



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth, WLAN 2.4GHz b/g/n & ANT+

MODEL NUMBER: SM-A3000

FCC ID: A3LSMA3000

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth, WLAN 2.4GHz b/g/n & ANT+
MODEL: SM-A3000
SERIAL NUMBER: FL-345-A (RADIATED), FL-345-C (CONDUCTED)
DATE TESTED: AUGUST 28 - SEPTEMBER 5, 2014

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

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

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

Approved & Released

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.4-2009.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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 26000 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 GSM/WCDMA/LTE Phone + Bluetooth, WLAN 2.4GHz b/g/n & ANT+

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	17	50.12
2412 - 2462	802.11g	12.9	19.50
2412 - 2462	802.11n HT20	12.4	17.38

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.85 dBi.

5.4. 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 X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	ETA0U83CBC	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

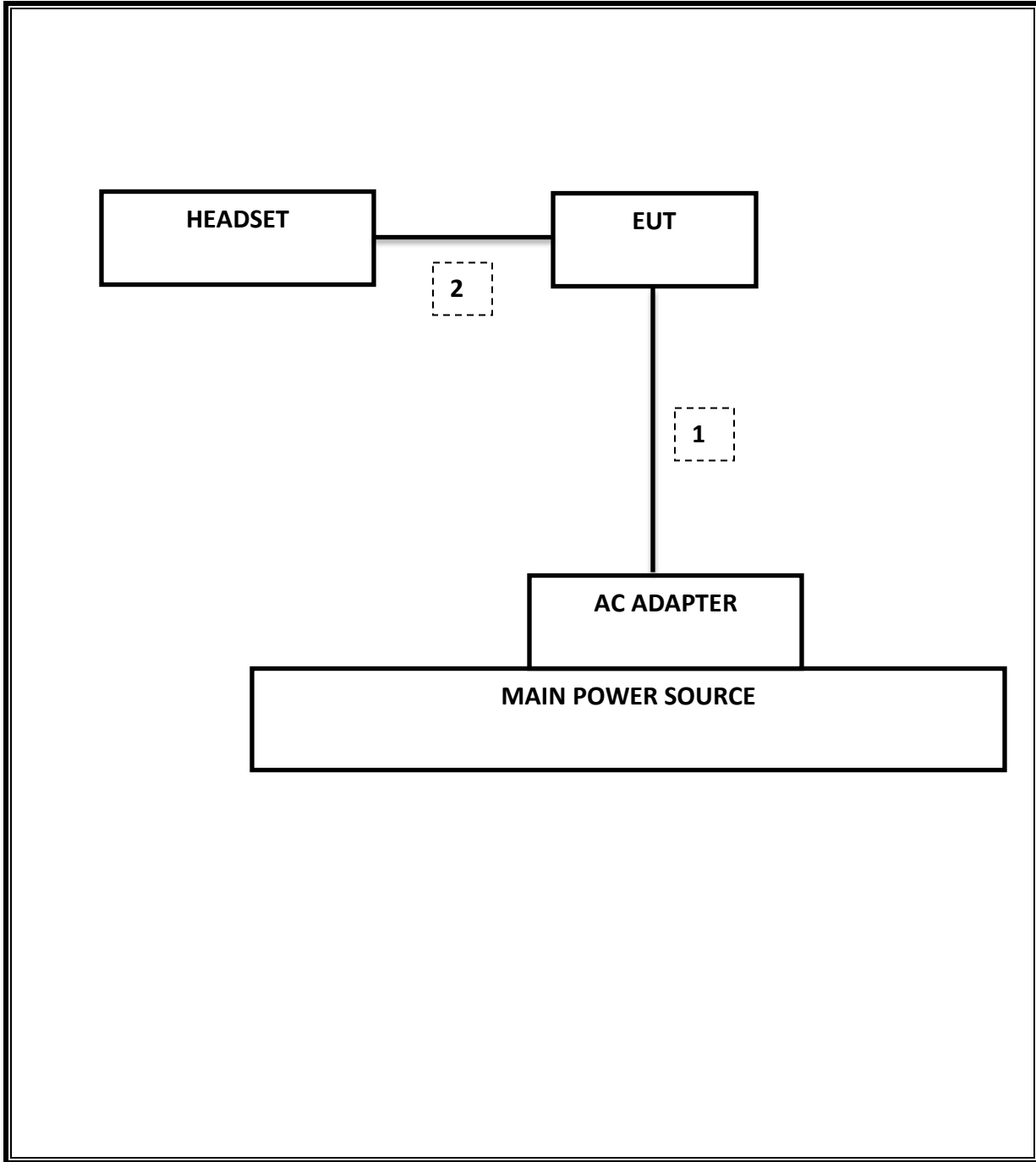
I/O CABLES

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	1m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/14
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/14
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/14
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/15
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02:Measurement Procedure AVGPM-G is used for power and AVGPSD-3 is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	7.63MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-32.61dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	17.0dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-13.07dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	36.60dBuV(AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	53.73dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r02: The transmitter output is connected to a spectrum analyzer with the RBW set to 100kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	7.63	0.5
Mid	2437	8.05	0.5
High	2462	8.03	0.5
Worst		7.63	

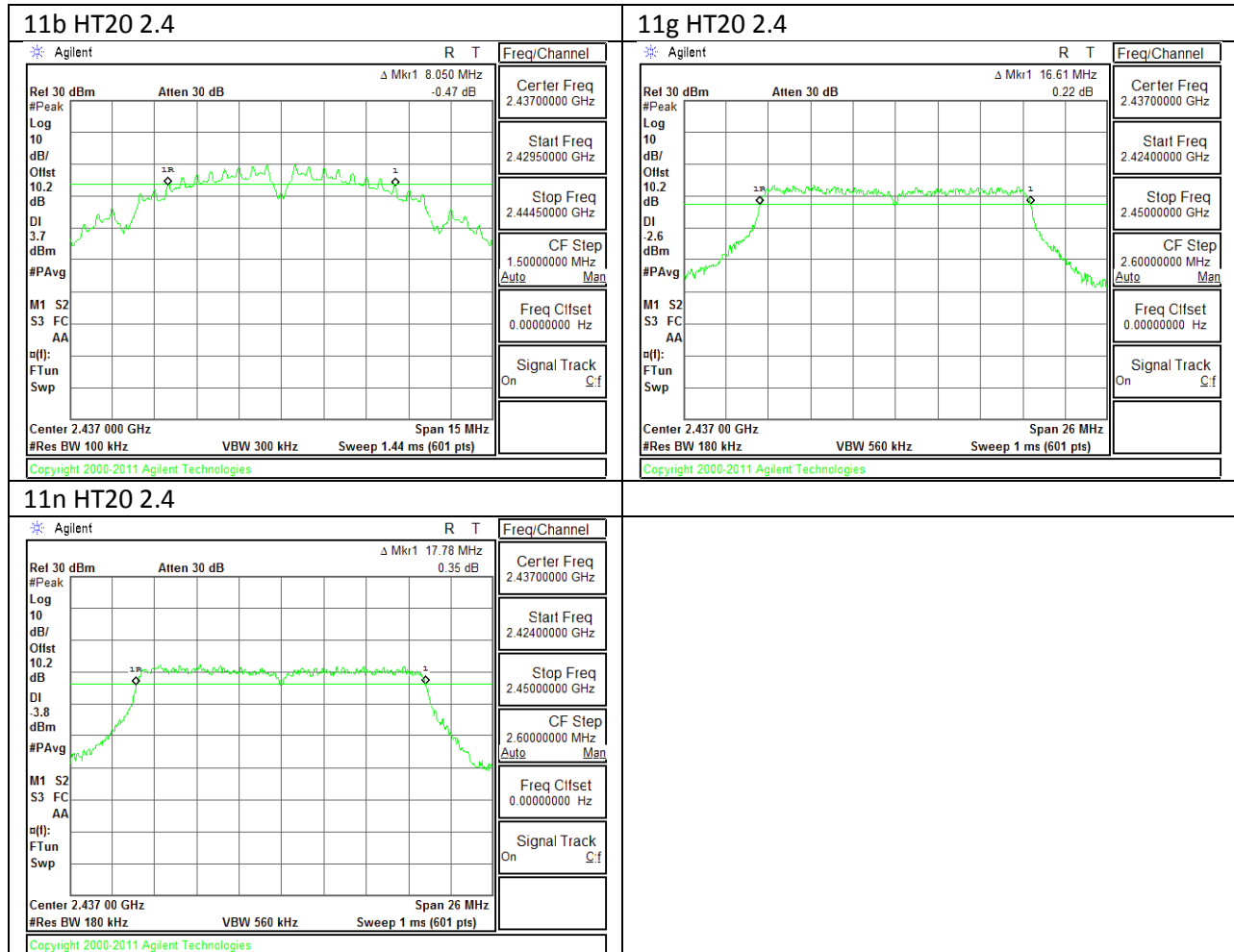
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.48	0.5
Mid	2437	16.61	0.5
High	2462	16.65	0.5
Worst		16.48	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.56	0.5
Mid	2437	17.78	0.5
High	2462	17.74	0.5
Worst		17.56	

9.1.4. 6 dB BANDWIDTH MID CH PLOTS



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	12.17
Mid	2437	12.37
High	2462	12.15
Worst		12.37

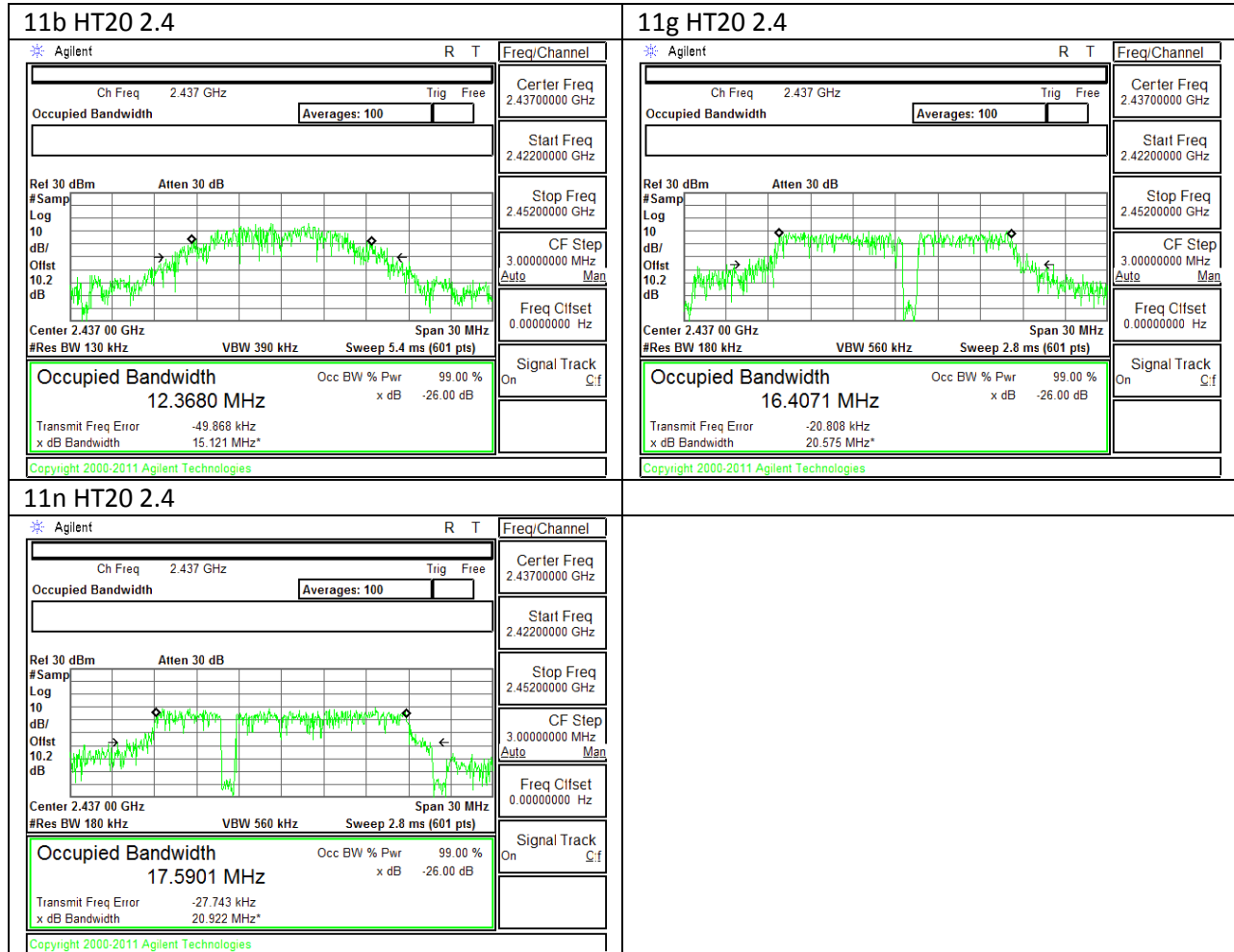
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.41
Mid	2437	16.41
High	2462	16.33
Worst		16.41

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.61
Mid	2437	17.59
High	2462	17.58
Worst		17.61

9.2.4. 99% BANDWIDTH MID CH PLOTS



9.3. OUTPUT POWER

LIMITS

FCC §15.247

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

DIRECTIONAL ANTENNA GAIN

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

TEST PROCEDURE

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure AVGPM-G is used for power.

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 0.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-1.85	30.00	30	36	30.00
Mid	2437	-1.85	30.00	30	36	30.00
High	2462	-1.85	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	16.90	16.90	30.00	-13.10
Mid	2437	16.80	16.80	30.00	-13.20
High	2462	17.00	17.00	30.00	-13.00
Worst			17.00		

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-1.85	30.00	30	36	30.00
Mid	2437	-1.85	30.00	30	36	30.00
High	2462	-1.85	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	13.20	13.20	30.00	-16.80
Mid	2437	12.90	12.90	30.00	-17.10
High	2462	13.40	13.40	30.00	-16.60
Worst			13.40		

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-1.85	30.00	30	36	30.00
Mid	2437	-1.85	30.00	30	36	30.00
High	2462	-1.85	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	11.80	11.80	30.00	-18.20
Mid	2437	11.90	11.90	30.00	-18.10
High	2462	12.40	12.40	30.00	-17.60
Worst			12.40		

9.4. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

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

RESULTS

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.38	8.0	-21.4
Mid	2437	-13.26	8.0	-21.3
High	2462	-13.07	8.0	-21.1

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

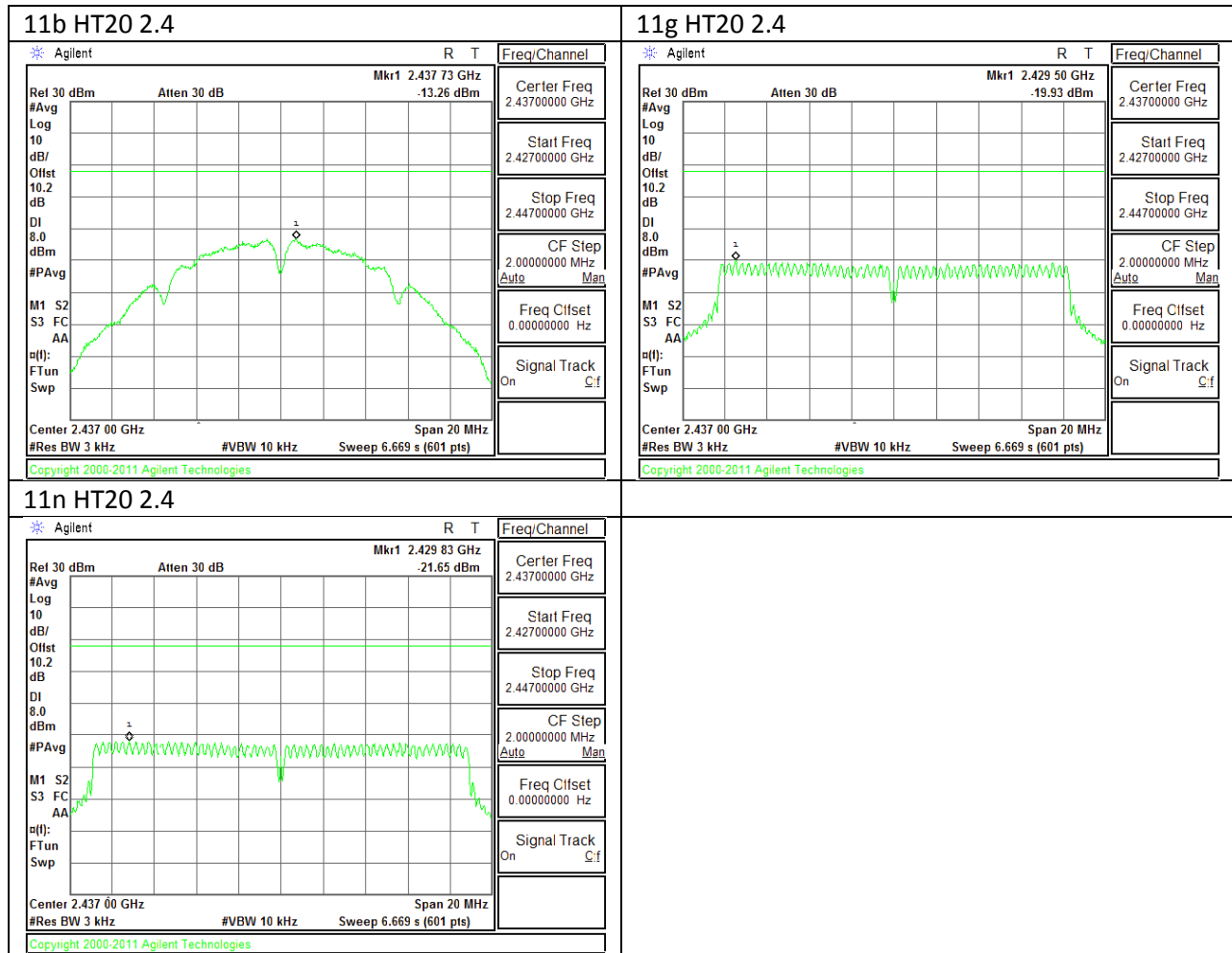
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-20.01	8.0	-28.0
Mid	2437	-19.93	8.0	-27.9
High	2462	-20.65	8.0	-28.7

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-20.86	8.0	-28.9
Mid	2437	-21.65	8.0	-29.7
High	2462	-21.30	8.0	-29.3

9.4.4. PSD Chain 0 MID CH PLOTS



9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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

