



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + Bluetooth, 2.4GHz DTS & NFC

MODEL NUMBER : SM-G388F

FCC ID: A3LSMG388F

REPORT NUMBER: 15K19845-E1

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Prepared for

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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth, 2.4GHz DTS & NFC
MODEL NUMBER: SM-G388F
SERIAL NUMBER: R38G10B0RAZ (RADIATED); R38G10B0NMN (CONDUCTED)
DATE TESTED: JANUARY 24 - FEBRUARY 01, 2015

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

UL Korea, Ltd. 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 Korea, Ltd. 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 Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Tested By:



Ji Ho Choi
Suwon Lab Manager
UL Korea, Ltd.

CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea. Line conducted emissions are measured only at the 218 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.

218 Maeyeong-ro	
☒	Chamber 1
☐	Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 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, 2.4GHz DTS & NFC
This test report addresses the DTS (WLAN) operational mode.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	16.02	39.99
2412 - 2462	802.11g	12.91	19.54
2412 - 2462	802.11n HT20	11.87	15.38

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antennas, with a maximum gain of -0.18 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 and 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
Charger	SAMSUNG	ETA0U10EBE	N/A	N/A
Data Cable	SAMSUNG	GH39-01710A	N/A	N/A
Earphone	SAMSUNG	GH59-11129H	N/A	N/A

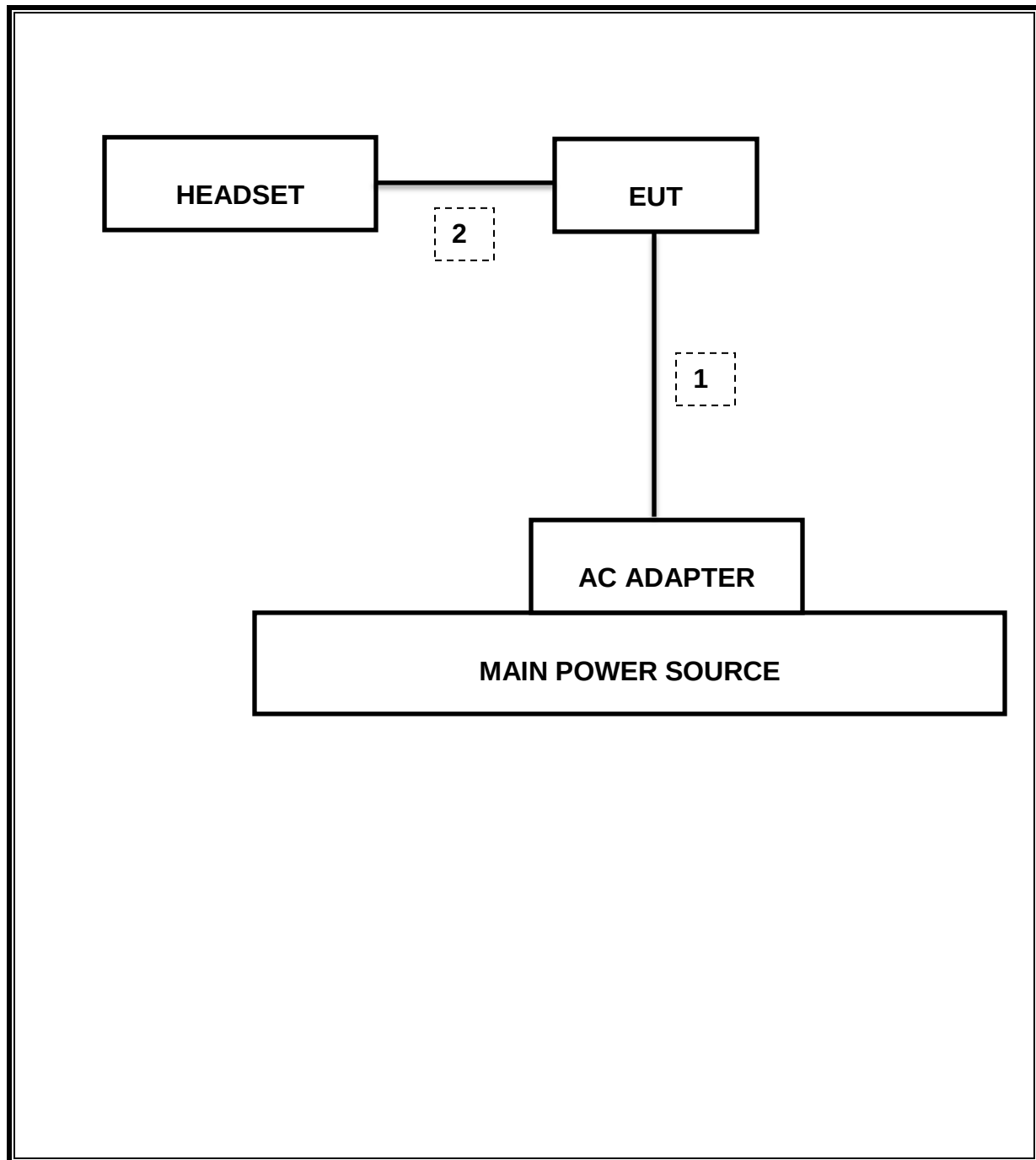
I/O CABLES

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	0.8m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	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	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	950	11-17-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	09-20-15
Antenna, Horn, 40 GHz	ETS	3116C	00166255	09-23-15
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	09-29-15
Preamplifier, 1000 MHz	Sonoma	310N	341282	11-17-15
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	11-18-15
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	09-23-15
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	11-17-15
Average Power Sensor	R&S	NRZ-Z91	102681	11-17-15
Average Power Sensor	Agilent / HP	U2000	MY54270007	09-23-15
EMI Test Receive, 40 GHz	R&S	ESU40	100439	11-17-15
EMI Test Receive, 3 GHz	R&S	ESR3	101832	11-17-15
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	009	11-17-15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	009	11-17-15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	010	11-17-15

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure AVGPM-G is used for power and AVGPS-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. 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)
2400MHz Bands						
802.11b	8.625	8.685	0.993	99.3%	0.00	0.010
802.11g	1.432	1.491	0.960	96.0%	0.18	0.698
802.11n HT20	1.340	1.399	0.958	95.8%	0.19	0.746

9. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	10.064MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-34.609dBm
15.247	TX conducted output power	<30dBm		Pass	16.02dBm
15.247	PSD	<8dBm		Pass	-7.92dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	30.75dBuV(AV)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	49.05dBuV/m

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

10.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.085	0.5
Mid	2437	10.092	0.5
High	2462	10.064	0.5
Worst		10.064	

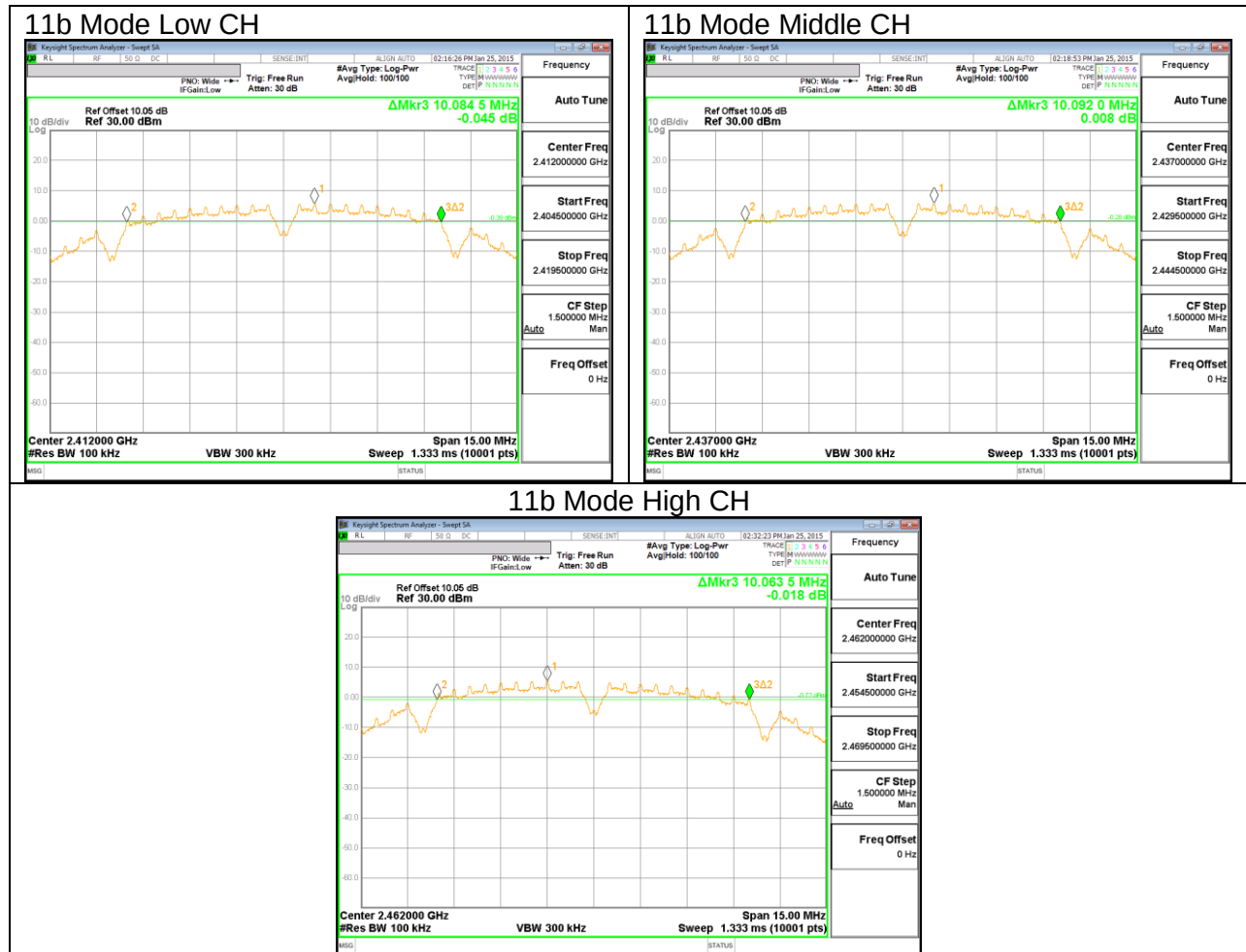
10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

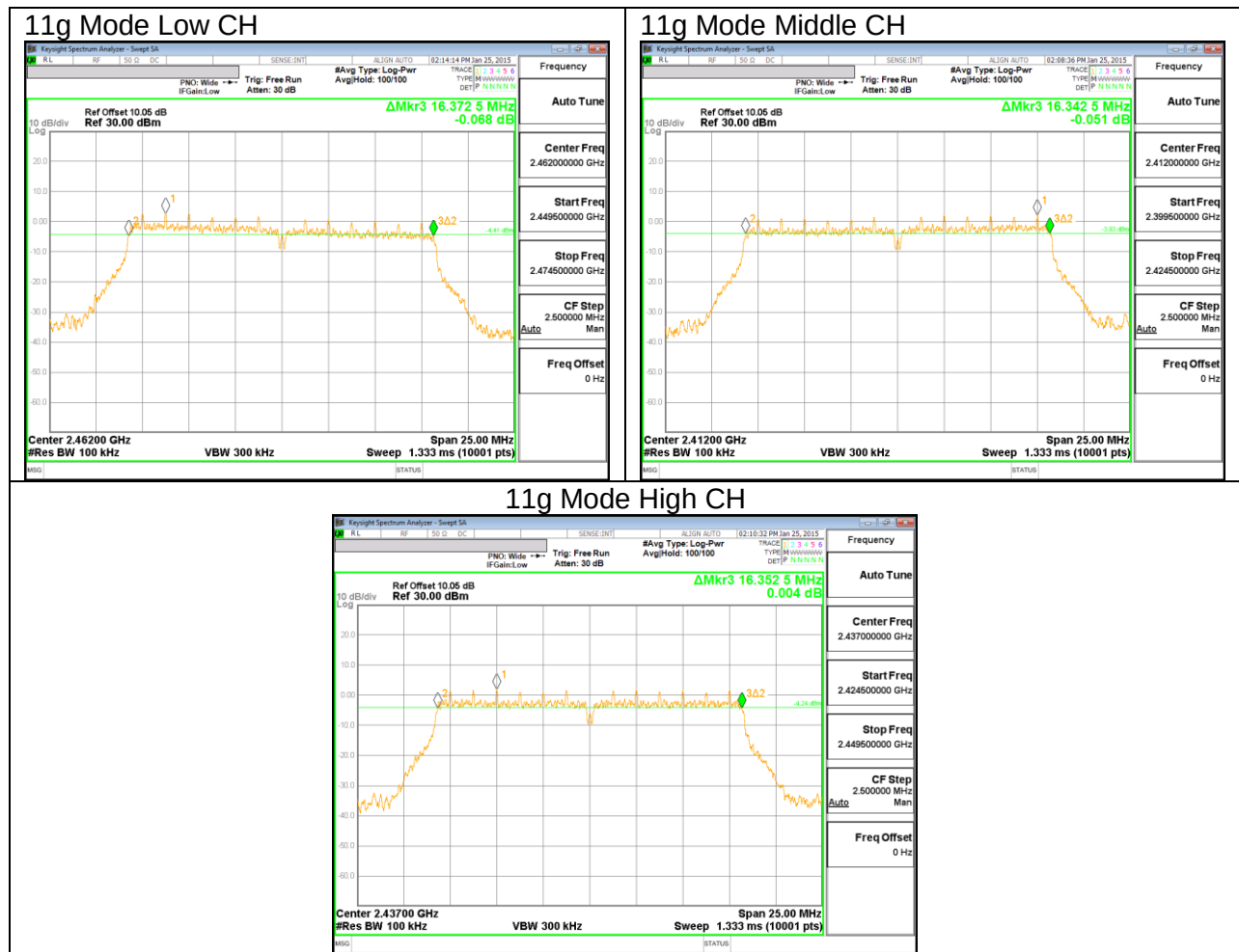
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.343	0.5
Mid	2437	16.353	0.5
High	2462	16.373	0.5
Worst		16.343	

10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

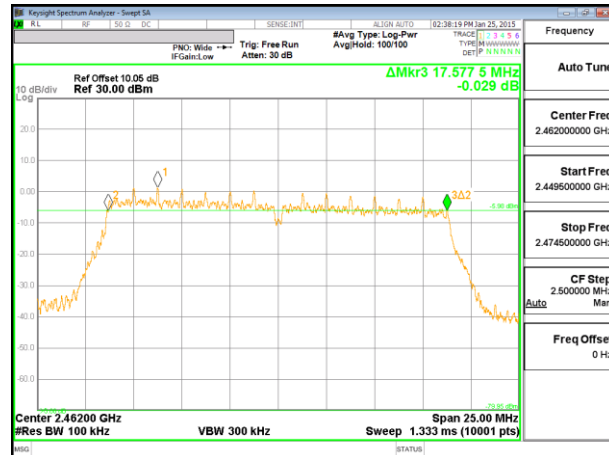
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.575	0.5
Mid	2437	17.570	0.5
High	2462	17.578	0.5
Worst		17.570	

10.1.4. 6 dB BANDWIDTH PLOTS

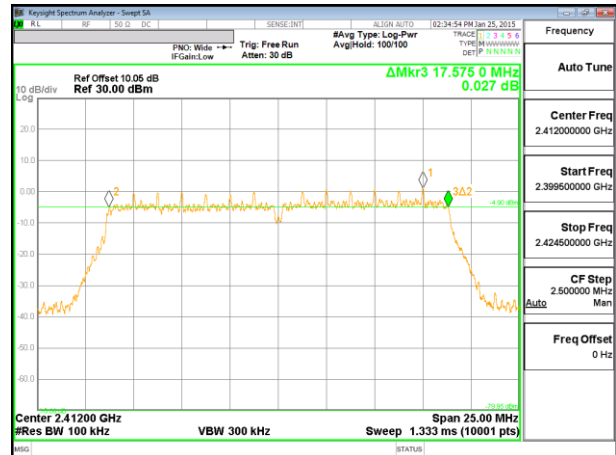




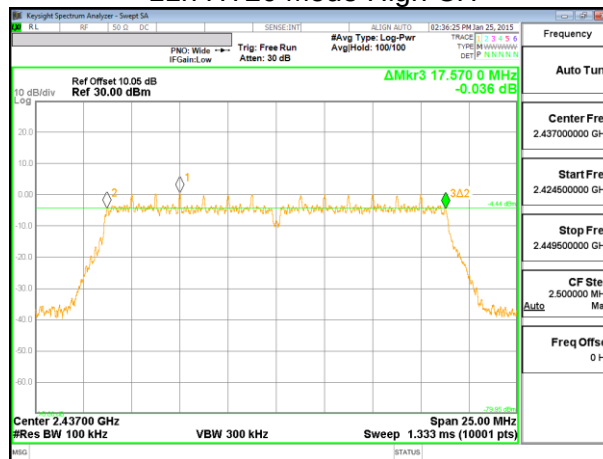
11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



10.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.310
Mid	2437	13.588
High	2462	13.470
Worst		13.588

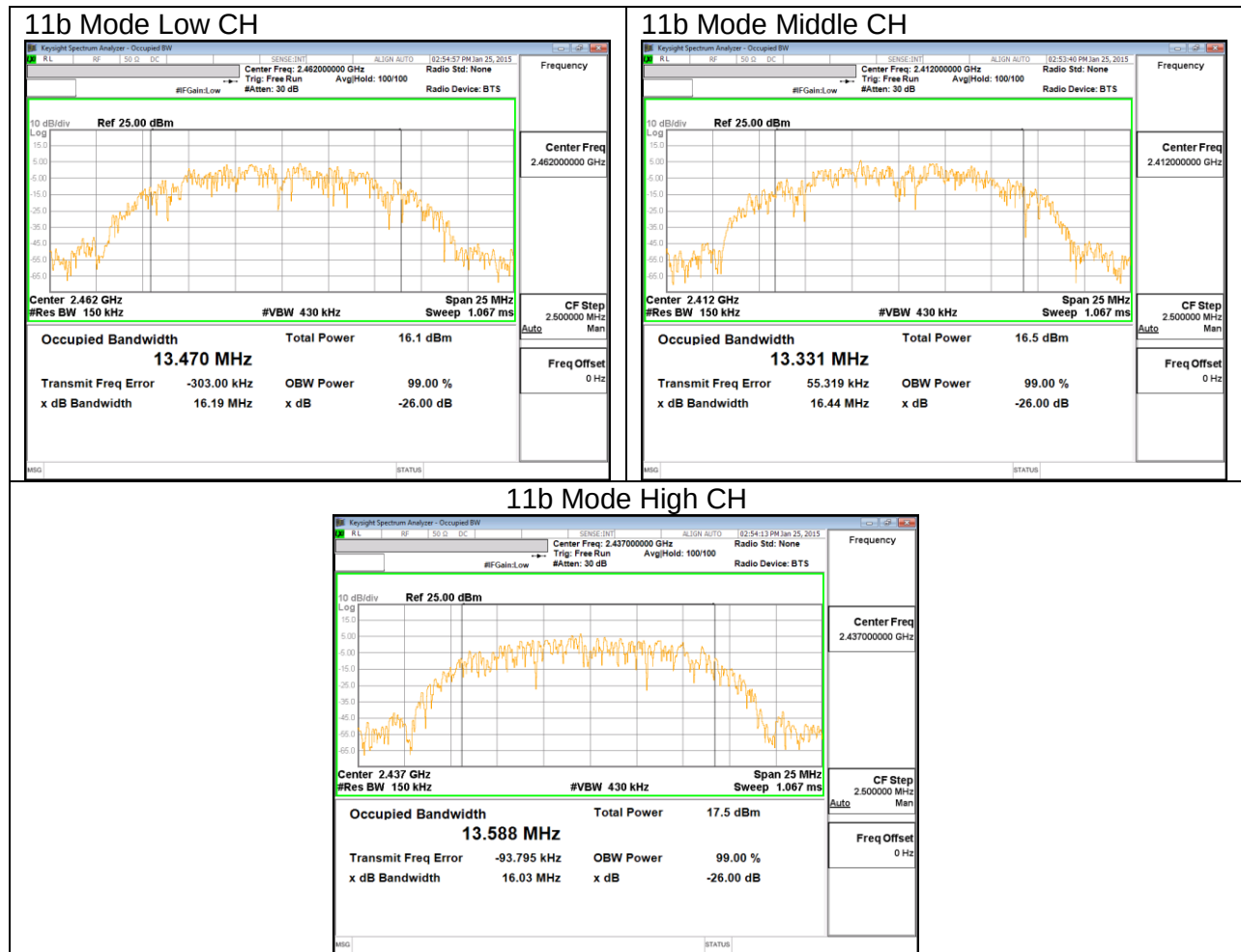
10.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.507
Mid	2437	16.429
High	2462	16.510
Worst		16.510

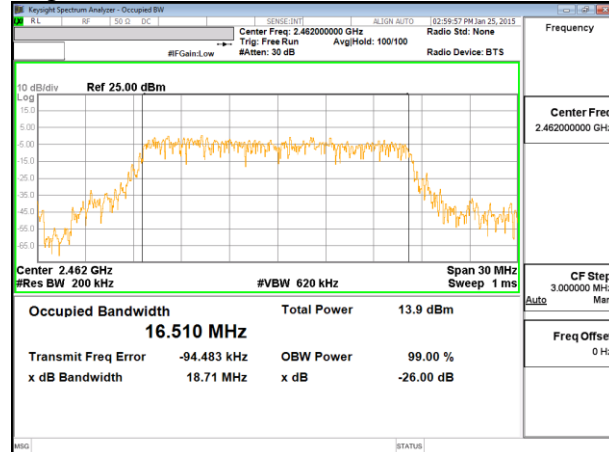
10.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.786
Mid	2437	17.691
High	2462	17.665
Worst		17.786

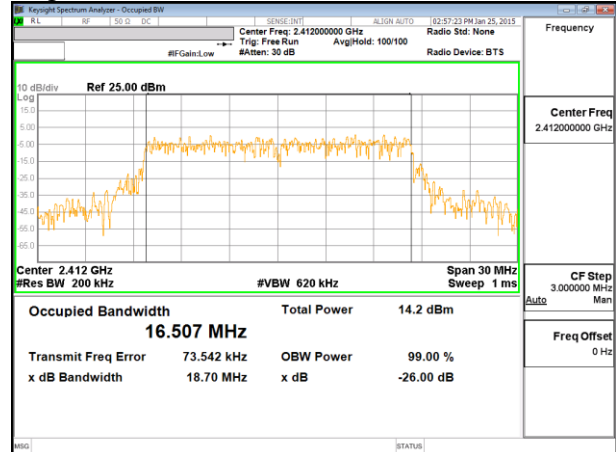
10.2.4. 99% BANDWIDTH PLOTS



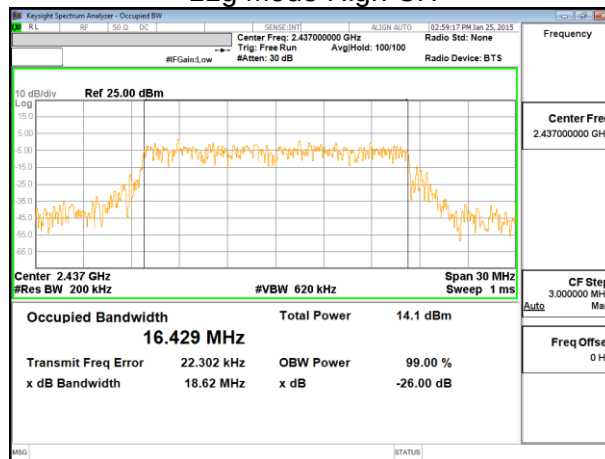
11g Mode Low CH



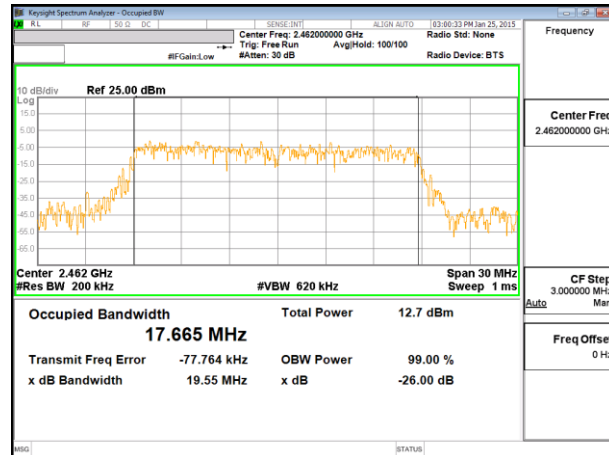
11g Mode Middle CH



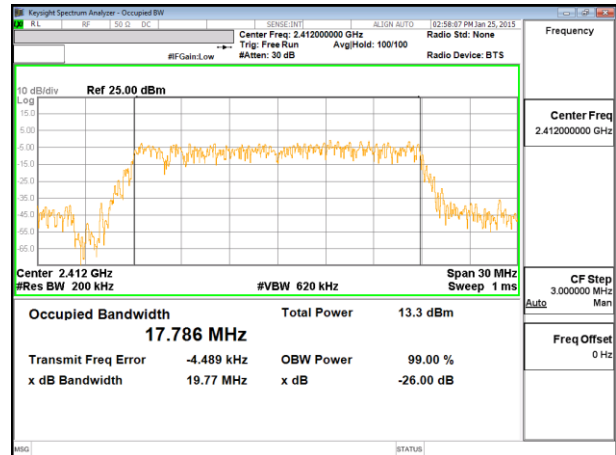
11g Mode High CH



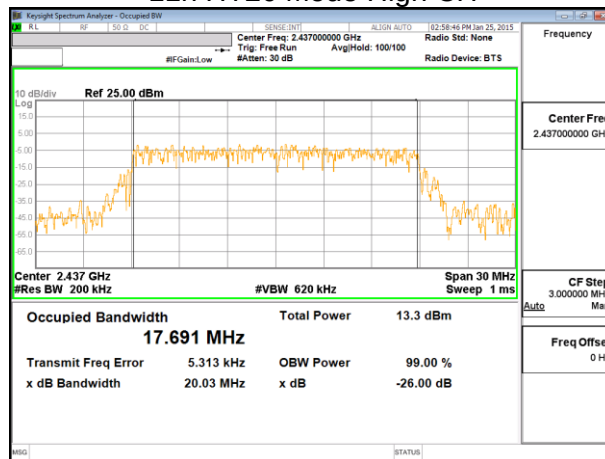
11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



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 10.1 dB (including 10 dB pad and 0.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

10.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	15.79
Mid	2437	16.02
High	2462	15.25
Worst		16.02

10.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	12.61
Mid	2437	12.91
High	2462	12.79
Worst		12.91

10.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	11.63
Mid	2437	11.87
High	2462	11.66
Worst		11.87

10.4. 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.

