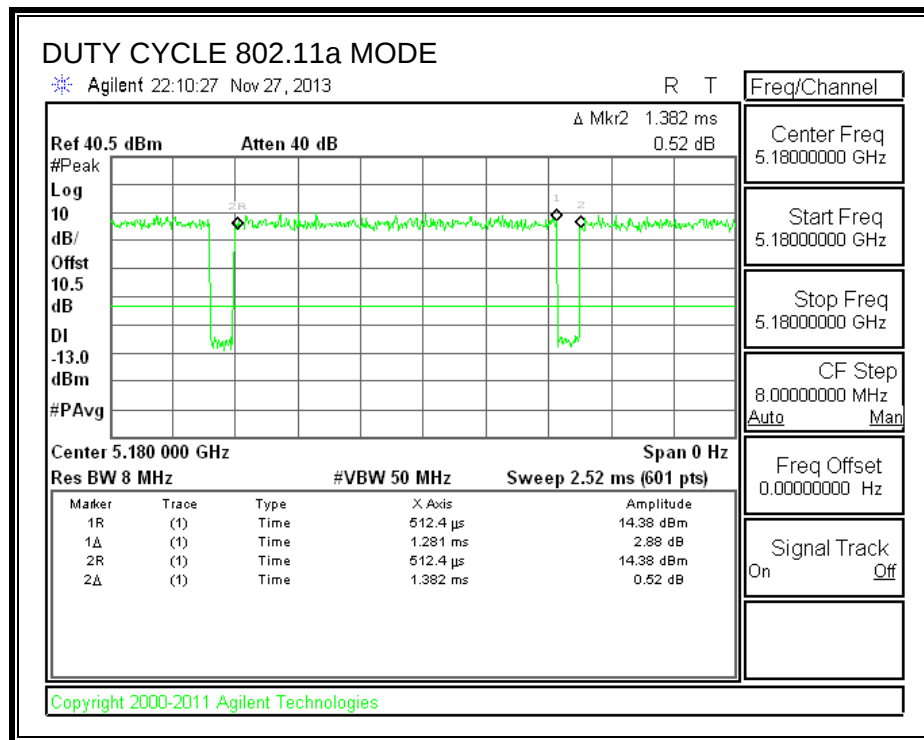
PROCEDURE

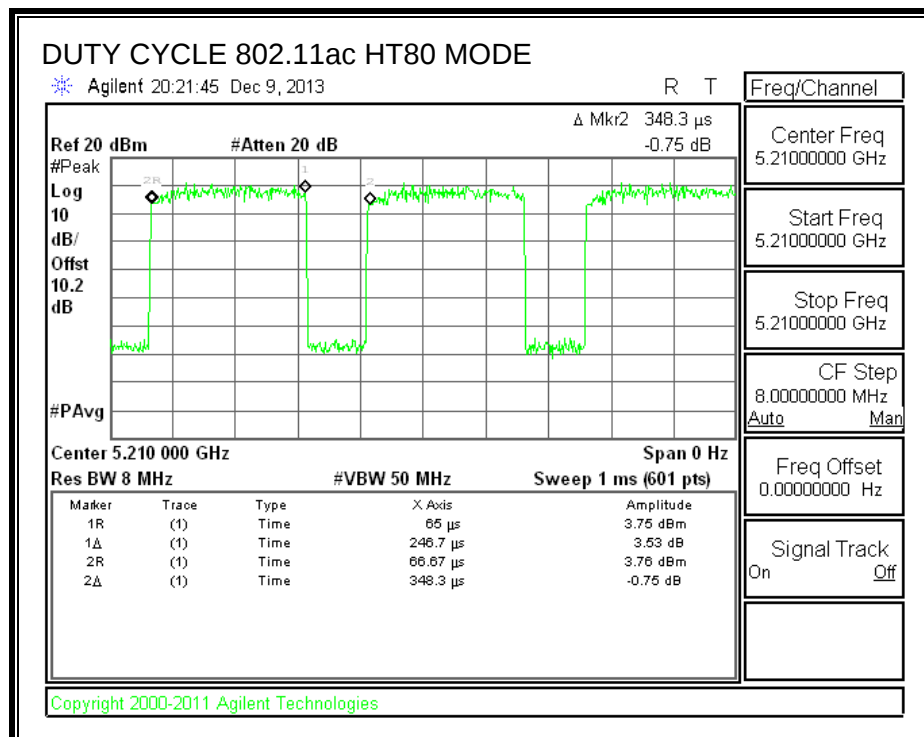
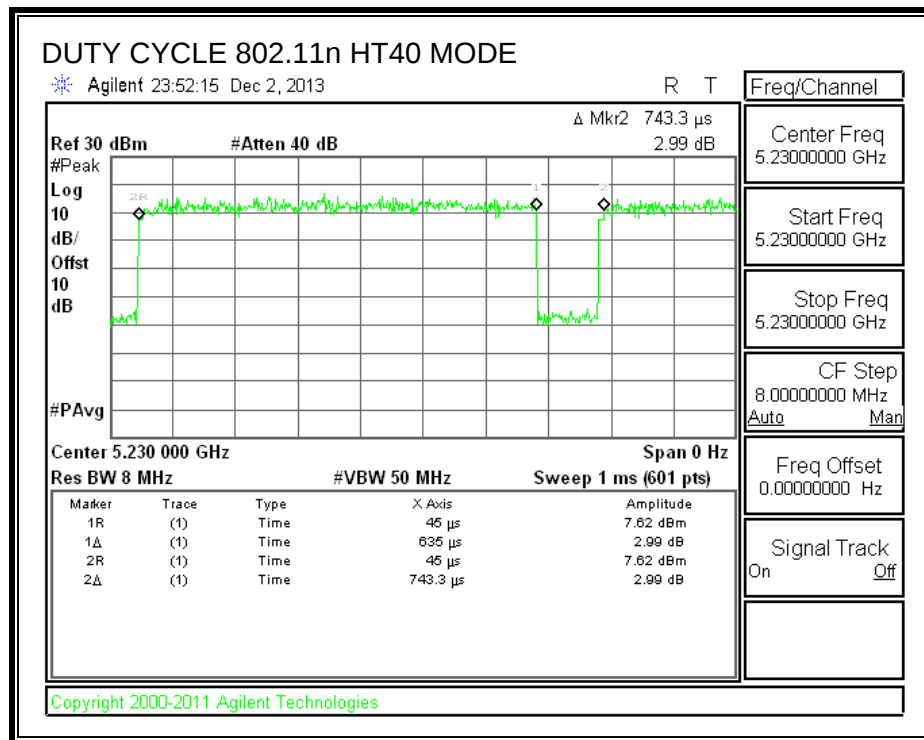
KDB 789033 Zero-Span Spectrum Analyzer Method.

8.1. 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/T Minimum VBW (kHz)
802.11a	1.28	1.38	0.926	92.6%	0.33	0.781
802.11ac HT80	0.25	0.35	0.707	70.7%	1.51	4.065
802.11n HT20	1.29	1.39	0.928	92.8%	0.32	0.775
802.11n HT40	0.64	0.74	0.855	85.5%	0.68	1.575

8.2. DUTY CYCLE PLOTS





9. MEASUREMENT METHOD

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used for .power and PPSD

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

10. ANTENNA PORT TEST RESULTS

10.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.1.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.04
Mid	5200	21.71
High	5240	21.33
Worst		21.71

10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.83
Mid	5200	21.79
High	5240	21.58
Worst		21.83

10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	45.7
Mid	5230	43.2
Worst		45.7

10.1.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5210	84.3

10.1.1. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	21.7
Mid	5300	21.5
High	5320	21.8
Worst		21.75

10.1.1. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	21.8
Mid	5300	22.1
High	5320	22.0
Worst		22.05

10.1.2. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	44.7
High	5310	42.8
Worst		44.7

10.1.3. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5290	83.3

10.1.4. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.1
Mid	5600	22.3
High	5700	22.1
Worst		22.3

10.1.5. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.2
Mid	5600	23.0
High	5700	22.0
Worst		23.0

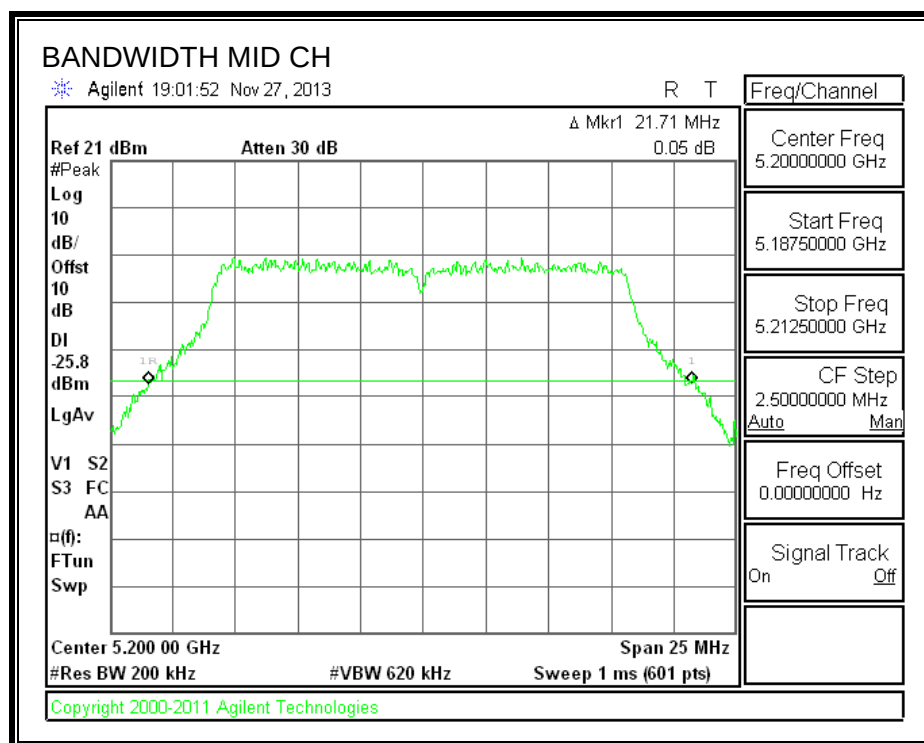
10.1.6. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	42.3
High	5670	43.6
Worst		43.6

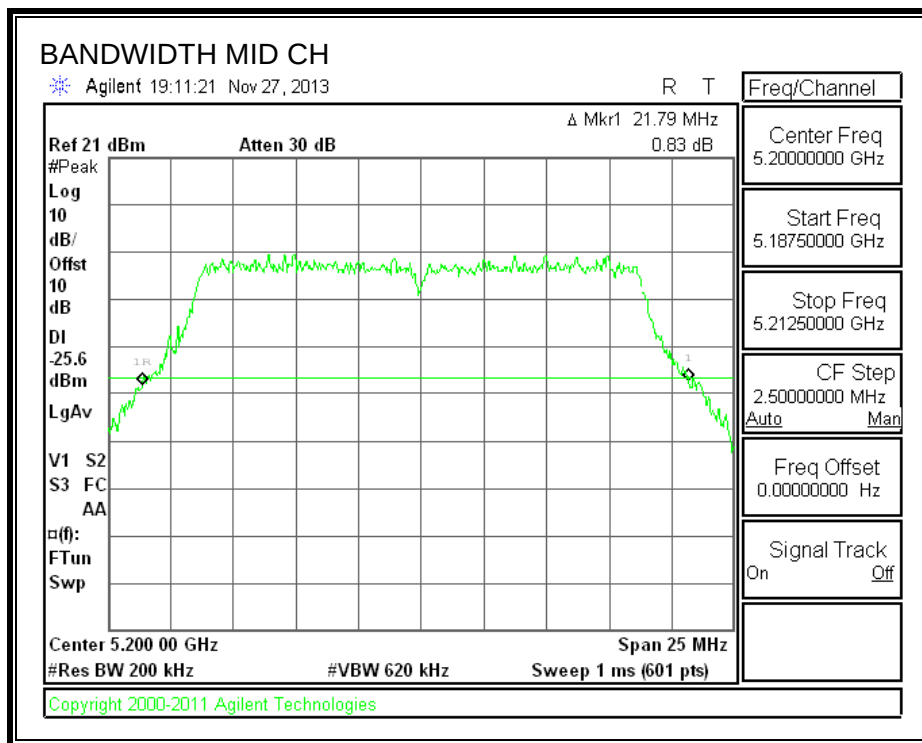
10.1.7. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
High	5530	84.3
Worst		84.3

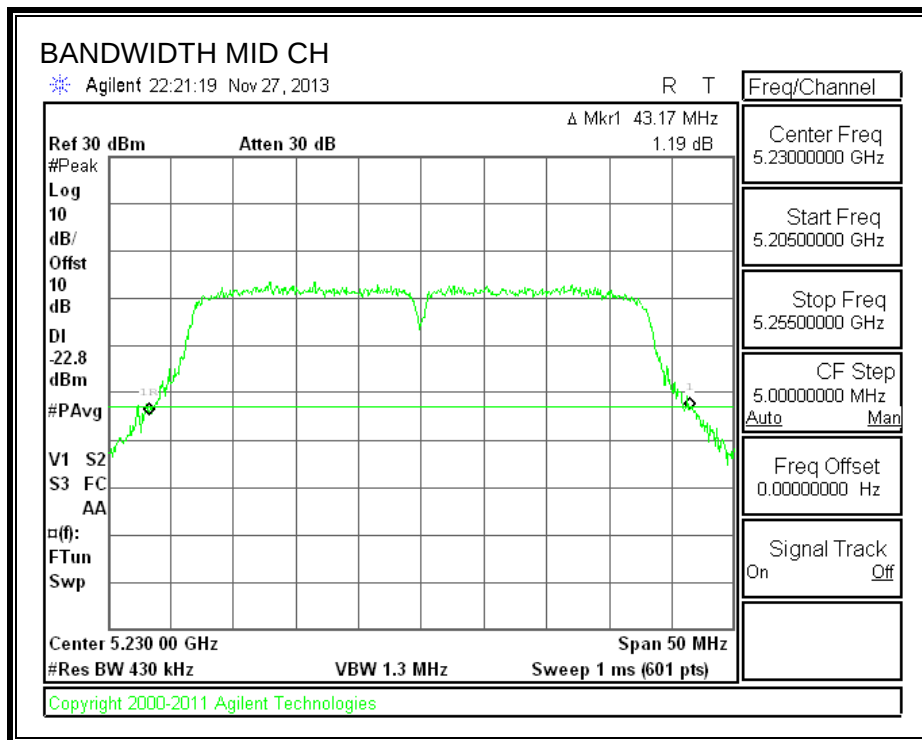
802.11a 5.2G 26 dB BANDWIDTH



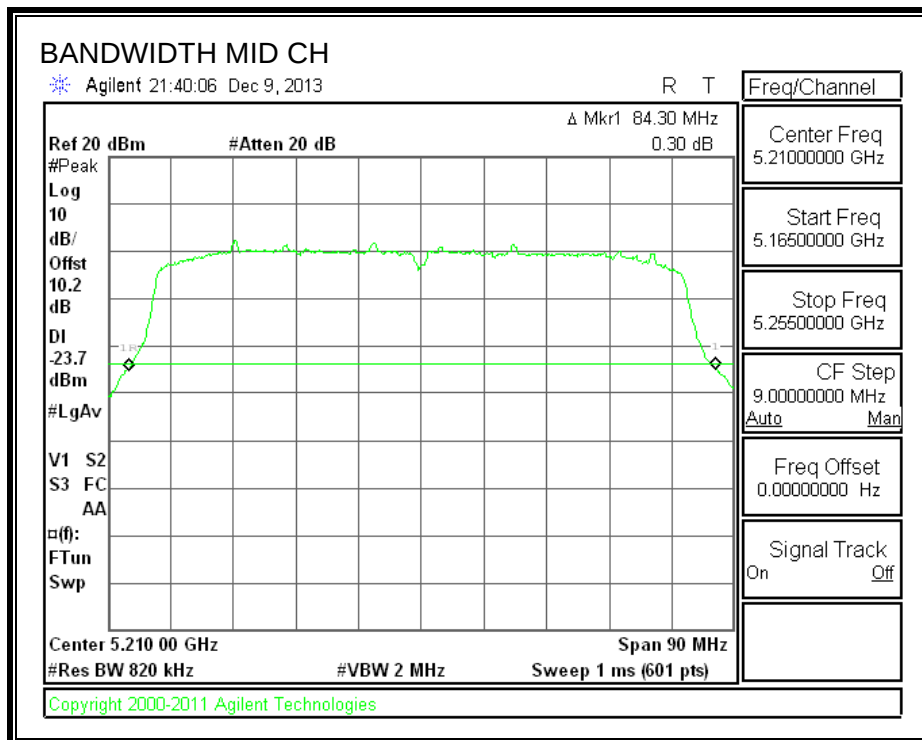
802.11n HT20 5.2G 26 dB BANDWIDTH



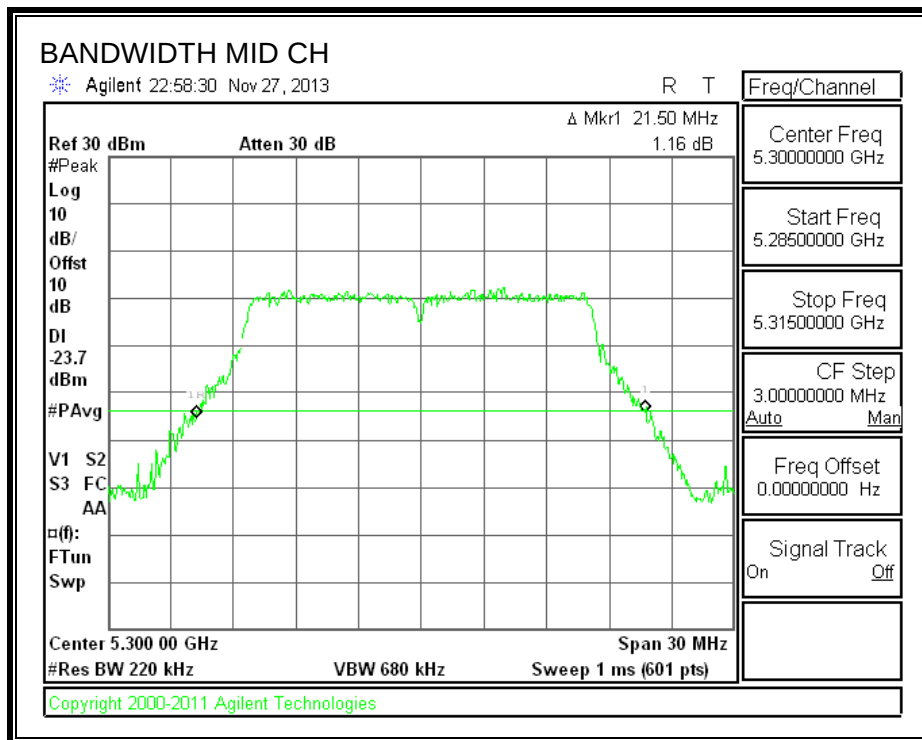
802.11n HT40 5.2G 26 dB BANDWIDTH



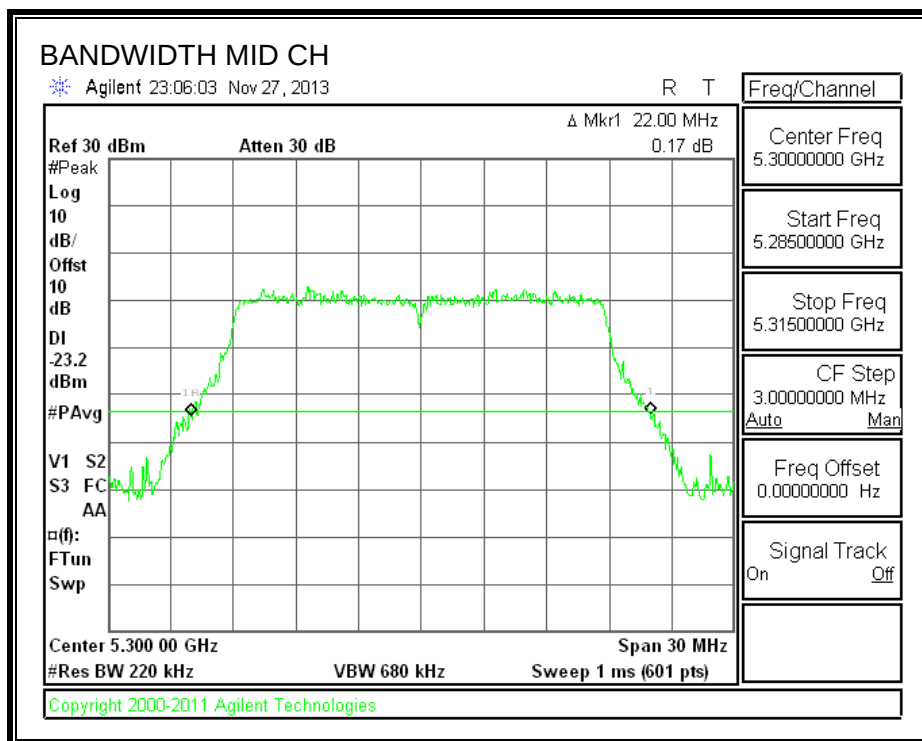
802.11ac HT80 5.2G 26 dB BANDWIDTH



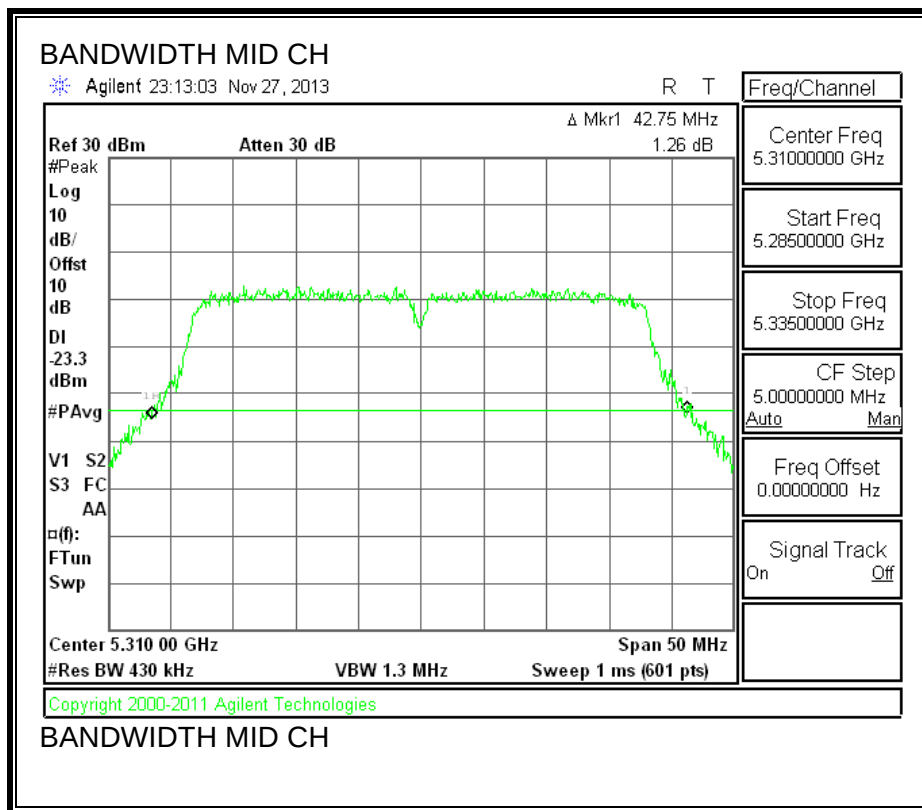
802.11a 5.3G 26 dB BANDWIDTH



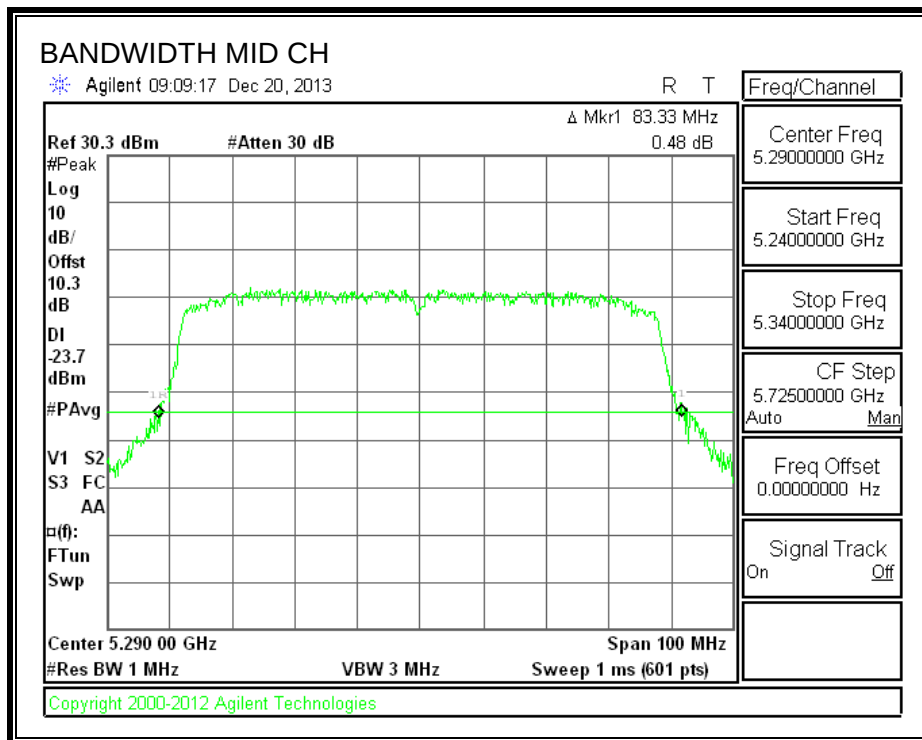
802.11n HT20 5.3G 26 dB BANDWIDTH

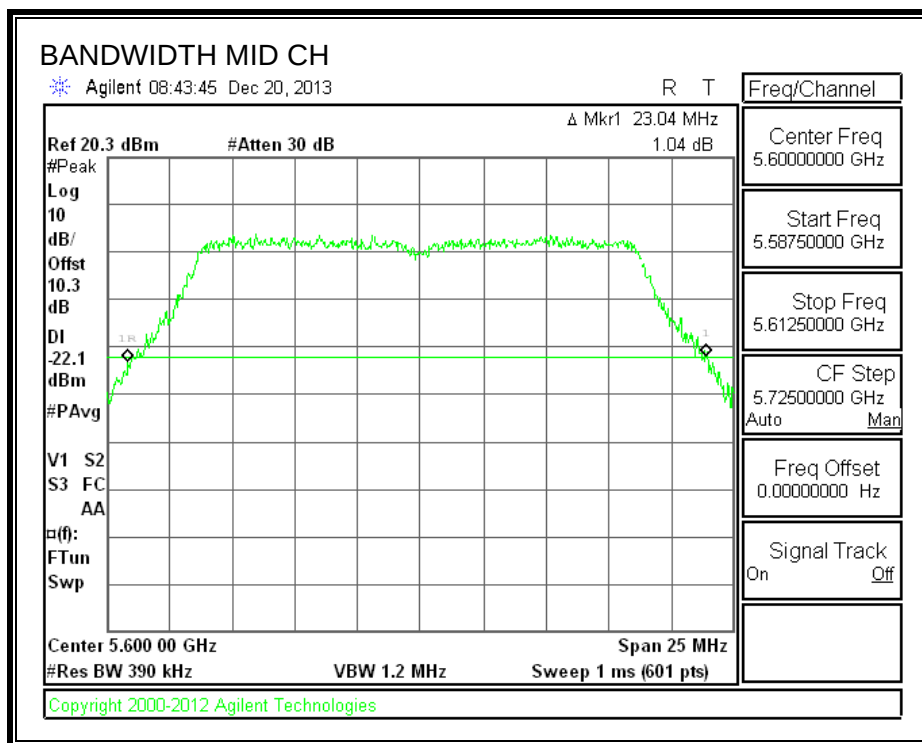


802.11n HT40 5.3G 26 dB BANDWIDTH

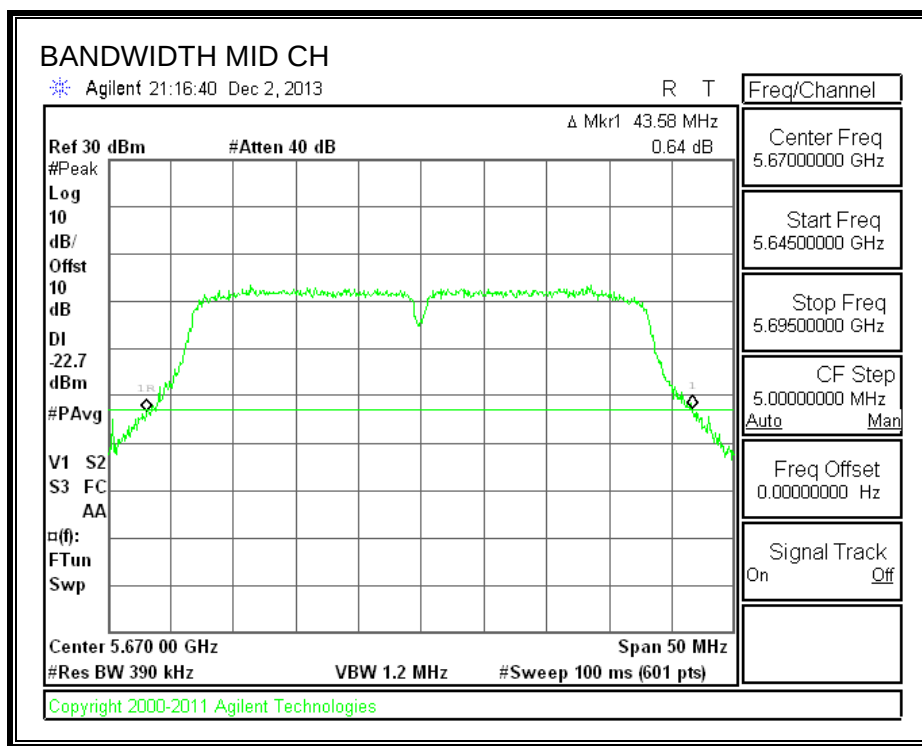


802.11ac HT80 5.3G 26 dB BANDWIDTH

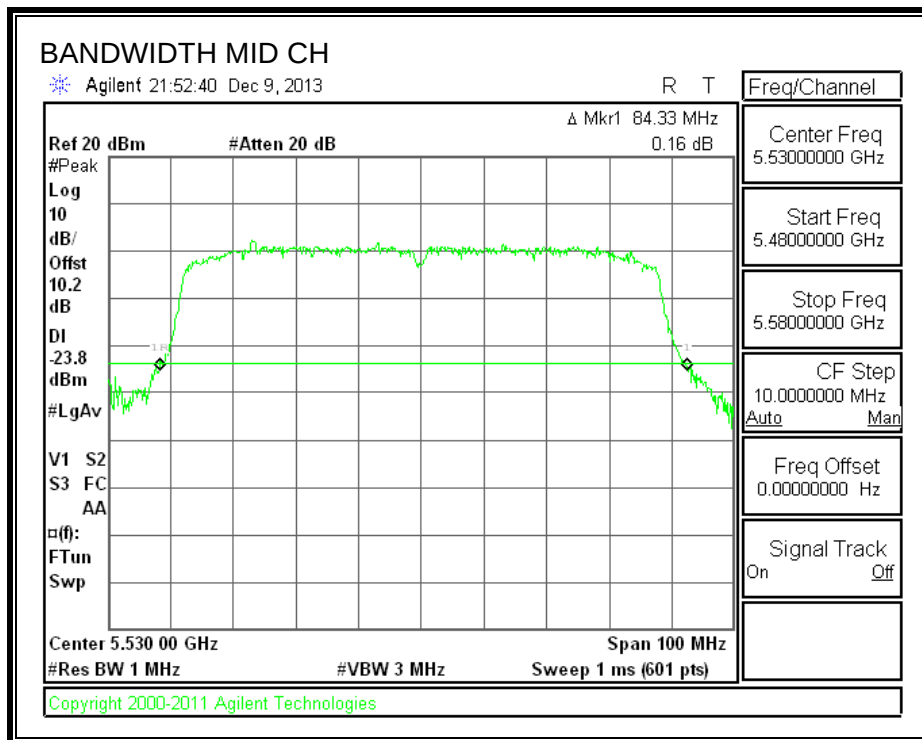




802.11n HT40 5.5G 26 dB BANDWIDTH



802.11ac HT80 5.5G 26 dB BANDWIDTH



10.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.6
Mid	5200	16.8
High	5240	16.8
Worst		16.8

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.8
Mid	5200	17.9
High	5240	18.9
Worst		18.9

10.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	35.8
Mid	5230	35.8
Worst		35.8

10.2.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5210	74.0

10.2.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.5
Mid	5300	16.6
High	5320	16.5
Worst		16.6

10.2.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.6
Mid	5300	17.7
High	5320	17.7
Worst		17.7

10.2.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.1
High	5310	36.1
Worst		36.1

10.2.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5290	74.3

10.2.9. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.5
Mid	5600	16.5
High	5700	16.5
Worst		16.5

10.2.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.7
Mid	5600	17.6
High	5700	17.7
Worst		17.7

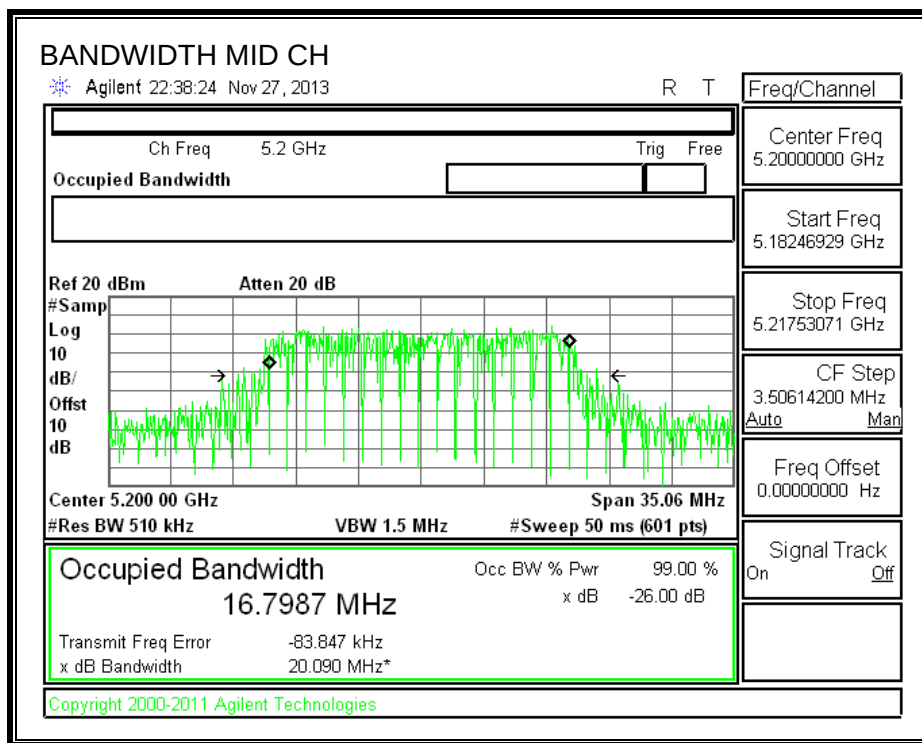
10.2.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.0
High	5670	35.9
Worst		36.0

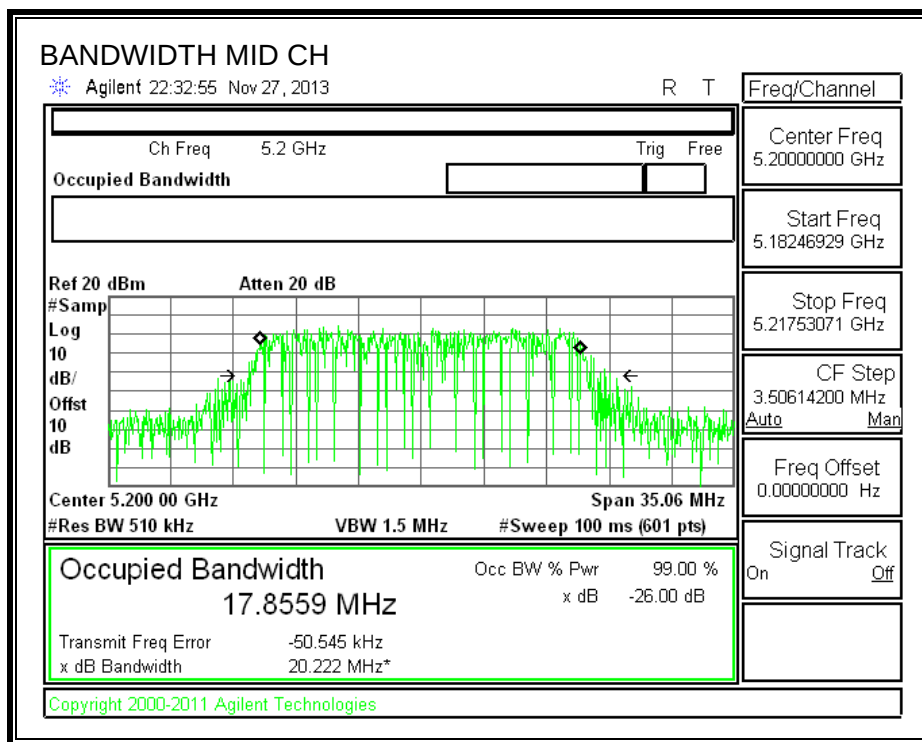
10.2.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5530	74.9
Worst		74.9

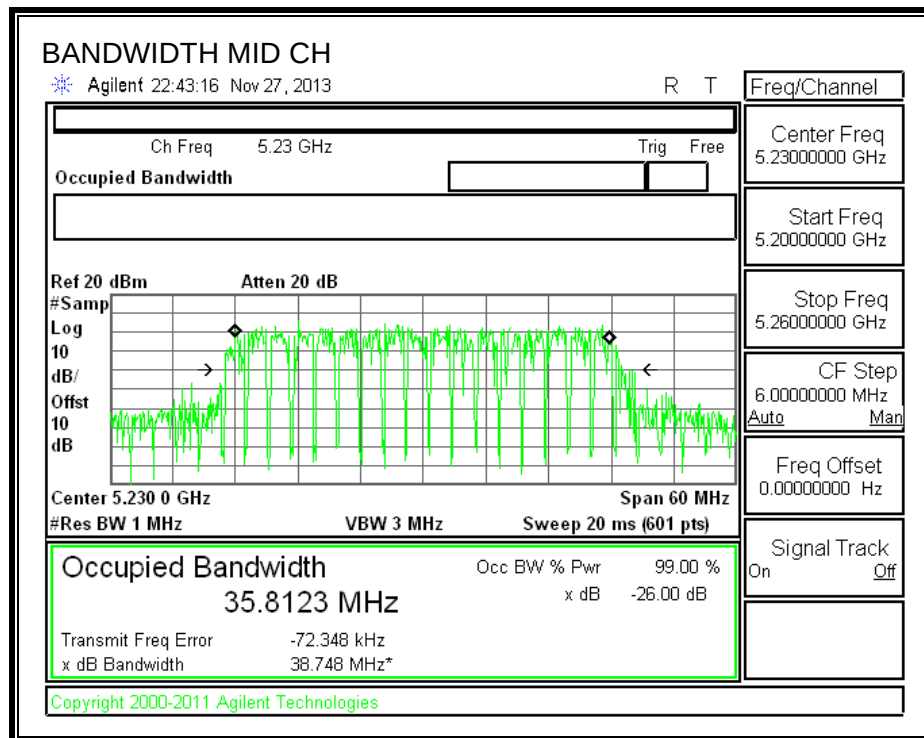
802.11a 5.2G 99% BANDWIDTH



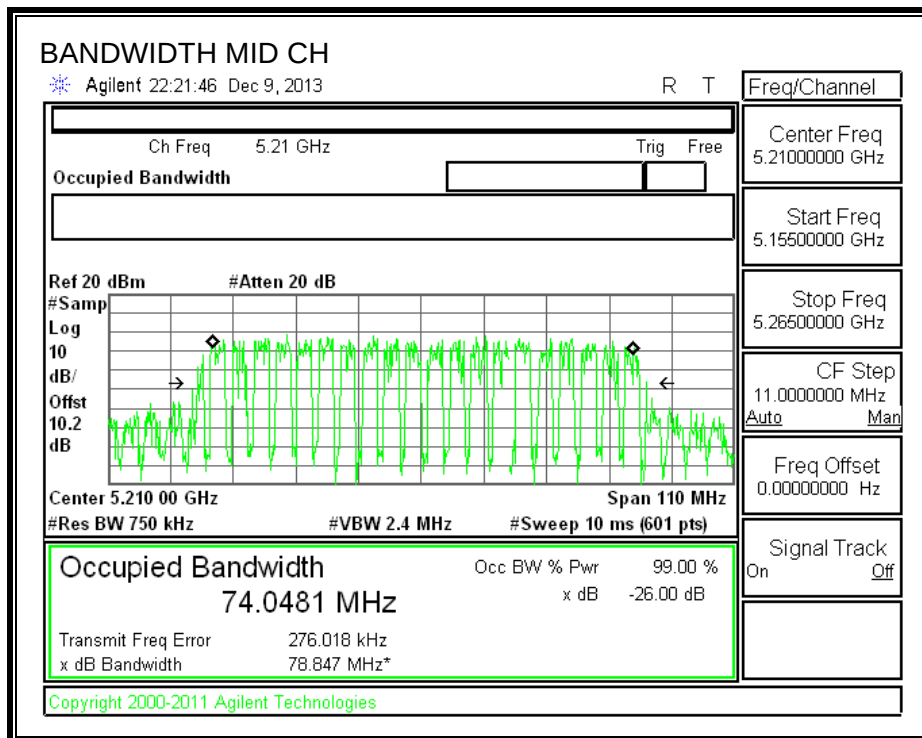
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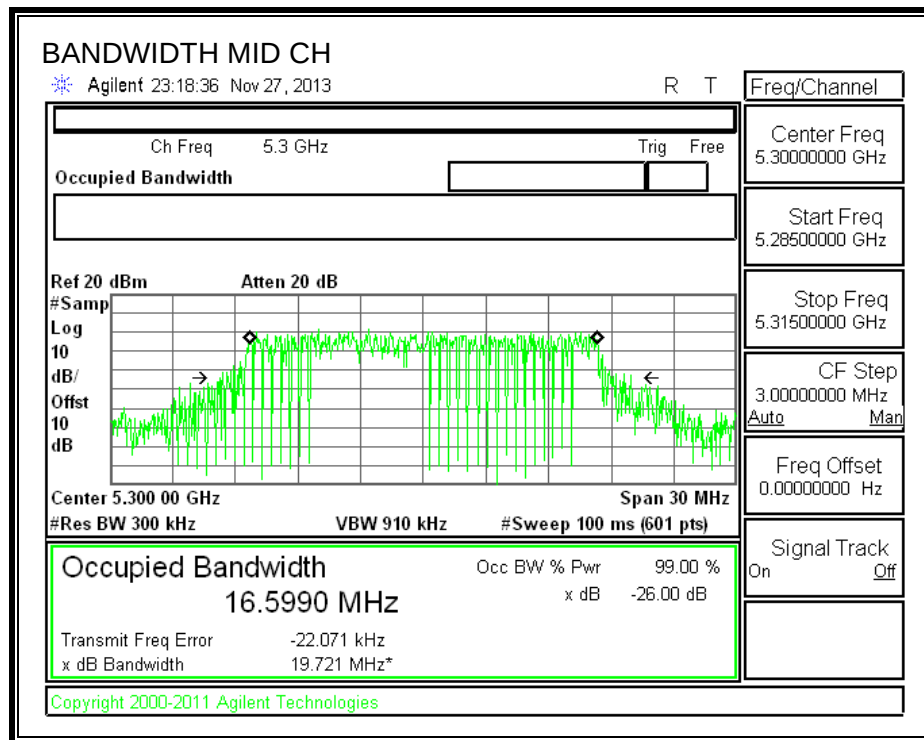
802.11n HT40 5.2G 99% BANDWIDTH



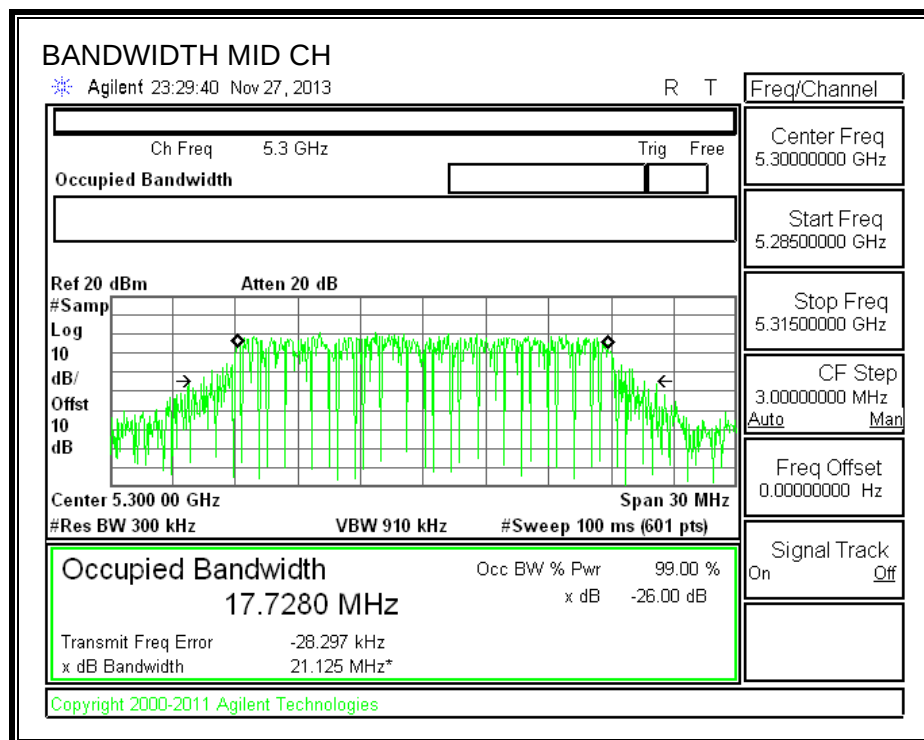
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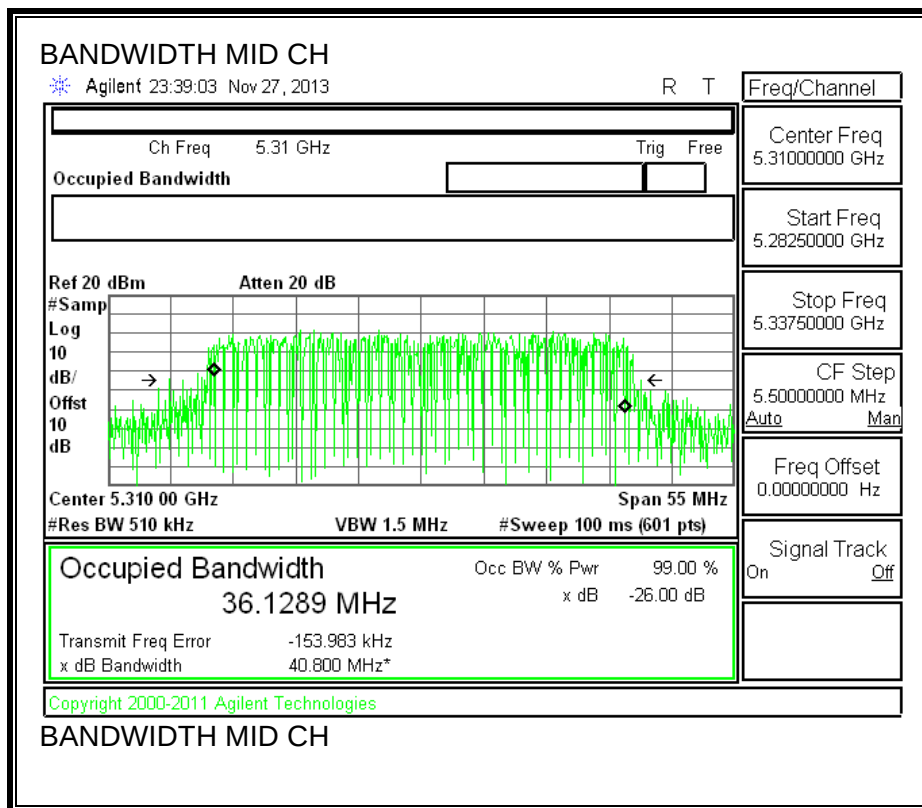
802.11a 5.3G 99% BANDWIDTH



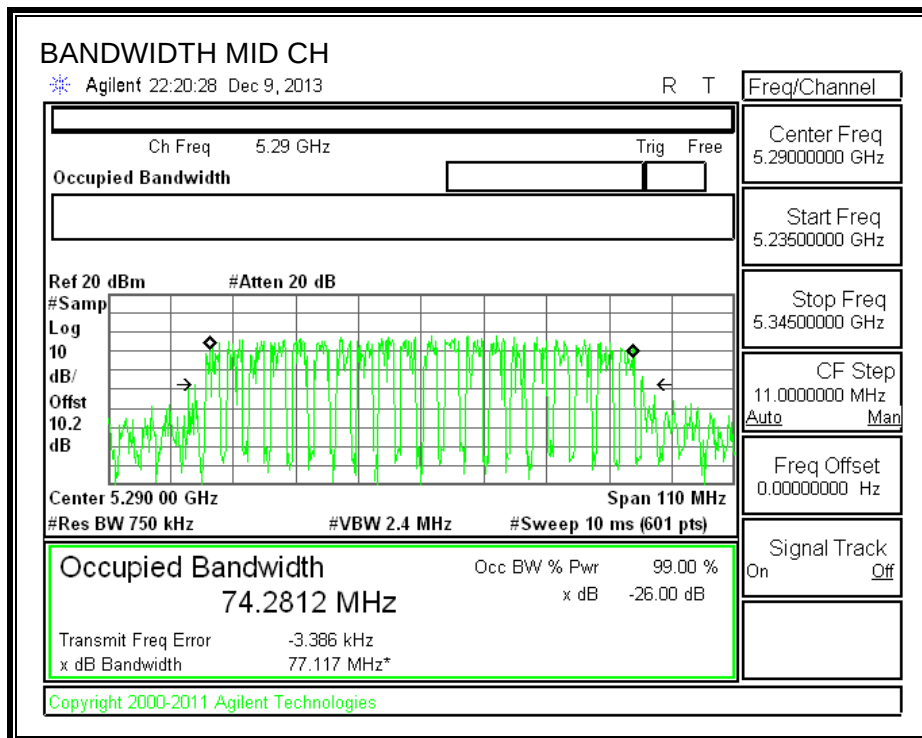
802.11n HT20 5.3G 99% BANDWIDTH



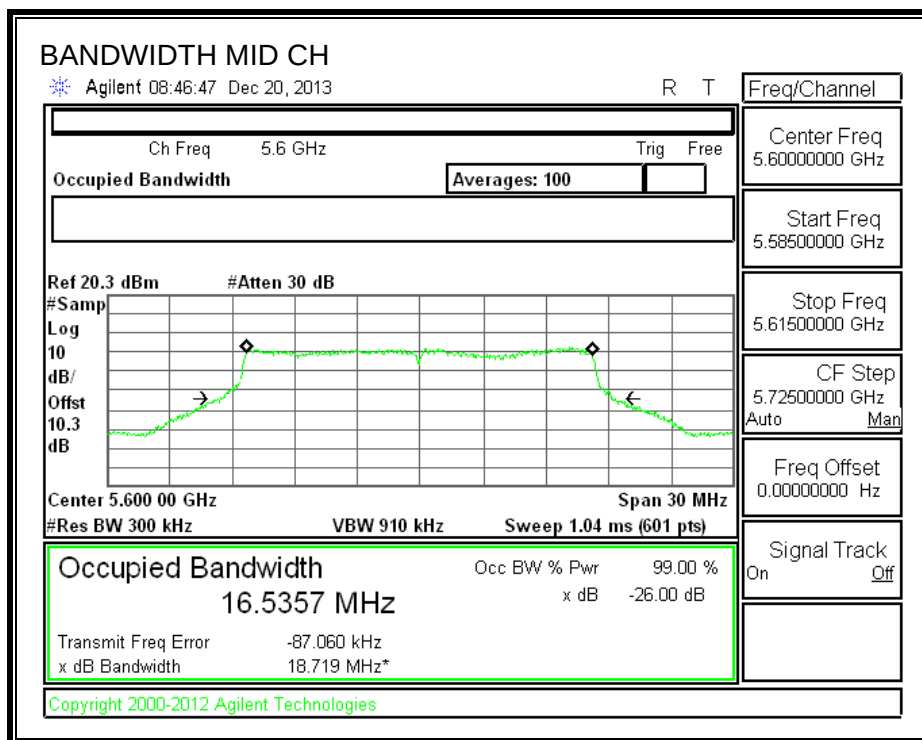
802.11n HT40 5.3G 99% BANDWIDTH



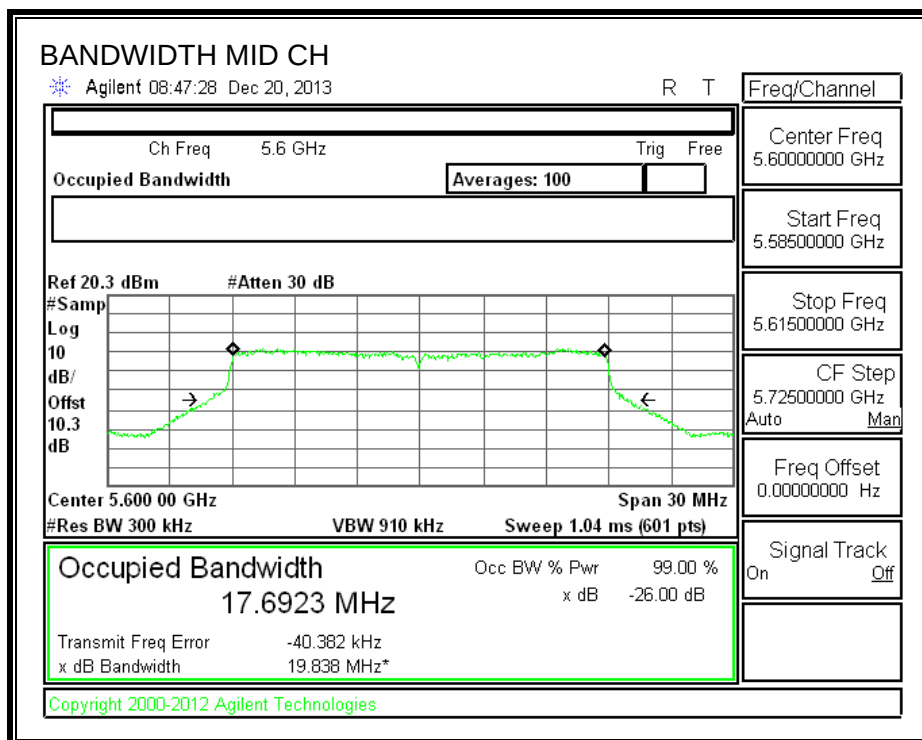
802.11ac HT80 5.3G 99% BANDWIDTH



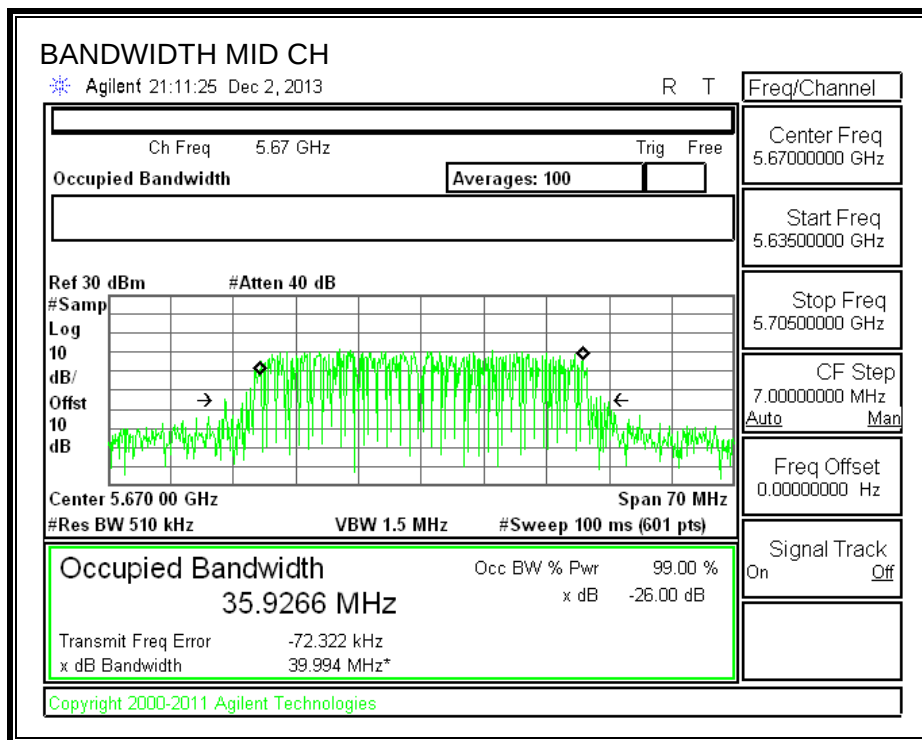
802.11a 5.5G 99% BANDWIDTH



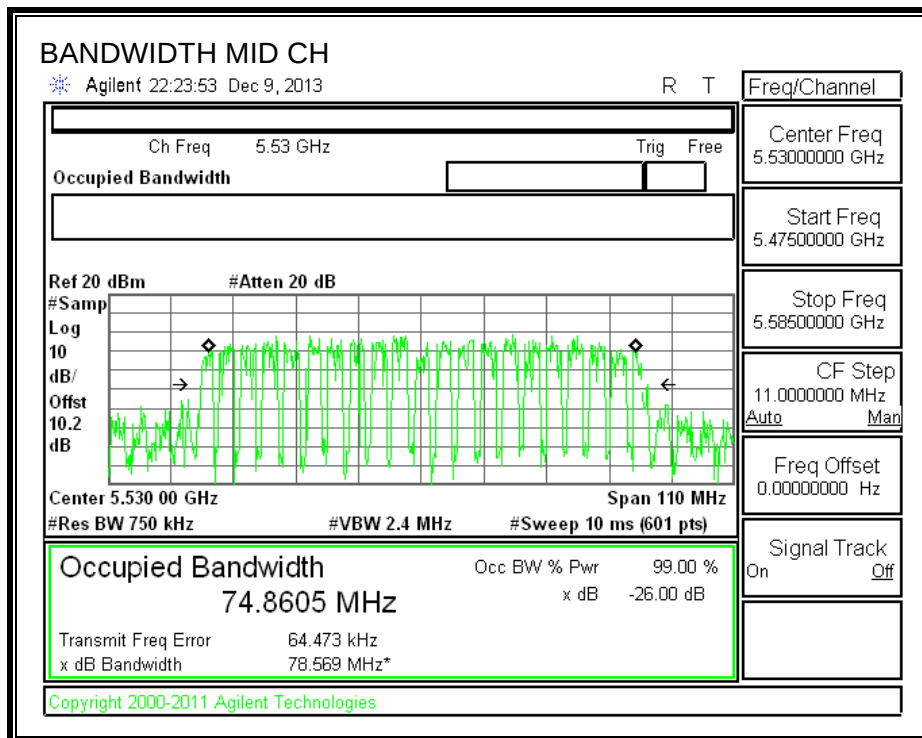
802.11n HT20 5.5G 99% BANDWIDTH



802.11n HT40 5.5G 99% BANDWIDTH



802.11ac HT80 5.5G 99% BANDWIDTH



10.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

10.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	12.1
Mid	5200	11.9
High	5240	12.0
Worst		12.10