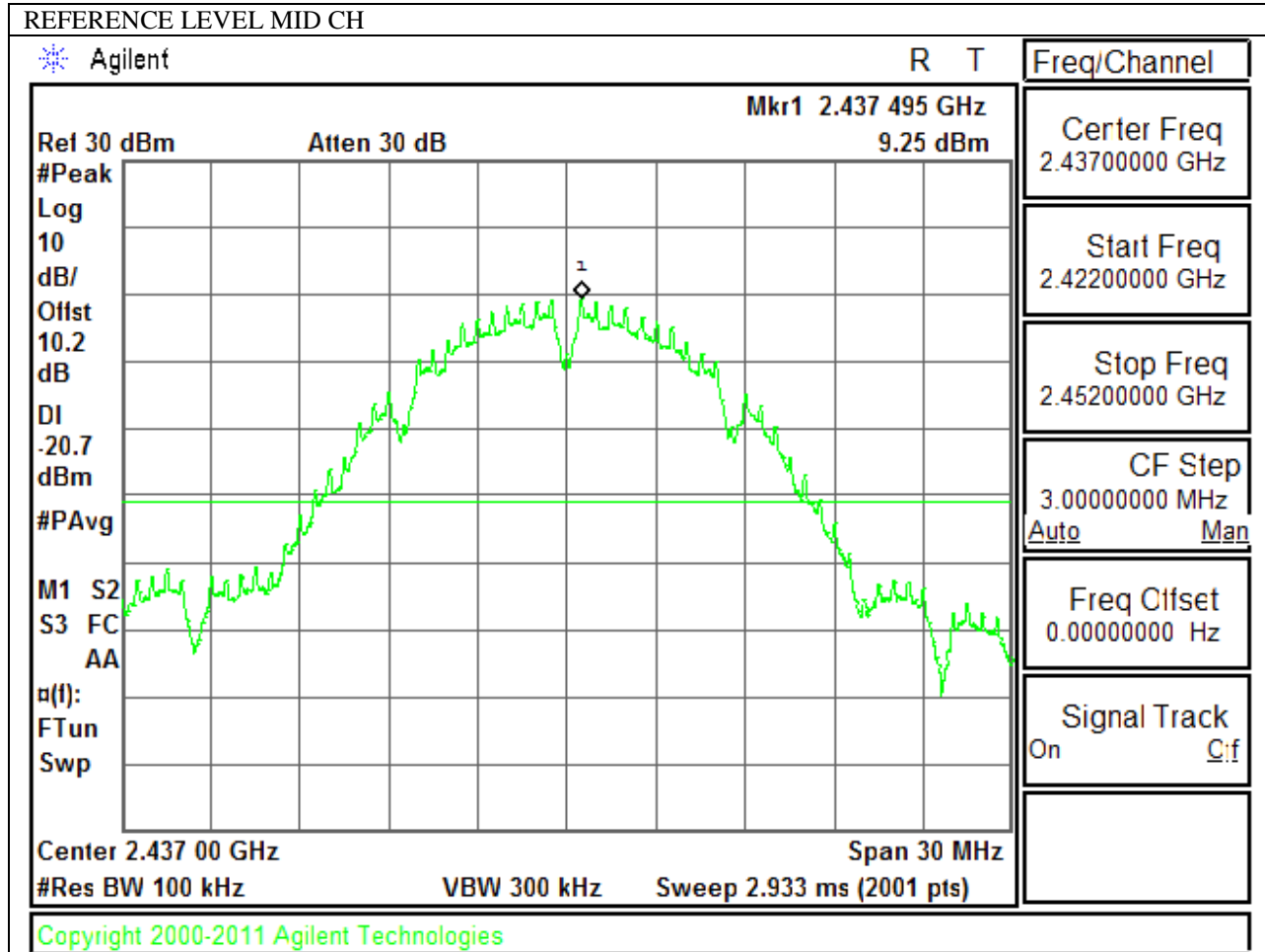
TEST PROCEDURE

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

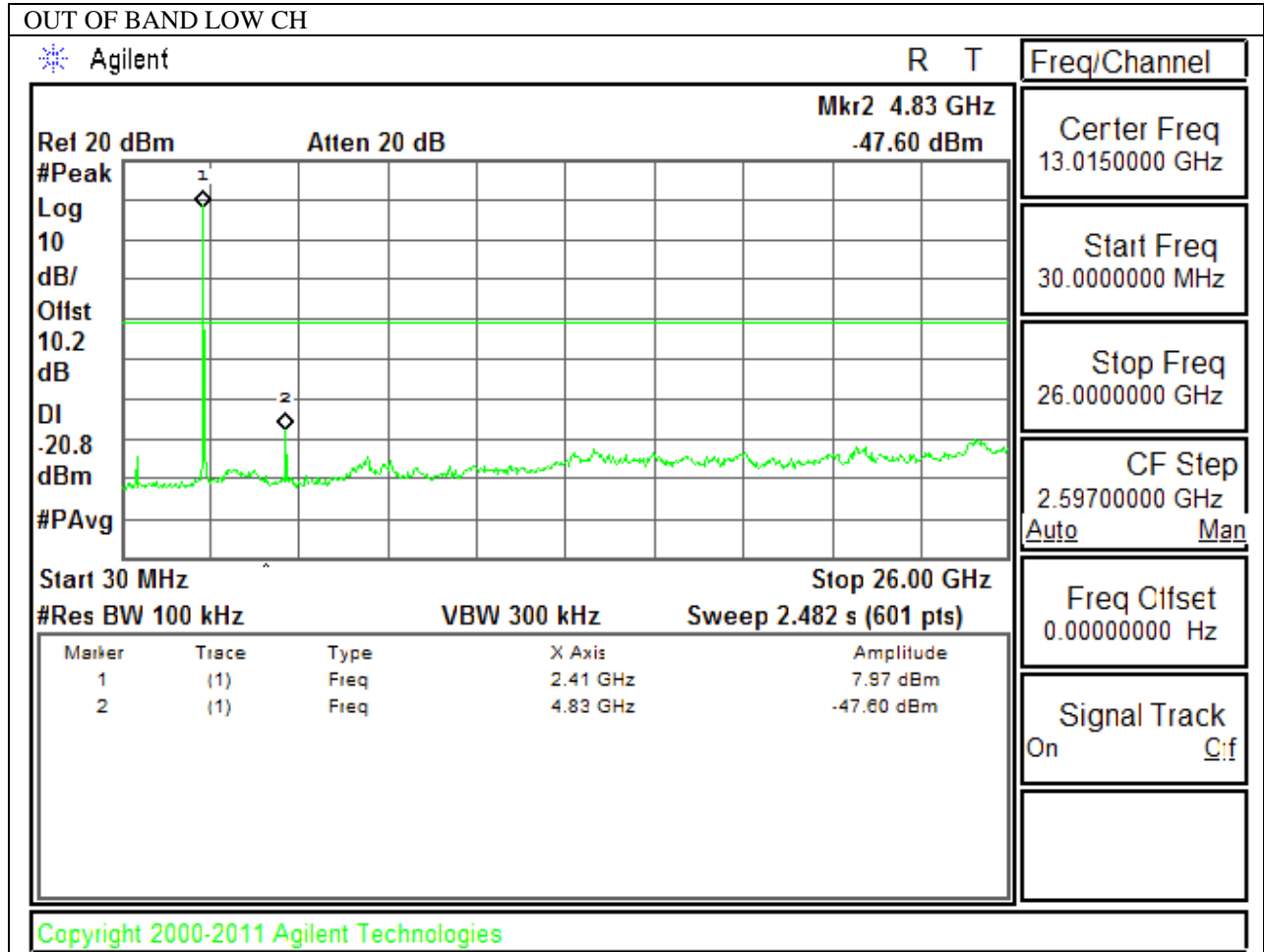
RESULTS

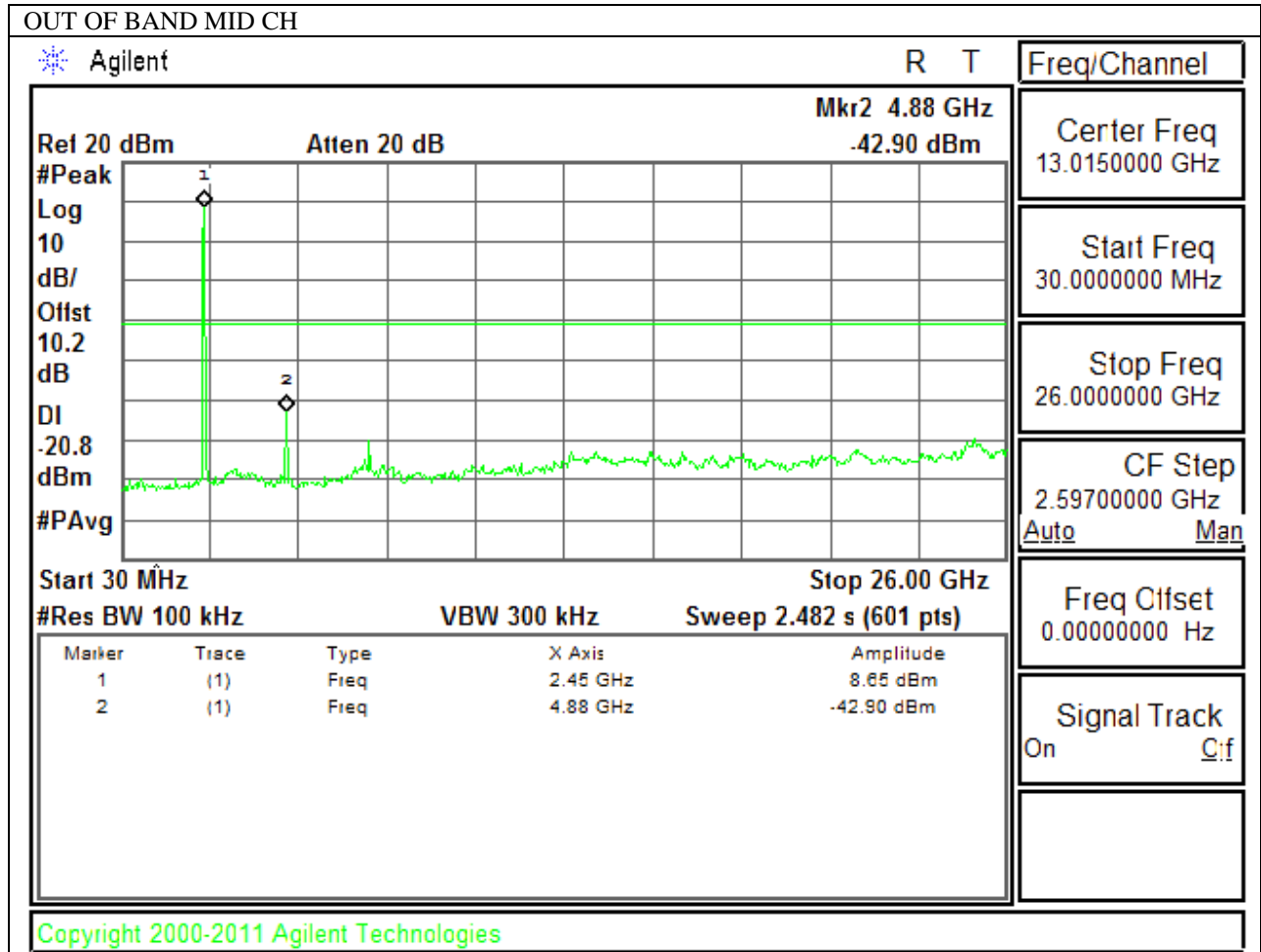
9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

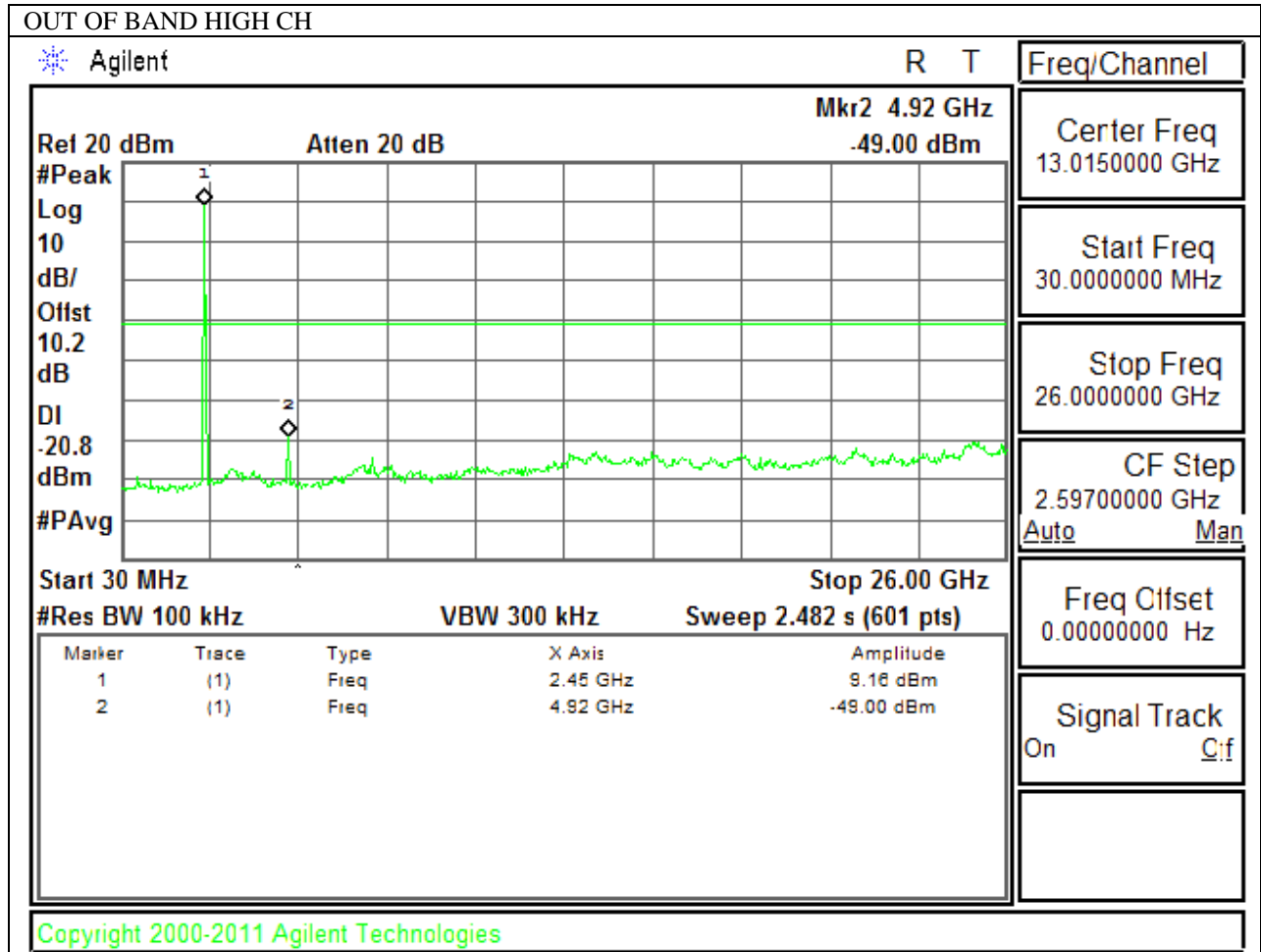
IN-BAND REFERENCE LEVEL



OUT-OF-BAND EMISSIONS

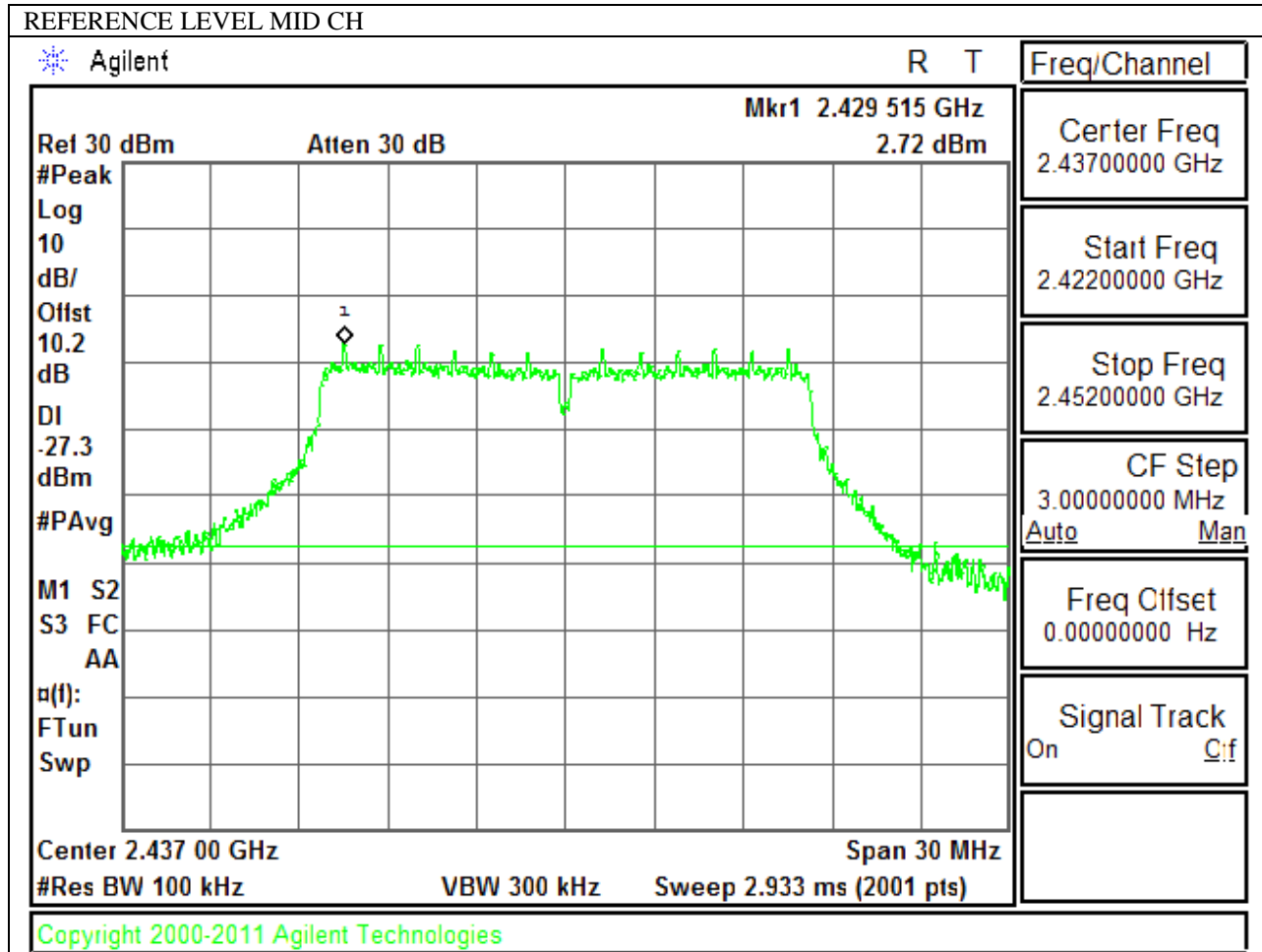




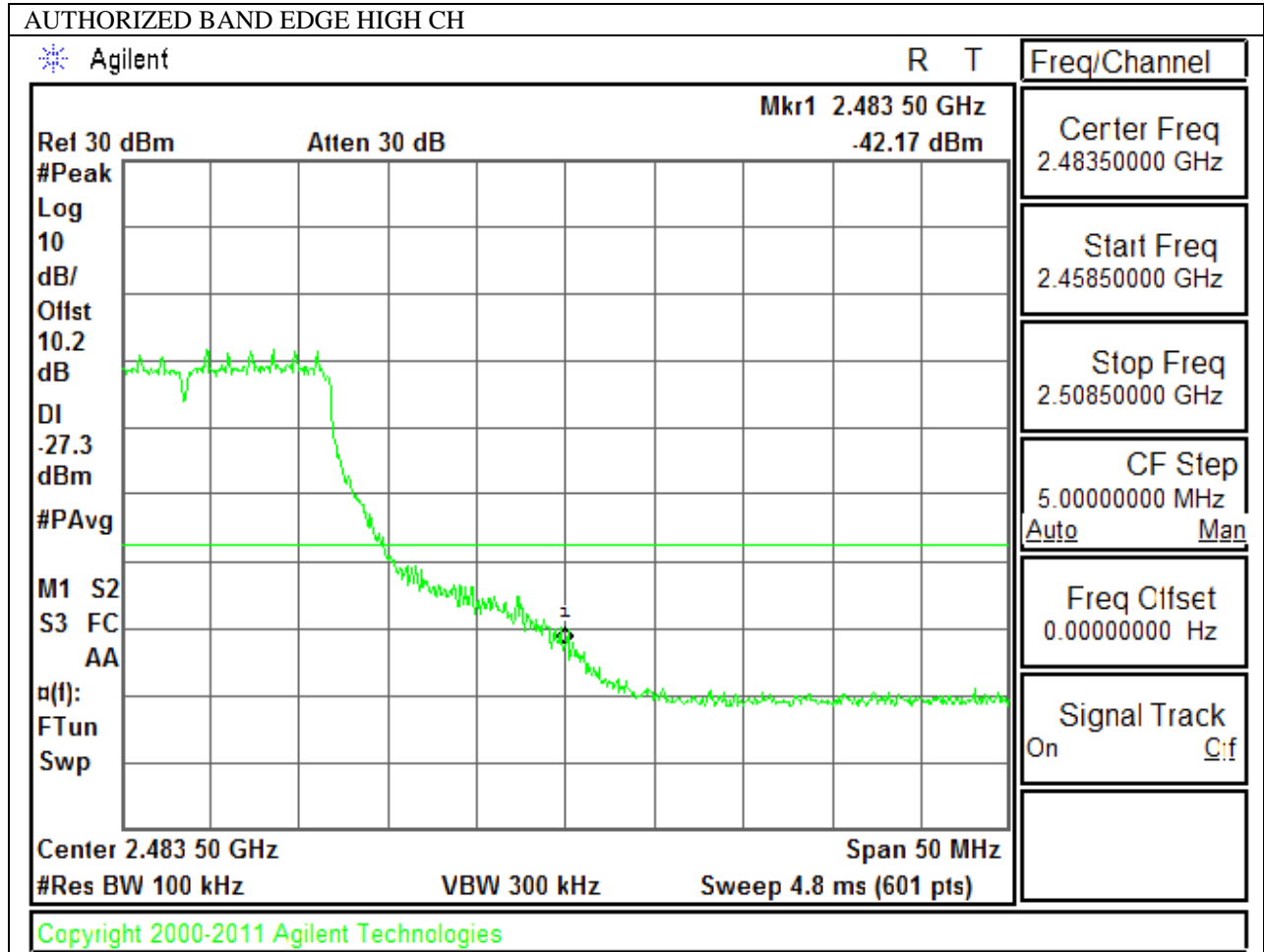


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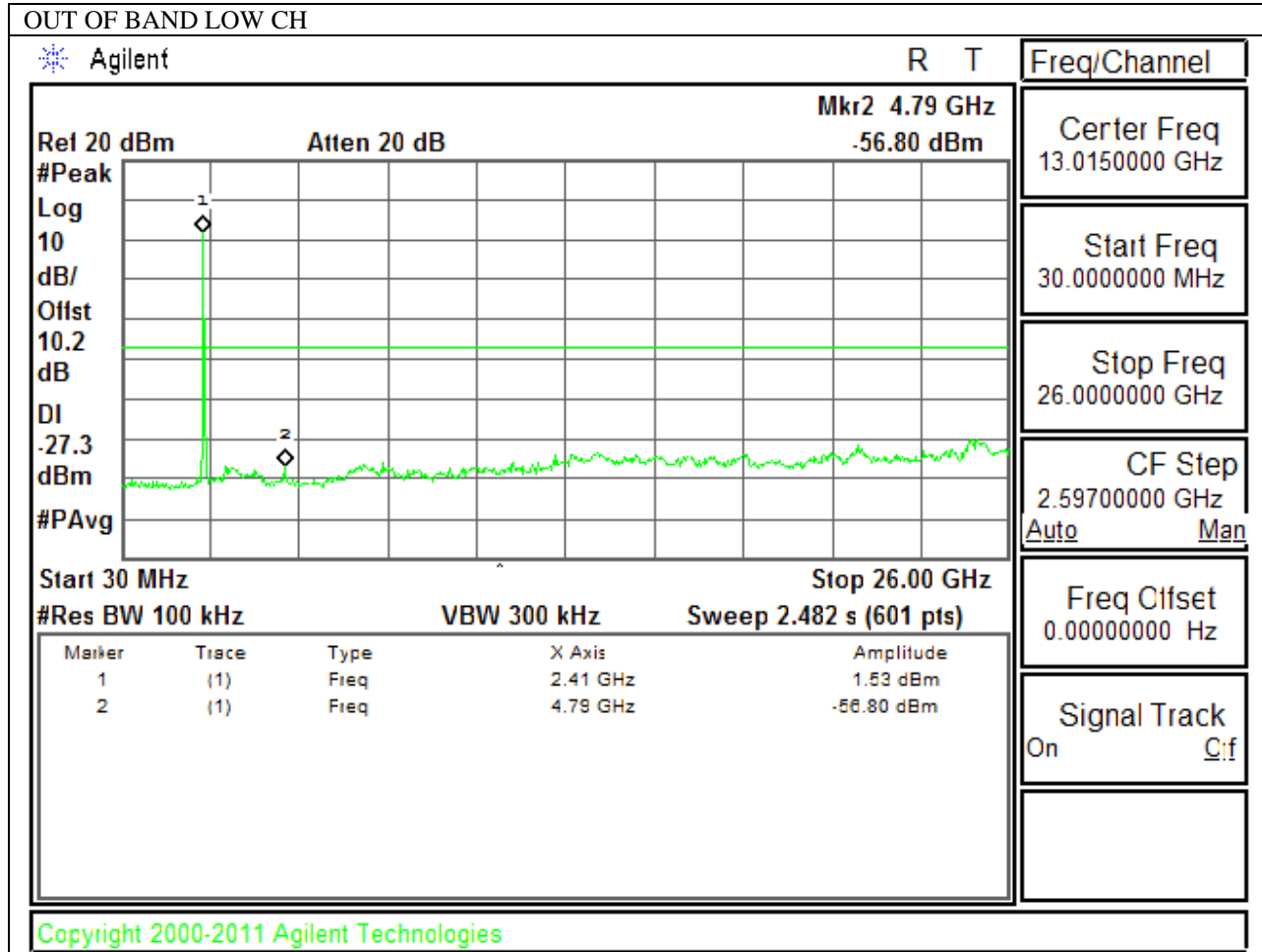
IN-BAND REFERENCE LEVEL

