



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM Phone + Bluetooth/BLE and DTS b/g/n

MODEL NUMBER : SM-G361H, SM-G361H/DS

FCC ID: A3LSMG361H

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Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 443-742, KOREA**

Prepared by

**UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433**



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--	05/21/15	Initial issue	CY Choi
A	05/27/15	Update plot of duty cycle	CY Choi
B	06/01/15	Update model name and description	CY Choi

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM Phone + Bluetooth/BLE and DTS b/g/n
MODEL NUMBER: SM-G361H, SM-G361H/DS
SERIAL NUMBER: R31G401L8VT (RADIATED); R31G401LD7E (CONDUCTED)
DATE TESTED: MAY 11 - MAY 27, 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	
<input checked="" type="checkbox"/>	Chamber 1
<input type="checkbox"/>	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 Phone + Bluetooth/BLE, DTS b/g/n.

SM-G361H and SM-G361H/DS are same hardware but for different number of SIM card slot. SM-G361H has one slot. SM-G361H/DS is dual SIM version.

This test report addresses the DTS (WLAN) operational mode.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2462	802.11b	17.13	51.64
	802.11g	14.61	28.91
	802.11n HT20	13.29	21.33

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antennas, with a antenna's maximum gain of -2.51 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 HT20 mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	ETA0U10EWE	N/A	N/A
Data Cable	SAMSUNG	ECB-DU28WE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