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	12.2
Mid	5200	12.2
High	5240	12.2
Worst		12.2

10.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5190	12.2
Mid	5230	11.9
Worst		12.2

10.3.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5210	10.0

10.3.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	11.9
Mid	5300	12.0
High	5320	11.8
Worst		12.0

10.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	11.9
Mid	5300	12.0
High	5320	11.9
Worst		12.0

10.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5270	12.2
High	5310	11.9
Worst		12.2

10.3.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5290	9.7

10.3.9. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	12.5
Mid	5600	12.4
High	5700	12.5
Worst		12.5

10.3.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	12.5
Mid	5600	12.5
High	5700	12.5
Worst		12.5

10.3.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5510	12.5
High	5670	12.5
Worst		12.5

10.3.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5530	9.6
Worst		9.6

10.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10 \log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

Test Methodology

RESULTS

10.4.1. 802.11a MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	21.0	16.6	2.08
Mid	5200	21.7	16.8	2.08
High	5240	21.3	16.8	2.08

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.20	20.12	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.25	20.17	17.00	4.00	10.00	4.00
High	5240	17.00	22.24	20.16	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PPSP
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	12.5	12.84	17.00	-4.16
Mid	5200	12.5	12.79	17.00	-4.21
High	5240	12.7	13.06	17.00	-3.94

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.940	1.27	4.00	-2.73
Mid	5200	0.860	1.19	4.00	-2.81
High	5240	1.070	1.40	4.00	-2.60

10.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	21.83	17.8	2.08
Mid	5200	21.79	17.9	2.08
High	5240	21.58	18.9	2.08

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.51	20.43	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.52	20.44	17.00	4.00	10.00	4.00
High	5240	17.00	22.76	20.68	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	12.8	13.08	17.00	-3.92
Mid	5200	12.5	12.83	17.00	-4.17
High	5240	12.8	13.15	17.00	-3.86

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.880	1.20	4.00	-2.80
Mid	5200	0.860	1.18	4.00	-2.82
High	5240	0.940	1.26	4.00	-2.74

10.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	45.7	35.8	2.08
Mid	5230	43.2	35.8	2.08

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	20.92	17.00	4.00	10.00	4.00
Mid	5230	17.00	23.00	20.92	17.00	4.00	10.00	4.00
Duty Cycle CF (dB)		0.68	Included in Calculations of Corr'd Power & PSD					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.242	12.92	17.00	-4.08
Mid	5230	12.677	13.36	17.00	-3.64

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-2.120	-1.44	4.00	-5.44
Mid	5230	-1.790	-1.11	4.00	-5.11

10.4.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5210	84.3	74.0	2.08

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5210	17.00	23.00	20.92	17.00	4.00	10.00	4.00
Duty Cycle CF (dB)		1.51	Included in Calculations of Corr'd Power & PPSP					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5210	9.820	11.33	17.00	-5.67

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5210	-7.440	-5.93	4.00	-9.93

10.4.5. 802.11a MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	21.7	16.5	1.61
Mid	5300	21.5	16.6	1.61
High	5320	21.8	16.5	1.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.18	29.18	23.18	11.00	11.00	11.00
Mid	5300	24.00	23.20	29.20	23.20	11.00	11.00	11.00
High	5320	24.00	23.18	29.18	23.18	11.00	11.00	11.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PPSP
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	12.6	12.89	23.18	-10.29
Mid	5300	12.6	12.89	23.20	-10.31
High	5320	12.5	12.84	23.18	-10.34

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	1.020	1.35	11.00	-9.65
Mid	5300	1.030	1.36	11.00	-9.64
High	5320	0.950	1.28	11.00	-9.72

10.4.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	21.8	17.6	1.61
Mid	5300	22.1	17.7	1.61
High	5320	22.0	17.7	1.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.46	29.46	23.46	11.00	11.00	11.00
Mid	5300	24.00	23.48	29.48	23.48	11.00	11.00	11.00
High	5320	24.00	23.47	29.47	23.47	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	12.717	13.04	23.46	-10.42
Mid	5300	12.655	12.98	23.48	-10.51
High	5320	12.664	12.98	23.47	-10.49

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	1.100	1.42	11.00	-9.58
Mid	5300	0.730	1.05	11.00	-9.95
High	5320	1.290	1.61	11.00	-9.39

10.4.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	44.7	36.1	1.61
High	5310	42.8	36.1	1.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	17.00	23.00	21.39	17.00	11.00	11.00	11.00
High	5310	17.00	23.00	21.39	17.00	11.00	11.00	11.00
Duty Cycle CF (dB)		0.68	Included in Calculations of Corr'd Power & PSD					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	12.126	12.81	17.00	-4.19
High	5310	12.001	12.68	17.00	-4.32

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-2.170	-1.49	11.00	-12.49
High	5310	-2.410	-1.73	11.00	-12.73

10.4.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5290	83.3	74.3	1.61

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5290	17.00	23.00	21.39	17.00	11.00	11.00	11.00

Duty Cycle CF (dB)	1.51	Included in Calculations of Corr'd Power & PPSP
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5290	10.276	11.79	17.00	-5.21

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5290	-7.080	-5.57	11.00	-16.57

10.4.9. 802.11a MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.1	17.7	2.09
Mid	5600	22.3	17.6	2.09
High	5700	22.1	17.7	2.09

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5600	24.00	23.46	29.46	23.46	11.00	11.00	11.00
High	5700	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.33	Included in Calculations of Corr'd Power & PPSP
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.448	12.78	23.48	-10.70
Mid	5600	12.246	12.58	23.46	-10.88
High	5700	12.336	12.67	23.48	-10.81

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.230	1.56	11.00	-9.44
Mid	5600	0.900	1.23	11.00	-9.77
High	5700	1.120	1.45	11.00	-9.55

10.4.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.2	17.7	2.09
Mid	5600	23.0	17.6	2.09
High	5700	22.0	17.7	2.09

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5600	24.00	23.46	29.46	23.46	11.00	11.00	11.00
High	5700	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.559	12.88	23.48	-10.60
Mid	5600	12.294	12.61	23.46	-10.84
High	5700	12.379	12.70	23.48	-10.78

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	0.990	1.31	11.00	-9.69
Mid	5600	0.790	1.11	11.00	-9.89
High	5700	0.850	1.17	11.00	-9.83

10.4.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	42.3	36.0	2.09
High	5670	43.6	35.9	2.09

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.68	Included in Calculations of Corr'd Power & PSD
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	12.911	13.59	24.00	-10.41
High	5670	12.853	13.53	24.00	-10.47

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-1.410	-0.73	11.00	-11.73
High	5670	-1.460	-0.78	11.00	-11.78

10.4.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
High	5530	84.3	74.9	2.09

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
High	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	1.51	Included in Calculations of Corr'd Power & PPSP
--------------------	------	---

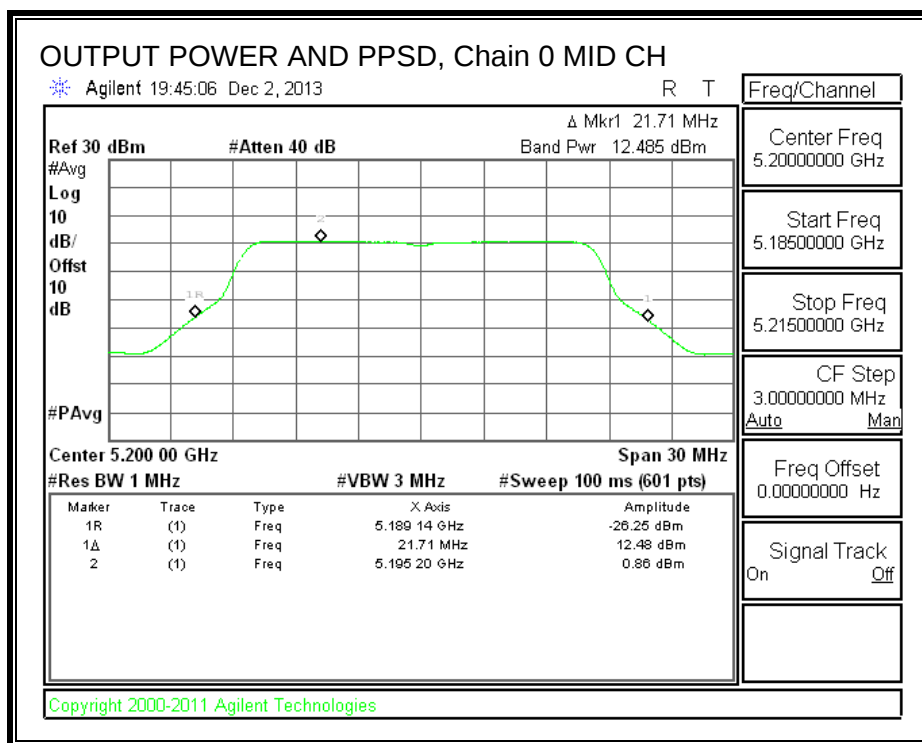
Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
High	5530	9.635	11.15	24.00	-12.86

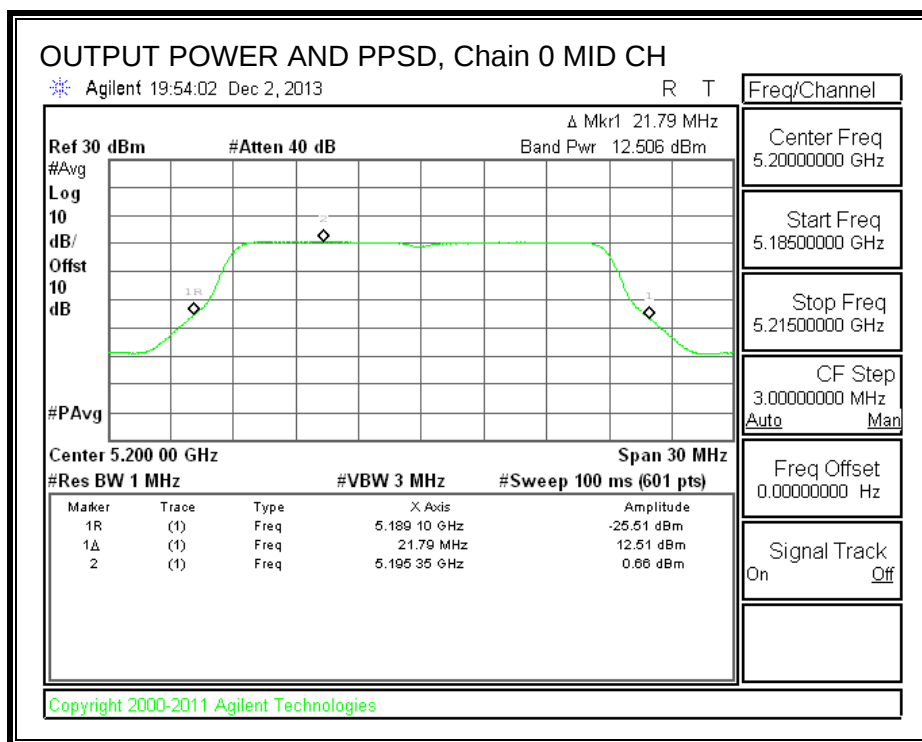
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
High	5530	-7.620	-6.11	11.00	-17.11

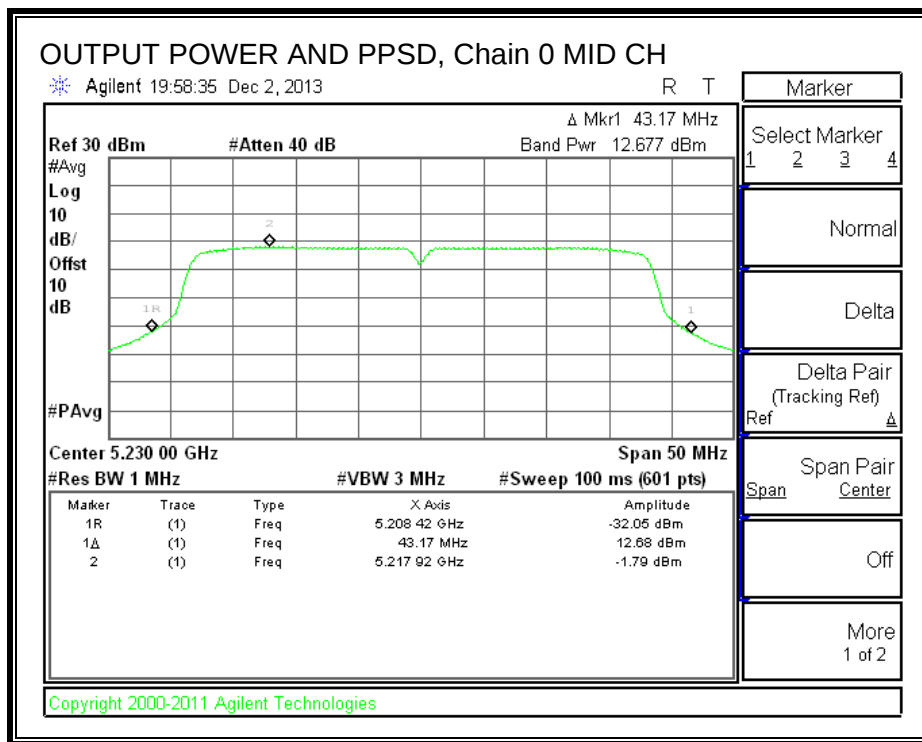
802.11a 5.2G OUTPUT POWER AND PPSD, Chain 0



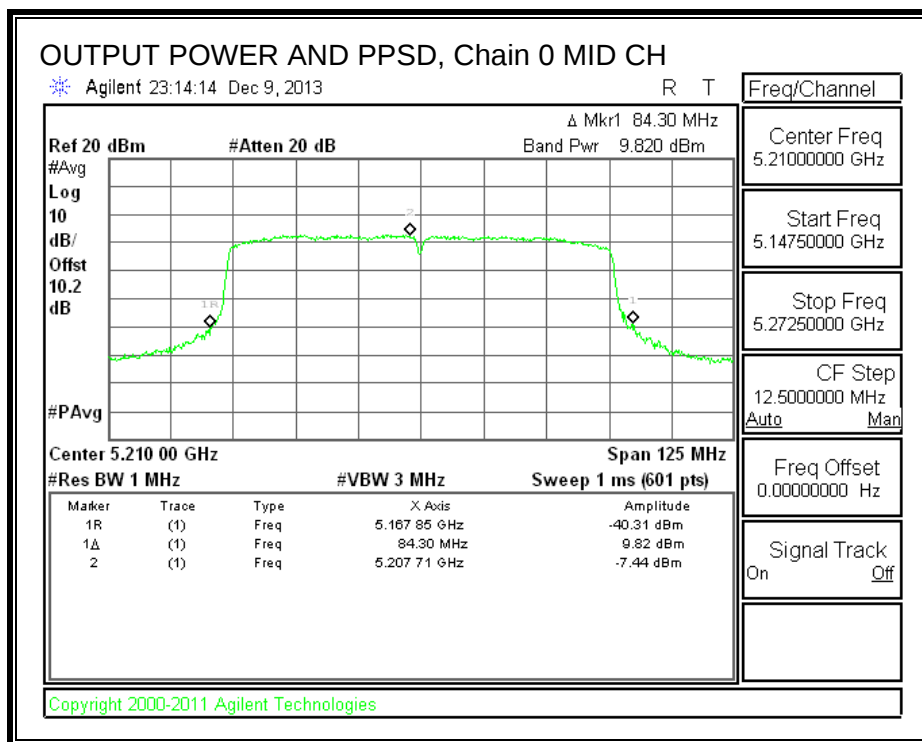
802.11n HT20 5.2G OUTPUT POWER AND PPSD, Chain 0



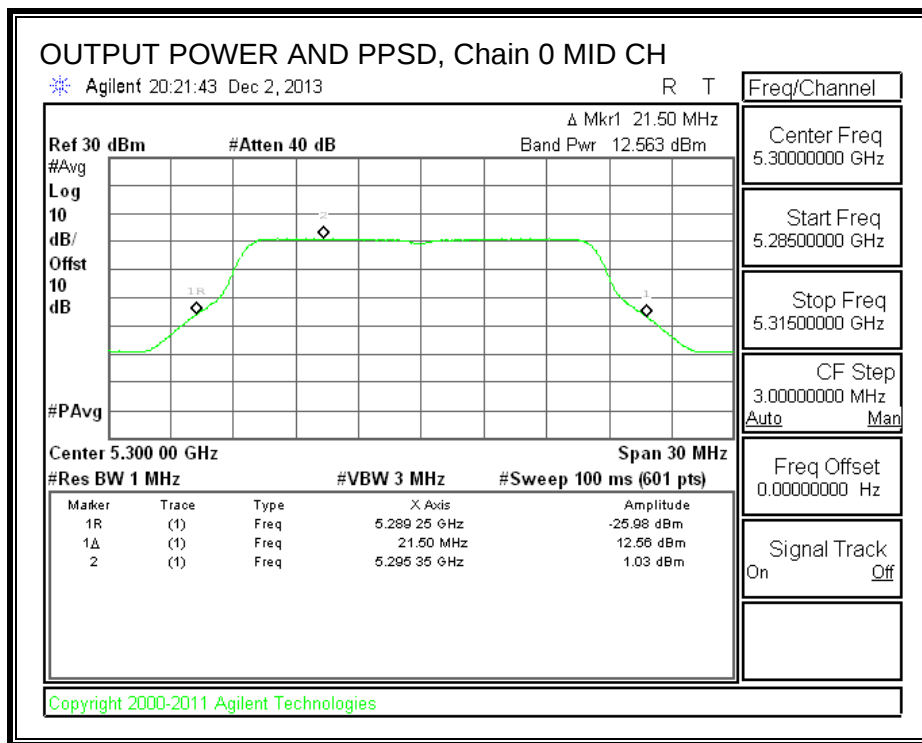
802.11n HT40 5.2G OUTPUT POWER AND PPSD, Chain 0



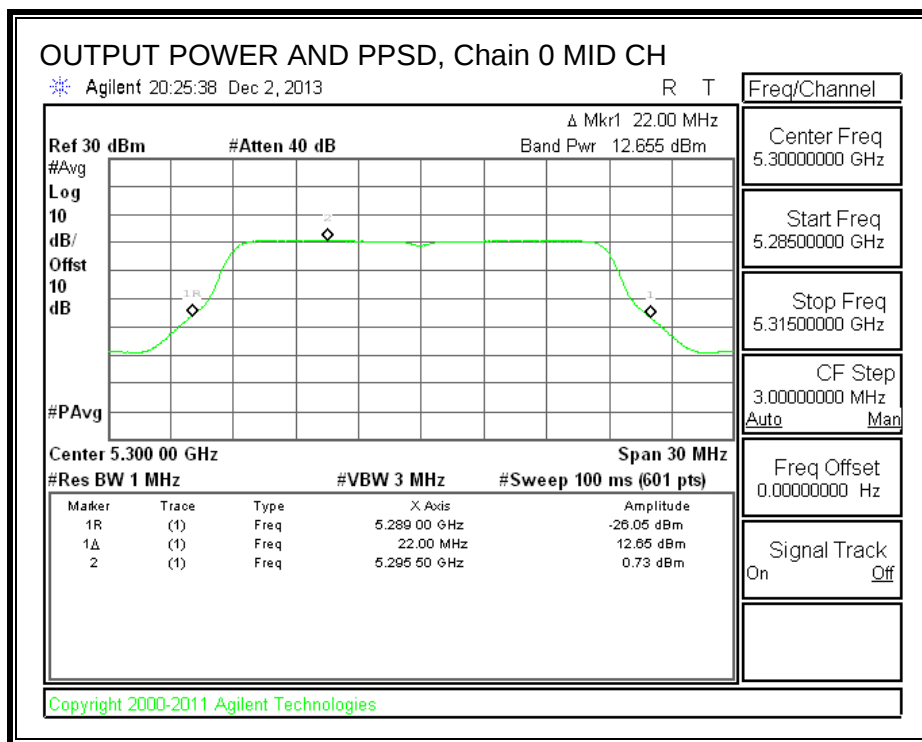
802.11ac HT80 5.2G OUTPUT POWER AND PPSD, Chain 0



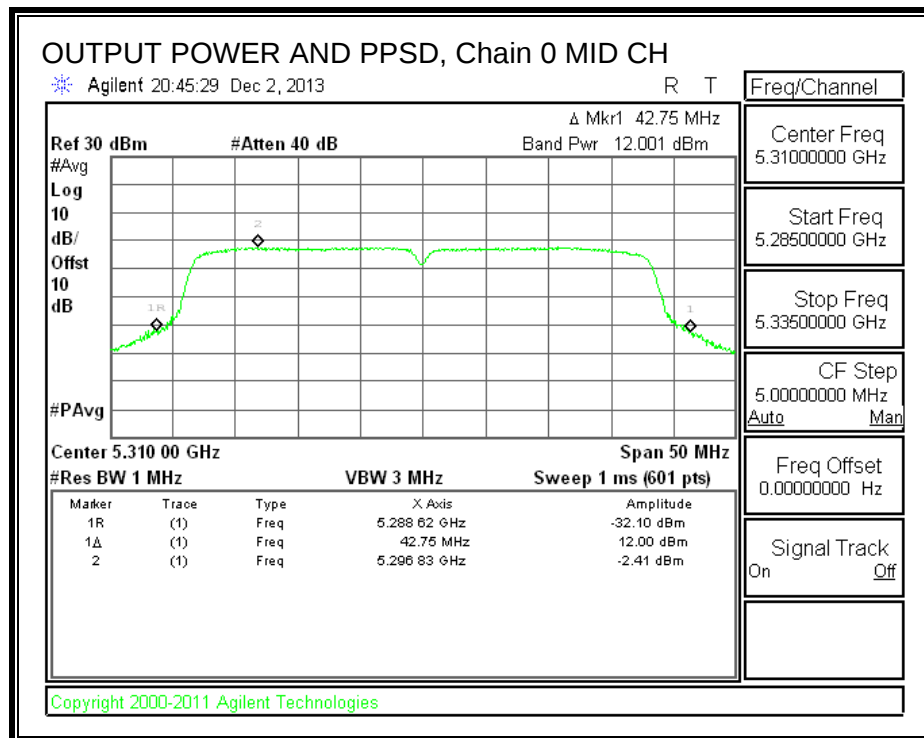
802.11a 5.3G OUTPUT POWER AND PPSD, Chain 0



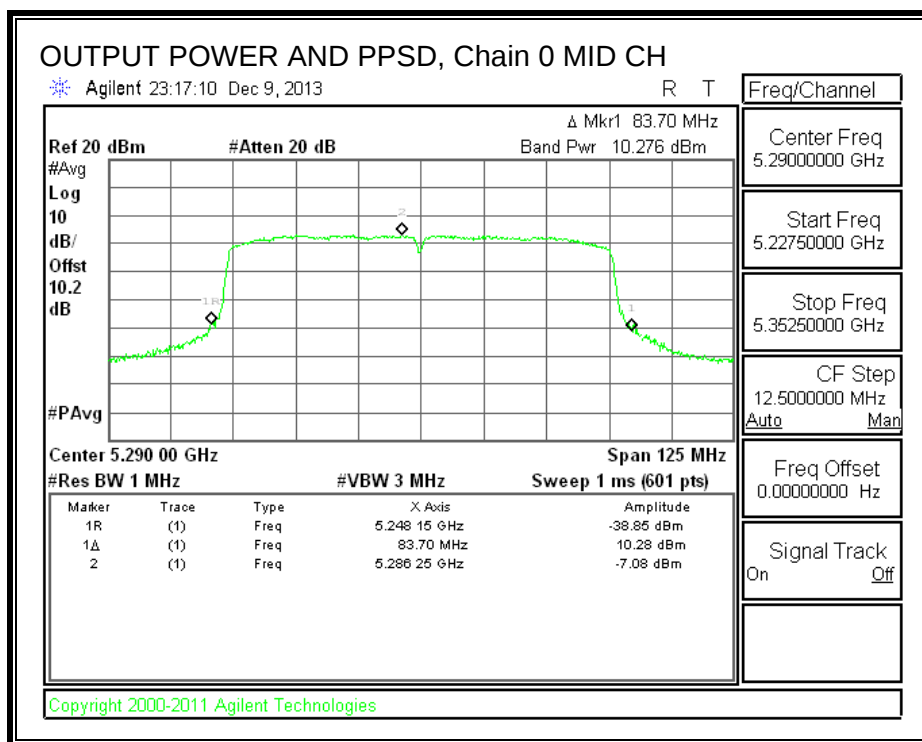
802.11n HT20 5.3G OUTPUT POWER AND PPSD, Chain 0



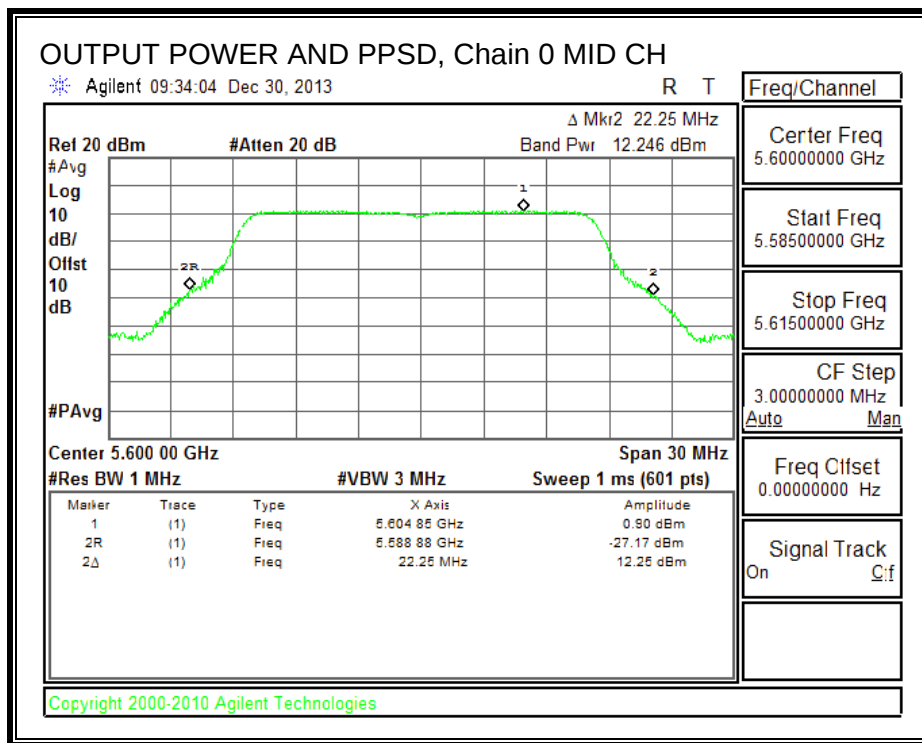
802.11n HT40 5.3G OUTPUT POWER AND PPSD, Chain 0



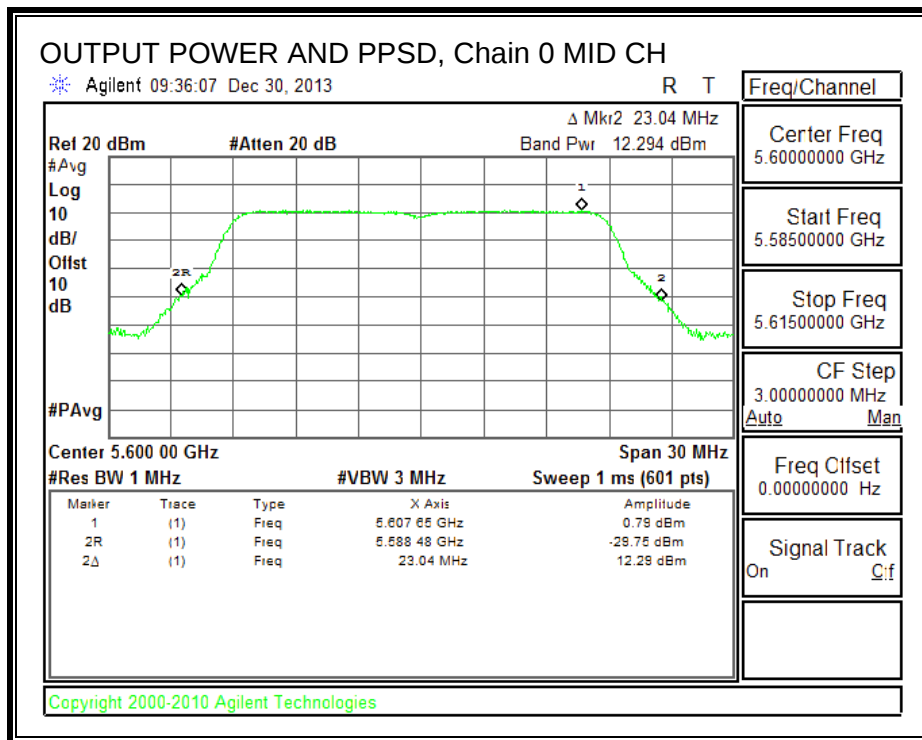
802.11ac HT80 5.3G OUTPUT POWER AND PPSD, Chain 0



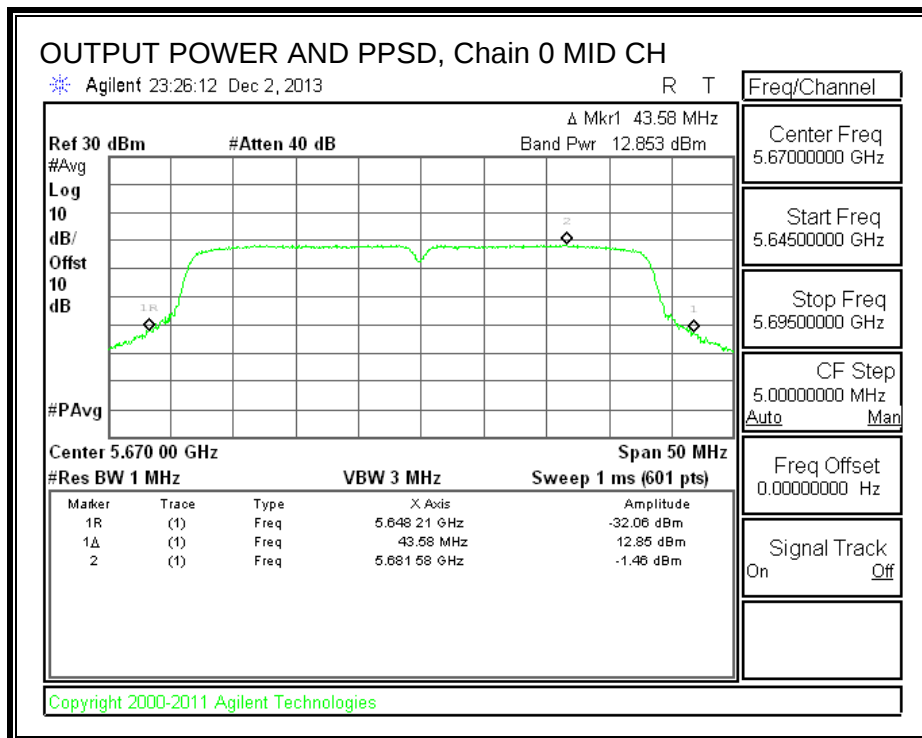
802.11a 5.5G OUTPUT POWER AND PPSD, Chain 0



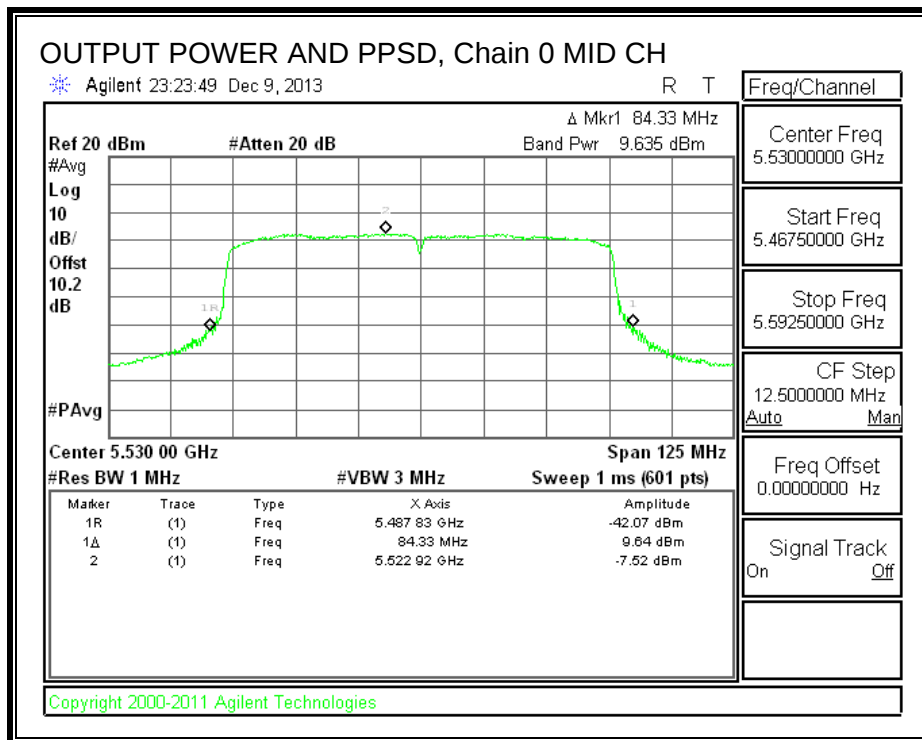
802.11n HT20 5.5G OUTPUT POWER AND PPSD, Chain 0



802.11n HT40 5.5G OUTPUT POWER AND PPSD, Chain 0



802.11ac HT80 5.5G OUTPUT POWER AND PPSD, Chain 0



10.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

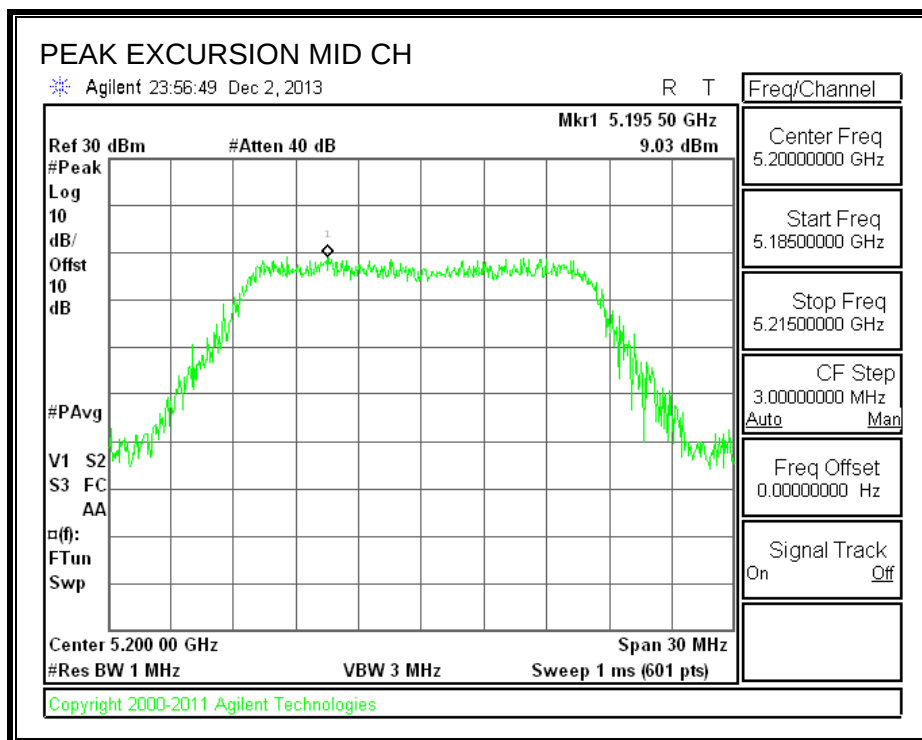
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

10.5.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	9.030	1.07	0.33	7.63	13	-5.37

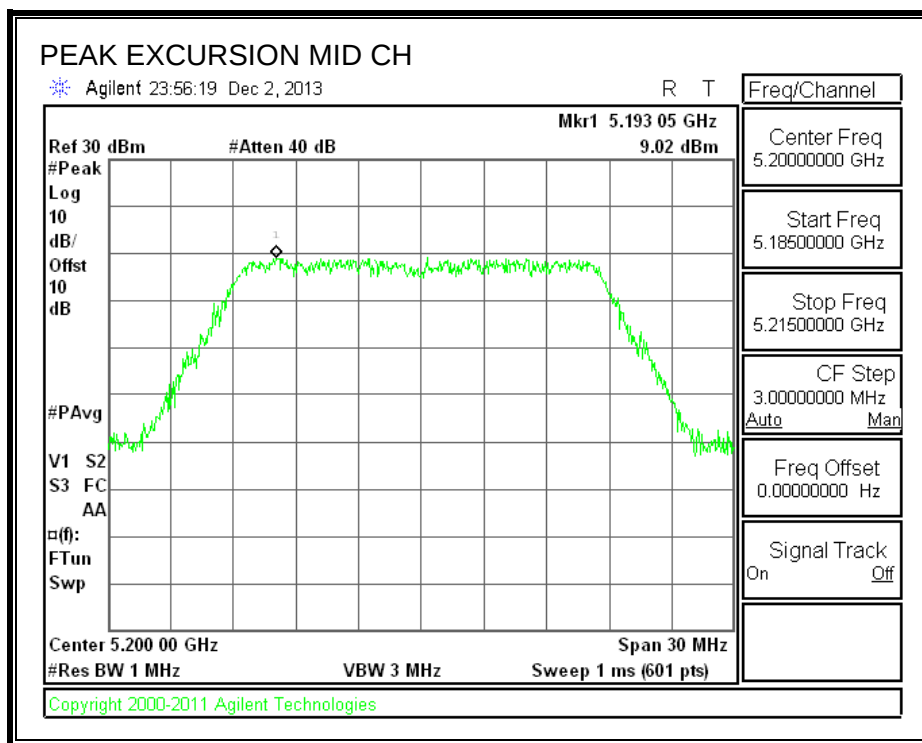
PEAK EXCURSION



10.5.1. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	9.020	0.94	0.32	7.76	13	-5.24

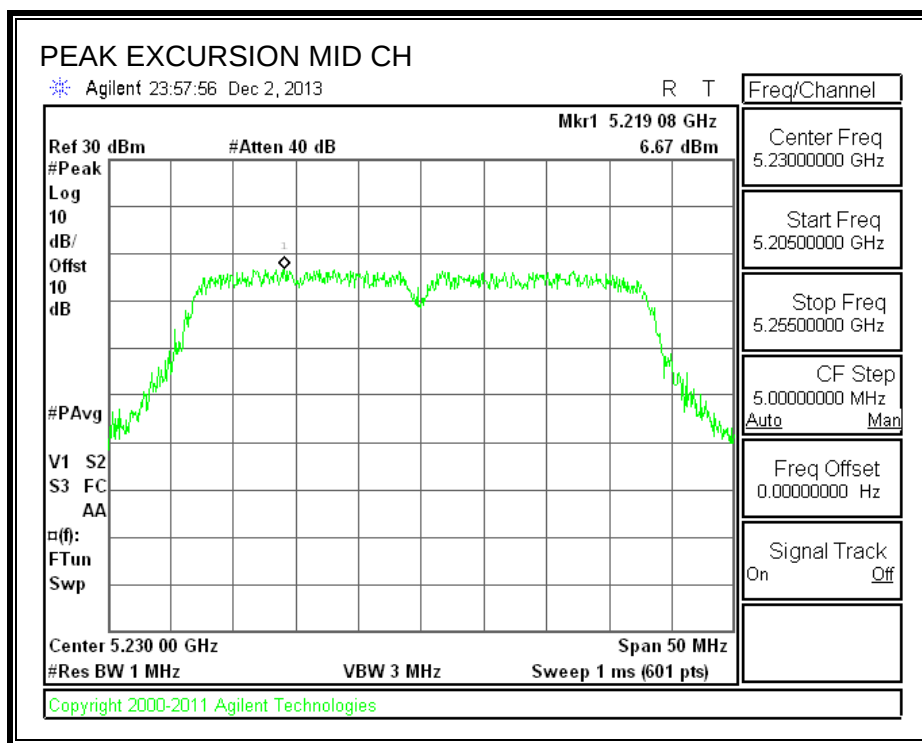
PEAK EXCURSION



10.5.1. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5230	6.670	-1.79	0.68	7.78	13	-5.22

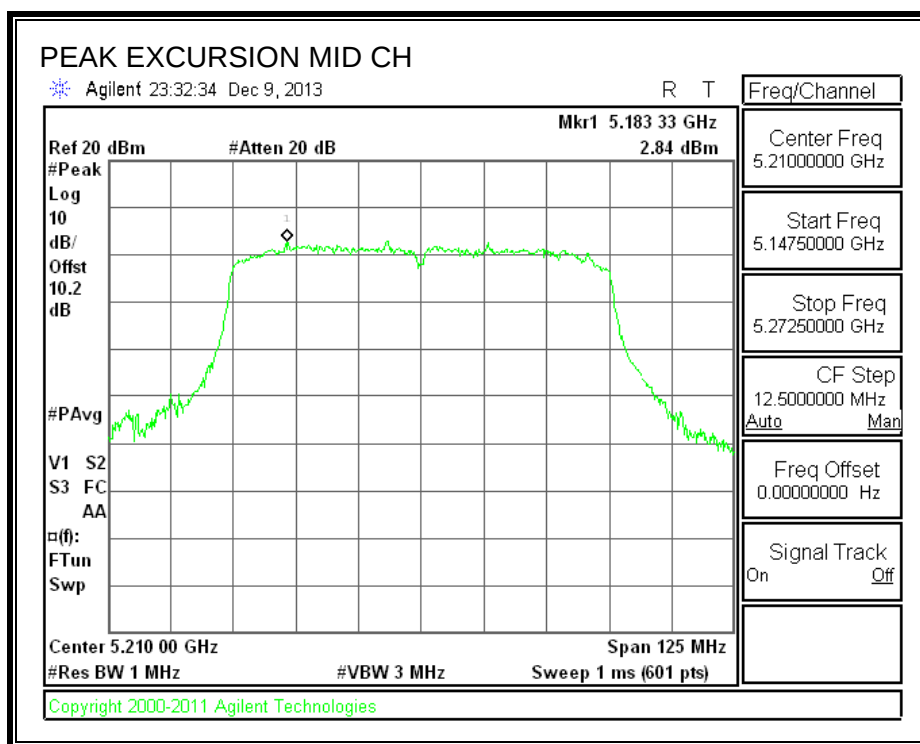
PEAK EXCURSION



10.5.1. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5210	2.840	-7.08	1.51	8.41	13	-4.59

PEAK EXCURSION



11. TRANSMITTER ABOVE 1 GHz

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. 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.

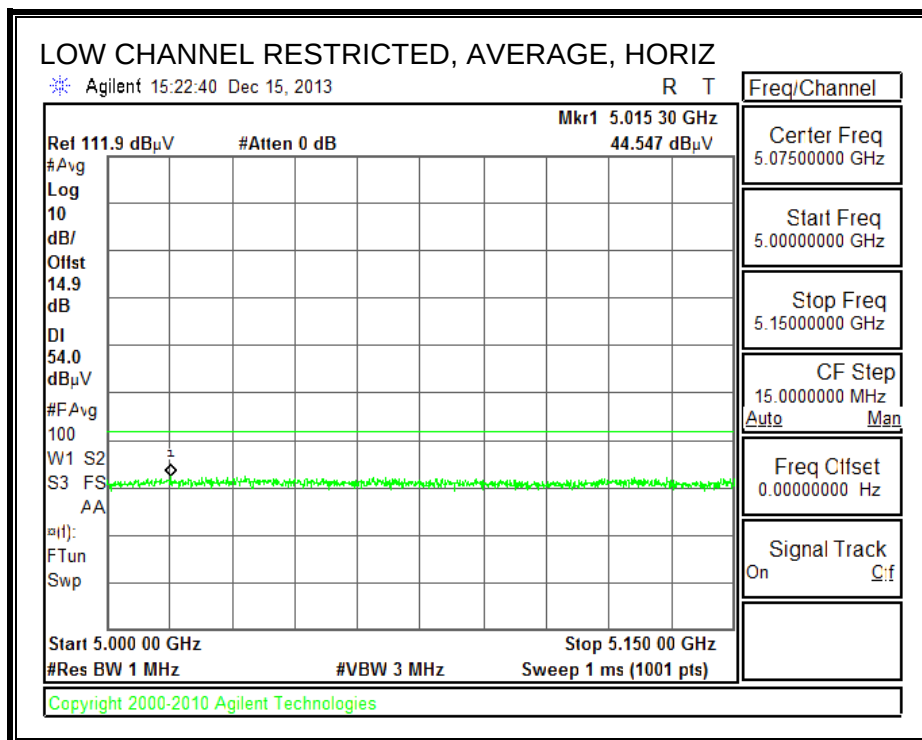
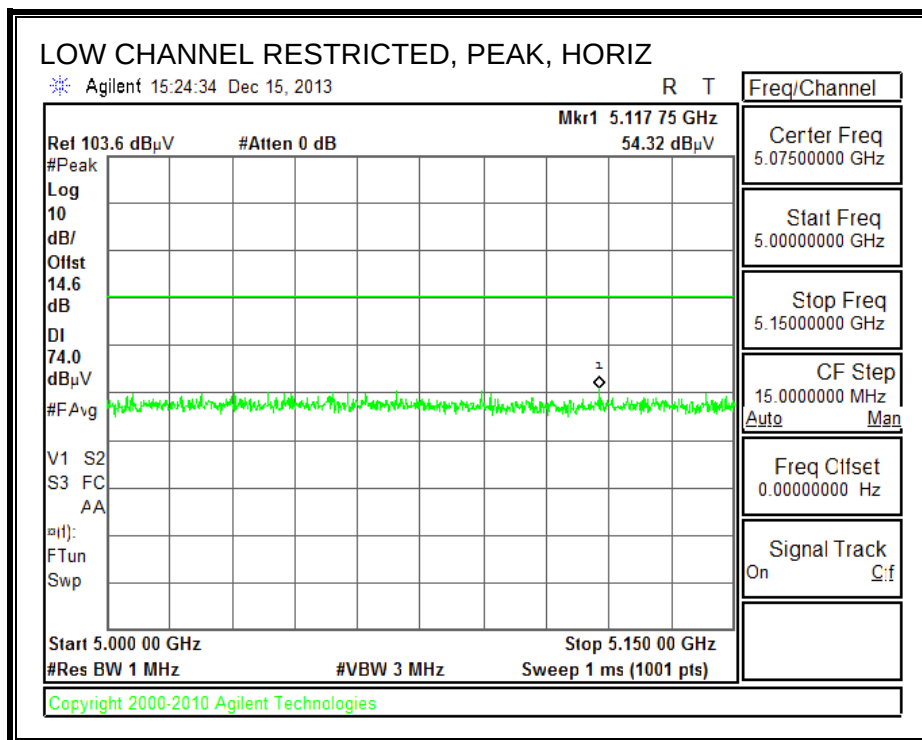
Reference to KDB 789033 UNII part H) 6) d) Method DC:

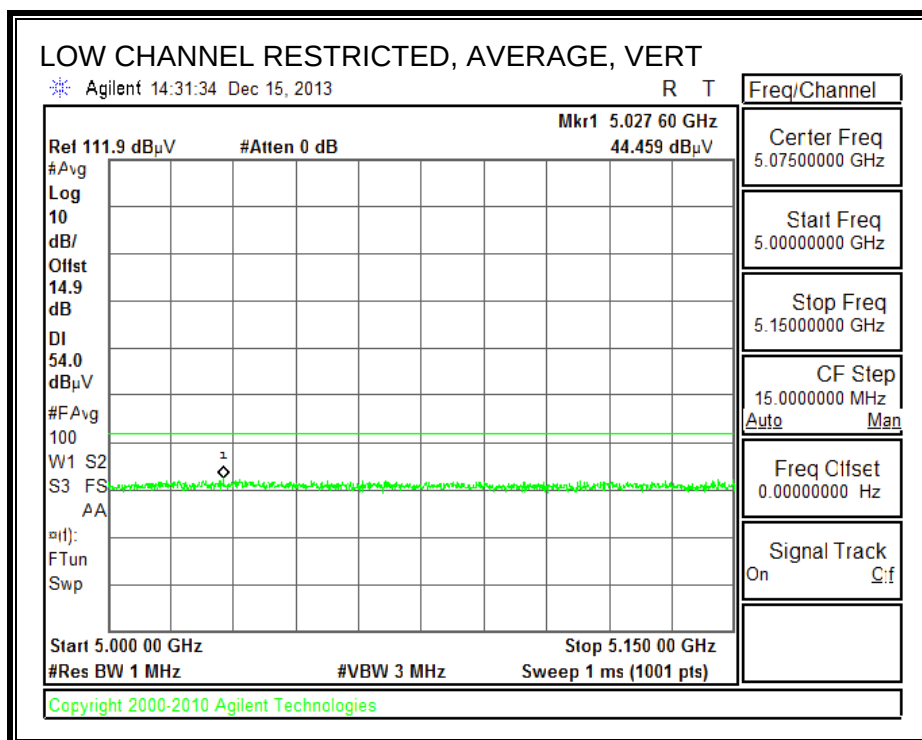
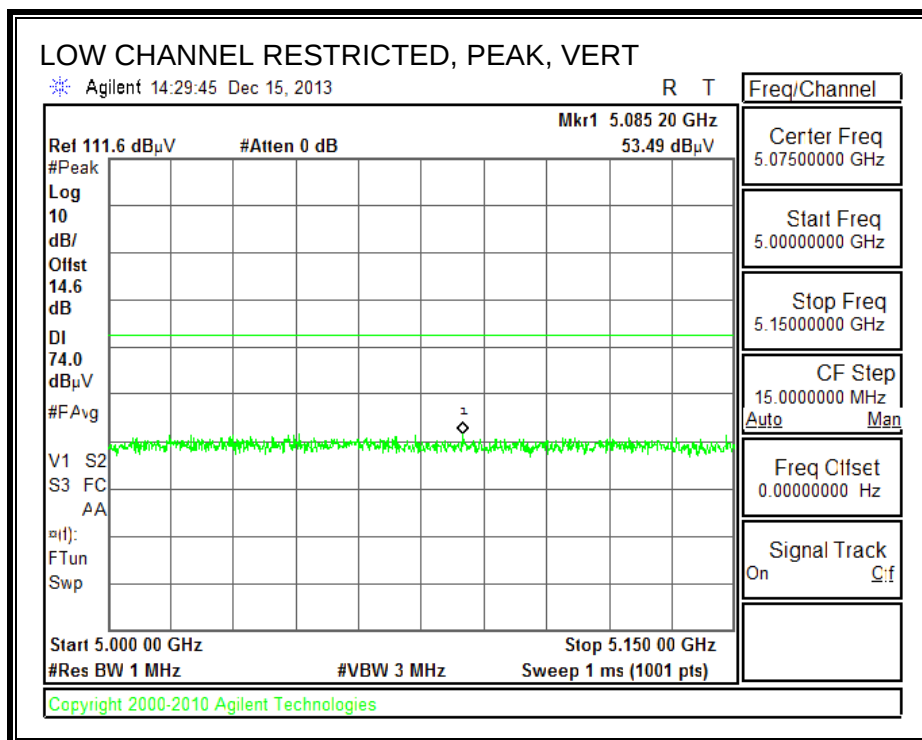
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements. For this sample: A and N mode = 0.3; HT40 N mode = 0.6dB; HT80 AC mode = 1.5dB

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.