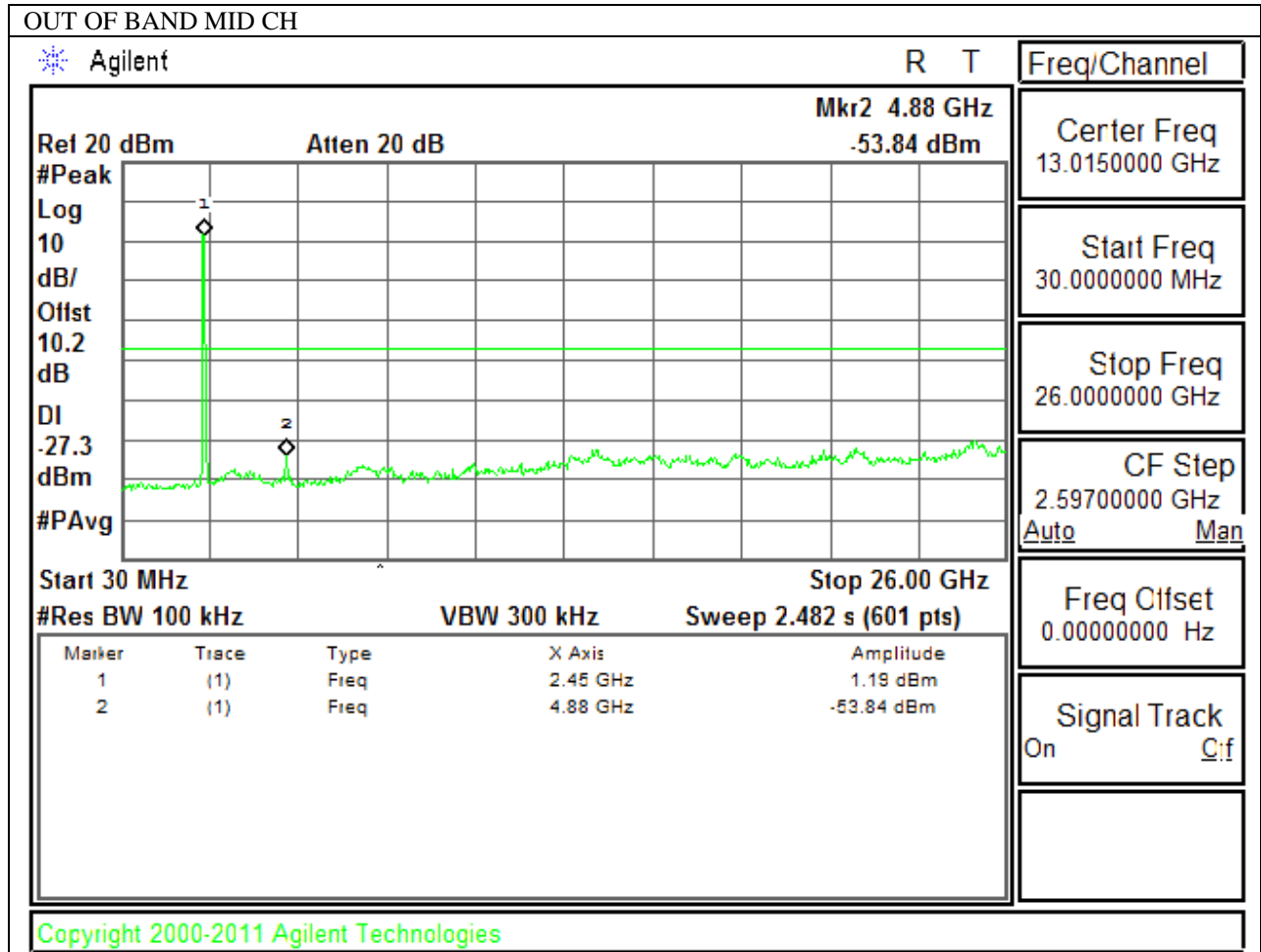


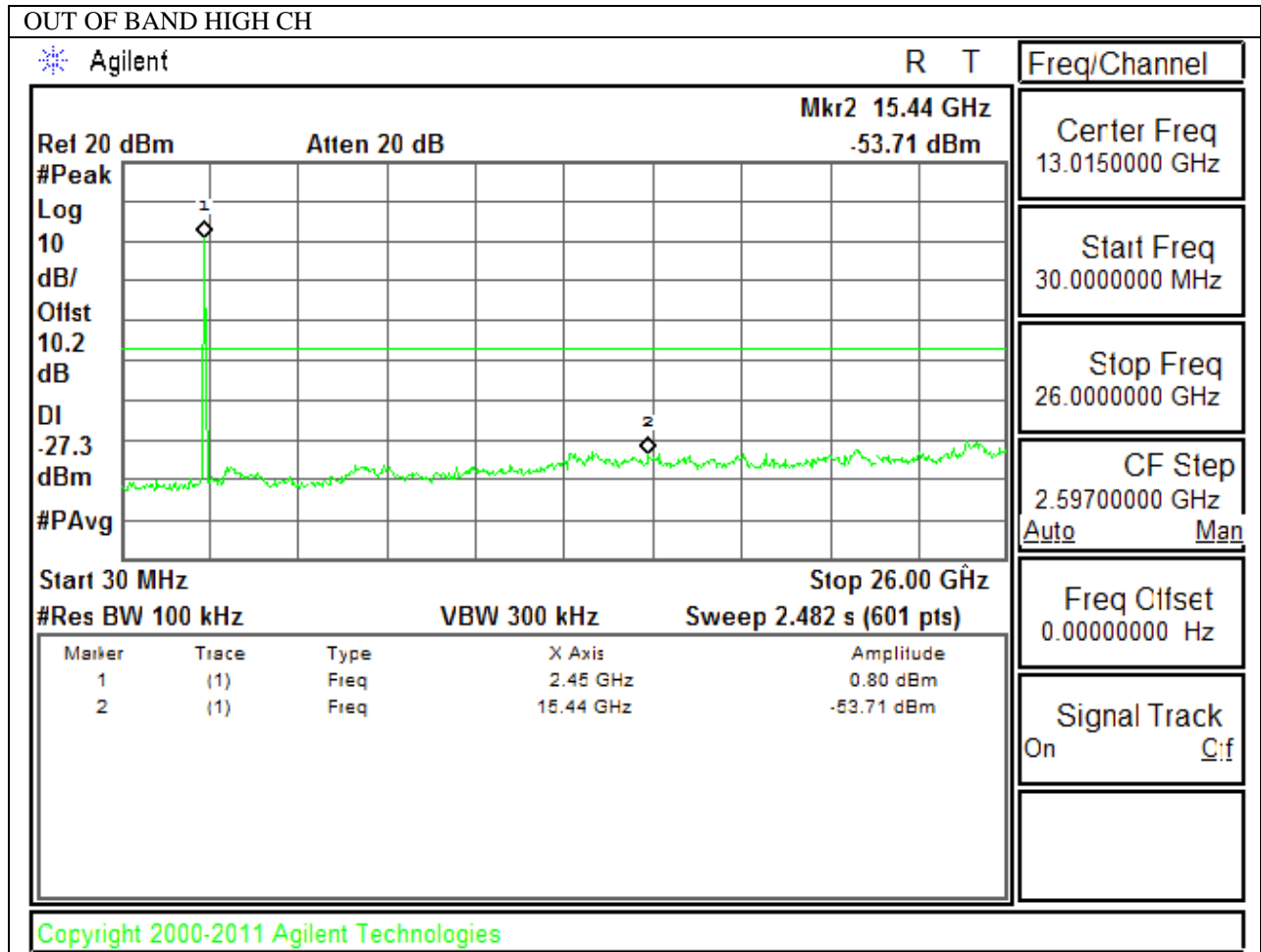
HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS