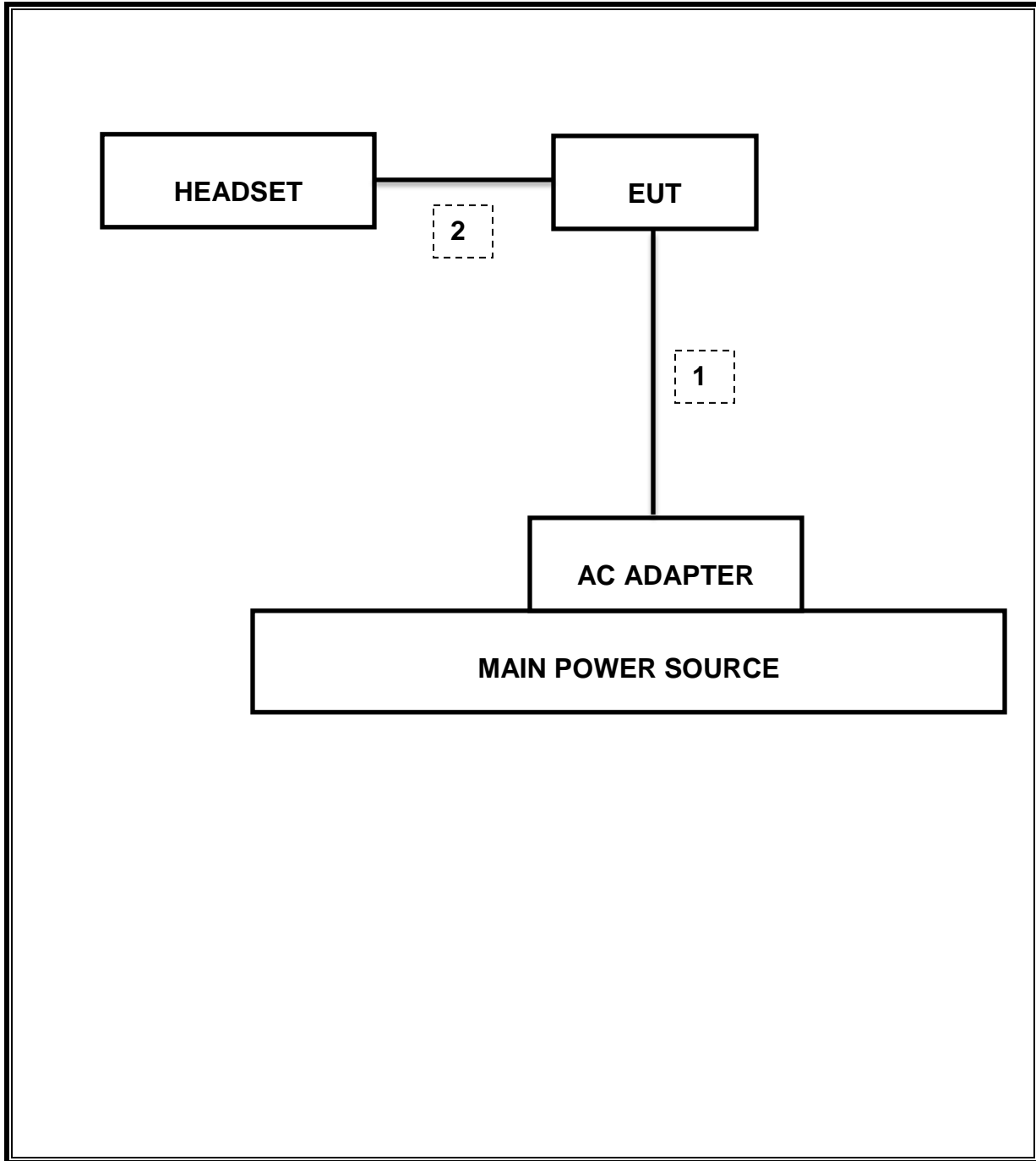
I/O CABLES

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
LISN	R&S	ENV-216	101836	04-09-16
LISN	R&S	ENV-216	101837	04-09-16

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure §9.2.3.1 AVGPM is used for power and §10.2 AVGPS-1 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

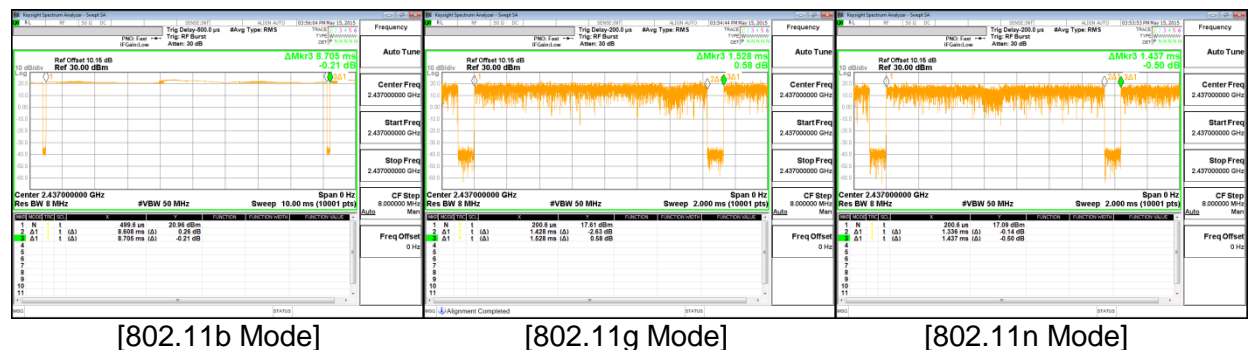
None; for reporting purposes only.

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	8.608	8.705	0.989	98.9%	0.00	0.010
802.11g	1.428	1.528	0.935	93.5%	0.29	0.700
802.11n HT20	1.336	1.437	0.930	93.0%	0.32	0.749



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	9.037 MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.06 dBm
15.247	TX conducted output power	<30dBm		Pass	17.13 dBm
15.247	PSD	<8dBm		Pass	-8.990 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	58.39 dBuV (QP)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	46.92 dBuV/m (AV)

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	9.044	0.5
Mid	2437	9.037	0.5
High	2462	9.502	0.5
Worst		9.037	0.5