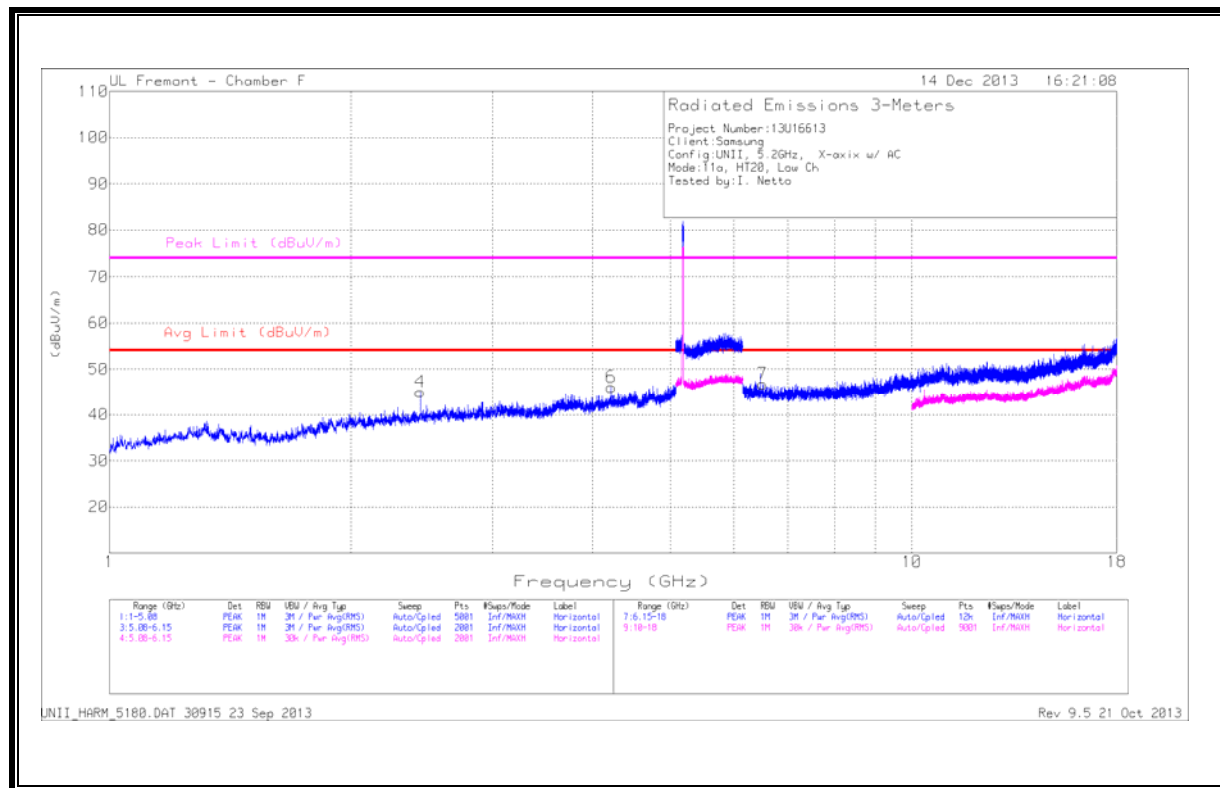
11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

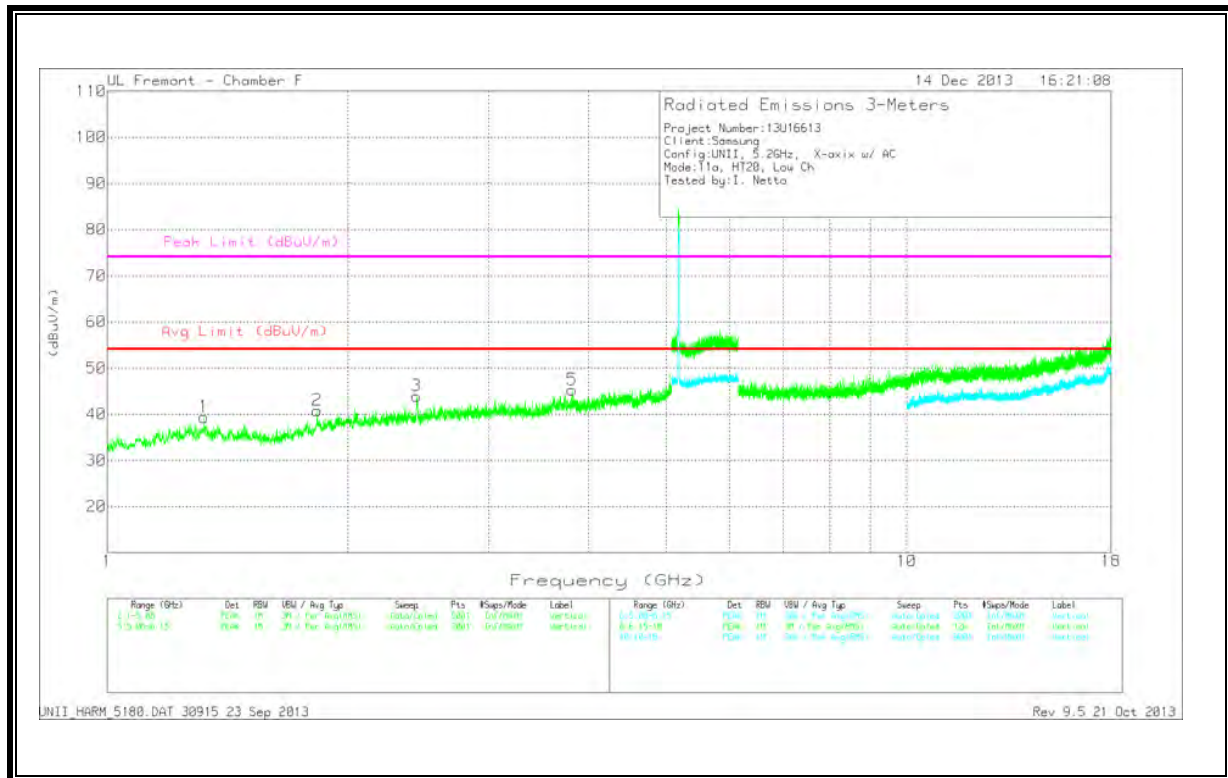




HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL





LOW CHANNEL DATA

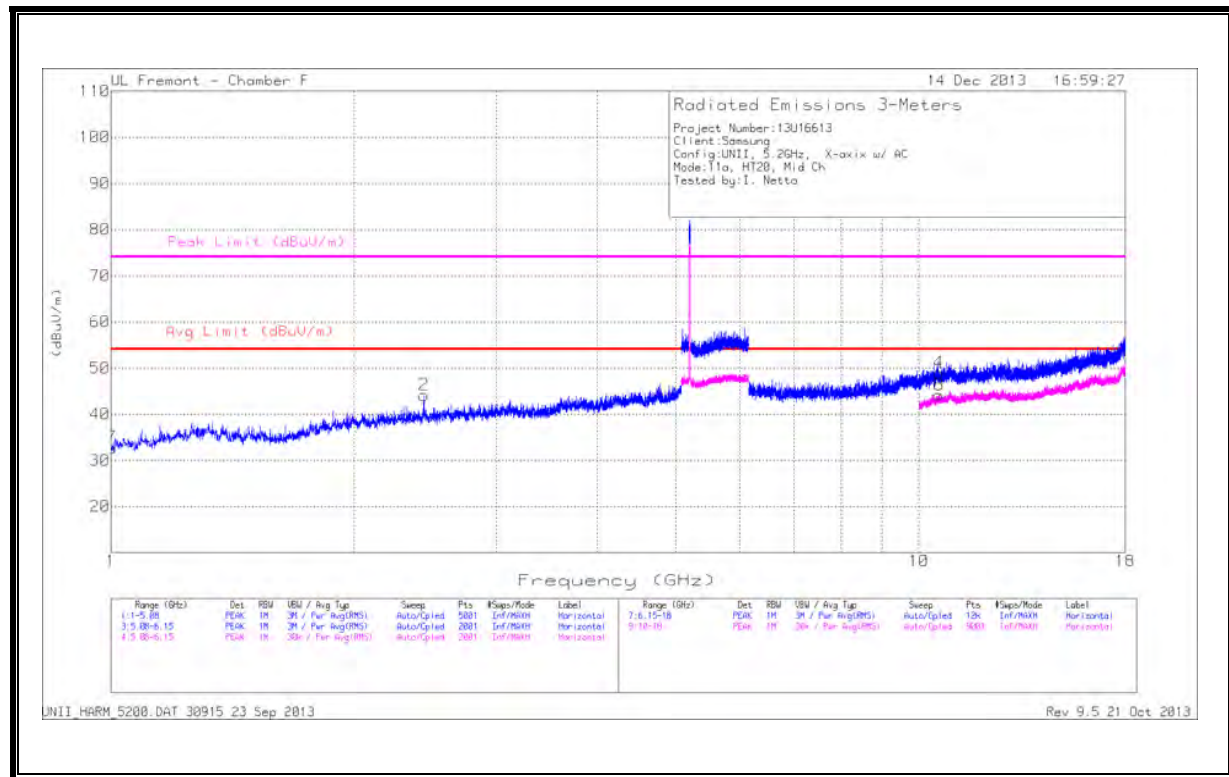
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/5GHz LPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.321	41.09	PK	29.9	-31.6	39.39	53.97	-14.58	74	-34.61	0-360	200	V
2	1.83	41.31	PK	30.4	-30.9	40.81	53.97	-13.16	74	-33.19	0-360	200	V
3	2.436	42.34	PK	32.3	-30.7	43.94	53.97	-10.03	74	-30.06	0-360	200	V
4	2.439	43.4	PK	32.3	-30.7	45	53.97	-8.97	74	-29	0-360	199	H
5	3.813	40.79	PK	33.6	-29.1	45.29	53.97	-8.68	74	-28.71	0-360	101	V
6	4.219	40.57	PK	33.4	-27.9	46.07	53.97	-7.9	74	-27.93	0-360	199	H

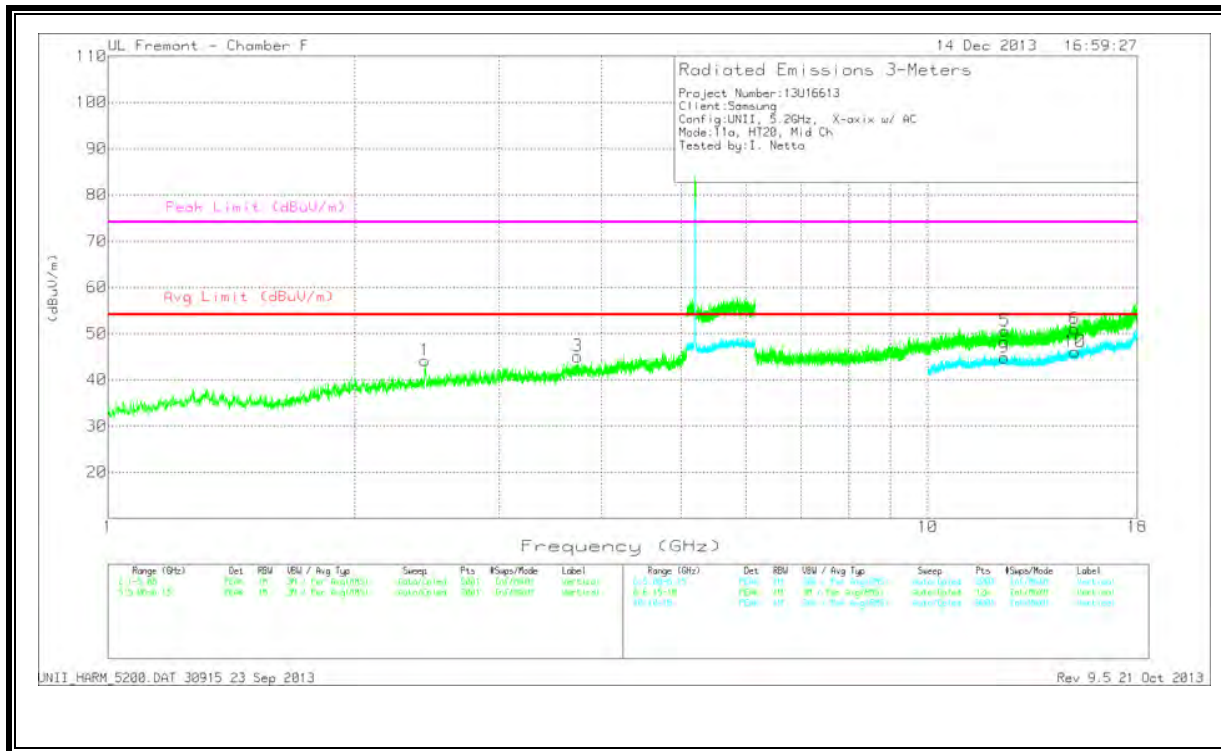
PK - Peak detector

Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/6GHz HPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	6.516	37.65	PK	35.8	-26.7	46.75	53.97	-7.22	74	-27.25	0-360	100	H

MID CHANNEL

HORIZONTAL





MID CHANNEL DATA

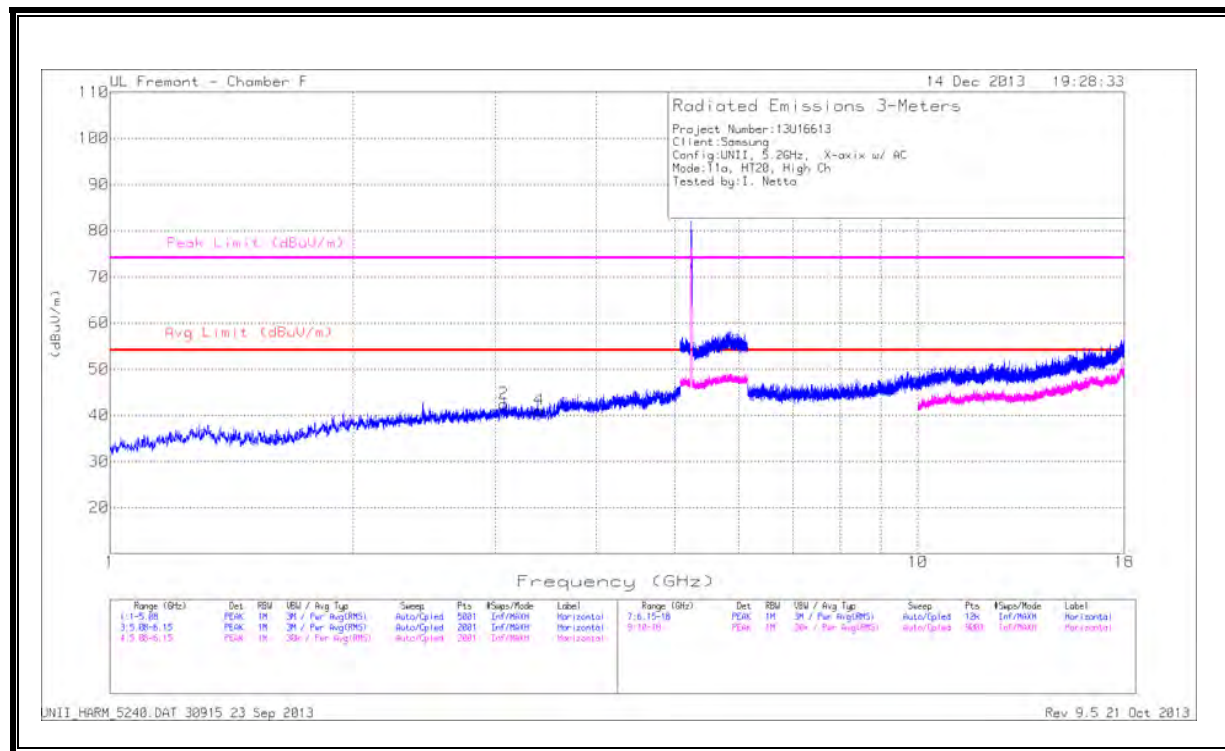
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	1.001	38.09	PK	27.2	-32.6	32.69	53.97	-21.28	74	-41.31	0-360	199	H
1	2.435	42.6	PK	32.3	-30.7	44.2	53.97	-9.77	74	-29.8	0-360	200	V
2	2.439	42.52	PK	32.3	-30.7	44.12	53.97	-9.85	74	-29.88	0-360	199	H
3	3.738	40.98	PK	33.5	-29.4	45.08	53.97	-8.89	74	-28.92	0-360	101	V

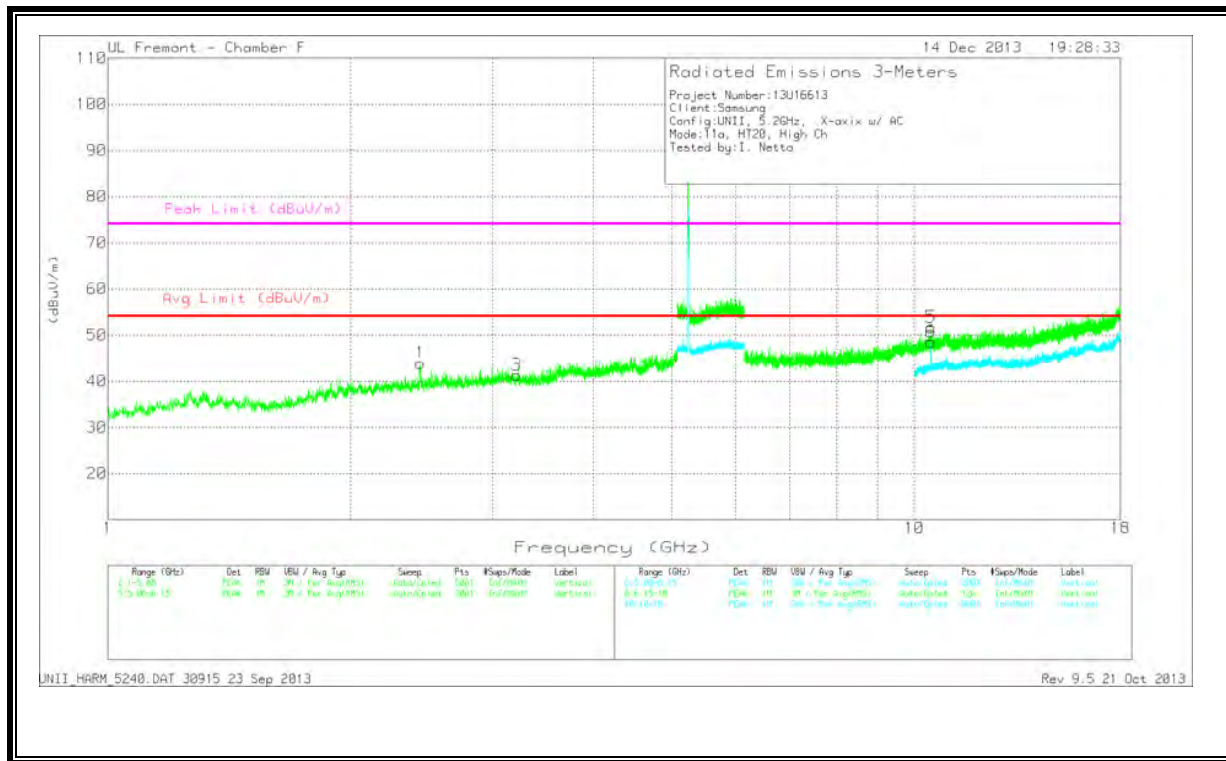
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.582	32.94	PK	38.5	-22.5	48.94	53.97	-5.03	74	-25.06	0-360	199	H
8	10.586	28.17	Avg	38.5	-22.5	44.17	-	-	-	-	0-360	199	H
9	12.397	28.32	Avg	39.3	-22.8	44.82	-	-	-	-	0-360	201	V
5	12.412	34.58	PK	39.3	-23.3	50.58	53.97	-3.39	74	-23.42	0-360	101	V
6	15.108	35.05	PK	40.2	-24.2	51.05	53.97	-2.92	74	-22.95	0-360	101	V
10	15.111	30.05	Avg	40.2	-24.2	46.05	-	-	-	-	0-360	201	V

HIGH CHANNEL

HORIZONTAL





HIGH CHANNEL DATA

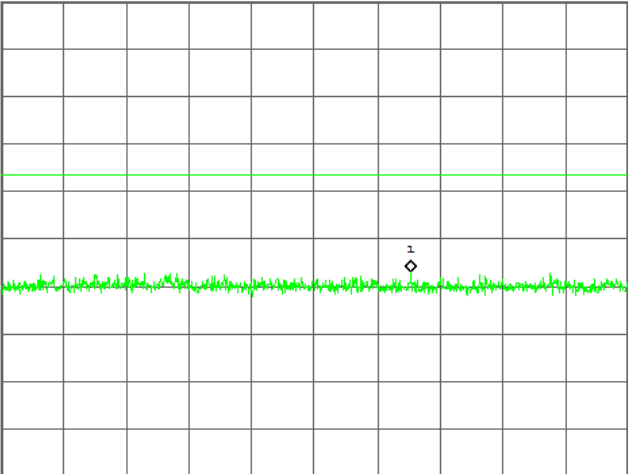
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.44	42.34	PK	32.3	-30.7	43.94	53.97	-10.03	74	-30.06	0-360	101	V
2	3.073	38.57	PK	33.3	-29.4	42.47	53.97	-11.5	74	-31.53	0-360	199	H
3	3.211	38.31	PK	33.2	-30.2	41.31	53.97	-12.66	74	-32.69	0-360	201	V
4	3.397	37.51	PK	33	-29.4	41.11	53.97	-12.86	74	-32.89	0-360	199	H

PK - Peak detector

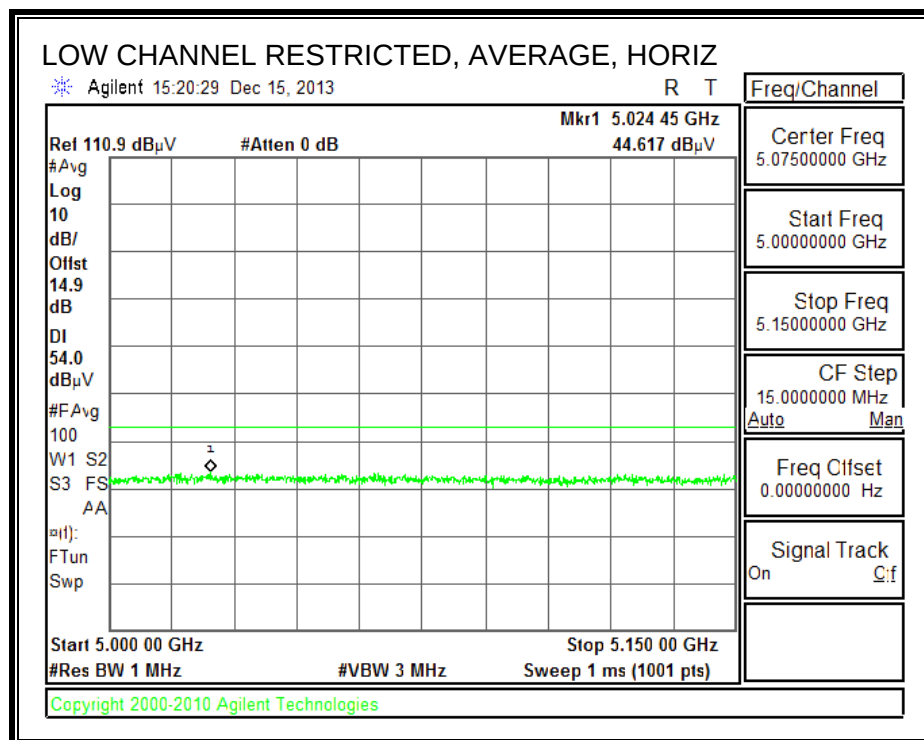
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6	10.478	33.06	Avg	38.3	-22.9	48.46	-	-	-	-	0-360	201	V
5	10.48	36.25	PK	38.3	-22.9	51.65	53.97	-2.32	74	-22.35	0-360	201	V

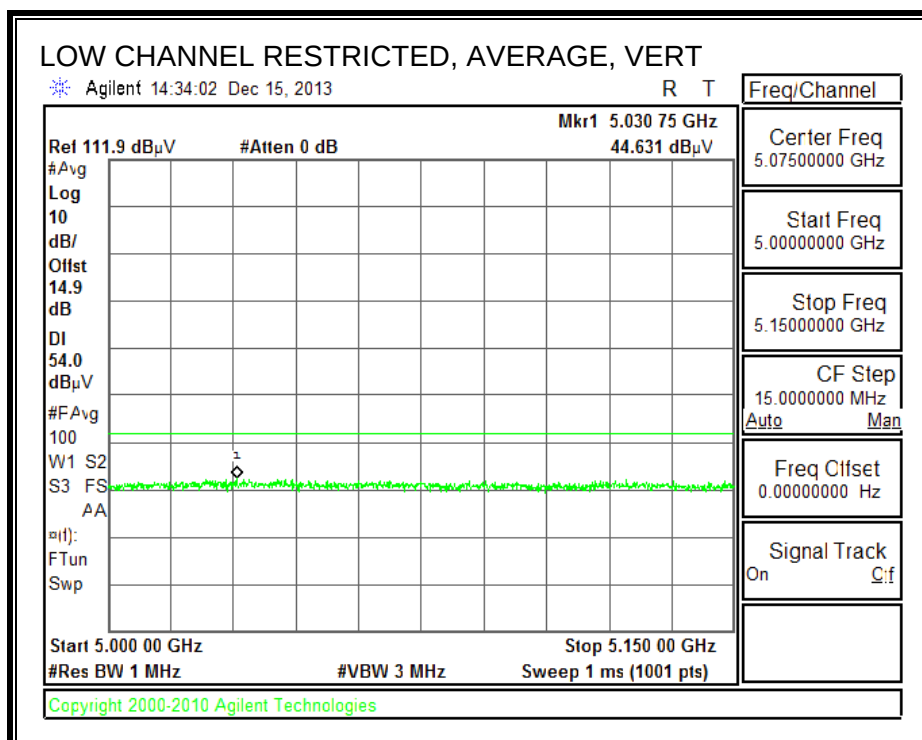
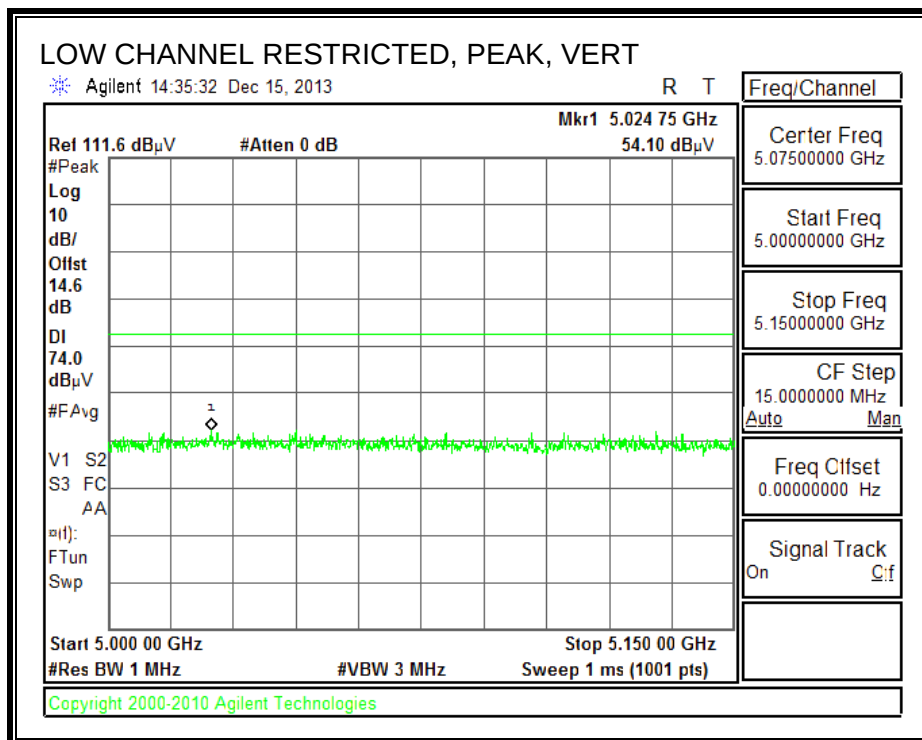
LOW CHANNEL RESTRICTED, PEAK, HORIZ

Agilent 15:17:54 Dec 15, 2013 R T

Ref 110.6 dBμV #Atten 0 dB		Mkr1 5.097 95 GHz 53.68 dBμV	
#Peak Log 10 dB/ Offst 14.6 dB DI 74.0 dBμV #FAvg			
V1 S2 S3 FC AA W(t): FTun Swp		Center Freq 5.07500000 GHz Start Freq 5.00000000 GHz Stop Freq 5.15000000 GHz CF Step 15.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off	
Start 5.000 00 GHz #Res BW 1 MHz		Stop 5.150 00 GHz Sweep 1 ms (1001 pts)	
#VBW 3 MHz			

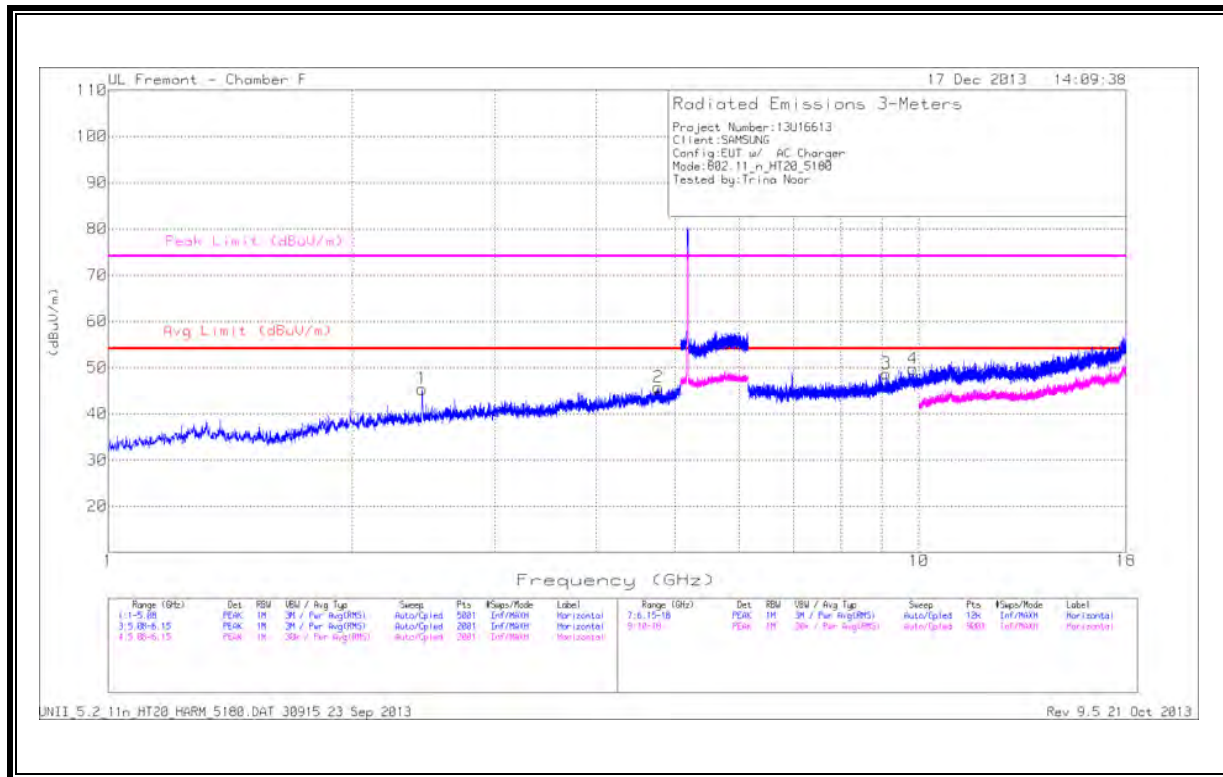
Copyright 2000-2010 Agilent Technologies



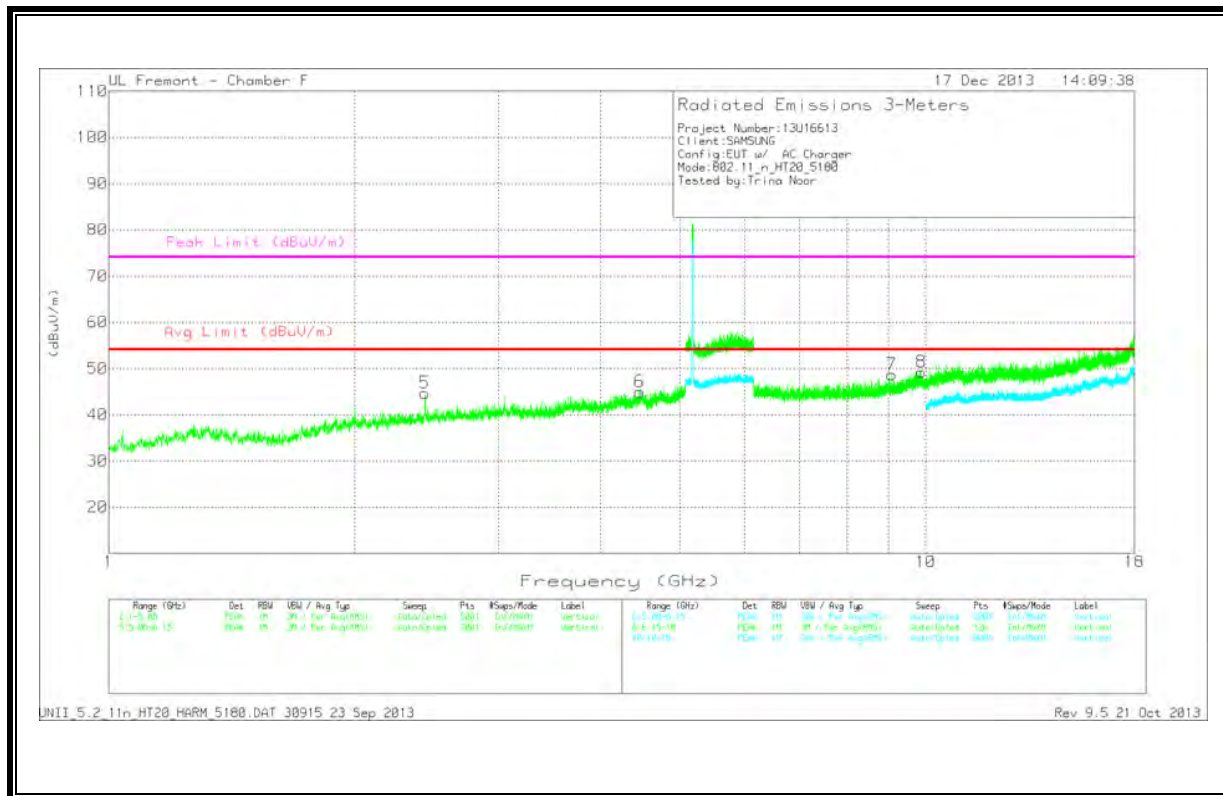


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



VERTICAL



LOW CHANNEL DATA

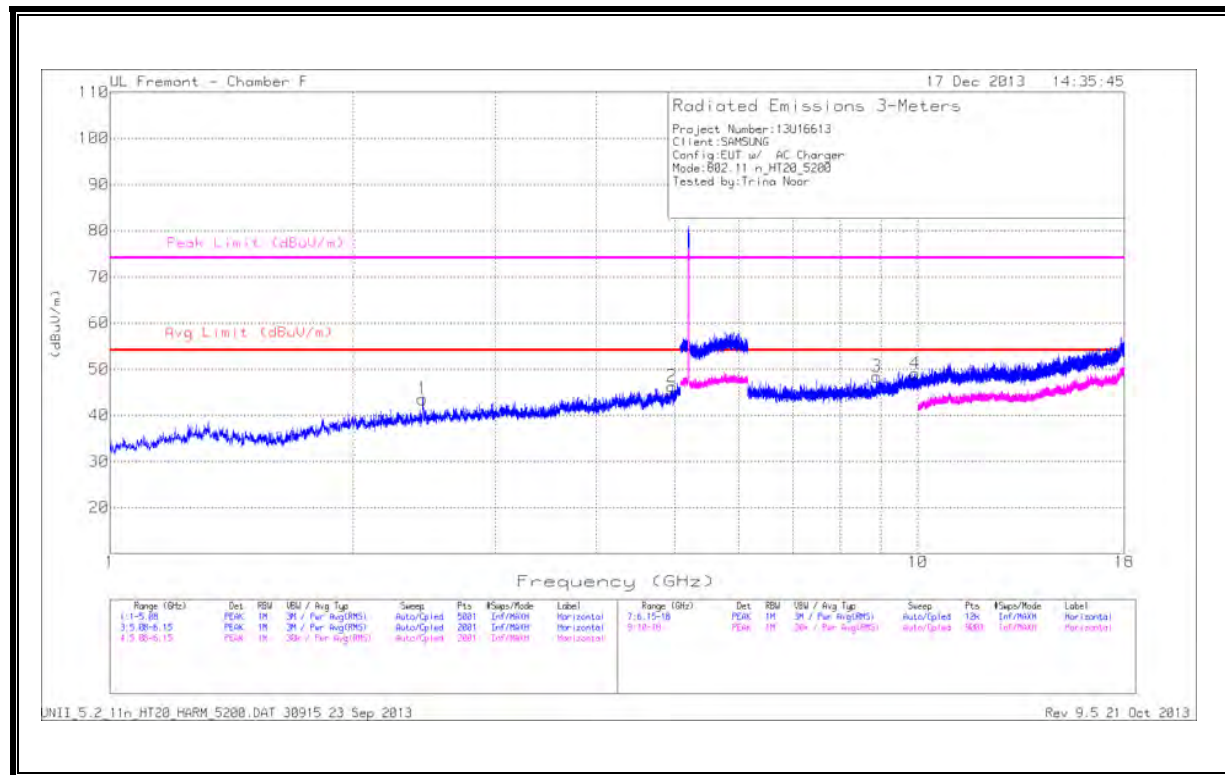
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.437	43.07	PK	32.3	-30.7	44.67	53.97	-9.3	74	-29.33	0-360	201	V
1	2.439	43.77	PK	32.3	-30.7	45.37	53.97	-8.6	74	-28.63	0-360	199	H
6	4.462	38.66	PK	33.8	-27.5	44.96	53.97	-9.01	74	-29.04	0-360	201	V
2	4.77	39.35	PK	34.1	-27.7	45.75	53.97	-8.22	74	-28.25	0-360	199	H

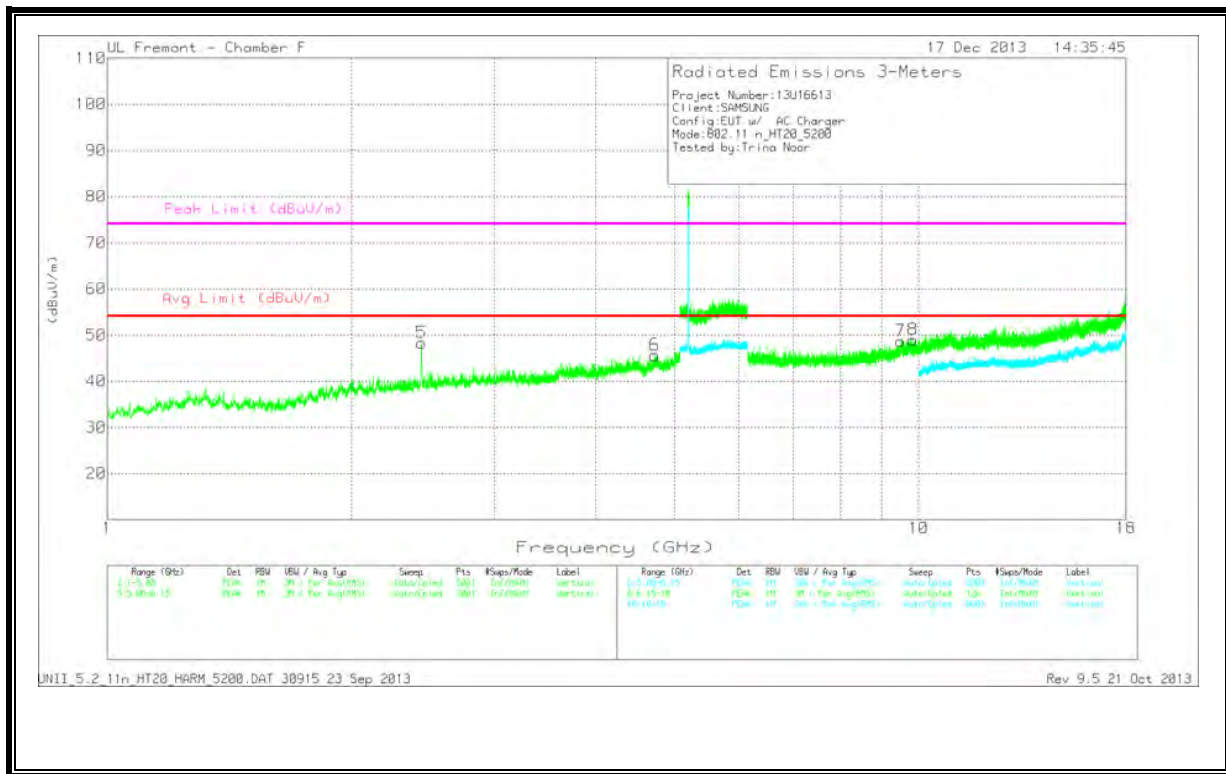
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	9.084	36.46	PK	36.4	-24.2	48.66	53.97	-5.31	74	-25.34	0-360	200	V
3	9.109	36.39	PK	36.4	-24.1	48.69	53.97	-5.28	74	-25.31	0-360	199	H
4	9.823	35.59	PK	37.5	-23.4	49.69	53.97	-4.28	74	-24.31	0-360	100	H
8	9.875	34.83	PK	37.6	-23.2	49.23	53.97	-4.74	74	-24.77	0-360	101	V

MID CHANNEL

HORIZONTAL





MID CHANNEL DATA

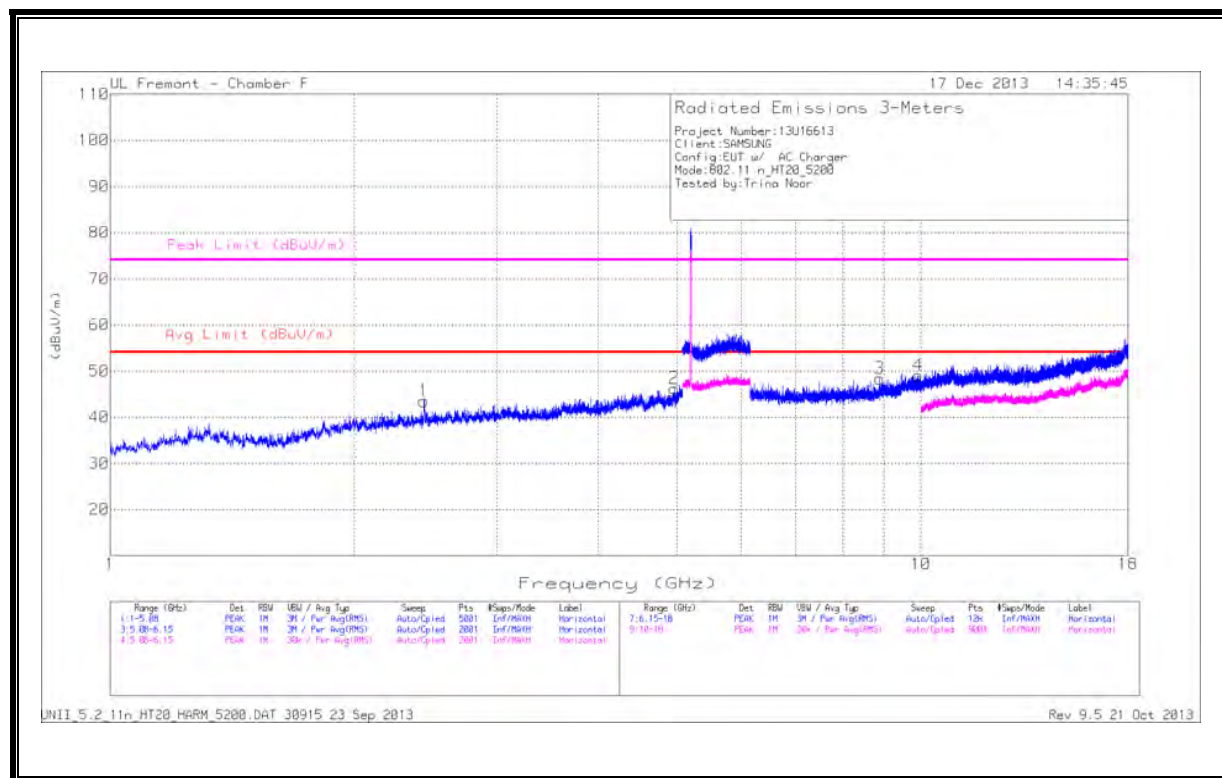
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.435	41.87	PK	32.3	-30.7	43.47	53.97	-10.5	74	-30.53	0-360	199	H
5	2.439	46.73	PK	32.3	-30.7	48.33	53.97	-5.64	74	-25.67	0-360	200	V
6	4.727	39.63	PK	34.1	-28.1	45.63	53.97	-8.34	74	-28.37	0-360	101	V
2	4.961	39.31	PK	34	-27.1	46.21	53.97	-7.76	74	-27.79	0-360	100	H

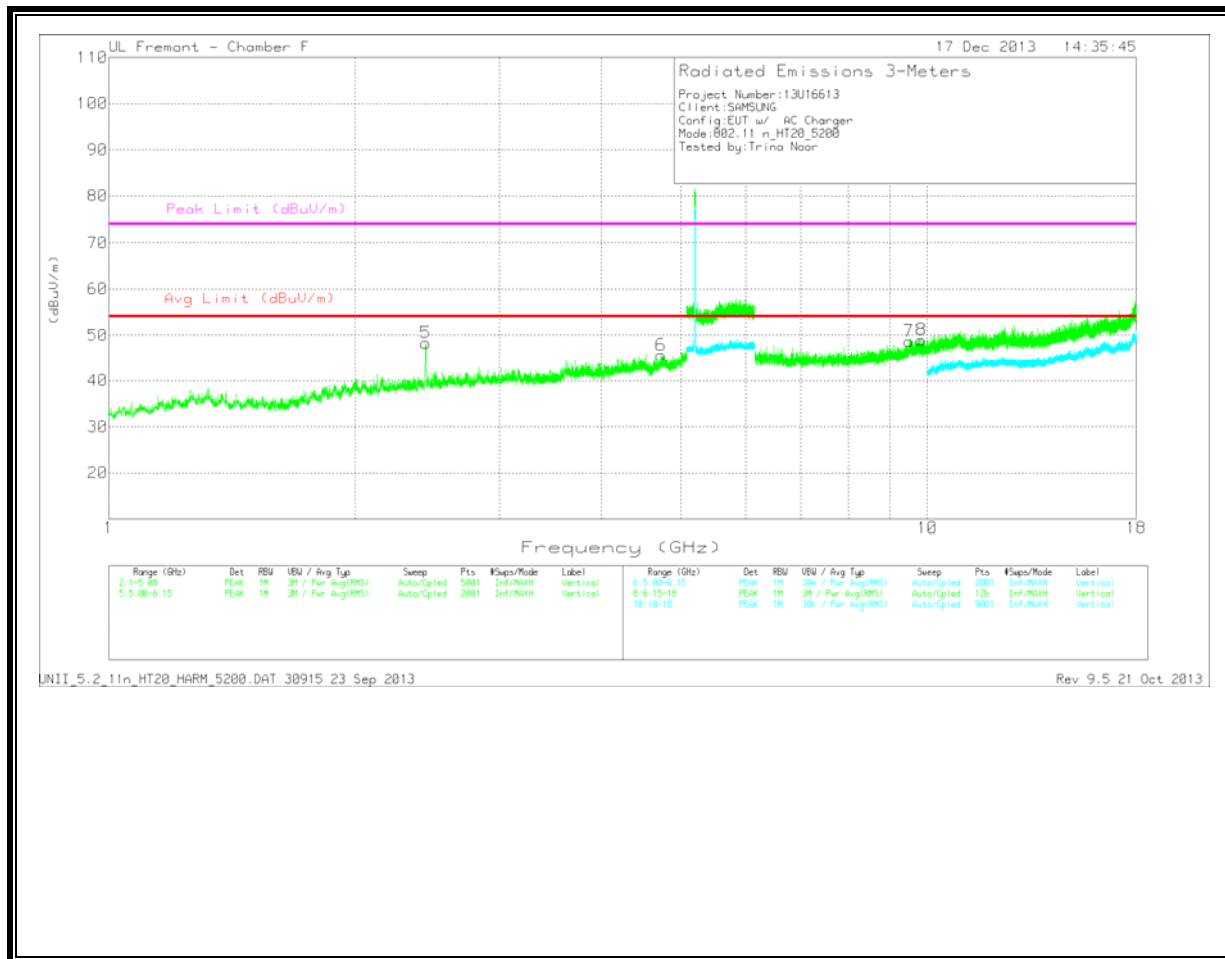
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	8.893	36.07	PK	36.3	-24	48.37	53.97	-5.6	74	-25.63	0-360	199	H
7	9.491	33.88	PK	37.1	-22.3	48.68	53.97	-5.29	74	-25.32	0-360	100	V
8	9.836	34.79	PK	37.5	-23.3	48.99	53.97	-4.98	74	-25.01	0-360	100	V
4	9.91	34.21	PK	37.6	-22.8	49.01	53.97	-4.96	74	-24.99	0-360	100	H

HIGH CHANNEL

HORIZONTAL





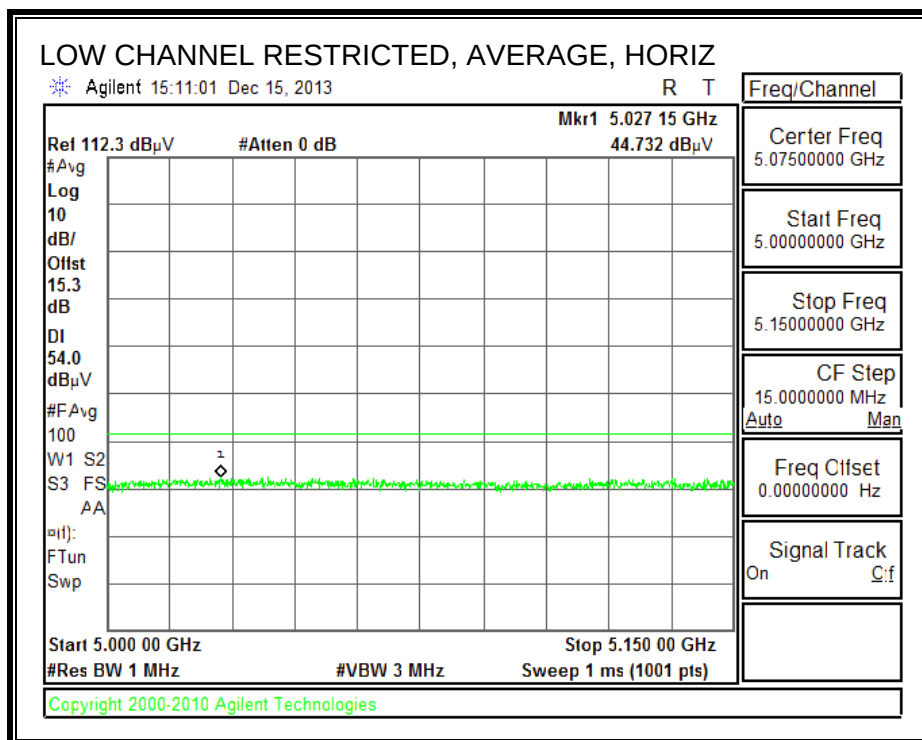
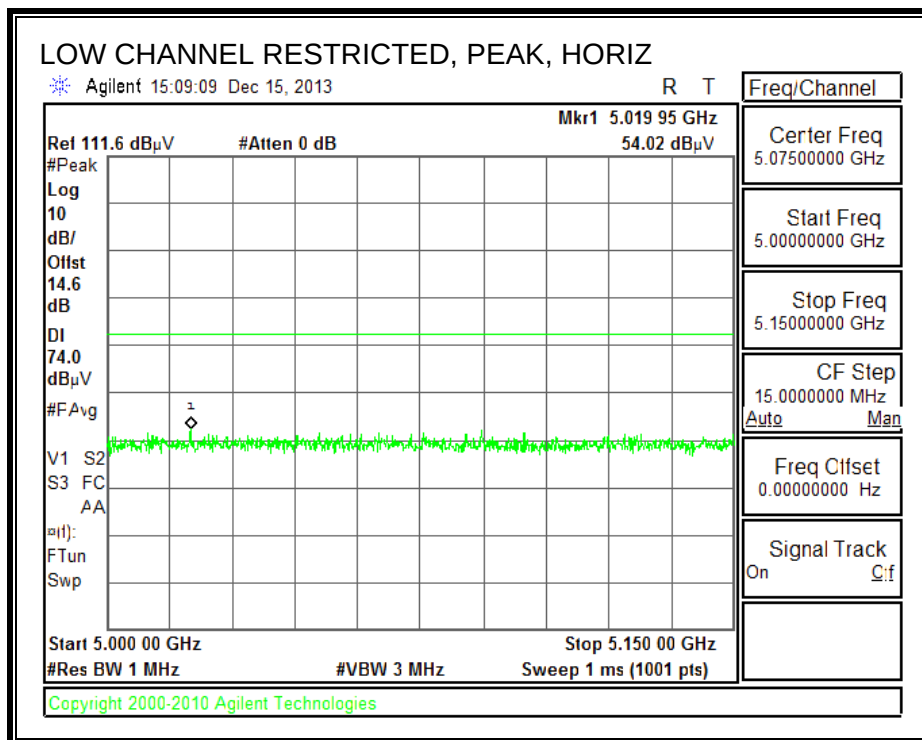
HIGH CHANNEL DATA

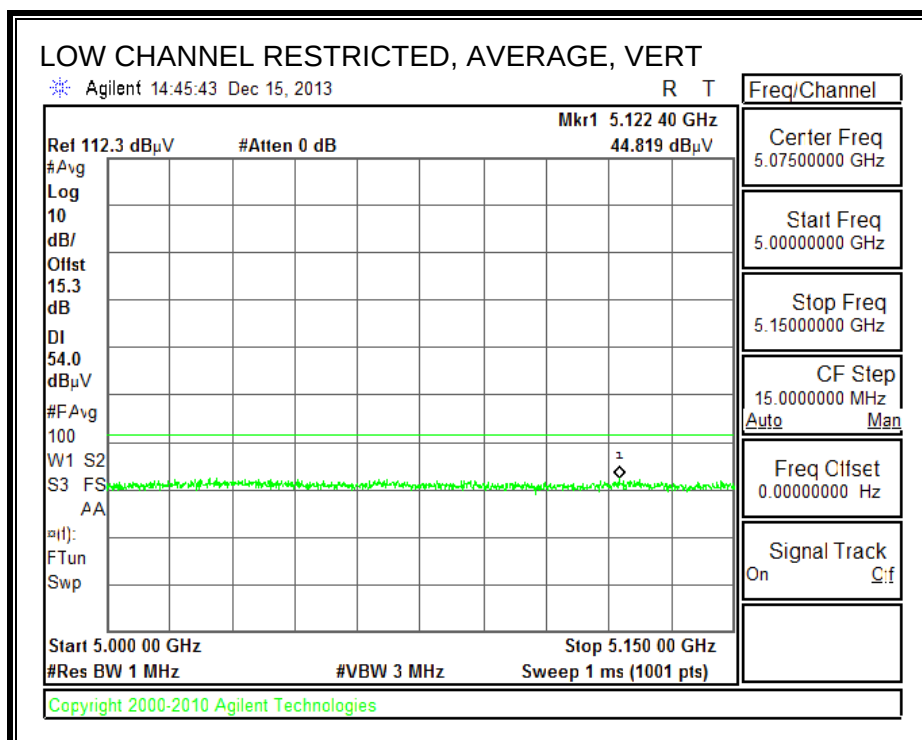
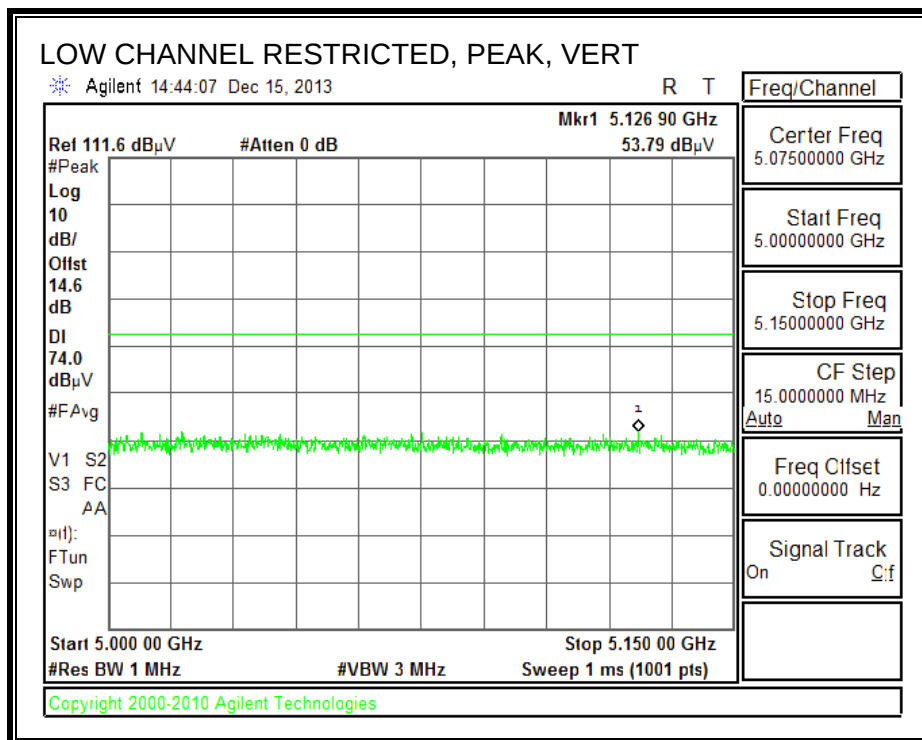
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.435	41.87	PK	32.3	-30.7	43.47	53.97	-10.5	74	-30.53	0-360	199	H
5	2.439	46.73	PK	32.3	-30.7	48.33	53.97	-5.64	74	-25.67	0-360	200	V
6	4.727	39.63	PK	34.1	-28.1	45.63	53.97	-8.34	74	-28.37	0-360	101	V
2	4.961	39.31	PK	34	-27.1	46.21	53.97	-7.76	74	-27.79	0-360	100	H