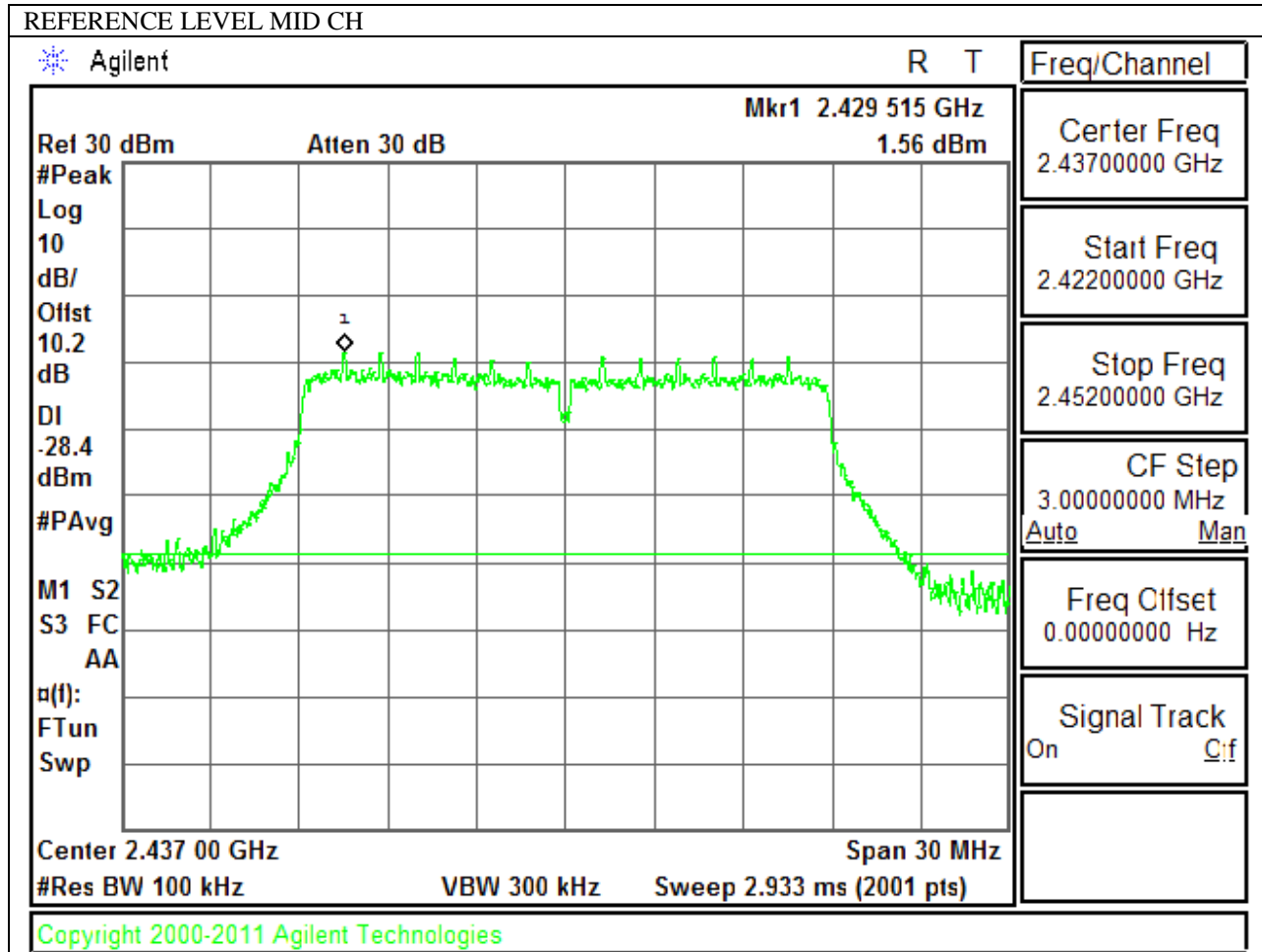




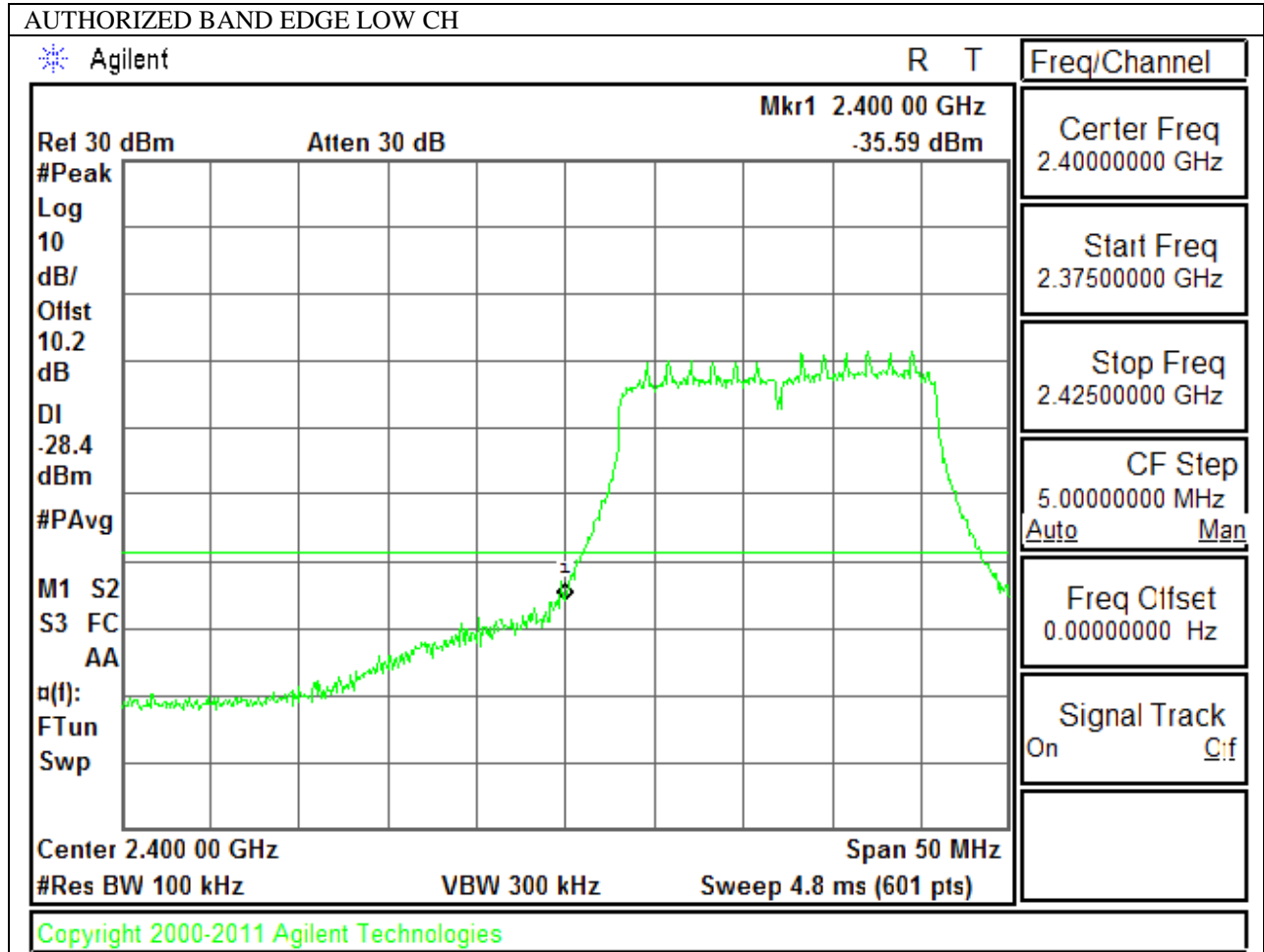


9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

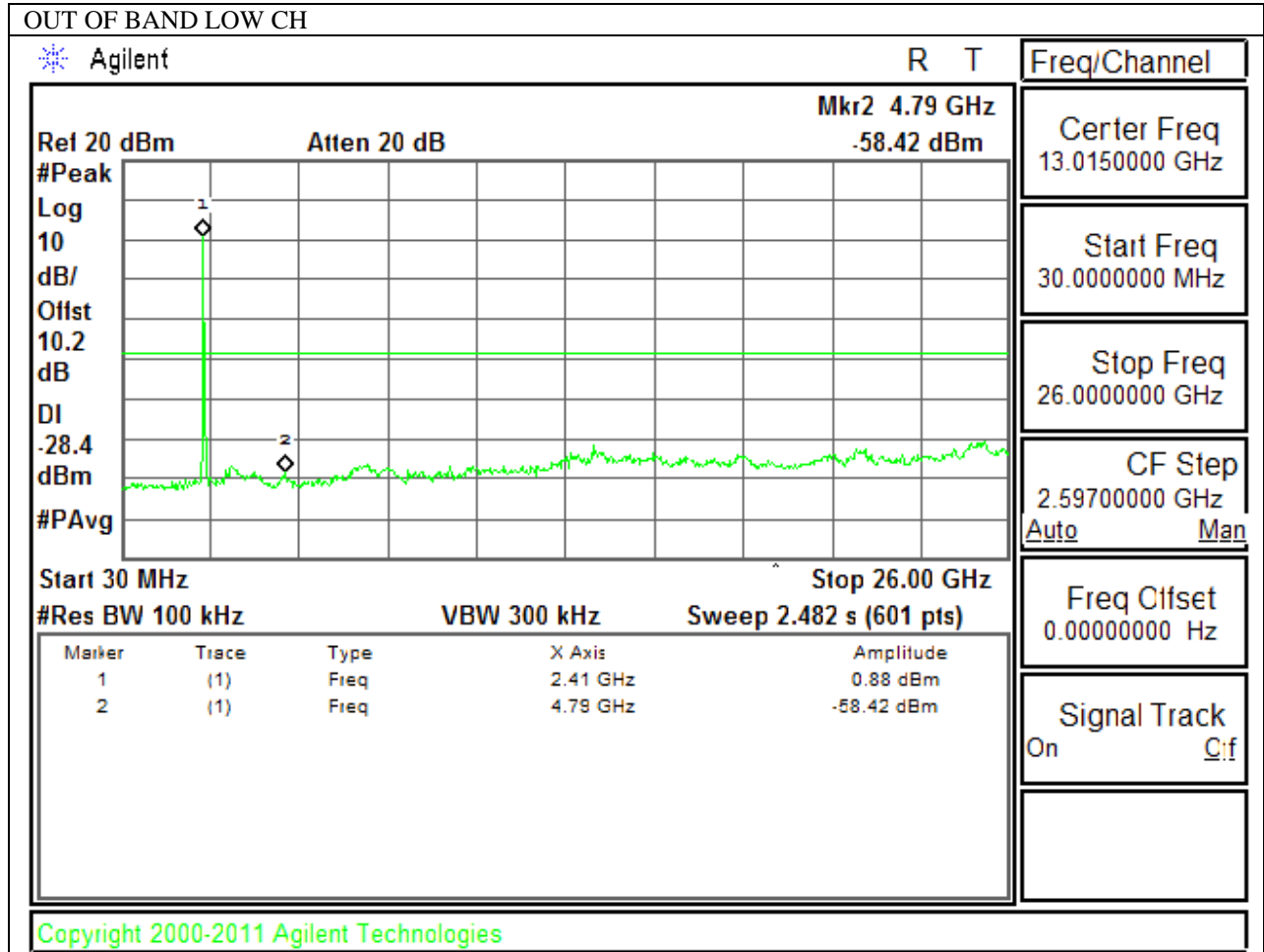
IN-BAND REFERENCE LEVEL

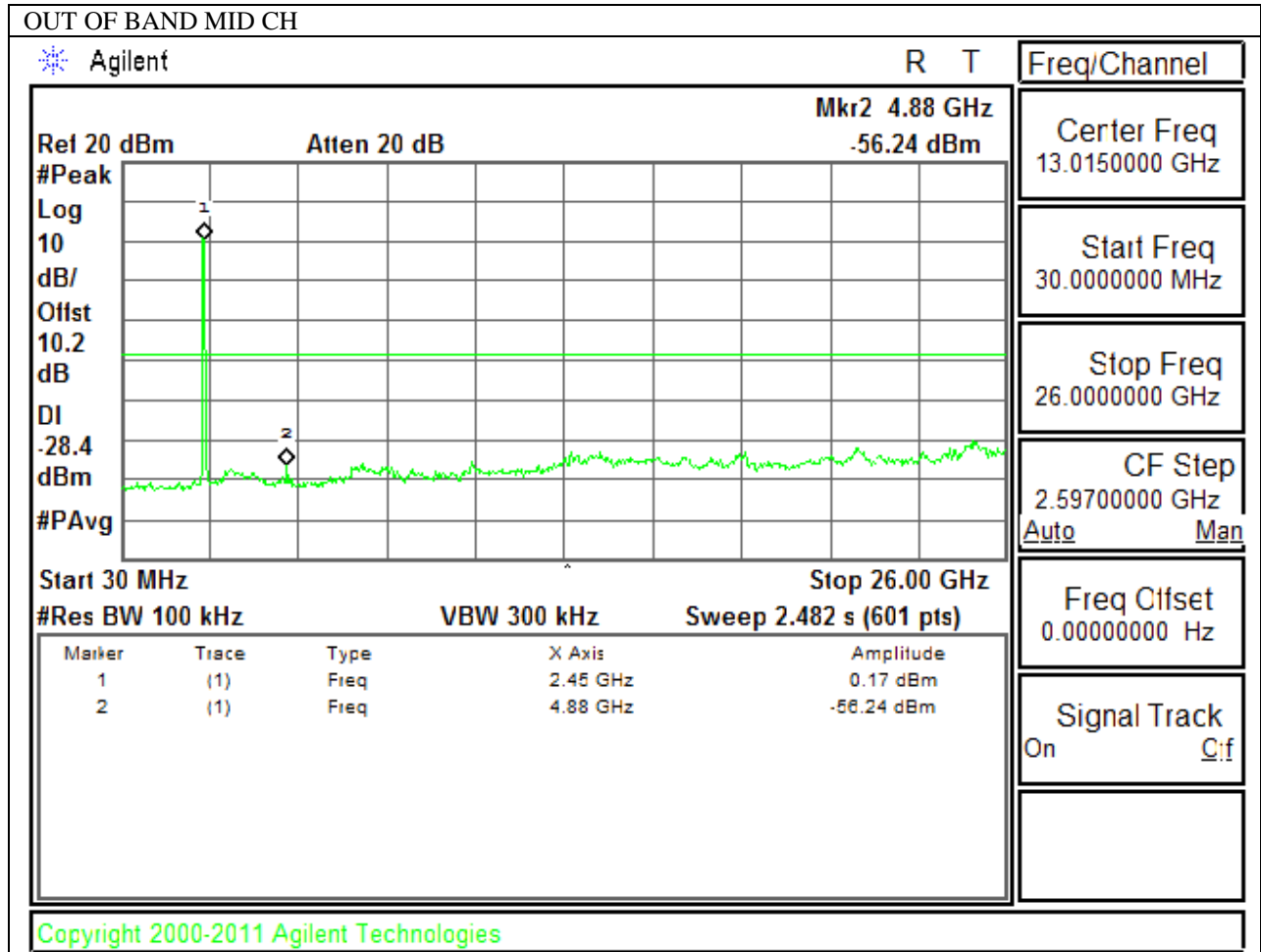


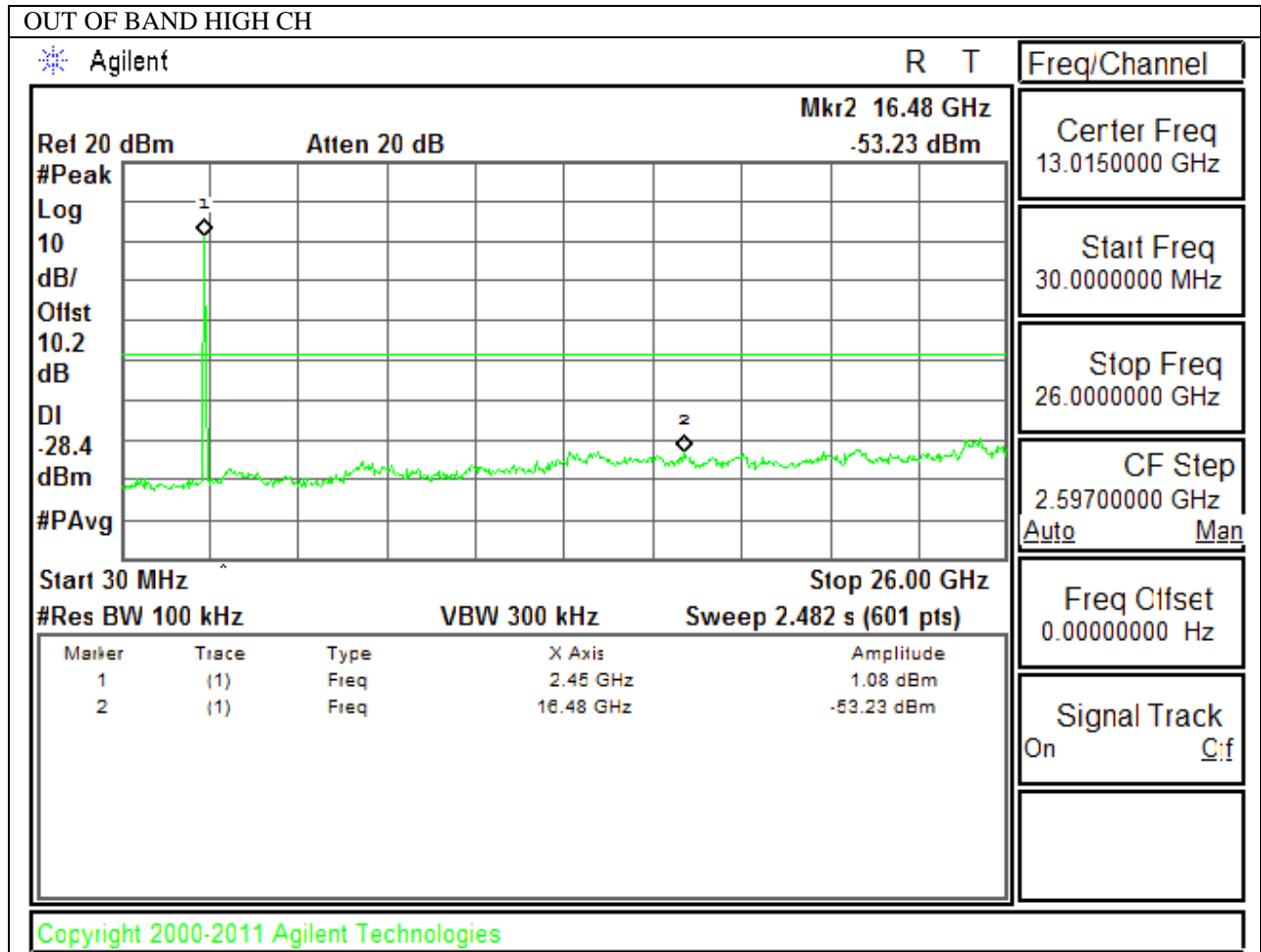
LOW CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS







10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V}/\text{m}$) at 3 m	Field Strength Limit (dB $\mu\text{V}/\text{m}$) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

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

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

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.31dB; N mode = 0.36dB.

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

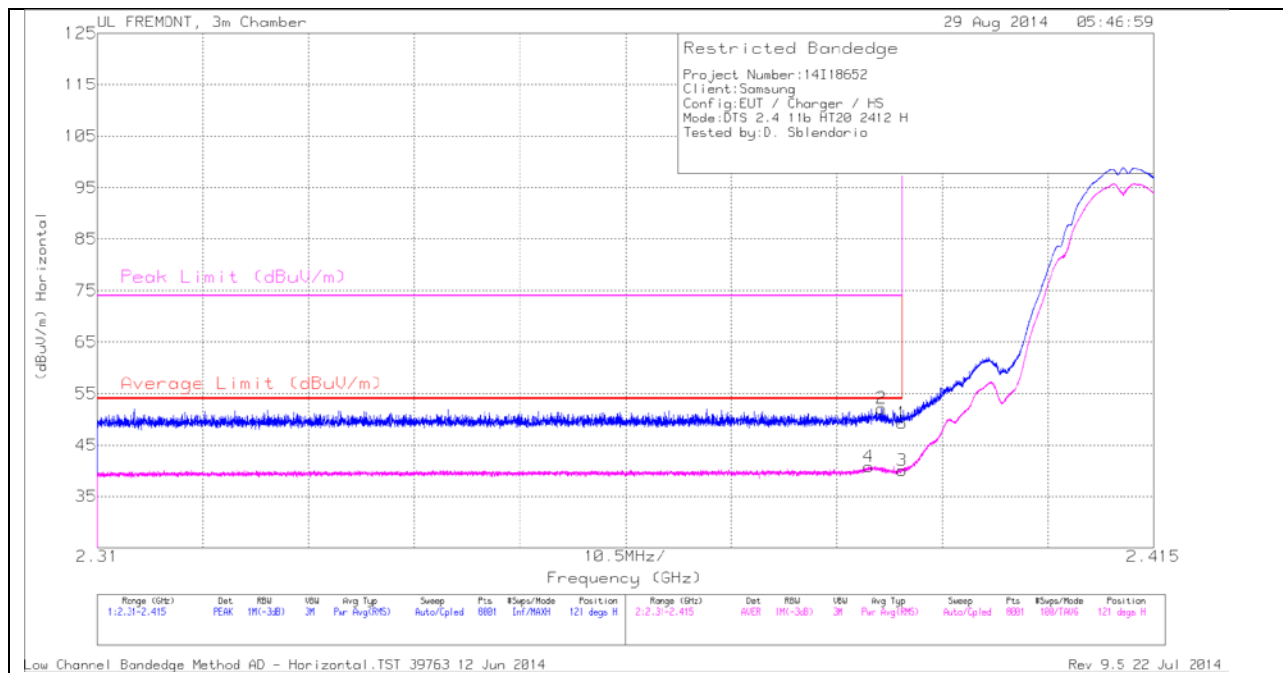
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

10.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

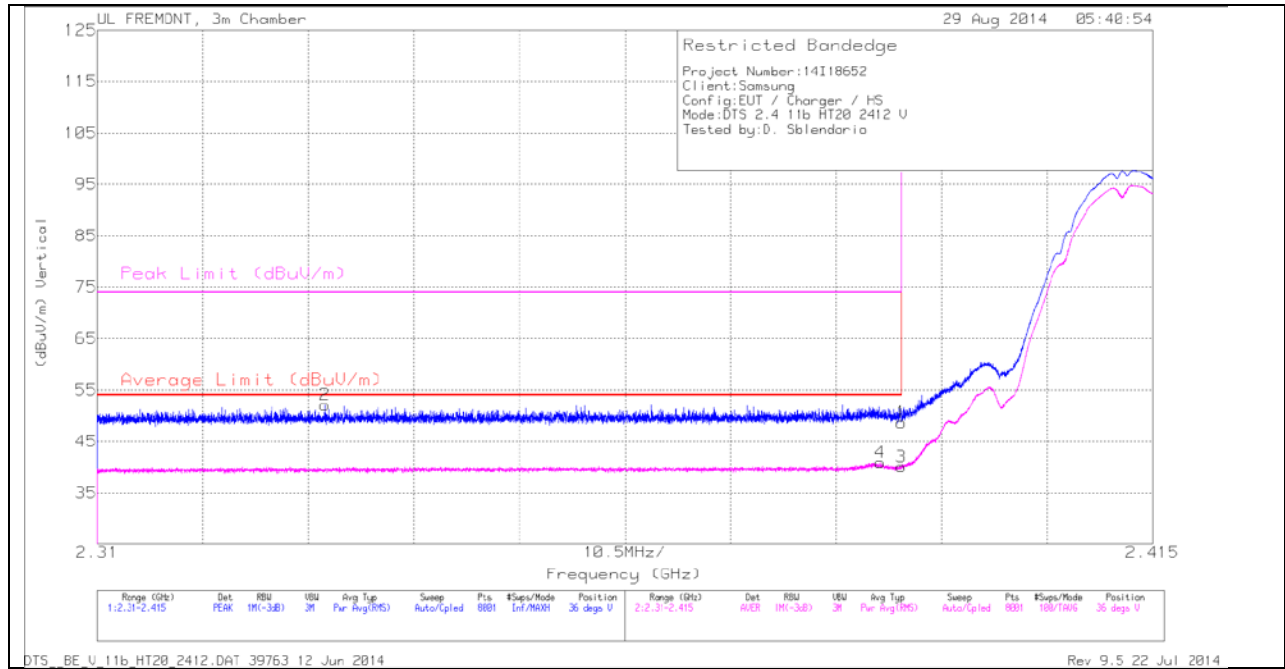
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.387	31.83	RMS	32.1	-23.1	40.83	54	-13.17	-	-	121	257	H
2	2.388	43.12	PK	32.1	-23.1	52.12	-	-	74	-21.88	121	257	H
1	2.39	40.27	PK	32.1	-23.1	49.27	-	-	74	-24.73	121	257	H
3	2.39	31.06	RMS	32.1	-23.1	40.06	54	-13.94	-	-	121	257	H

VERTICAL PEAK AND AVERAGE PLOT

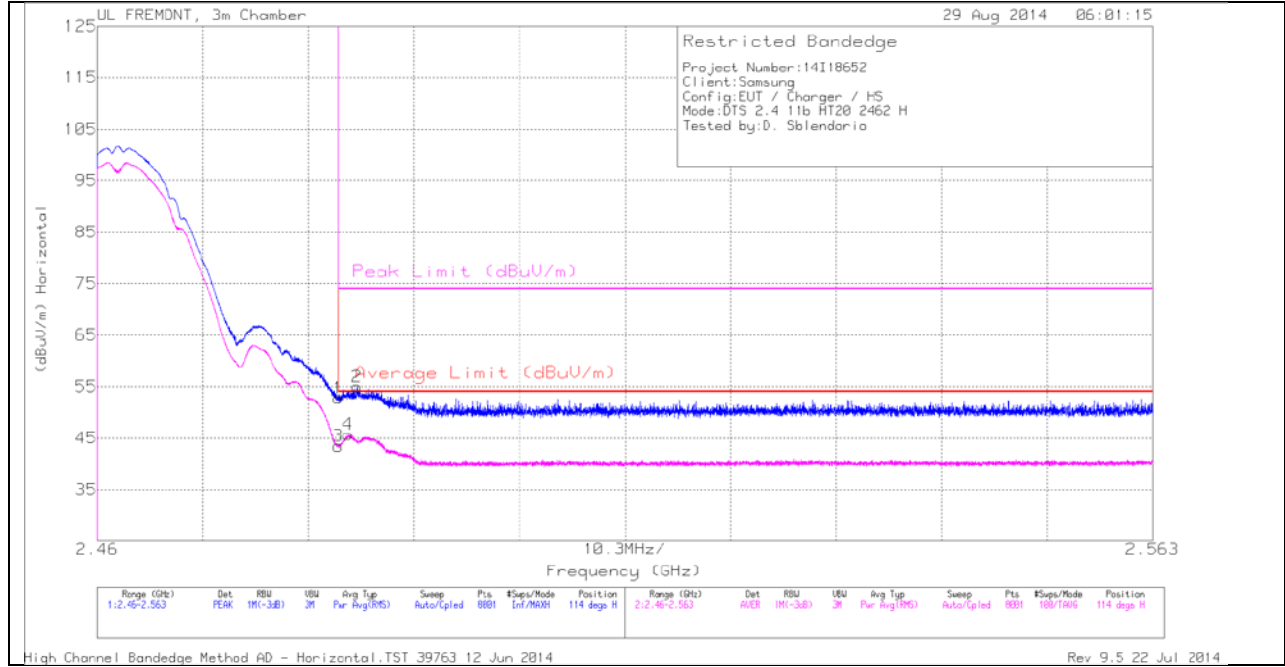


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.333	43.3	PK	31.9	-23.1	52.1	-	-	74	-21.9	36	393	V
4	2.388	31.91	RMS	32.1	-23.1	40.91	54	-13.09	-	-	36	393	V
1	2.39	39.69	PK	32.1	-23.1	48.69	-	-	74	-25.31	36	393	V
3	2.39	31.03	RMS	32.1	-23.1	40.03	54	-13.97	-	-	36	393	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

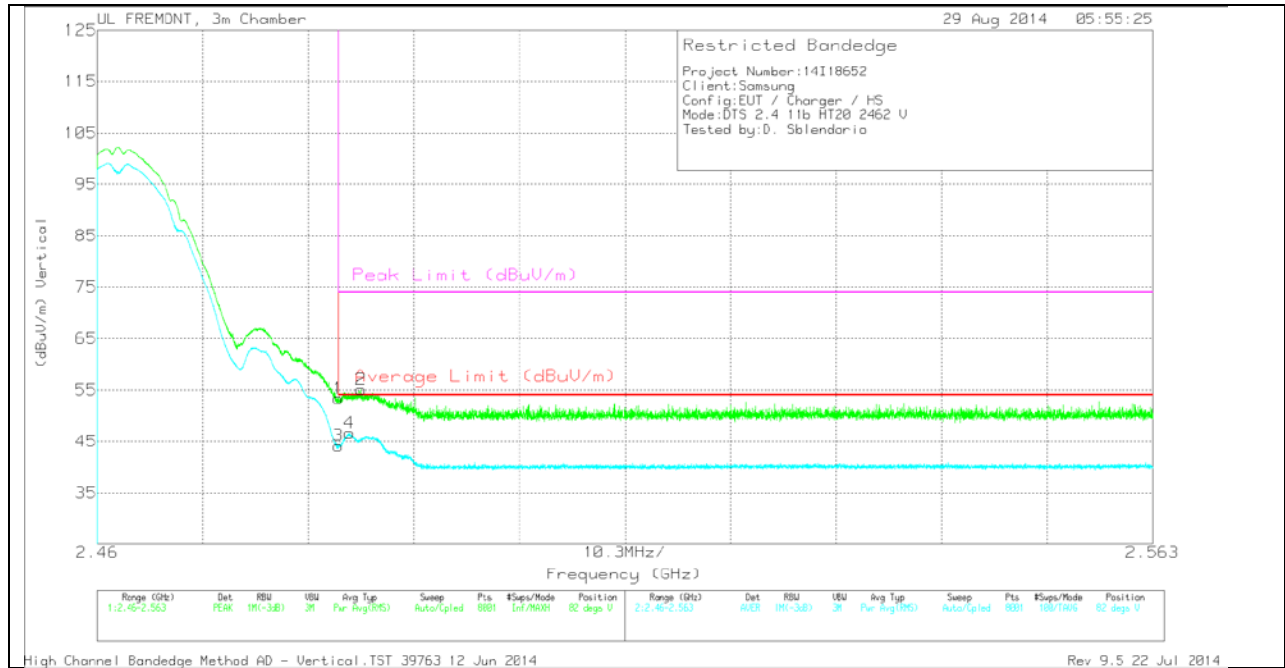
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	43.25	PK	32.3	-22.8	52.75	-	-	74	-21.25	114	252	H
3	2.484	33.94	RMS	32.3	-22.8	43.44	54	-10.56	-	-	114	252	H
4	2.484	36.22	RMS	32.3	-22.8	45.72	54	-8.28	-	-	114	252	H
2	2.485	45.47	PK	32.3	-22.8	54.97	-	-	74	-19.03	114	252	H

VERTICAL PEAK AND AVERAGE PLOT

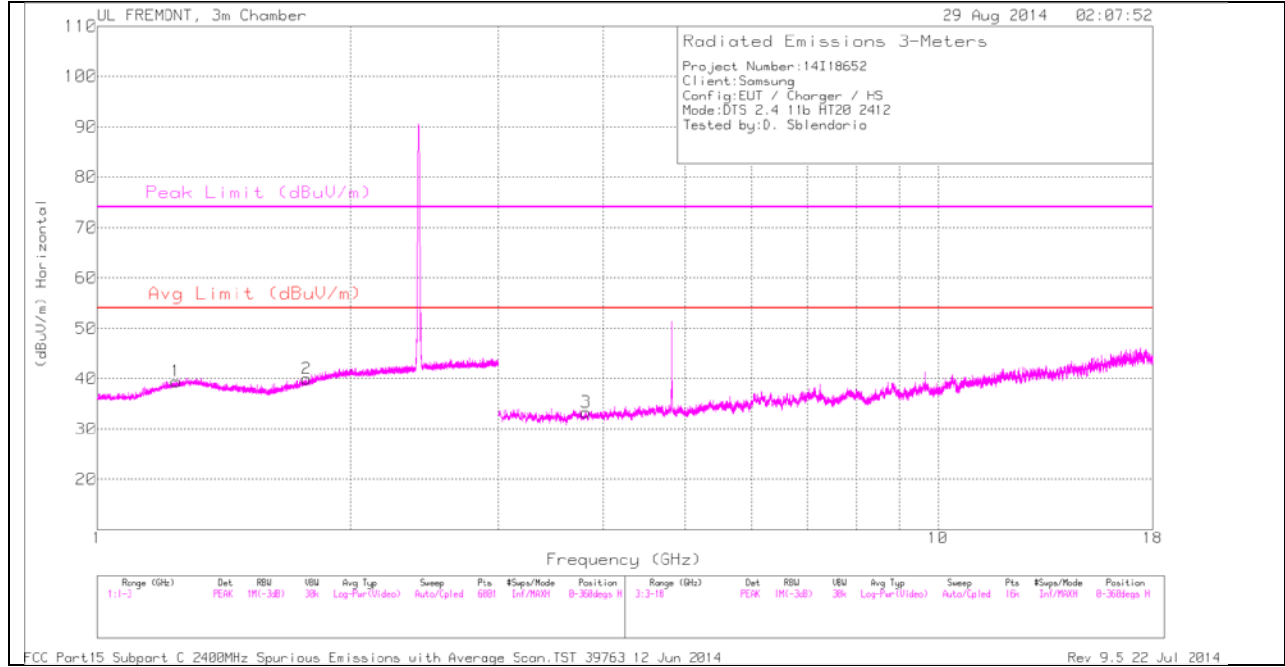


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	43.87	PK	32.3	-22.8	53.37	-	-	74	-20.63	82	309	V
3	2.484	34.66	RMS	32.3	-22.8	44.16	54	-9.84	-	-	82	309	V
4	2.485	37.11	RMS	32.3	-22.8	46.61	54	-7.39	-	-	82	309	V
2	2.486	45.56	PK	32.3	-22.8	55.06	-	-	74	-18.94	82	309	V

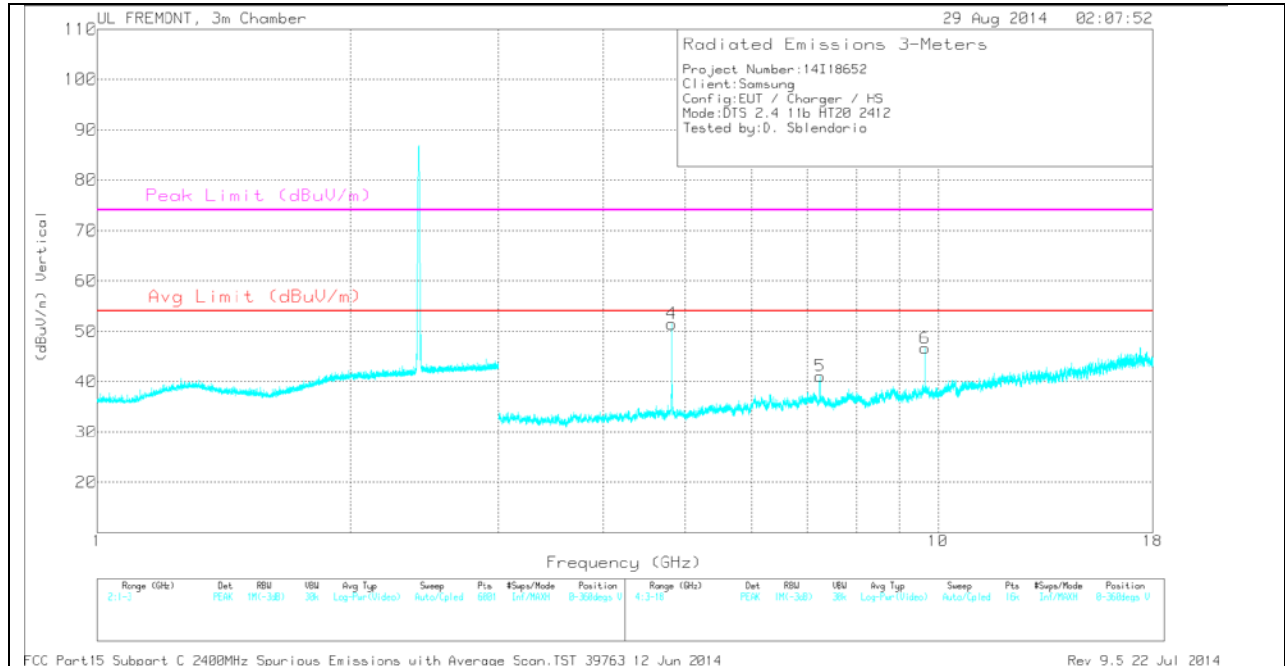
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.241	33.56	PK	29.7	-23.8	39.46	-	-	74	-34.54	0-360	100	H
2	1.775	33.39	PK	29.9	-23.3	39.99	-	-	-	-	0-360	200	H
3	3.812	31.32	PK	33.2	-31.2	33.32	-	-	74	-40.68	0-360	100	H
4	4.824	47.68	PK	34	-30.2	51.48	-	-	74	-22.52	0-360	200	V
5	7.237	35.19	PK	35.6	-29.7	41.09	-	-	-	-	0-360	200	V
6	9.647	35.43	PK	36.8	-25.6	46.63	-	-	-	-	0-360	200	V