RESULTS

10.4.1. 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	-0.18	30.00	30.00	36.00	30.00
Mid	2437	-0.18	30.00	30.00	36.00	30.00
High	2462	-0.18	30.00	30.00	36.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	15.79	15.79	30.00	-14.21
Mid	2437	16.02	16.02	30.00	-13.98
High	2462	15.25	15.25	30.00	-14.75
Worst			16.02		

10.4.2. 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	-0.18	30.00	30.00	36.00	30.00
Mid	2437	-0.18	30.00	30.00	36.00	30.00
High	2462	-0.18	30.00	30.00	36.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	12.61	12.61	30.00	-17.39
Mid	2437	12.91	12.91	30.00	-17.09
High	2462	12.79	12.79	30.00	-17.21
Worst			12.91		

10.4.3. 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	-0.18	30.00	30.00	36.00	30.00
Mid	2437	-0.18	30.00	30.00	36.00	30.00
High	2462	-0.18	30.00	30.00	36.00	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	11.63	11.63	30.00	-18.37
Mid	2437	11.87	11.87	30.00	-18.13
High	2462	11.66	11.66	30.00	-18.34
Worst			11.87		

10.5. PSD

LIMITS

FCC §15.247

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

10.5.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-14.52	8.00	-22.52
Mid	2437	-14.14	8.00	-22.14
High	2462	-14.70	8.00	-22.70

10.5.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

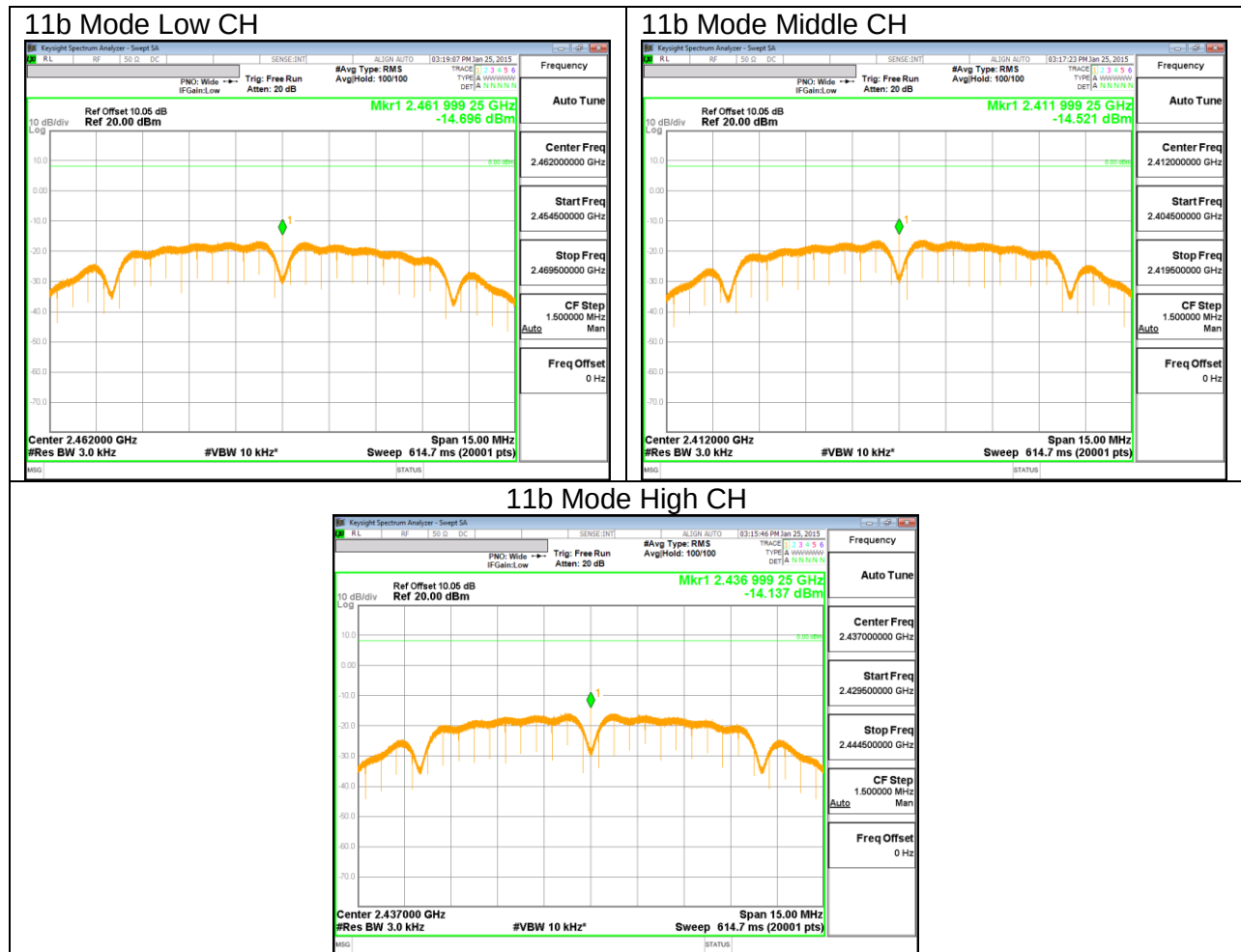
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.88	8.00	-21.88
Mid	2437	-12.05	8.00	-20.05
High	2462	-7.92	8.00	-15.92

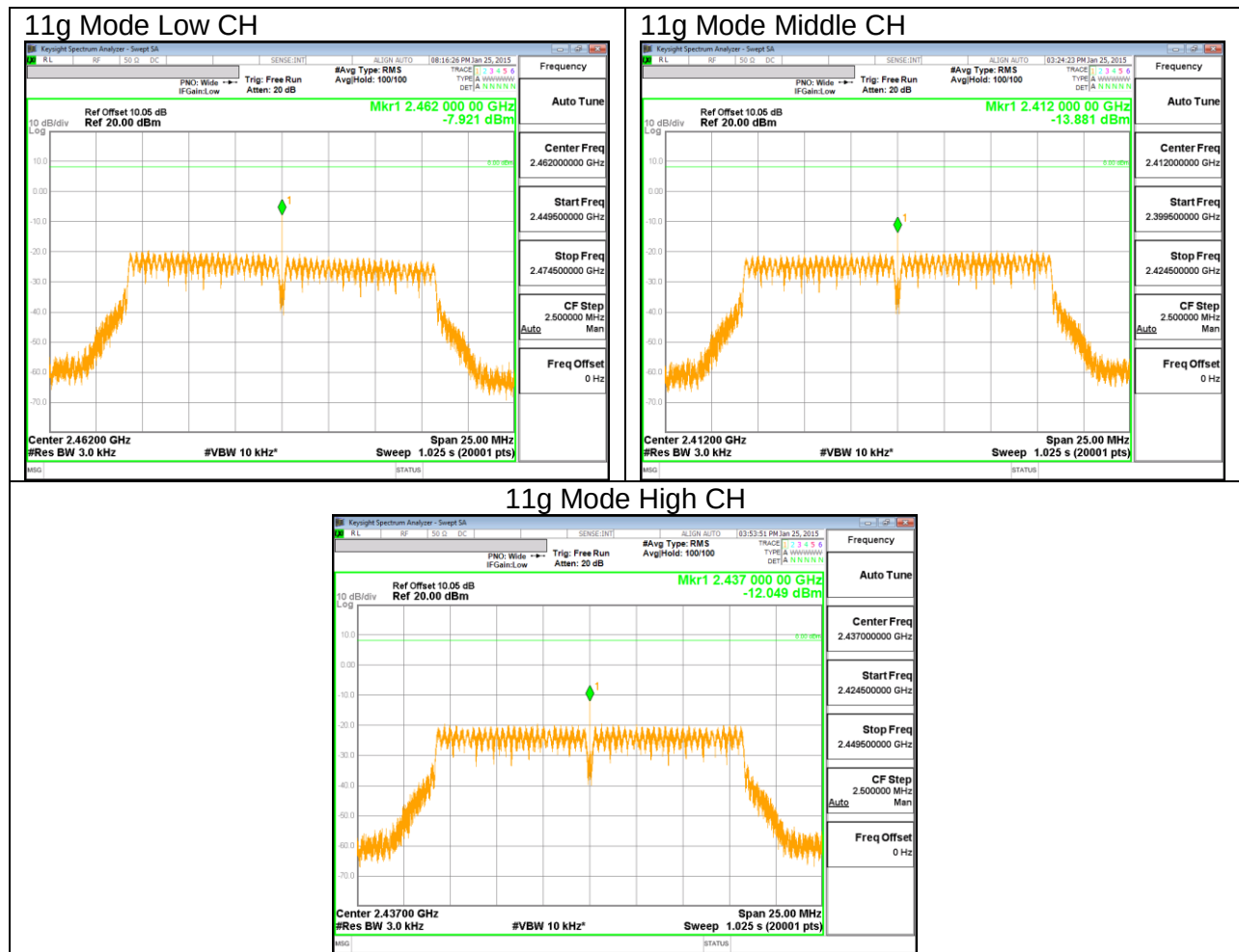
10.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

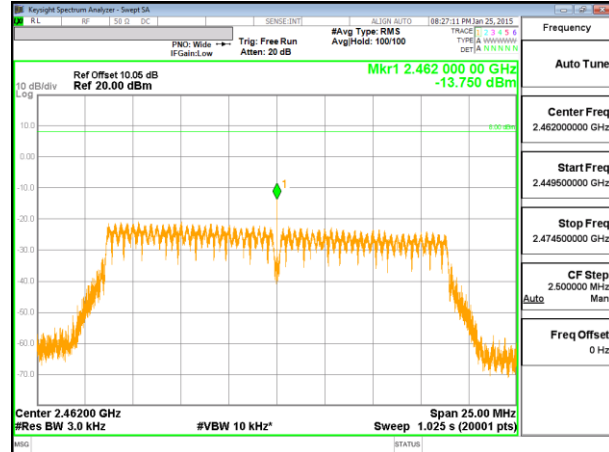
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.62	8.00	-21.62
Mid	2437	-13.36	8.00	-21.36
High	2462	-13.75	8.00	-21.75

10.5.4. PSD PLOTS

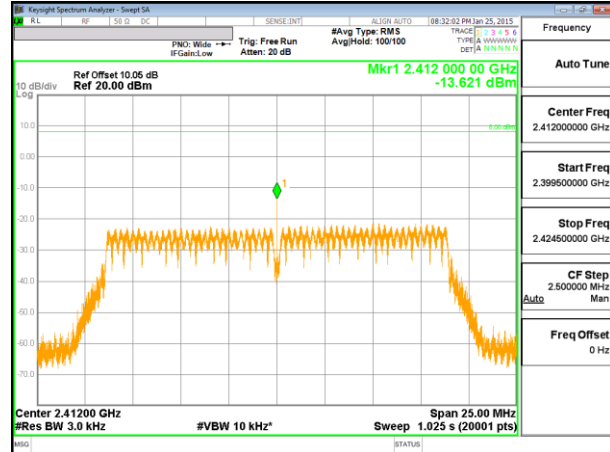




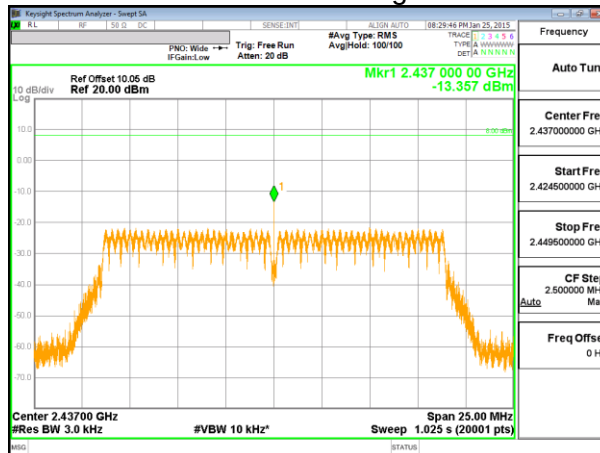
11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



10.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

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.

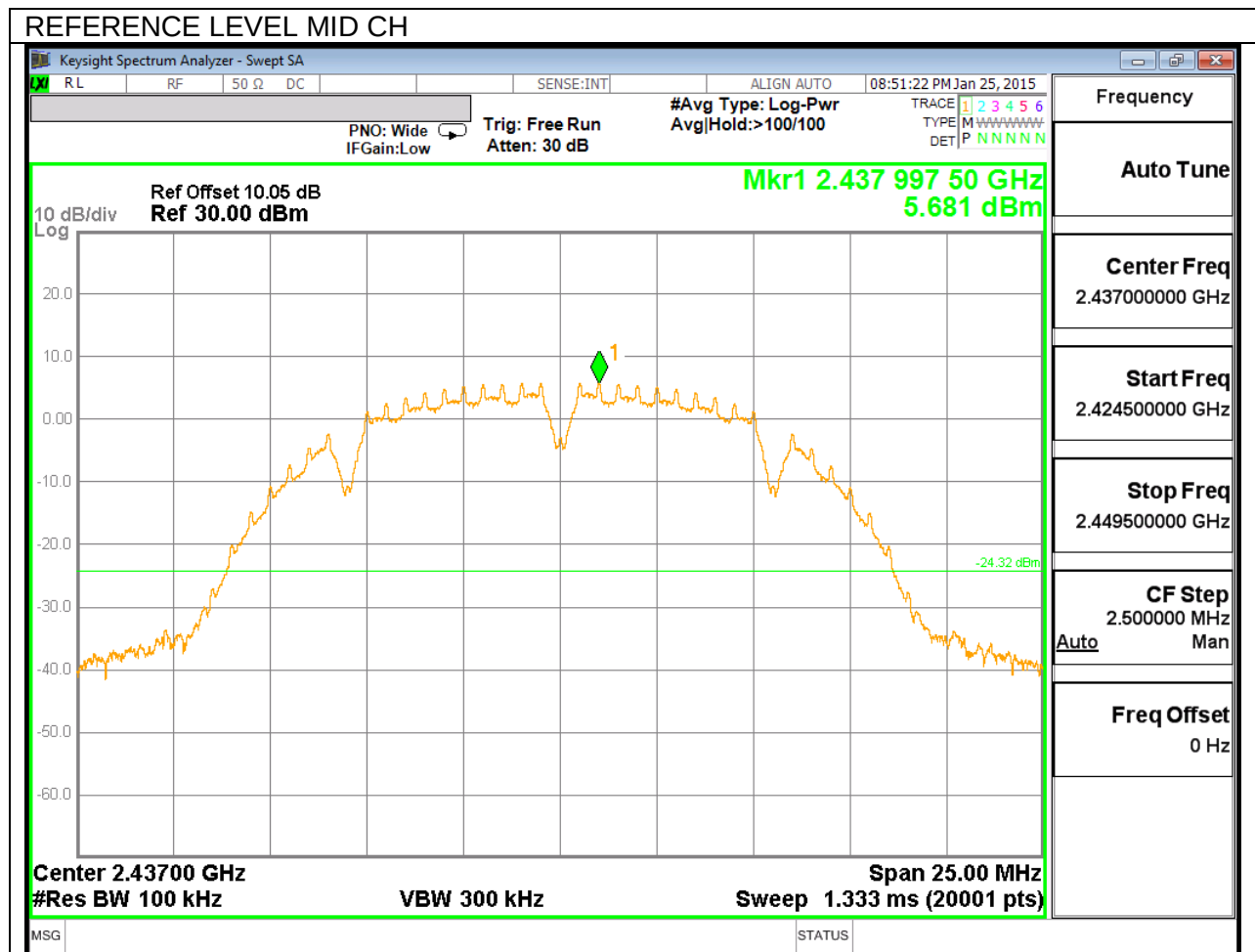
TEST PROCEDURE

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.