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	8.893	36.07	PK	36.3	-24	48.37	53.97	-5.6	74	-25.63	0-360	199	H
7	9.491	33.88	PK	37.1	-22.3	48.68	53.97	-5.29	74	-25.32	0-360	100	V
8	9.836	34.79	PK	37.5	-23.3	48.99	53.97	-4.98	74	-25.01	0-360	100	V
4	9.91	34.21	PK	37.6	-22.8	49.01	53.97	-4.96	74	-24.99	0-360	100	H

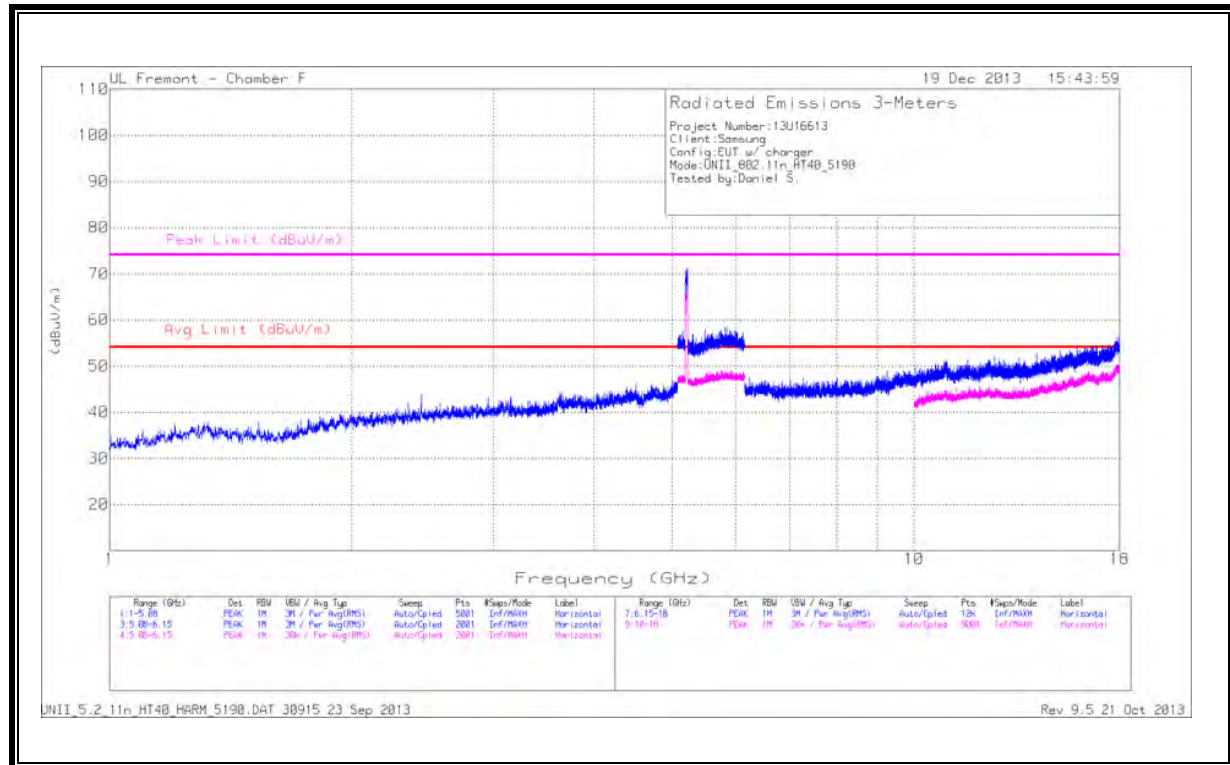
11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)



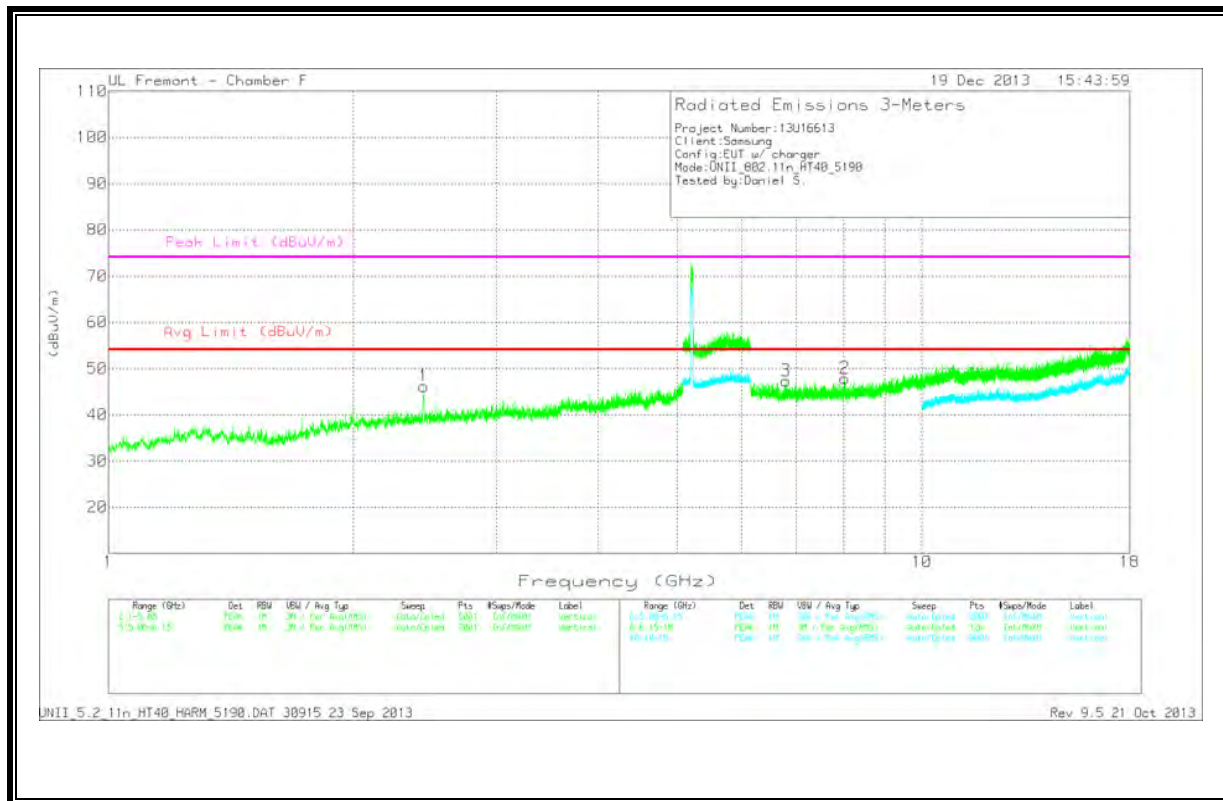


HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



VERTICAL



LOW CHANNEL DATA

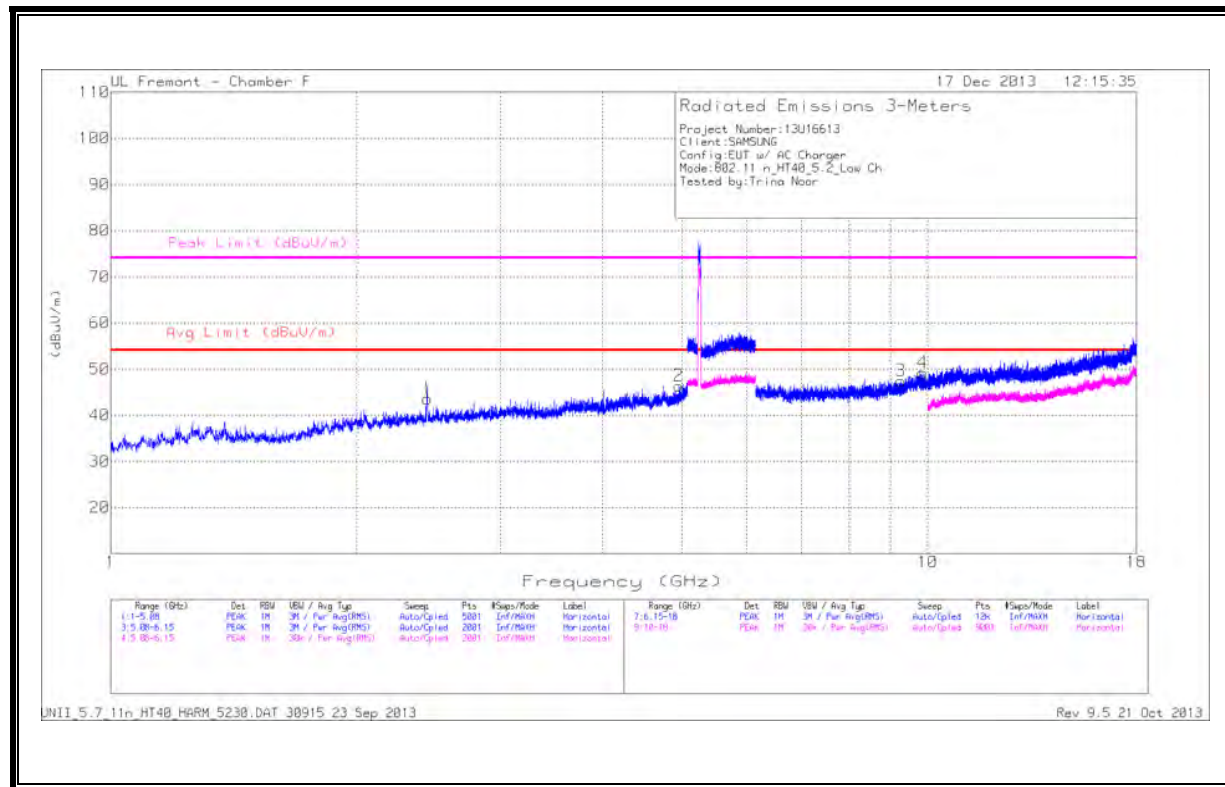
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.44	44.57	PK	32.3	-30.7	46.17	53.97	-7.8	74	-27.83	0-360	101	V

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	6.798	38.4	PK	35.7	-26.8	47.3	53.97	-6.67	74	-26.7	0-360	101	V
2	8.035	37.65	PK	36	-25.8	47.85	53.97	-6.12	74	-26.15	0-360	101	V

High CHANNEL

HORIZONTAL



MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.44	41.98	PK	32.3	-30.7	43.58	53.97	-10.39	74	-30.42	0-360	199	H
5	2.444	45.56	PK	32.3	-30.6	47.26	53.97	-6.71	74	-26.74	0-360	201	V
6	4.867	40.35	PK	34	-28.1	46.25	53.97	-7.72	74	-27.75	0-360	201	V
2	4.957	39.44	PK	34	-27.1	46.34	53.97	-7.63	74	-27.66	0-360	100	H

PK - Peak detector

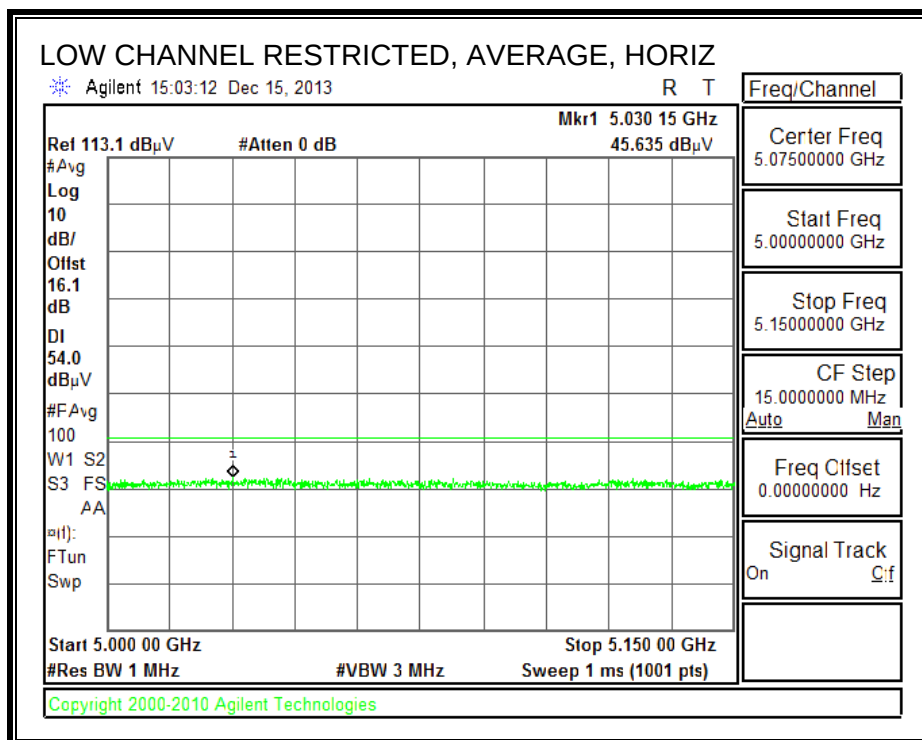
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	9.27	34.59	PK	36.7	-23.9	47.39	53.97	-6.58	74	-26.61	0-360	199	H
7	9.534	34.76	PK	37.2	-22.7	49.26	53.97	-4.71	74	-24.74	0-360	100	V
8	9.71	36.76	PK	37.4	-23.5	50.66	53.97	-3.31	74	-23.34	0-360	201	V
4	9.854	34.57	PK	37.6	-23	49.17	53.97	-4.8	74	-24.83	0-360	100	H

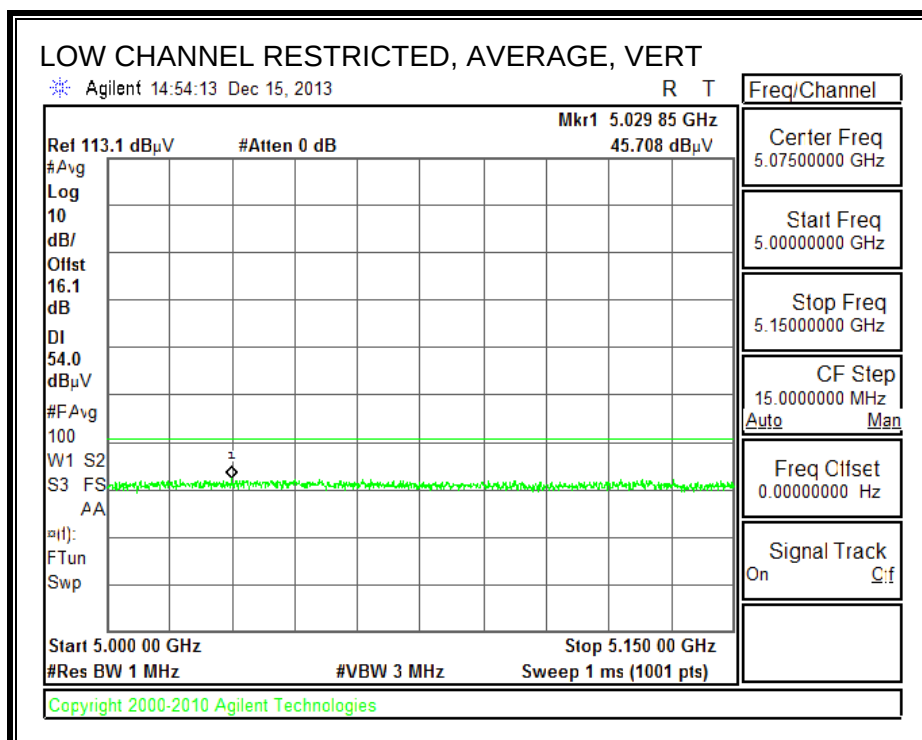
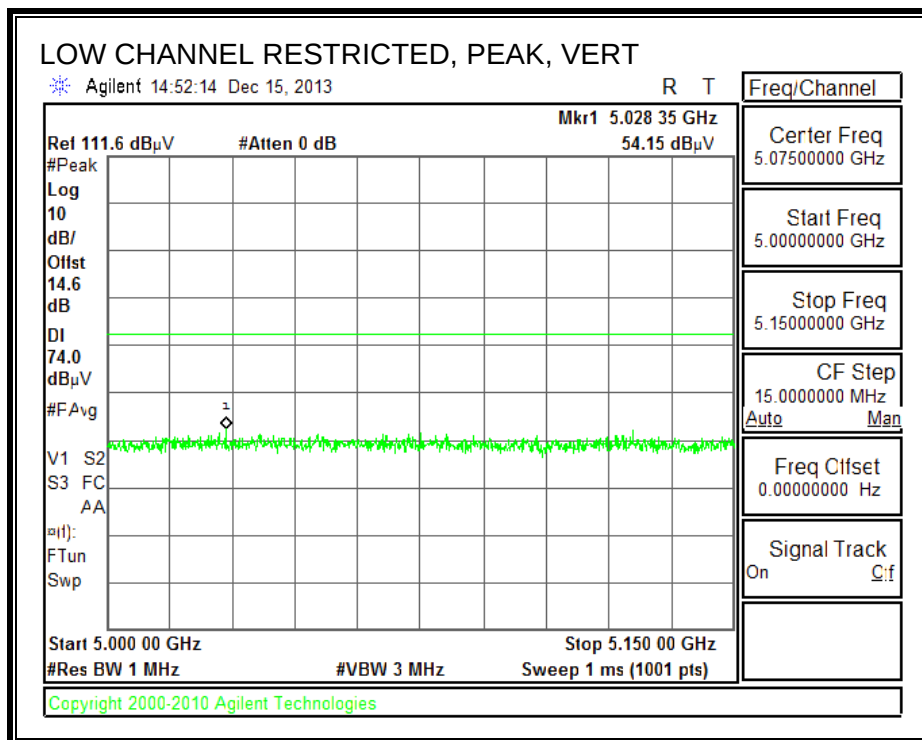
LOW CHANNEL RESTRICTED, PEAK, HORIZ

Agilent 15:01:15 Dec 15, 2013 R T

Rel 111.6 dBμV		#Atten 0 dB	Mkr1 5.093 30 GHz	53.90 dBμV	Center Freq 5.07500000 GHz
#Peak					Start Freq 5.00000000 GHz
Log					Stop Freq 5.15000000 GHz
10					CF Step 15.00000000 MHz
dB/					Auto Man
Offst					Freq Offset 0.00000000 Hz
14.6					Signal Track On C:f
dB					
DI					
74.0					
dBμV					
#FAvg					
V1 S2					
S3 FC					
AA					
μ(t):					
FTun					
Swp					
Start 5.000 00 GHz					Stop 5.150 00 GHz
#Res BW 1 MHz					Sweep 1 ms (1001 pts)

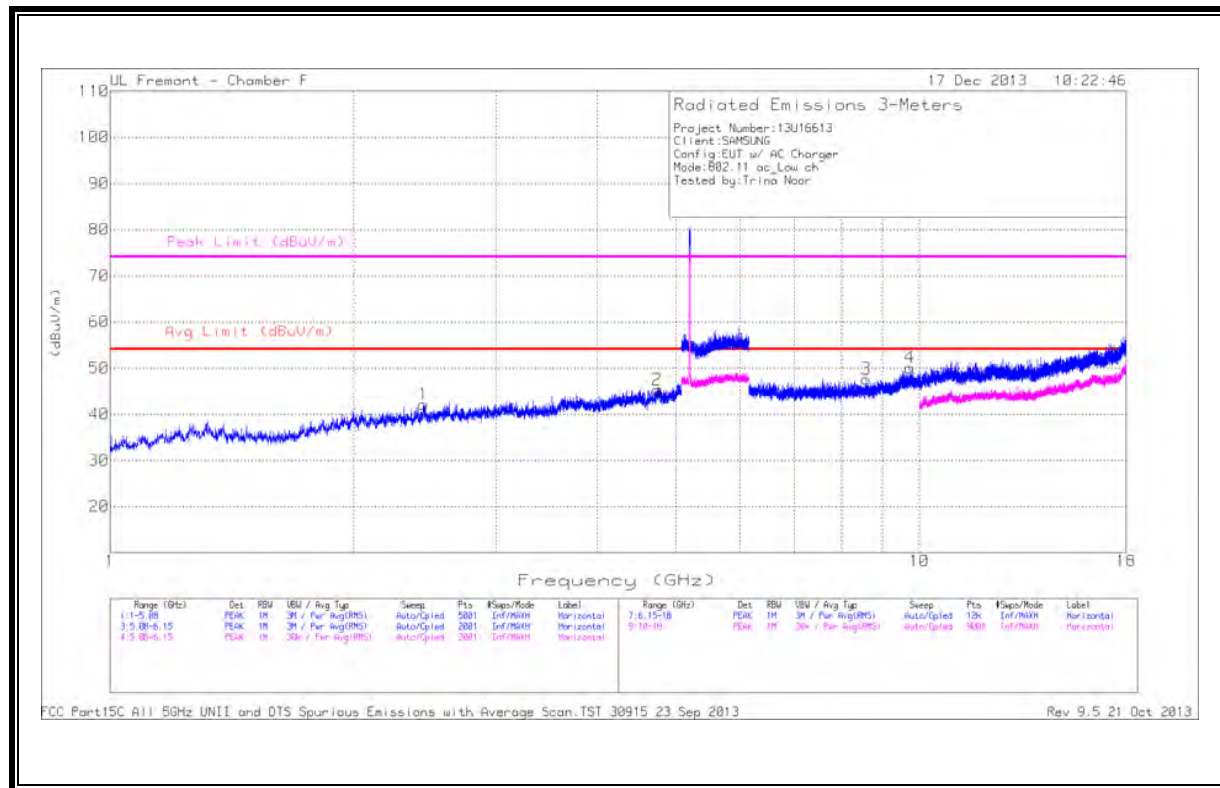
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HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



LOW CHANNEL DATA

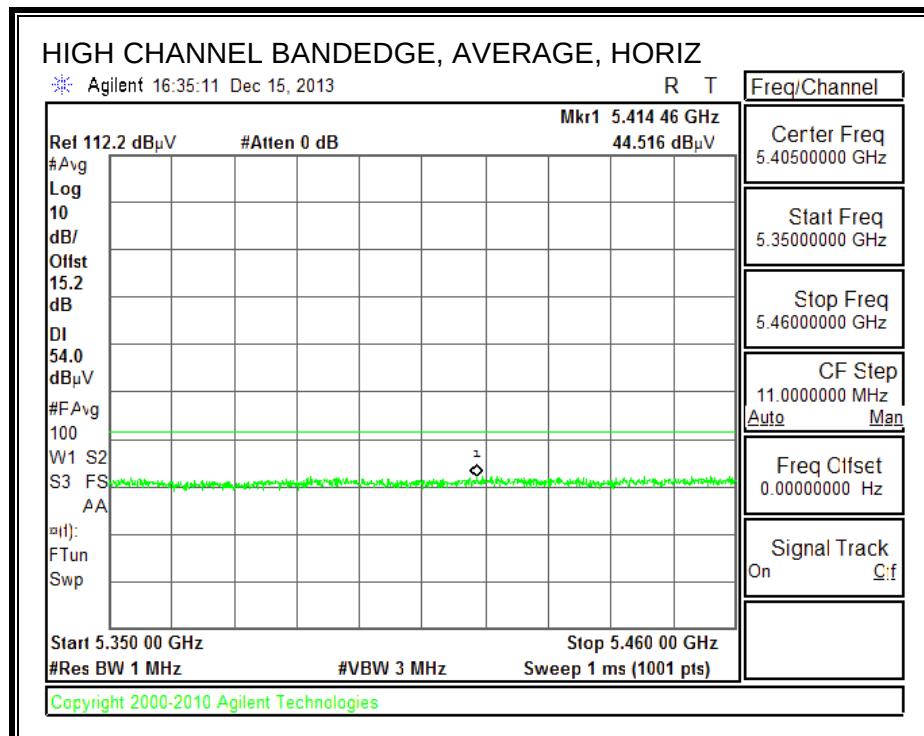
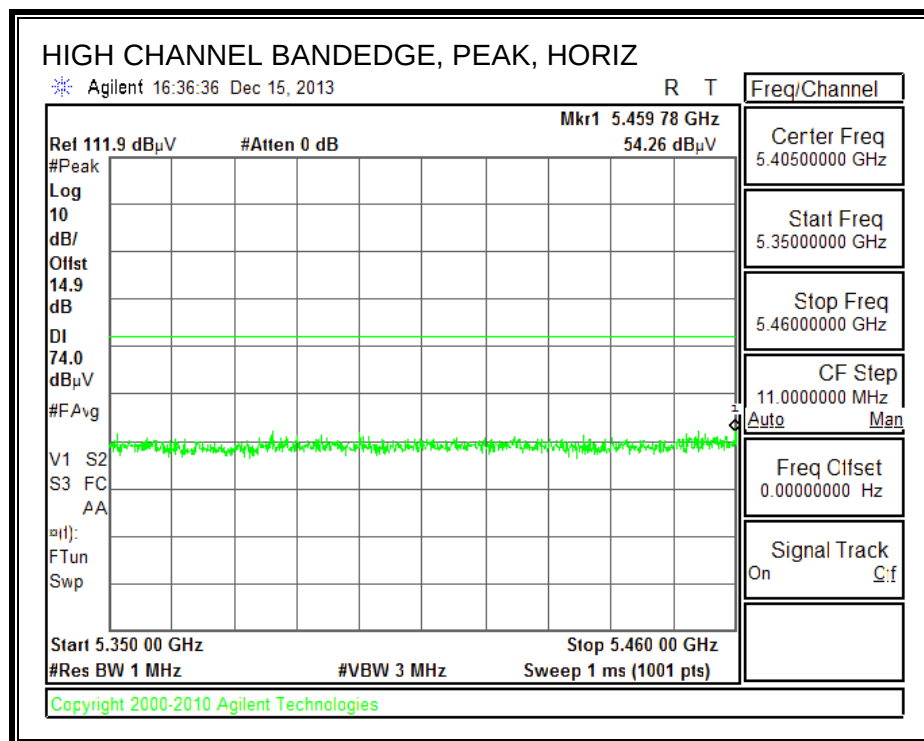
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	40.54	PK	32.3	-30.7	42.14	53.97	-11.83	74	-31.86	0-360	199	H
5	2.441	43.65	PK	32.3	-30.7	45.25	53.97	-8.72	74	-28.75	0-360	101	V
2	4.74	38.94	PK	34.1	-27.8	45.24	53.97	-8.73	74	-28.76	0-360	199	H
6	4.741	40.23	PK	34.1	-27.8	46.53	53.97	-7.44	74	-27.47	0-360	200	V

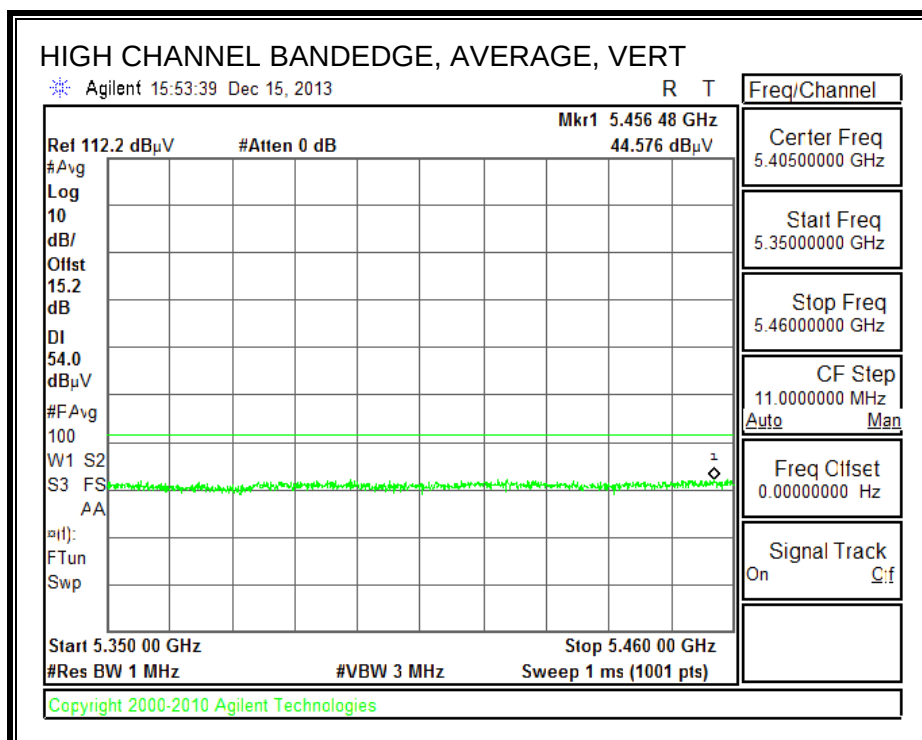
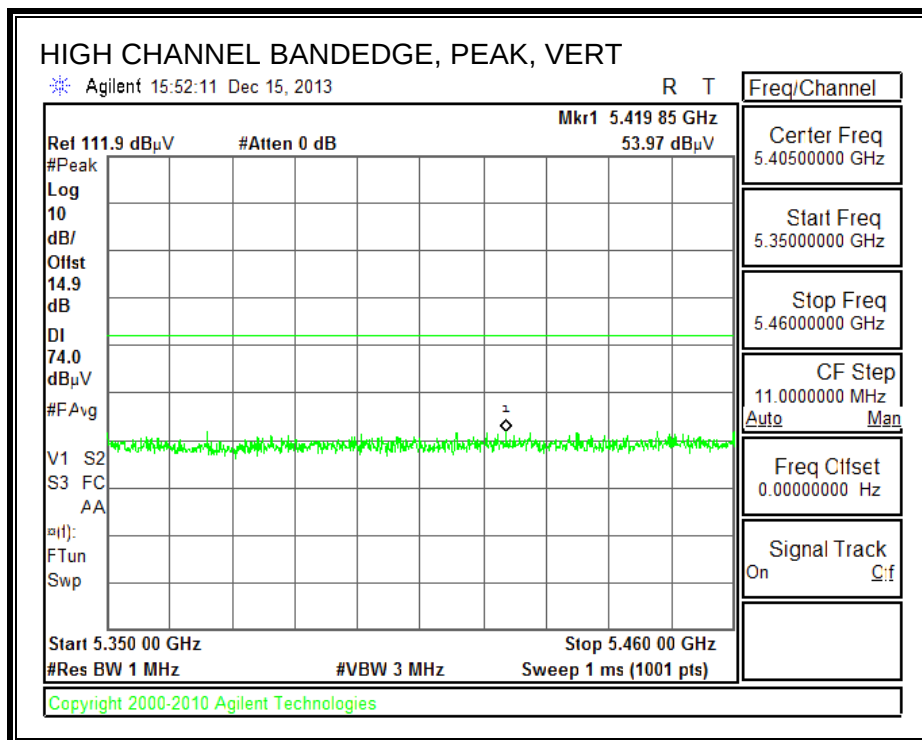
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	8.59	36.17	PK	36	-24.6	47.57	53.97	-6.4	74	-26.43	0-360	201	H
7	9.13	36.29	PK	36.5	-23.8	48.99	53.97	-4.98	74	-25.01	0-360	199	V
8	9.488	34.86	PK	37.1	-22.4	49.56	53.97	-4.41	74	-24.44	0-360	100	V
4	9.73	35.48	PK	37.4	-22.8	50.08	53.97	-3.89	74	-23.92	0-360	201	H

11.2. 5.3 GHz

11.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

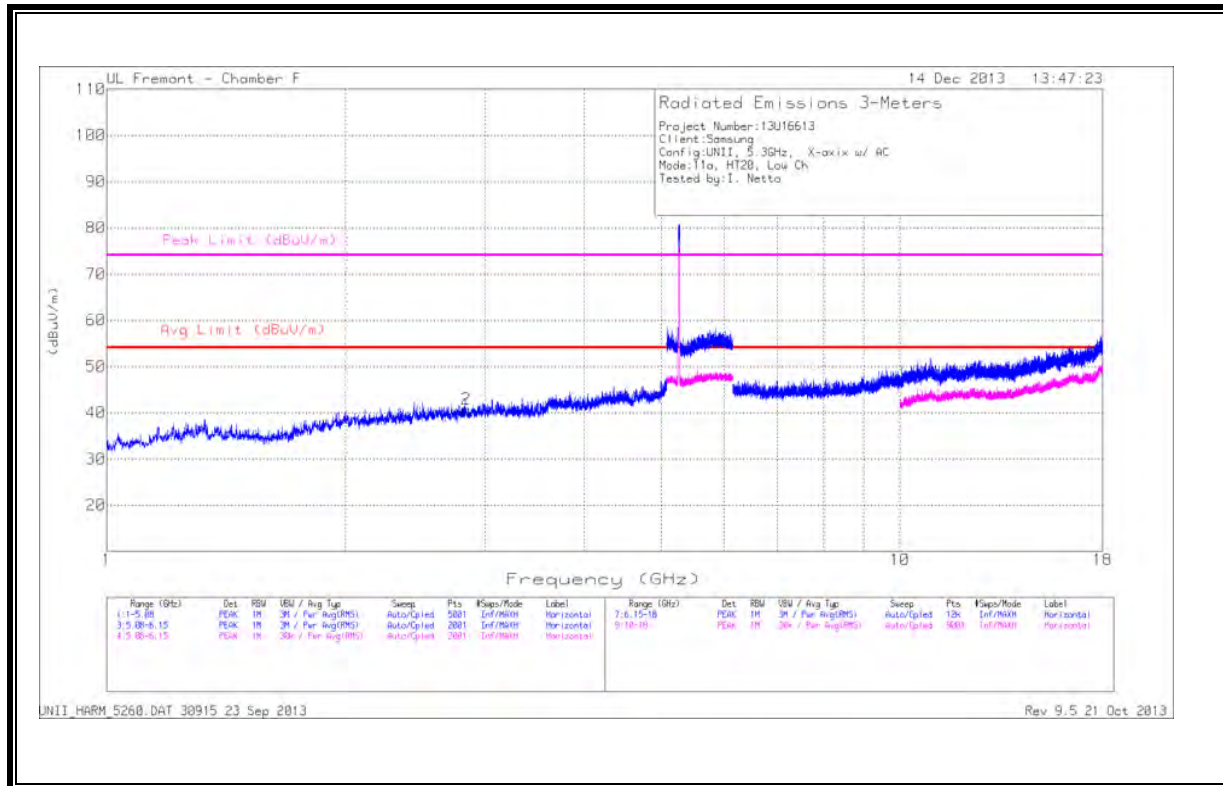


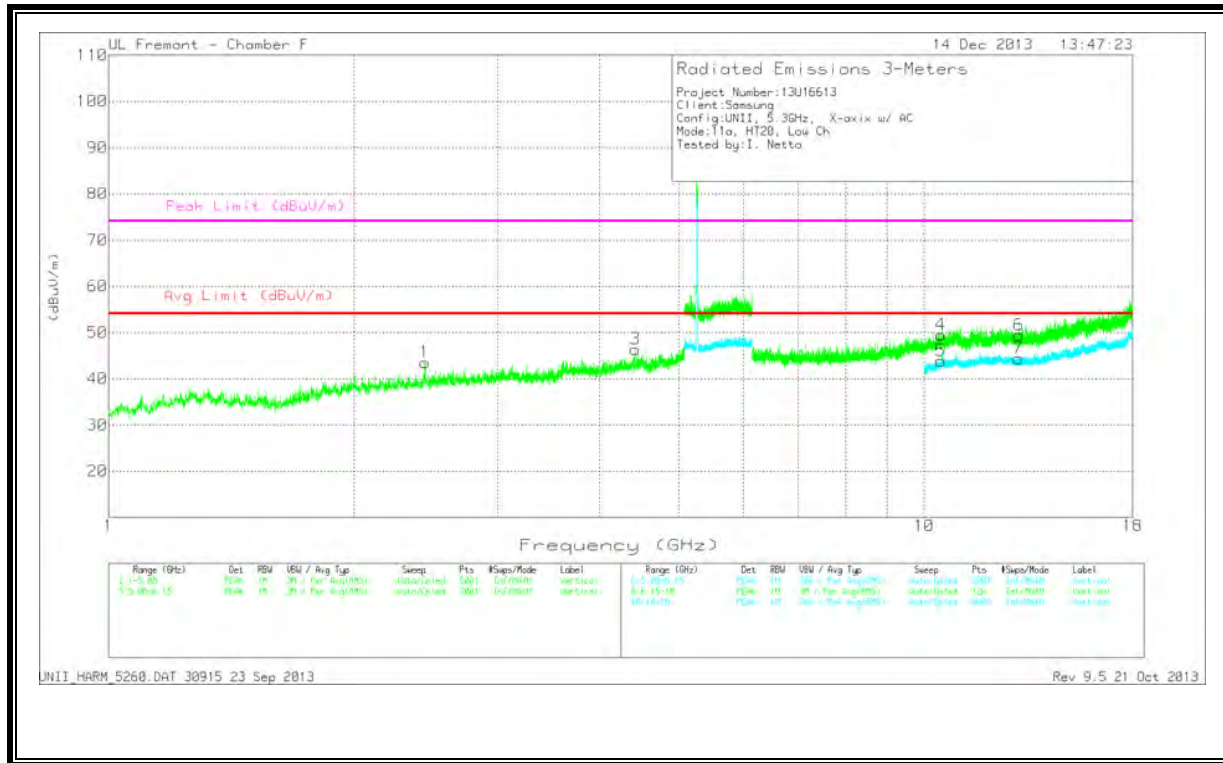


11.2.2.

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL





LOW CHANNEL DATA

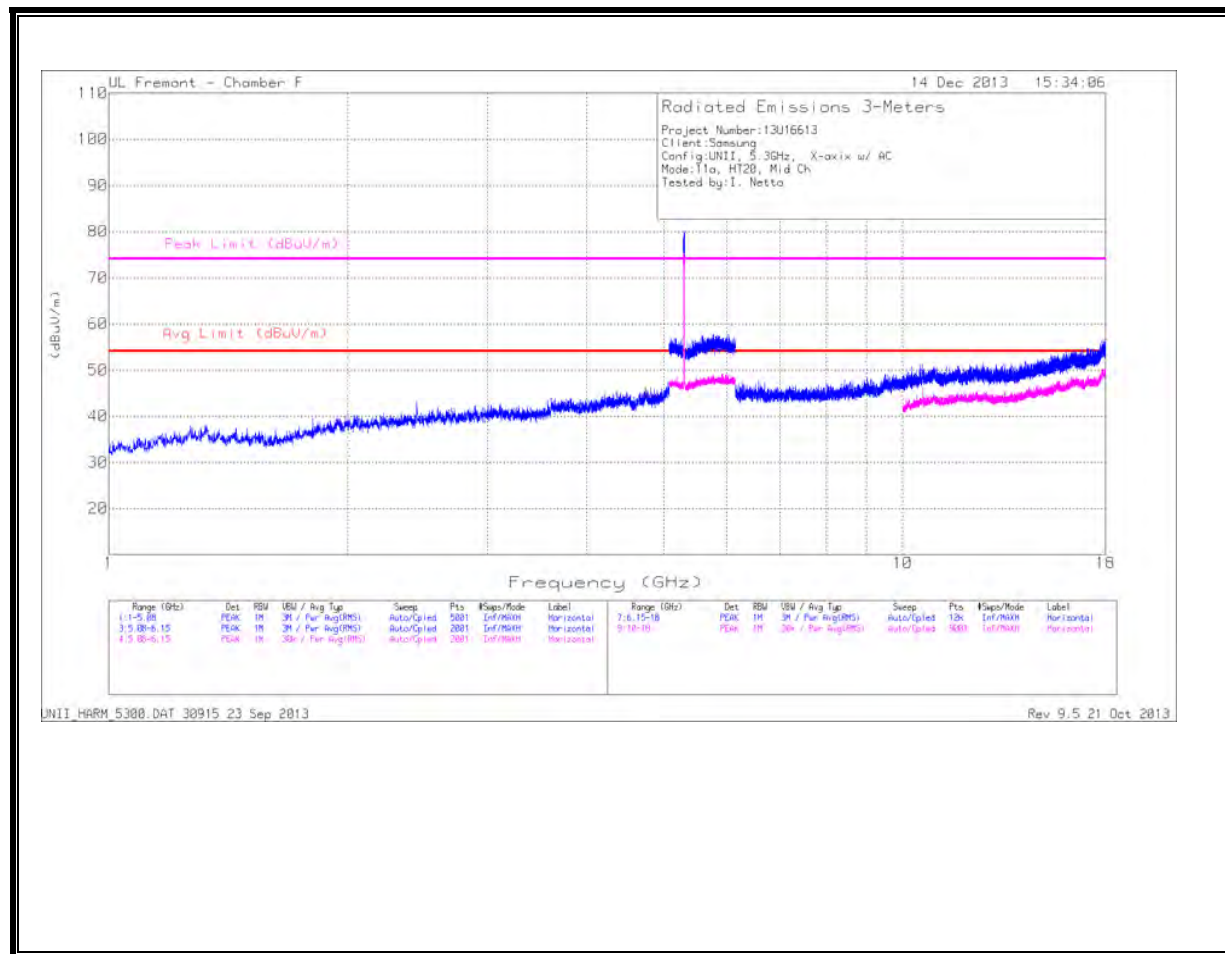
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/5GHz LPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.443	41.84	PK	32.3	-30.6	43.54	53.97	-10.43	74	-30.46	0-360	101	V
2	2.84	37.5	PK	32.8	-29.6	40.7	53.97	-13.27	74	-33.3	0-360	98	H
3	4.421	40.51	PK	33.7	-27.8	46.41	53.97	-7.56	74	-27.59	0-360	200	V

PK - Peak detector

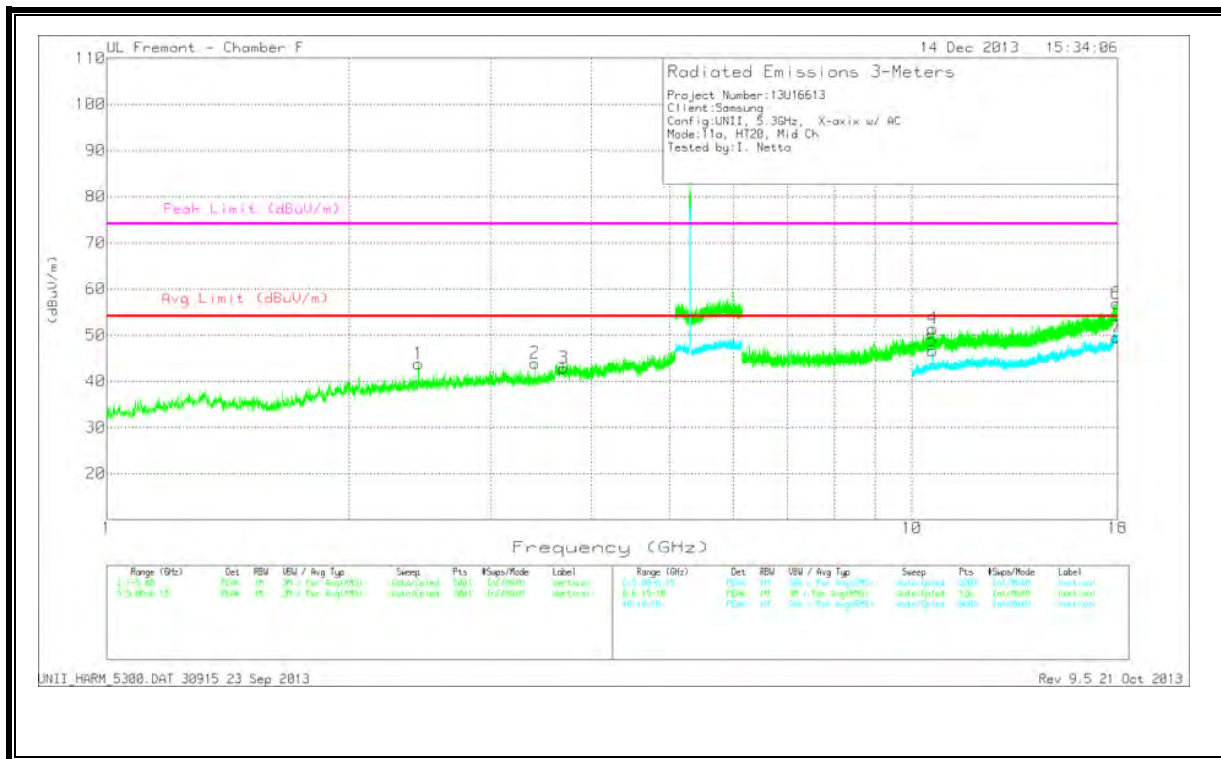
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/6GHz HPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.477	34.08	PK	38.3	-22.9	49.48	53.97	-4.49	74	-24.52	0-360	101	V
5	10.484	28.46	Avg	38.3	-22.9	43.86	-	-	-	-	0-360	101	V
7	13.039	29.38	Avg	39.2	-24.2	44.38	-	-	-	-	0-360	201	V
6	13.055	34.42	PK	39.2	-24.2	49.42	53.97	-4.55	74	-24.58	0-360	201	V

MID CHANNEL

HORIZONTAL



VERTICAL



MID CHANNEL DATA

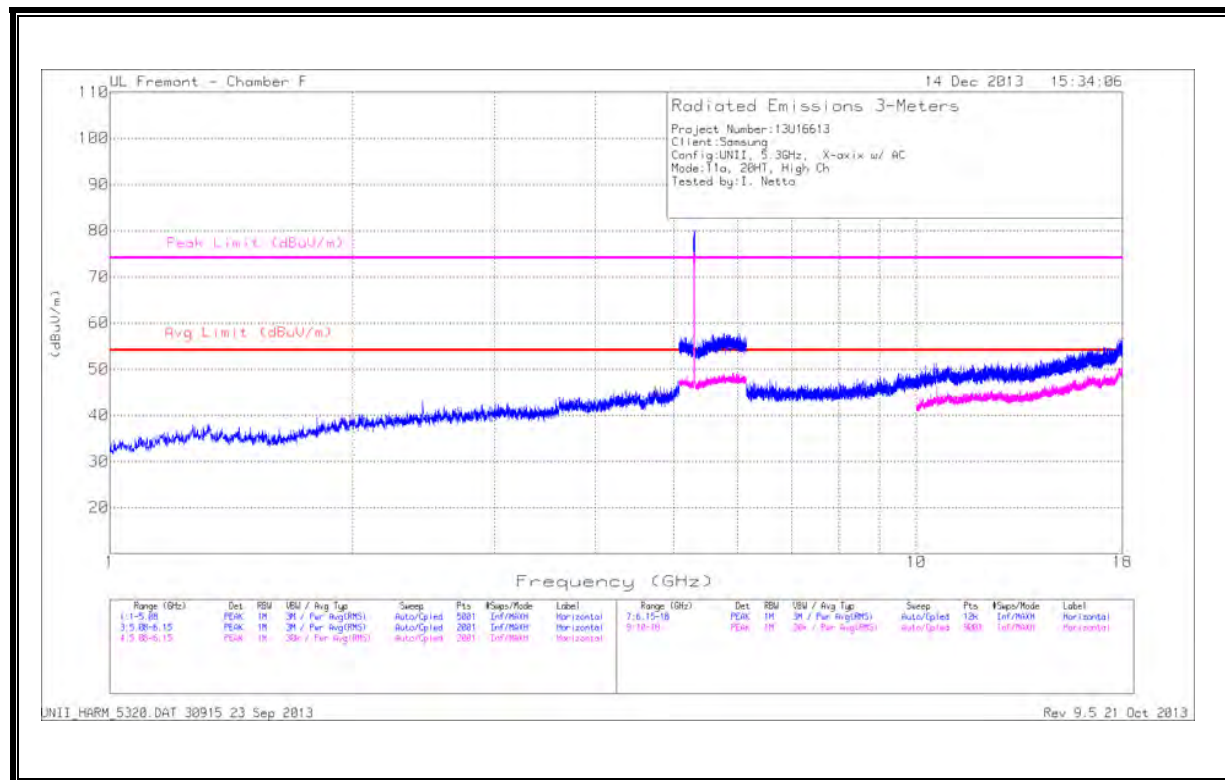
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	42.18	PK	32.3	-30.7	43.78	53.97	-10.19	74	-30.22	0-360	201	V
2	3.402	40.29	PK	33	-29.4	43.89	53.97	-10.08	74	-30.11	0-360	101	V
3	3.69	38.72	PK	33.5	-29.4	42.82	53.97	-11.15	74	-31.18	0-360	201	V

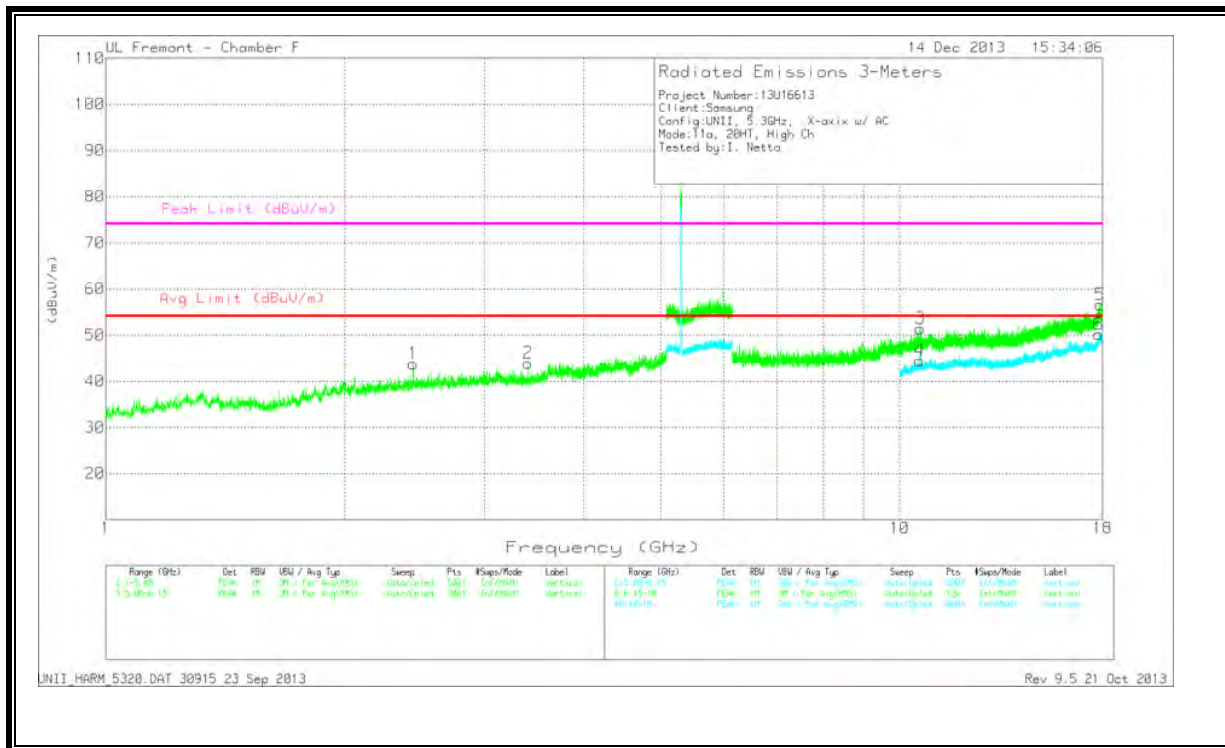
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	10.605	30.94	Avg	38.6	-22.9	46.64	53.97	-7.33	-	-	0-360	200	V
4	10.61	35.72	PK	38.6	-22.9	51.42	53.97	-2.55	74	-22.58	0-360	200	V
7	17.938	27.93	Avg	42.6	-21	49.53	53.97	-4.44	-	-	0-360	200	V
6	17.944	35.44	PK	42.6	-21.2	56.84			74	-17.16	0-360	200	V

HIGH CHANNEL

HORIZONTAL



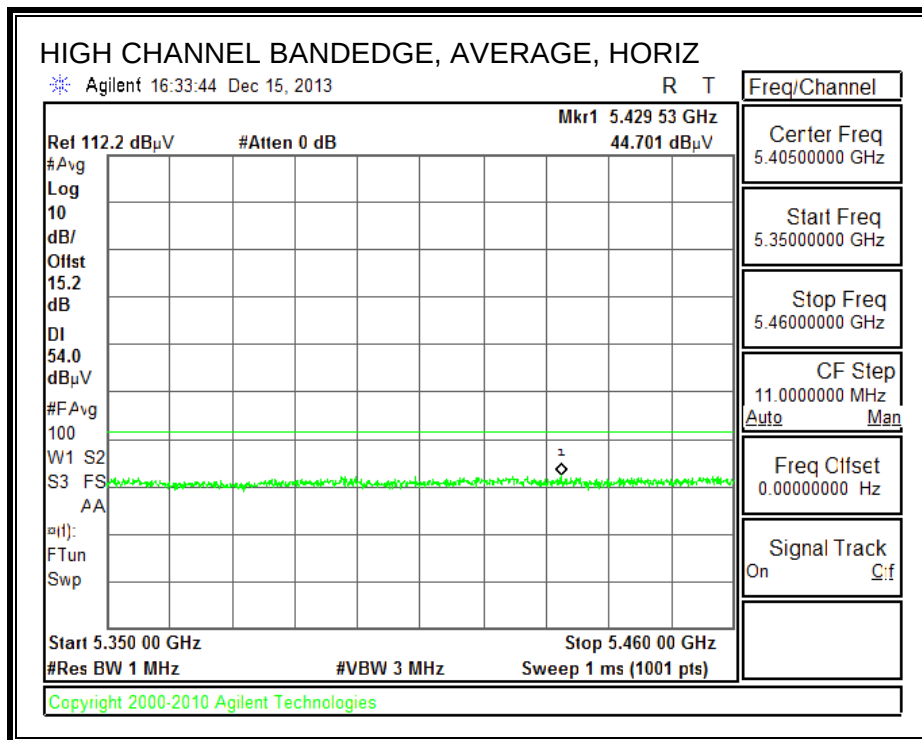
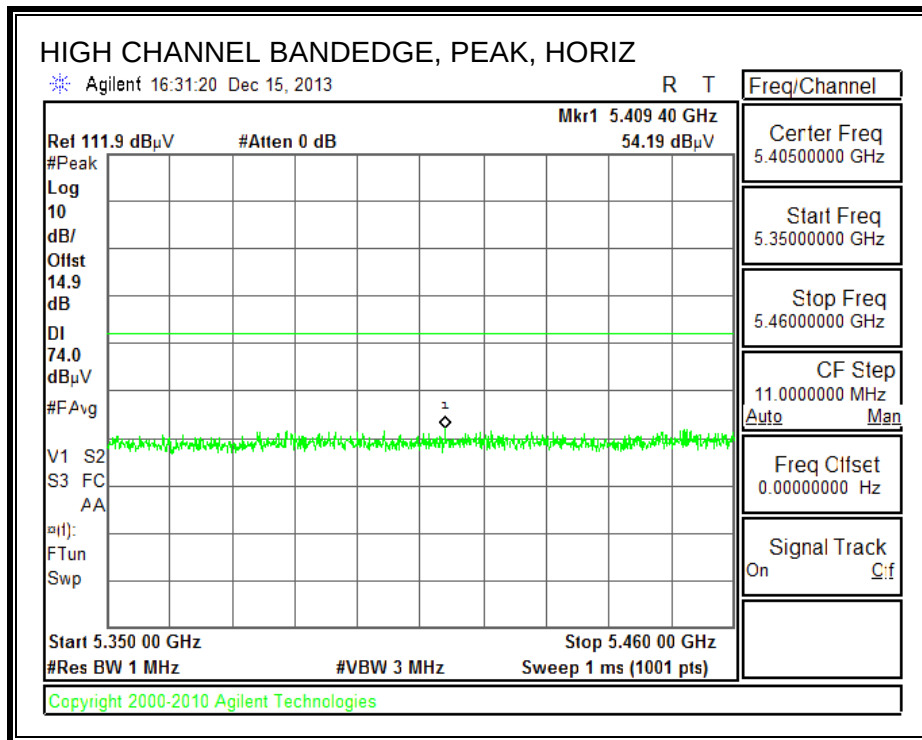