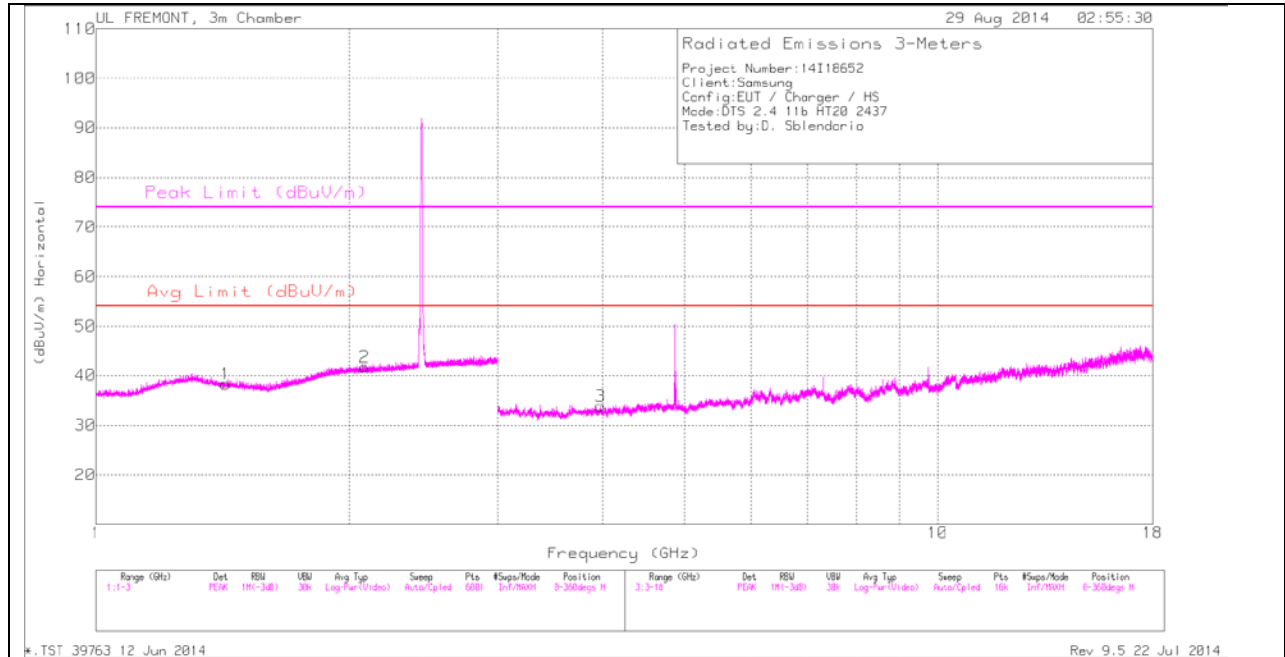
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.824	51.54	PK2	34	-30.3	55.24	-	-	74	-18.76	3	326	V
4.824	48.55	MAV1	34	-30.3	52.25	54	-1.75	-	-	3	326	V
7.236	41.19	PK2	35.6	-29.7	47.09	-	-	-	-	3	200	V
7.239	29.28	MAV1	35.6	-29.7	35.18	-	-	-	-	3	200	V
9.648	40.88	PK2	36.8	-25.6	52.08	-	-	-	-	131	246	V
9.648	34.99	MAV1	36.8	-25.6	46.19	-	-	-	-	131	246	V

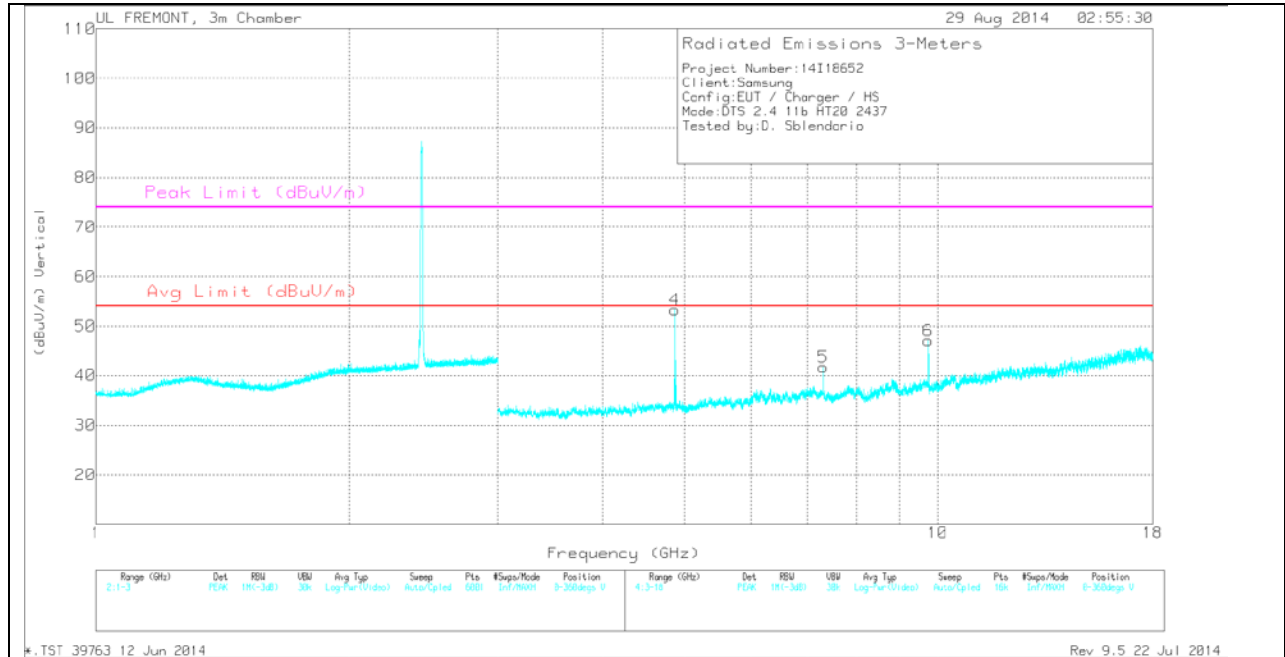
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MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.425	33.03	PK	29	-23.7	38.33	-	-	74	-35.67	0-360	100	H
2	2.085	33.28	PK	31.5	-23	41.78	-	-	-	-	0-360	200	H
3	3.975	31.96	PK	33.3	-31.4	33.86	-	-	74	-40.14	0-360	200	H
4	4.874	49.4	PK	34	-30.1	53.3	-	-	74	-20.7	0-360	100	V
5	7.311	34.75	PK	35.6	-28.6	41.75	-	-	74	-32.25	0-360	200	V
6	9.748	35.93	PK	36.9	-25.7	47.13	-	-	-	-	0-360	200	V

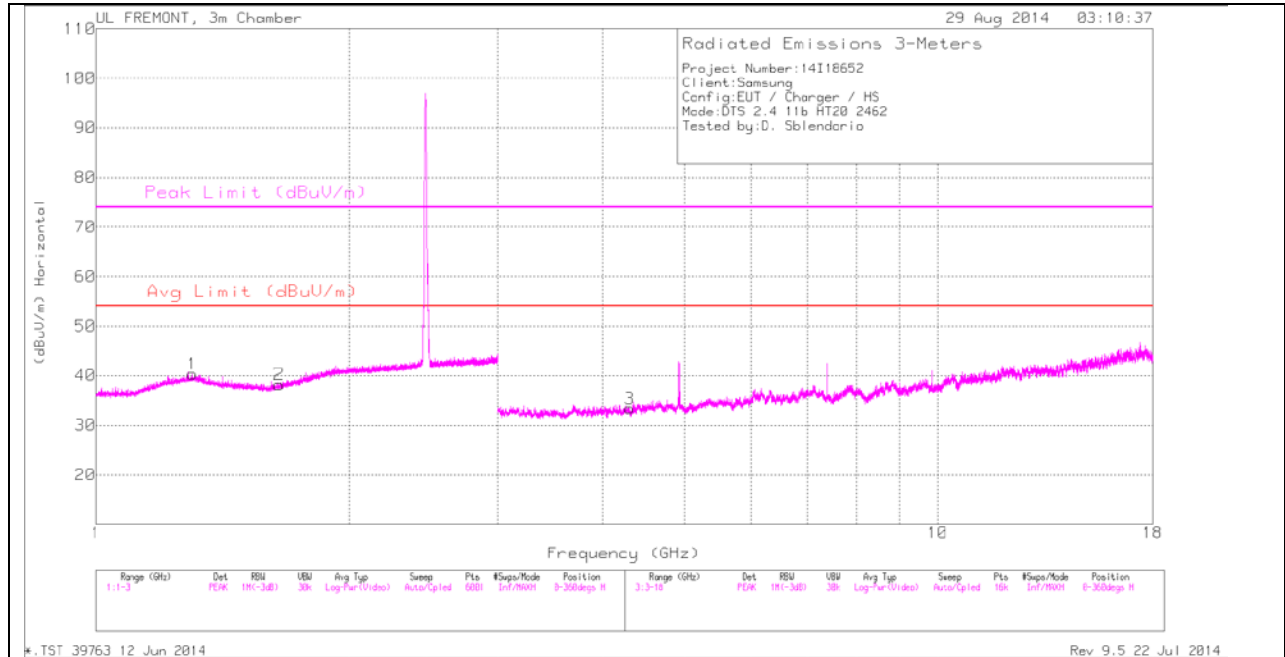
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.874	52.05	PK2	34	-30.1	55.95	-	-	74	-18.05	52	101	V
4.874	49.83	MAV1	34	-30.1	53.73	54	-.27	-	-	52	101	V
9.748	38.59	PK2	36.9	-25.7	49.79	-	-	-	-	52	200	V
9.748	29.45	MAV1	36.9	-25.7	40.65	-	-	-	-	52	200	V

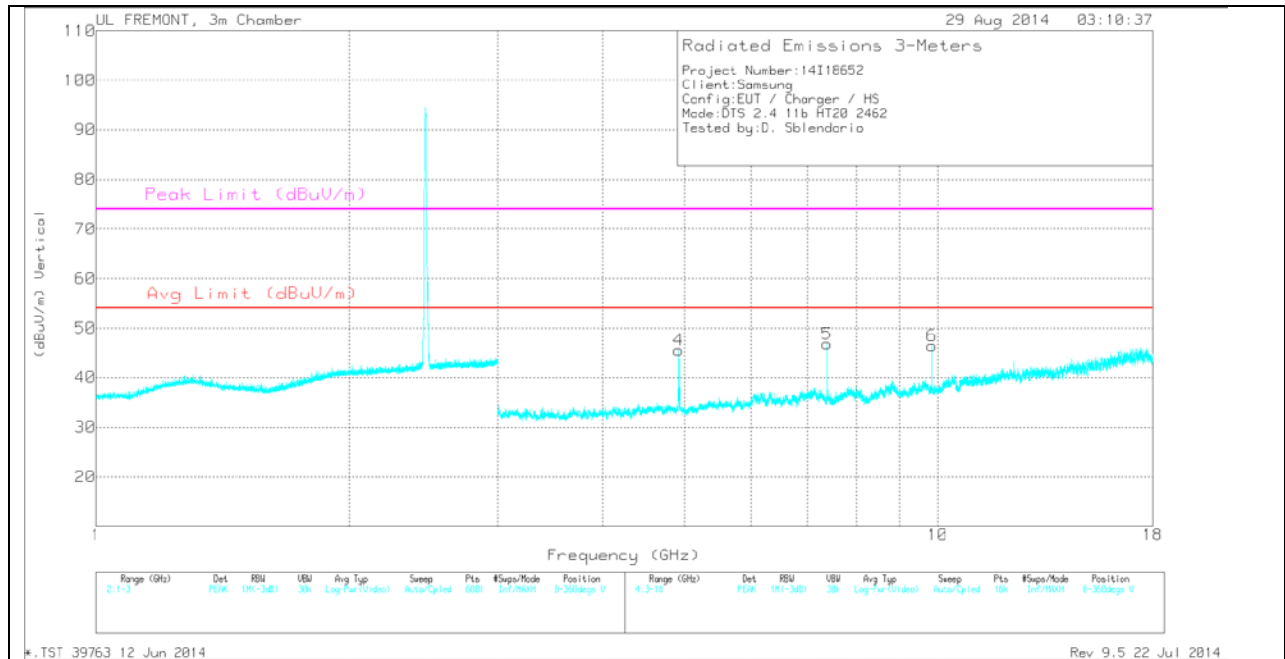
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HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.3	33.95	PK	30.2	-23.8	40.35	-	-	74	-33.65	0-360	100	H
2	1.65	33.15	PK	28.5	-23.4	38.25	-	-	-	-	0-360	200	H
3	4.303	30.74	PK	33.6	-31	33.34	-	-	74	-40.66	0-360	100	H
4	4.921	41.99	PK	34	-30.4	45.59	-	-	74	-28.41	0-360	100	V
5	7.386	39.4	PK	35.7	-28.3	46.8	-	-	74	-27.2	0-360	200	V
6	9.848	35.42	PK	36.9	-25.9	46.42	-	-	-	-	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

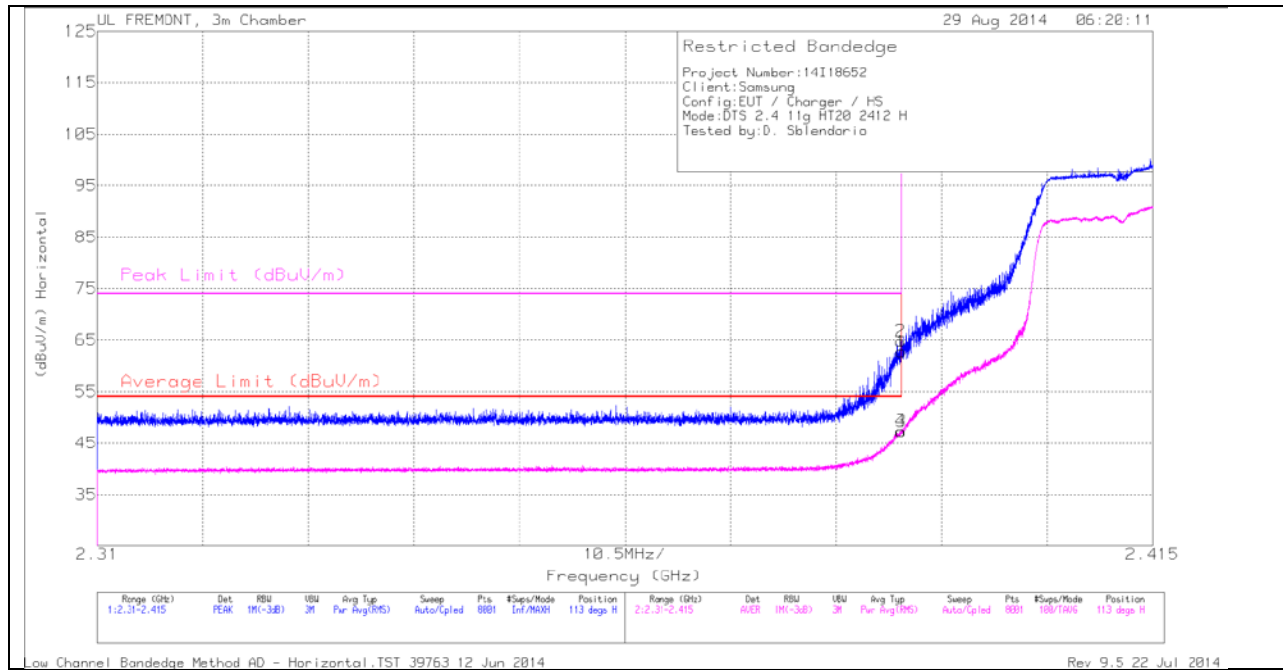
Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.921	43.63	PK2	34	-30.4	47.23	-	-	74	-26.77	0	100	V
4.921	35.46	MAV1	34	-30.4	39.06	54	-14.94	-	-	0	100	V
7.386	42.29	PK2	35.7	-28.3	49.69	-	-	74	-24.31	0	200	V
7.387	33.93	MAV1	35.7	-28.3	41.33	54	-12.67	-	-	0	200	V
9.848	37.58	PK2	36.9	-25.9	48.58	-	-	-	-	0	200	V
9.848	26.32	MAV1	36.9	-25.9	37.32	-	-	-	-	0	200	V

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

RESTRICTED BANDEDGE (LOW CHANNEL)

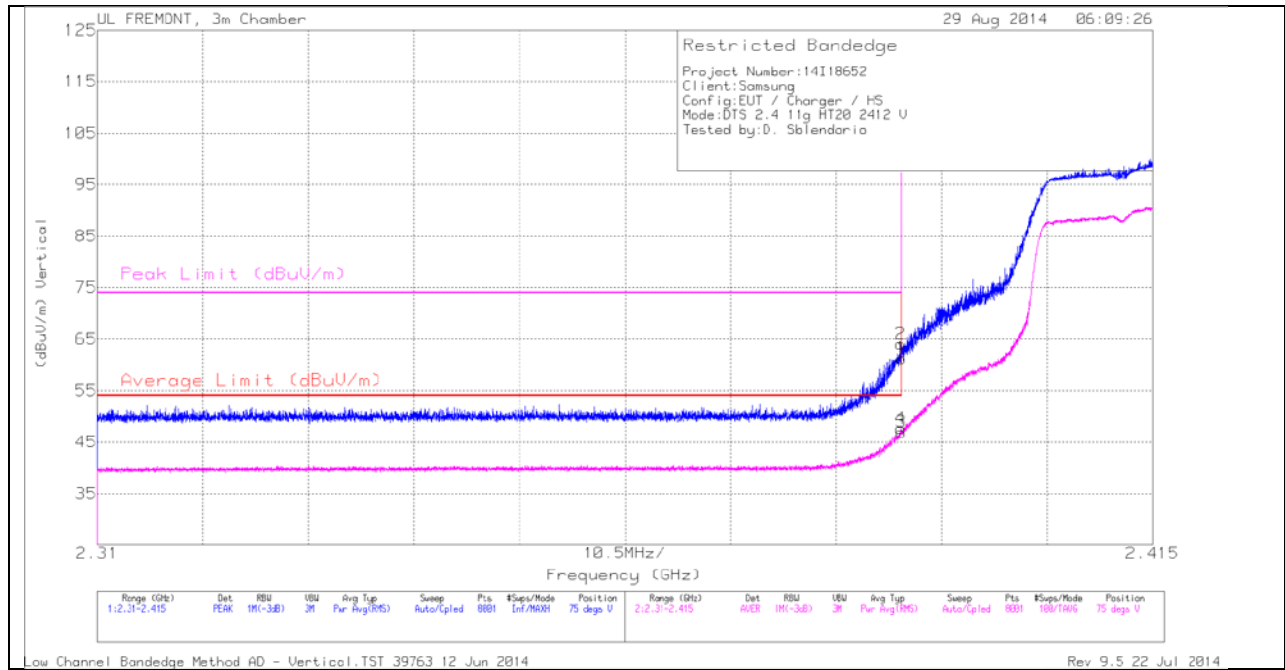
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	53.74	PK	32.1	-23.1	0	62.74	-	-	74	-11.26	113	320	H
2	2.39	55.78	PK	32.1	-23.1	0	64.78	-	-	74	-9.22	113	320	H
3	2.39	37.98	RMS	32.1	-23.1	.31	47.29	54	-6.71	-	-	113	320	H
4	2.39	37.95	RMS	32.1	-23.1	.31	47.26	54	-6.74	-	-	113	320	H

VERTICAL PEAK AND AVERAGE PLOT

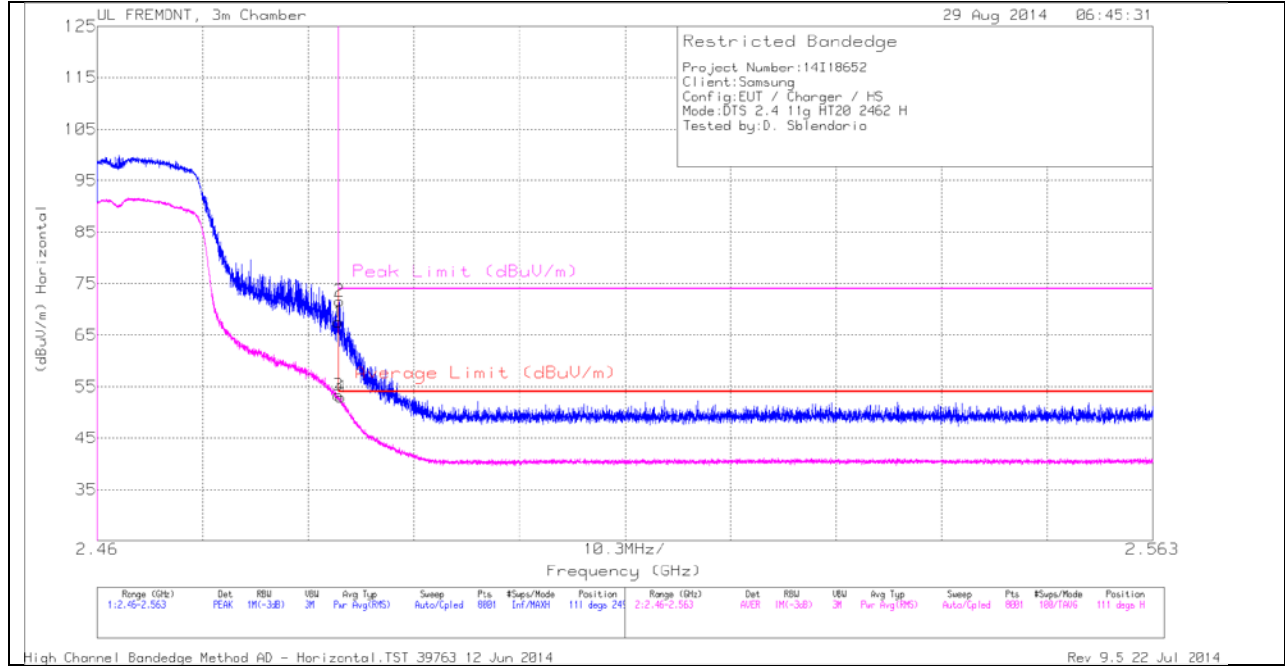


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	52.26	PK	32.1	-23.1	0	61.26	-	-	74	-12.74	75	394	V
2	2.39	55.06	PK	32.1	-23.1	0	64.06	-	-	74	-9.94	75	394	V
3	2.39	37.66	RMS	32.1	-23.1	.31	46.97	54	-7.03	-	-	75	394	V
4	2.39	38.34	RMS	32.1	-23.1	.31	47.65	54	-6.35	-	-	75	394	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