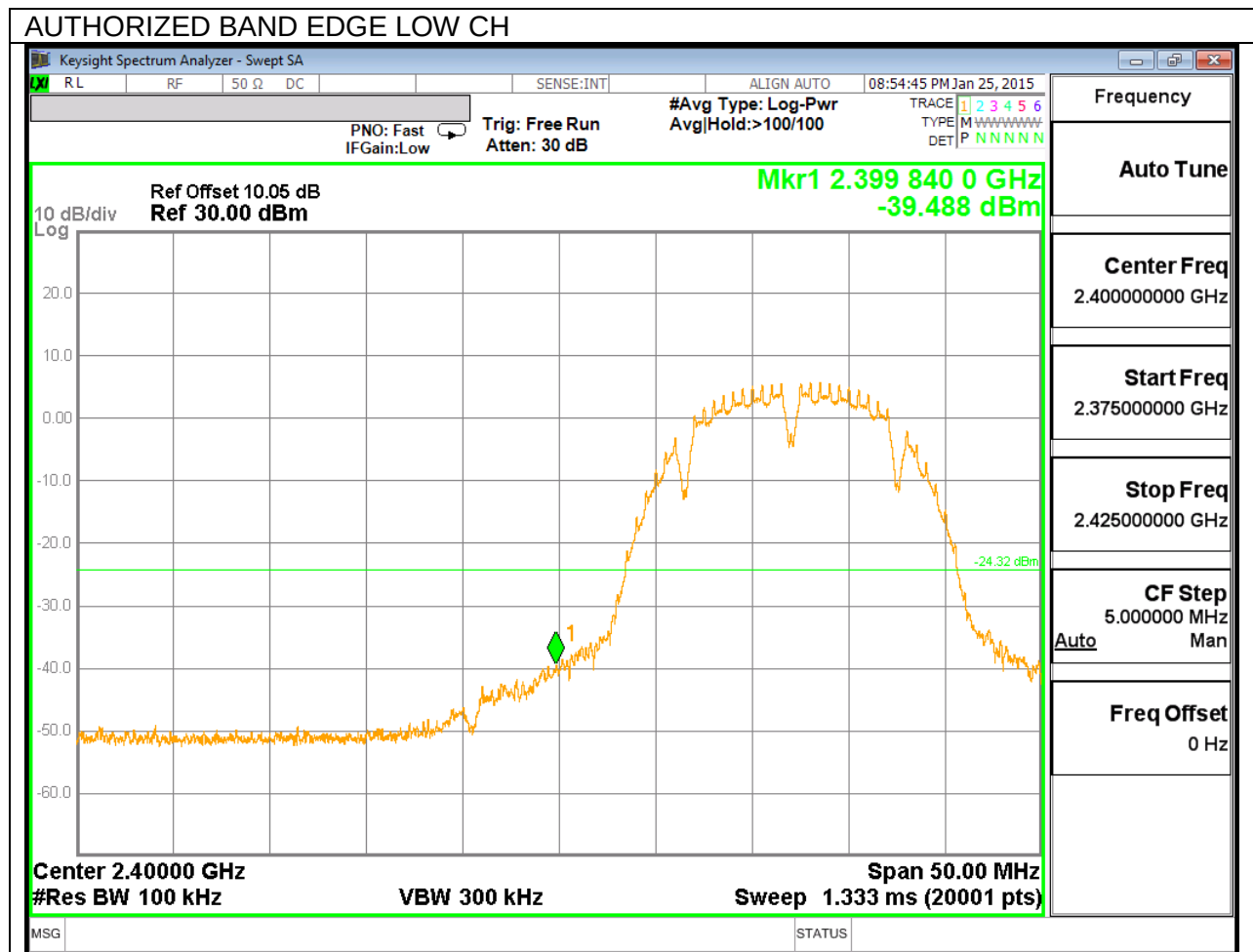
RESULTS

10.6.1. 802.11b MODE IN THE 2.4 GHZ BAND

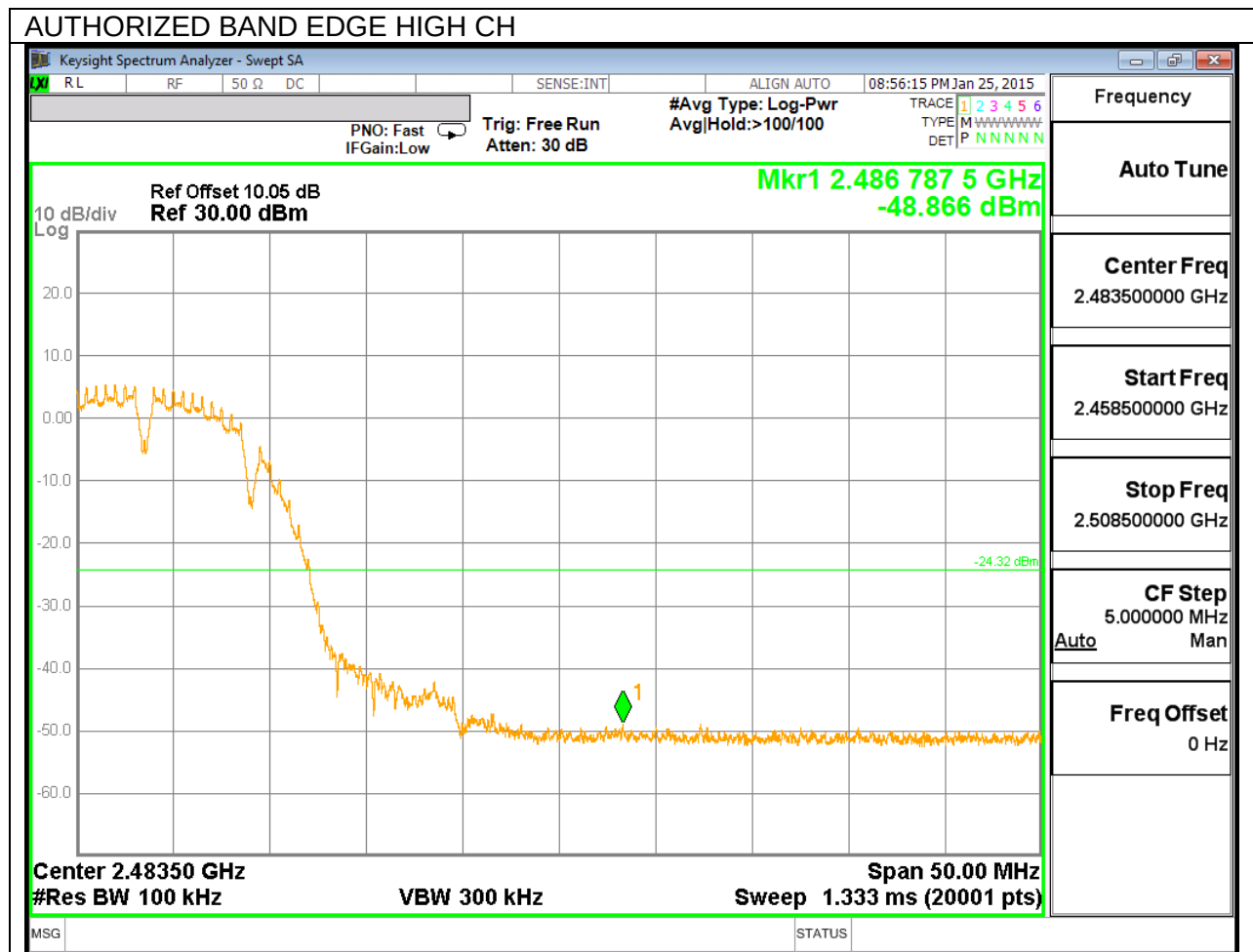
IN-BAND REFERENCE LEVEL



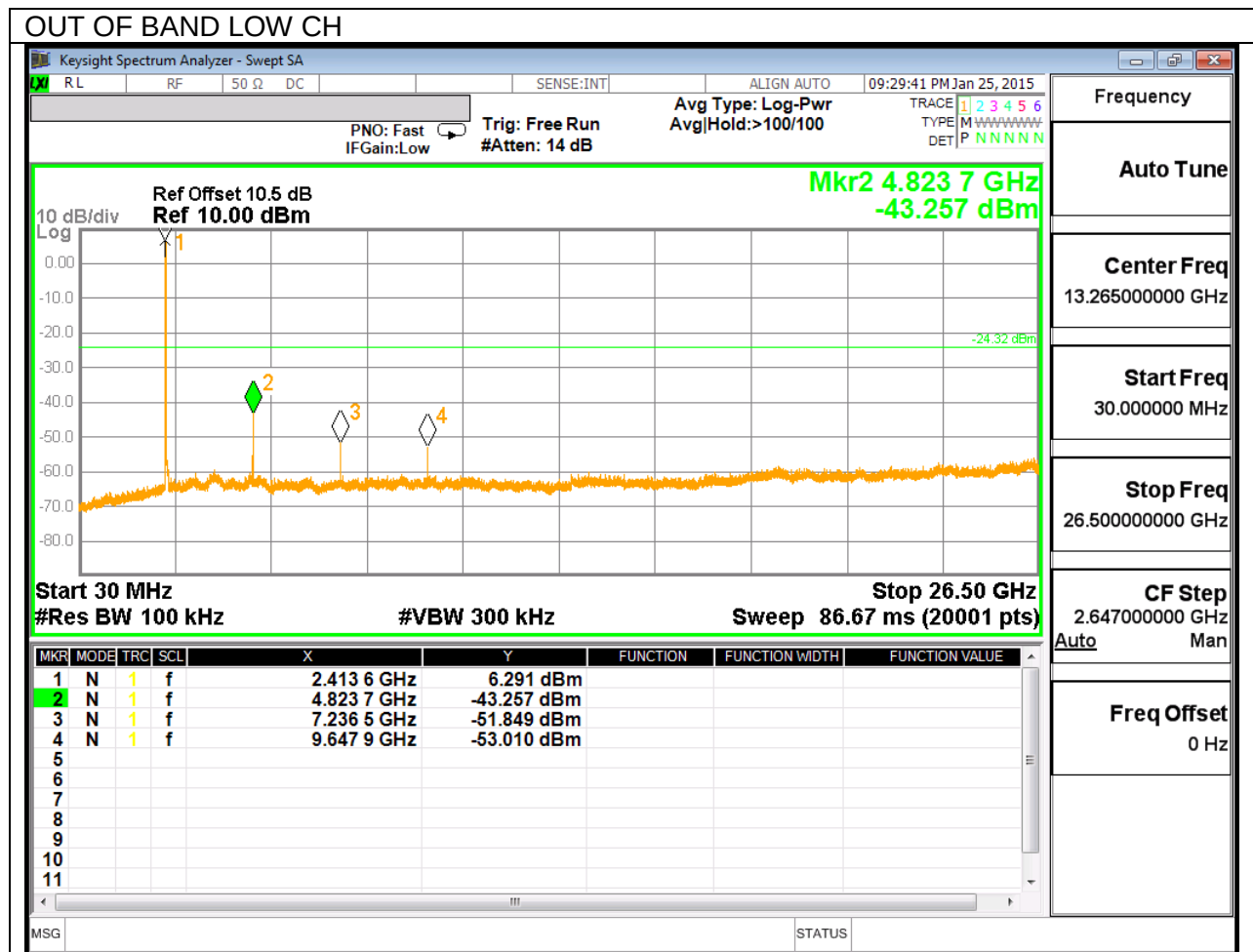
LOW CHANNEL BANDEDGE



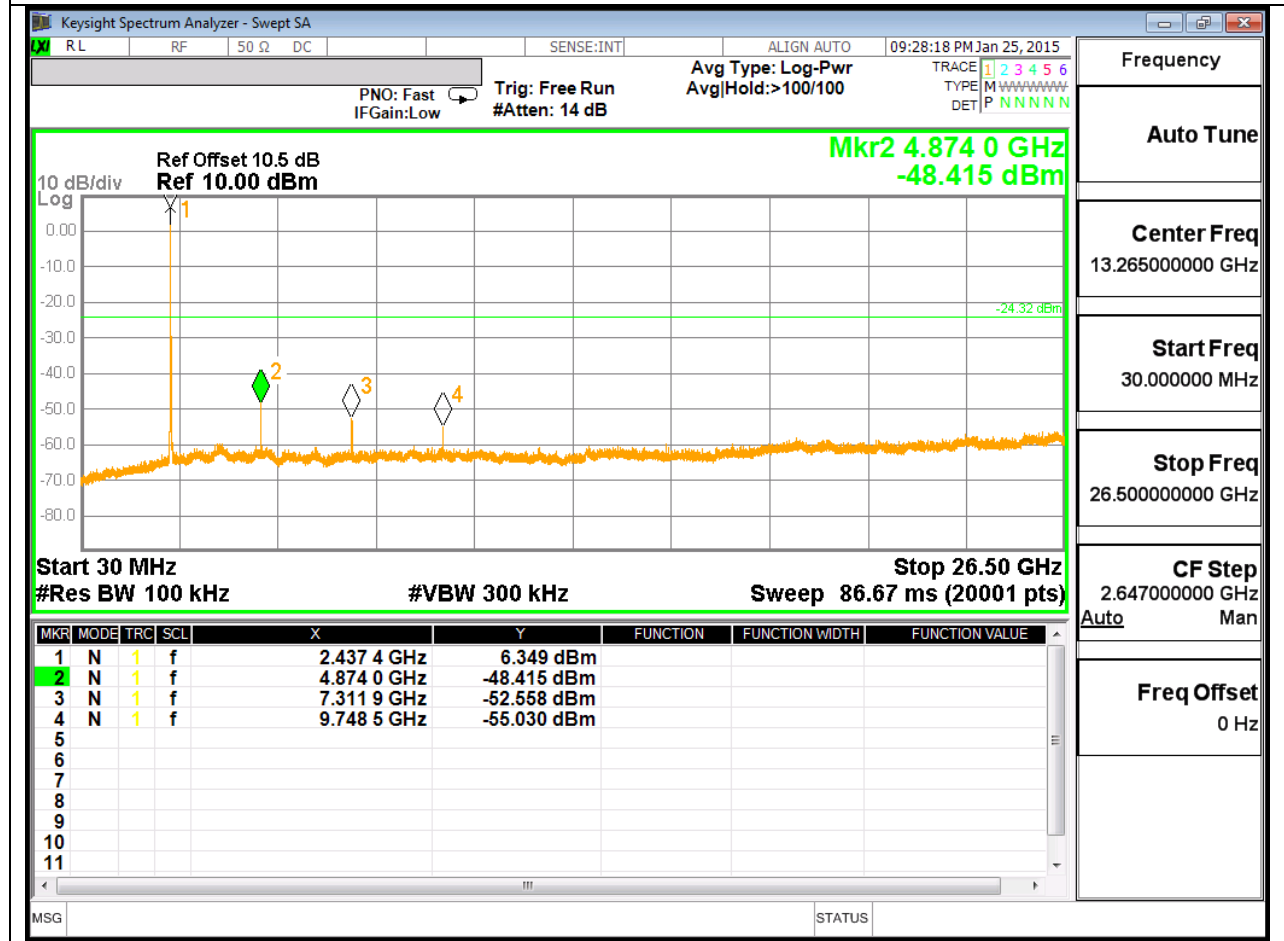
HIGH CHANNEL BANDEDGE



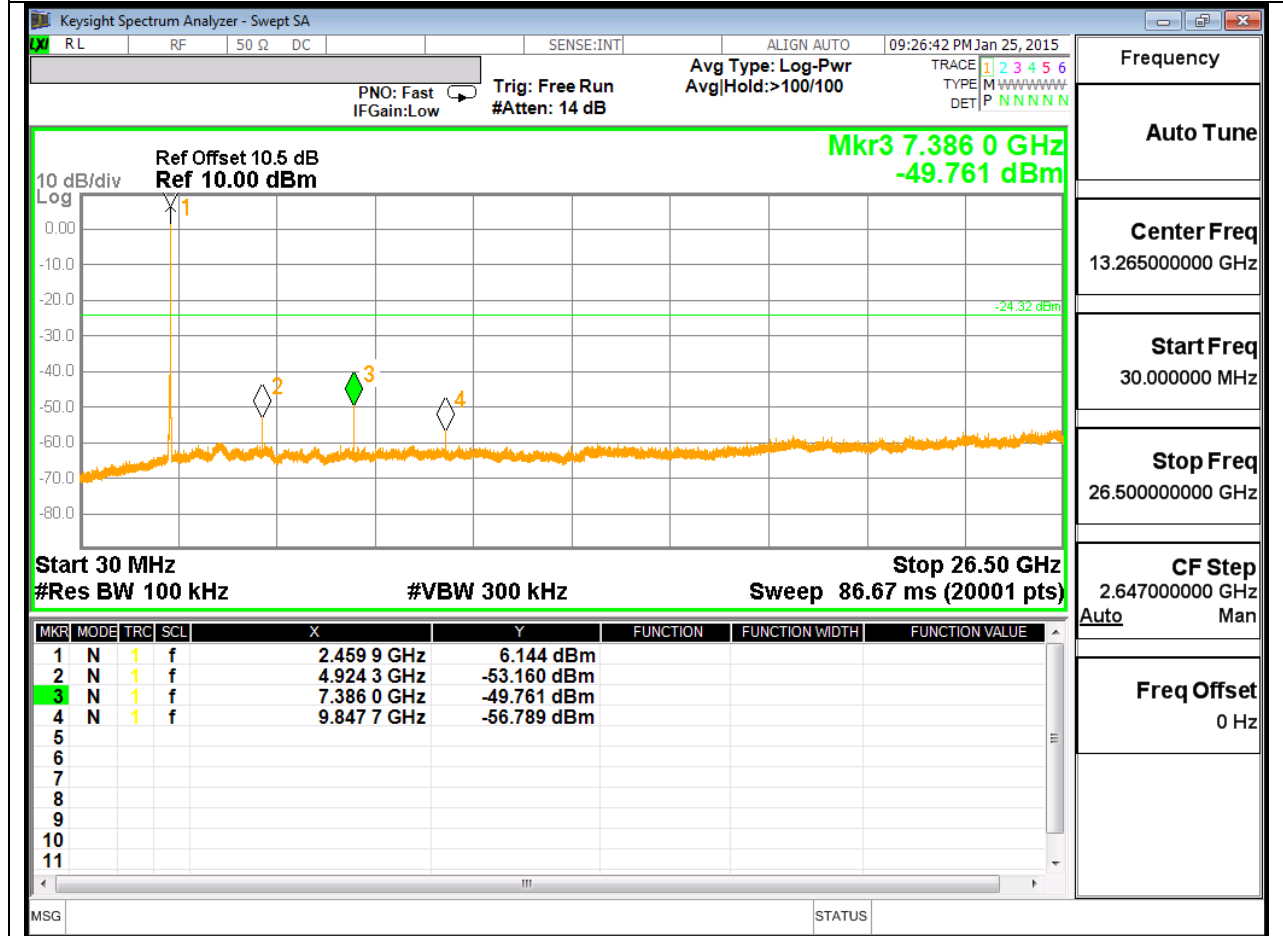
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH

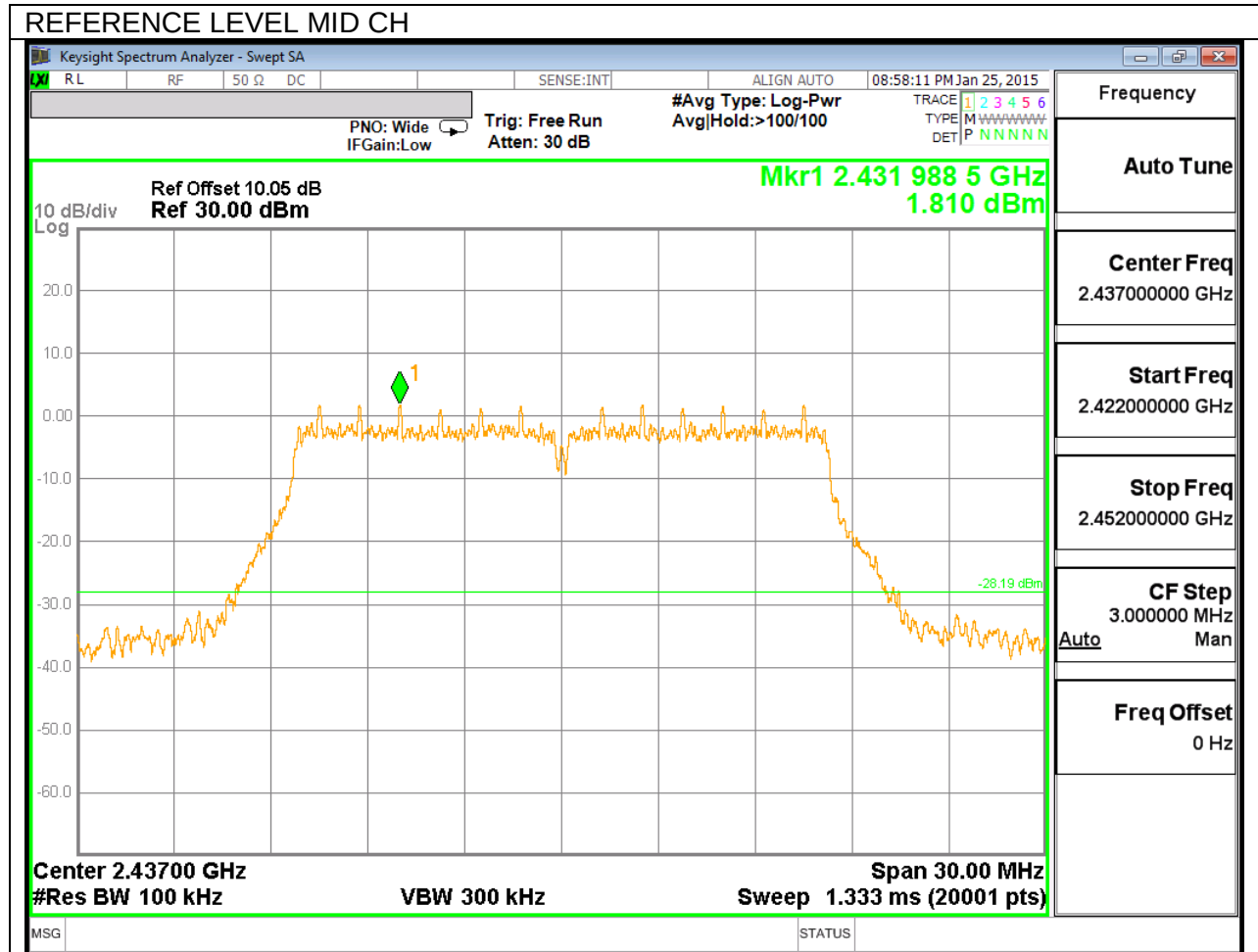


OUT OF BAND HIGH CH

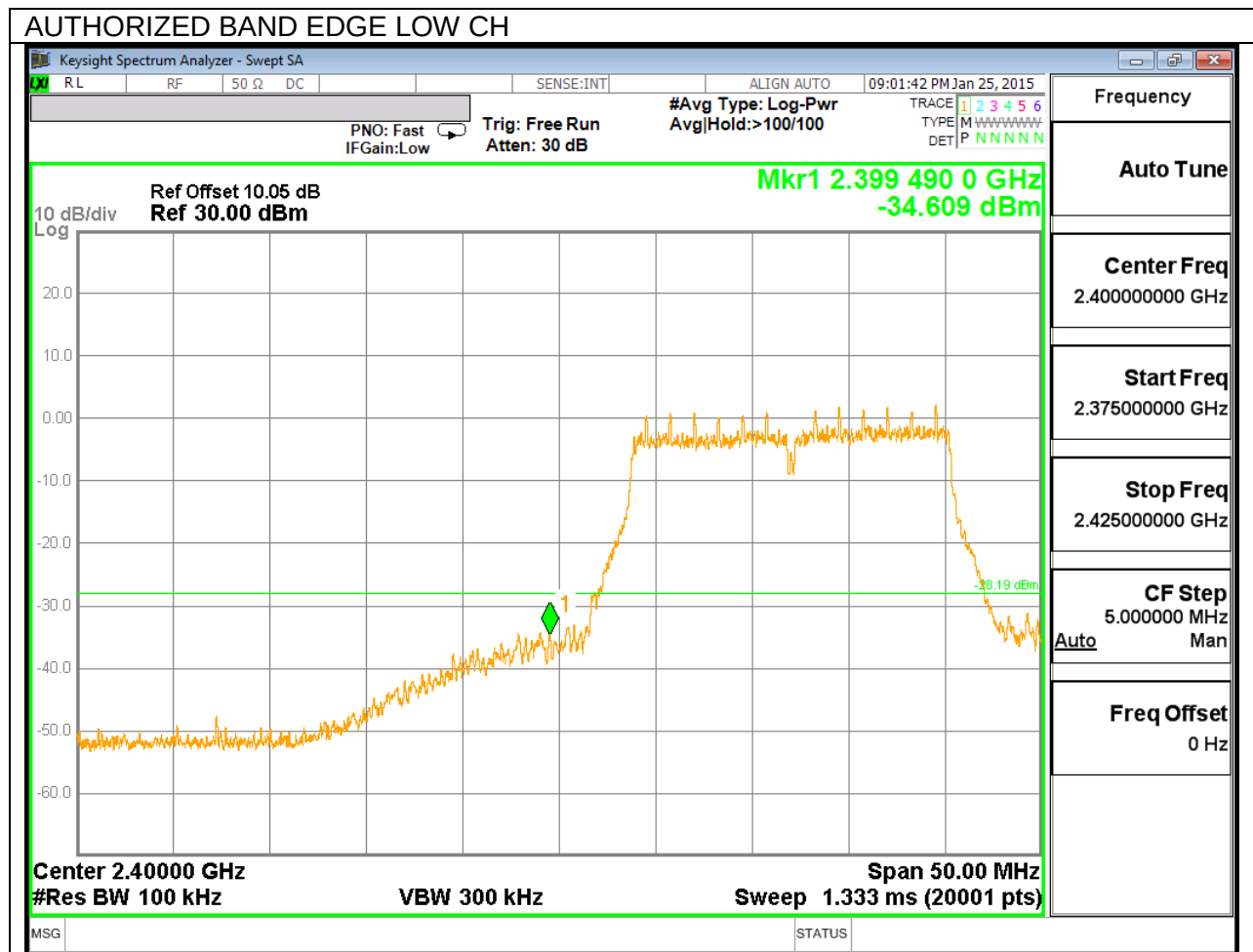


10.6.2. 802.11g MODE IN THE 2.4 GHZ BAND

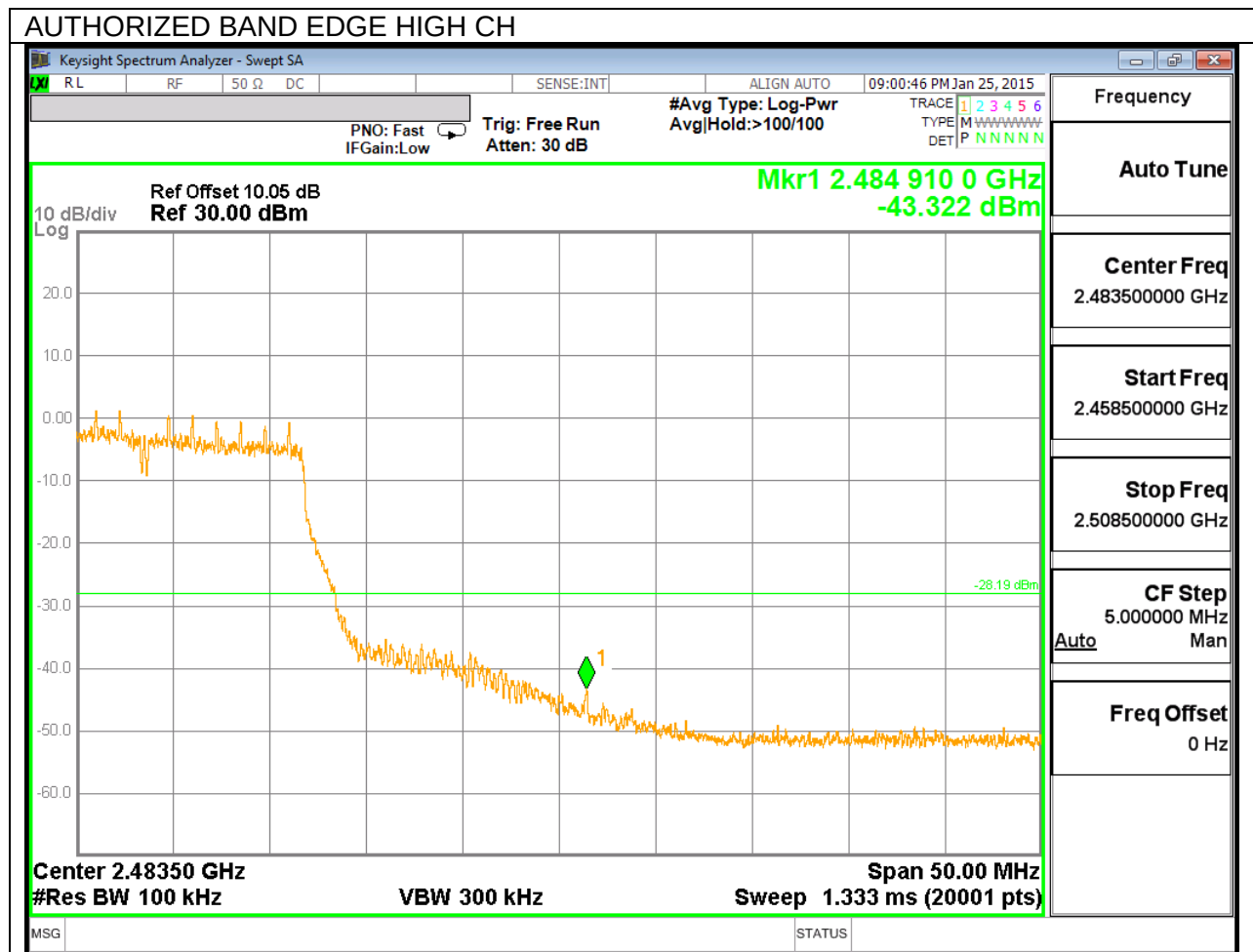
IN-BAND REFERENCE LEVEL



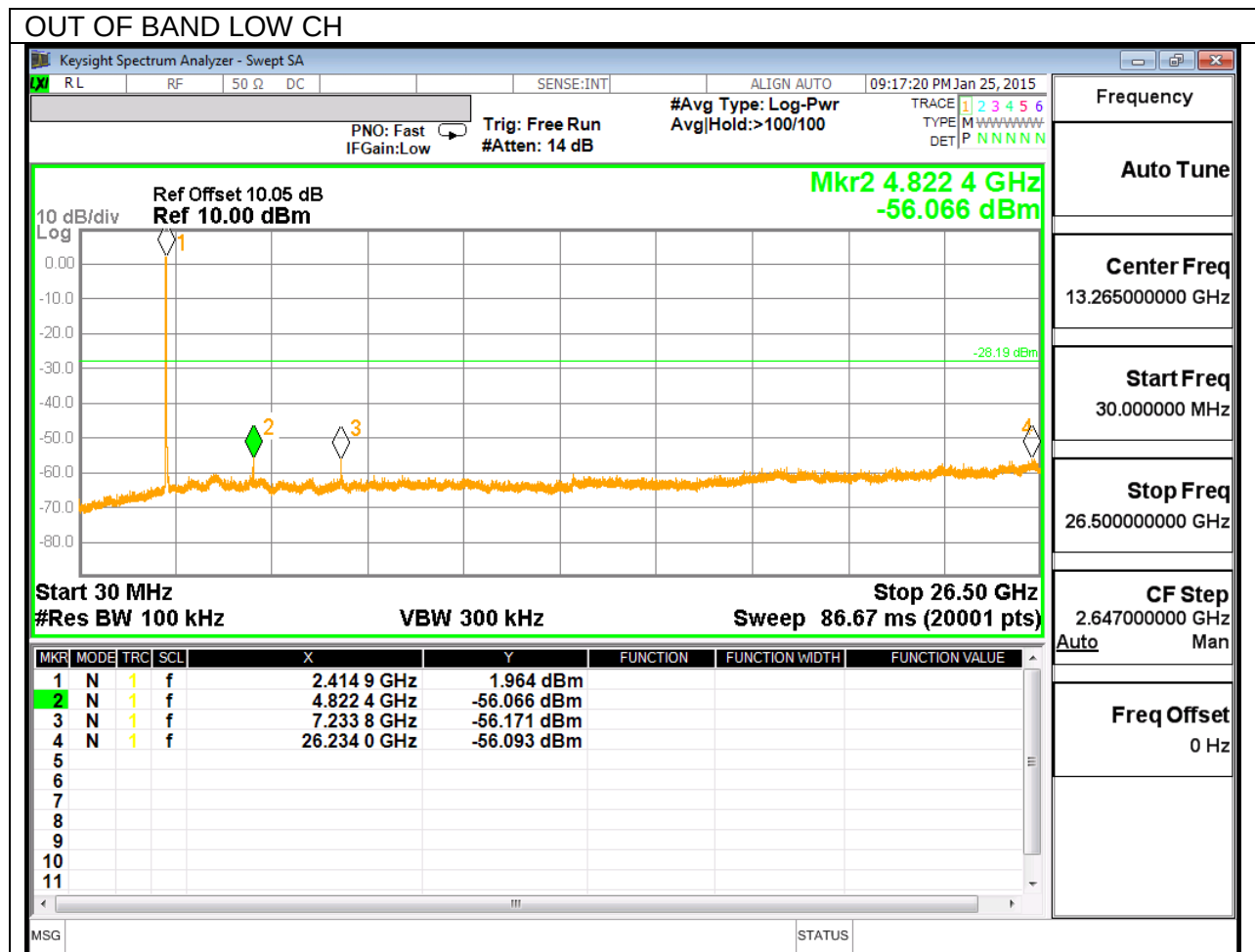
LOW CHANNEL BANDEDGE



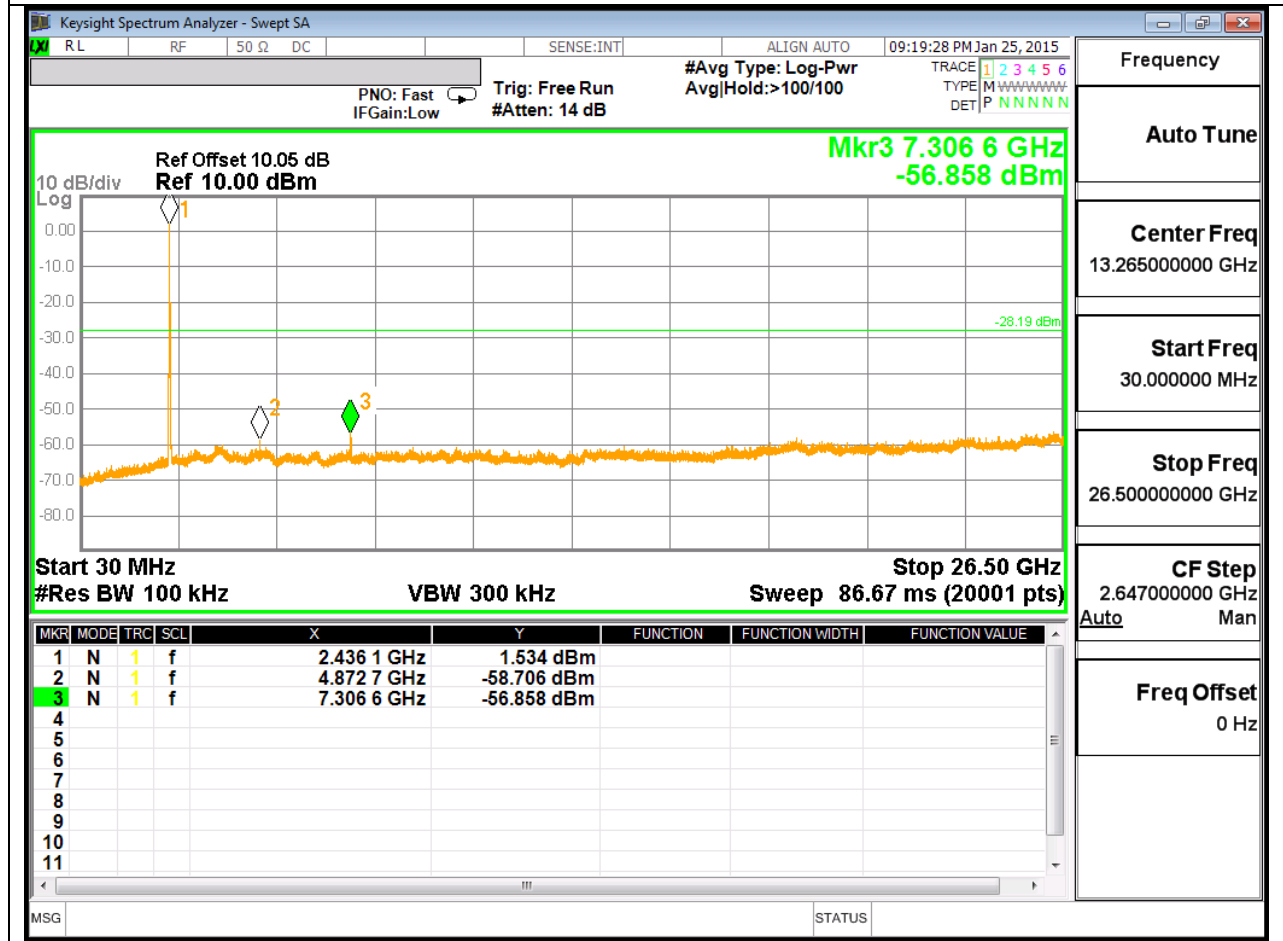
HIGH CHANNEL BANDEDGE



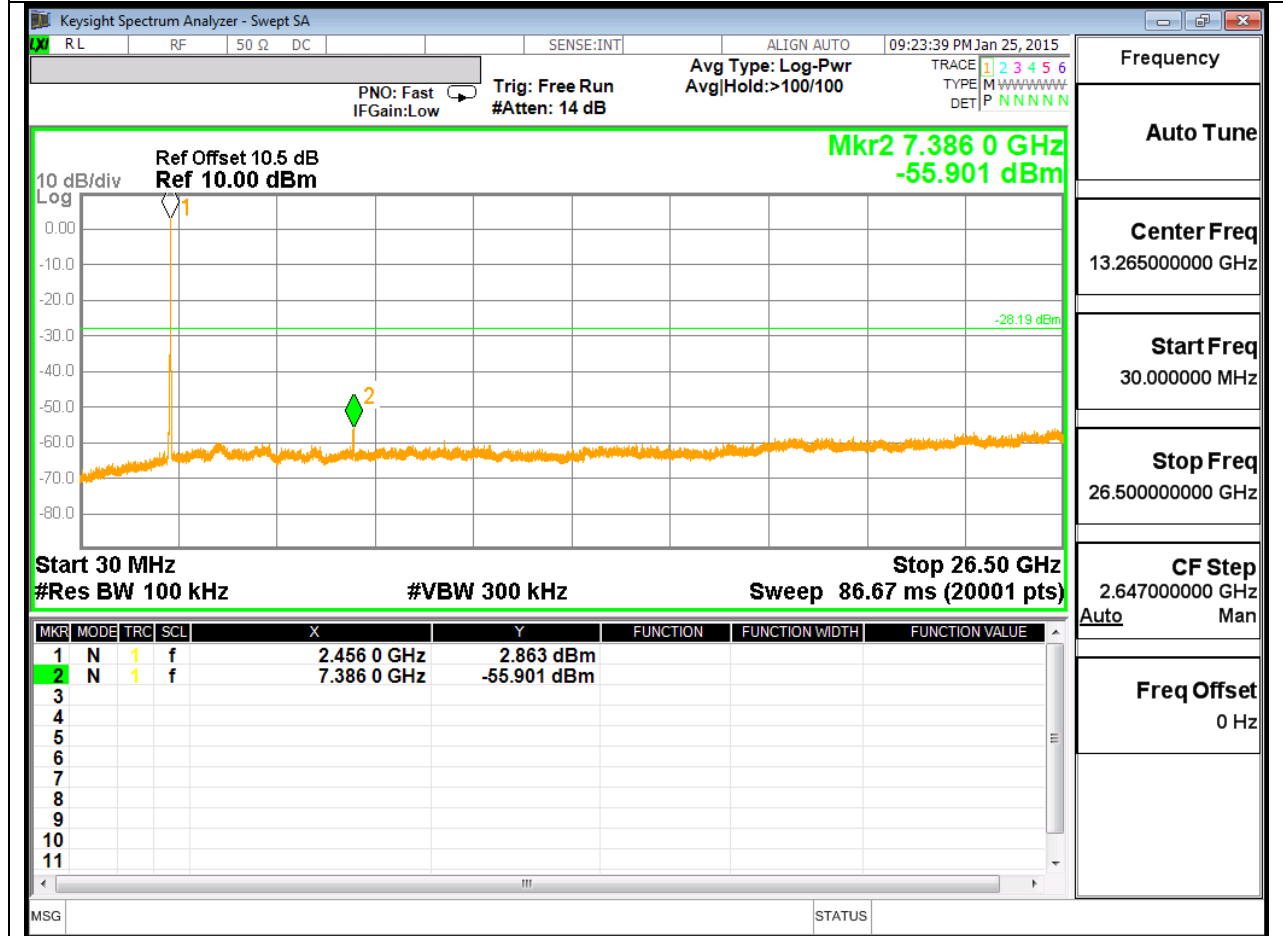
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH