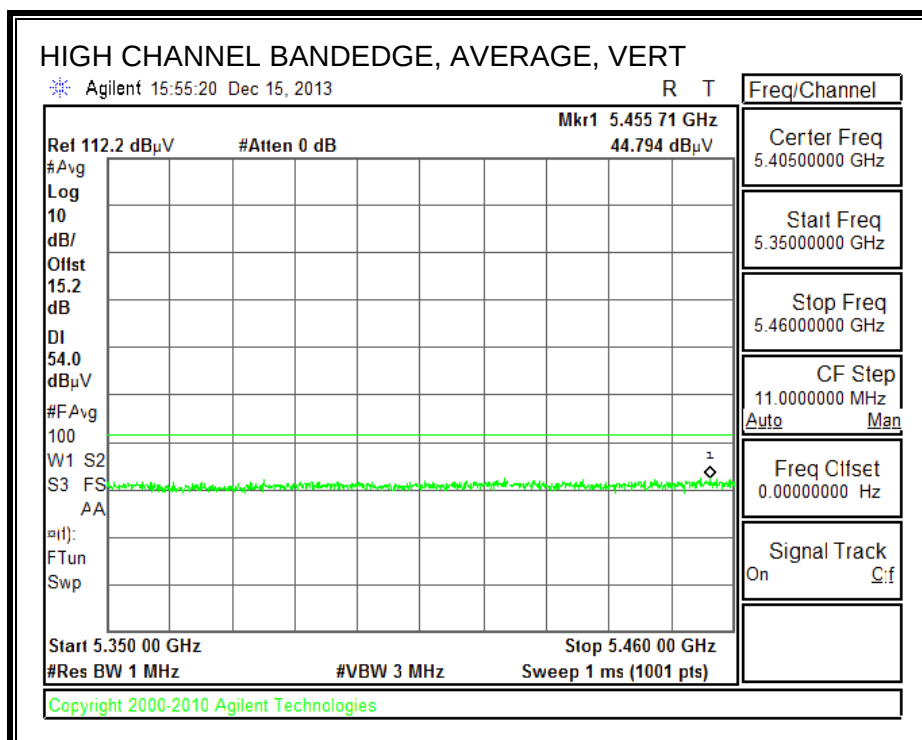
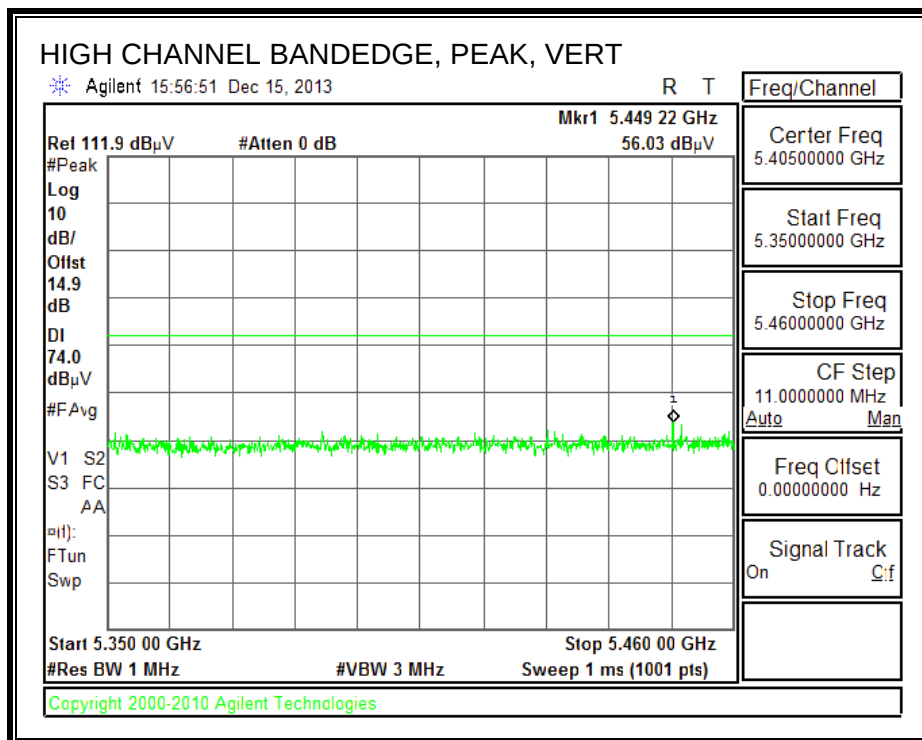
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	42.18	PK	32.3	-30.7	43.78	53.97	-10.19	74	-30.22	0-360	201	V
2	3.402	40.29	PK	33	-29.4	43.89	53.97	-10.08	74	-30.11	0-360	101	V

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.588	28.54	Avg	38.5	-22.6	44.44	53.97	-9.53	-	-	0-360	200	V
3	10.61	35.72	PK	38.6	-22.9	51.42			74	-22.58	0-360	200	V
6	17.804	27.95	Avg	42.1	-19.9	50.15	53.97	-3.82	-	-	0-360	101	V
5	17.882	34.64	PK	42.4	-20.5	56.54			74	-17.46	0-360	101	V

11.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

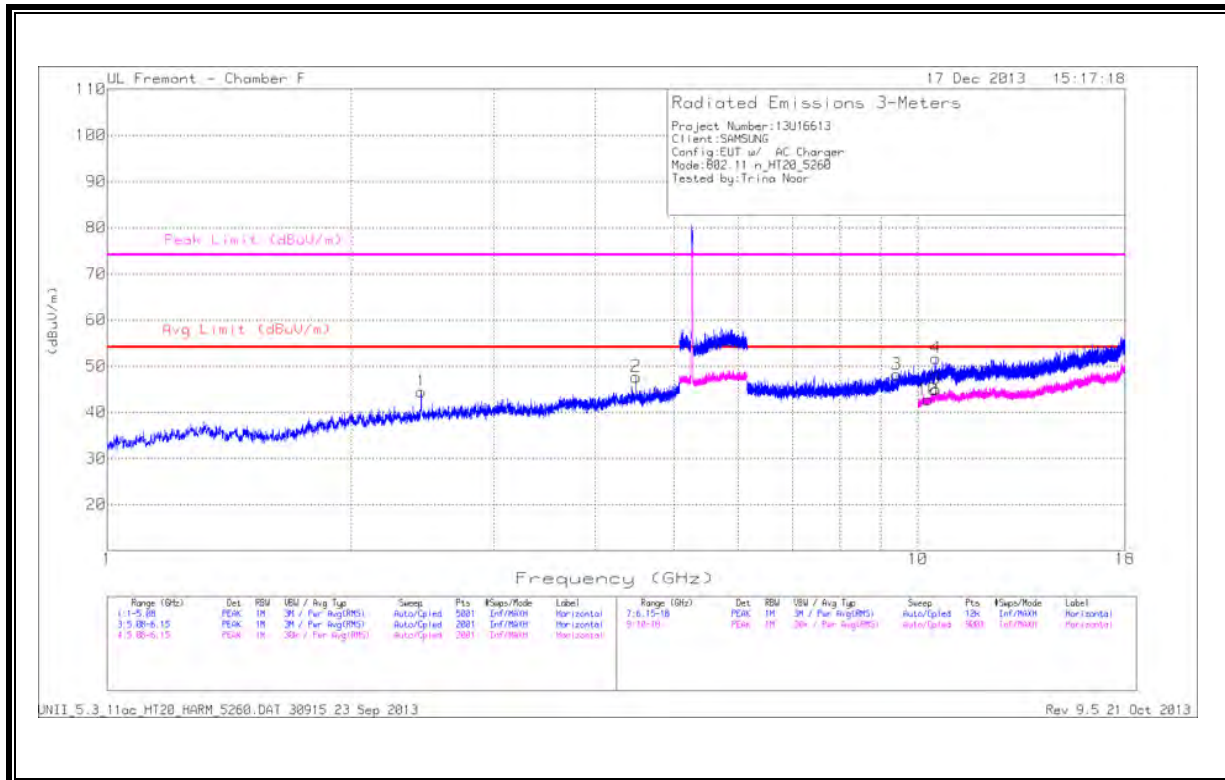


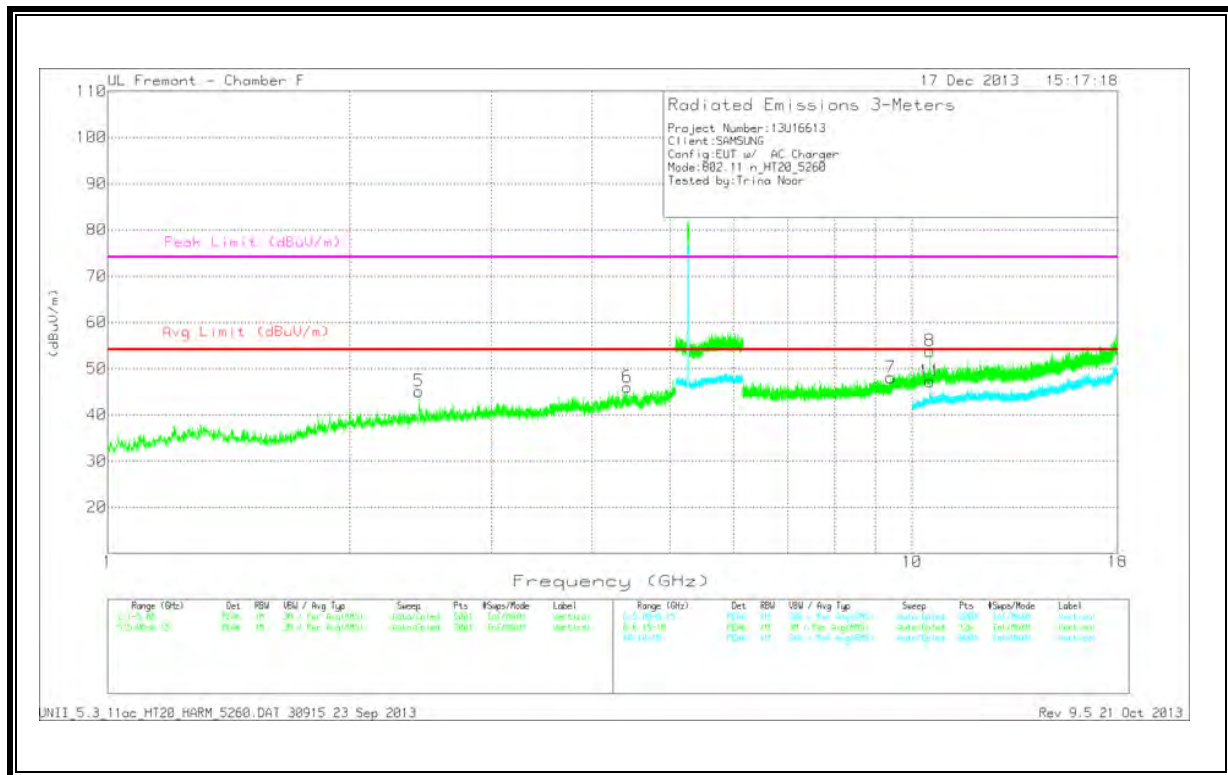


11.2.4.

HARMONICS AND SPURIOUS EMISSIONS

**LOW CHANNEL
HORIZONTAL**



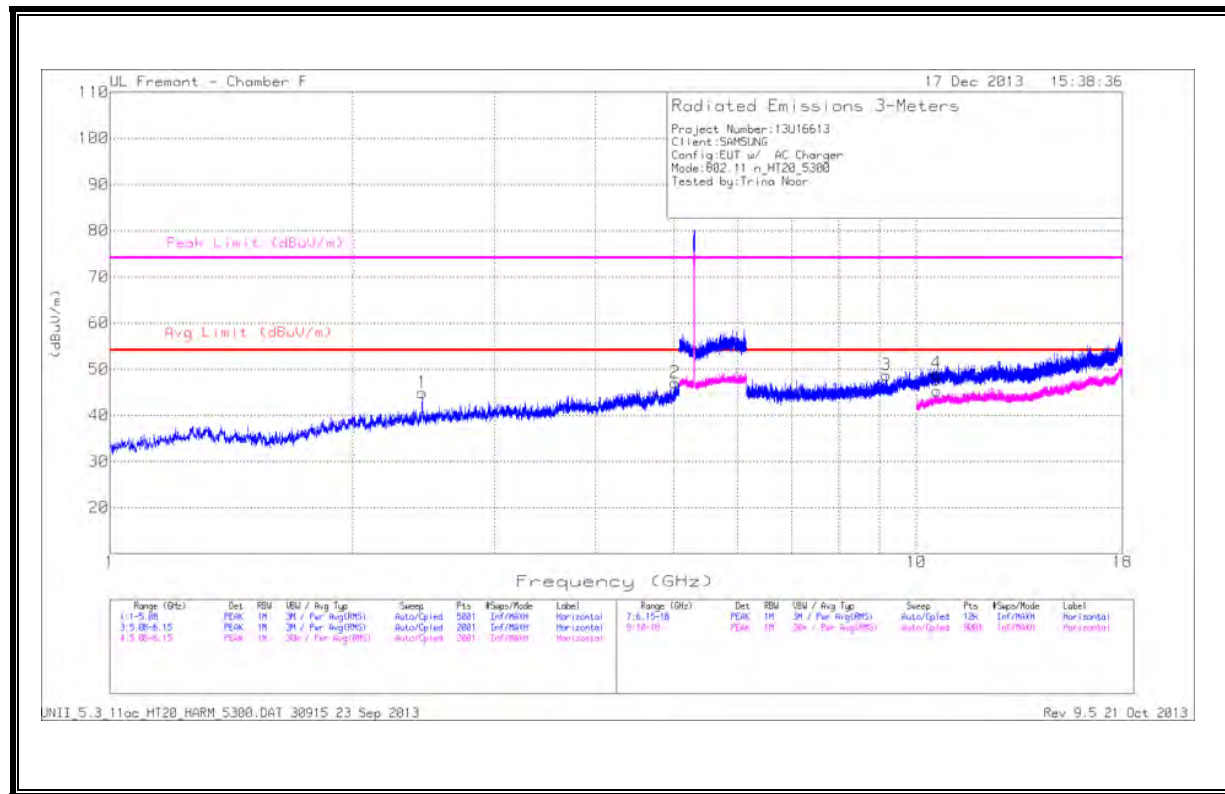


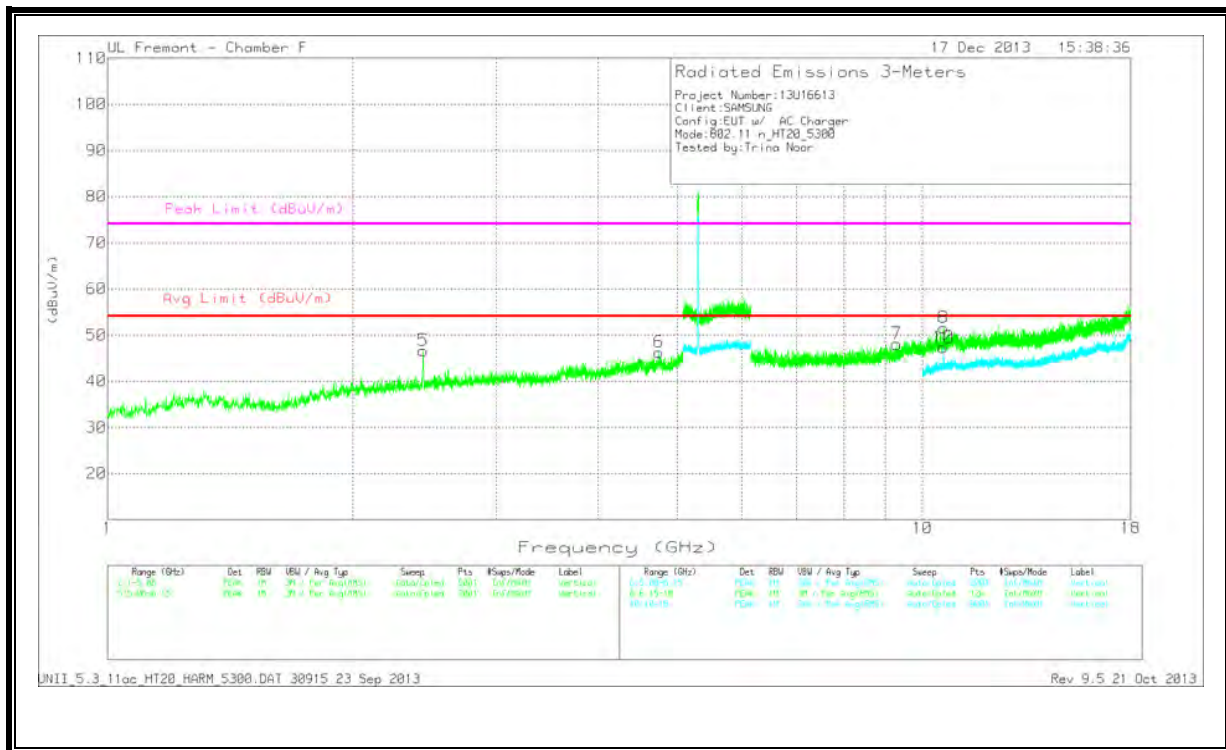
LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.437	43.5	PK	32.3	-30.7	45.1	53.97	-8.87	74	-28.9	0-360	201	V
1	2.439	42.9	PK	32.3	-30.7	44.5	53.97	-9.47	74	-29.5	0-360	199	H
6	4.425	40.07	PK	33.7	-27.8	45.97	53.97	-8	74	-28.03	0-360	100	V
2	4.488	41.17	PK	33.9	-27.4	47.67	53.97	-6.3	74	-26.33	0-360	100	H

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	9.402	34.86	PK	36.9	-23.7	48.06			74	-25.94	0-360	201	V
3	9.407	34.99	PK	36.9	-23.7	48.19			74	-25.81	0-360	199	H
10	10.291	27.8	Avg	37.9	-23	42.7	53.97	-11.27	-	-	0-360	100	H
4	10.515	35.5	PK	38.4	-22.2	51.7			74	-22.3	0-360	199	H
8	10.517	37.59	PK	38.4	-22.2	53.79			74	-20.21	0-360	101	V
9	10.52	28.72	Avg	38.4	-22.1	45.02	53.97	-8.95	-	-	0-360	199	H
11	10.52	30.96	Avg	38.4	-22.1	47.26	53.97	-6.71	-	-	0-360	101	V

MID CHANNEL
HORIZONTAL



MID CHANNEL DATA

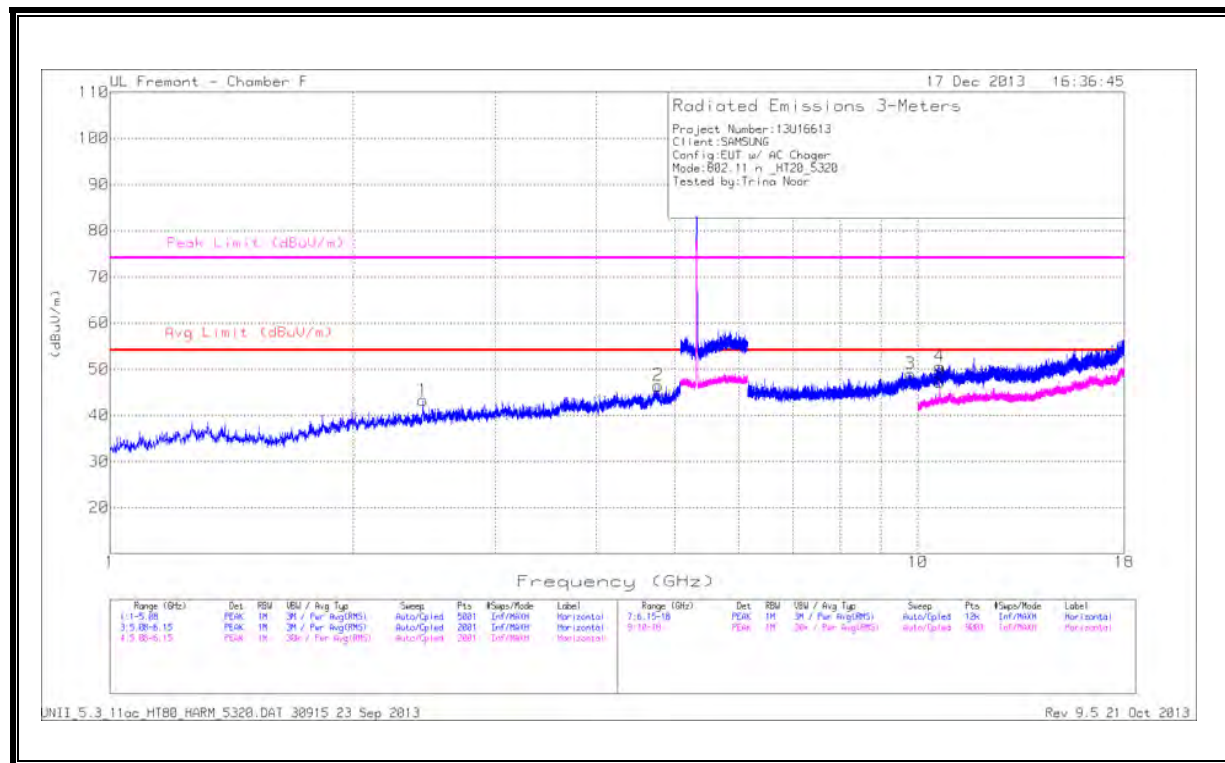
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	43.26	PK	32.3	-30.7	44.86	53.97	-9.11	74	-29.14	0-360	199	H
5	2.439	45.01	PK	32.3	-30.7	46.61	53.97	-7.36	74	-27.39	0-360	101	V
6	4.748	39.86	PK	34.1	-27.7	46.26	53.97	-7.71	74	-27.74	0-360	101	V
2	5.019	39.55	PK	34	-26.5	47.05	53.97	-6.92	74	-26.95	0-360	199	H

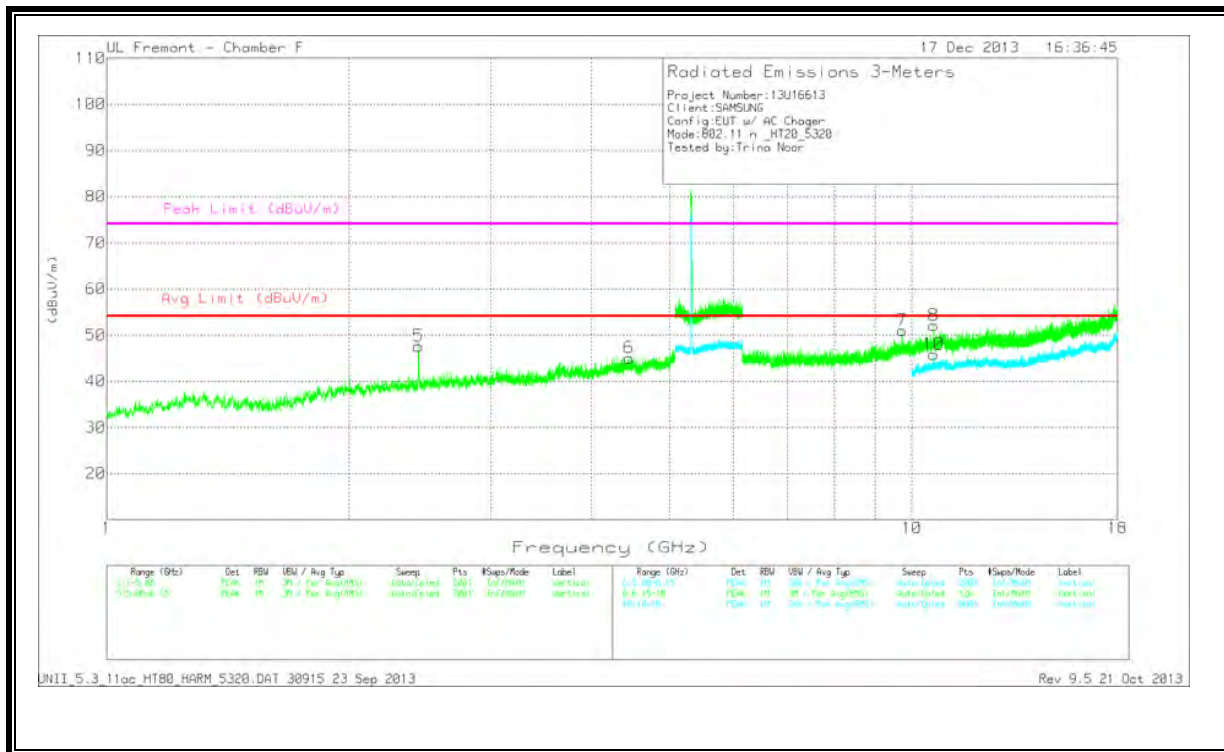
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	9.172	36.22	PK	36.5	-24	48.72	53.97	-5.25	74	-25.28	0-360	199	H
7	9.294	35.38	PK	36.7	-24	48.08	53.97	-5.89	74	-25.92	0-360	101	V
4	10.585	33.06	PK	38.5	-22.5	49.06	53.97	-4.91	74	-24.94	0-360	199	H
9	10.597	29.42	Avg	38.6	-22.7	45.32	53.97	-8.65	-	-	0-360	199	H
10	10.599	31.51	Avg	38.6	-22.8	47.31	53.97	-6.66	-	-	0-360	101	V
8	10.607	35.87	PK	38.6	-22.9	51.57	53.97	-2.4	74	-22.43	0-360	200	V

HIGH CHANNEL

HORIZONTAL





HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	41.69	PK	32.3	-30.7	43.29	53.97	-10.68	74	-30.71	0-360	199	H
5	2.439	46	PK	32.3	-30.7	47.6	53.97	-6.37	74	-26.4	0-360	100	V
6	4.451	38.73	PK	33.8	-27.5	45.03	53.97	-8.94	74	-28.97	0-360	100	V
2	4.769	40.05	PK	34.1	-27.7	46.45	53.97	-7.52	74	-27.55	0-360	100	H

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	9.726	36.53	PK	37.4	-22.9	51.03	53.97	-2.94	74	-22.97	0-360	201	V
3	9.782	34.59	PK	37.5	-23.1	48.99	53.97	-4.98	74	-25.01	0-360	199	H
4	10.632	34.75	PK	38.6	-22.8	50.55	53.97	-3.42	74	-23.45	0-360	199	H
9	10.64	31.34	Avg	38.6	-22.7	47.24	53.97	-6.73	-	-	0-360	100	H
10	10.64	29.89	Avg	38.6	-22.7	45.79	53.97	-8.18	-	-	0-360	101	V
8	10.641	36.18	PK	38.6	-22.7	52.08	53.97	-1.89	74	-21.92	0-360	201	V

HIGH CHANNEL BANDEDGE, PEAK, HORIZ

Agilent 16:24:15 Dec 15, 2013 R T

Rel 111.9 dB μ V #Atten 0 dB Mkr1 5.377 39 GHz 54.61 dB μ V

#Peak Log 10 dB/ Offst 14.9 dB DI 74.0 dB μ V #FAvg

V1 S2 S3 FC AA

W(t): FTun Swp

Start 5.350 00 GHz Stop 5.460 00 GHz

#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (1001 pts)

Center Freq 5.40500000 GHz

Start Freq 5.35000000 GHz

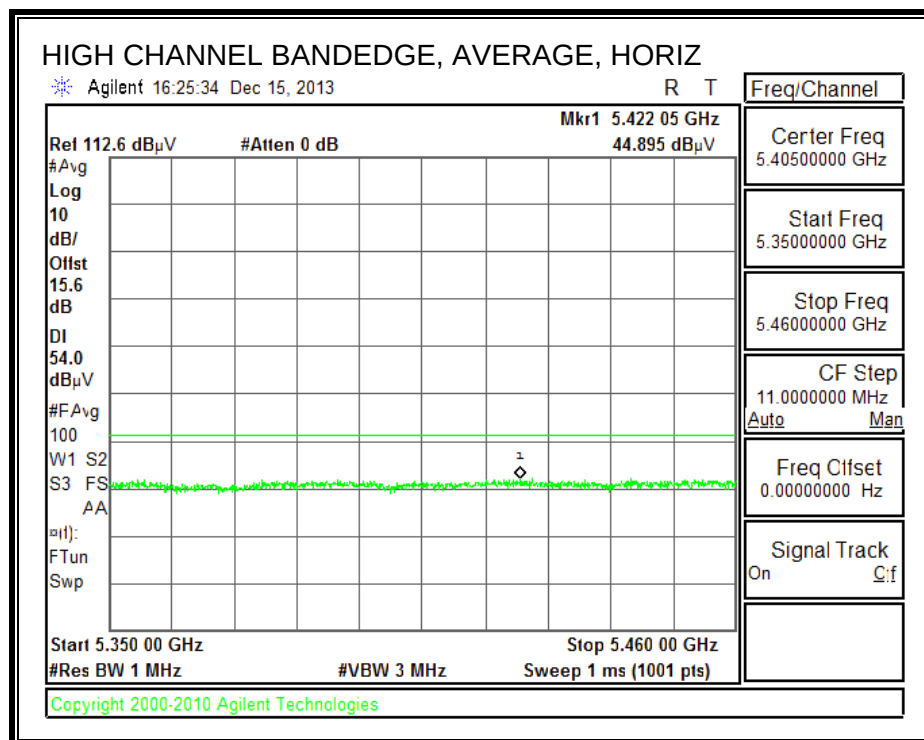
Stop Freq 5.46000000 GHz

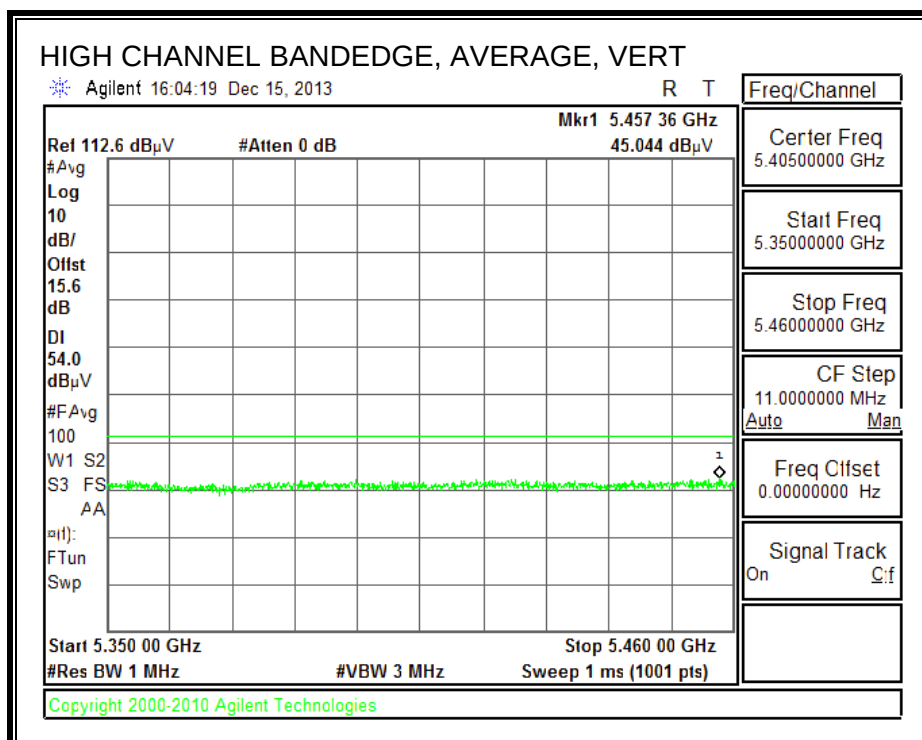
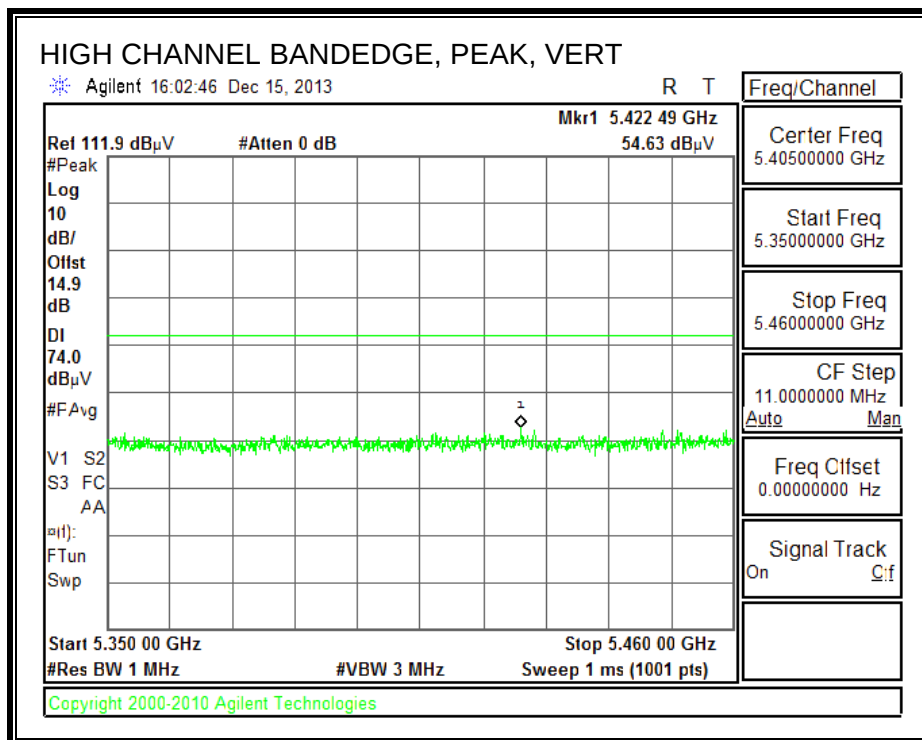
CF Step 11.00000000 MHz

Freq Offset 0.00000000 Hz

Signal Track On

Copyright 2000-2010 Agilent Technologies

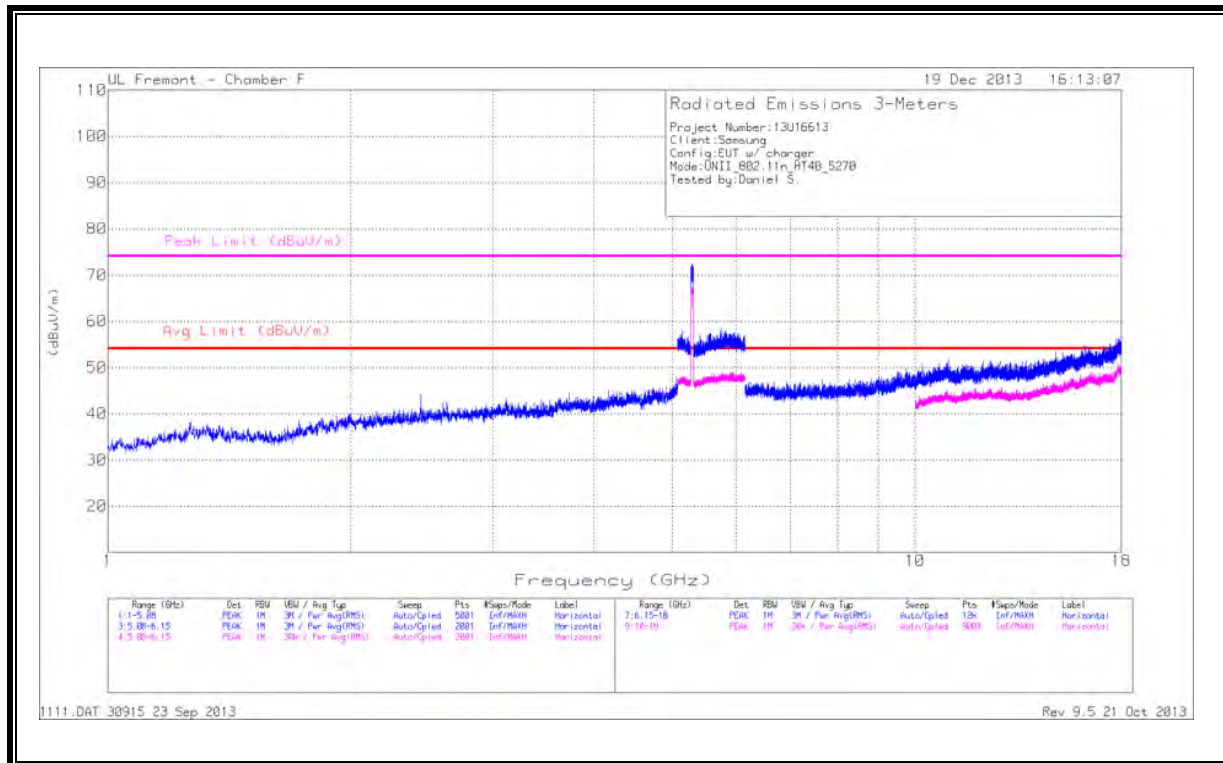


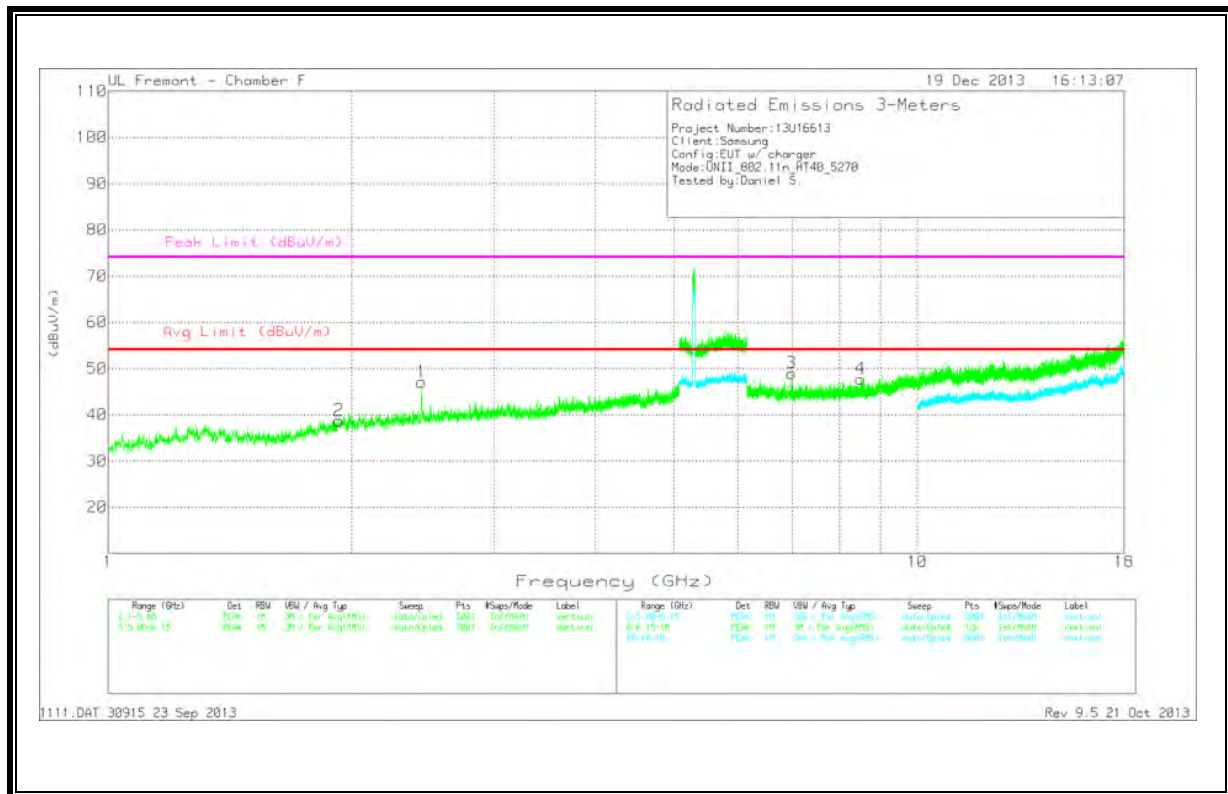


11.2.6.

HARMONICS AND SPURIOUS EMISSIONS

**LOW CHANNEL
HORIZONTAL**





LOW CHANNEL DATA

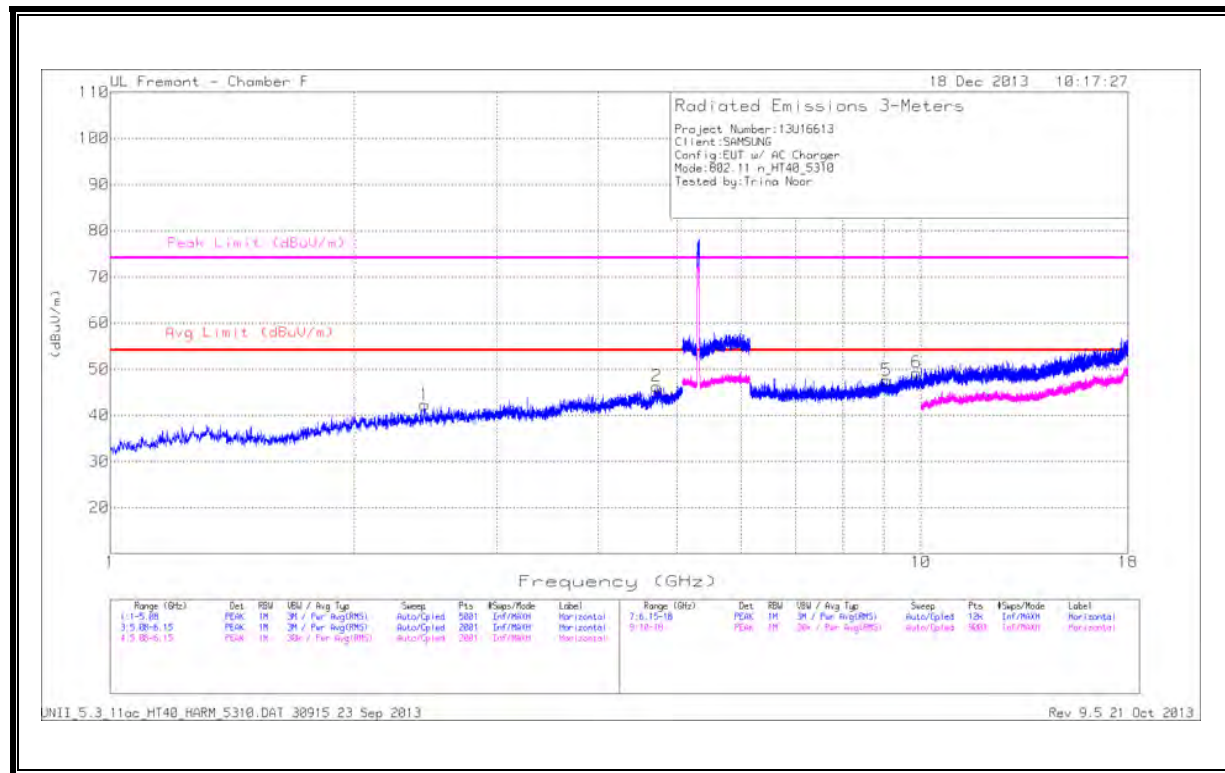
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.927	38.58	PK	31.3	-31.2	38.68	53.97	-15.29	74	-35.32	0-360	200	V
1	2.439	45.5	PK	32.3	-30.7	47.1	53.97	-6.87	74	-26.9	0-360	101	V

PK - Peak detector

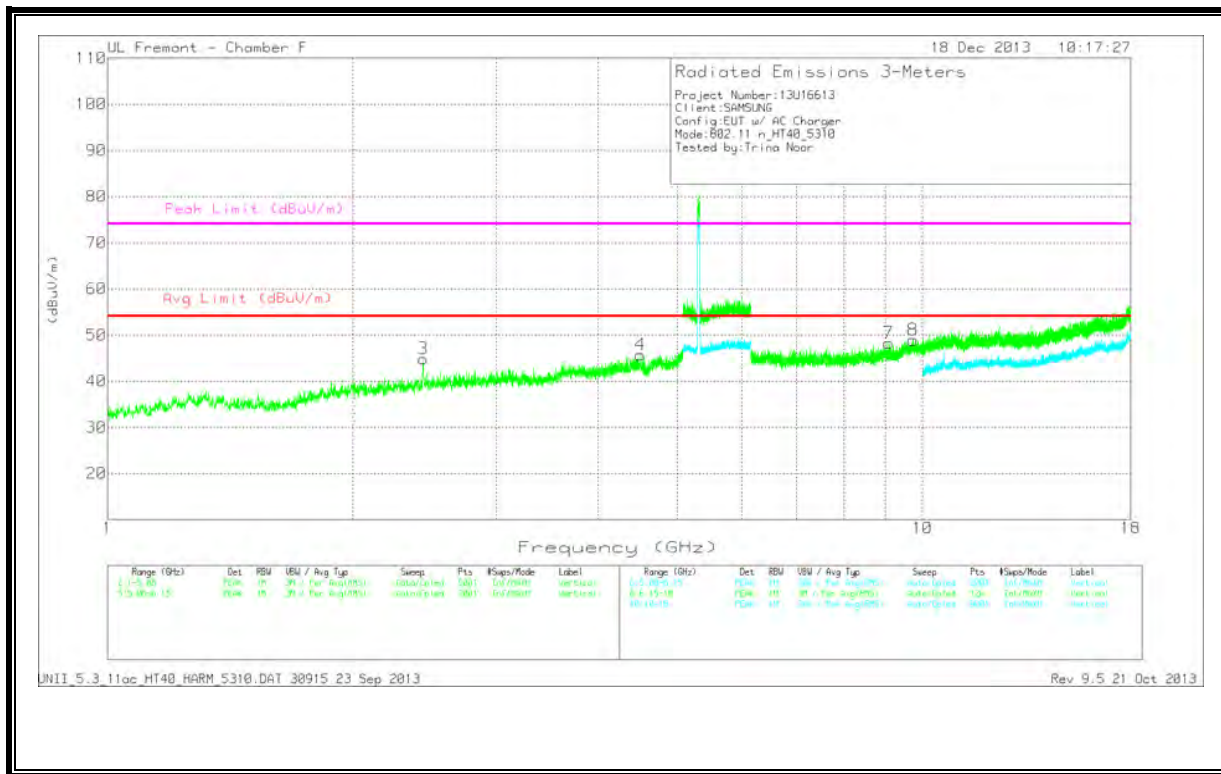
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	6.99	39.18	PK	35.7	-25.9	48.98	53.97	-4.99	74	-25.02	0-360	200	V
4	8.507	36.84	PK	36	-25.1	47.74	53.97	-6.23	74	-26.26	0-360	100	V

High CHANNEL

HORIZONTAL



VERTICAL



MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	2.44	43.24	PK	32.3	-30.7	44.84	53.97	-9.13	74	-29.16	0-360	100	V
1	2.442	40.7	PK	32.3	-30.7	42.3	53.97	-11.67	74	-31.7	0-360	199	H
4	4.506	39.3	PK	33.9	-27.5	45.7	53.97	-8.27	74	-28.3	0-360	100	V
2	4.721	40.36	PK	34.1	-28.2	46.26	53.97	-7.71	74	-27.74	0-360	100	H

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	9.071	35.44	PK	36.4	-24.3	47.54	53.97	-6.43	74	-26.46	0-360	199	H
7	9.086	36.04	PK	36.4	-24.2	48.24	53.97	-5.73	74	-25.76	0-360	101	V
8	9.732	34.29	PK	37.4	-22.8	48.89	53.97	-5.08	74	-25.11	0-360	201	V
6	9.874	34.85	PK	37.6	-23.2	49.25	53.97	-4.72	74	-24.75	0-360	199	H

HIGH CHANNEL BANDEDGE, PEAK, HORIZ

Agilent 16:17:24 Dec 15, 2013 R T

Ref 111.9 dBμV #Atten 0 dB Mkr1 5.421 28 GHz 54.44 dBμV

Center Freq 5.40500000 GHz

Start Freq 5.35000000 GHz

Stop Freq 5.46000000 GHz

CF Step 11.00000000 MHz

Auto Man

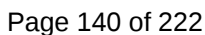
Freq Offset 0.00000000 Hz

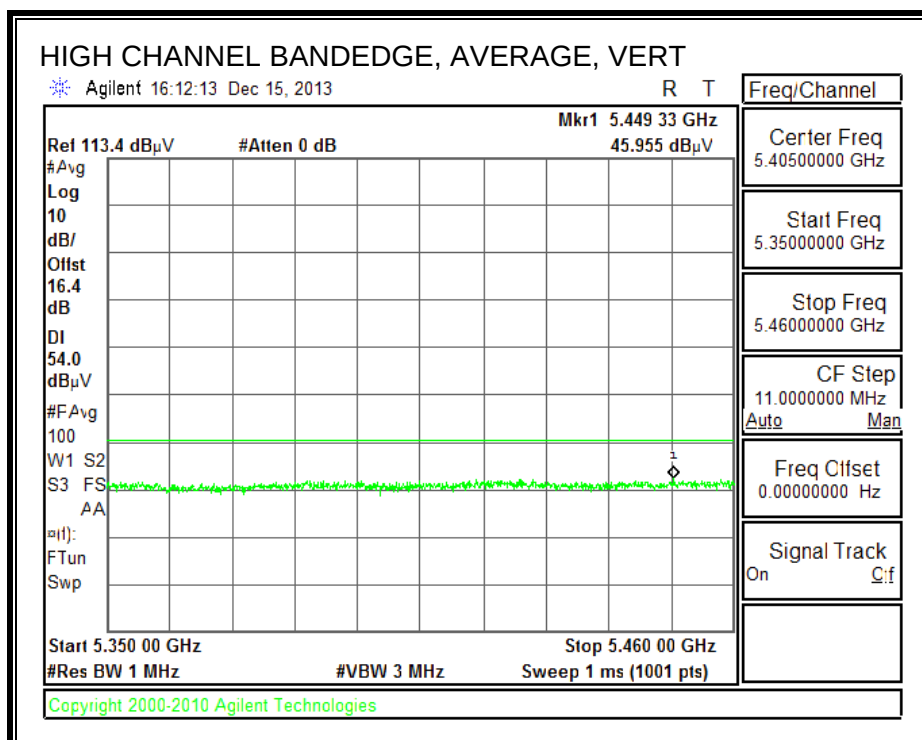
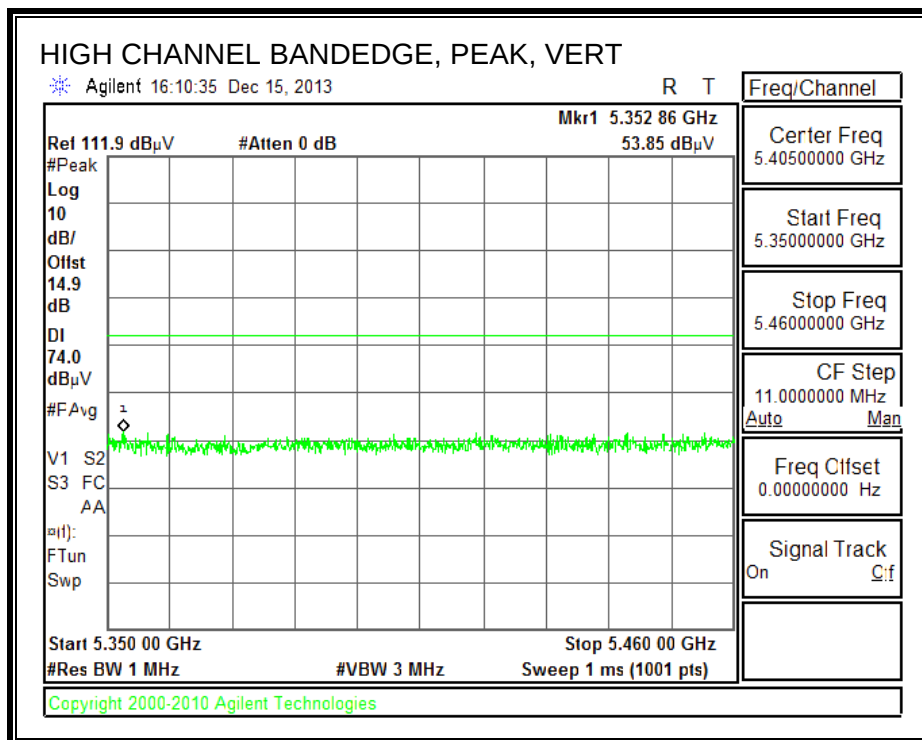
Signal Track On Off

Start 5.350 00 GHz Stop 5.460 00 GHz

#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (1001 pts)

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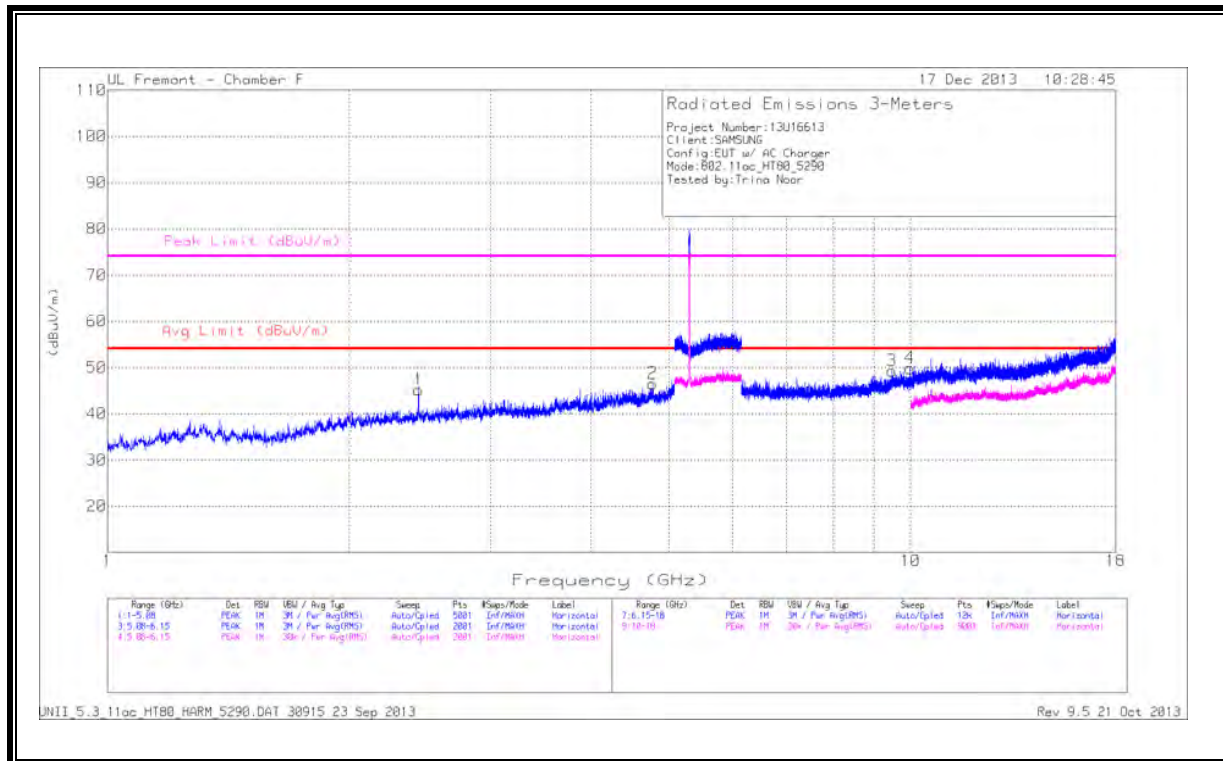




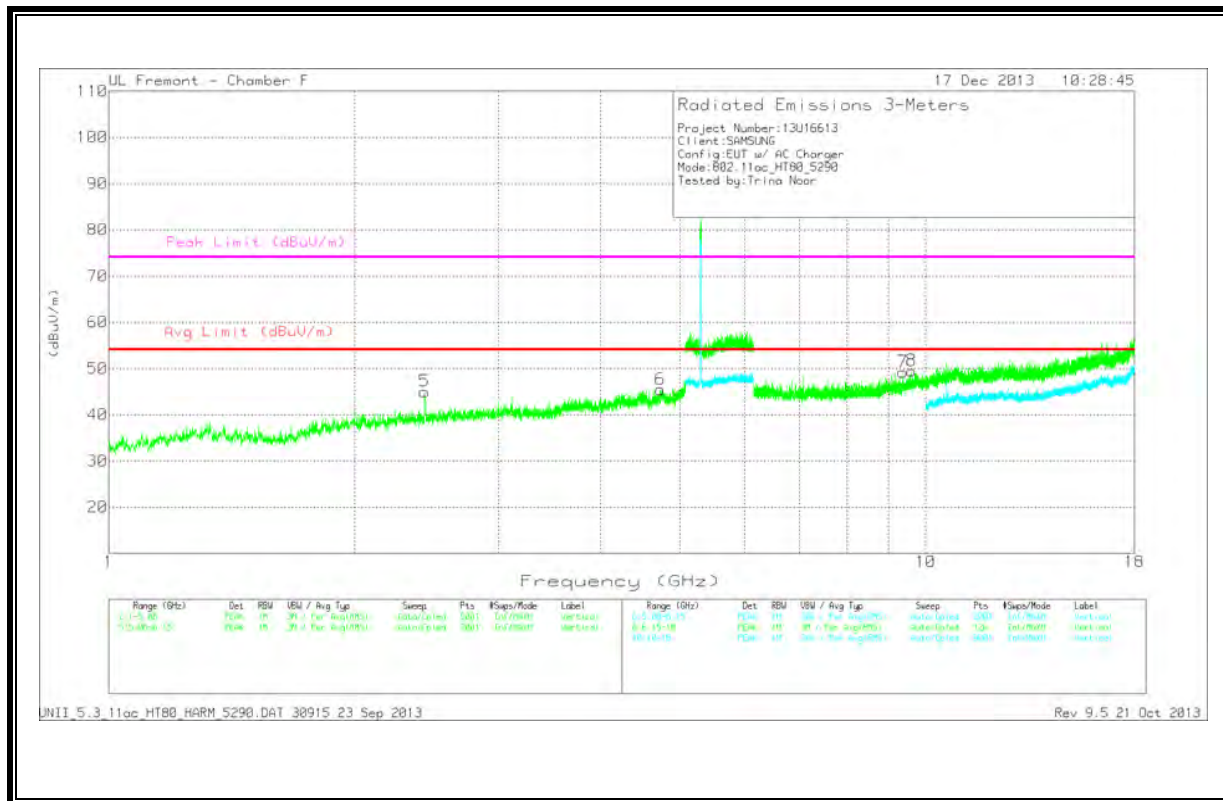
11.2.8.