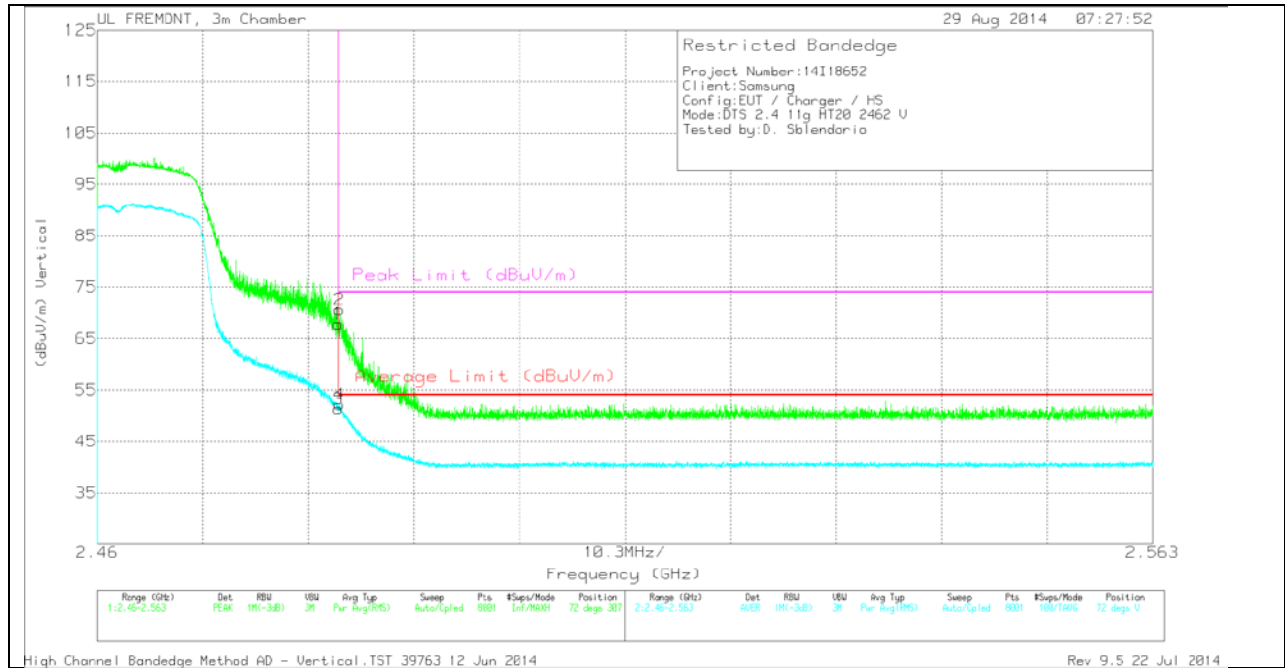
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Pit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	58.04	PK	32.3	-22.8	0	67.54	-	-	74	-6.46	111	249	H
2	2.484	62.13	PK	32.3	-22.8	0	71.63	-	-	74	-2.37	111	249	H
3	2.484	43.58	RMS	32.3	-22.8	.31	53.39	54	-61	-	-	111	249	H
4	2.484	43.14	RMS	32.3	-22.8	.31	52.95	54	-105	-	-	111	249	H

VERTICAL PEAK AND AVERAGE PLOT

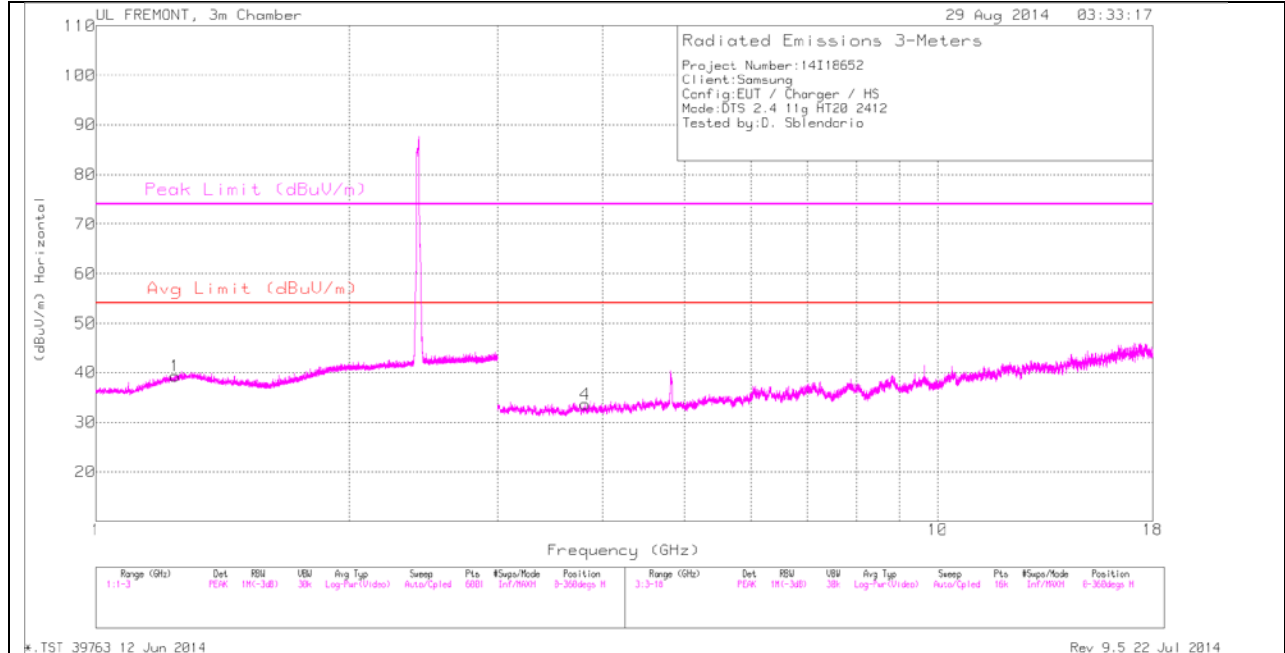


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	58.33	PK	32.3	-22.8	0	67.83	-	-	74	-6.17	72	307	V
2	2.484	61.1	PK	32.3	-22.8	0	70.6	-	-	74	-3.4	72	307	V
3	2.484	41.49	RMS	32.3	-22.8	.31	51.3	54	-2.7	-	-	72	307	V
4	2.484	42.33	RMS	32.3	-22.8	.31	52.14	54	-1.86	-	-	72	307	V

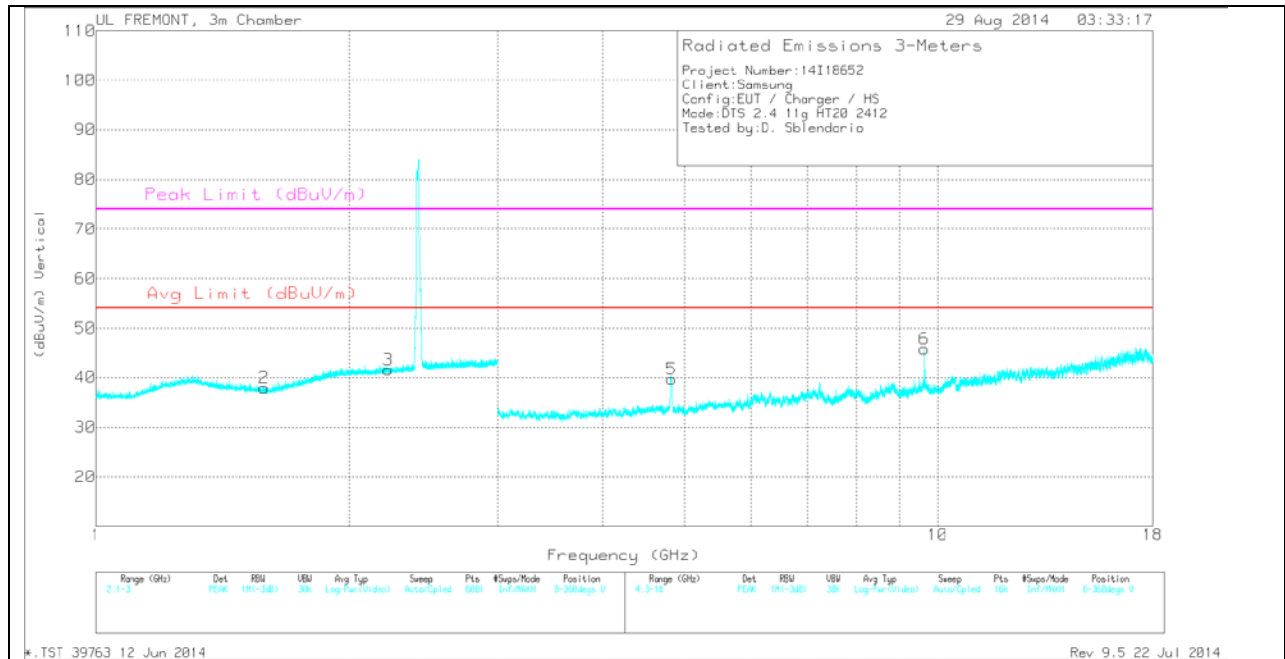
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.242	33.42	PK	29.7	-23.8	0	39.32	-	-	74	-34.68	0-360	100	H
2	1.583	33.24	PK	28.1	-23.4	0	37.94	-	-	74	-36.06	0-360	100	V
3	2.223	32.87	PK	31.7	-23	0	41.57	-	-	74	-32.43	0-360	100	V
4	3.812	31.58	PK	33.2	-31.2	0	33.58	-	-	74	-40.42	0-360	200	H
5	4.832	35.6	PK	34	-29.9	0	39.7	-	-	74	-34.3	0-360	100	V
6	9.647	34.61	PK	36.8	-25.6	0	45.81	-	-	-	-	0-360	200	V

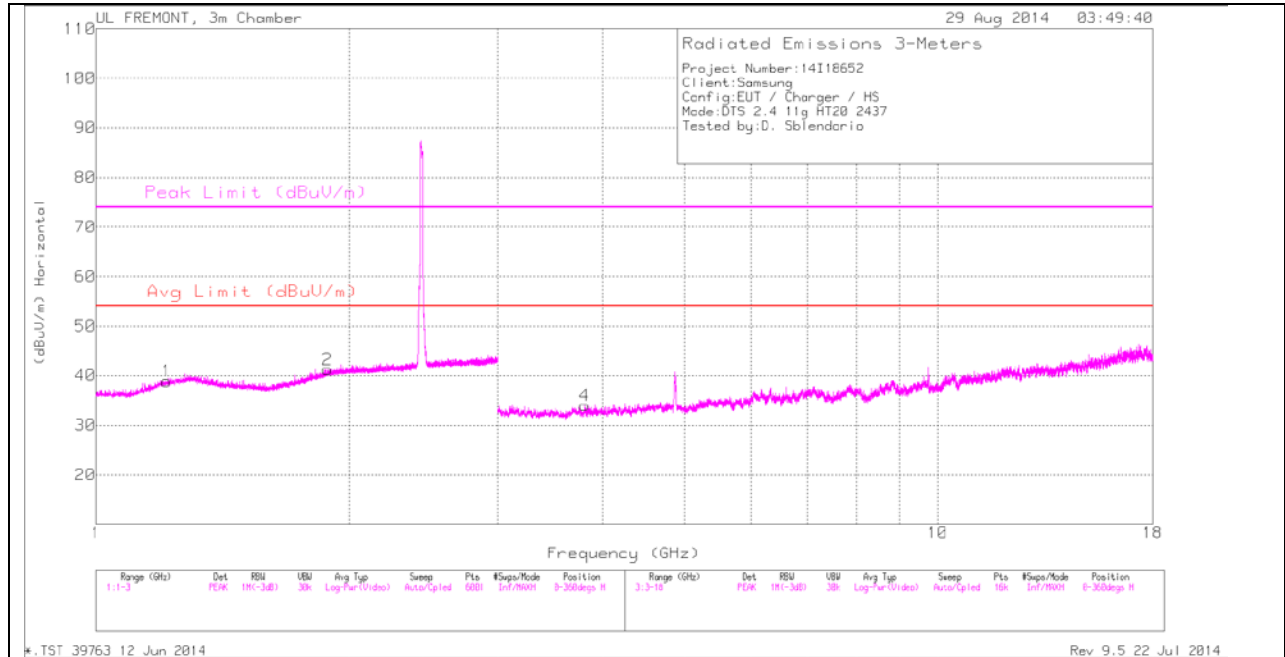
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.83	31.5	MAV1	34	-30	0.31	35.81	54	-18.29	-	-	0	100	V
4.831	43.03	PK2	34	-29.9	0	47.13	-	-	74	-26.87	0	100	V
9.648	25.36	MAV1	36.8	-25.6	0.31	36.87	-	-	-	-	0	200	V
9.649	36.59	PK2	36.8	-25.6	0	47.79	-	-	-	-	0	200	V

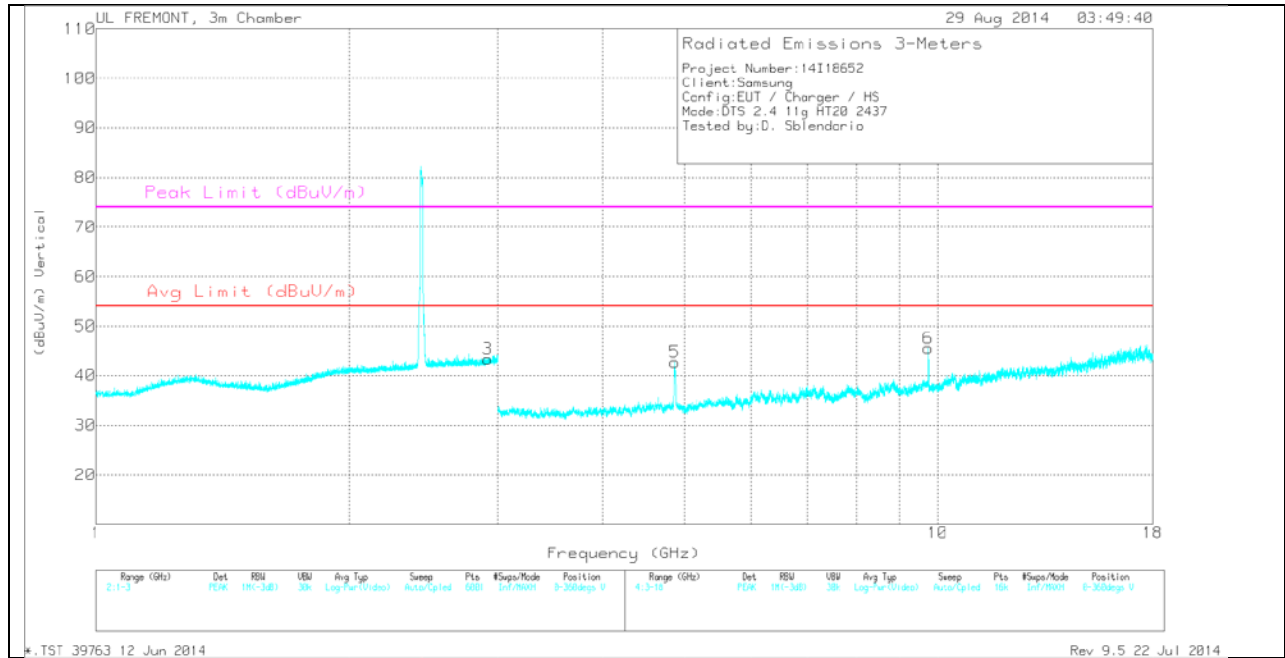
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MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.211	33.29	PK	29.4	-23.8	0	38.89	-	-	74	-35.11	0-360	100	H
2	1.884	33.39	PK	31.1	-23.3	0	41.19	-	-	-	-	0-360	100	H
3	2.92	33.34	PK	32.8	-22.7	0	43.44	-	-	-	-	0-360	200	V
4	3.805	31.95	PK	33.2	-31.2	0	33.95	-	-	74	-40.05	0-360	200	H
5	4.868	38.97	PK	34	-30.2	0	42.77	-	-	74	-31.23	0-360	100	V
6	9.748	34.32	PK	36.9	-25.7	0	45.52	-	-	-	-	0-360	200	V

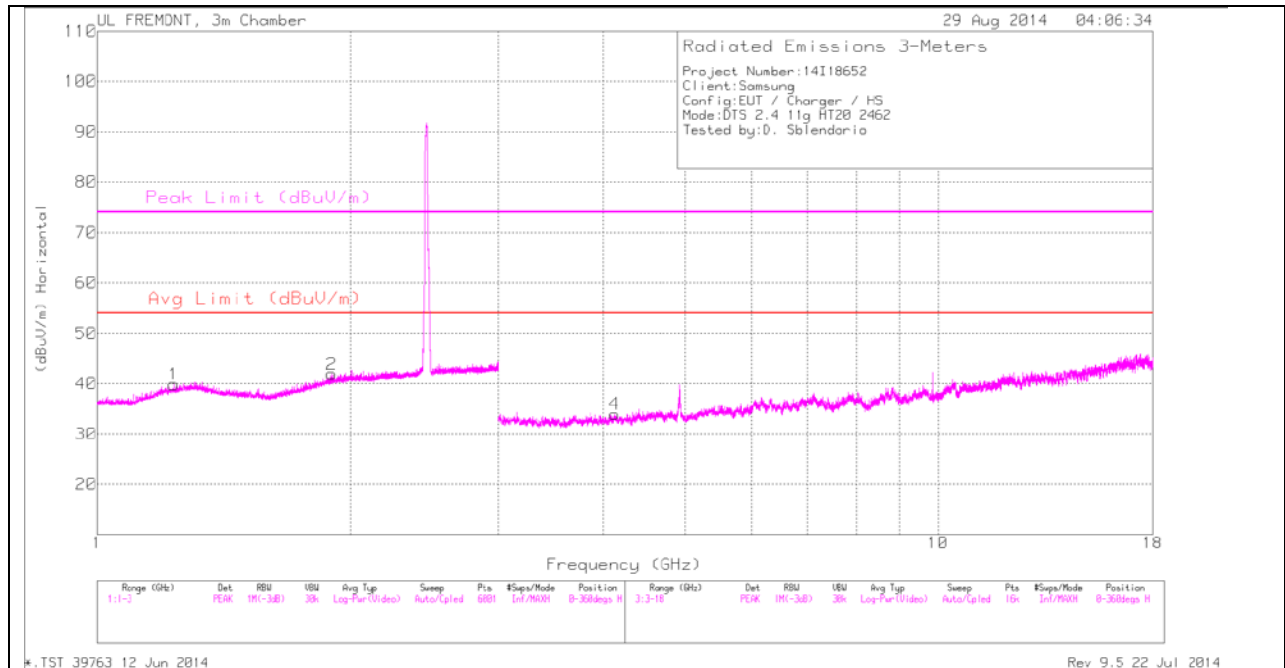
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.87	44.99	PK2	34	-30.1	0	48.89	-	-	74	-25.11	0	100	V
4.87	33.58	MAv1	34	-30.1	0.31	37.79	54	-16.21	-	-	0	100	V
9.747	36.89	PK2	36.9	-25.7	0	48.09	-	-	-	-	0	200	V
9.747	36.71	PK2	36.9	-25.6	0	48.01	-	-	-	-	0	200	V
9.748	25.96	MAv1	36.9	-25.7	0.31	37.47	-	-	-	-	0	200	V

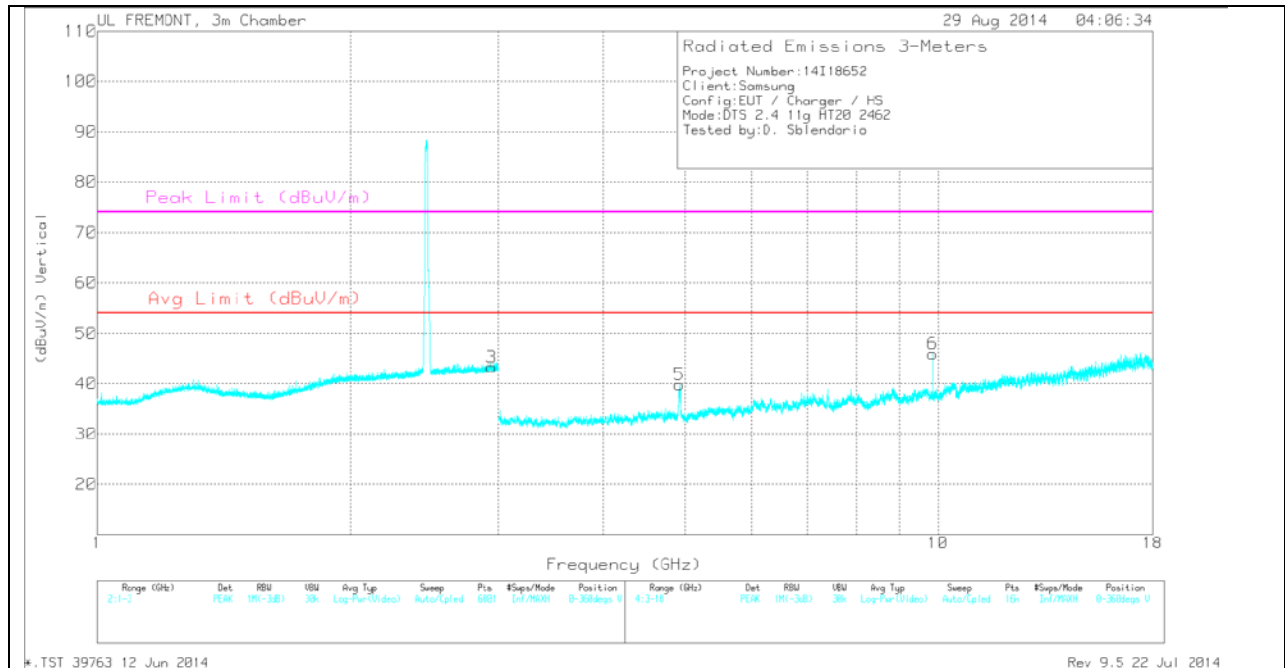
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.233	34.05	PK	29.6	-23.8	0	39.85	-	-	74	-34.15	0-360	100	H
2	1.899	33.99	PK	31.2	-23.3	0	41.89	-	-	-	-	0-360	100	H
3	2.946	33.05	PK	32.8	-22.6	0	43.25	-	-	-	-	0-360	200	V
4	4.123	31.46	PK	33.5	-31	0	33.96	-	-	74	-40.04	0-360	100	H
5	4.926	36.31	PK	34	-30.5	0	39.81	-	-	74	-34.19	0-360	100	V
6	9.848	34.95	PK	36.9	-25.9	0	45.95	-	-	-	-	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