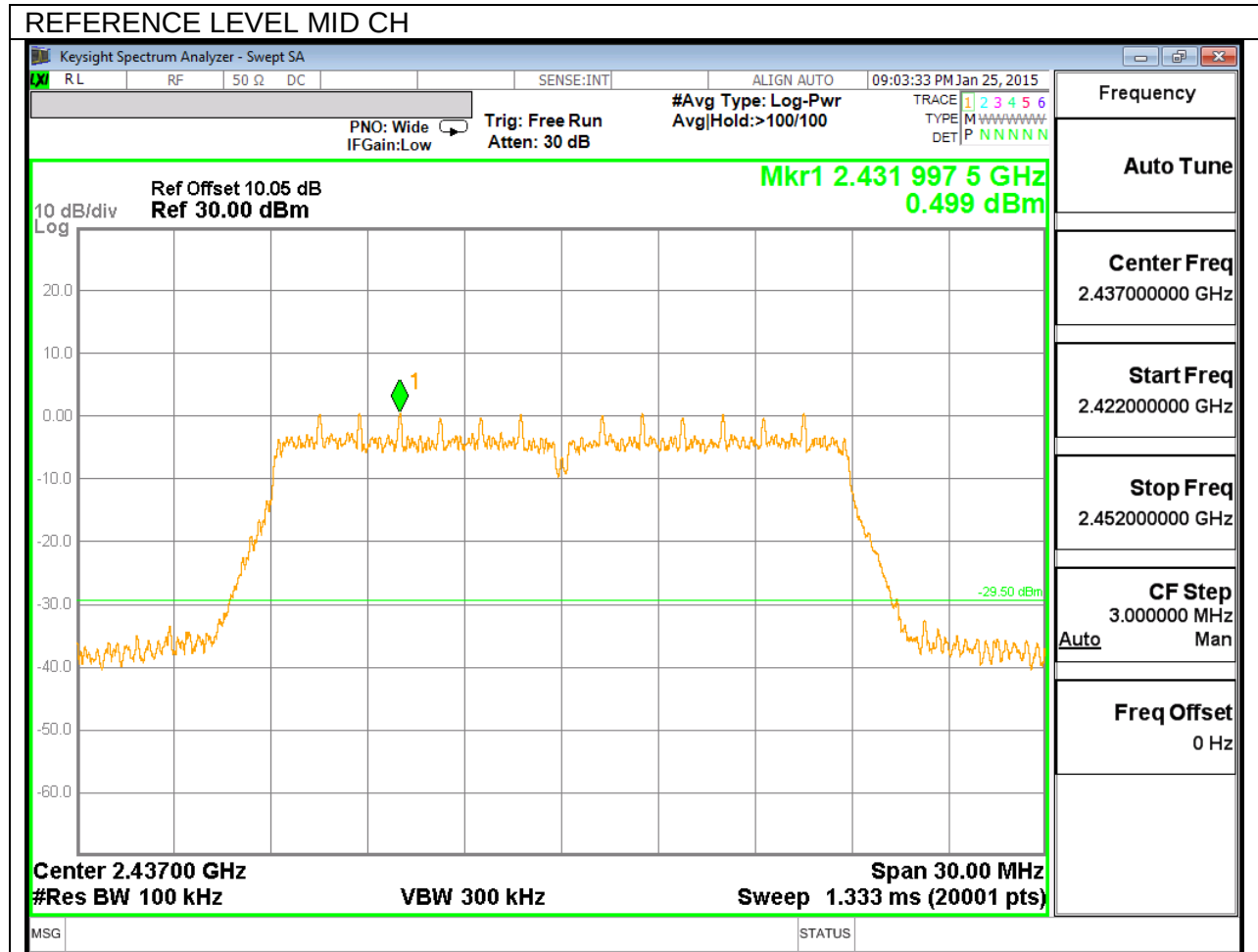


OUT OF BAND HIGH CH

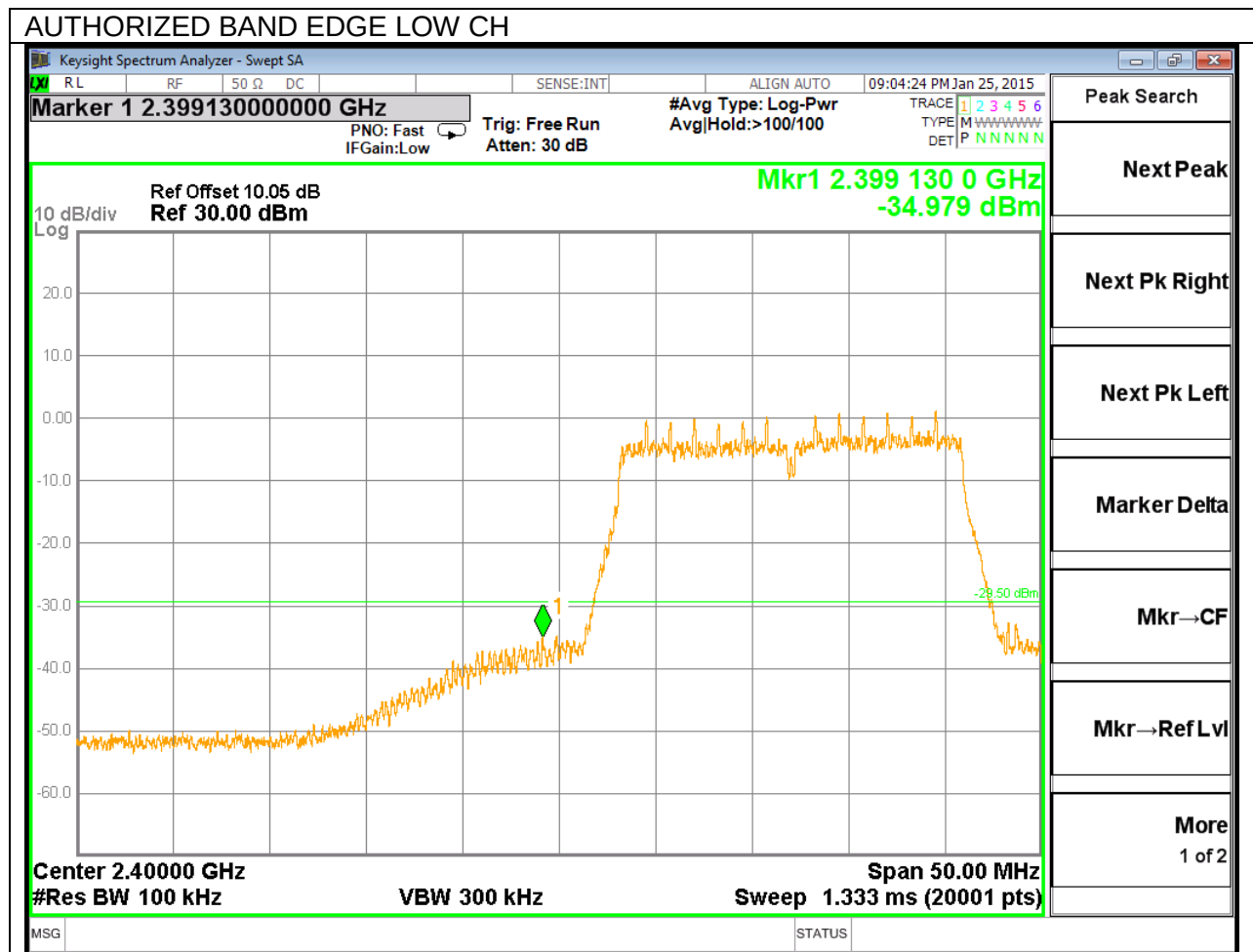


10.6.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

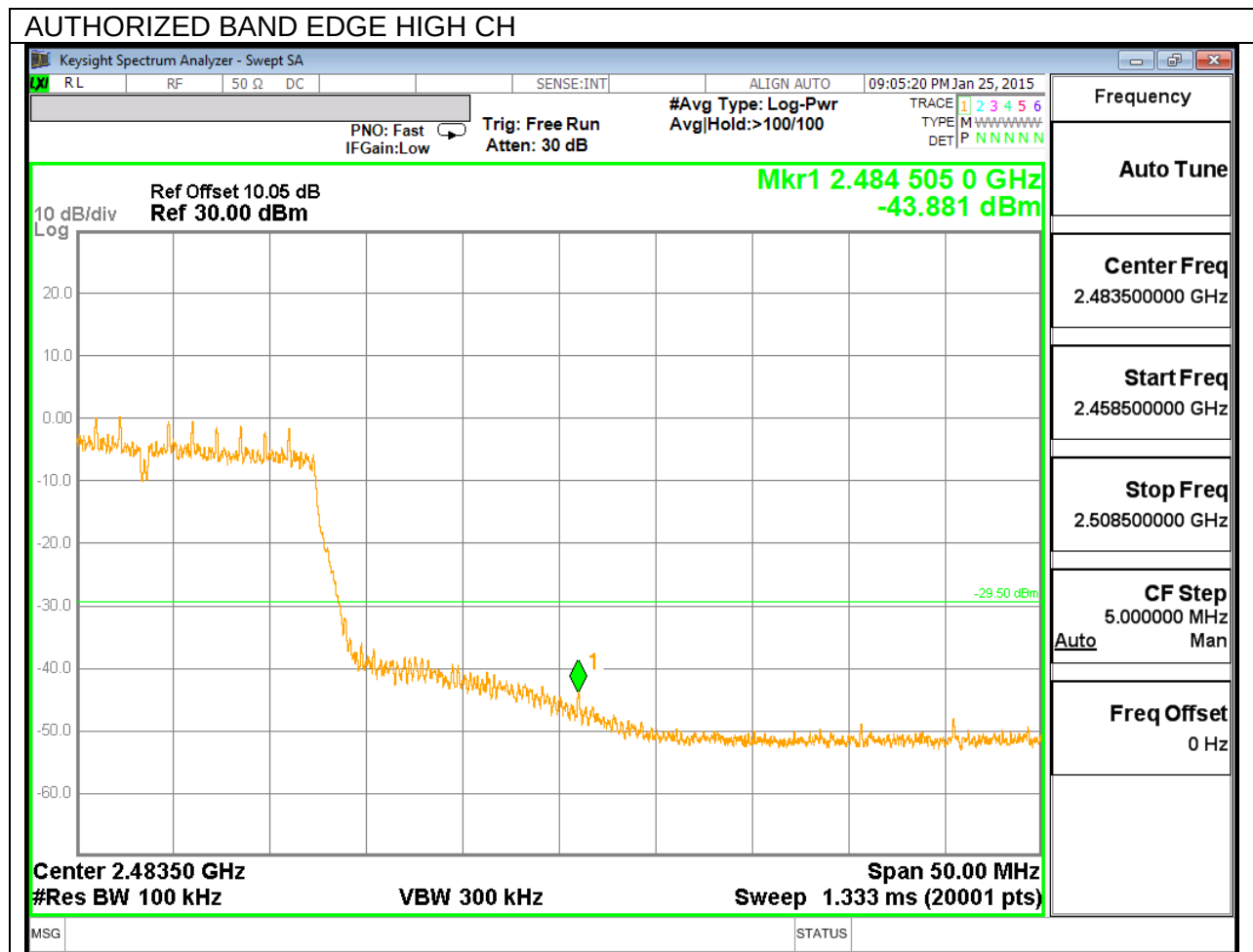
IN-BAND REFERENCE LEVEL



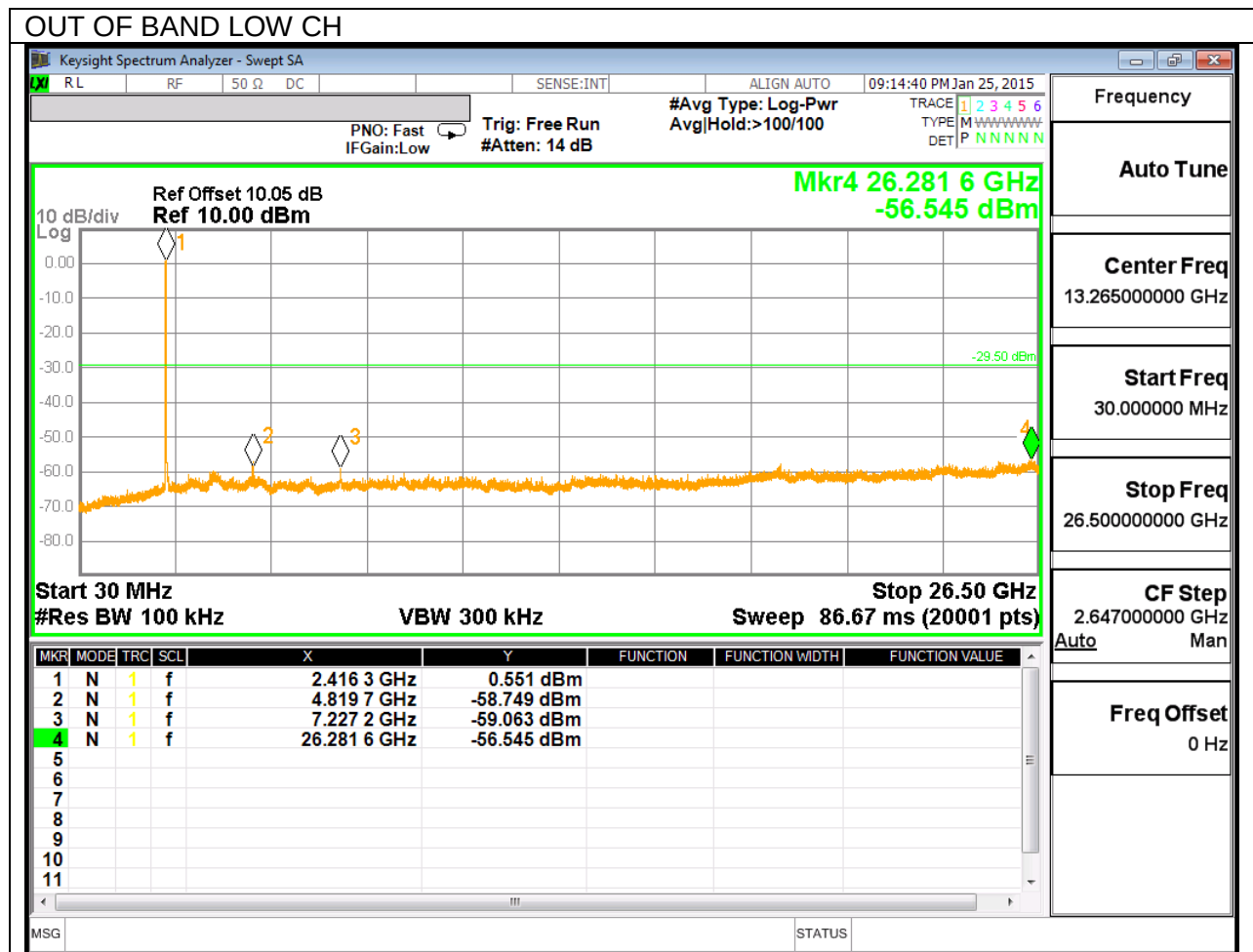
LOW CHANNEL BANDEDGE



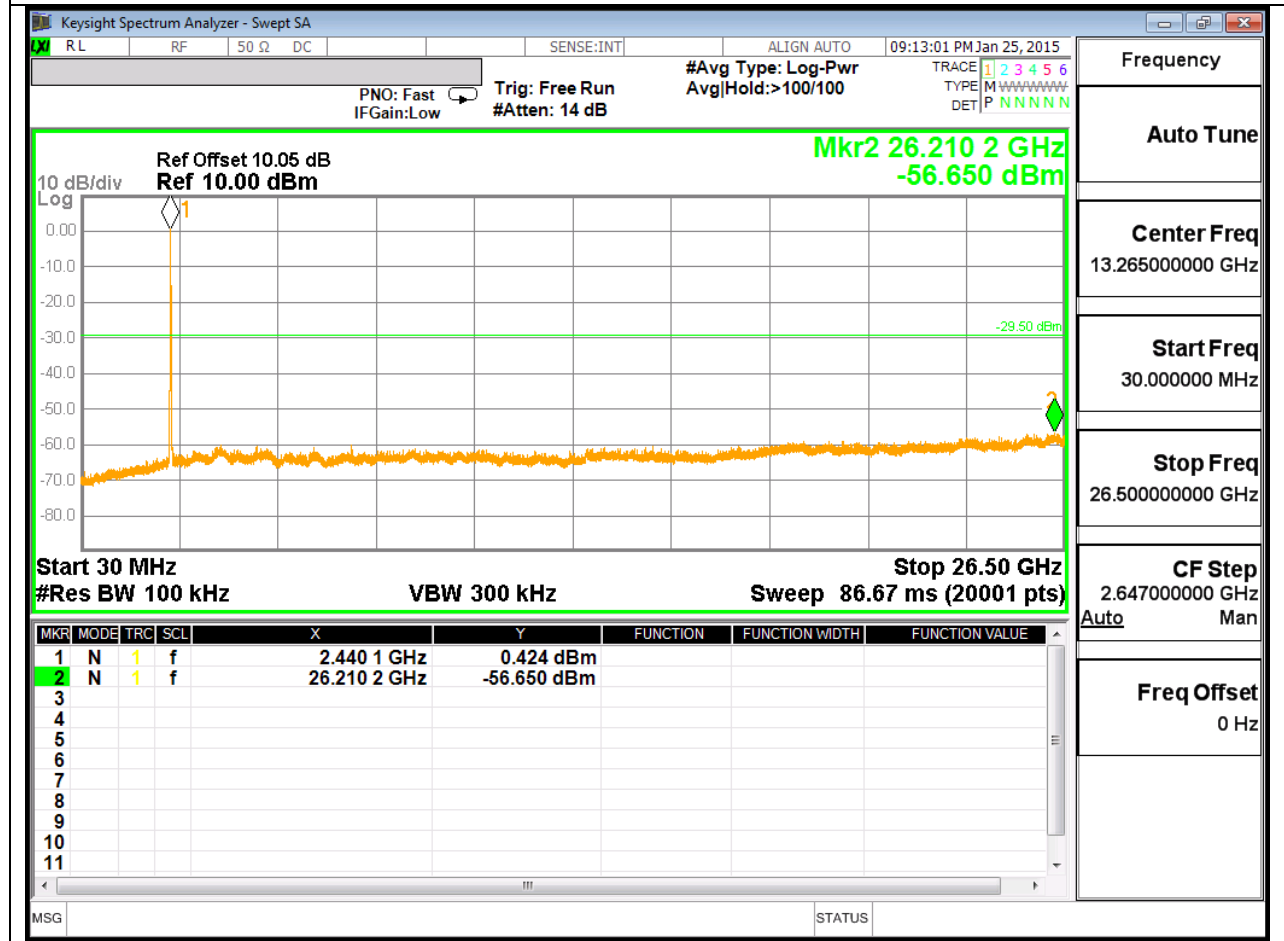
HIGH CHANNEL BANDEDGE



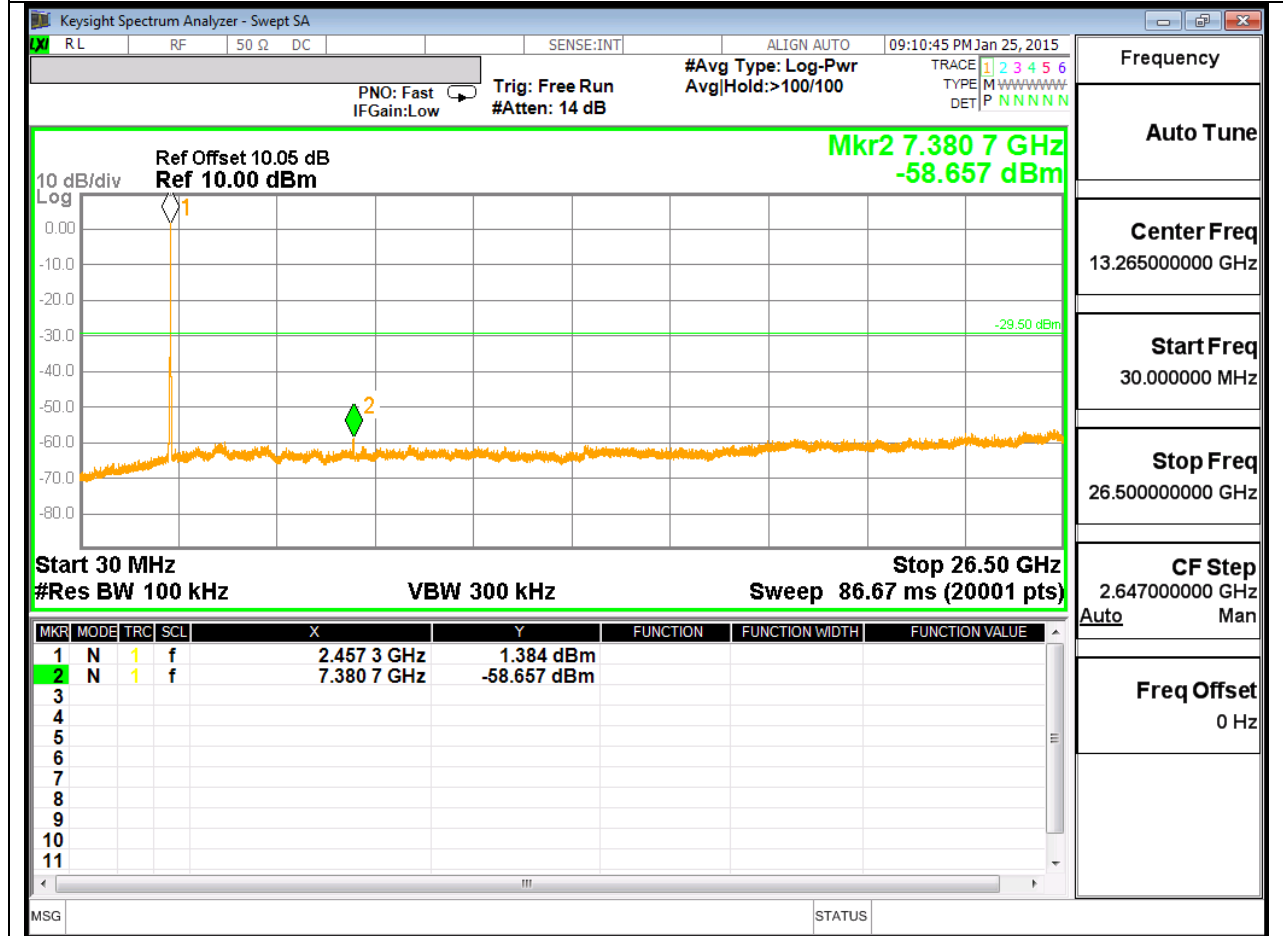
OUT-OF-BAND EMISSIONS



OUT OF BAND MID CH



OUT OF BAND HIGH CH



11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE

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.

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 = 0.3dB; N mode = 0.32dB.

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.