HARMONICS AND SPURIOUS EMISSIONS

**LOW CHANNEL
HORIZONTAL**



VERTICAL



LOW CHANNEL DATA

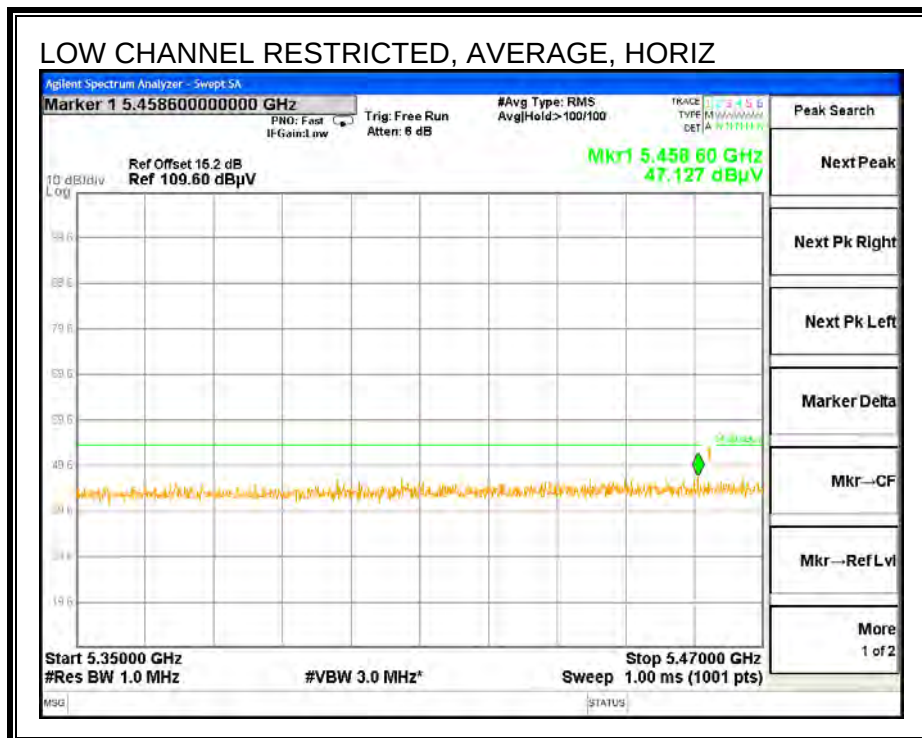
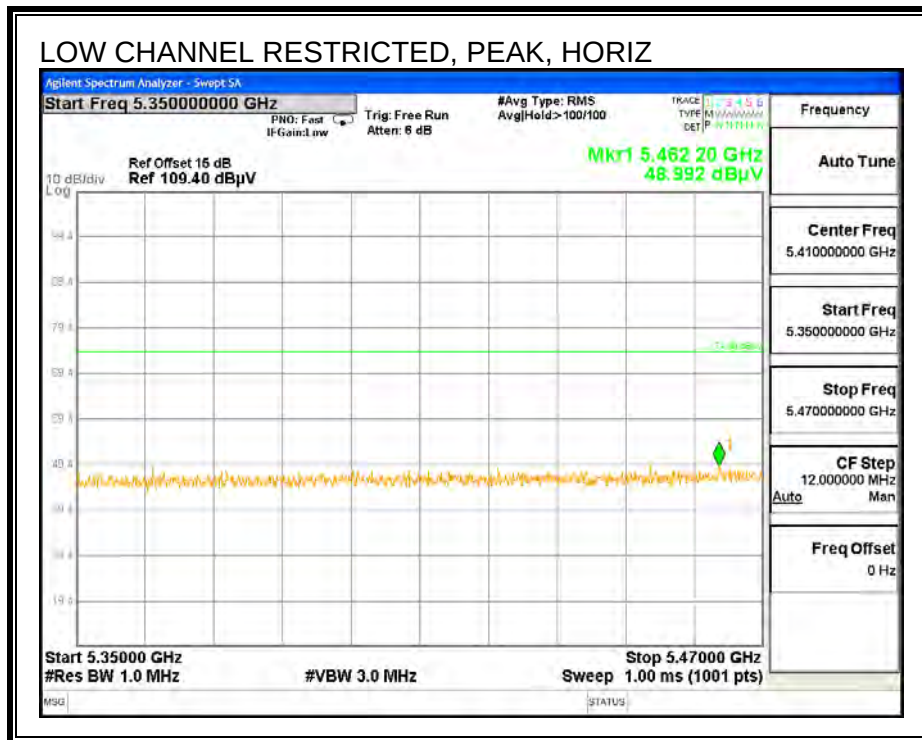
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.435	43.43	PK	32.3	-30.7	45.03	53.97	-8.94	74	-28.97	0-360	101	V
1	2.439	43.57	PK	32.3	-30.7	45.17	53.97	-8.8	74	-28.83	0-360	199	H
6	4.732	39.27	PK	34.1	-27.9	45.47	53.97	-8.5	74	-28.53	0-360	101	V
2	4.774	40.21	PK	34.1	-27.8	46.51	53.97	-7.46	74	-27.49	0-360	199	H

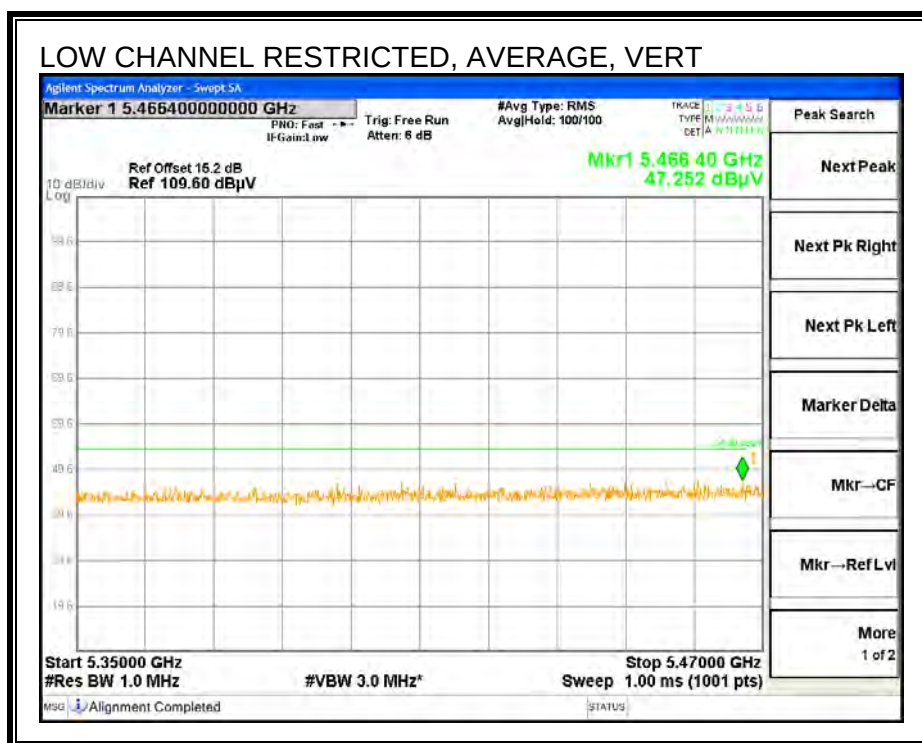
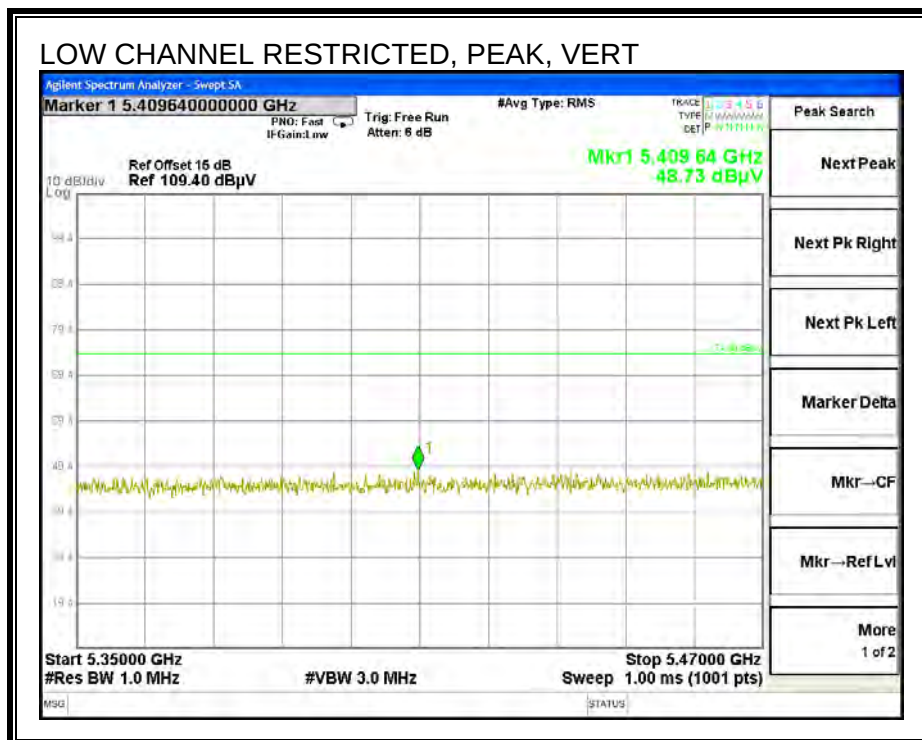
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	9.372	35.62	PK	36.9	-23.3	49.22	53.97	-4.75	74	-24.78	0-360	101	V
3	9.477	34.79	PK	37.1	-22.6	49.29	53.97	-4.68	74	-24.71	0-360	199	H
8	9.61	35.28	PK	37.3	-23.1	49.48	53.97	-4.49	74	-24.52	0-360	101	V
4	9.981	34.74	PK	37.6	-22.5	49.84	53.97	-4.13	74	-24.16	0-360	199	H

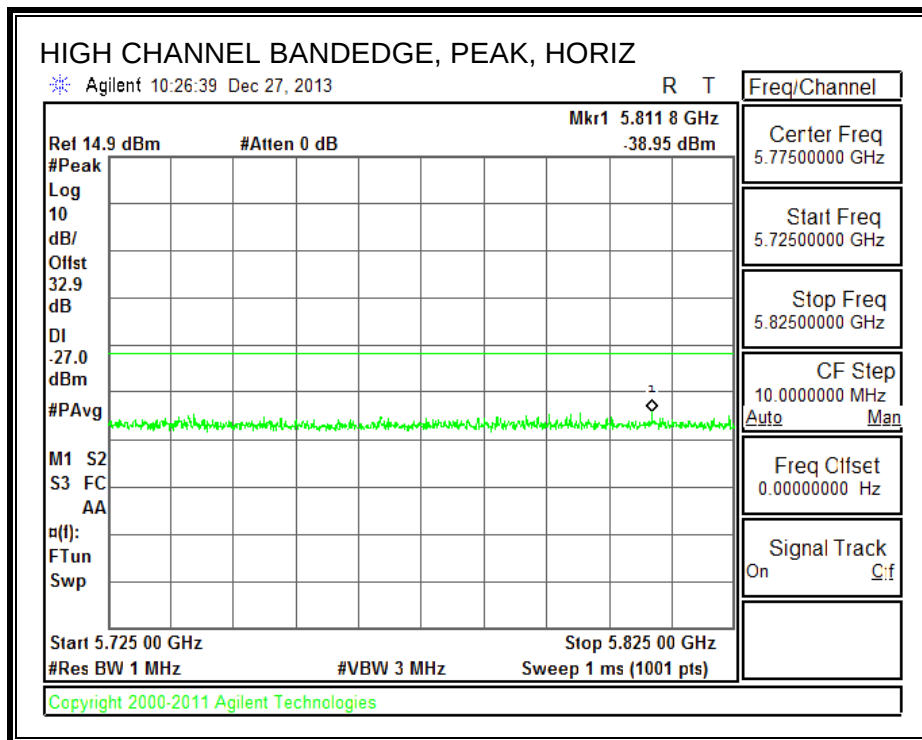
11.3. 5.5-5.6 GHz

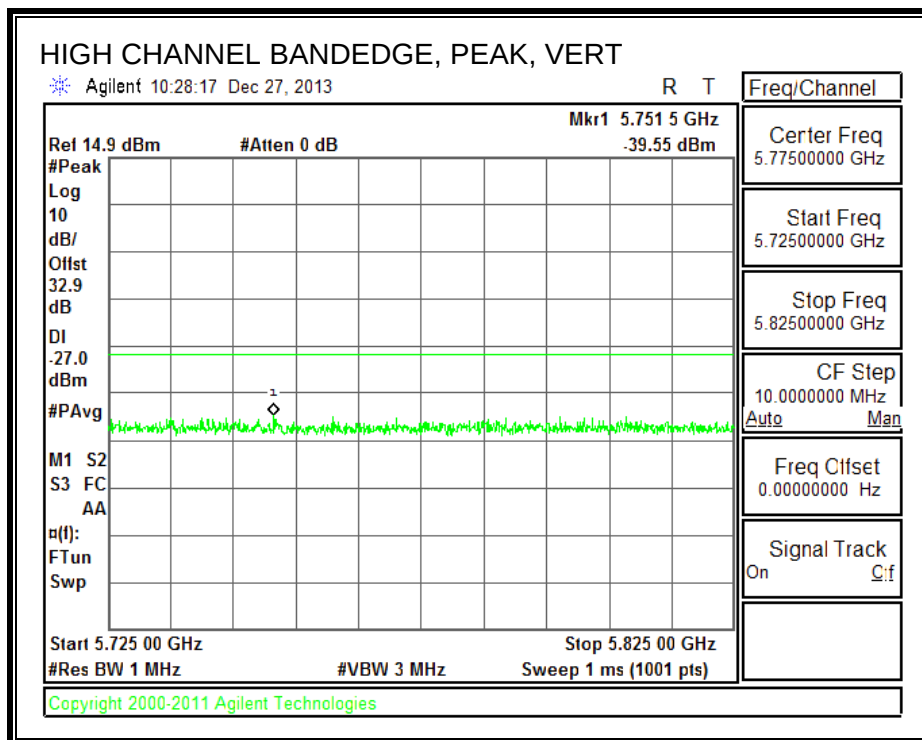
11.3.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





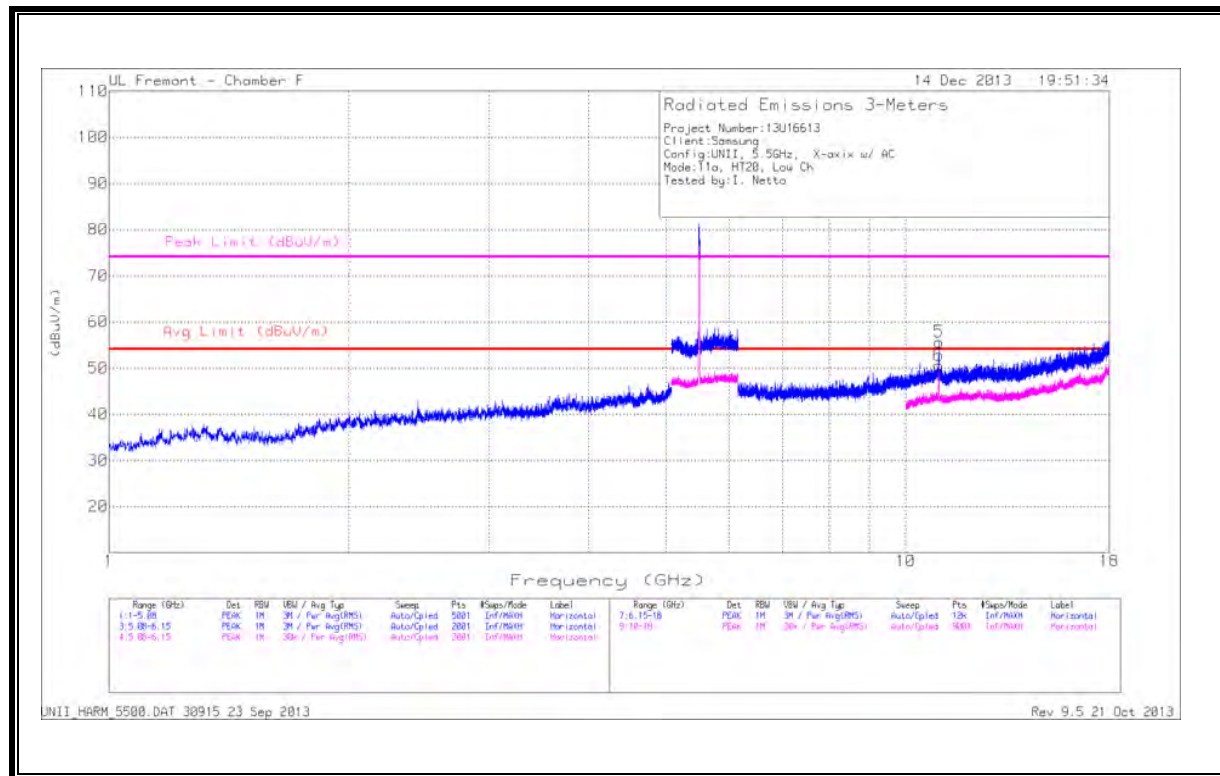
AUTHORIZED BANDEDGE (HIGH CHANNEL)

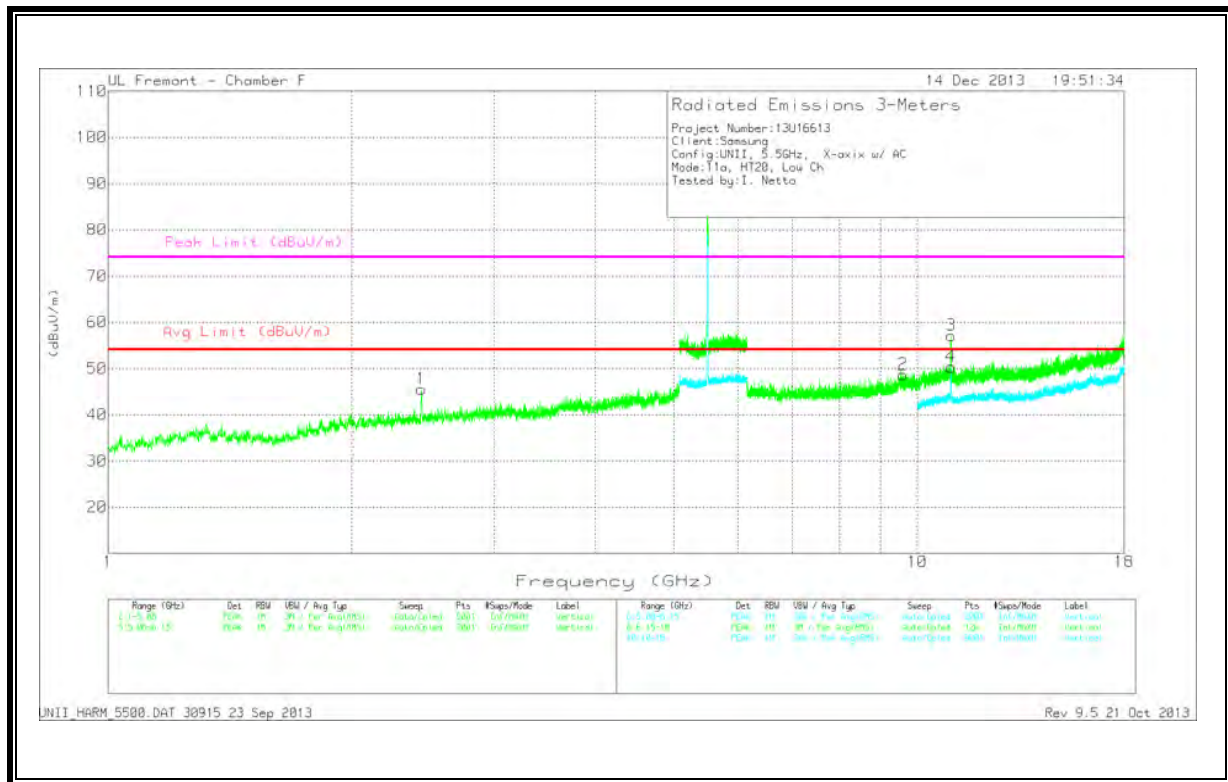




11.3.2.HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL





LOW CHANNEL DATA

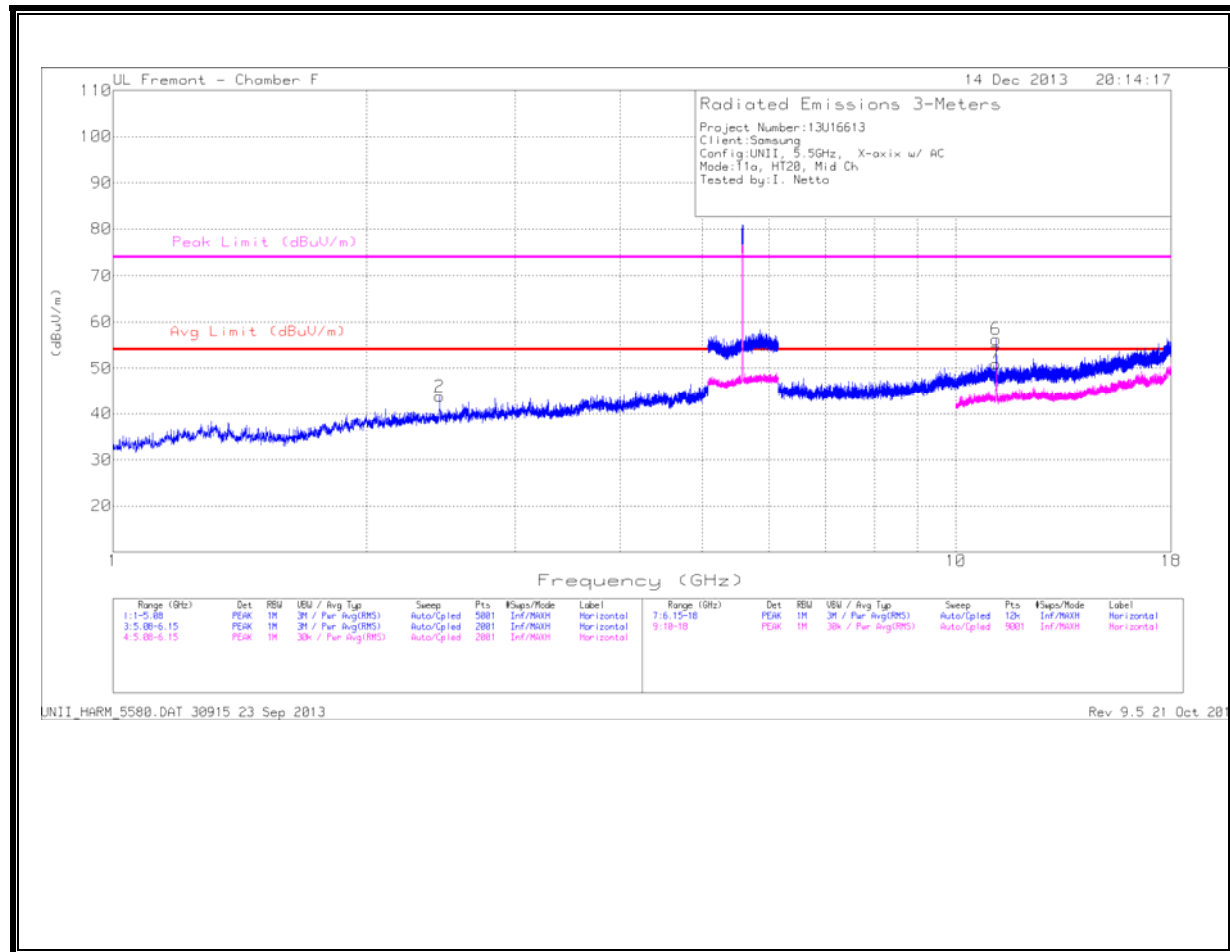
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.438	43.99	PK	32.3	-30.7	45.59	53.97	-8.38	74	-28.41	0-360	201	V

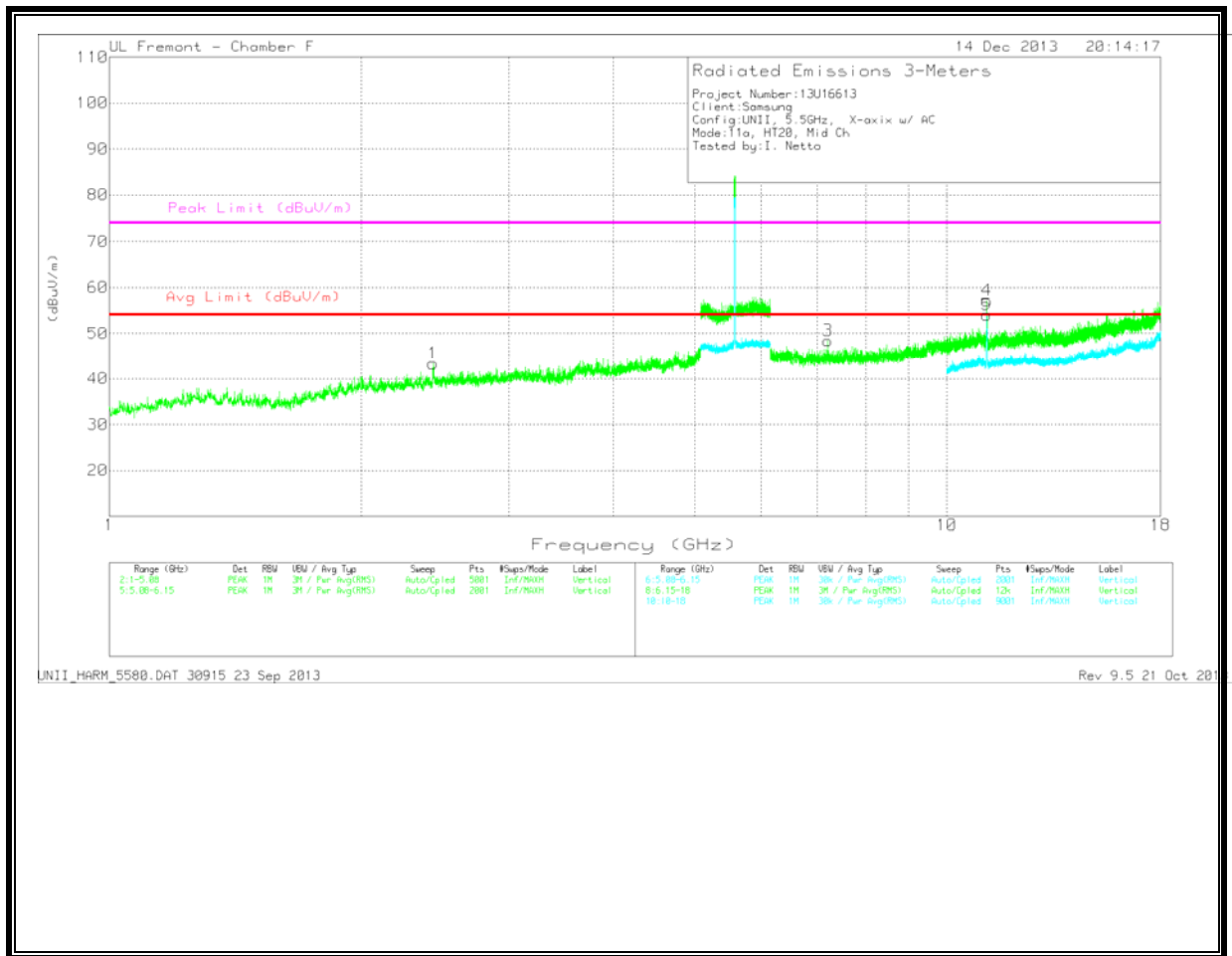
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	9.593	34.58	PK	37.3	-23.2	48.68	53.97	-5.29	74	-25.32	0-360	101	V
6	11	34.66	Avg	38.7	-22.8	50.56	53.97	-3.41	-	-	0-360	199	H
5	11.001	39.73	PK	38.7	-22.8	55.63			74	-18.37	0-360	199	H
4	11.001	34.47	Avg	38.7	-22.8	50.37	53.97	-3.6	-	-	0-360	100	V
3	11.003	41.35	PK	38.7	-22.9	57.15			74	-16.85	0-360	200	V

MID CHANNEL

HORIZONTAL





Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.435	41.73	PK	32.3	-30.7	43.33	53.97	-10.64	74	-30.67	0-360	101	V
2	2.44	42.19	PK	32.3	-30.7	43.79	53.97	-10.18	74	-30.21	0-360	199	H

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	7.213	38.48	PK	35.7	-25.8	48.38	53.97	-5.59	74	-25.62	0-360	100	V
7	11.156	35.42	Avg	38.6	-23	51.02	53.97	-2.95	-	-	0-360	100	H
6	11.159	40.53	PK	38.6	-22.9	56.23			74	-17.77	0-360	100	H
5	11.16	38.15	Avg	38.6	-22.9	53.85	53.97	-0.12	-	-	0-360	201	V
4	11.164	41.37	PK	38.6	-22.8	57.17			74	-16.83	0-360	200	V

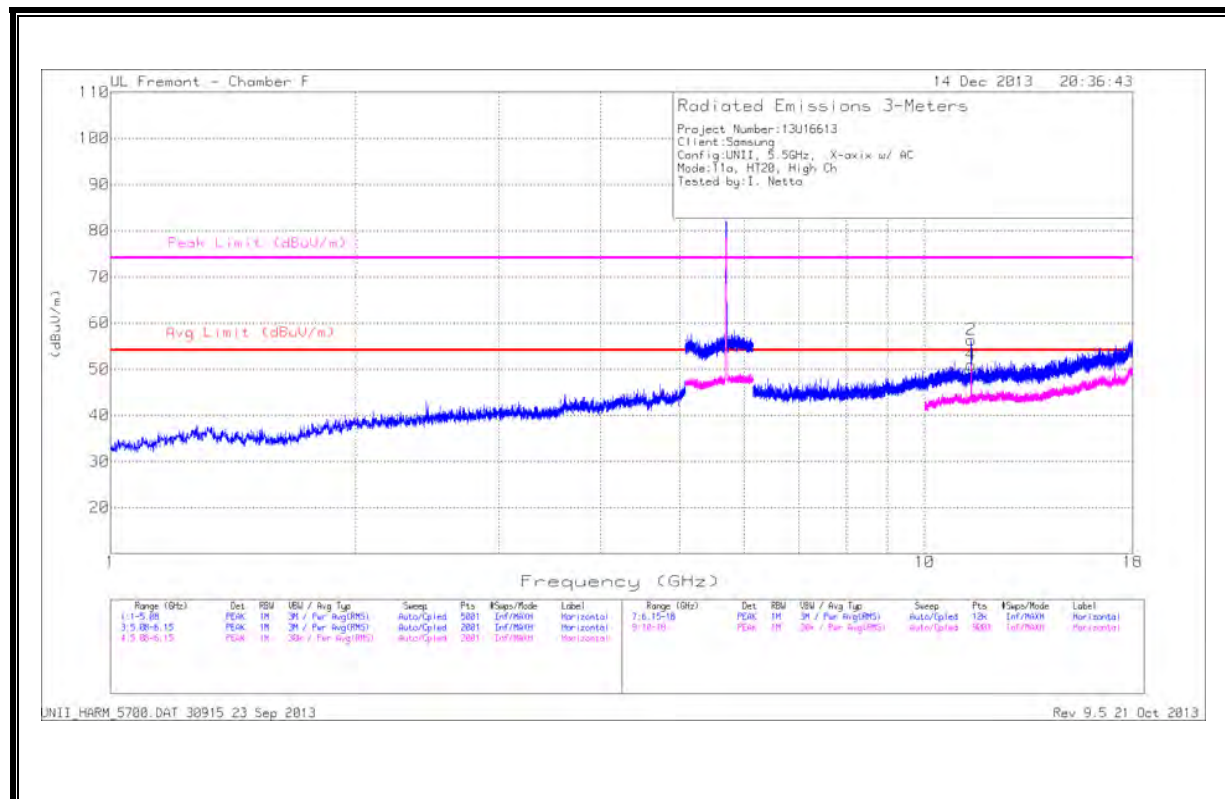
PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

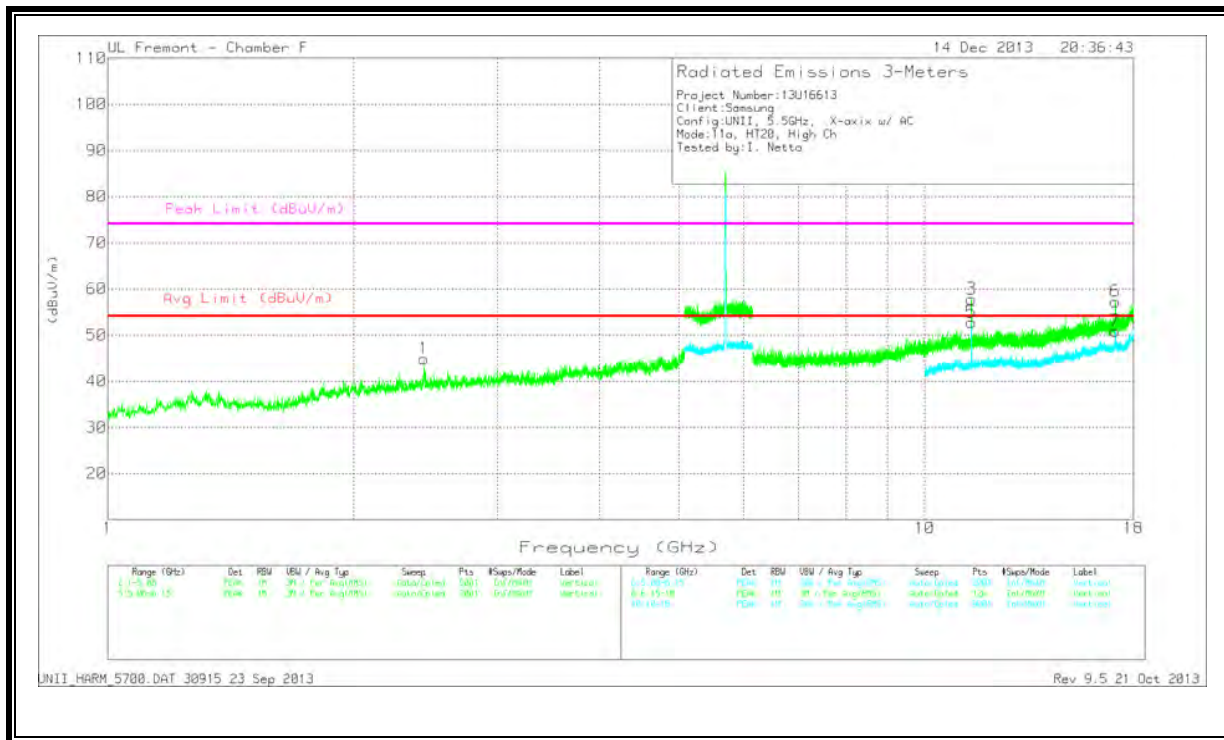
UNII_HARM_5580.DAT 30915 23 Sep 2013 Rev 9.5 21 Oct 2013

HIGH CHANNEL

HORIZONTAL



VERTICAL



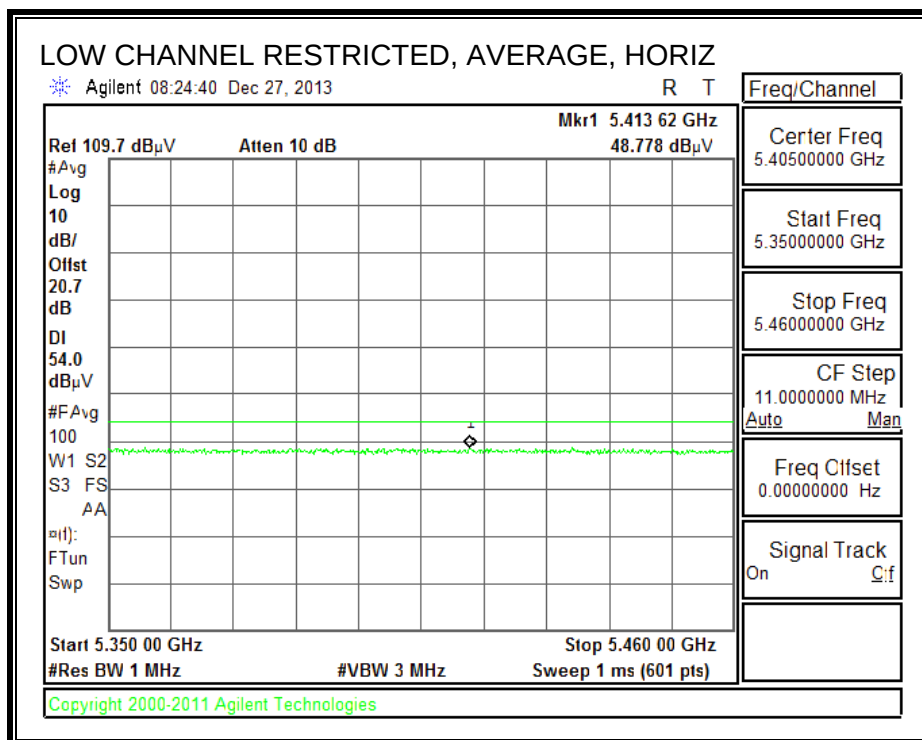
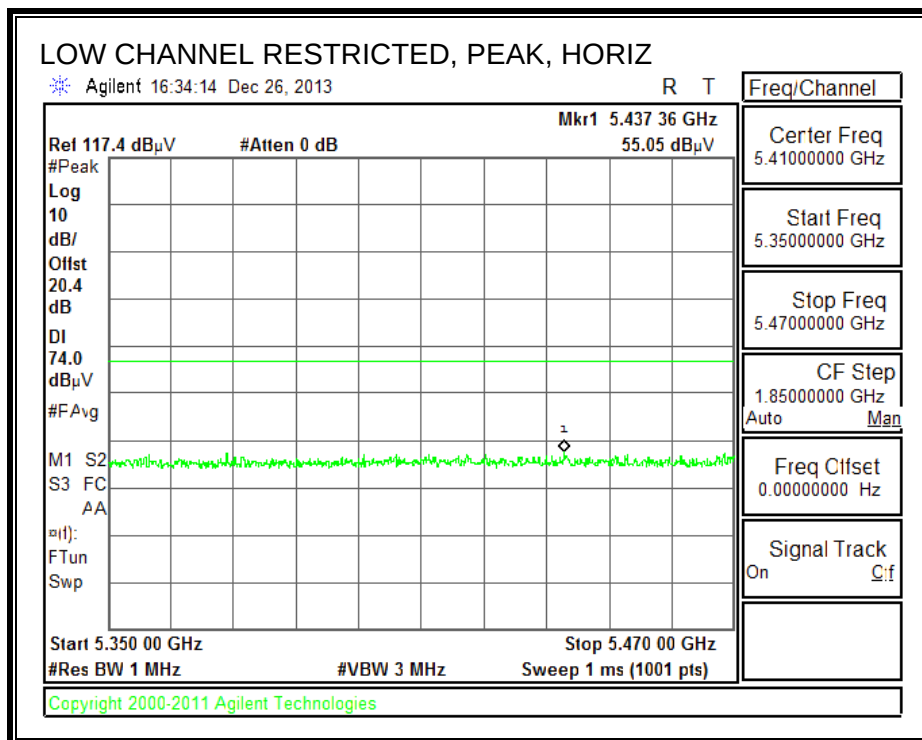
HIGH CHANNEL DATA

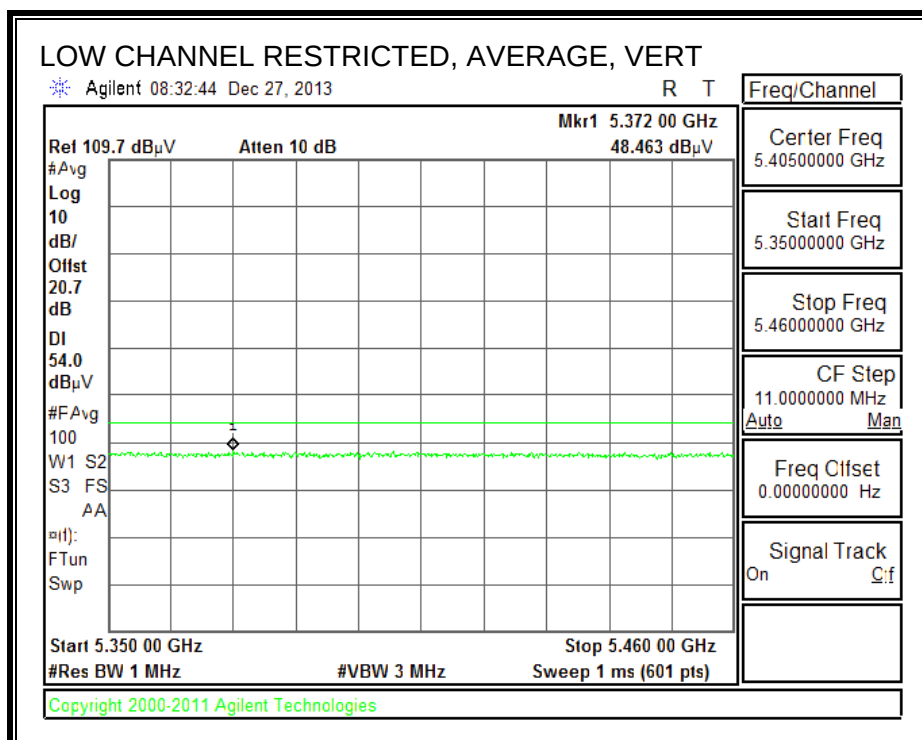
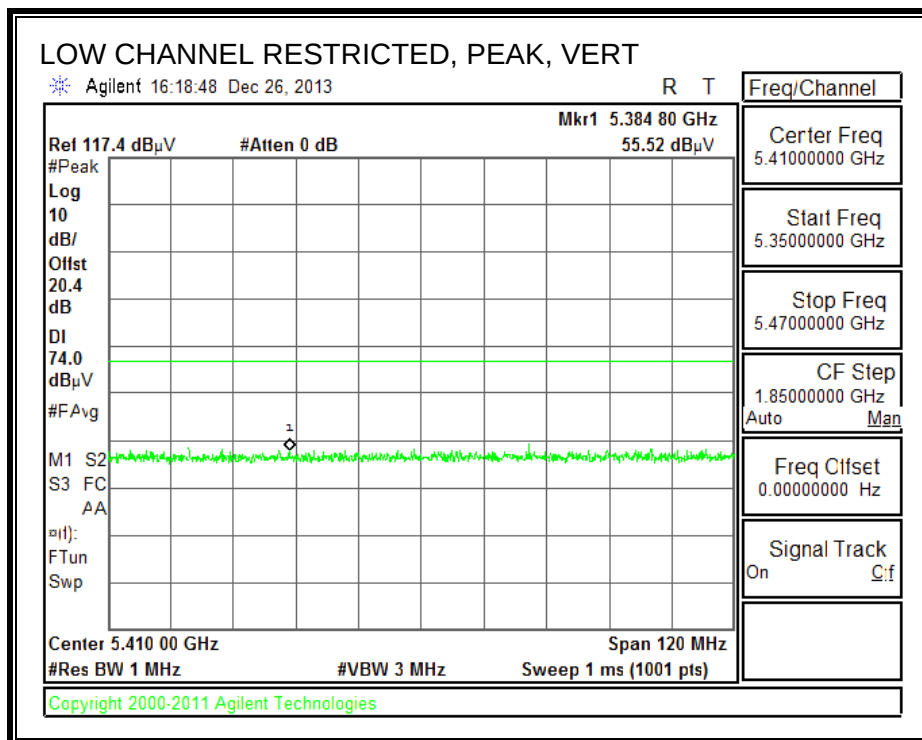
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.437	43.31	PK	32.3	-30.7	44.91	53.97	-9.06	74	-29.09	0-360	201	V

PK - Peak detector

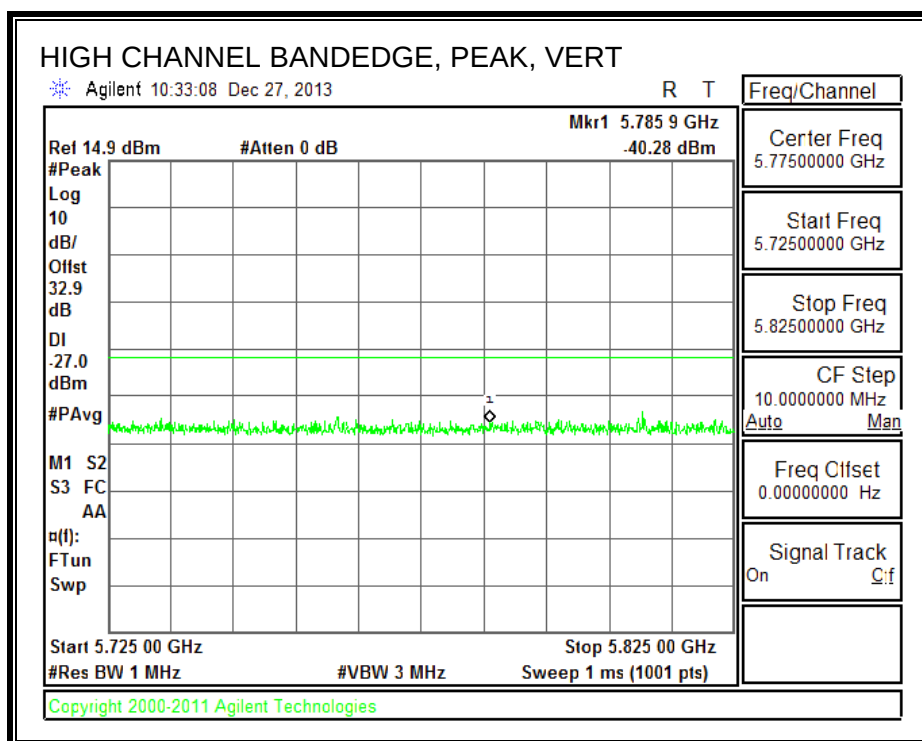
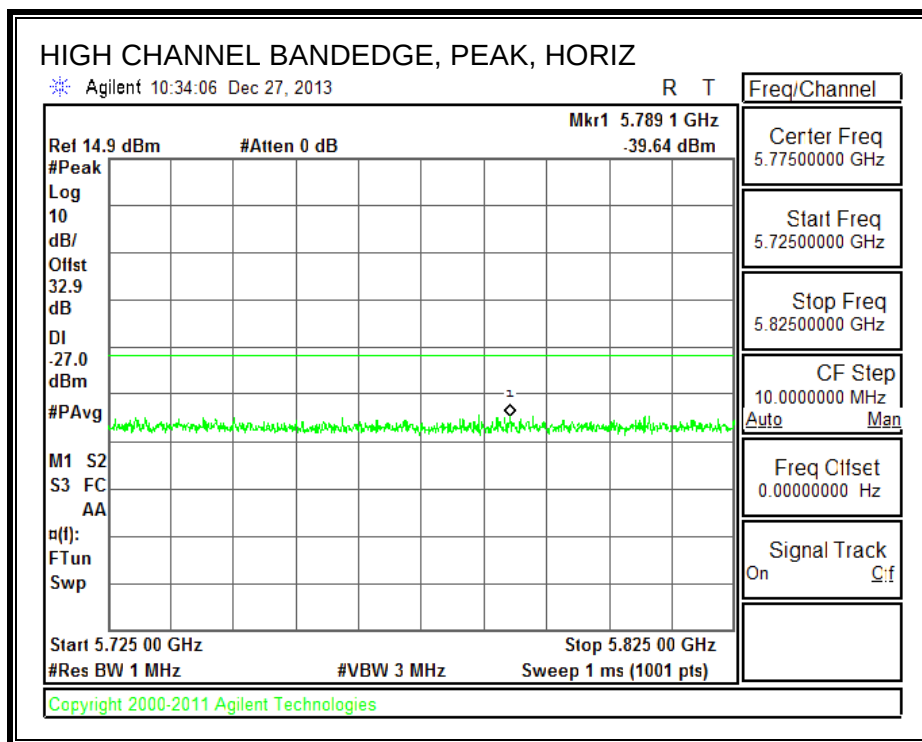
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	11.398	35.21	Avg	38.7	-23	50.91	53.97	-3.06	-	-	0-360	199	H
5	11.398	37.03	Avg	38.7	-23	52.73	53.97	-1.24	-	-	0-360	101	V
2	11.399	40.65	PK	38.7	-23	56.35			74	-17.65	0-360	199	H
3	11.4	42.08	PK	38.7	-23	57.78			74	-16.22	0-360	200	V
7	17.095	31	Avg	41	-21.1	50.9	53.97	-3.07	-	-	0-360	201	V
6	17.104	37.7	PK	41	-21.4	57.3			74	-16.7	0-360	200	V

11.3.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





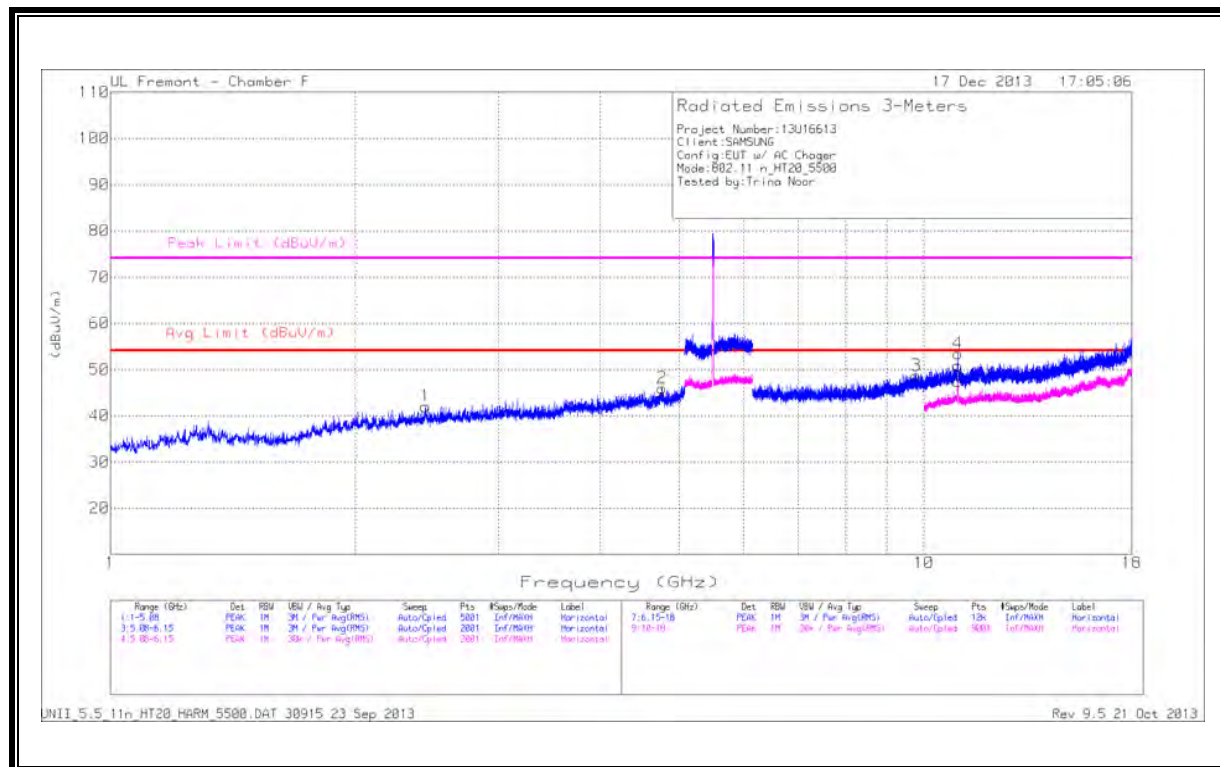
AUTHORIZED BANDEDGE (HIGH CHANNEL)

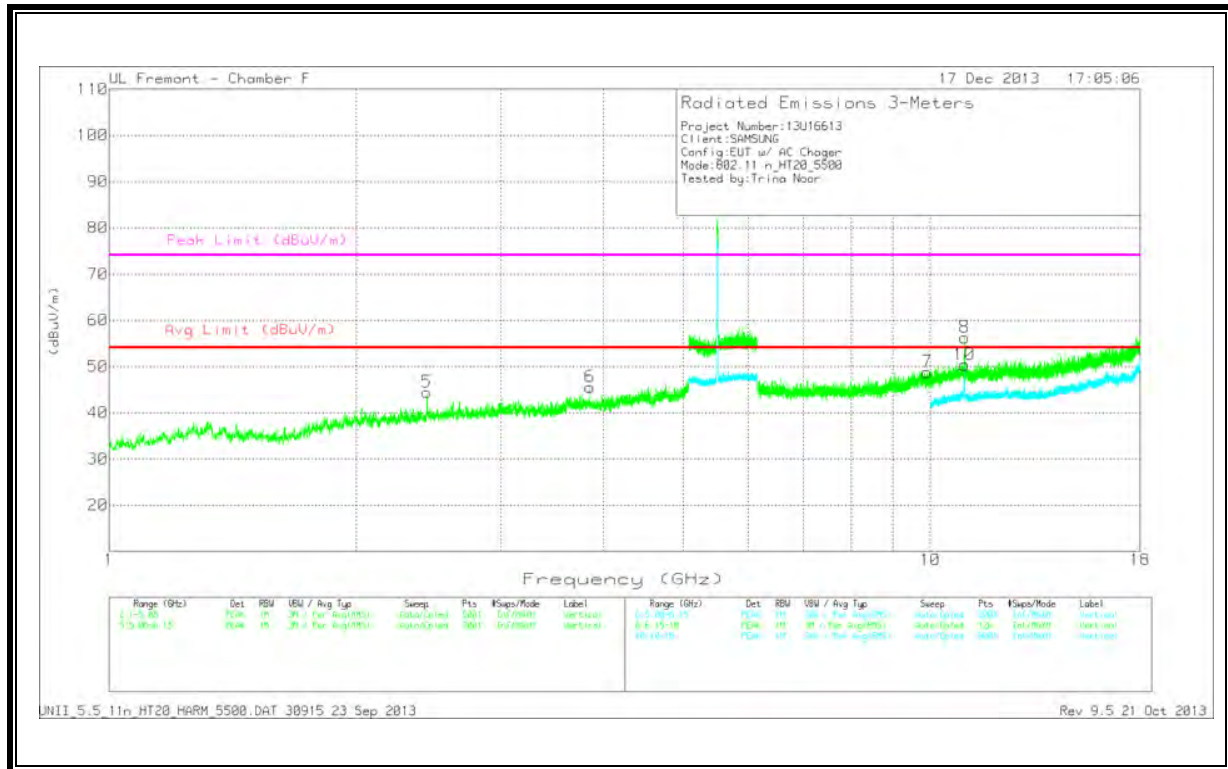


11.3.4.