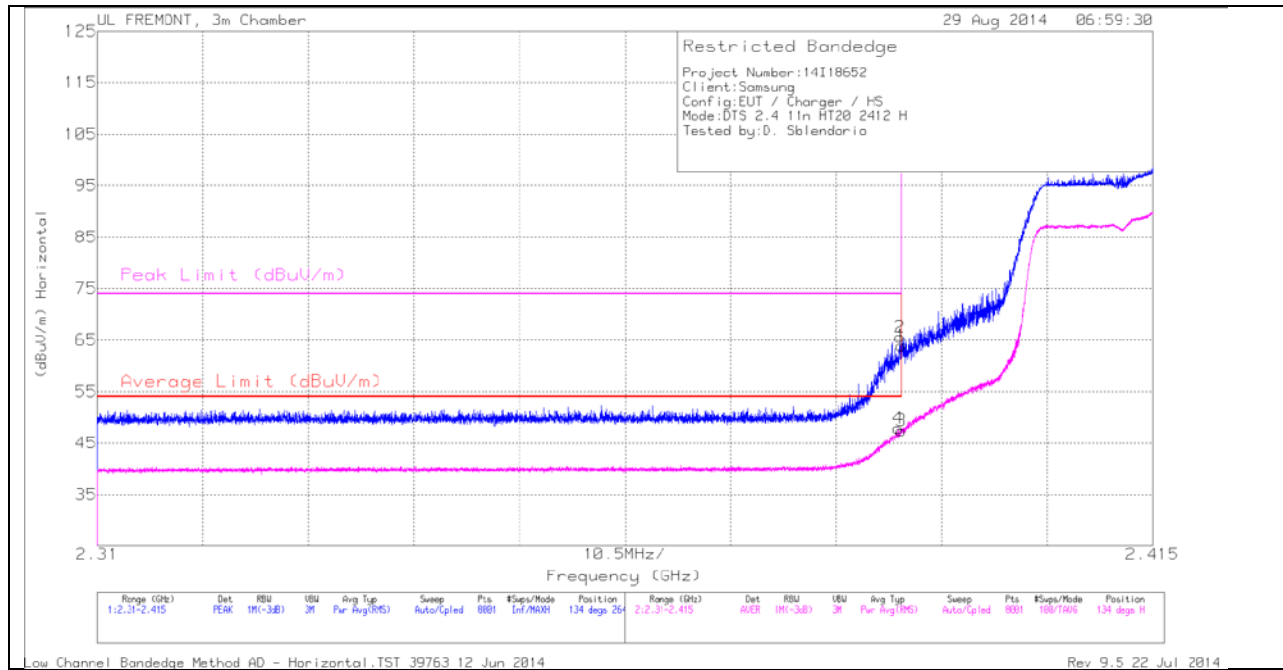
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.924	31.73	MAV1	34	-30.4	0.31	35.64	54	-18.36	-	-	0	100	V
4.925	43.26	PK2	34	-30.4	0	46.86	-	-	74	-27.14	0	100	V
9.848	38.06	PK2	36.9	-25.9	0	49.06	-	-	-	-	0	200	V
9.848	27.11	MAV1	36.9	-25.9	0.31	38.42	-	-	-	-	0	200	V

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

RESTRICTED BANDEDGE (LOW CHANNEL)

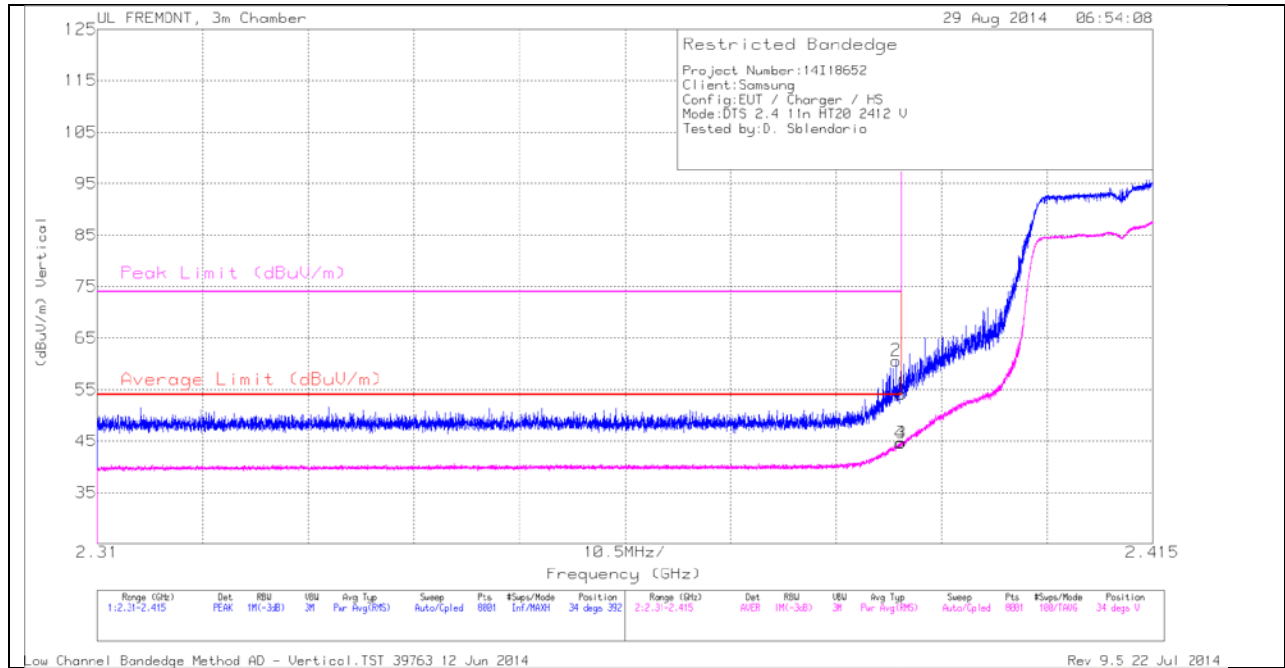
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	54.93	PK	32.1	-23.1	0	63.93	-	-	74	-10.07	134	264	H
2	2.39	56.59	PK	32.1	-23.1	0	65.59	-	-	74	-8.41	134	264	H
3	2.39	38.06	RMS	32.1	-23.1	.36	47.42	54	-6.58	-	-	134	264	H
4	2.39	38.52	RMS	32.1	-23.1	.36	47.88	54	-6.12	-	-	134	264	H

VERTICAL PEAK AND AVERAGE PLOT

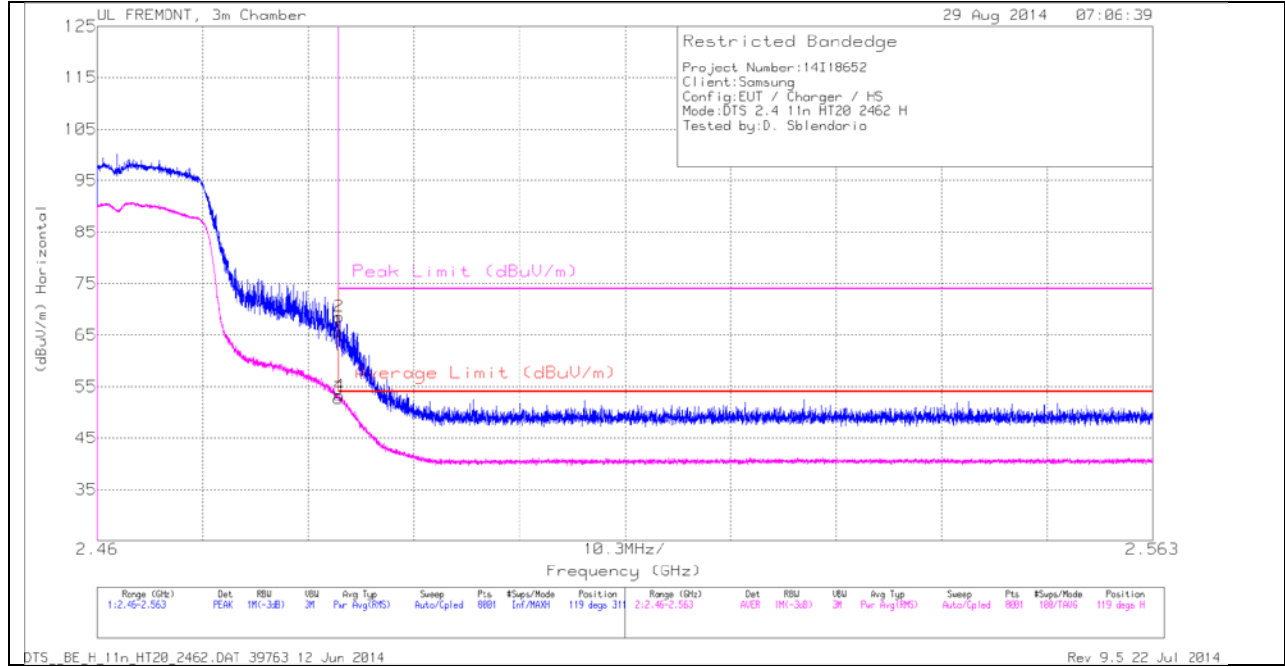


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.389	51.62	PK	32.1	-23.1	0	60.62	-	-	74	-13.38	34	392	V
1	2.39	45.18	PK	32.1	-23.1	0	54.18	-	-	74	-19.82	34	392	V
3	2.39	35.33	RMS	32.1	-23.1	.36	44.69	54	-9.31	-	-	34	392	V
4	2.39	35.24	RMS	32.1	-23.1	.36	44.6	54	-9.4	-	-	34	392	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

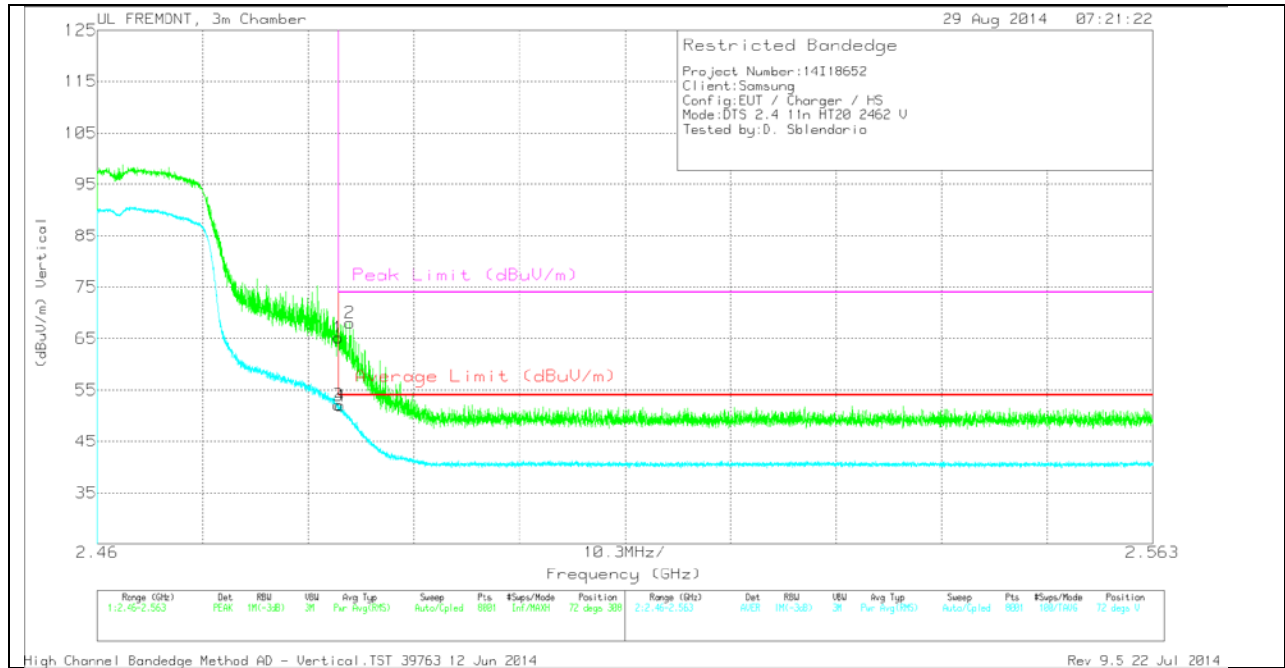
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Pit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	56.15	PK	32.3	-22.8	0	65.65	-	-	74	-8.35	119	311	H
2	2.484	59.09	PK	32.3	-22.8	0	68.59	-	-	74	-5.41	119	311	H
3	2.484	42.84	RMS	32.3	-22.8	.36	52.7	54	-1.3	-	-	119	311	H
4	2.484	43.38	RMS	32.3	-22.8	.36	53.24	54	-.76	-	-	119	311	H

VERTICAL PEAK AND AVERAGE PLOT

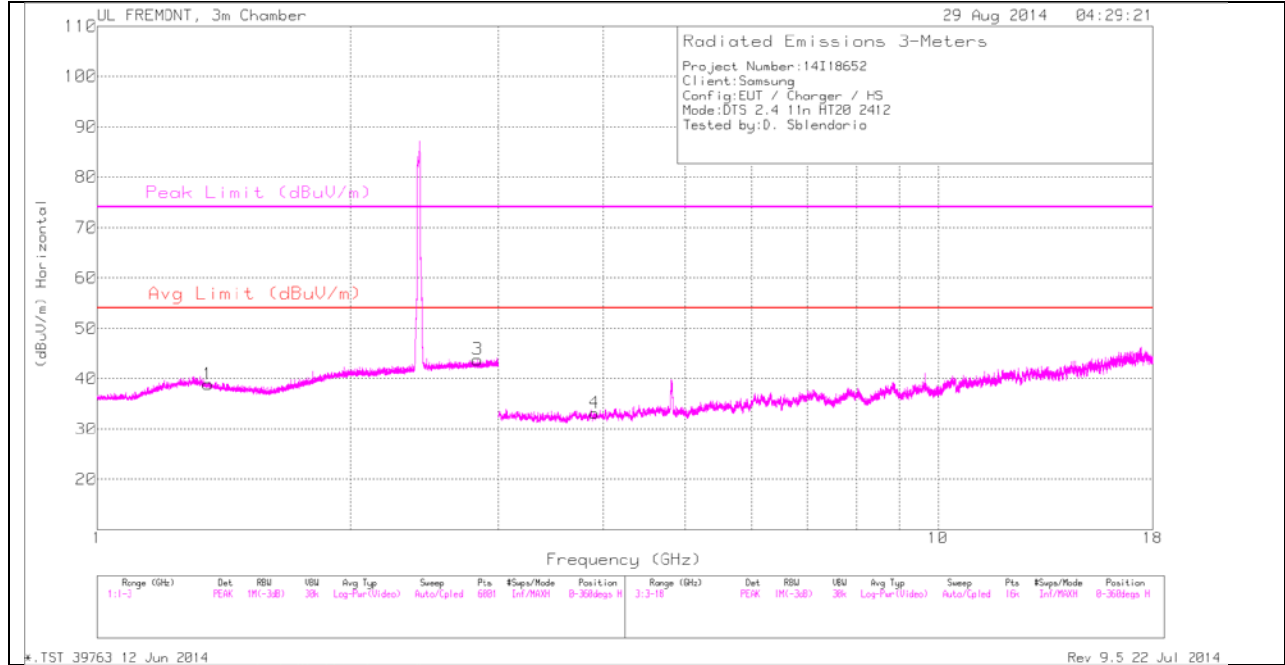


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	55.68	PK	32.3	-22.8	0	65.18	-	-	74	-8.82	72	308	V
3	2.484	42.19	RMS	32.3	-22.8	.36	52.05	54	-1.95	-	-	72	308	V
4	2.484	42.06	RMS	32.3	-22.8	.36	51.92	54	-2.08	-	-	72	308	V
2	2.485	58.53	PK	32.3	-22.8	0	68.03	-	-	74	-5.97	72	308	V

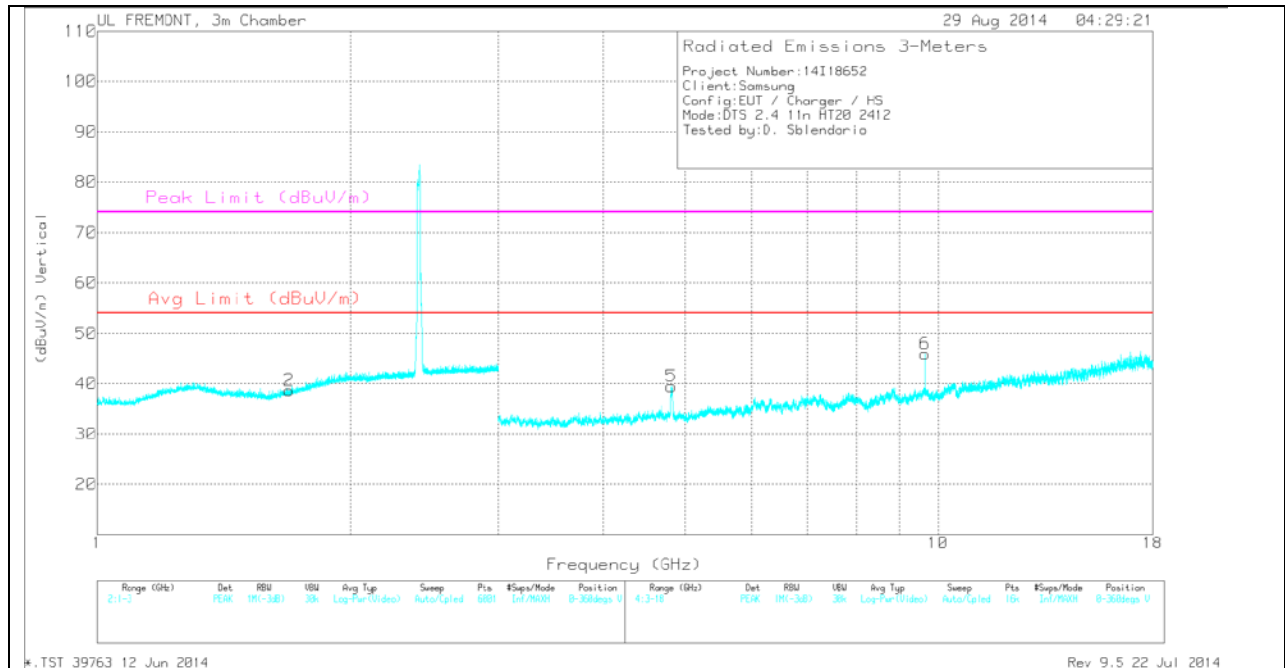
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.355	33.09	PK	29.6	-23.8	0	38.89	-	-	74	-35.11	0-360	200	H
2	1.69	33.03	PK	28.9	-23.3	0	38.63	-	-	74	-35.37	0-360	100	V
3	2.831	33.94	PK	32.7	-22.8	0	43.84	-	-	74	-30.16	0-360	100	H
4	3.906	31.21	PK	33.2	-31.2	0	33.21	-	-	74	-40.79	0-360	200	H
5	4.82	35.78	PK	34	-30.3	0	39.48	-	-	74	-34.52	0-360	200	V
6	9.647	34.73	PK	36.8	-25.6	0	45.93	-	-	-	-	0-360	200	V

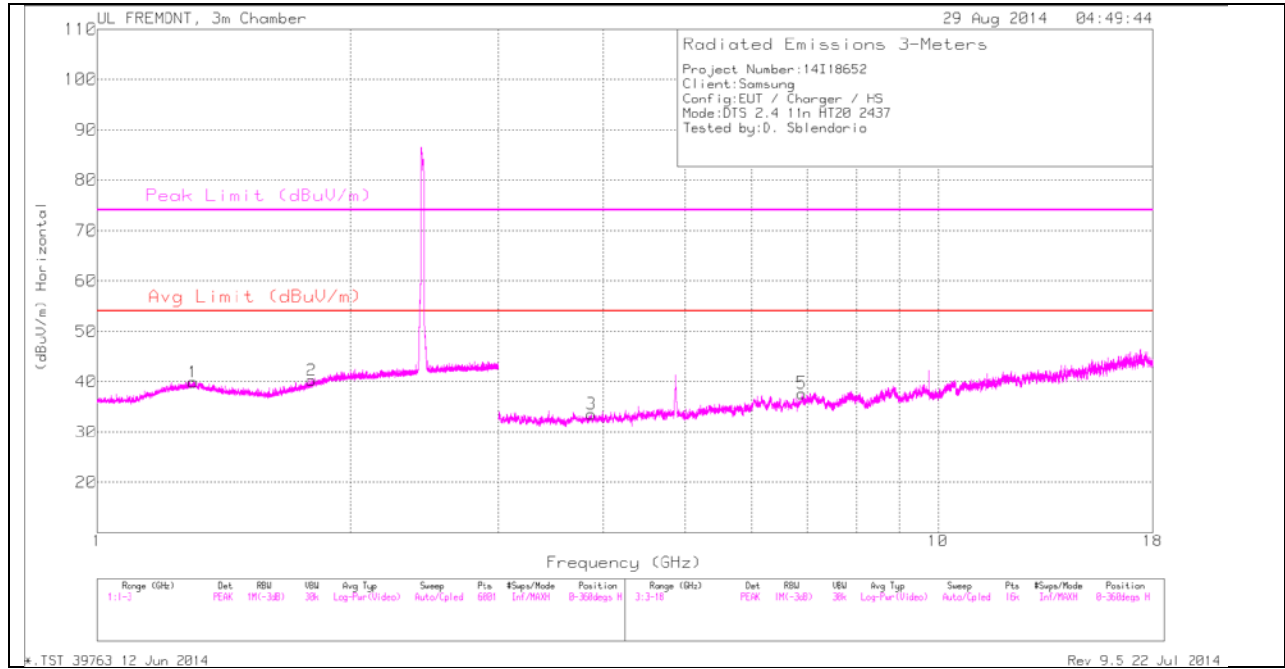
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.82	34.1	MAV1	34	-30.3	0.36	38.16	54	-15.84	-	-	0	200	V
4.821	46.06	PK2	34	-30.3	0	49.76	-	-	74	-24.24	0	200	V
9.649	36.17	PK2	36.8	-25.6	0	47.37	-	-	-	-	0	200	V
9.649	25.21	MAV1	36.8	-25.6	0.36	36.41	-	-	-	-	0	200	V