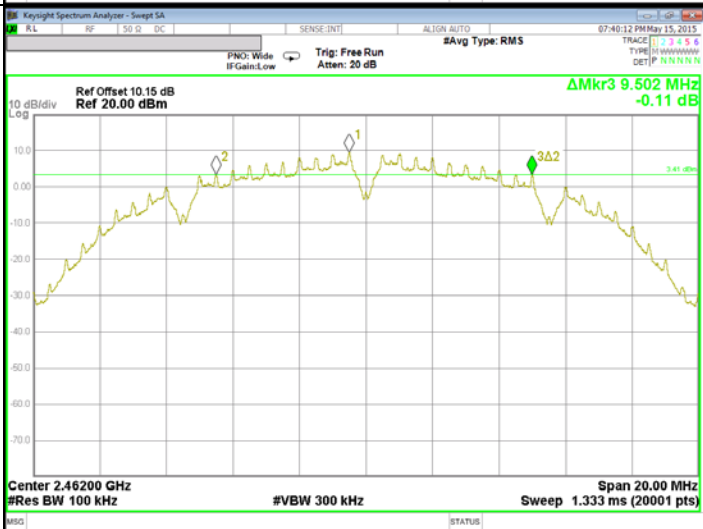
10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

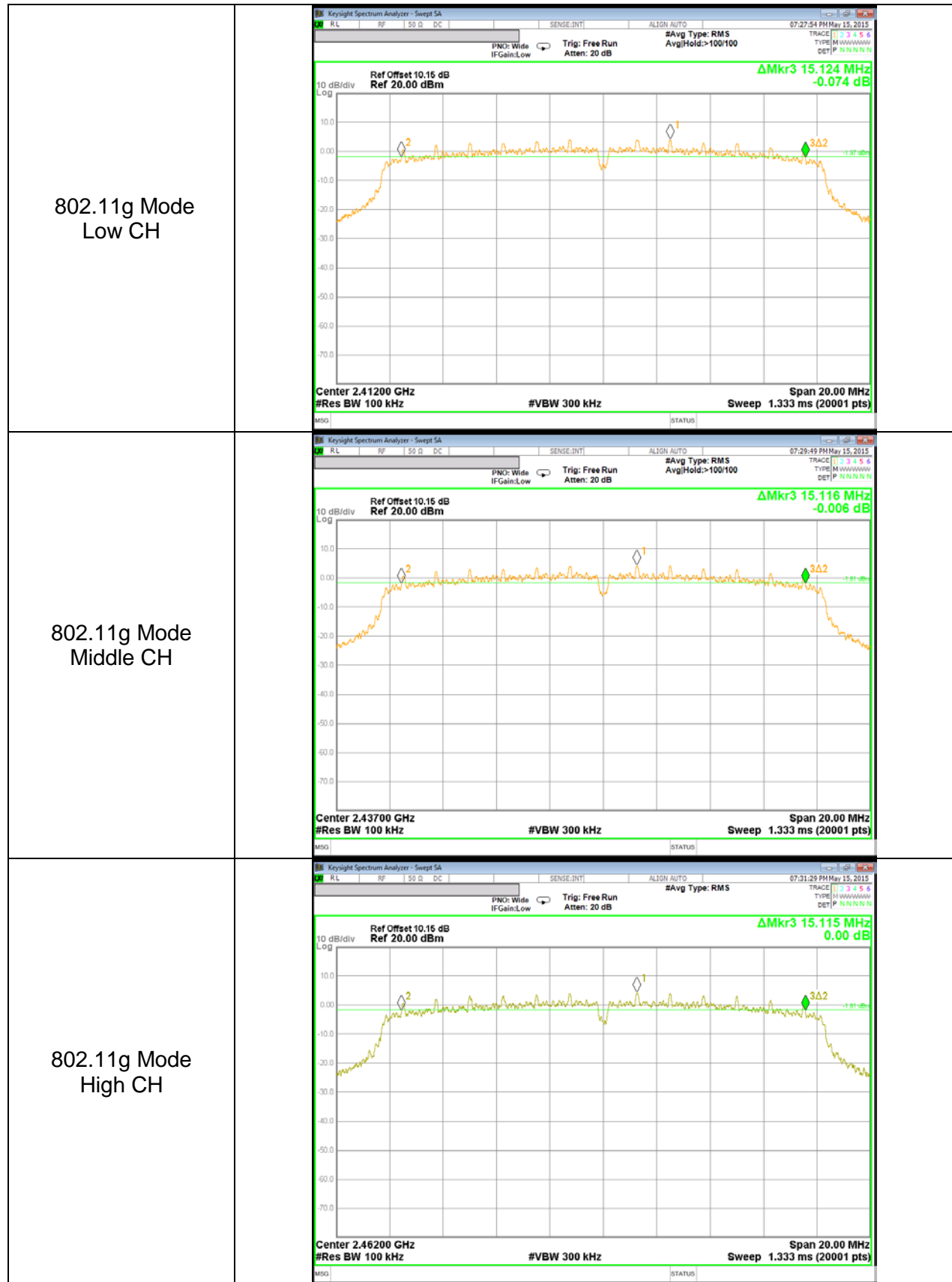
Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.124	0.5
Mid	2437	15.116	0.5
High	2462	15.115	0.5
Worst		15.115	0.5