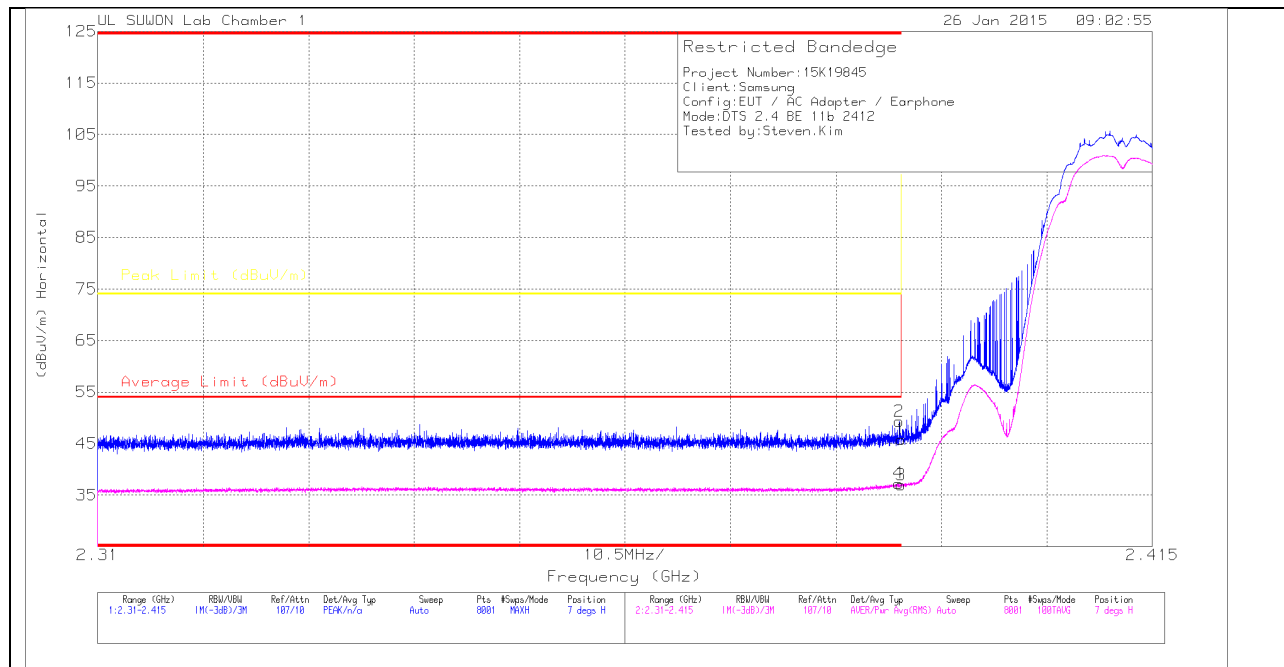
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

11.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

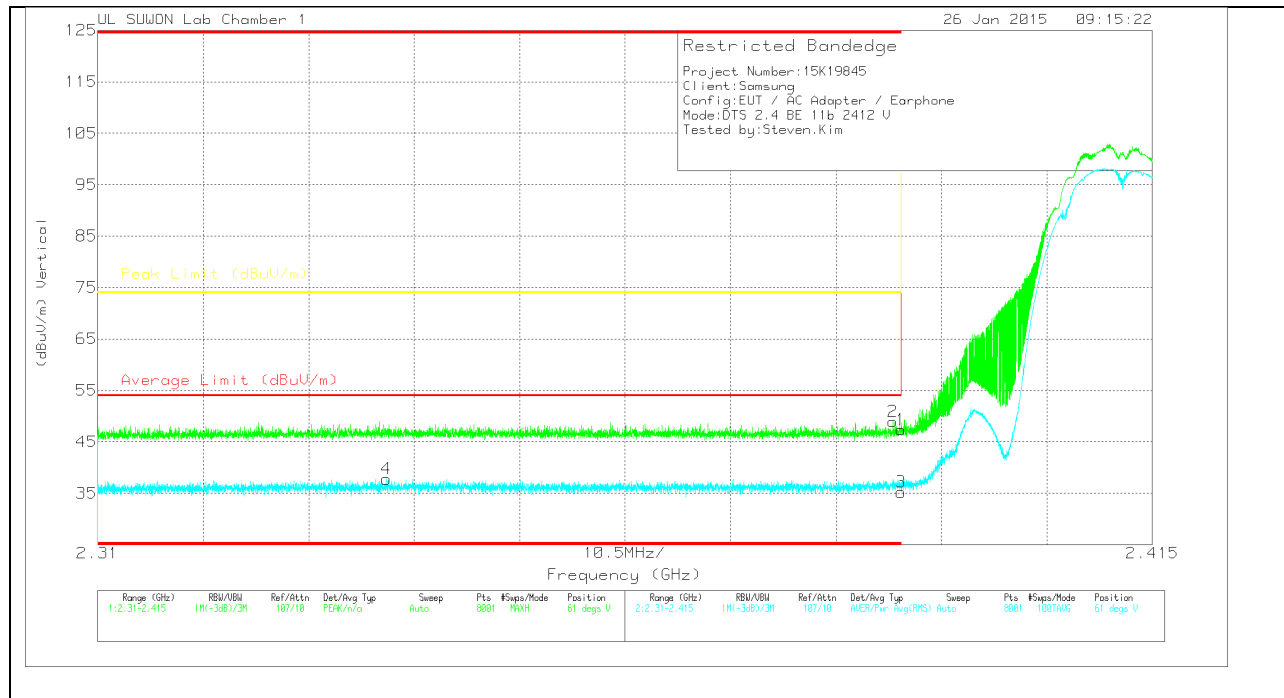
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.52	PK	27.9	-22.6	0	45.82	-	-	74	-28.18	7	100	H
2	* 2.39	43.99	PK	27.9	-22.6	0	49.29	-	-	74	-24.71	7	100	H
3	* 2.39	31.62	RMS	27.9	-22.6	.03	36.95	54	-17.05	-	-	7	100	H
4	* 2.39	31.95	RMS	27.9	-22.6	.03	37.28	54	-16.72	-	-	7	100	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	31150 Factor	10dB_Path2	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	42.03	Pk	27.9	-22.6	0	47.33	-	-	74	-26.67	61	211	V
2	* 2.389	43.61	Pk	27.9	-22.6	0	48.91	-	-	74	-25.09	61	211	V
3	* 2.39	29.88	RMS	27.9	-22.6	.03	35.21	54	-18.79	-	-	61	211	V
4	* 2.339	32.65	RMS	27.8	-22.7	.03	37.78	54	-16.22	-	-	61	211	V

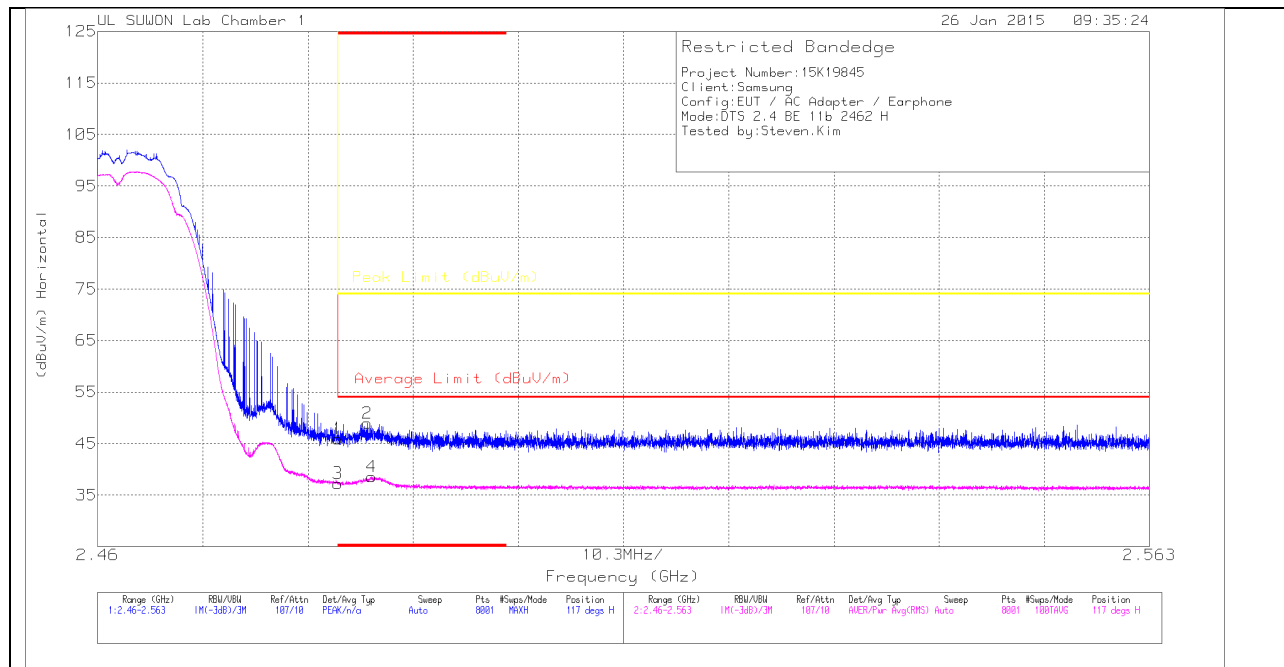
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

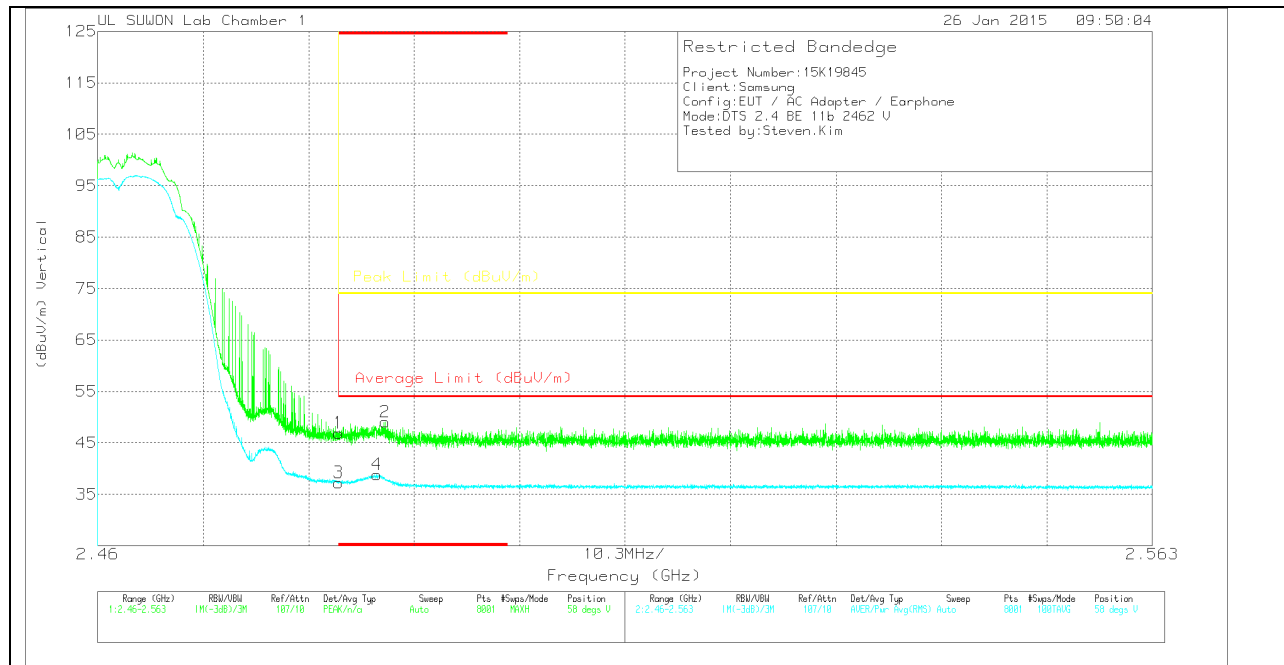
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.52	Pk	27.9	-22.5	0	45.92	-	-	74	-28.08	117	100	H
2	* 2.486	43.52	Pk	27.9	-22.5	0	48.92	-	-	74	-25.08	117	100	H
3	* 2.484	31.81	RMS	27.9	-22.5	.03	37.24	54	-16.76	-	-	117	100	H
4	* 2.487	33.13	RMS	27.9	-22.5	.03	38.56	54	-15.44	-	-	117	100	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	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	41.51	Pk	27.9	-22.5	0	46.91	-	-	74	-27.09	58	199	V
2	* 2.488	43.69	Pk	27.9	-22.5	0	49.09	-	-	74	-24.91	58	199	V
3	* 2.484	31.84	RMS	27.9	-22.5	.03	37.27	54	-16.73	-	-	58	199	V
4	* 2.487	33.42	RMS	27.9	-22.5	.03	38.85	54	-15.15	-	-	58	199	V

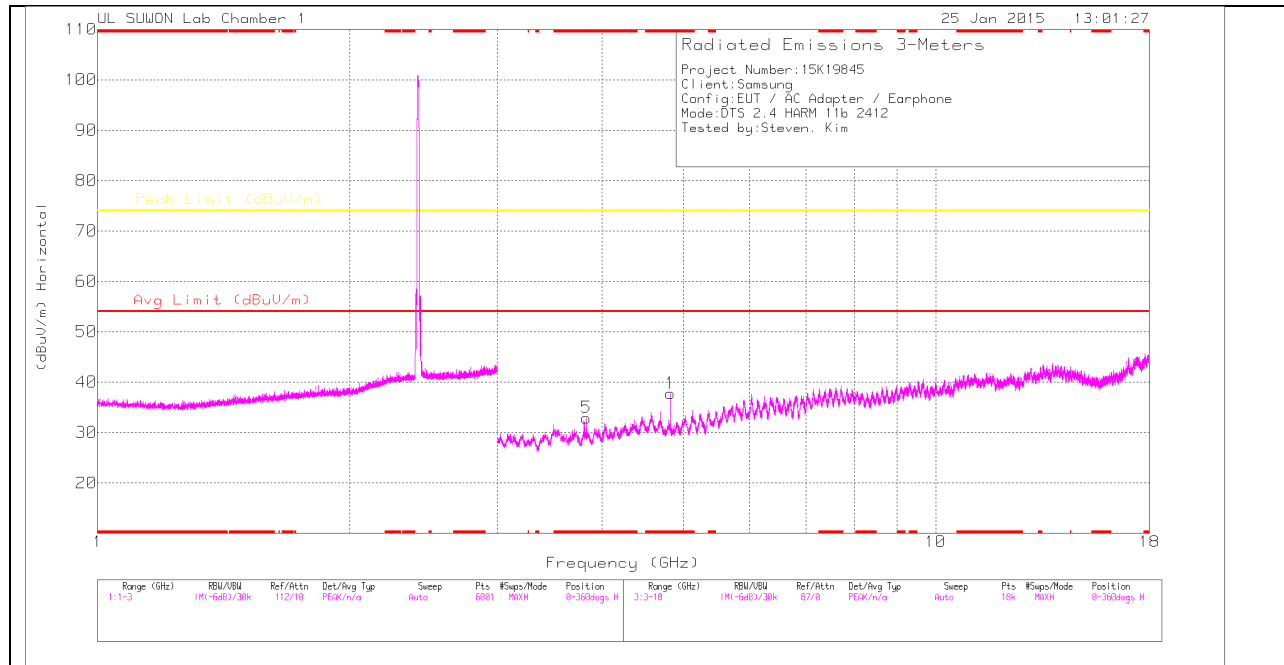
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

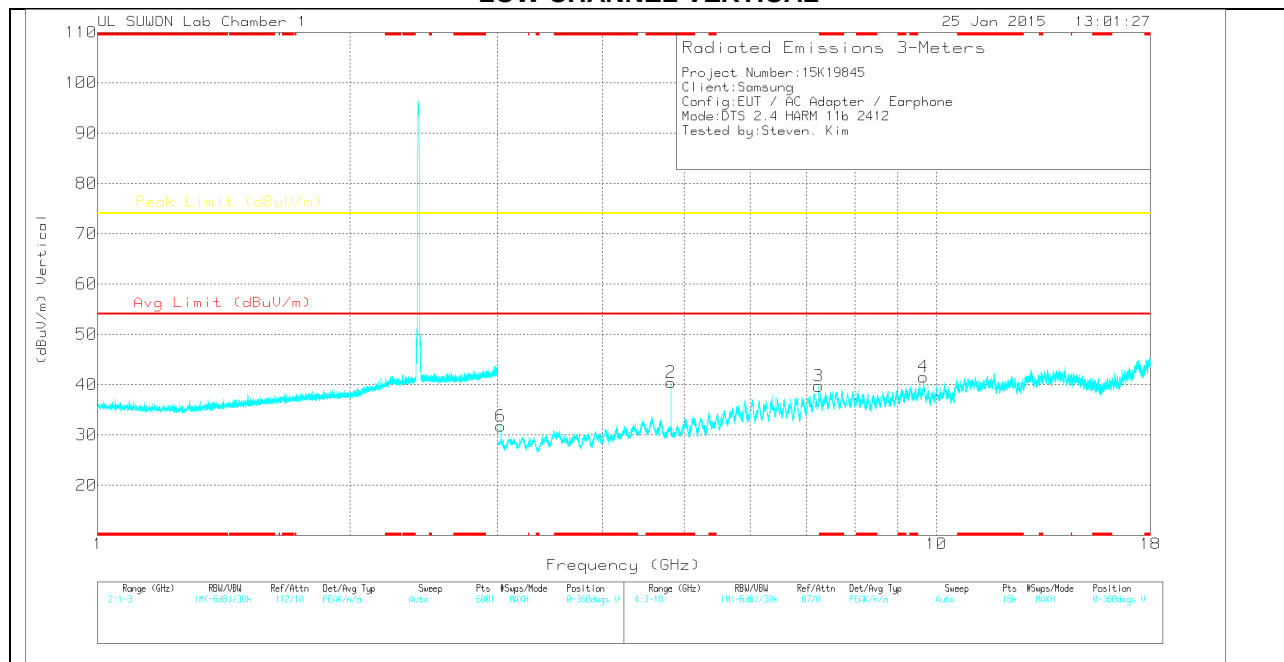
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.824	35.08	PK	31.9	-29.2	0	37.78	-	-	74	-36.22	0-360	100	H
5	* 3.831	32.44	PK	30.4	-29.9	0	32.94	-	-	74	-41.06	0-360	200	H
2	* 4.824	37.71	PK	31.9	-29.2	0	40.41	-	-	74	-33.59	0-360	100	V
3	7.235	28.4	PK	37	-25.7	0	39.7	-	-	-	-	0-360	100	V
4	9.648	24.85	PK	37.6	-20.9	0	41.55	-	-	-	-	0-360	200	V
6	3.023	34.04	PK	28.8	-31.1	0	31.74	-	-	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

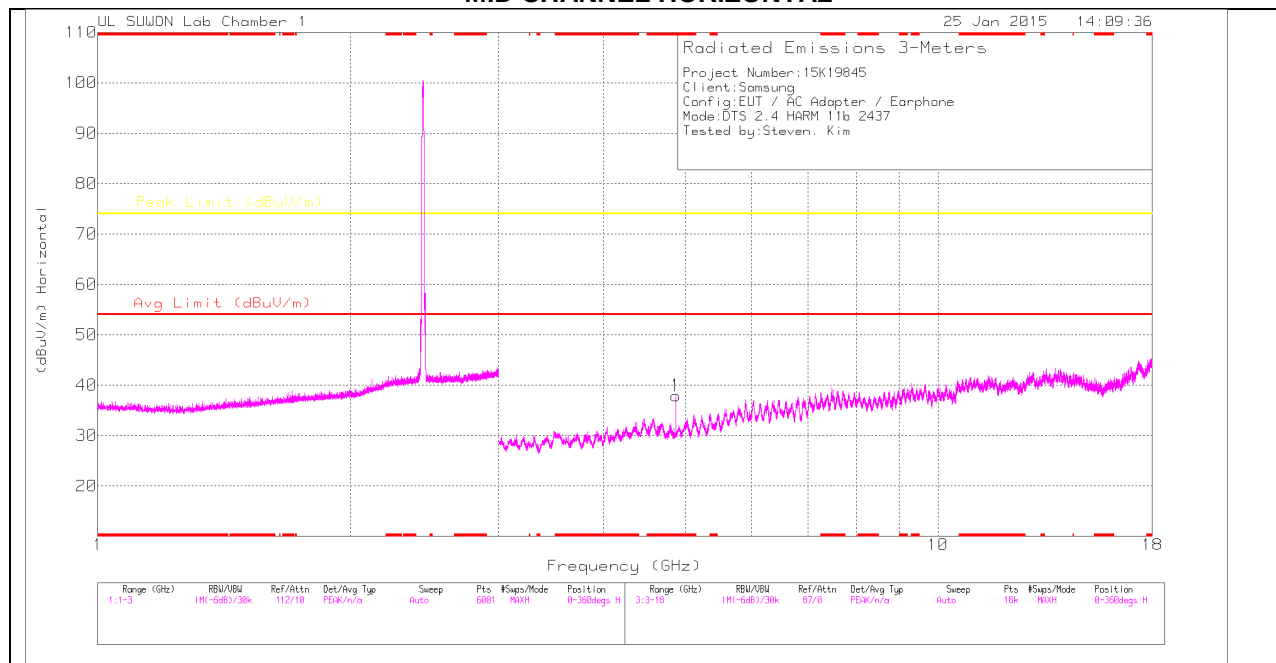
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path 3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	42.8	PK2	31.9	-29.2	0	45.5	-	-	74	-28.5	343	100	H
* 4.824	35.02	MAV1	31.9	-29.2	0	37.72	54	-16.28	-	-	343	100	H
* 4.824	44.07	PK2	31.9	-29.2	0	46.77	-	-	74	-27.23	99	378	V
* 4.824	38.35	MAV1	31.9	-29.2	0	41.05	54	-12.95	-	-	99	378	V
7.235	37.19	PK2	37	-25.7	0	48.49	-	-	-	-	209	302	V
7.235	25.57	MAV1	37	-25.7	0	36.87	-	-	-	-	209	302	V
9.649	34.83	PK2	37.6	-20.9	0	51.53	-	-	-	-	328	101	V
9.648	23.9	MAV1	37.6	-20.9	0	40.6	-	-	-	-	328	101	V

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

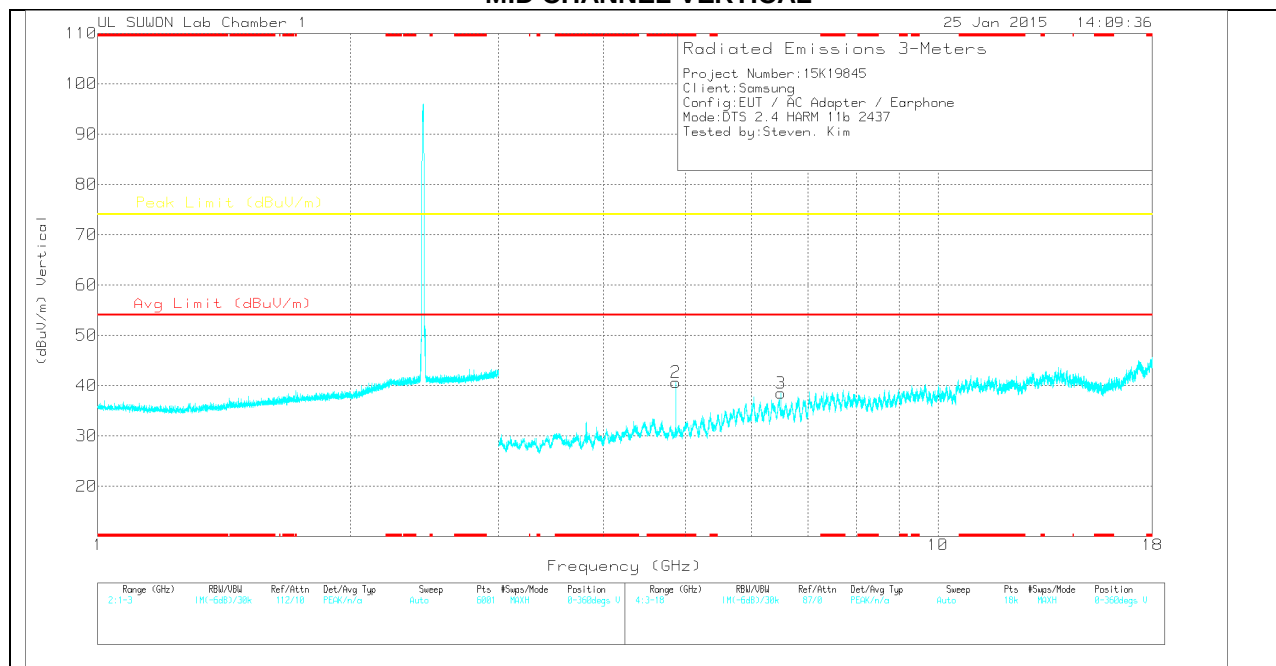
PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.874	35.01	PK	32	-29.1	0	37.91	-	-	74	-36.09	0-360	100	H
2	* 4.874	37.75	PK	32	-29.1	0	40.65	-	-	74	-33.35	0-360	100	V
3	6.498	29.16	PK	35.6	-26.3	0	38.46	-	-	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

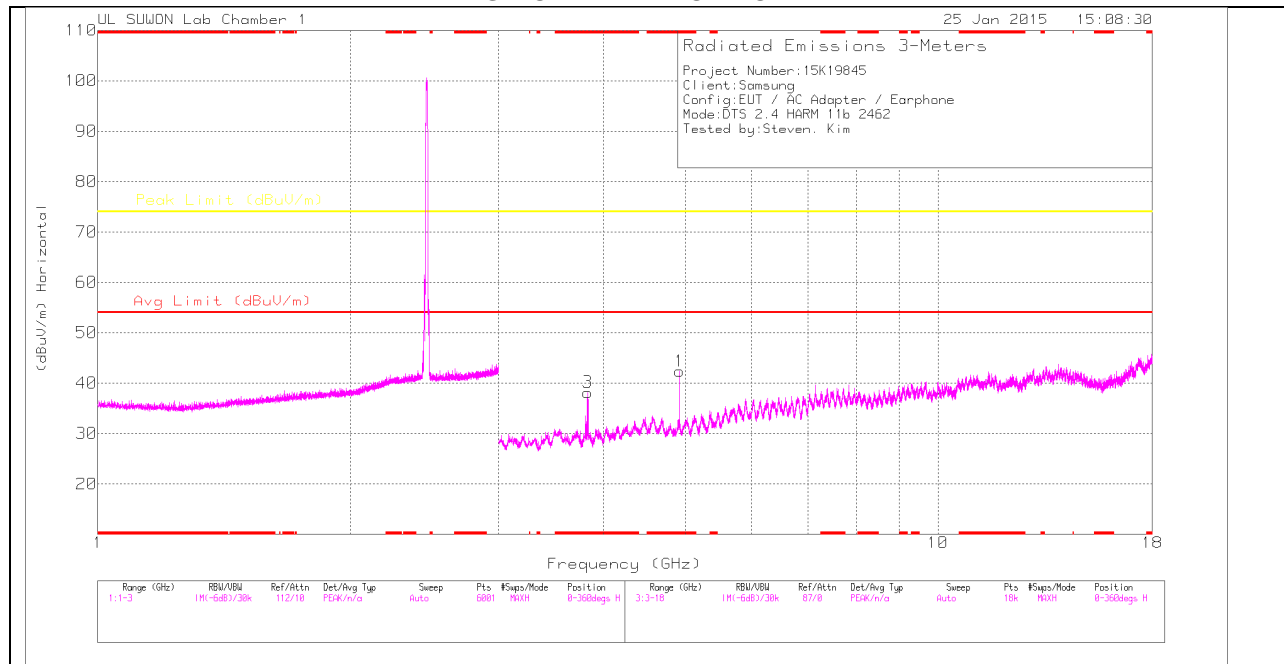
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	42.14	PK2	32	-29.1	0	45.04	-	-	74	-28.96	339	318	H
* 4.874	34.44	MAv1	32	-29.1	0	37.34	54	-16.66	-	-	339	318	H
* 4.874	44.49	PK2	32	-29.1	0	47.39	-	-	74	-26.61	98	374	V
* 4.874	39.74	MAv1	32	-29.1	0	42.64	54	-11.36	-	-	98	374	V
6.499	38.06	PK2	35.6	-26.3	0	47.36	-	-	-	-	327	113	V
6.499	29.13	MAv1	35.6	-26.3	0	38.43	-	-	-	-	327	113	V