HARMONICS AND SPURIOUS EMISSIONS

**LOW CHANNEL
HORIZONTAL**





LOW CHANNEL DATA

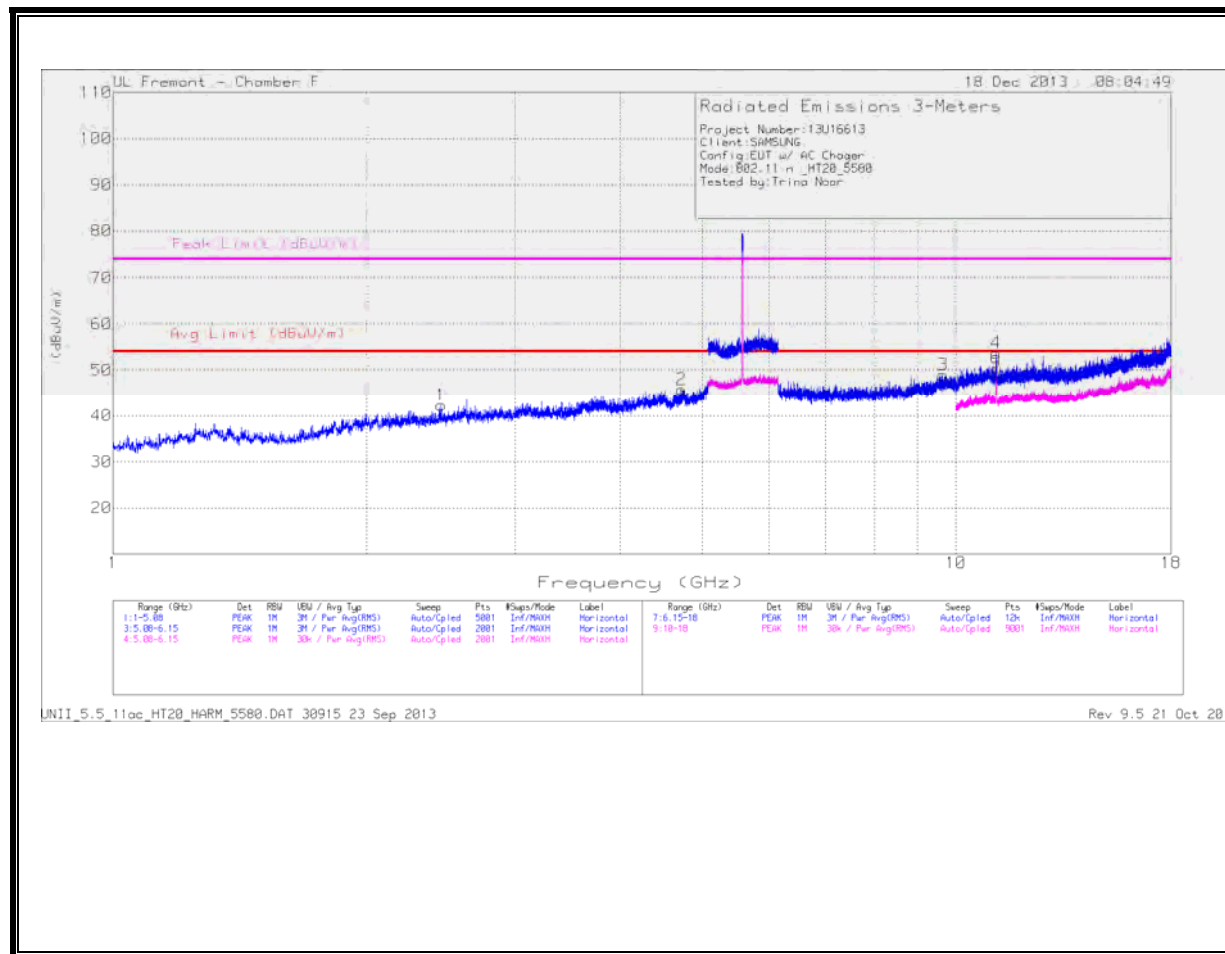
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.436	42.87	PK	32.3	-30.7	44.47	53.97	-9.5	74	-29.53	0-360	200	V
1	2.439	40.46	PK	32.3	-30.7	42.06	53.97	-11.91	74	-31.94	0-360	100	H
6	3.848	41.19	PK	33.5	-29.1	45.59	53.97	-8.38	74	-28.41	0-360	200	V
2	4.766	39.53	PK	34.1	-27.7	45.93	53.97	-8.04	74	-28.07	0-360	199	H

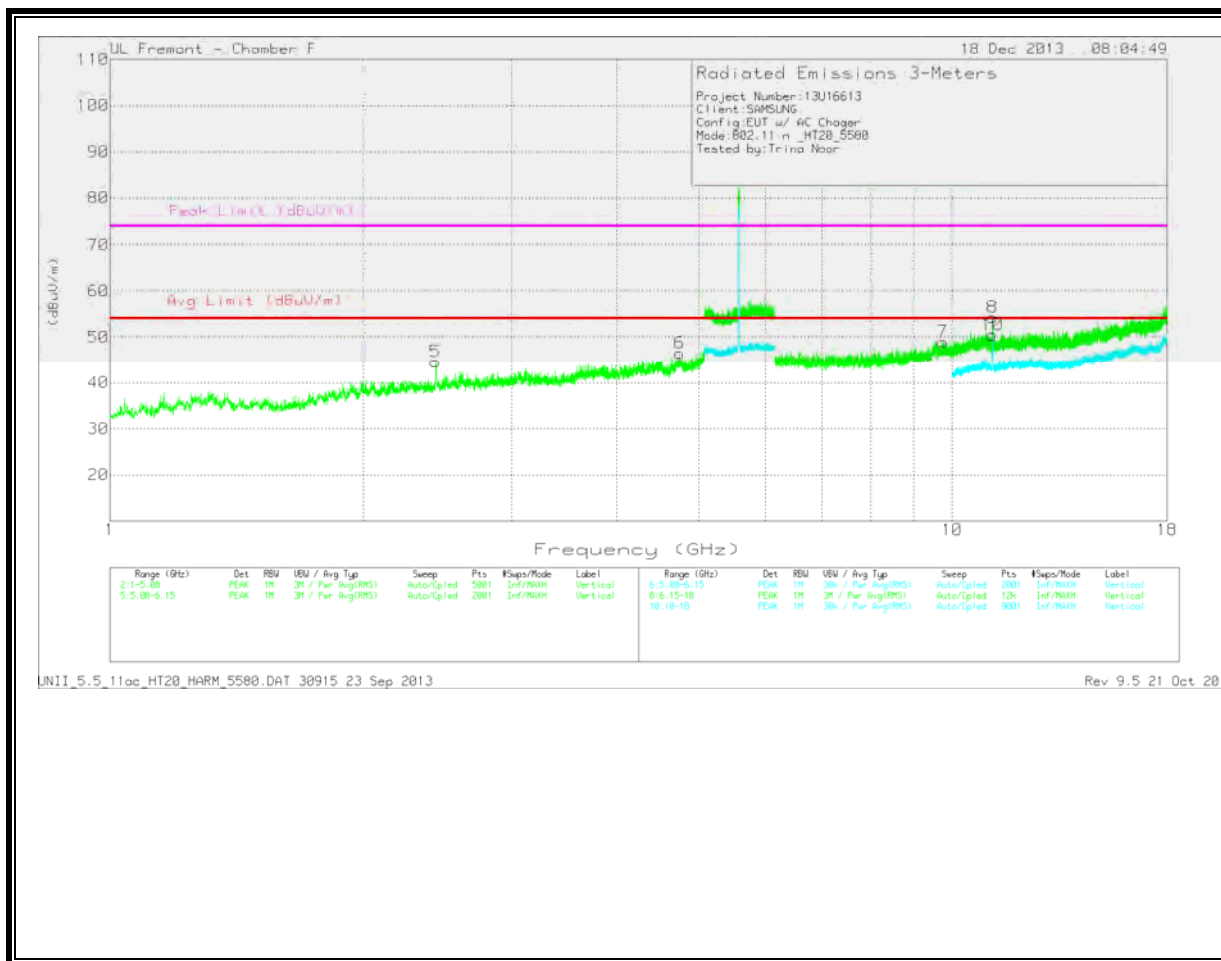
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	9.781	34.29	PK	37.5	-23.1	48.69	53.97	-5.28	74	-25.31	0-360	100	H
7	9.908	33.98	PK	37.6	-22.8	48.78	53.97	-5.19	74	-25.22	0-360	101	V
9	11	31.54	Avg	38.7	-22.8	47.44	53.97	-6.53	-	-	0-360	199	H
10	11	34.48	Avg	38.7	-22.8	50.38	53.97	-3.59	-	-	0-360	101	V
8	11.003	40.46	PK	38.7	-22.9	56.26			74	-17.74	0-360	201	V
4	11.006	37.73	PK	38.6	-22.9	53.43	53.97	-5.54	74	-20.57	0-360	199	H

MID CHANNEL

HORIZONTAL





MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.435	43.02	PK	32.3	-30.7	44.62	53.97	-9.35	74	-29.38	0-360	101	V
1	2.451	40.61	PK	32.3	-30.6	42.31	53.97	-11.66	74	-31.69	0-360	199	H
2	4.724	39.78	PK	34.1	-28.1	45.78	53.97	-8.19	74	-28.22	0-360	199	H
6	4.747	40.15	PK	34.1	-27.7	46.55	53.97	-7.42	74	-27.45	0-360	101	V

PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	9.647	35.3	PK	37.3	-23.6	49	53.97	-4.97	74	-25	0-360	100	H
7	9.75	34.49	PK	37.4	-22.9	48.99	53.97	-4.98	74	-25.01	0-360	101	V
10	11.16	34.84	Avg	38.6	-22.9	50.54	53.97	-3.43	-	-	0-360	101	V
9	11.161	33.75	Avg	38.6	-22.9	49.45	53.97	-4.52	-	-	0-360	199	H
4	11.163	37.88	PK	38.6	-22.8	53.68	53.97	-2.29	74	-20.32	0-360	199	H
8	11.164	38.49	PK	38.6	-22.8	54.29			74	-19.71	0-360	201	V

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

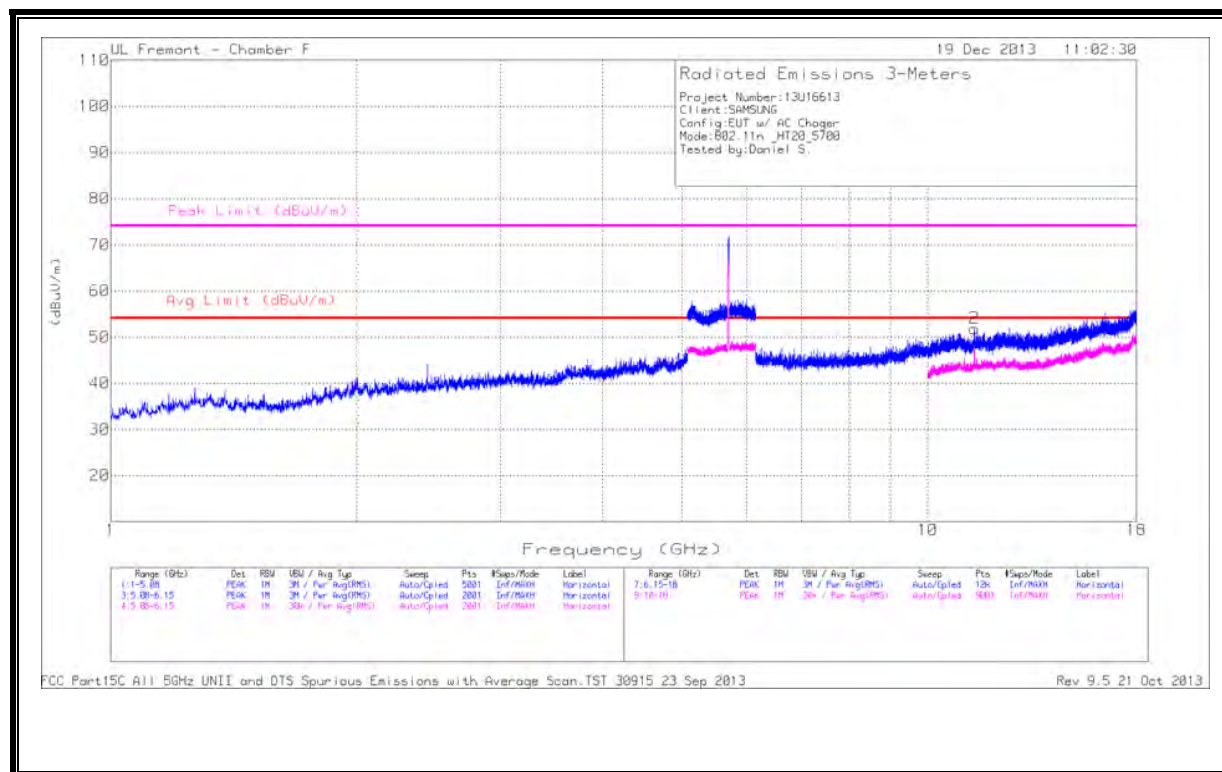
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
11.08	26.83	Avg	38.6	-22.9	42.53	-	-	-	-	343	314	H

Avg - Video bandwidth < Resolution bandwidth

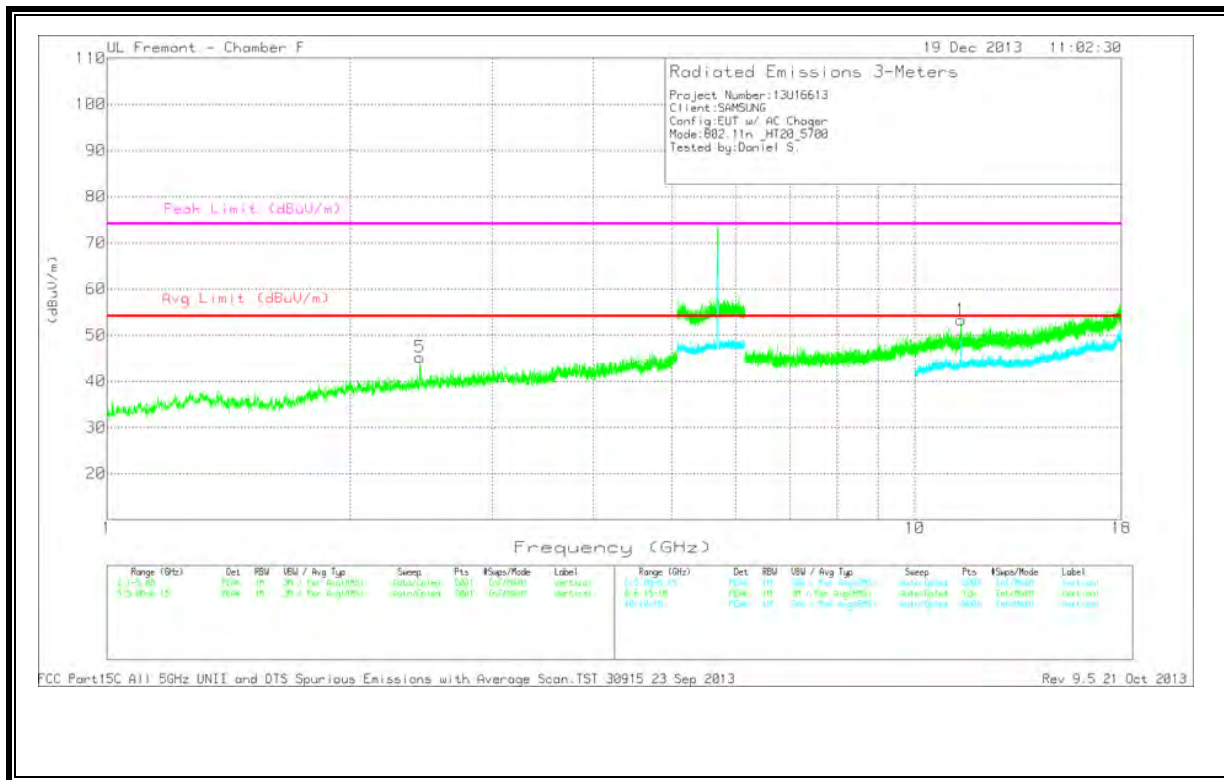
UNII_5.5_11ac_HT20_HARM_5580.DAT 30915 23 Sep 2013 Rev 9.5 21 Oct 2013

HIGH CHANNEL

HORIZONTAL



VERTICAL



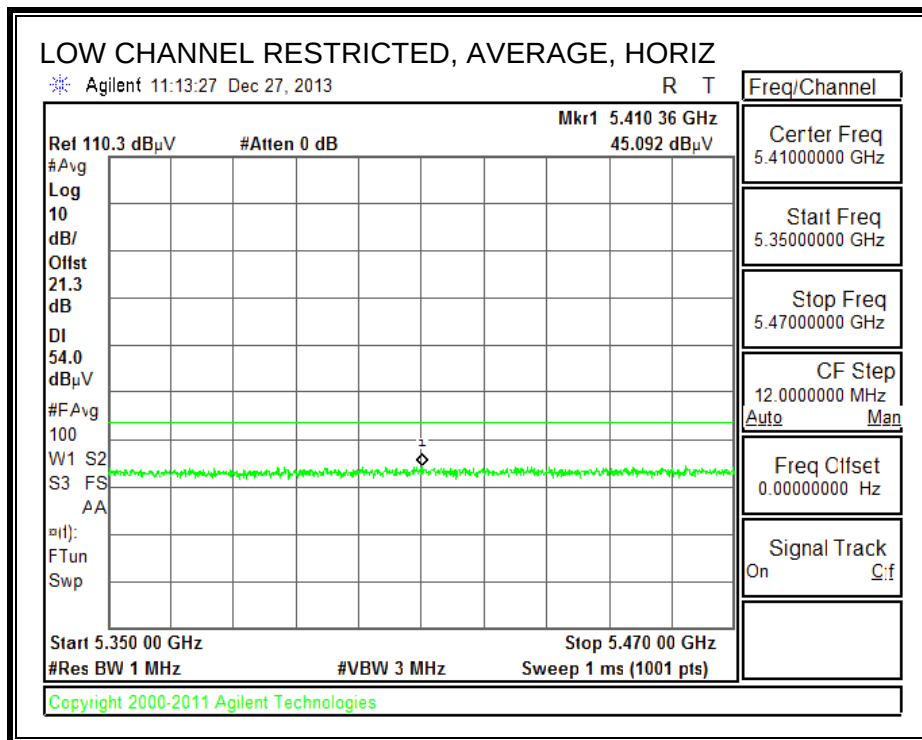
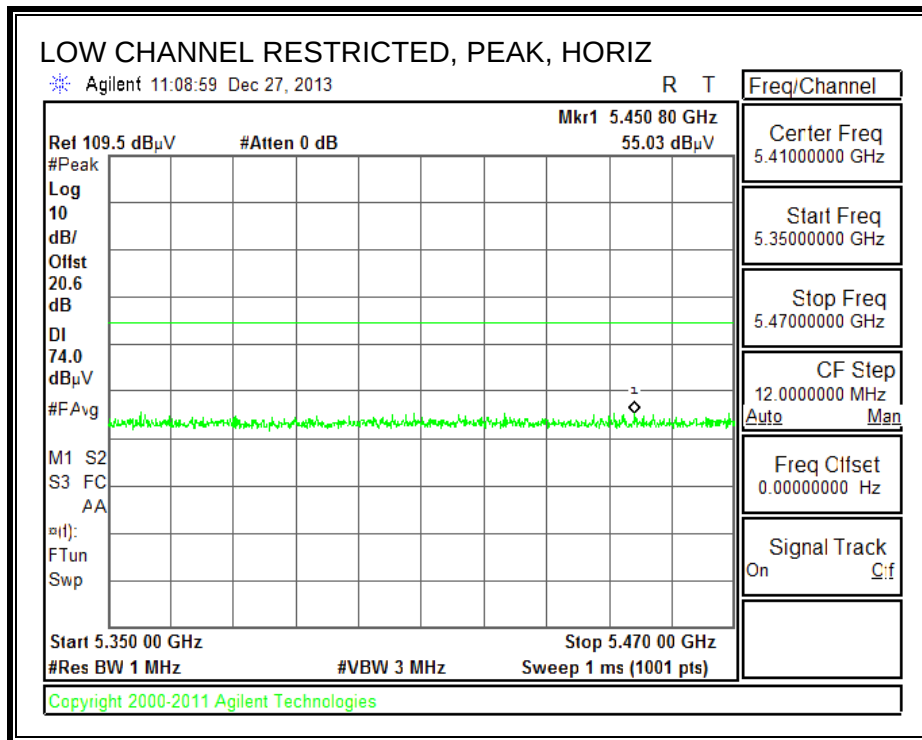
HIGH CHANNEL DATA

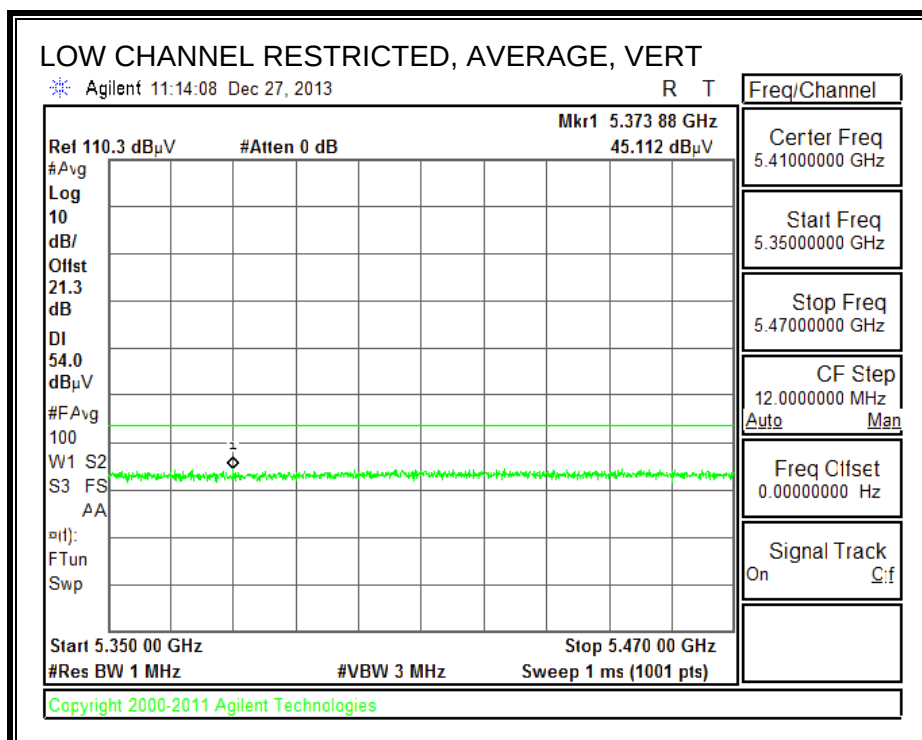
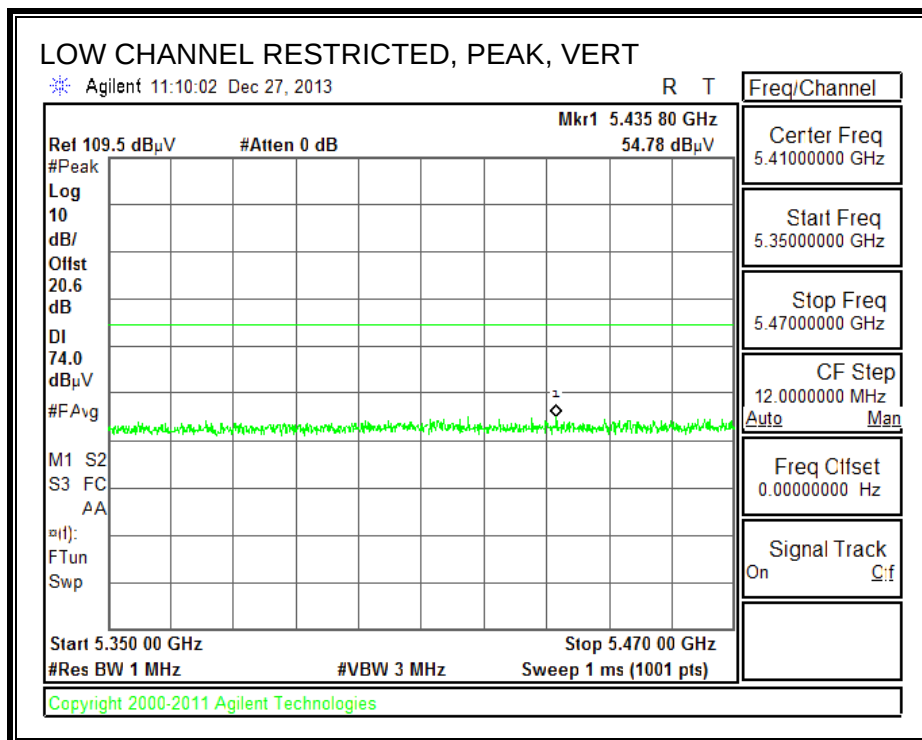
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.439	43.57	PK	32.3	-30.7	45.17	53.97	-8.8	74	-28.83	0-360	101	V

PK - Peak detector

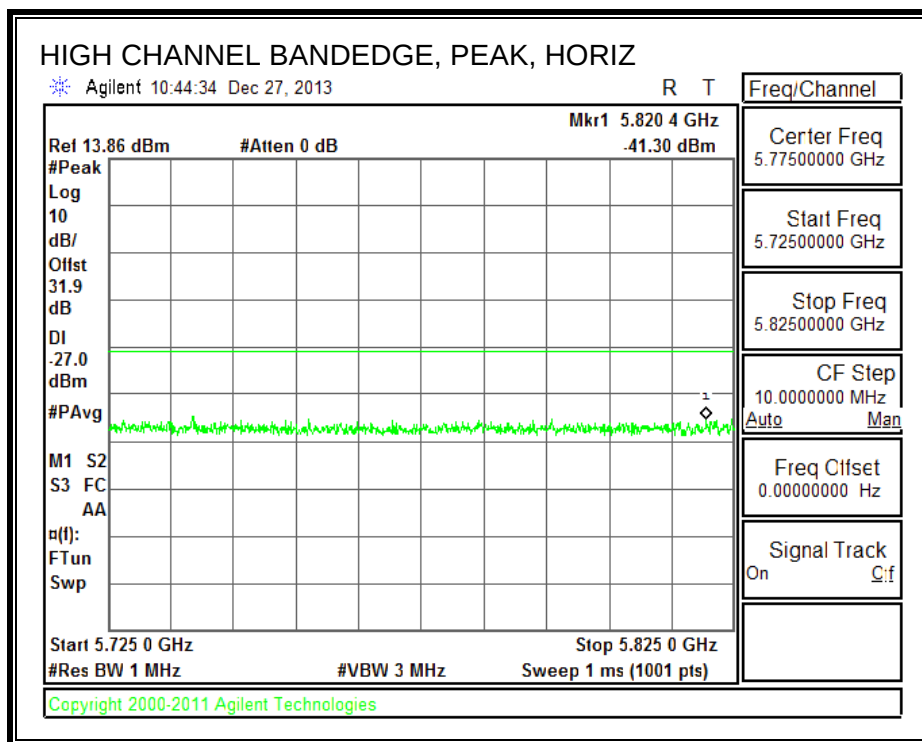
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	11.398	36.15	PK	38.7	-23	51.85	53.97	-2.12	74	-22.15	0-360	199	H
1	11.4	37.64	PK	38.7	-23	53.34	53.97	-63	74	-20.66	0-360	200	V
4	11.4	32.46	Avg	38.7	-23	48.16	-	-	-	-	0-360	100	H
3	11.4	33.32	Avg	38.7	-23	49.02	-	-	-	-	0-360	200	V

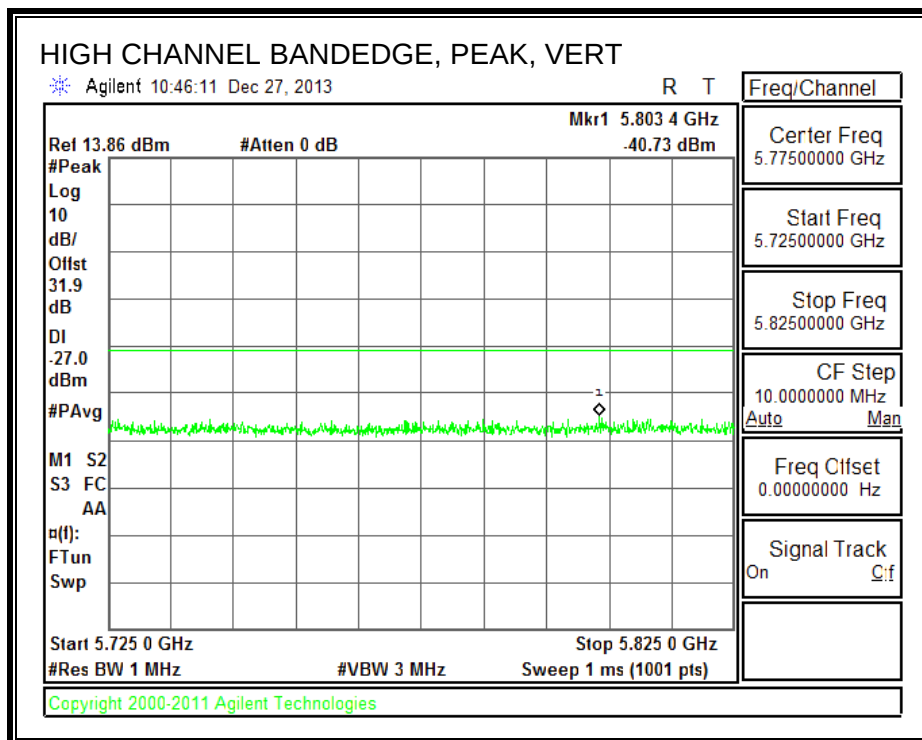
11.3.5. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





AUTHORIZED BANDEDGE (HIGH CHANNEL)

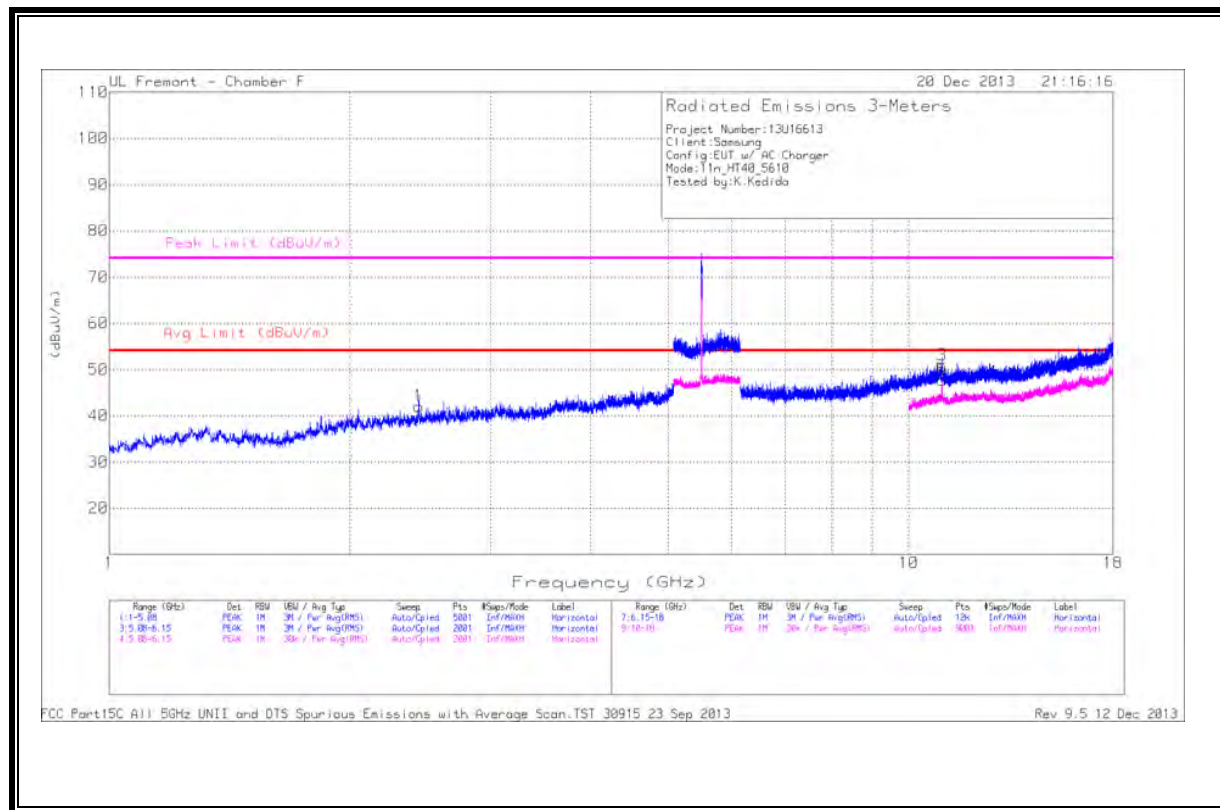


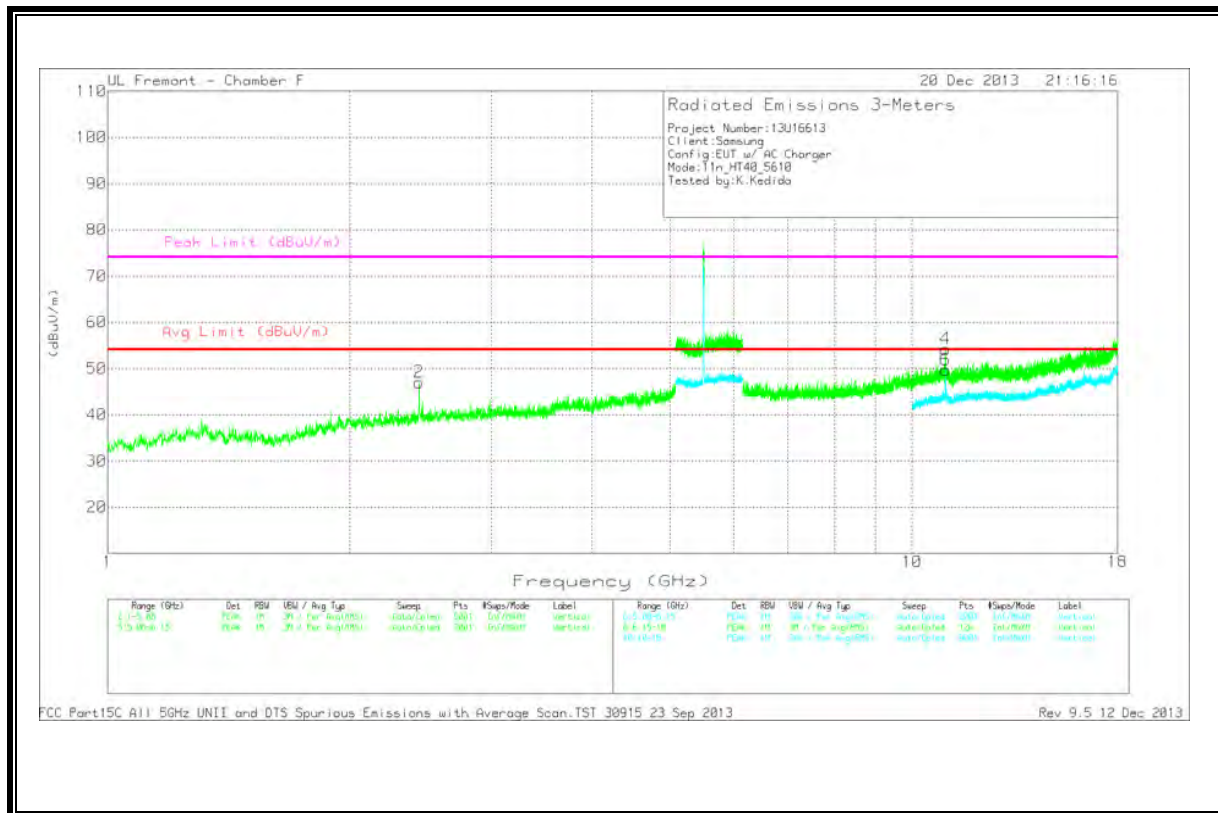


11.3.6.

HARMONICS AND SPURIOUS EMISSIONS

**LOW CHANNEL
HORIZONTAL**





LOW CHANNEL DATA

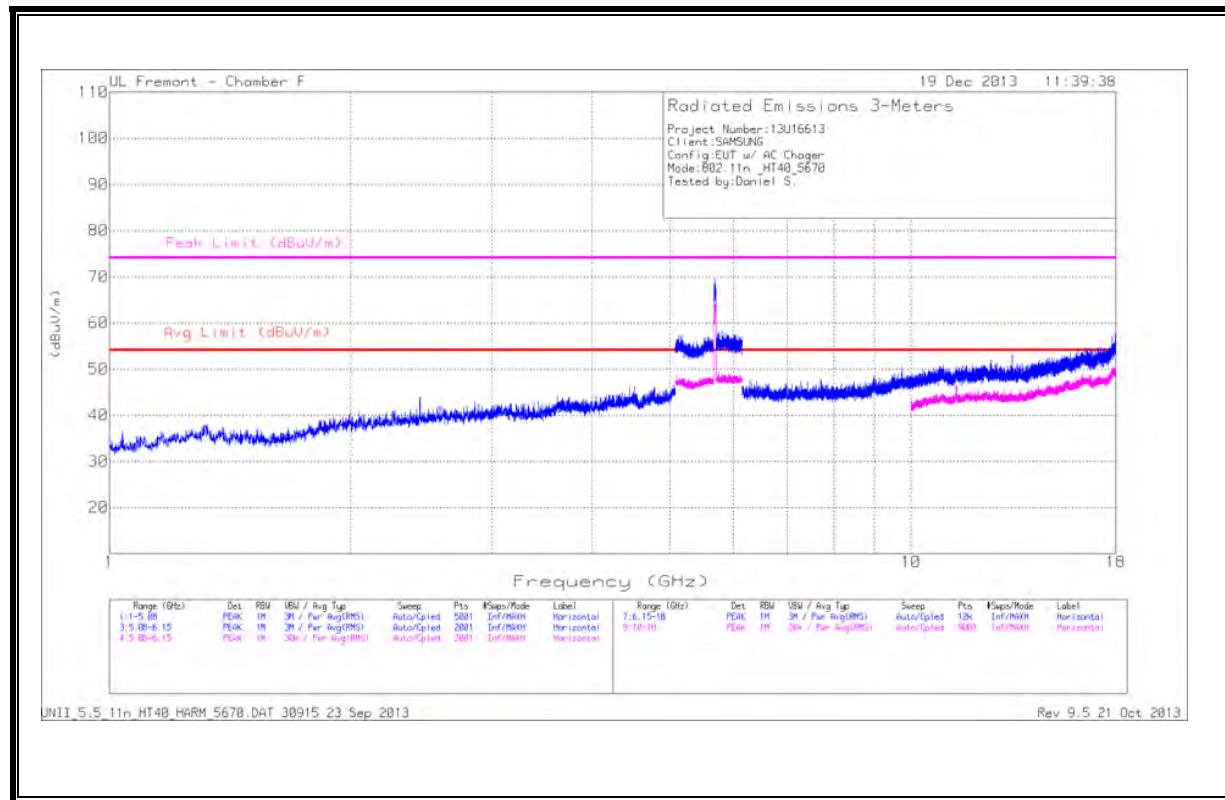
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ 5GHz LPF	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.436	45.41	PK	32.3	-30.7	47.01	53.97	-6.96	74	-26.99	0-360	201	V
1	2.438	40.46	PK	32.3	-30.7	42.06	53.97	-11.91	74	-31.94	0-360	199	H

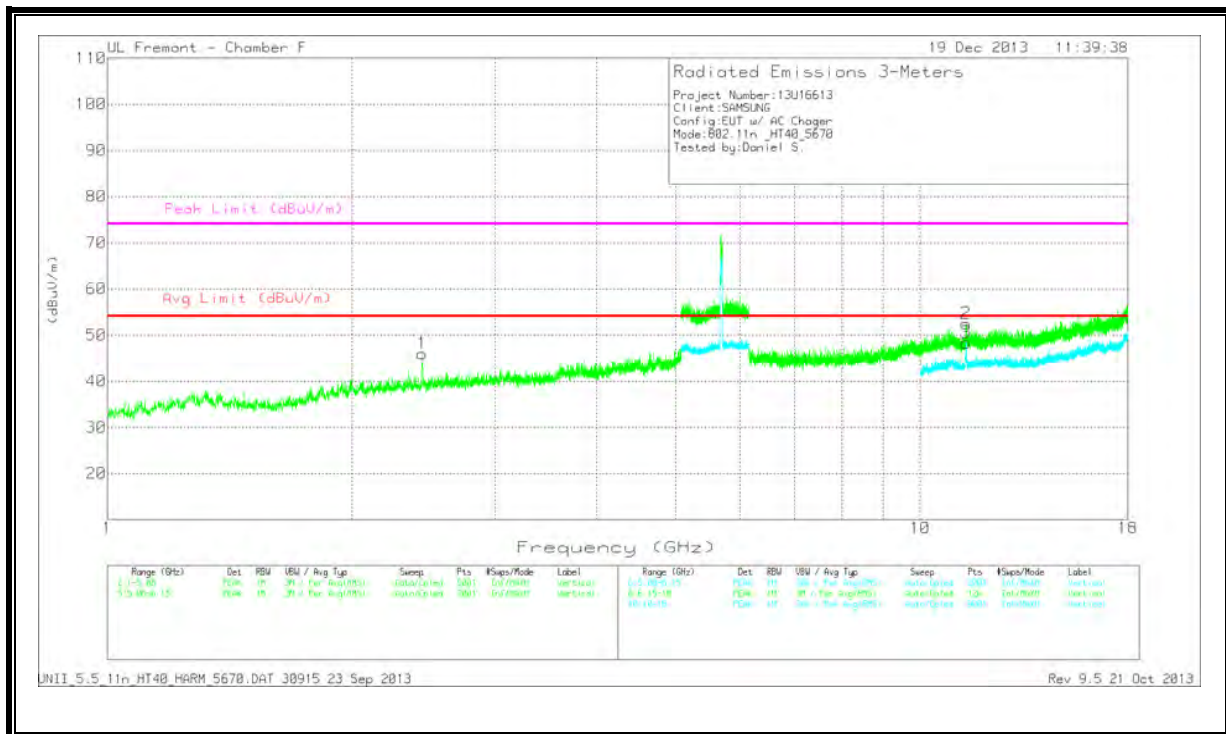
PK - Peak detector

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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
6	* 10.999	33.79	Avg	38.7	-22.8	49.69	53.97	-4.28	74	24.31	0-360	201	V
3	* 11	34.98	PK	38.7	-22.8	50.88			74	-23.12	0-360	199	H
4	* 11	38.31	PK	38.7	-22.8	54.21			74	-19.79	0-360	101	V
5	* 11.001	31.87	Avg	38.7	-22.8	47.77	53.97	-6.2	74	26.23	0-360	199	H

High CHANNEL

HORIZONTAL





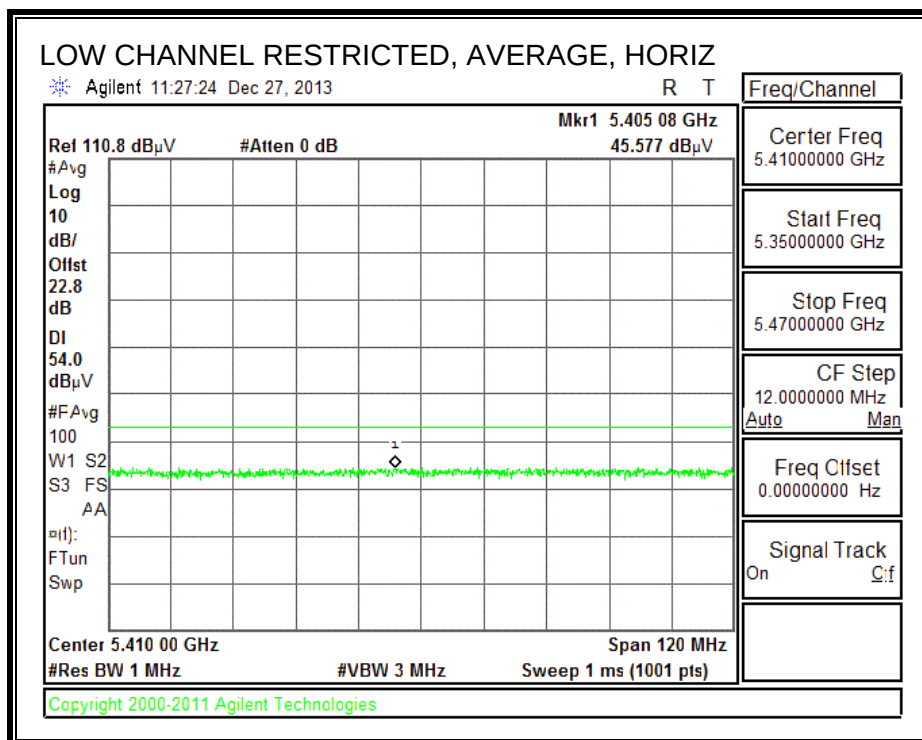
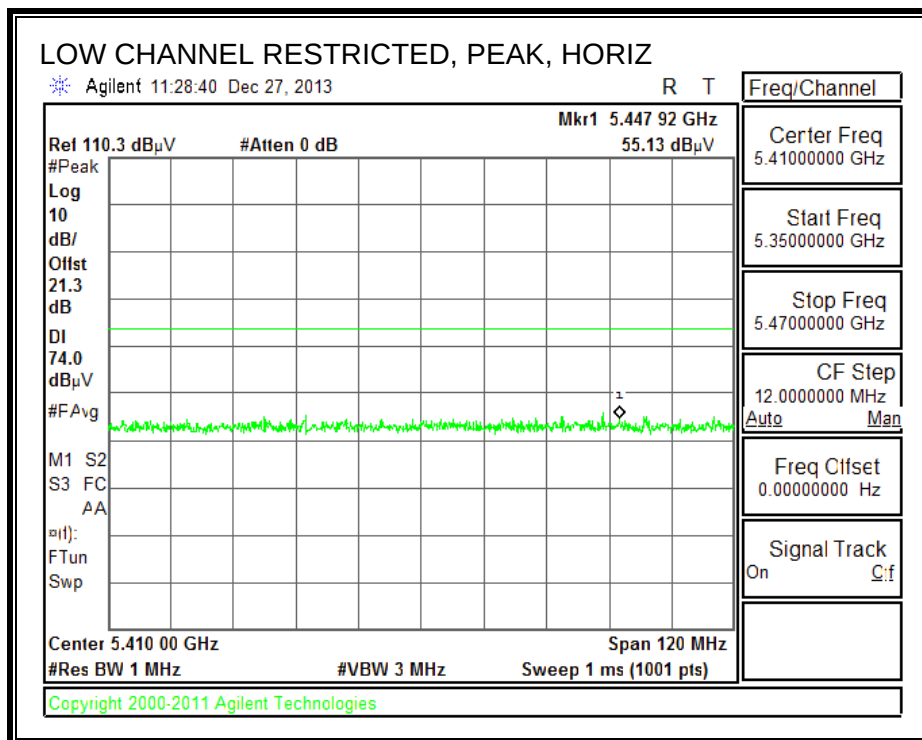
High CHANNEL DATA

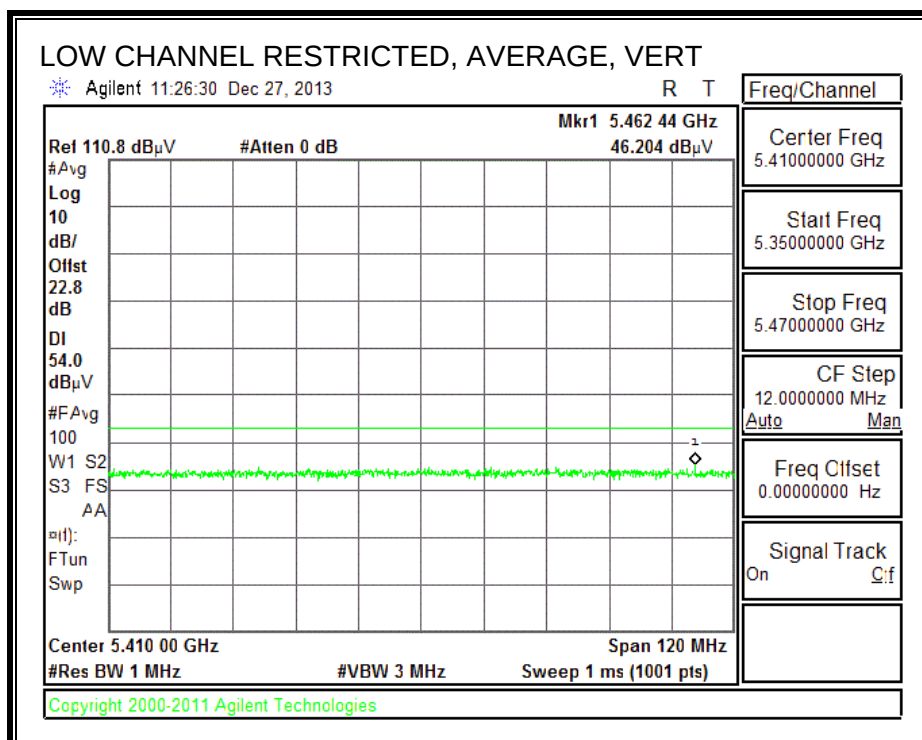
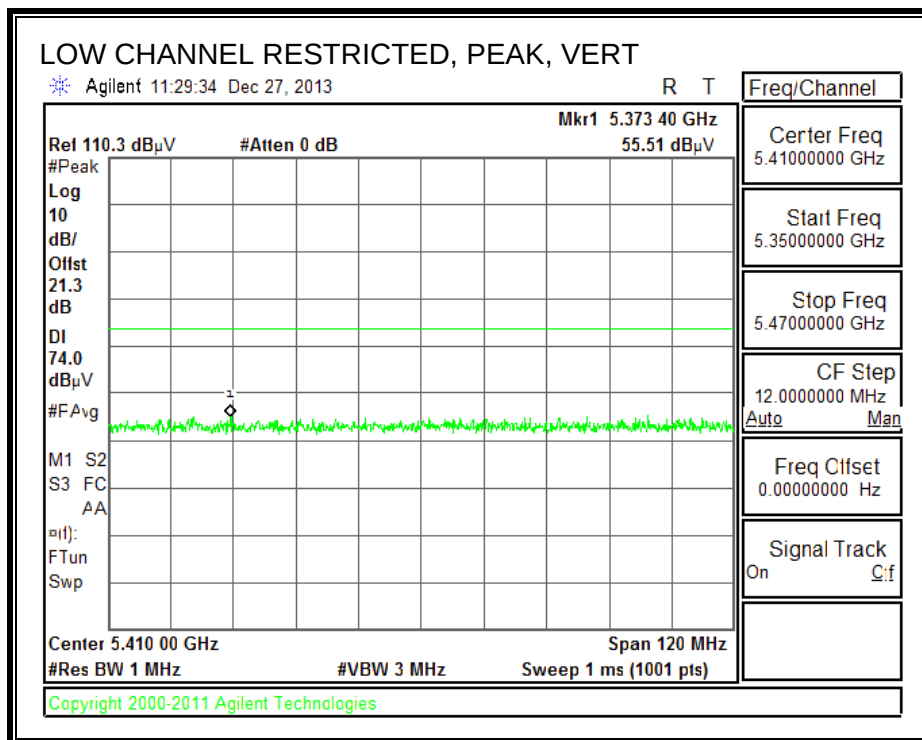
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/5GHz LPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.439	44.38	PK	32.3	-30.7	45.98	53.97	-7.99	74	-28.02	0-360	100	V

PK - Peak detector

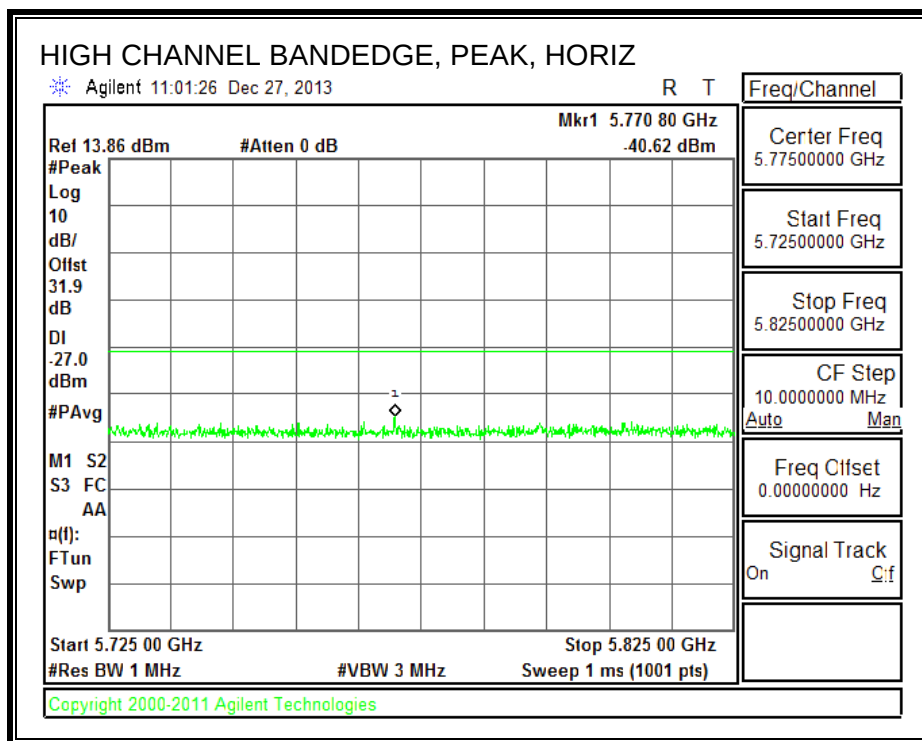
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb l/6GHz HPF	Correct ed Reading (dBuV/ m)	Avg Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	11.38	36.88	PK	38.7	-23.1	52.48	53.97	-1.49	74	-21.52	0-360	100	V
3	11.38	32.74	Avg	38.7	-23.1	48.34	53.97	-5.63	-	-	0-360	101	V