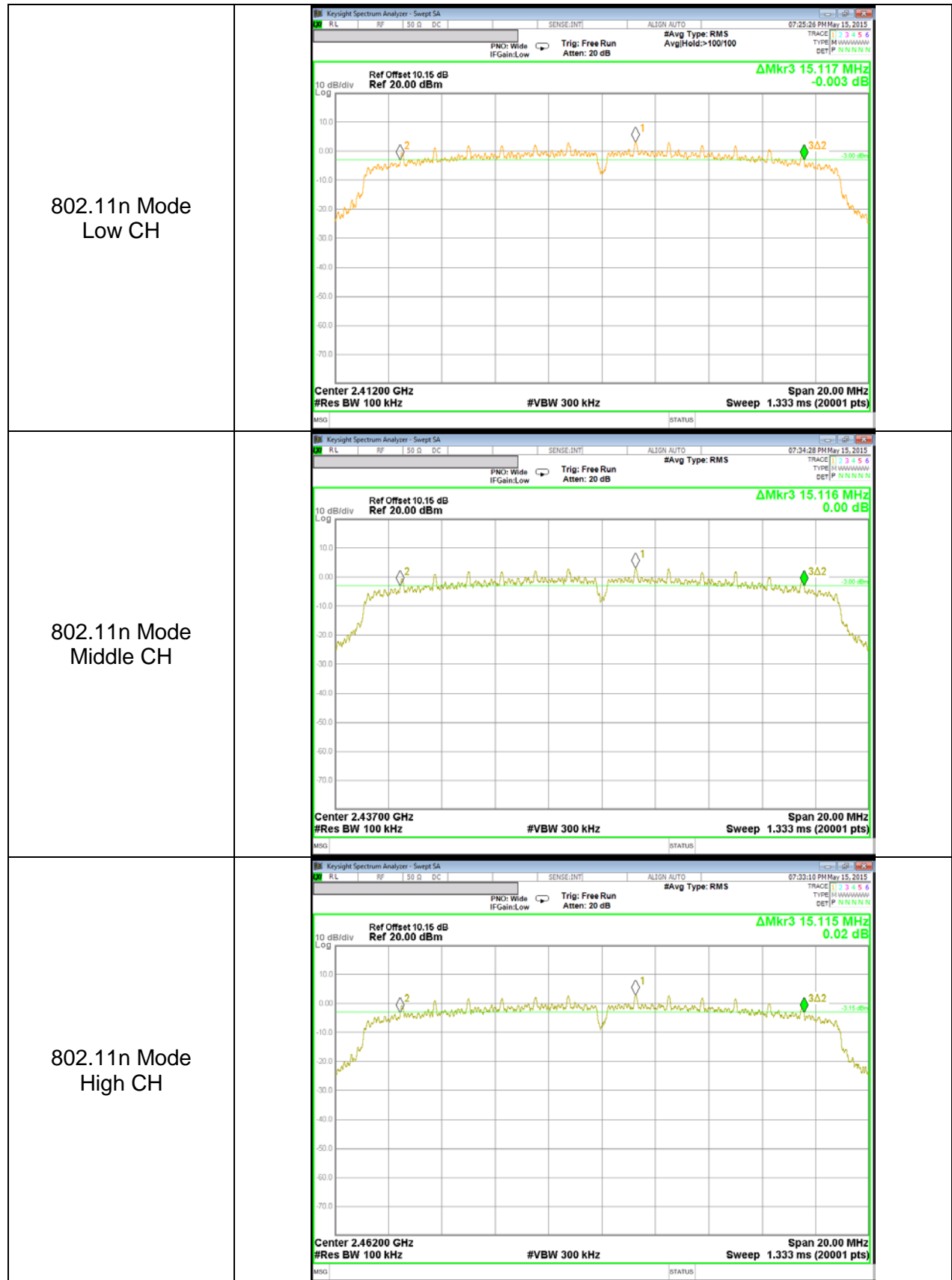
10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.117	0.5
Mid	2437	15.116	0.5
High	2462	15.115	0.5
Worst		15.115	0.5