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

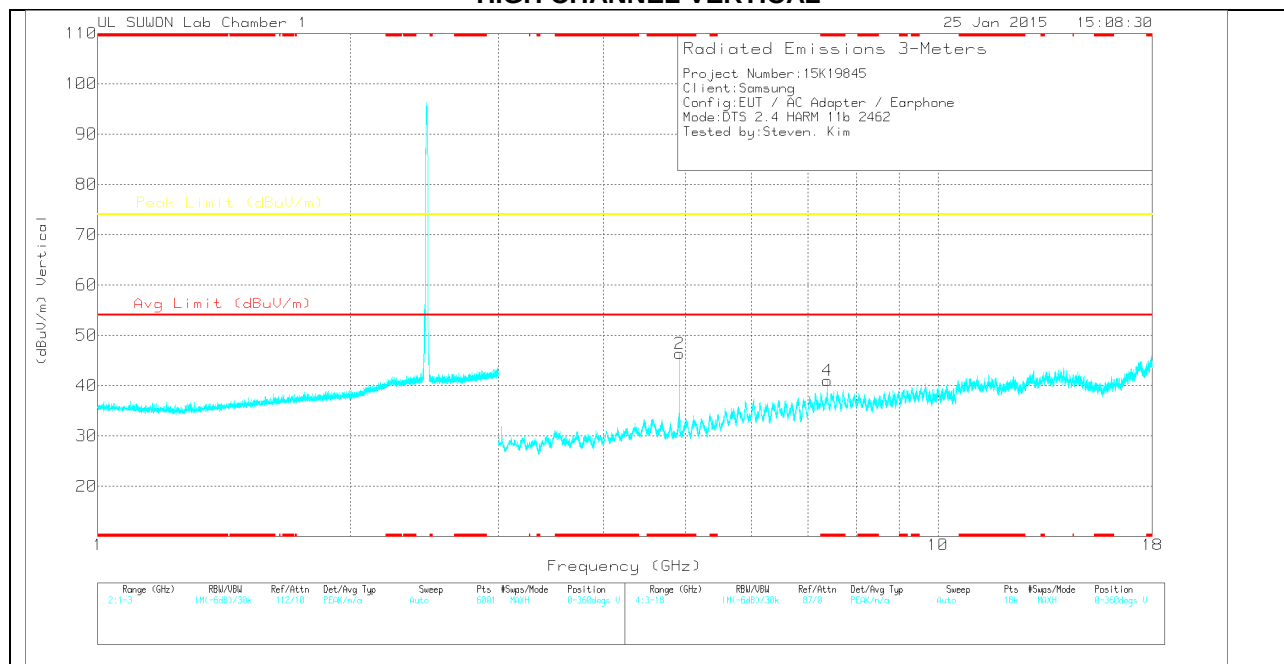
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.924	39.15	PK	32.1	-28.9	0	42.35	-	-	74	-31.65	0-360	100	H
3	* 3.83	37.68	PK	30.4	-29.9	0	38.18	-	-	74	-35.82	0-360	100	H
2	* 4.924	43.16	PK	32.1	-28.9	0	46.36	-	-	74	-27.64	0-360	100	V
4	* 7.383	29.06	PK	37.2	-25.3	0	40.96	-	-	74	-33.04	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.924	44.56	PK2	32.1	-28.9	0	47.76	-	-	74	-26.24	340	316	H
* 4.924	39.25	MAv1	32.1	-28.9	0	42.45	54	-11.55	-	-	340	316	H
* 3.831	39.92	PK2	30.4	-29.9	0	40.42	-	-	74	-33.58	285	102	H
* 3.831	27.39	MAv1	30.4	-29.9	0	27.89	54	-26.11	-	-	285	102	H
* 4.924	45.87	PK2	32.1	-28.9	0	49.07	-	-	74	-24.93	303	344	V
* 4.924	41.45	MAv1	32.1	-28.9	0	44.65	54	-9.35	-	-	303	344	V
* 7.384	38.53	PK2	37.2	-25.3	0	50.43	-	-	74	-23.57	223	286	V
* 7.385	26.8	MAv1	37.2	-25.2	0	38.8	54	-15.2	-	-	223	286	V

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

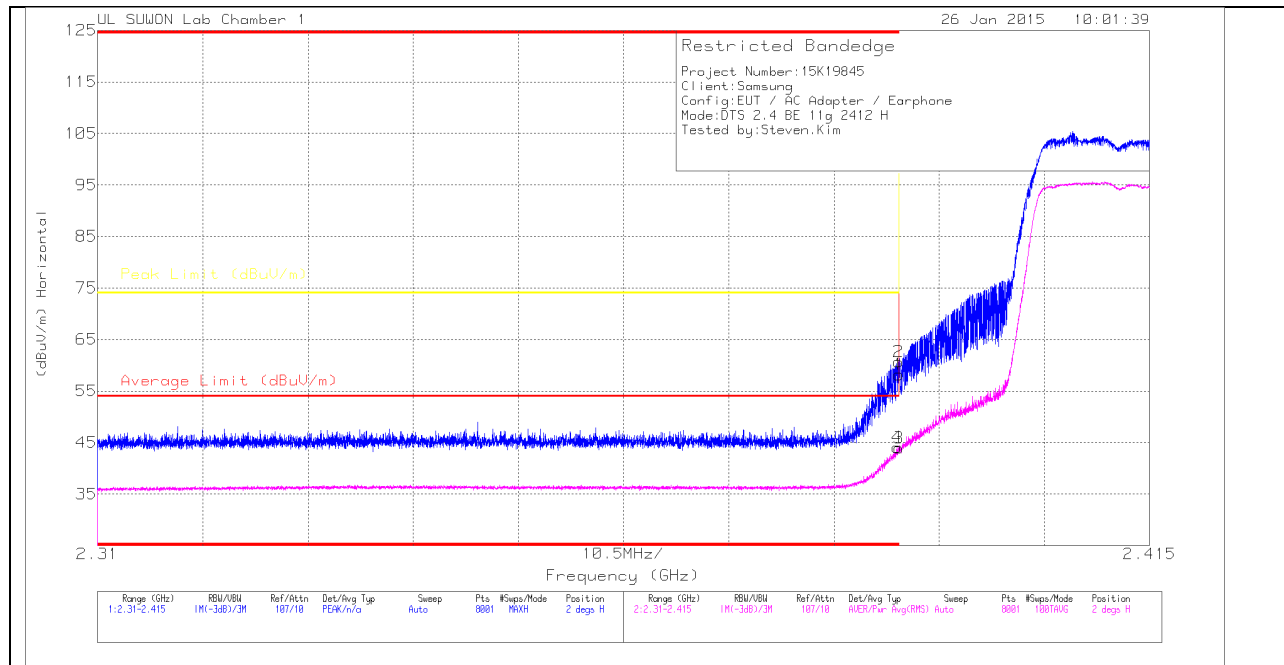
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

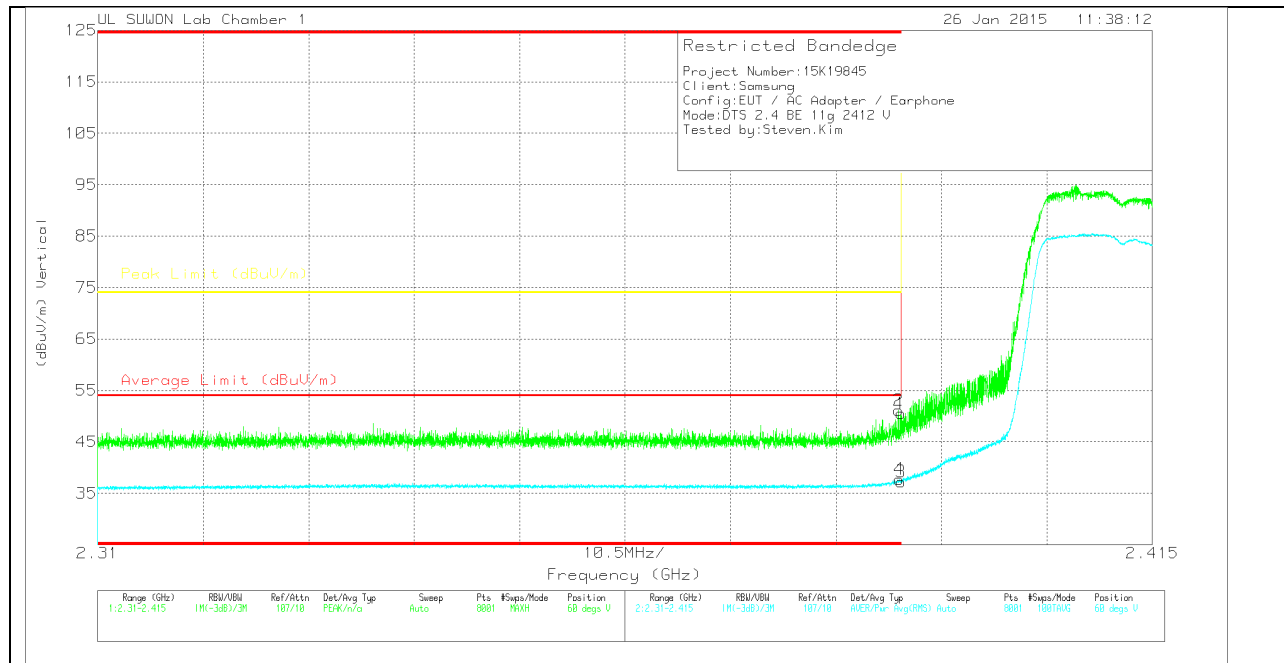
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	52.89	Pk	27.9	-22.6	0	58.19	-	-	74	-15.81	2	102	H
2	* 2.39	55.39	Pk	27.9	-22.6	0	60.69	-	-	74	-13.31	2	102	H
3	* 2.39	38.42	RMS	27.9	-22.6	.18	43.9	54	-10.1	-	-	2	102	H
4	* 2.39	38.57	RMS	27.9	-22.6	.18	44.05	54	-9.95	-	-	2	102	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	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	45.24	PK	27.9	-22.6	0	50.54	-	-	74	-23.46	60	357	V
2	* 2.39	45.82	PK	27.9	-22.6	0	51.12	-	-	74	-22.88	60	357	V
3	* 2.39	31.76	RMS	27.9	-22.6	.18	37.24	54	-16.76	-	-	60	357	V
4	* 2.39	32.26	RMS	27.9	-22.6	.18	37.74	54	-16.26	-	-	60	357	V

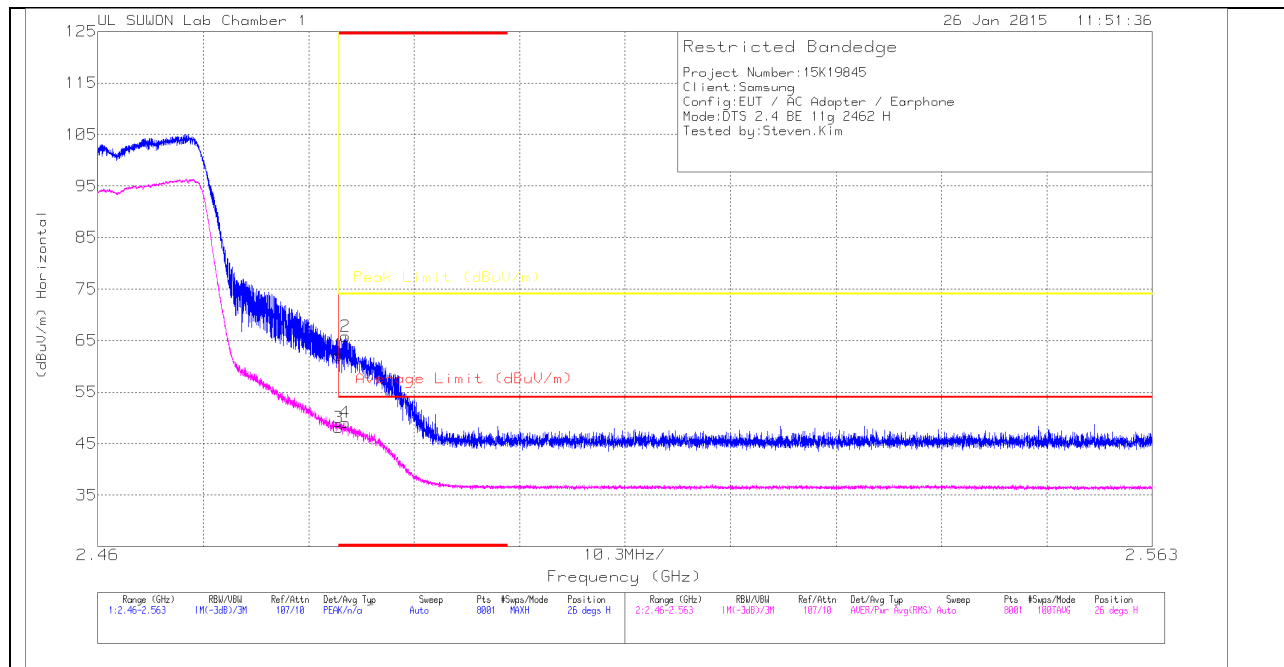
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

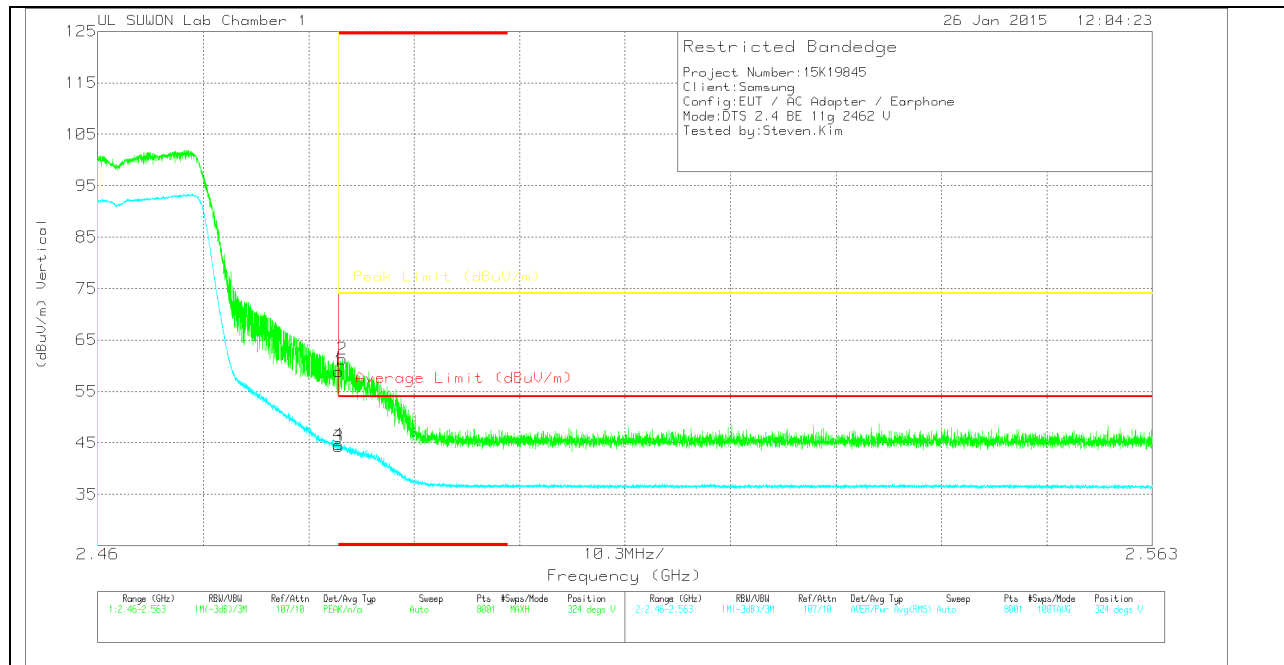
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	56.77	Pk	27.9	-22.5	0	62.17	-	-	74	-11.83	26	352	H
2	* 2.484	60.42	Pk	27.9	-22.5	0	65.82	-	-	74	-8.18	26	352	H
3	* 2.484	42.5	RMS	27.9	-22.5	.18	48.08	54	-5.92	-	-	26	352	H
4	* 2.484	43.47	RMS	27.9	-22.5	.18	49.05	54	-4.95	-	-	26	352	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	31150 Factor	10dB_Path2	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	53.48	Pk	27.9	-22.5	0	58.88	-	-	74	-15.12	324	363	V
2	* 2.484	55.92	Pk	27.9	-22.5	0	61.32	-	-	74	-12.68	324	363	V
3	* 2.484	38.69	RMS	27.9	-22.5	.18	44.27	54	-9.73	-	-	324	363	V
4	* 2.484	39.1	RMS	27.9	-22.5	.18	44.68	54	-9.32	-	-	324	363	V

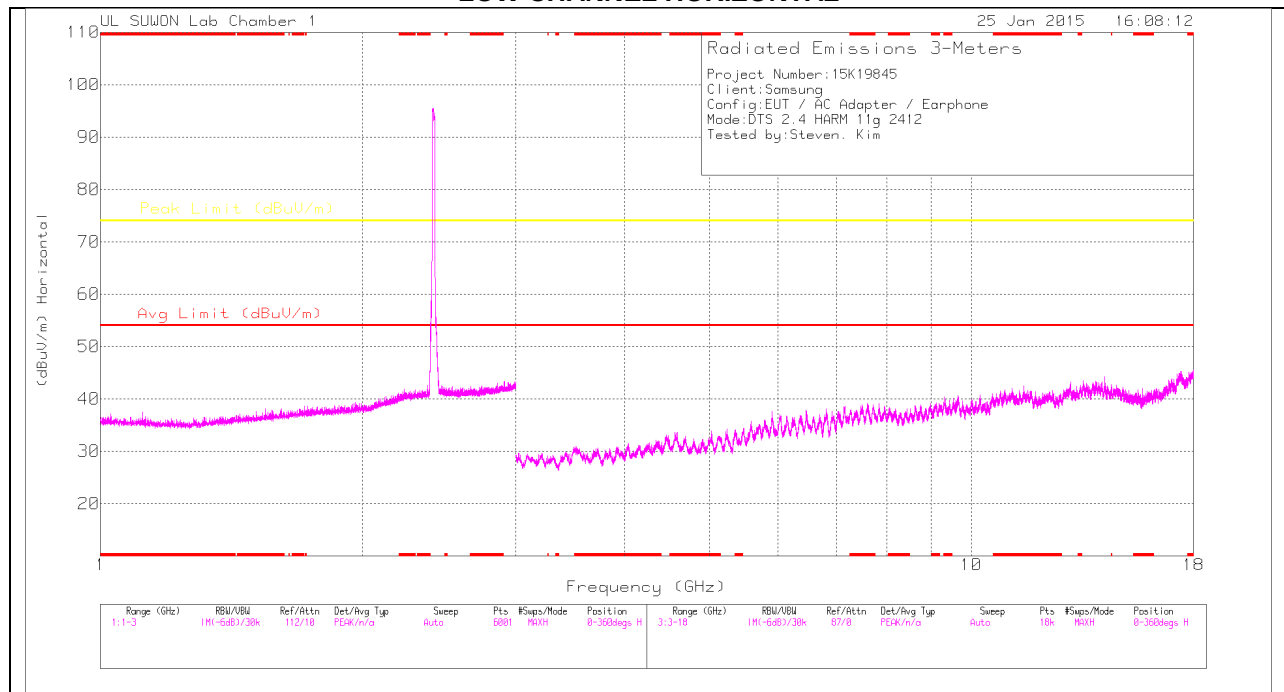
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

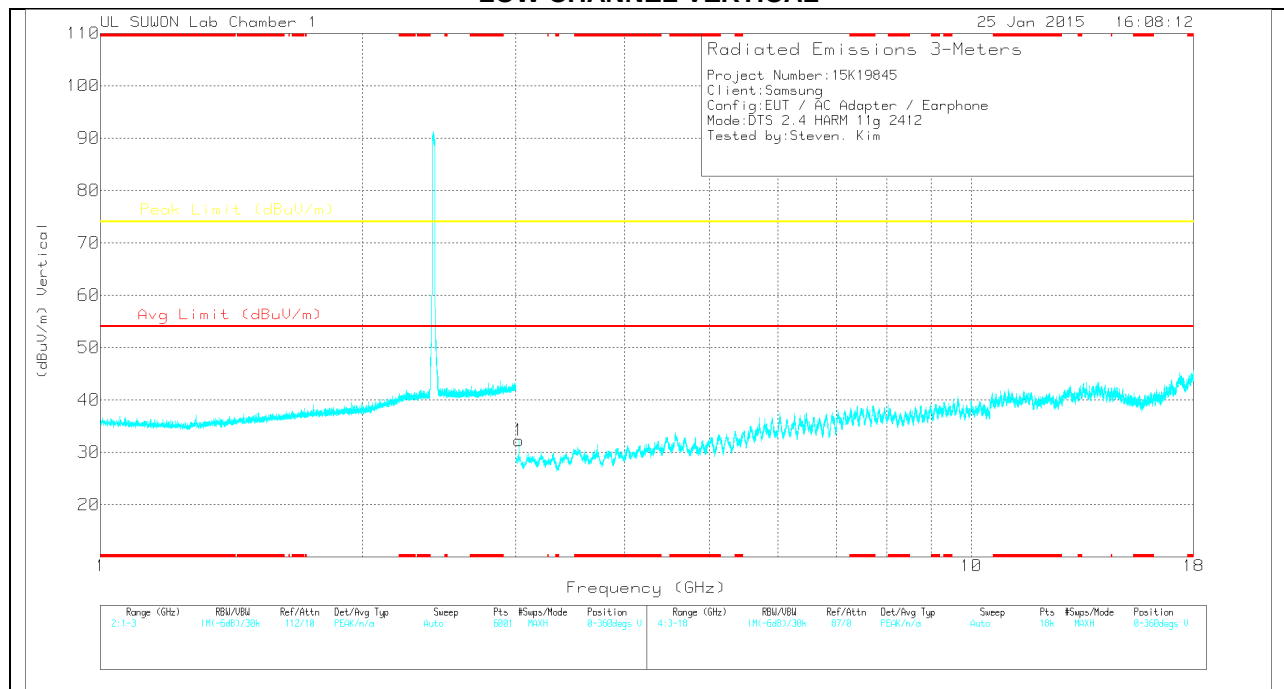
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.023	34.75	PK	28.8	-31.1	0	32.45	-	-	-	-	0-360	200	V

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

PK – Peak Detector

Radiated Emissions

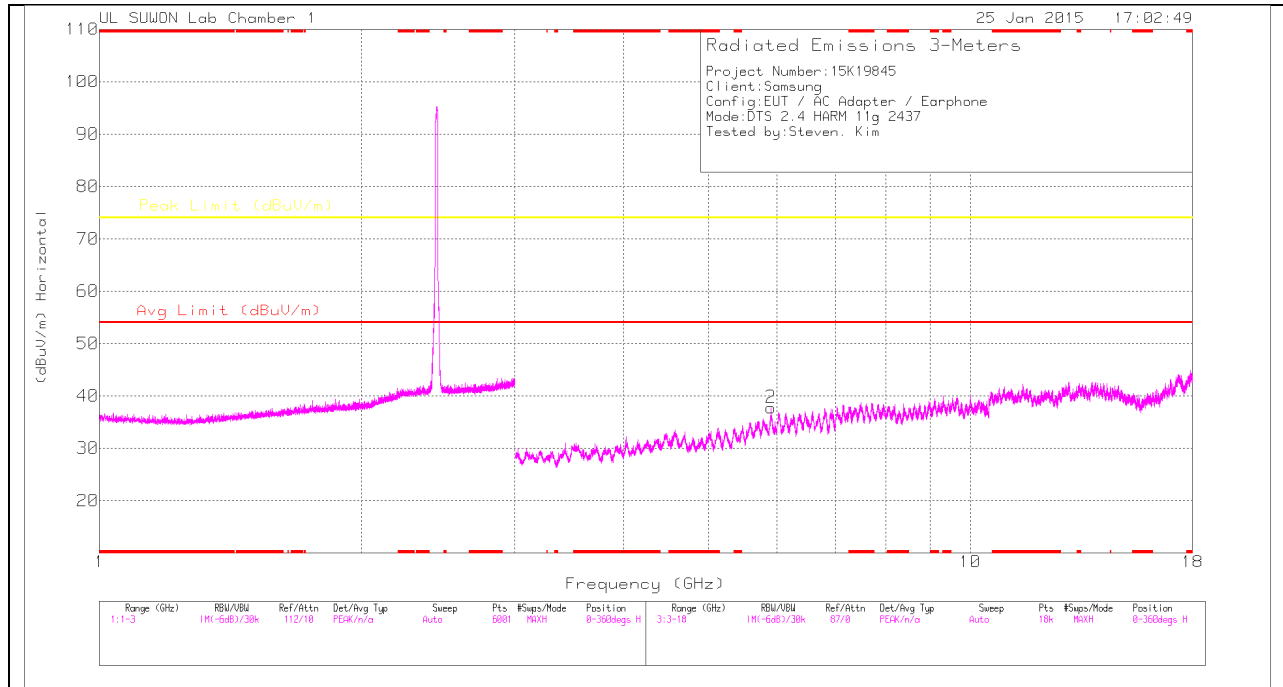
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3.023	42.5	PK2	28.8	-31.1	0	40.2	-	-	-	-	278	268	V
3.024	31.19	MAv1	28.8	-31.1	0	28.89	-	-	-	-	278	268	V