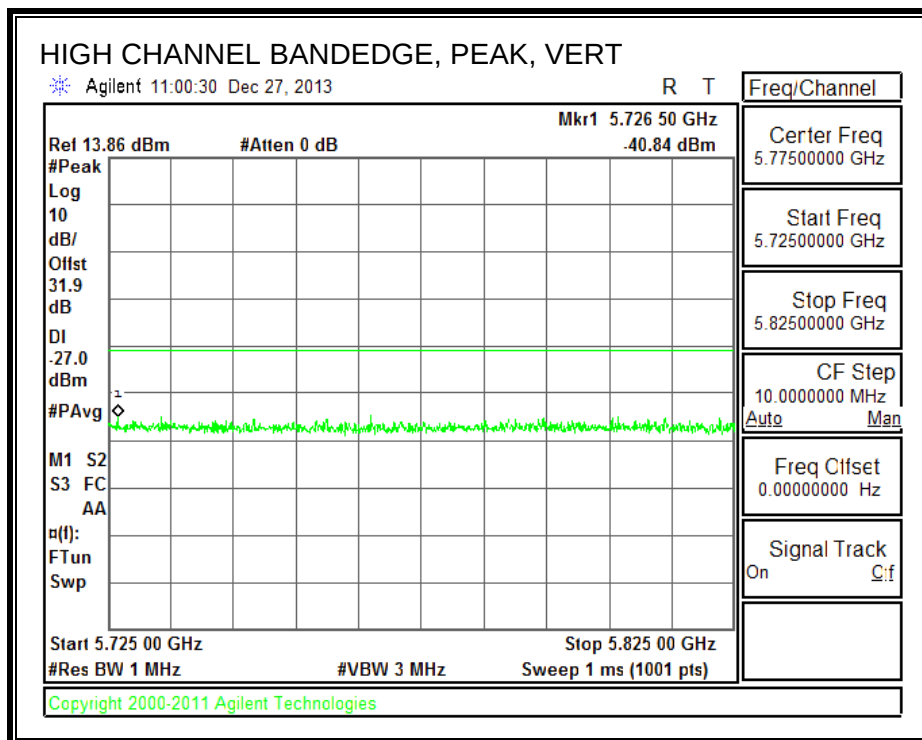
11.3.7. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)





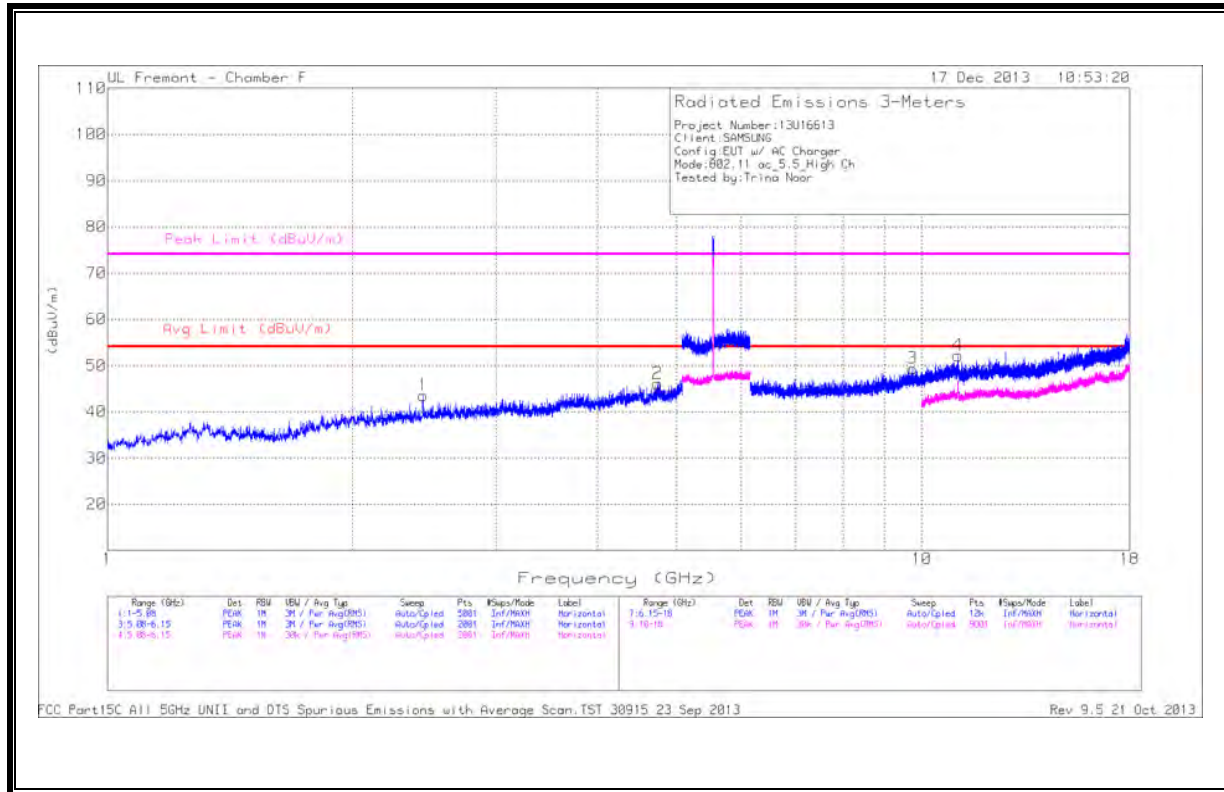
AUTHORIZED BANDEDGE (HIGH CHANNEL)

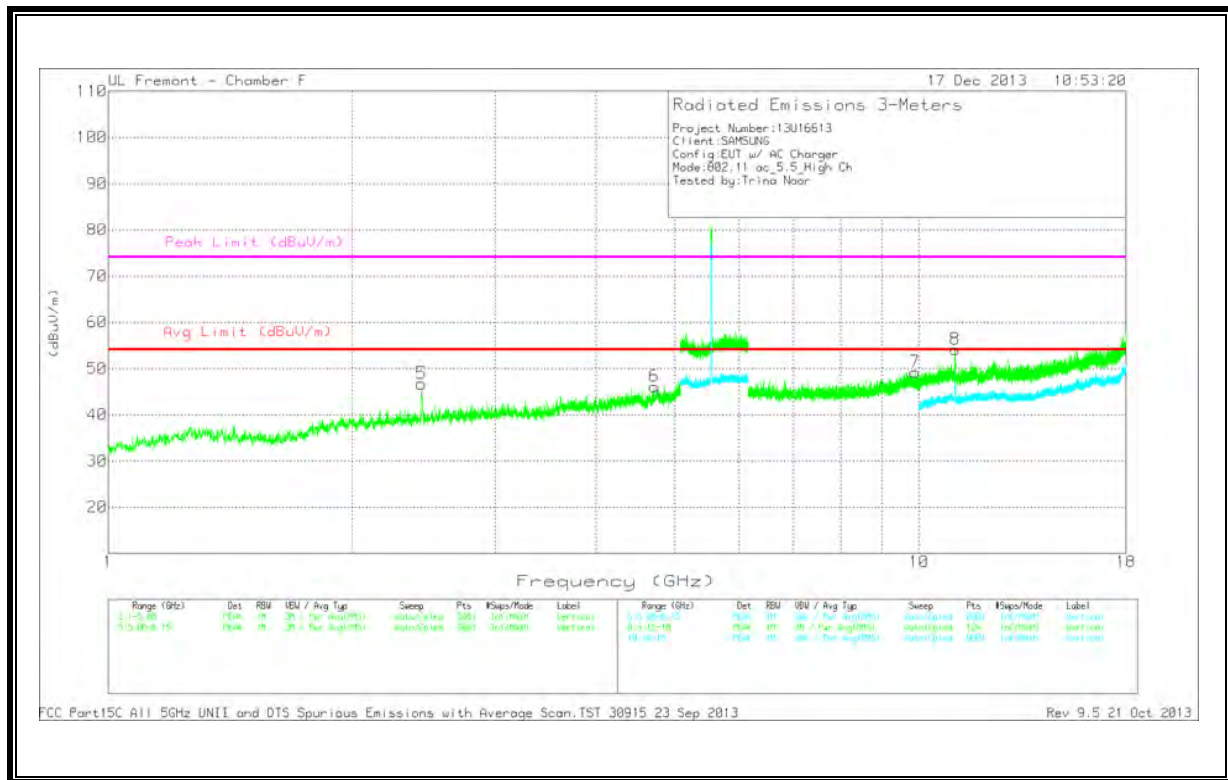




HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL





LOW CHANNEL DATA

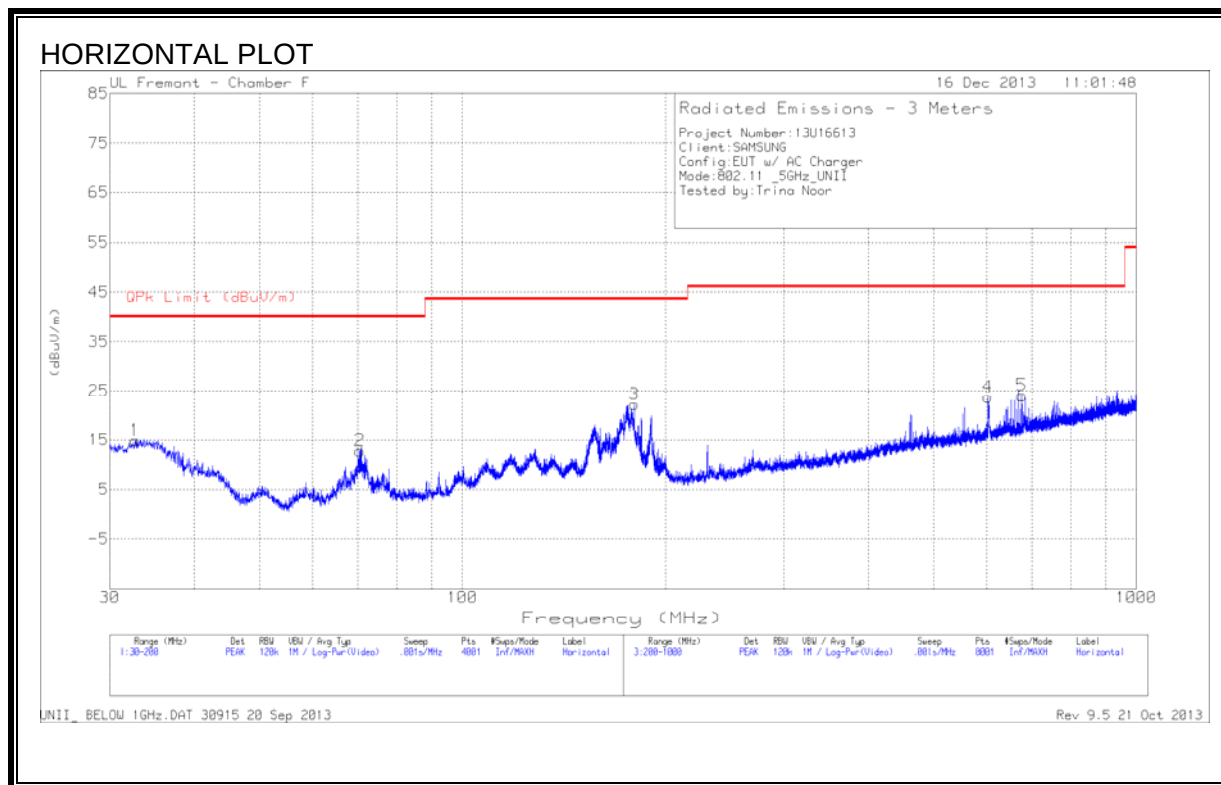
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/5GHz LPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.435	45.13	PK	32.3	-30.7	46.73	53.97	-7.24	74	-27.27	0-360	101	V
1	2.44	41.9	PK	32.3	-30.7	43.5	53.97	-10.47	74	-30.5	0-360	199	H
6	4.714	40.12	PK	34.1	-28.1	46.12	53.97	-7.85	74	-27.88	0-360	101	V
2	4.734	39.9	PK	34.1	-27.9	46.1	53.97	-7.87	74	-27.9	0-360	100	H

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	9.745	34.81	PK	37.4	-22.8	49.41	53.97	-4.56	74	-24.59	0-360	100	H
7	9.887	34.77	PK	37.6	-23.1	49.27	53.97	-4.7	74	-24.73	0-360	101	V
4	11.073	36.37	PK	38.6	-22.8	52.17	53.97	-1.8	74	-21.83	0-360	199	H
8	11.079	38.44	PK	38.6	-22.9	54.14			74	-19.86	0-360	101	V
10	11.08	33.91	Avg	38.6	-22.9	49.61	53.97	-4.36	-	-	0-360	201	V
9	11.081	31.01	Avg	38.6	-22.9	46.71	53.97	-7.26	-	-	0-360	199	H

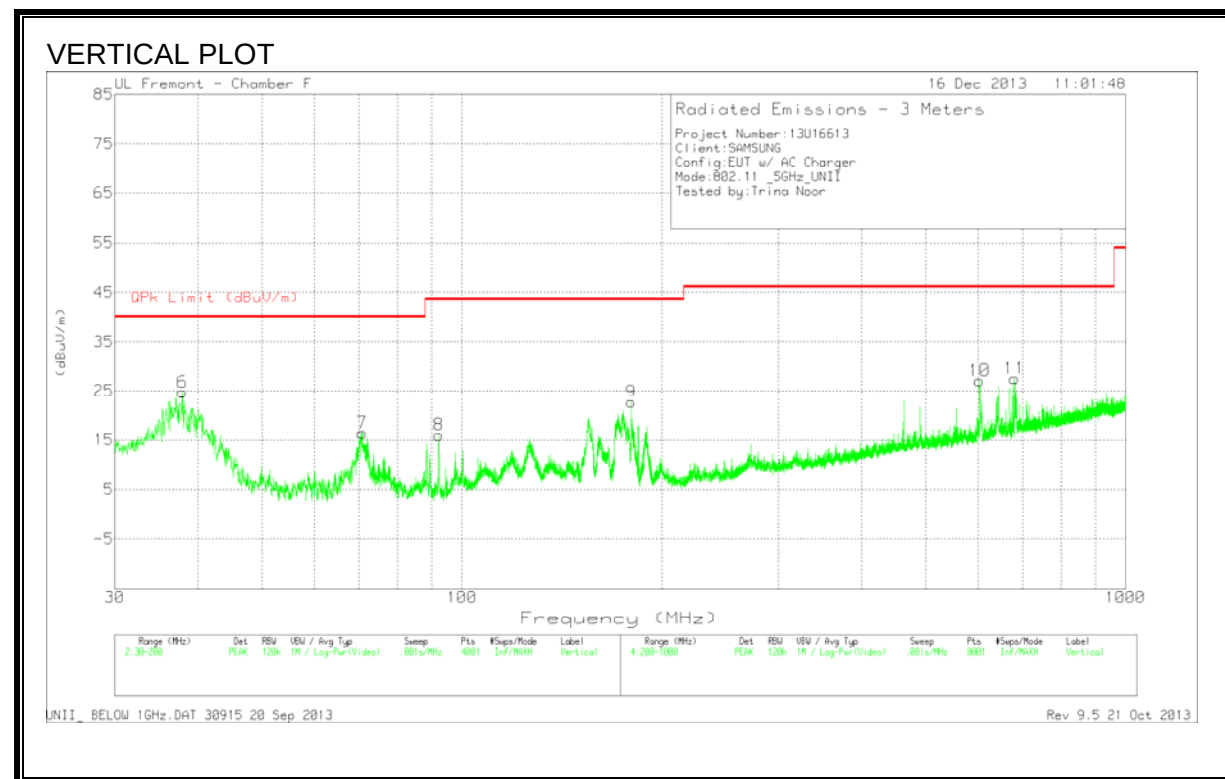
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb I/6GHz HPF	Correct ed Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
11.08	26.83	Avg	38.6	-22.9	42.53	53.97	-11.44	-	-	343	314	H

12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band)

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



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



Worst Case Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	32.6775	27.56	PK	19.4	-32.1	14.86	40	-25.14	0-360	98	H
6	37.9475	41.34	PK	15.4	-32	24.74	40	-15.26	0-360	100	V
2	70.5025	36.48	PK	8.1	-31.8	12.78	40	-27.22	0-360	300	H
7	70.8	40.08	PK	8.1	-31.8	16.38	40	-23.62	0-360	100	V
8	92.305	39.25	PK	8.3	-31.6	15.95	43.52	-27.57	0-360	100	V
9	179.9825	42.75	PK	11.2	-31.2	22.75	43.52	-20.77	0-360	100	V
3	180.025	42.24	PK	11.2	-31.2	22.24	43.52	-21.28	0-360	200	H
4	602.3	35.33	PK	18.7	-30.3	23.73	46.02	-22.29	0-360	200	H
10	602.3	38.71	PK	18.7	-30.3	27.11	46.02	-18.91	0-360	100	V
5	676	34.17	PK	19.9	-30	24.07	46.02	-21.95	0-360	100	H
11	680.3	37.67	PK	19.9	-30	27.57	46.02	-18.45	0-360	100	V

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

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

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

RESULTS

6 WORST EMISSIONS

Line-L1 .15 - 30MHz

Trace Markers

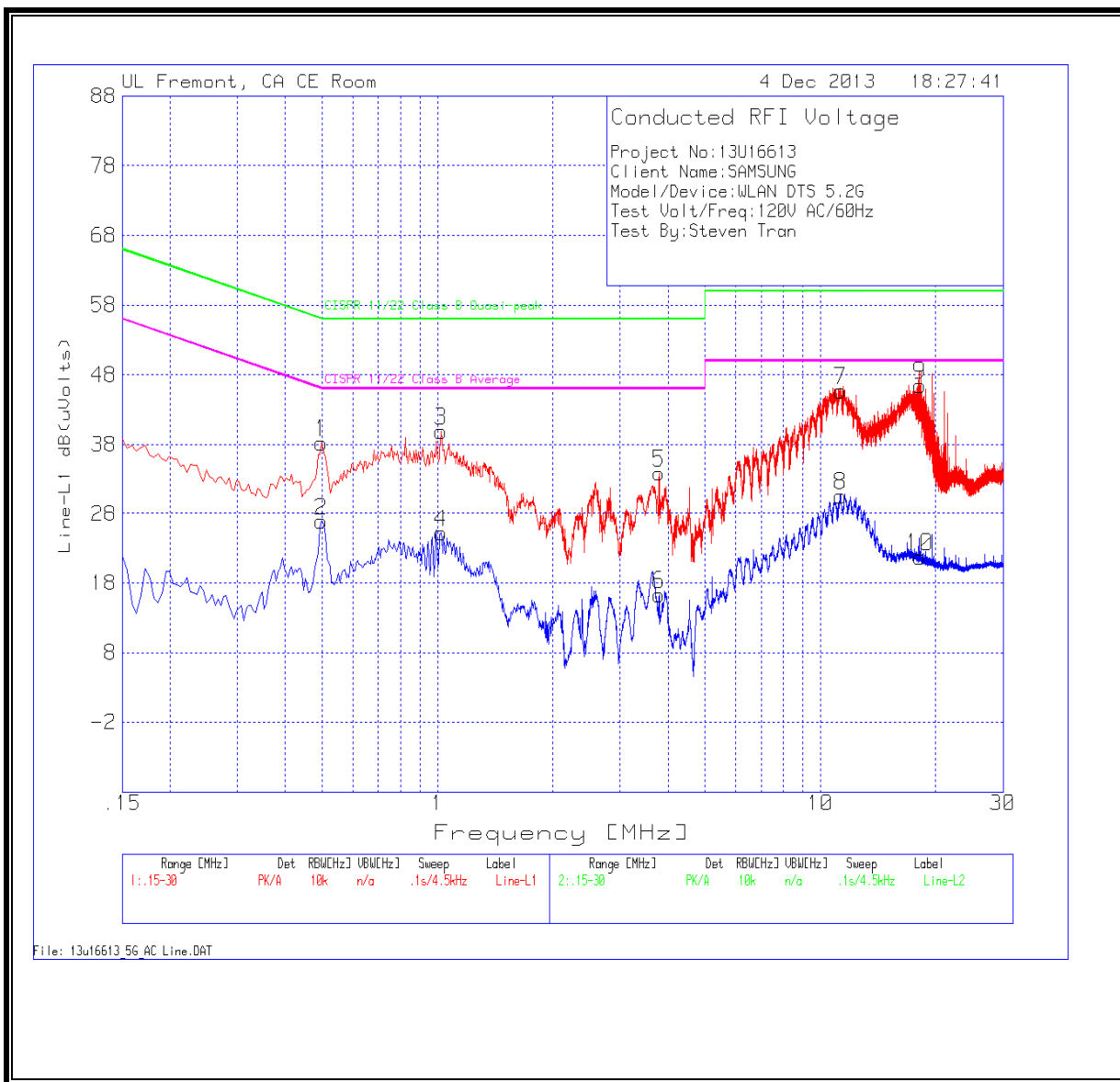
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
1	.4965	38.16	PK	.1	0	38.26	56.1	-17.84	-	-
2	.4965	26.84	Av	.1	0	26.94	-	-	46.1	-19.16
3	1.023	39.77	PK	.1	0	39.87	56	-16.13	-	-
4	1.023	25.16	Av	.1	0	25.26	-	-	46	-20.74
5	3.7905	33.71	PK	.1	.1	33.91	56	-22.09	-	-
6	3.7905	16.1	Av	.1	.1	16.3	-	-	46	-29.7
7	11.283	45.38	PK	.1	.2	45.68	60	-14.32	-	-
8	11.283	30.32	Av	.1	.2	30.62	-	-	50	-19.38
9	18.222	46.05	PK	.2	.2	46.45	60	-13.55	-	-
10	18.222	21.33	Av	.2	.2	21.73	-	-	50	-28.27

Line-L2 .15 - 30MHz

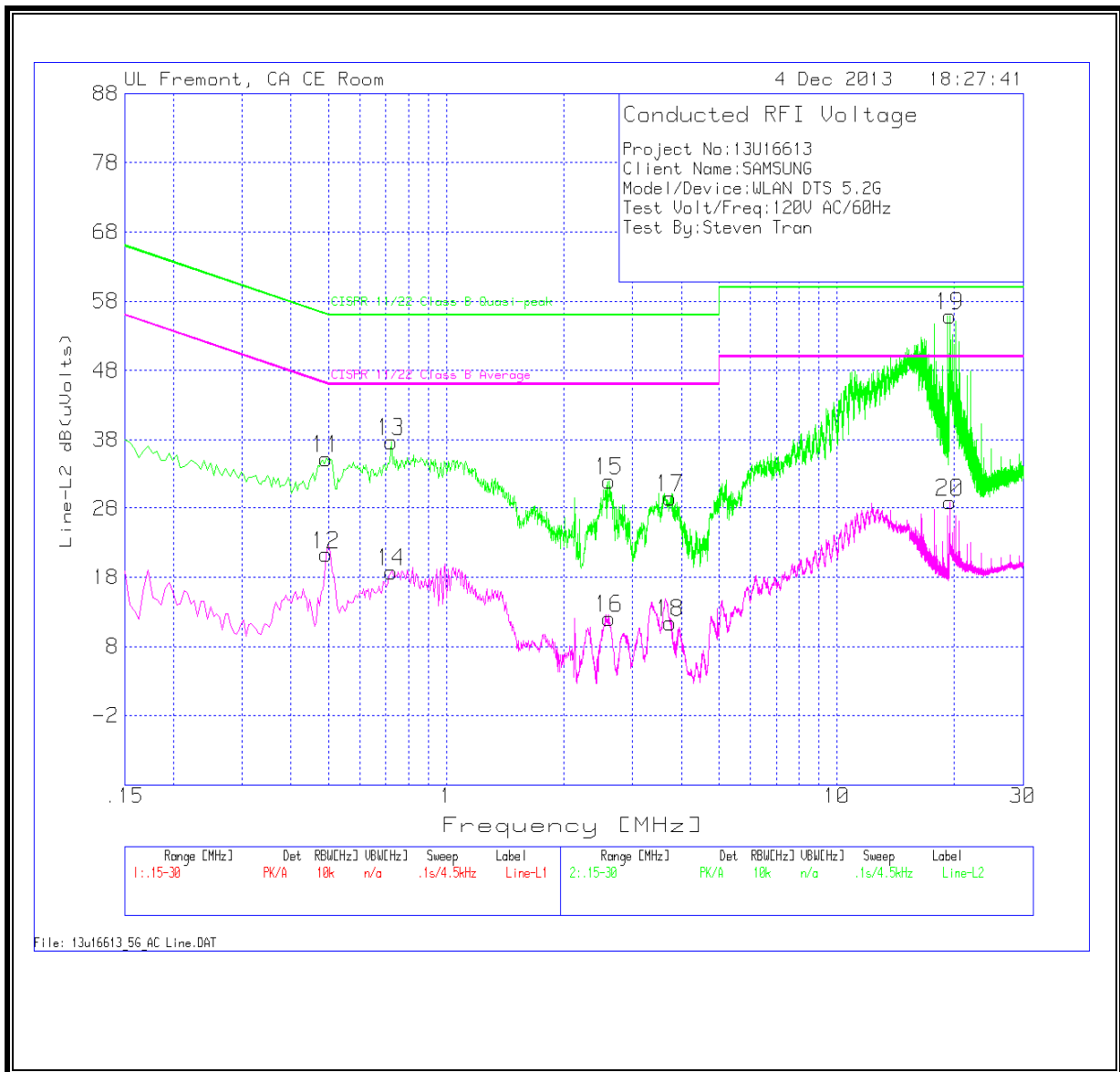
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dB(uVolts)	CISPR 11/22 Class B Quasi-peak	Margin to Limit (dB)	CISPR 11/22 Class B Average	Margin to Limit (dB)
11	.492	35.14	PK	.1	0	35.24	56.1	-20.86	-	-
12	.492	21.18	Av	.1	0	21.28	-	-	46.1	-24.82
13	.7215	37.67	PK	.1	0	37.77	56	-18.23	-	-
14	.7215	18.67	Av	.1	0	18.77	-	-	46	-27.23
15	2.6115	31.84	PK	.1	.1	32.04	56	-23.96	-	-
16	2.6115	11.84	Av	.1	.1	12.04	-	-	46	-33.96
17	3.741	29.39	PK	.1	.1	29.59	56	-26.41	-	-
18	3.741	11.22	Av	.1	.1	11.42	-	-	46	-34.58
19	19.482	55.34	PK	.3	.2	55.84	60	-4.16	-	-
20	19.482	28.46	Av	.3	.2	28.96	-	-	50	-21.04

LINE 1 RESULTS



LINE 2 RESULTS



14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

INDUSTRY CANADA

IC RSS-210 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-210 Issue 7 A9.4 (b) (ii) **Channel Availability Check Time:** ...

Additional requirements for the band 5600-5650 MHz: Until further notice, devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected.

FCC

§15.407 (h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
The instant that the <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> begins is as follows: For the Short pulse radar Test Signals this instant is the end of the <i>Burst</i>. For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated. For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission. The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

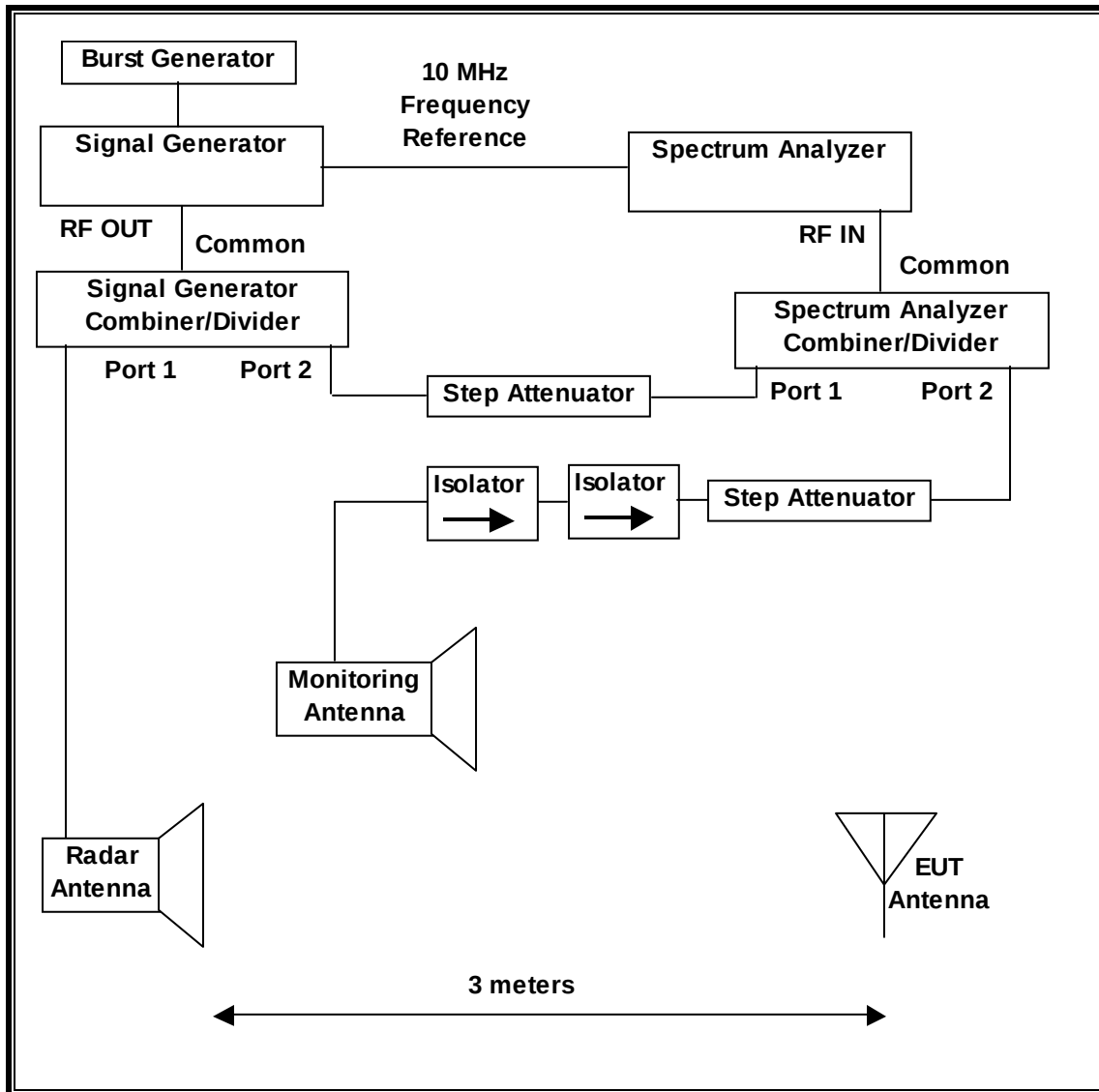
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (μsec)	PRI (μsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

14.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

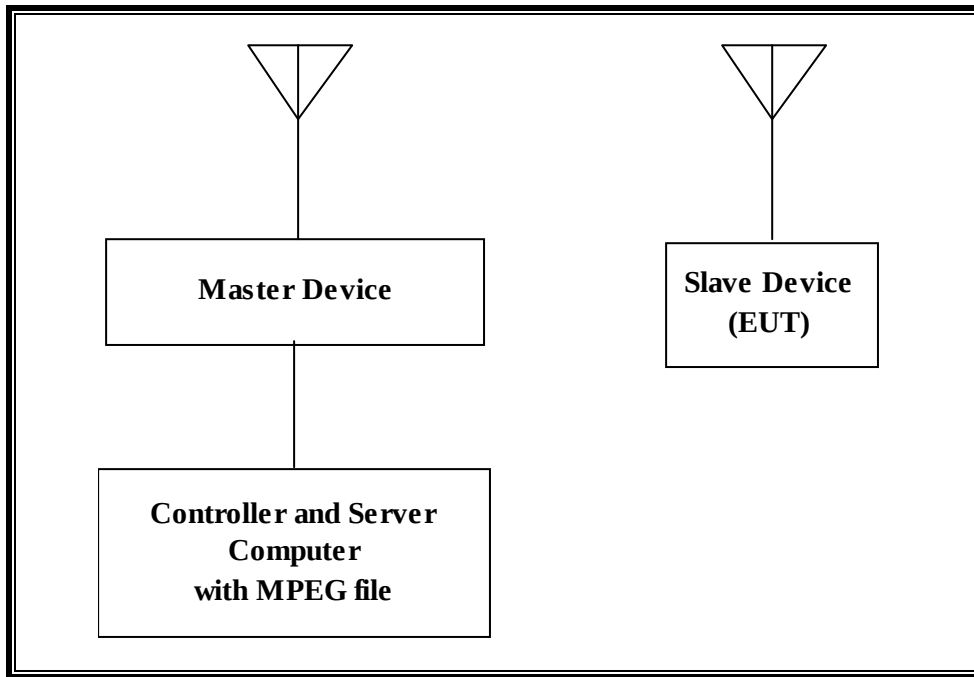
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset Number	Cal Due
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	09/10/14
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	09/12/14

14.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Wireless Access Point	Cisco	AIR-AP1252AG-A-K9	FTX120690N2	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH112490BD	DoC
Notebook PC (Controller/Server)	Dell	PP18L	10657517725	DoC
AC Adapter (Controller/Server PC)	Dell	LA65SN0-00	CN-ODF263-71615-6AU-1019	DoC

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

The EUT is a Slave Device without radar detection capability.

The highest power level within these bands is 14.65 dBm EIRP in the 5250-5350 MHz band and 15.68 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain of 1.61 dBi in the 5250-5350 MHz band and 2.09 dBi in the 5470-5725 MHz band.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63$ dBm.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests.

WLAN traffic is generated by streaming the video file TestFile.mp2 "6 ½ Magic Hours" from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11ac architecture. Three nominal channel bandwidths are implemented: 20 MHz, 40 MHz and 80 MHz.

The software installed in the access point is version G710S.001.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102061. The minimum antenna gain for the Master Device is 3.5 dBi.

The rated output power of the Master unit is $> 23\text{dBm}$ (EIRP). Therefore the required interference threshold level is -64 dBm . After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63\text{ dBm}$.

The calibrated radiated DFS Detection Threshold level is set to -64 dBm . The tested level is lower than the required level hence it provides margin to the limit.

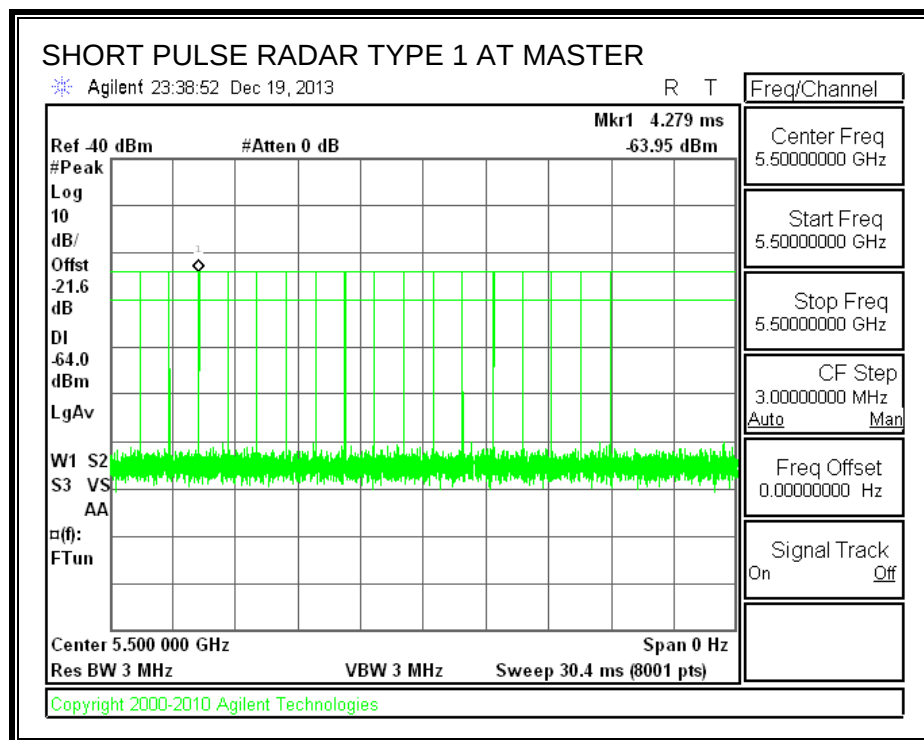
14.2. RESULTS FOR 20 MHz BANDWIDTH

14.2.1. TEST CHANNEL

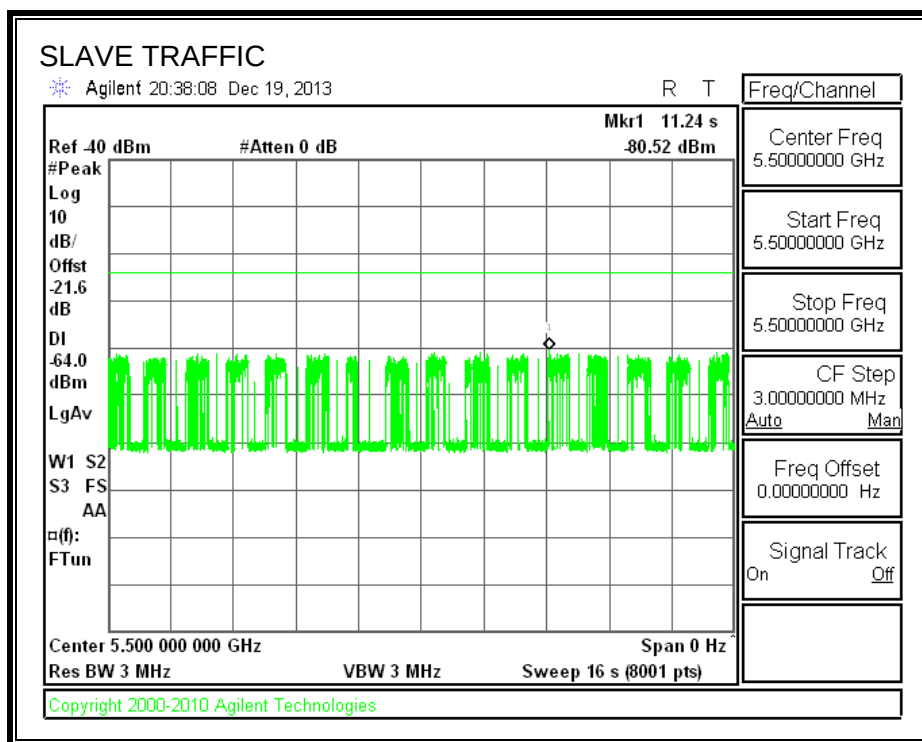
All tests were performed at a channel center frequency of 5500 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

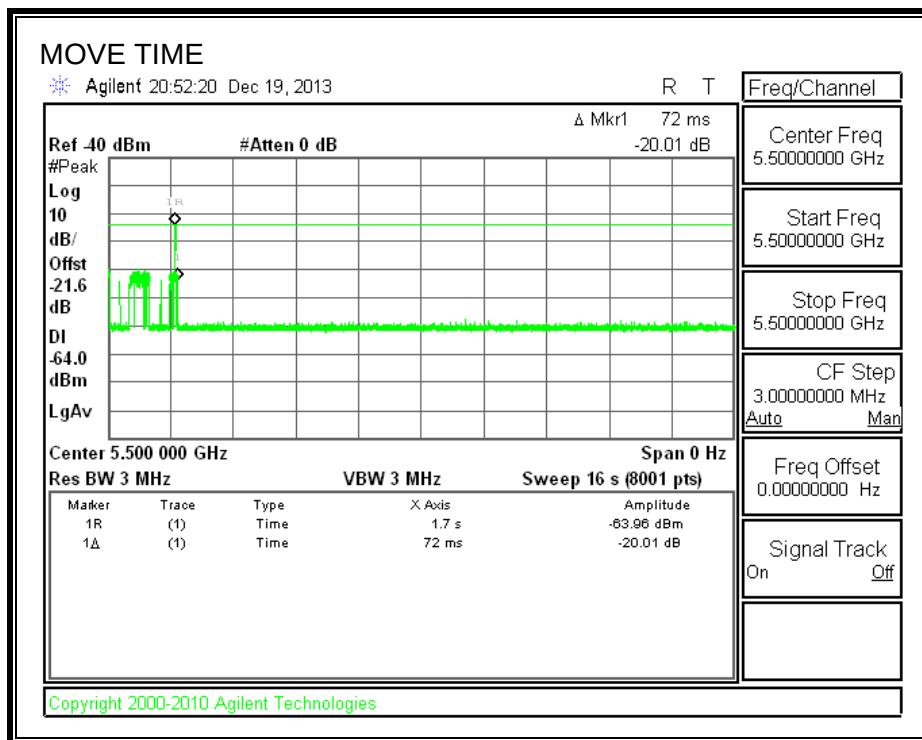
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

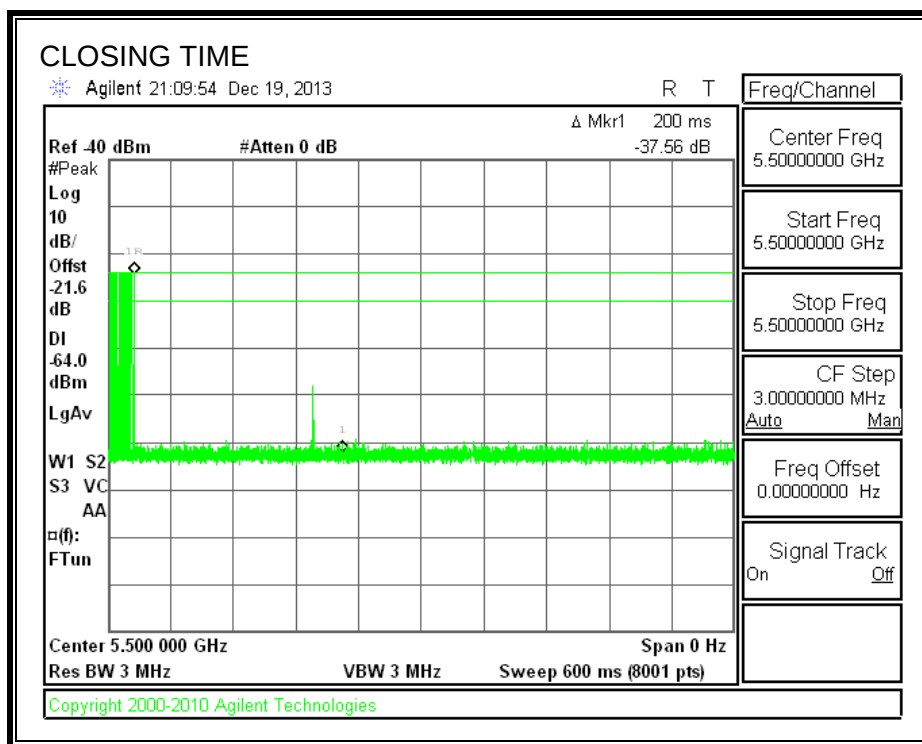
Channel Move Time (sec)	Limit (sec)
0.072	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

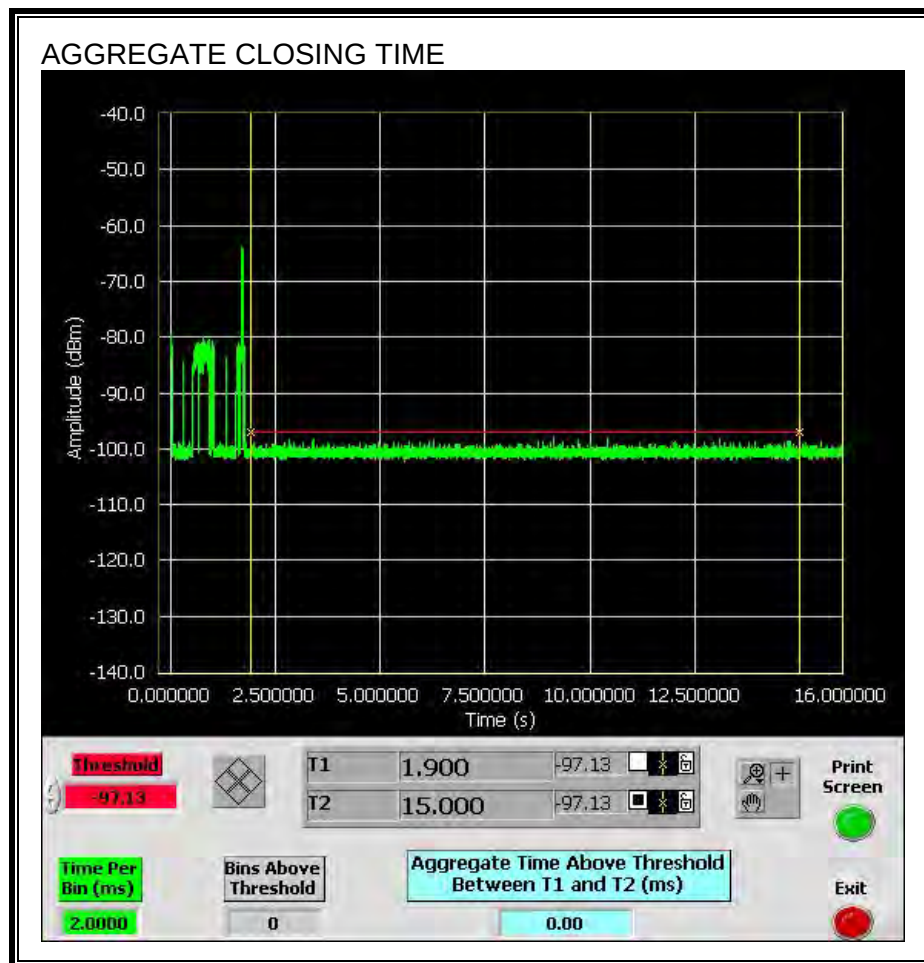


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



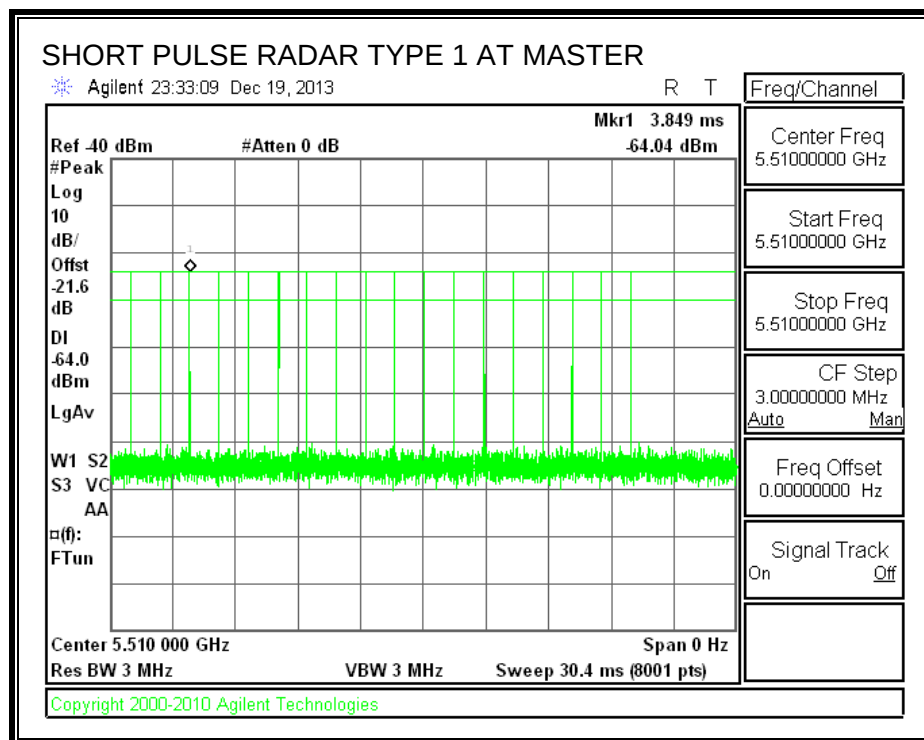
14.3. RESULTS FOR 40 MHz BANDWIDTH

14.3.1. TEST CHANNEL

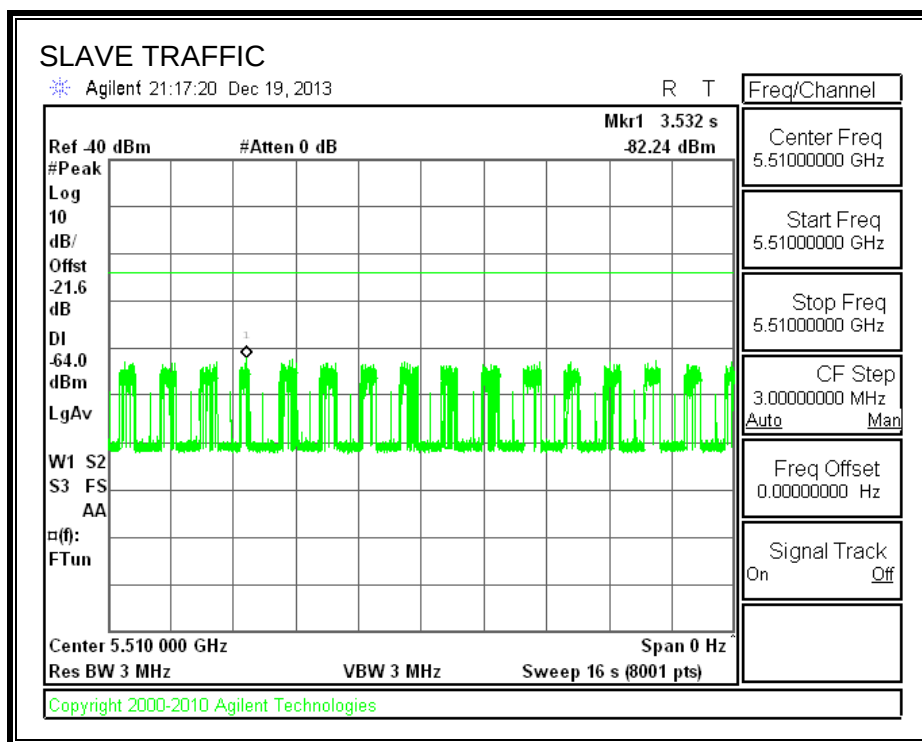
All tests were performed at a channel center frequency of 5510 MHz.

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



14.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

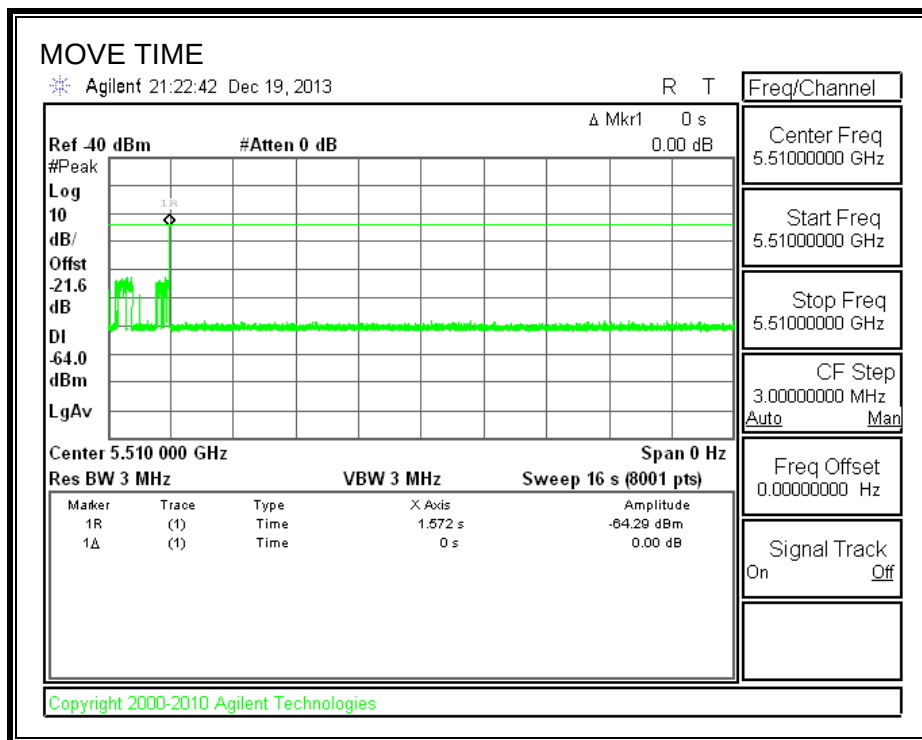
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

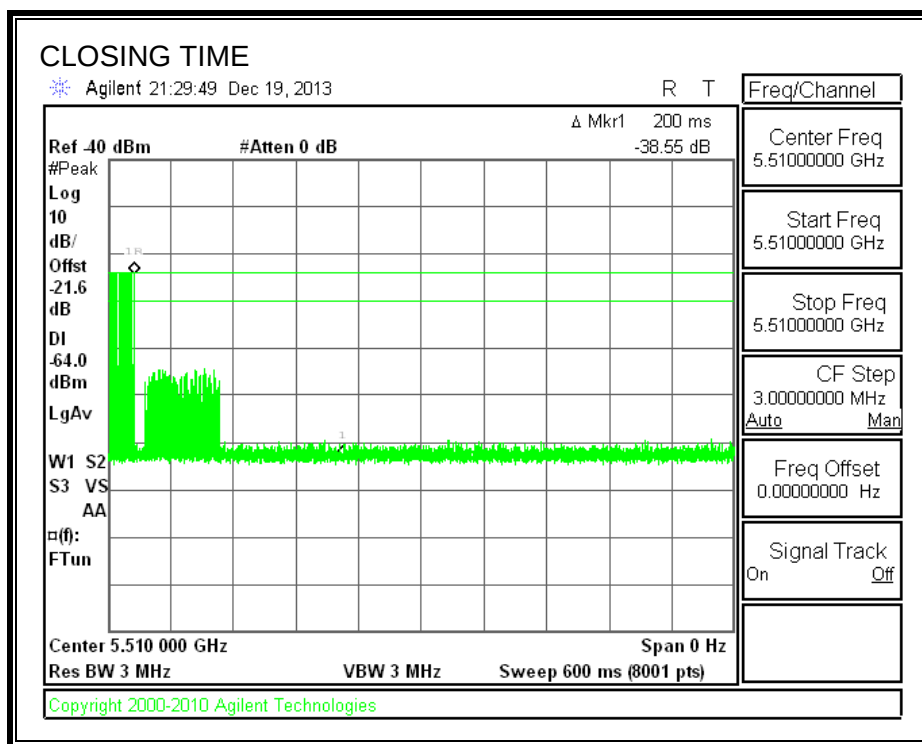
Channel Move Time (sec)	Limit (sec)
0.000	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

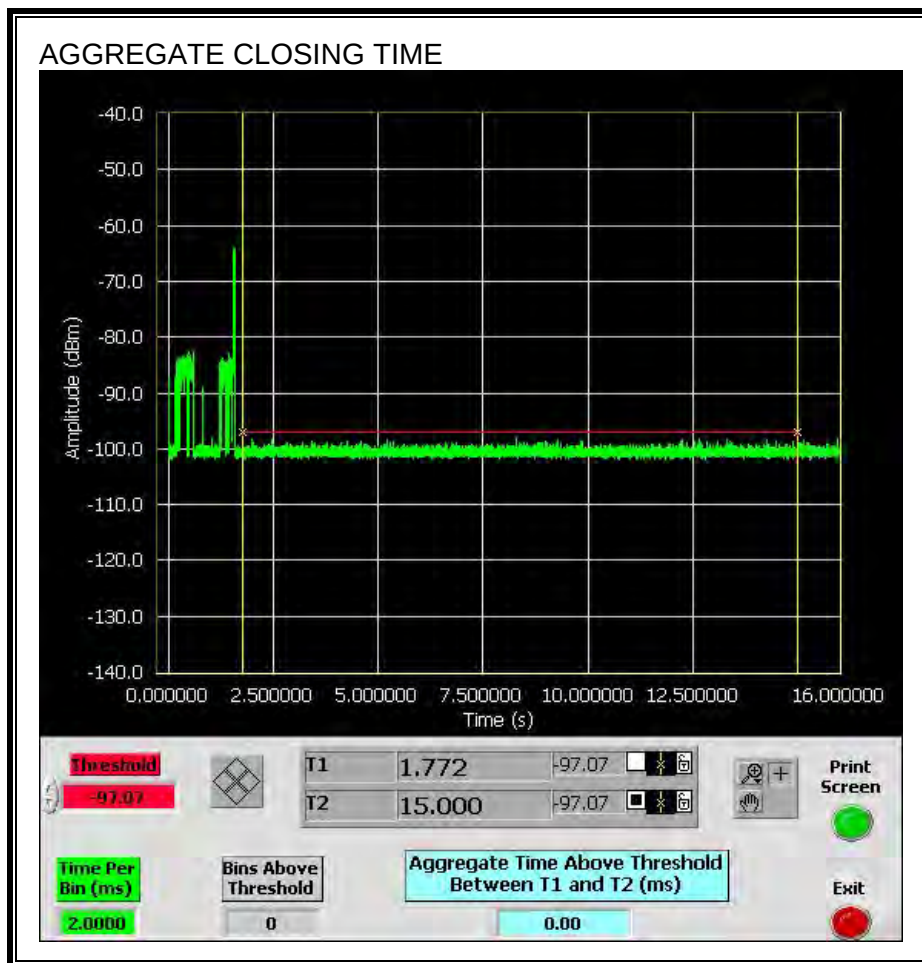


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



14.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