10.1.4. 6 dB BANDWIDTH PLOTS

<p>802.11b Mode Low CH</p>	
<p>802.11b Mode Middle CH</p>	
<p>802.11b Mode High CH</p>	





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	14.012
Mid	2437	14.010
High	2462	14.059
Worst		14.059

10.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	2412	16.283
Mid	2437	16.348
High	2462	16.288
Worst		16.348

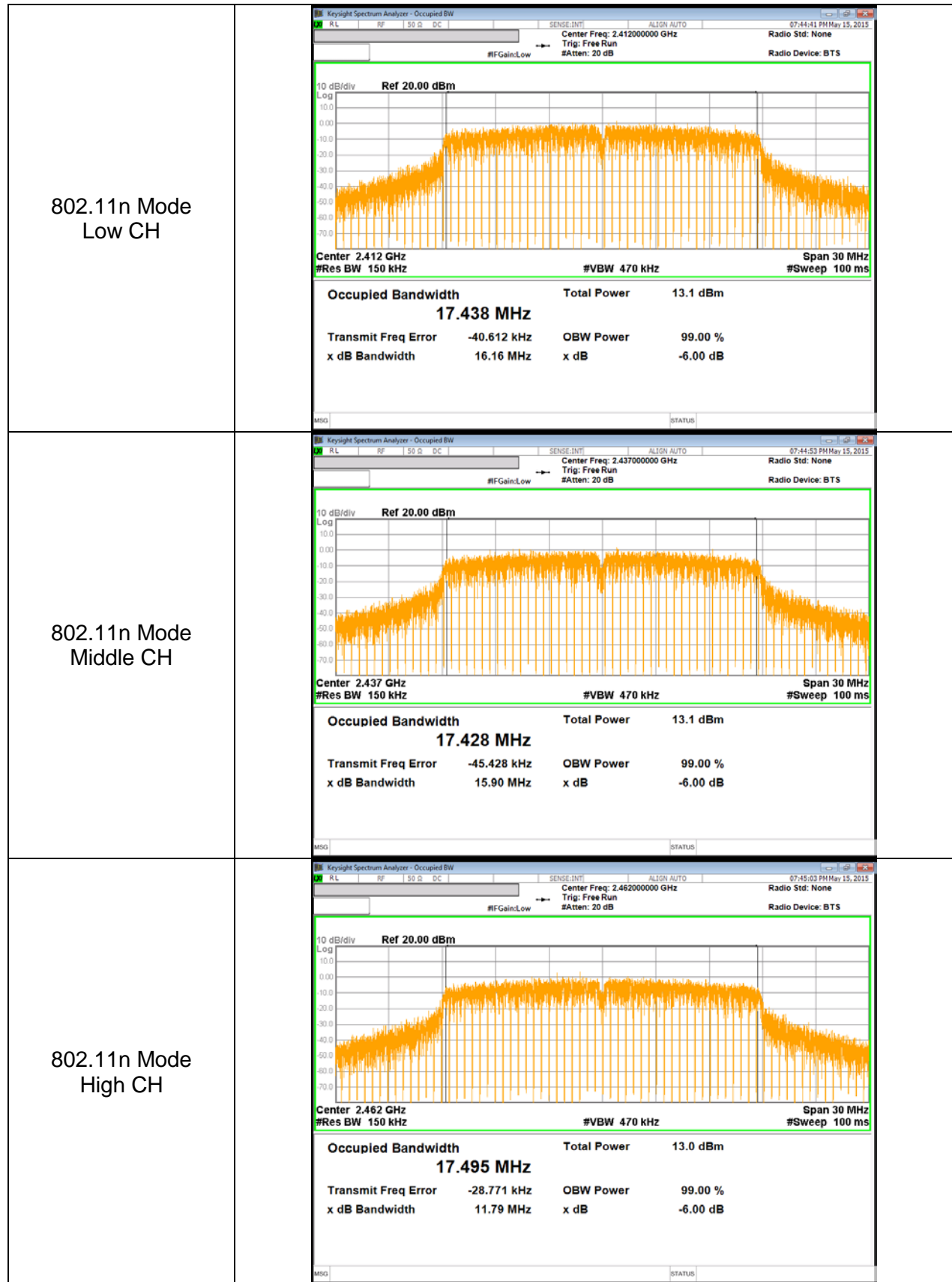
10.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	2412	17.438
Mid	2437	17.428
High	2462	17.495
Worst		17.495