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

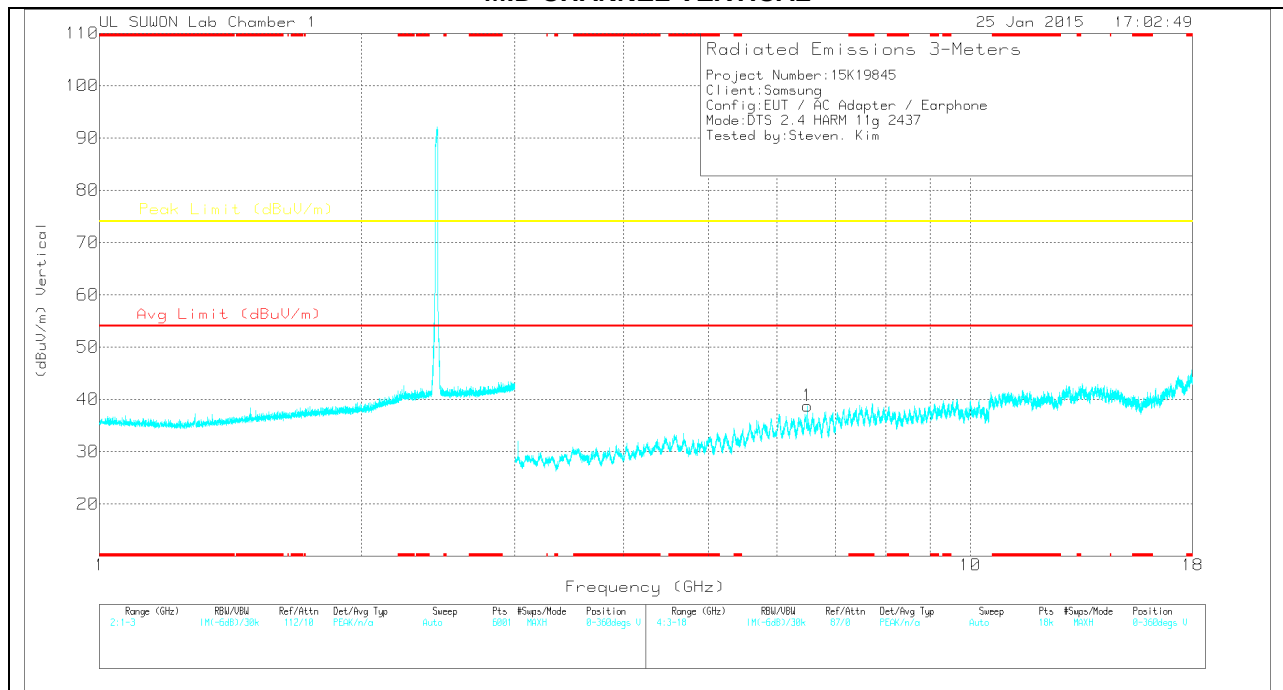
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.902	30.16	PK	34.9	-27.1	0	37.96	-	-	-	-	0-360	200	H
1	6.498	29.63	PK	35.6	-26.3	0	38.93	-	-	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

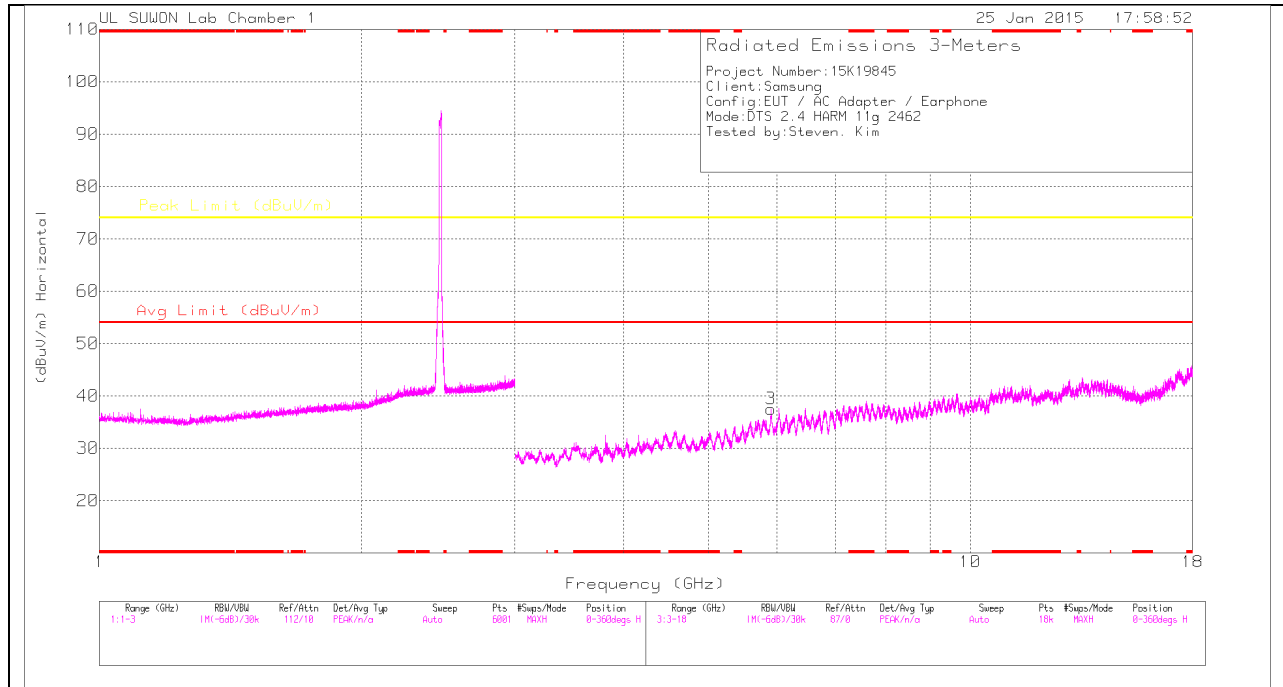
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.904	39.99	PK2	34.9	-27.1	0	47.79	-	-	-	-	233	328	H
5.901	27.56	MAv1	34.9	-27.1	0	35.36	-	-	-	-	233	328	H
6.499	38.12	PK2	35.6	-26.3	0	47.42	-	-	-	-	324	105	V
6.499	29.03	MAv1	35.6	-26.3	0	38.33	-	-	-	-	324	105	V

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

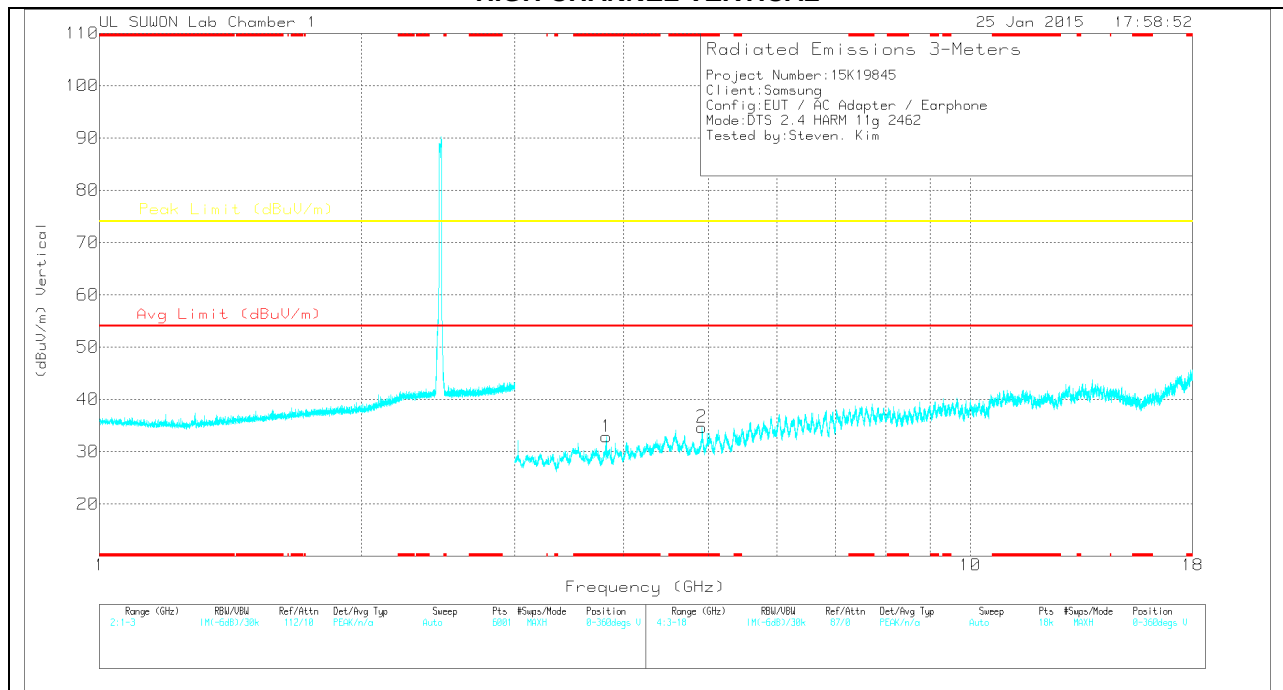
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	5.907	29.9	PK	34.9	-27.1	0	37.7	-	-	-	-	0-360	100	H
1	* 3.82	32.54	PK	30.4	-29.9	0	33.04	-	-	74	-40.96	0-360	200	V
2	* 4.919	31.75	PK	32.1	-29	0	34.85	-	-	74	-39.15	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.909	39.9	PK2	34.9	-27.1	0	47.7	-	-	-	-	32	174	H
5.906	27.15	MAv1	34.9	-27.1	0	34.95	-	-	-	-	32	174	H
* 3.82	39.77	PK2	30.4	-29.9	0	40.27	-	-	74	-33.73	167	127	V
* 3.82	27.28	MAv1	30.4	-29.9	0	27.78	54	-26.22	-	-	167	127	V
* 4.919	43.11	PK2	32.1	-29	0	46.21	-	-	74	-27.79	68	371	V
* 4.919	29.54	MAv1	32.1	-29	0	32.64	54	-21.36	-	-	68	371	V

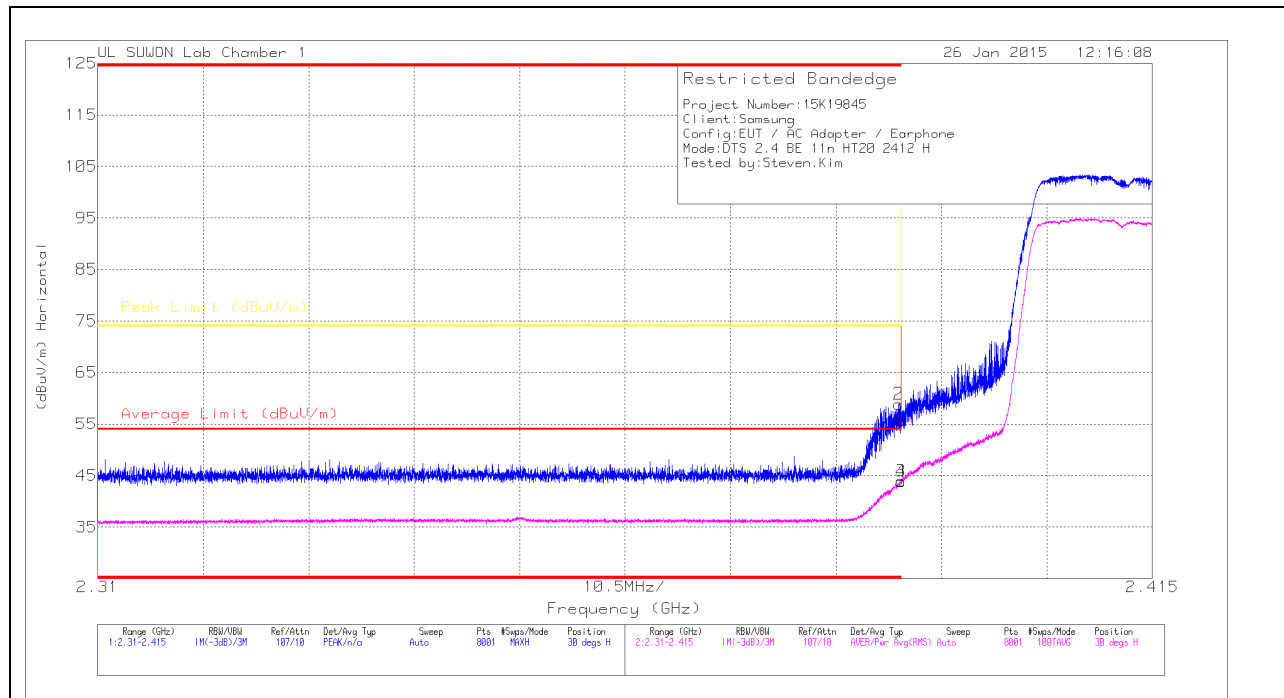
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

11.2.3. 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

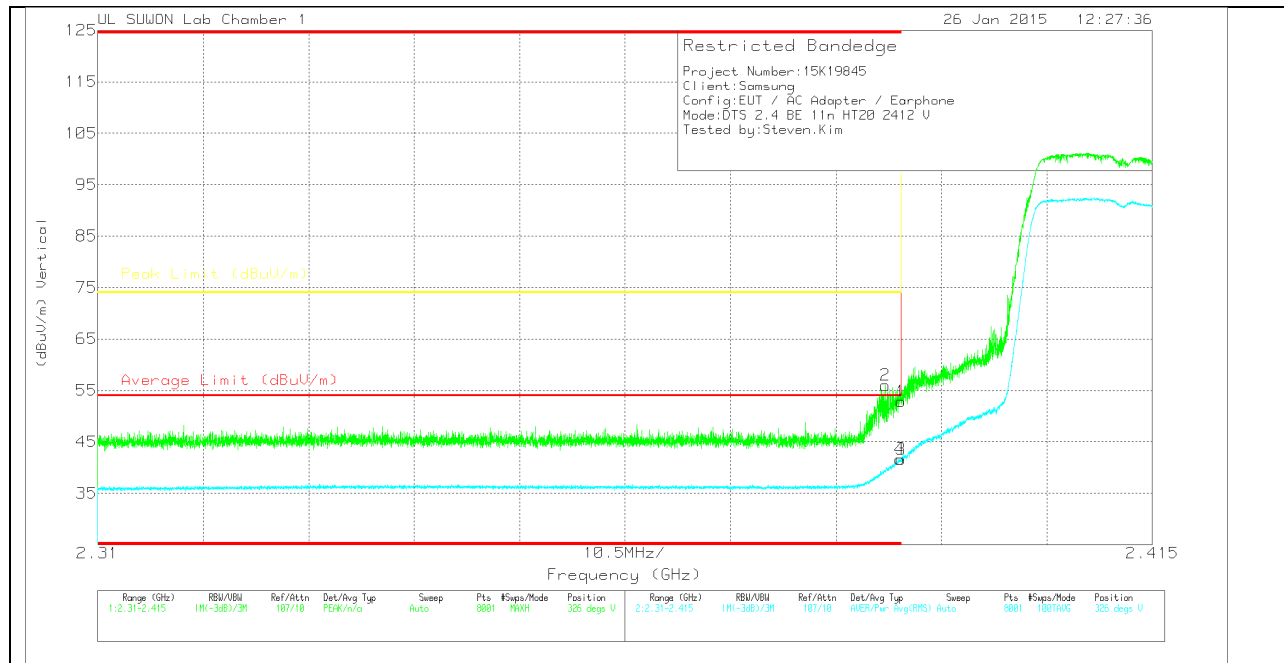
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	50.45	Pk	27.9	-22.6	0	55.75	-	-	74	-18.25	30	382	H
2	* 2.39	53.58	Pk	27.9	-22.6	0	58.88	-	-	74	-15.12	30	382	H
3	* 2.39	38.41	RMS	27.9	-22.6	.19	43.9	54	-10.1	-	-	30	382	H
4	* 2.39	38.36	RMS	27.9	-22.6	.19	43.85	54	-10.15	-	-	30	382	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	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	47.54	Pk	27.9	-22.6	0	52.84	-	-	74	-21.16	326	381	V
2	* 2.388	50.69	Pk	27.9	-22.6	0	55.99	-	-	74	-18.01	326	381	V
3	* 2.39	36.15	RMS	27.9	-22.6	.19	41.64	54	-12.36	-	-	326	381	V
4	* 2.39	36.15	RMS	27.9	-22.6	.19	41.64	54	-12.36	-	-	326	381	V

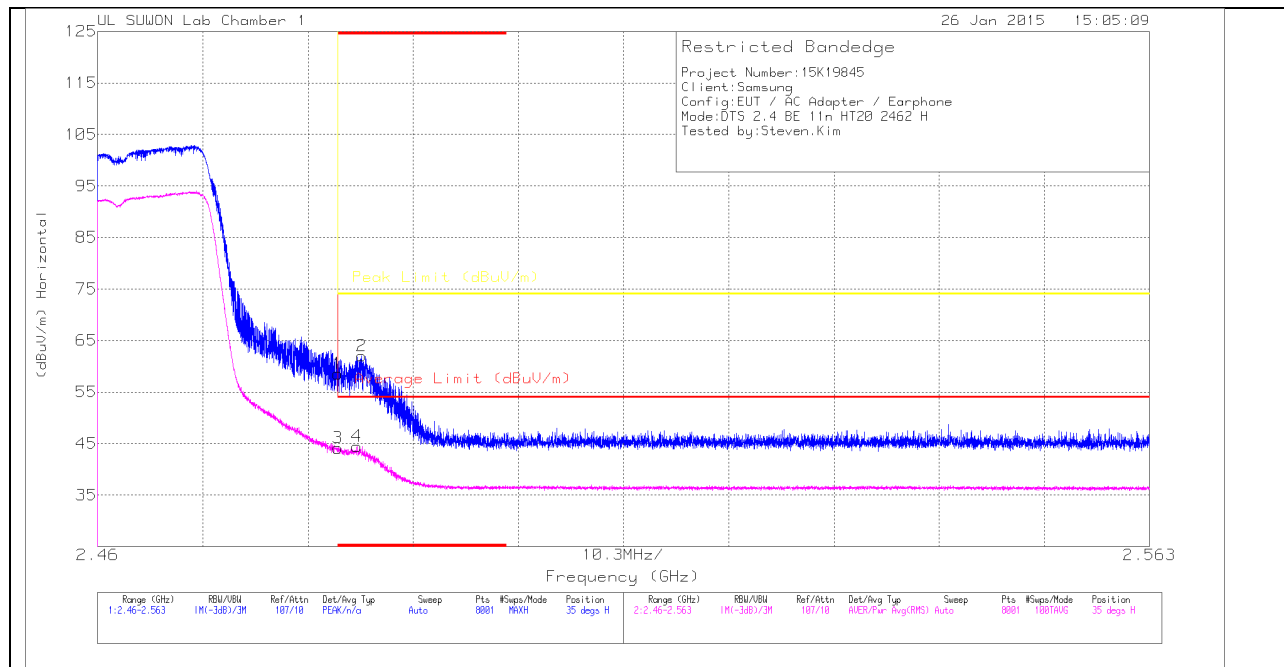
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

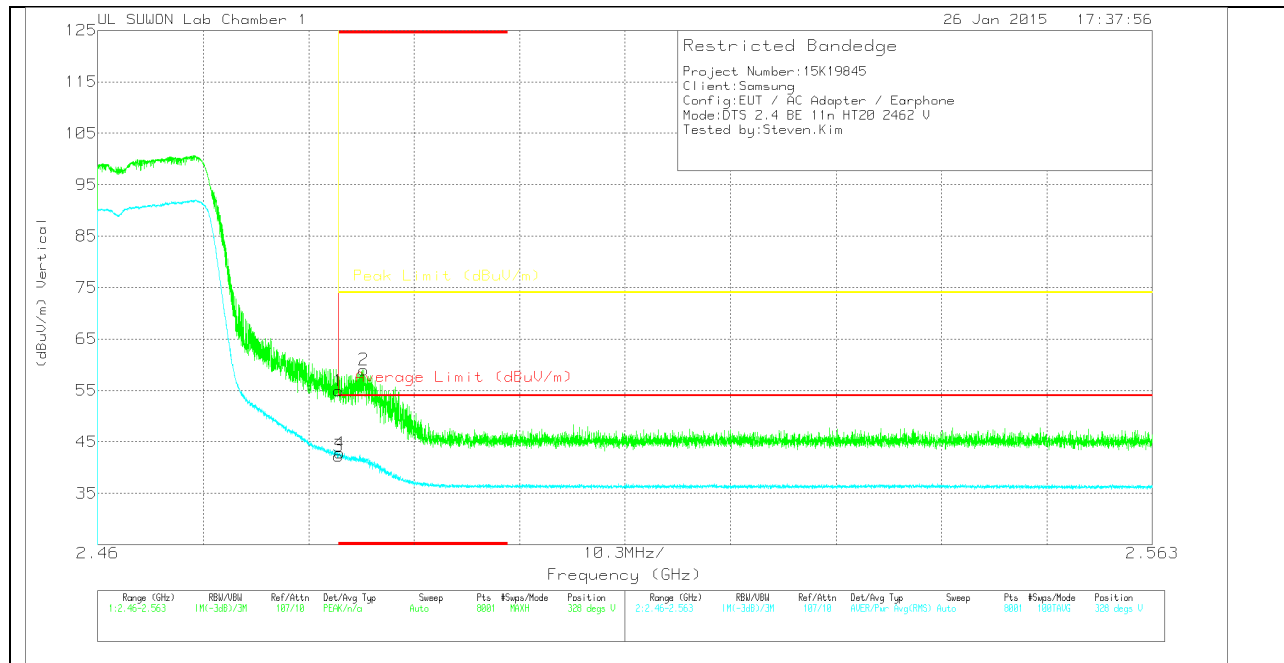
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	53.15	PK	27.9	-22.5	0	58.55	-	-	74	-15.45	35	363	H
2	* 2.486	56.6	PK	27.9	-22.5	0	62	-	-	74	-12	35	363	H
3	* 2.484	38.55	RMS	27.9	-22.5	.19	44.14	54	-9.86	-	-	35	363	H
4	* 2.485	38.87	RMS	27.9	-22.5	.19	44.46	54	-9.54	-	-	35	363	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	49.53	Pk	27.9	-22.5	0	54.93	-	-	74	-19.07	328	352	V
2	* 2.486	53.61	Pk	27.9	-22.5	0	59.01	-	-	74	-14.99	328	352	V
3	* 2.484	36.67	RMS	27.9	-22.5	.19	42.26	54	-11.74	-	-	328	352	V
4	* 2.484	37.22	RMS	27.9	-22.5	.19	42.81	54	-11.19	-	-	328	352	V

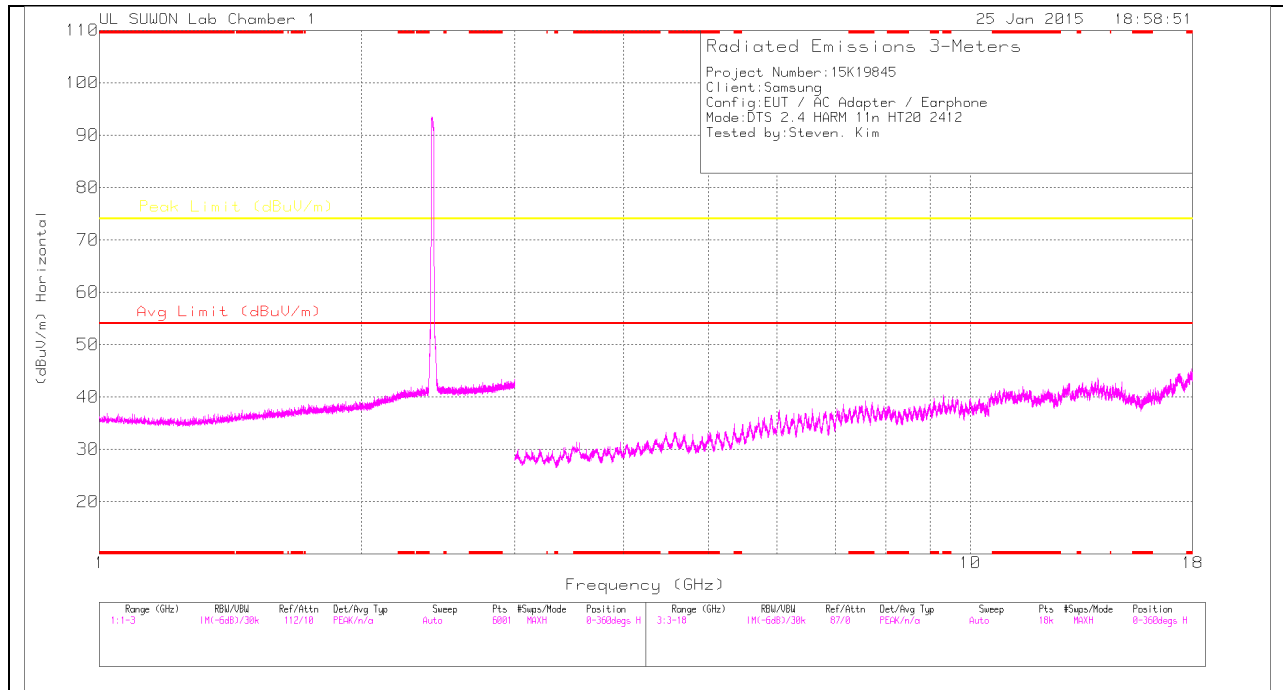
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

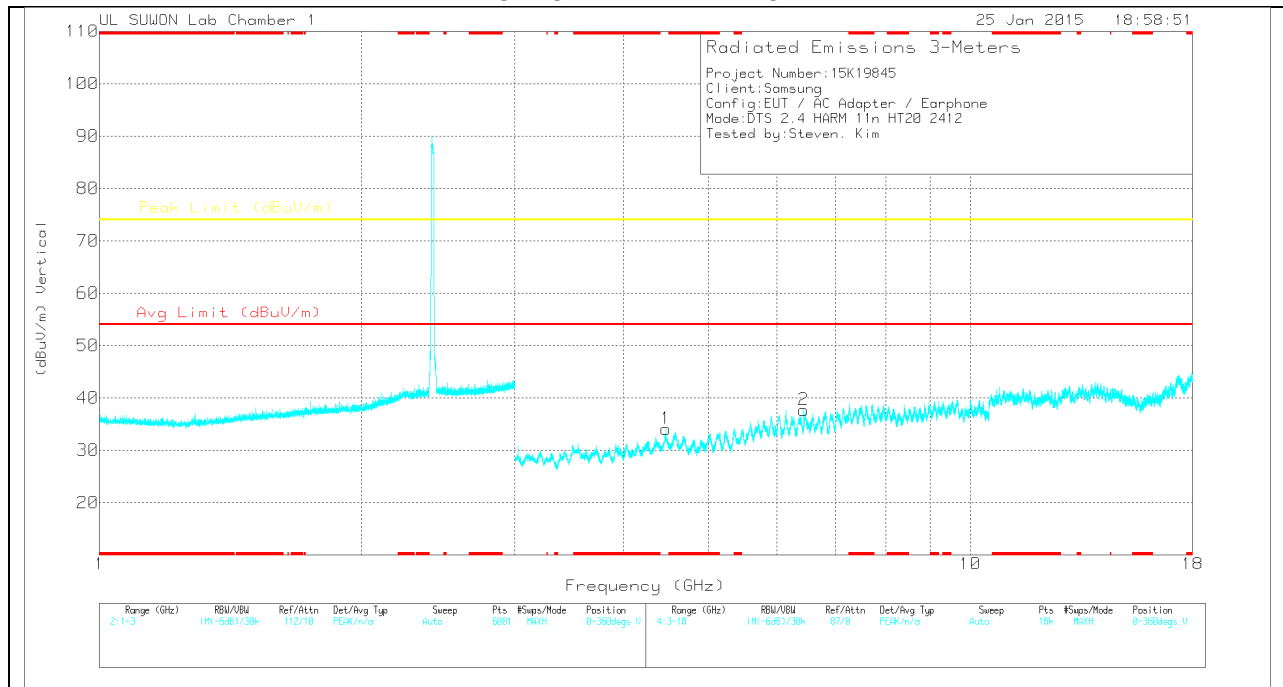
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	4.471	31.87	PK	31.8	-29.4	0	34.27	-	-	-	-	0-360	100	V
2	6.431	29.49	PK	35.5	-27.1	0	37.89	-	-	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