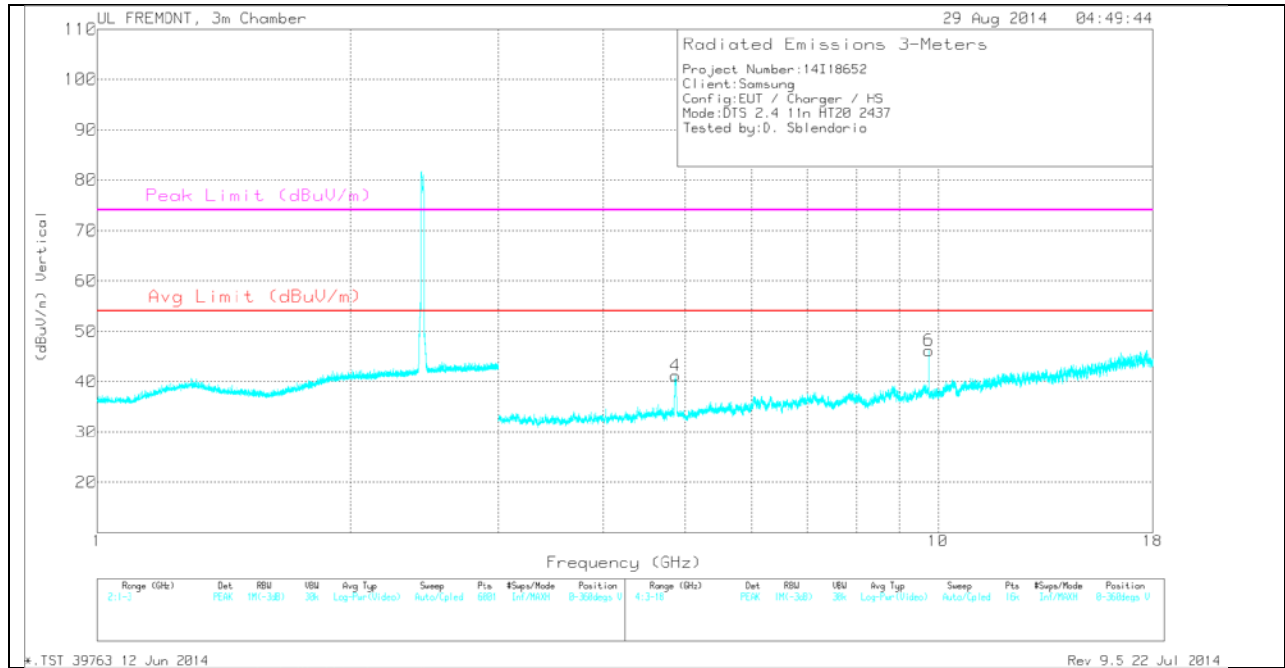
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MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.299	33.47	PK	30.2	-23.8	0	39.87	-	-	74	-34.13	0-360	200	H
2	1.798	33.46	PK	30.1	-23.3	0	40.26	-	-	-	-	0-360	100	H
3	3.868	31.66	PK	33.2	-31.3	0	33.56	-	-	74	-40.44	0-360	100	H
4	4.872	37.29	PK	34	-30.1	0	41.19	-	-	74	-32.81	0-360	100	V
5	6.889	30.58	PK	35.6	-28.5	0	37.68	-	-	-	-	0-360	200	H
6	9.748	35	PK	36.9	-25.7	0	46.2	-	-	-	-	0-360	200	V

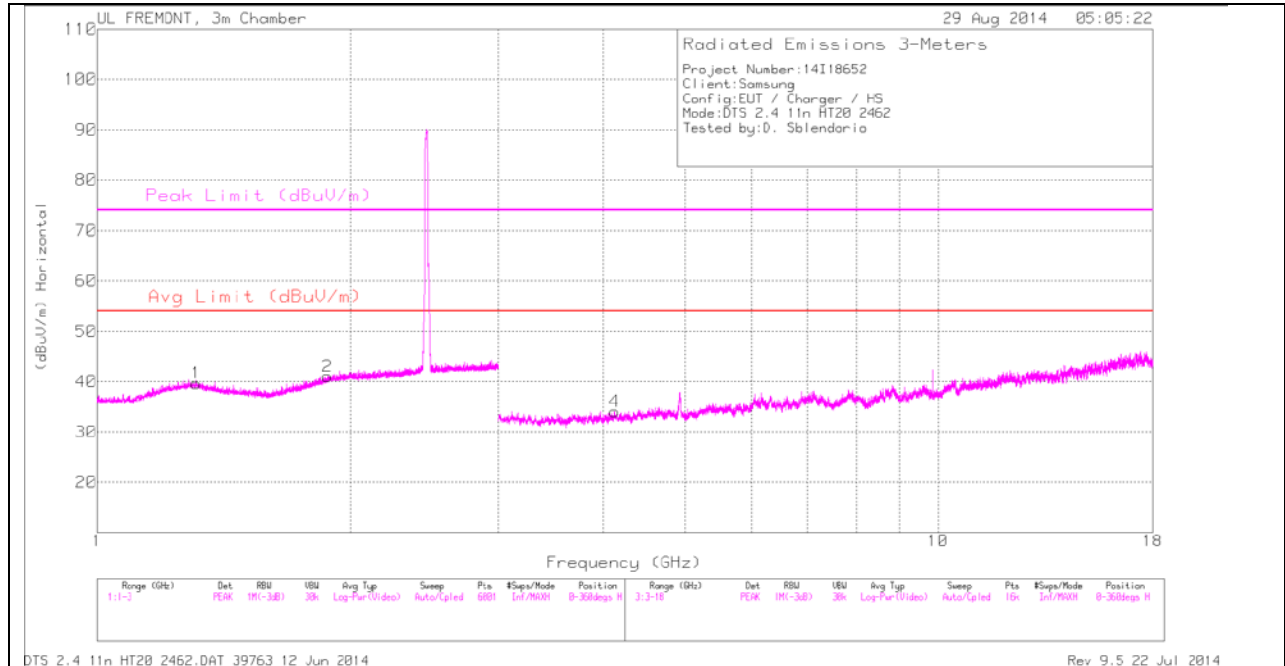
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.871	33.49	MAV1	34	-30.1	0.36	37.75	54	-16.25	-	-	0	100	V
4.872	44.75	PK2	34	-30.1	0	48.65	-	-	74	-25.35	0	100	V
9.748	25.53	MAV1	36.9	-25.7	0.36	37.09	-	-	-	-	0	200	V

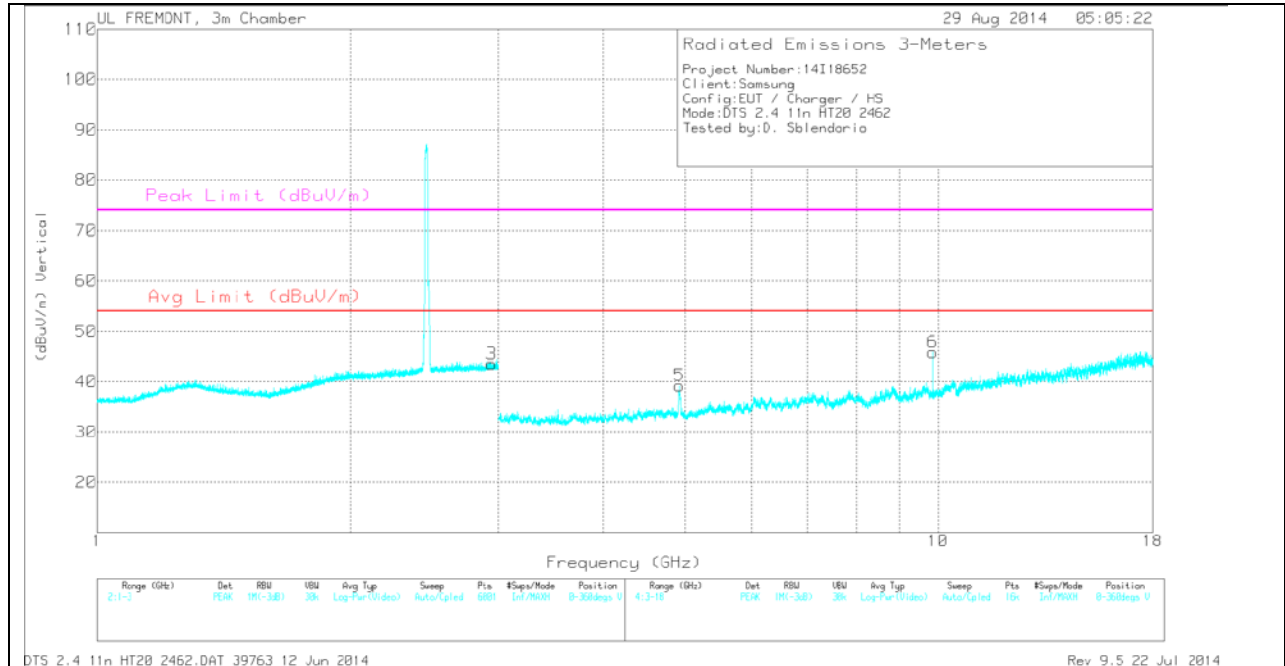
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HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.311	33.41	PK	30.1	-23.8	0	39.71	-	-	74	-34.29	0-360	200	H
2	1.878	33.23	PK	31	-23.2	0	41.03	-	-	-	-	0-360	100	H
3	2.945	33.35	PK	32.8	-22.6	0	43.55	-	-	-	-	0-360	100	V
4	4.123	31.55	PK	33.5	-31	0	34.05	-	-	74	-39.95	0-360	200	H
5	4.923	35.62	PK	34	-30.4	0	39.22	-	-	74	-34.78	0-360	100	V
6	9.847	34.85	PK	36.9	-25.9	0	45.85	-	-	-	-	0-360	200	V

PK - Peak detector

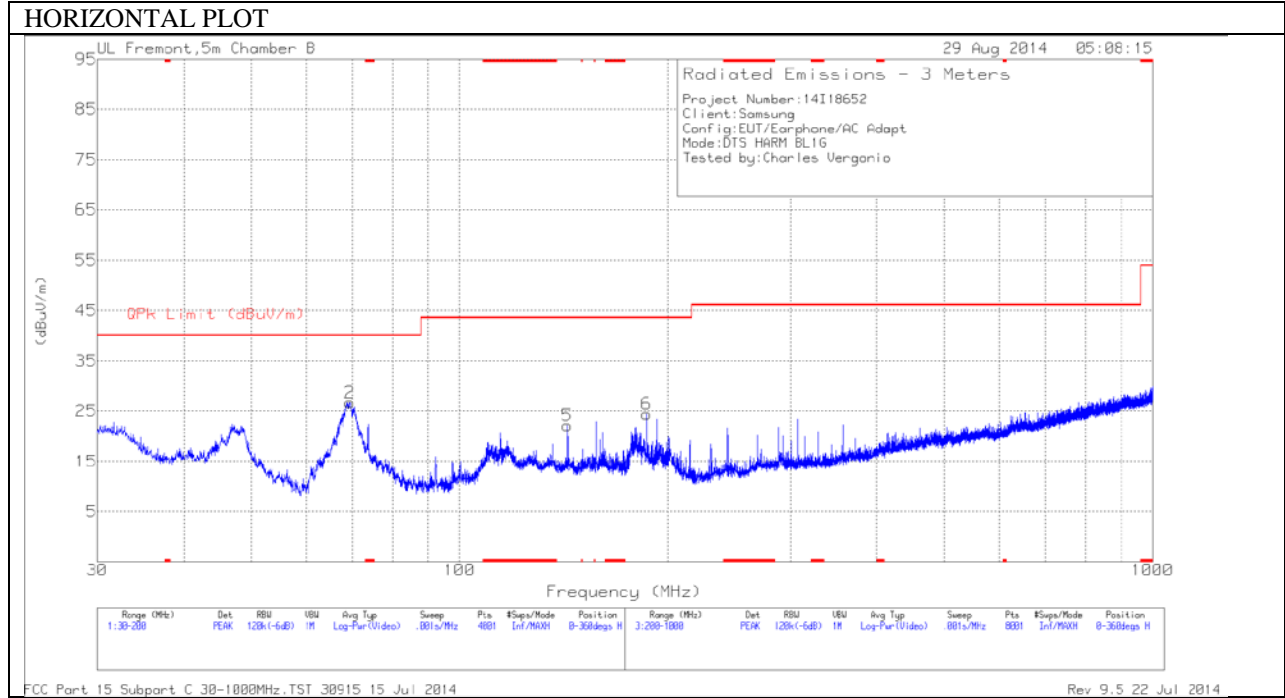
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.924	44.01	PK2	34	-30.4	0	47.61	-	-	74	-26.39	0	100	V
4.924	31.86	MAv1	34	-30.4	0.36	35.82	54	-18.18	-	-	0	100	V
9.848	36.88	PK2	36.9	-25.9	0	47.88	-	-	-	-	0	200	V
9.848	26.3	MAv1	36.9	-25.9	0.36	37.66	-	-	-	-	0	200	V

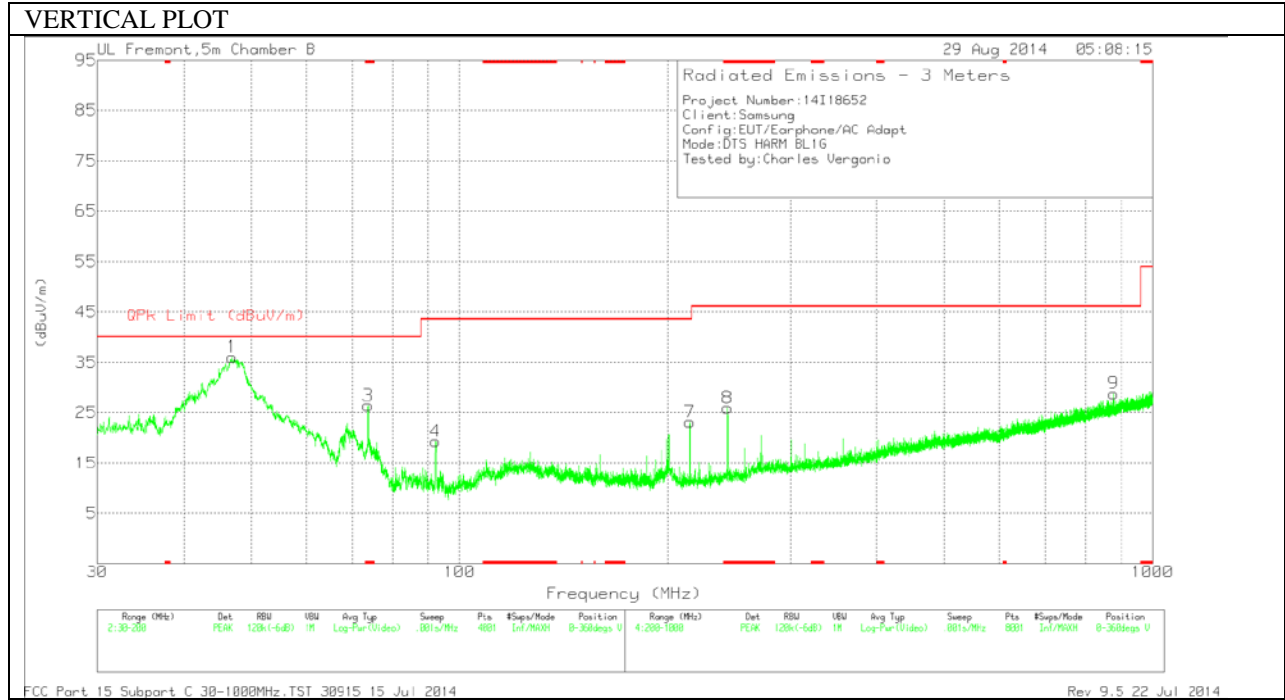
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10.3. WORST-CASE BELOW 1 GHz

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



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



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 73.7325	46.63	PK	8.1	-28.3	26.43	40	-13.57	0-360	101	V
8	* 243.4	40.64	PK	11.7	-26.4	25.94	46.02	-20.08	0-360	300	V
1	46.915	55.37	PK	9.3	-28.6	36.07	40	-3.93	0-360	101	V
2	69.44	46.89	PK	8.1	-28.3	26.69	40	-13.31	0-360	300	H
4	92.3475	39.21	PK	8.2	-28.1	19.31	43.52	-24.21	0-360	101	V
5	143.1775	36.96	PK	12.7	-27.5	22.16	43.52	-21.36	0-360	200	H
6	186.1025	40.53	PK	10.9	-27	24.43	43.52	-19.09	0-360	100	H
7	214.8	39.35	PK	10.6	-26.8	23.15	43.52	-20.37	0-360	200	V
9	878.7	30.24	PK	21.8	-23.2	28.84	46.02	-17.18	0-360	300	V

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

Decreases with the logarithm of the frequency.

TEST PROCEDURE

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 2009.

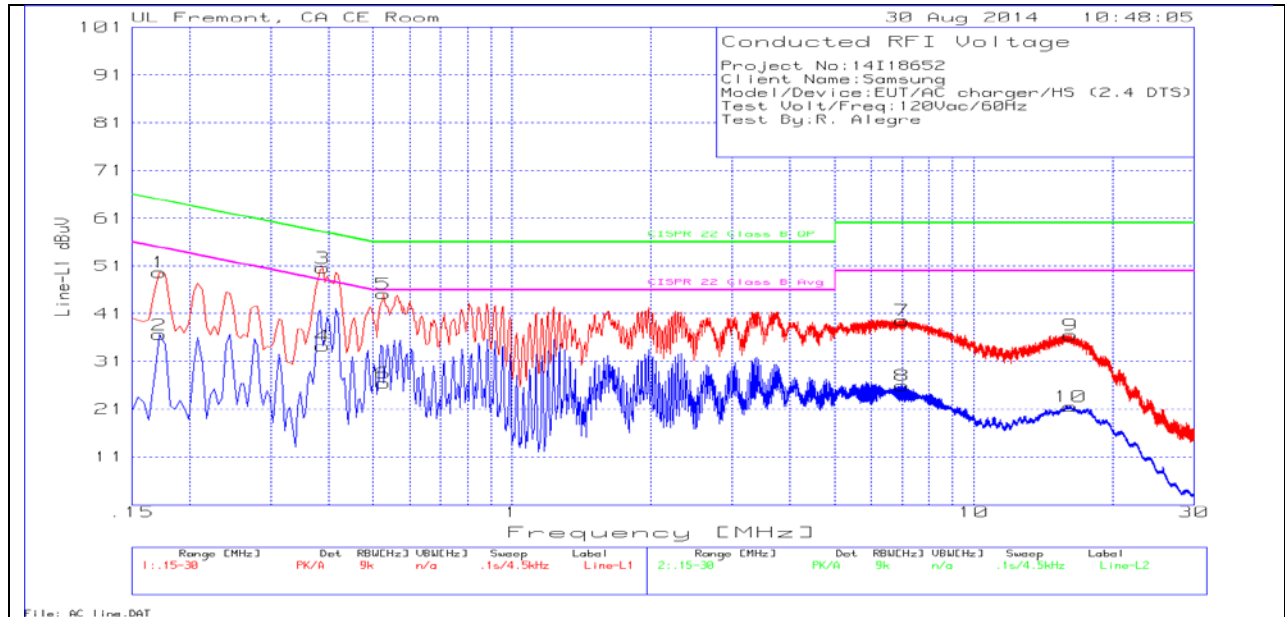
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT

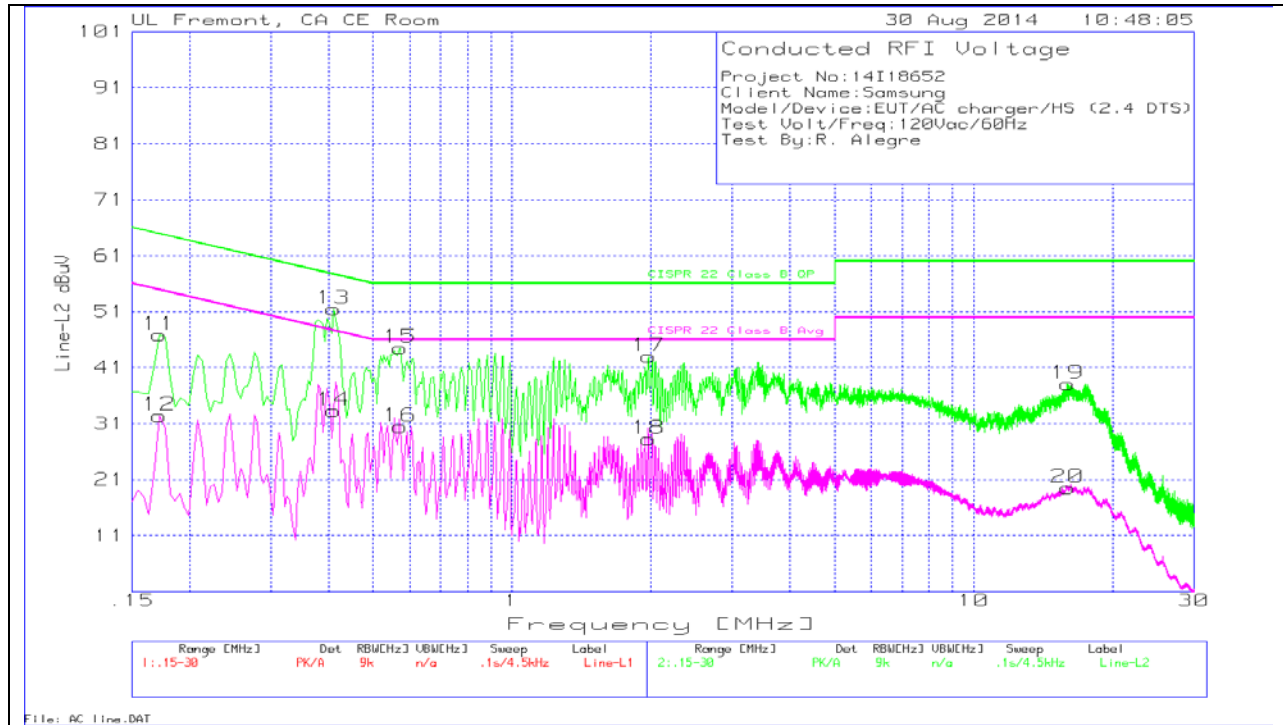


LINE 1 RESULTS

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.1725	48.49	PK	1.2	0	49.69	64.8	-15.11	-	-
2	.1725	35.4	Av	1.2	0	36.6	-	-	54.8	-18.2
3	.3885	50.19	PK	.4	0	50.59	58.1	-7.51	-	-
4	.3885	33.79	Av	.4	0	34.19	-	-	48.1	-13.91
5	.528	44.83	PK	.3	0	45.13	56	-10.87	-	-
6	.528	26.23	Av	.3	0	26.53	-	-	46	-19.47
7	7.0035	39.31	PK	.2	.1	39.61	60	-20.39	-	-
8	7.0035	25.65	Av	.2	.1	25.95	-	-	50	-24.05
9	16.2375	36.07	PK	.3	.2	36.57	60	-23.43	-	-
10	16.2375	21.08	Av	.3	.2	21.58	-	-	50	-28.42

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
11	.1725	45.6	PK	1.2	0	46.8	64.8	-18	-	-
12	.1725	31.19	Av	1.2	0	32.39	-	-	54.8	-22.41
13	.411	51.05	PK	.4	0	51.45	57.6	-6.15	-	-
14	.411	32.92	Av	.4	0	33.32	-	-	47.6	-14.28
15	.573	44.18	PK	.3	0	44.48	56	-11.52	-	-
16	.573	30.23	Av	.3	0	30.53	-	-	46	-15.47
17	1.977	42.67	PK	.2	.1	42.97	56	-13.03	-	-

18	1.977	28.02	Av	.2	.1	28.32	-	-	46	-17.68
19	15.9675	37.61	PK	.3	.2	38.11	60	-21.89	-	-
20	15.9675	18.99	Av	.3	.2	19.49	-	-	50	-30.51