10.2.4. 99% BANDWIDTH PLOTS

<p>802.11b Mode Low CH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.41200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref 20.00 dBm</p> <p>Center 2.412 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>17.3 dBm</td> </tr> <tr> <td>14.012 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-40.078 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>8.499 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	17.3 dBm	14.012 MHz			Transmit Freq Error	OBW Power	99.00 %	-40.078 kHz	x dB	-6.00 dB	x dB Bandwidth			8.499 MHz		
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x dB Bandwidth																			
8.499 MHz																			
<p>802.11b Mode Middle CH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.43700000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref 20.00 dBm</p> <p>Center 2.437 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>17.2 dBm</td> </tr> <tr> <td>14.010 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>18.186 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>7.977 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	17.2 dBm	14.010 MHz			Transmit Freq Error	OBW Power	99.00 %	18.186 kHz	x dB	-6.00 dB	x dB Bandwidth			7.977 MHz		
Occupied Bandwidth	Total Power	17.2 dBm																	
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x dB Bandwidth																			
7.977 MHz																			
<p>802.11b Mode High CH</p>	<p>KeySight Spectrum Analyzer - Occupied BW</p> <p>Center Freq: 2.46200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>10 dB/div Ref 20.00 dBm</p> <p>Center 2.462 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>17.2 dBm</td> </tr> <tr> <td>14.059 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-48.050 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>8.545 MHz</td> <td></td> <td></td> </tr> </table>	Occupied Bandwidth	Total Power	17.2 dBm	14.059 MHz			Transmit Freq Error	OBW Power	99.00 %	-48.050 kHz	x dB	-6.00 dB	x dB Bandwidth			8.545 MHz		
Occupied Bandwidth	Total Power	17.2 dBm																	
14.059 MHz																			
Transmit Freq Error	OBW Power	99.00 %																	
-48.050 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
8.545 MHz																			

<p>802.11g Mode Low CH</p>	<p>Center Freq: 2.41200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>Center 2.412 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <p>Occupied Bandwidth 16.283 MHz Total Power 14.4 dBm Transmit Freq Error -36.015 kHz OBW Power 99.00 % x dB Bandwidth 12.79 MHz x dB -6.00 dB</p>
<p>802.11g Mode Middle CH</p>	<p>Center Freq: 2.43700000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>Center 2.437 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <p>Occupied Bandwidth 16.348 MHz Total Power 14.3 dBm Transmit Freq Error -23.027 kHz OBW Power 99.00 % x dB Bandwidth 14.36 MHz x dB -6.00 dB</p>
<p>802.11g Mode High CH</p>	<p>Center Freq: 2.46200000 GHz Trig: Free Run #Atten: 20 dB Radio Std: None Radio Device: BTS</p> <p>Center 2.462 GHz #Res BW 150 kHz #VBW 470 kHz Span 30 MHz #Sweep 100 ms</p> <p>Occupied Bandwidth 16.288 MHz Total Power 14.3 dBm Transmit Freq Error -16.559 kHz OBW Power 99.00 % x dB Bandwidth 14.37 MHz x dB -6.00 dB</p>