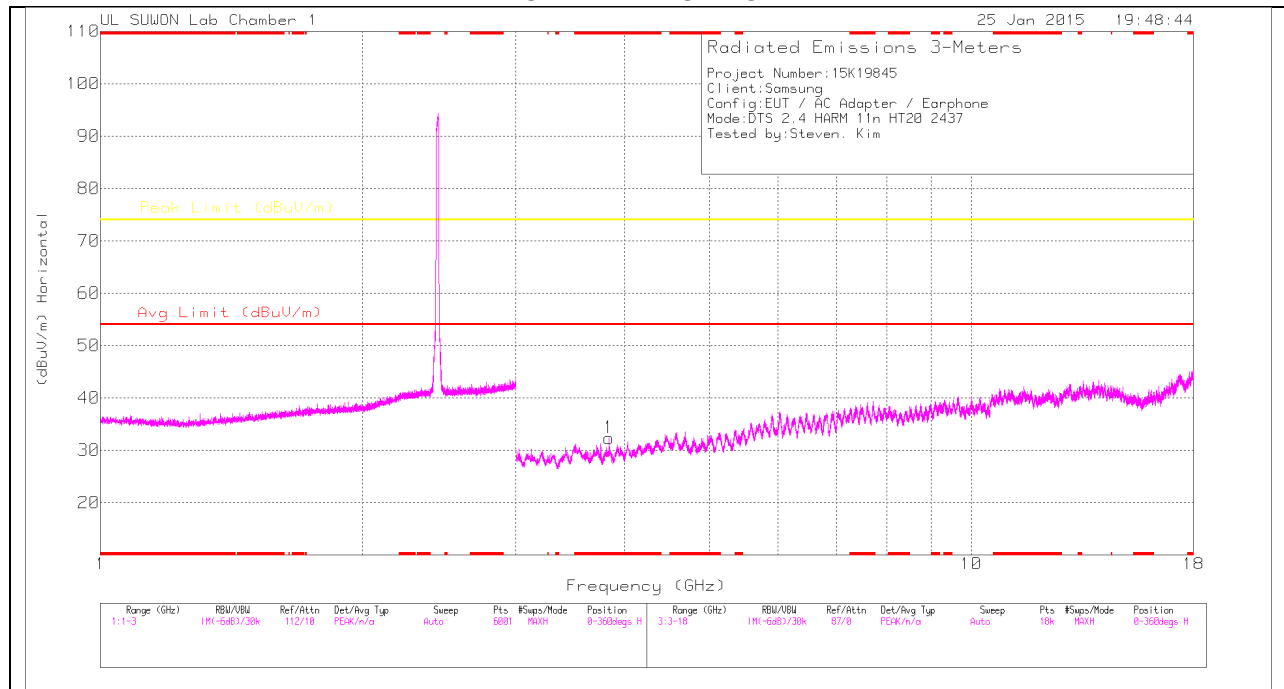
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4.469	41.88	PK2	31.8	-29.4	0	44.28	-	-	-	-	286	118	V
4.471	28.53	MAv1	31.8	-29.4	0	30.93	-	-	-	-	286	118	V
6.431	36.62	PK2	35.5	-27.1	0	45.02	-	-	-	-	8	362	V
6.433	24.43	MAv1	35.5	-27.1	0	32.83	-	-	-	-	8	362	V

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

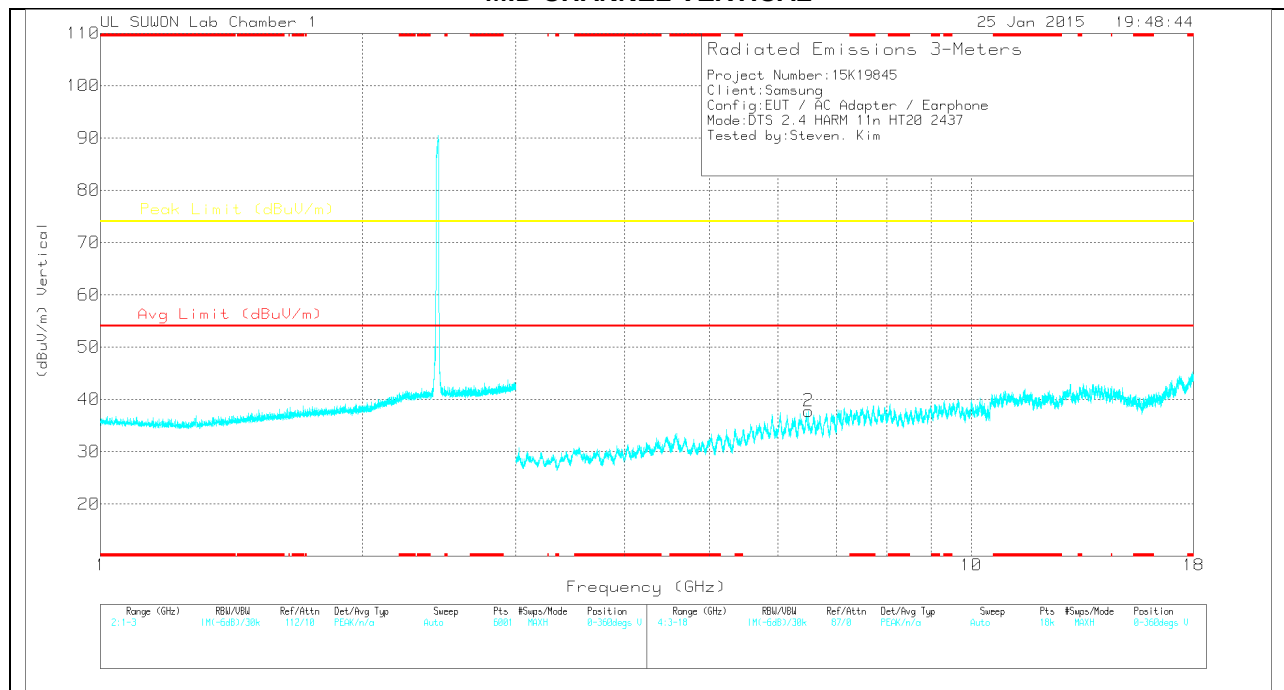
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.834	32.02	PK	30.4	-29.9	0	32.52	-	-	74	-41.48	0-360	200	H
2	6.498	28.67	PK	35.6	-26.3	0	37.97	-	-	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

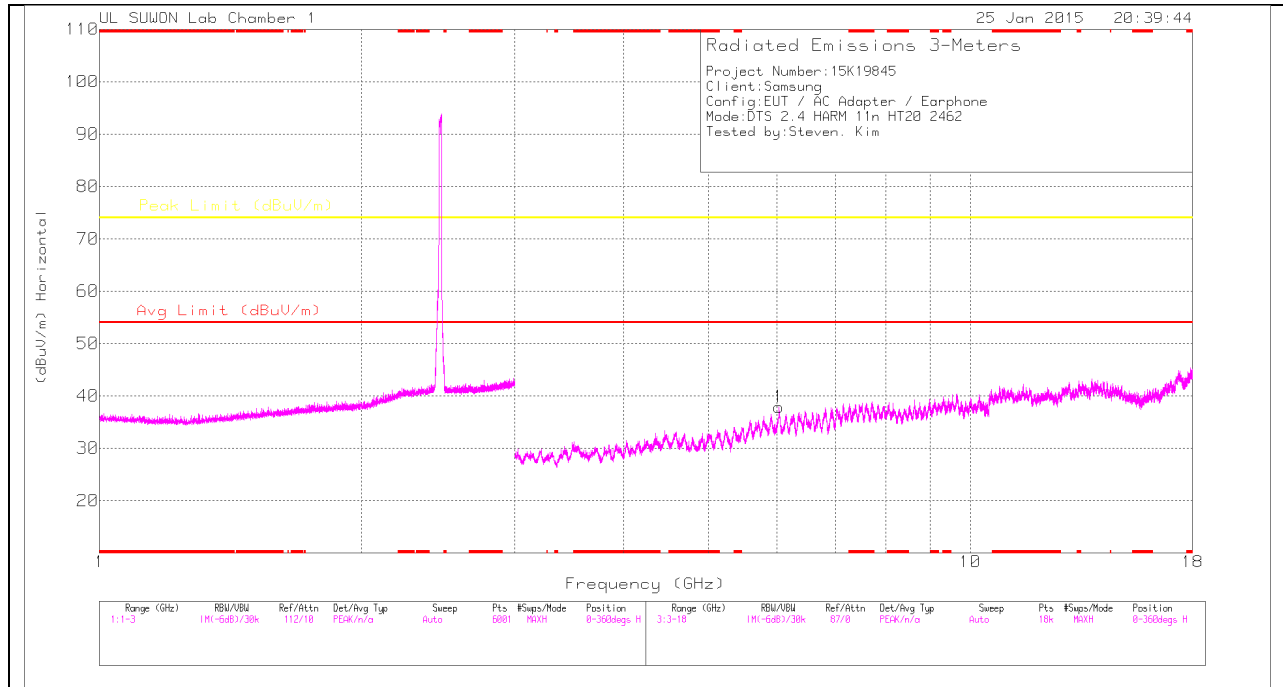
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.833	40.54	PK2	30.4	-29.9	0	41.04	-	-	74	-32.96	219	369	H
* 3.833	27.46	MAv1	30.4	-29.9	0	27.96	54	-26.04	-	-	219	369	H
6.498	38.56	PK2	35.6	-26.3	0	47.86	-	-	-	-	325	104	V
6.499	29.19	MAv1	35.6	-26.3	0	38.49	-	-	-	-	325	104	V

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

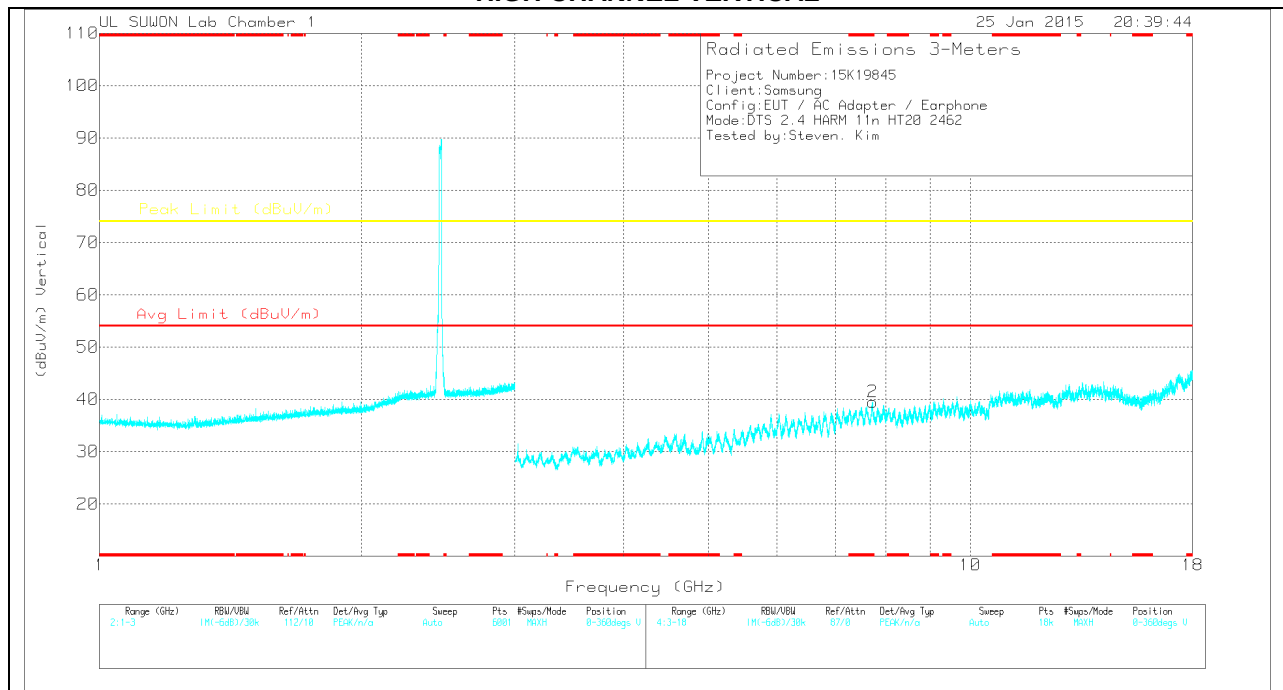
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL



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	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.027	30.66	PK	35.2	-27.8	0	38.06	-	-	-	-	0-360	200	H
2	* 7.721	27.07	PK	37.2	-24.6	0	39.67	-	-	74	-34.33	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	3 GHz HPF_Path3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.029	40.12	PK2	35.2	-27.8	0	47.52	-	-	-	-	308	281	H
6.029	28.14	MAv1	35.2	-27.8	0	35.54	-	-	-	-	308	281	H
* 7.722	37.15	PK2	37.2	-24.6	0	49.75	-	-	74	-24.25	77	141	V
* 7.72	24.64	MAv1	37.2	-24.6	0	37.24	54	-16.76	-	-	77	141	V

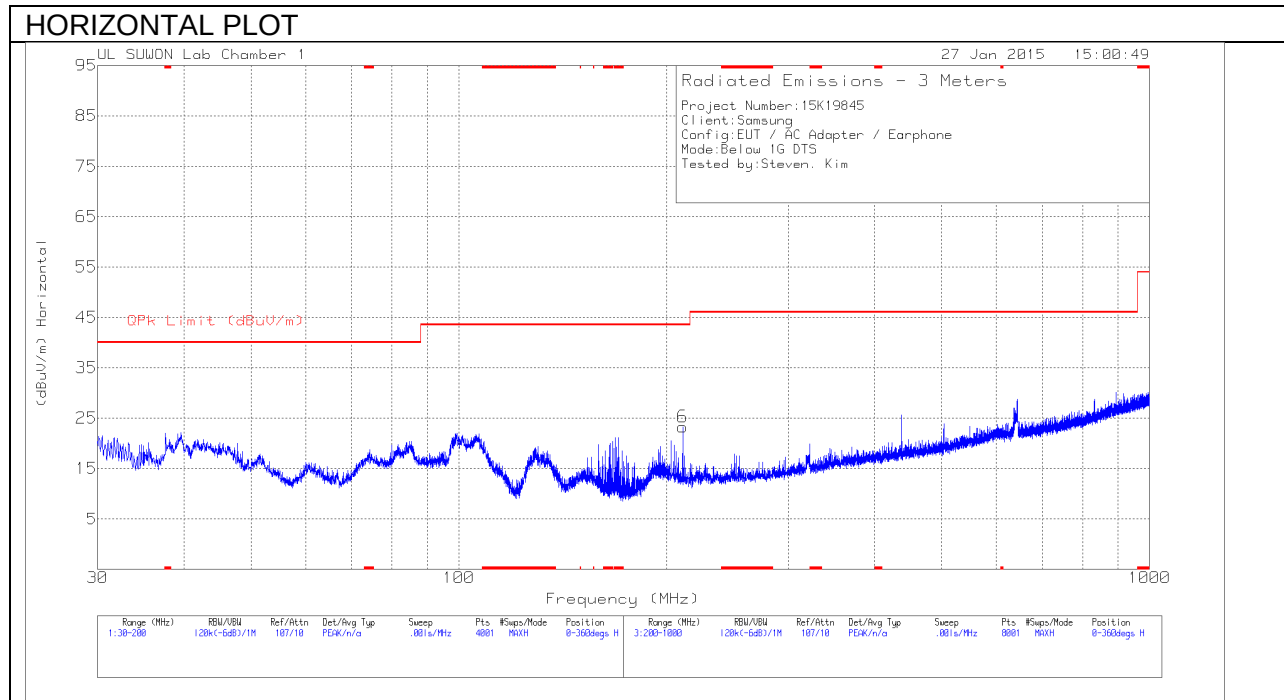
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

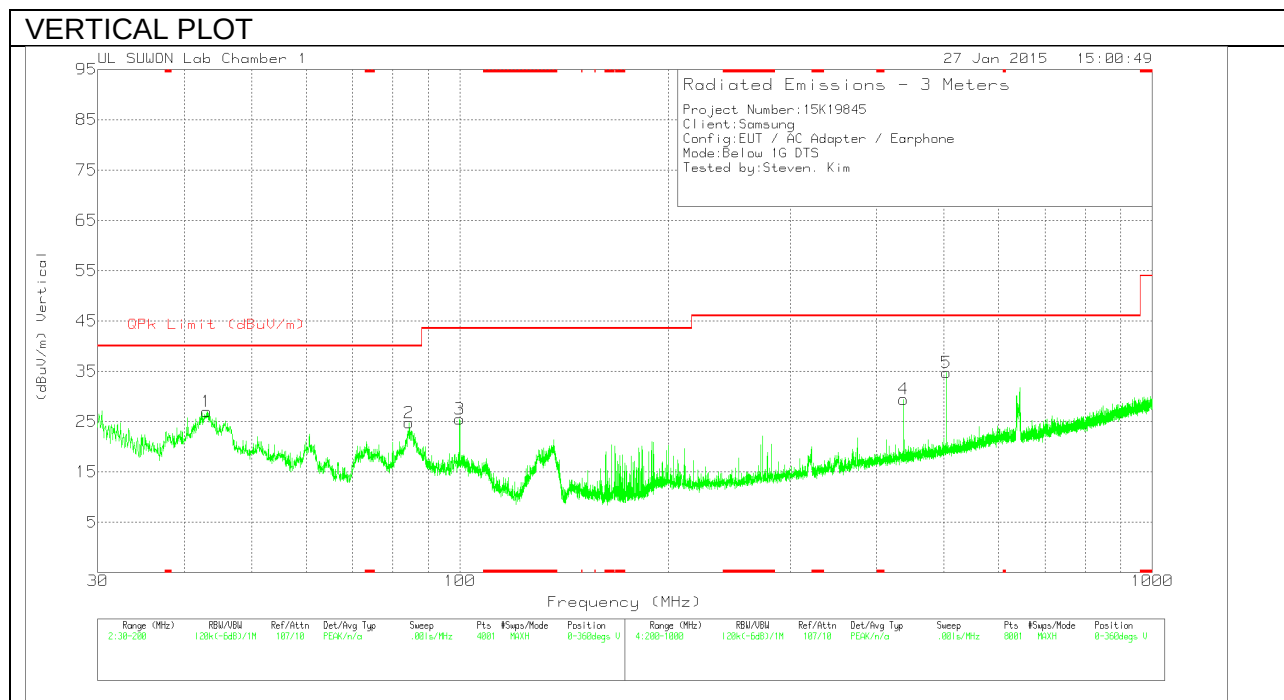
MAv1 - KDB558074 Option 1 Maximum RMS Average

11.3. 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	VULB9163-750	Bi-Log Ant Pathloss	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	43.09	44.29	Pk	13.2	-30.5	26.99	40	-13.01	0-360	100	V
2	84.4425	46.51	Pk	8	-29.8	24.71	40	-15.29	0-360	100	V
3	99.9125	43.59	Pk	11.5	-29.6	25.49	43.52	-18.03	0-360	100	V
6	210.9	40.08	Pk	11.6	-28.4	23.28	43.52	-20.24	0-360	100	H
4	437.5	40.14	Pk	16.1	-26.8	29.44	46.02	-16.58	0-360	100	V
5	504	44.06	Pk	17.1	-26.4	34.76	46.02	-11.26	0-360	100	V

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

PK - Peak detector

12. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4 2009.

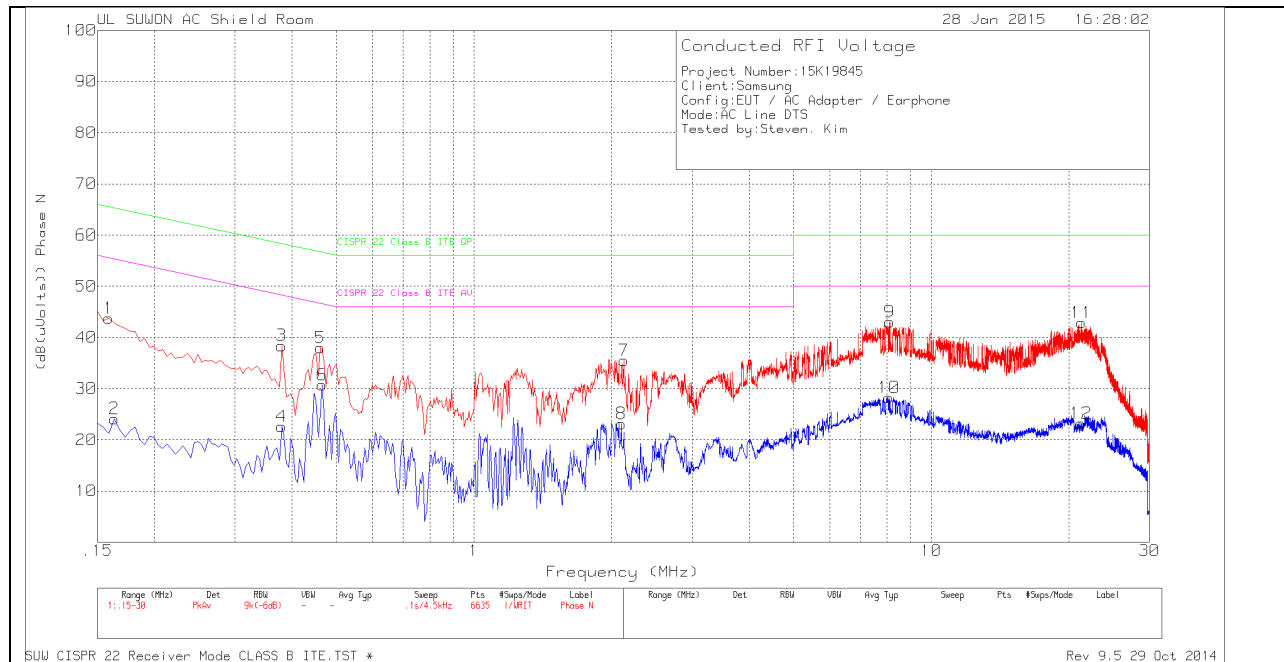
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



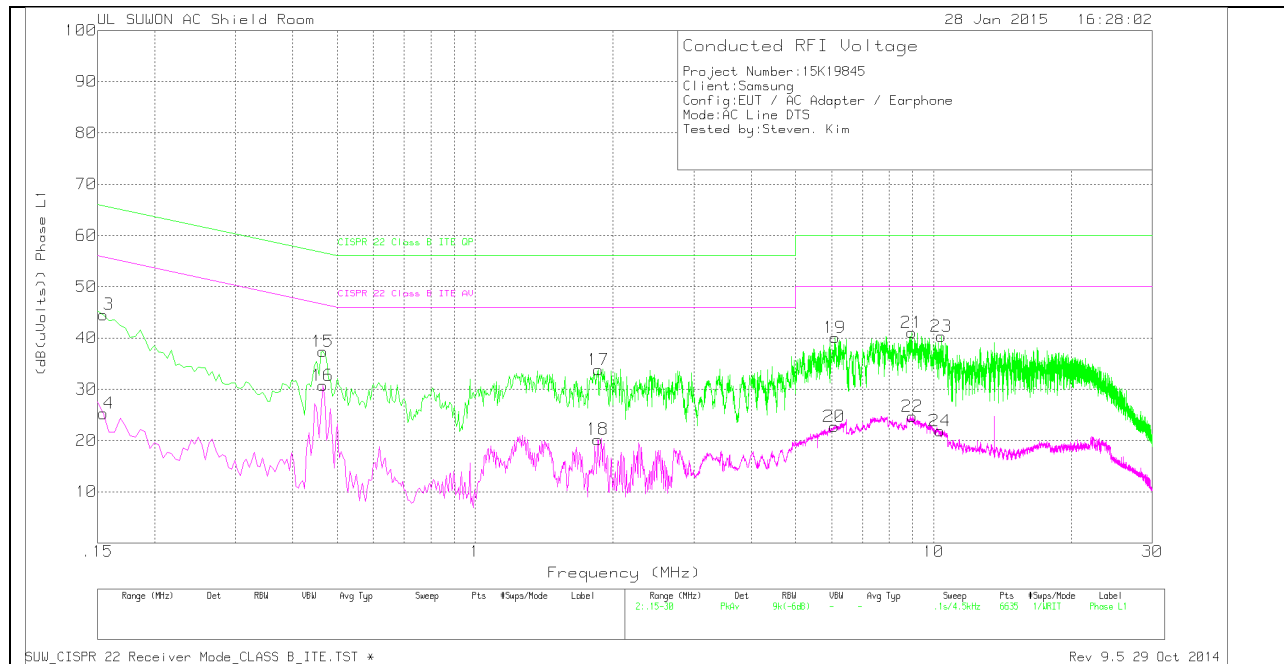
LINE 1 RESULTS

Phase N .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.159	33.76	Pk	10	0	43.76	65.52	-21.76	-	-
2	.1635	14.03	Av	10.1	0	24.13	-	-	55.28	-31.15
3	.3795	28.4	Pk	10	0	38.4	58.29	-19.89	-	-
4	.3795	12.58	Av	10	0	22.58	-	-	48.29	-25.71
5	.4605	27.88	Pk	10.1	0	37.98	56.68	-18.7	-	-
6	.465	20.65	Av	10.1	0	30.75	-	-	46.6	-15.85
7	2.1255	25.63	Pk	9.8	.1	35.53	56	-20.47	-	-
8	2.0985	13.24	Av	9.8	.1	23.14	-	-	46	-22.86
9	8.1105	33.17	Pk	9.7	.1	42.97	60	-17.03	-	-
10	8.0835	18.43	Av	9.7	.1	28.23	-	-	50	-21.77
11	21.282	32.9	Pk	9.8	.2	42.9	60	-17.1	-	-
12	21.2595	13.25	Av	9.8	.2	23.25	-	-	50	-26.75

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L 1	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.1545	34.85	Pk	9.7	0	44.55	65.75	-21.2	-	-
14	.1545	15.56	Av	9.7	0	25.26	-	-	55.75	-30.49
15	.465	27.34	Pk	10	0	37.34	56.6	-19.26	-	-
16	.465	20.68	Av	10	0	30.68	-	-	46.6	-15.92
17	1.8555	24.33	Pk	9.4	.1	33.83	56	-22.17	-	-
18	1.851	10.7	Av	9.4	.1	20.2	-	-	46	-25.8
19	6.0855	30.6	Pk	9.4	.1	40.1	60	-19.9	-	-
20	6.0675	13.2	Av	9.4	.1	22.7	-	-	50	-27.3
21	8.961	31.66	Pk	9.3	.1	41.06	60	-18.94	-	-
22	8.979	15.32	Av	9.3	.1	24.72	-	-	50	-25.28
23	10.383	30.82	Pk	9.3	.2	40.32	60	-19.68	-	-
24	10.3155	12.38	Av	9.3	.2	21.88	-	-	50	-28.12

Pk - Peak detector

Av - Average detection