10.3. 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

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

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	IC Power Limit [dBm]	IC EIRP Limit [dBm]	Max Power [dBm]
Low	2412	-2.51	30.00	30.00	36.00	30.00
Mid	2437	-2.51	30.00	30.00	36.00	30.00
High	2462	-2.51	30.00	30.00	36.00	30.00

Results

Channel	Frequency [MHz]	Primary Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	17.12	17.12	36.00	-18.88
Mid	2437	17.12	17.12	36.00	-18.88
High	2462	17.13	17.13	36.00	-18.87
Worst			17.13	36.00	-18.87

10.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	IC Power Limit [dBm]	IC EIRP Limit [dBm]	Max Power [dBm]
Low	2412	-2.51	30.00	30.00	36.00	30.00
Mid	2437	-2.51	30.00	30.00	36.00	30.00
High	2462	-2.51	30.00	30.00	36.00	30.00

Results

Channel	Frequency [MHz]	Primary Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	14.61	14.61	36.00	-21.39
Mid	2437	14.53	14.53	36.00	-21.47
High	2462	14.54	14.54	36.00	-21.46
Worst			14.61	36.00	-21.39

10.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	IC Power Limit [dBm]	IC EIRP Limit [dBm]	Max Power [dBm]
Low	2412	-2.51	30.00	30.00	36.00	30.00
Mid	2437	-2.51	30.00	30.00	36.00	30.00
High	2462	-2.51	30.00	30.00	36.00	30.00

Results

Channel	Frequency [MHz]	Primary Meas Power [dBm]	Total Corr'd Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	13.30	13.30	36.00	-22.70
Mid	2437	13.26	13.26	36.00	-22.74
High	2462	13.29	13.29	36.00	-22.71
Worst			13.30	36.00	-22.70

10.4. 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.

TEST PROCEDURE

Power Spectral Density was performed utilizing the “Method AVGPSD-1” under KDB558074 D01 DTS Meas Guidance v03r02

RESULTS

10.4.1. 802.11b MODE IN THE 2.4 GHZ BAND

PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-13.926	0.00	-13.93	8.00	-21.93
Mid	2437	-11.885	0.00	-11.89	8.00	-19.89
High	2462	-8.99	0.00	-8.99	8.00	-16.99

10.4.2. 802.11g MODE IN THE 2.4 GHZ BAND

PSD Results


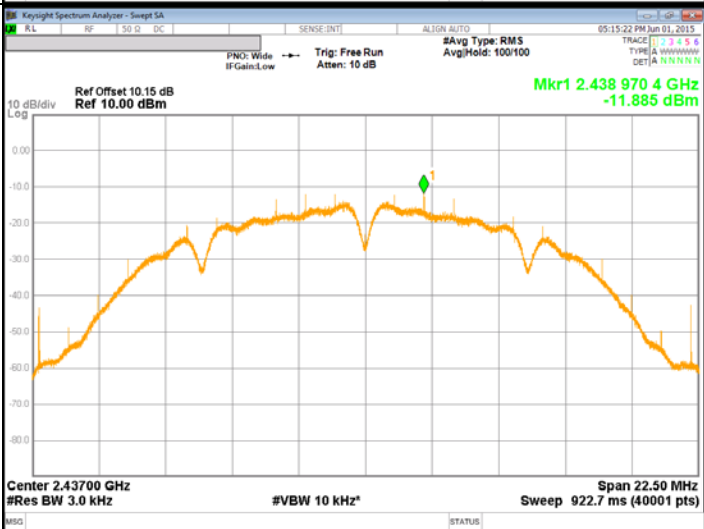

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-18.768	0.29	-18.48	8.00	-26.77
Mid	2437	-18.593	0.29	-18.30	8.00	-26.59
High	2462	-19.001	0.29	-18.71	8.00	-27.00

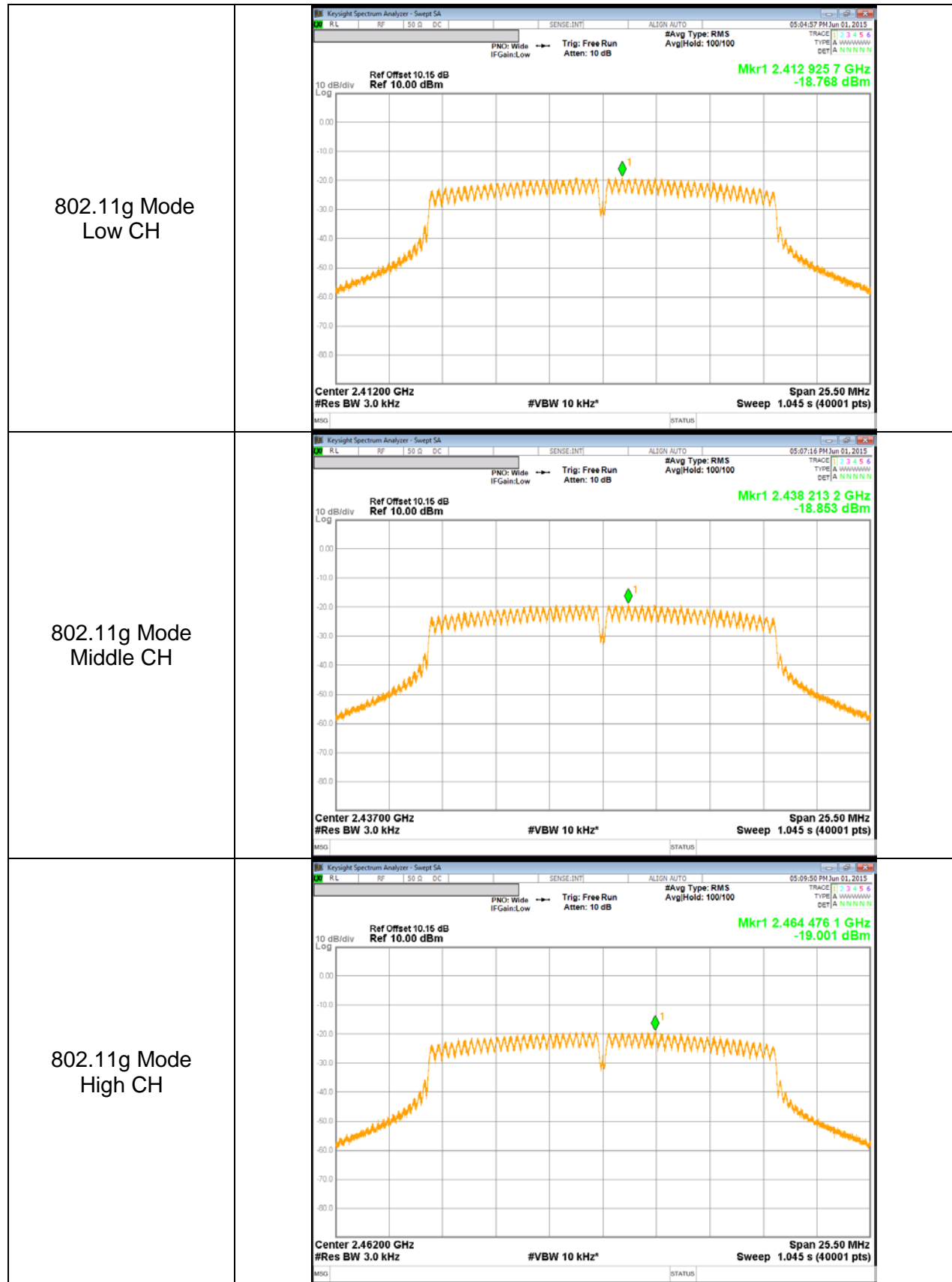
10.4.3. 802.11n HT20 MODE IN THE 2.4 GHZ BAND

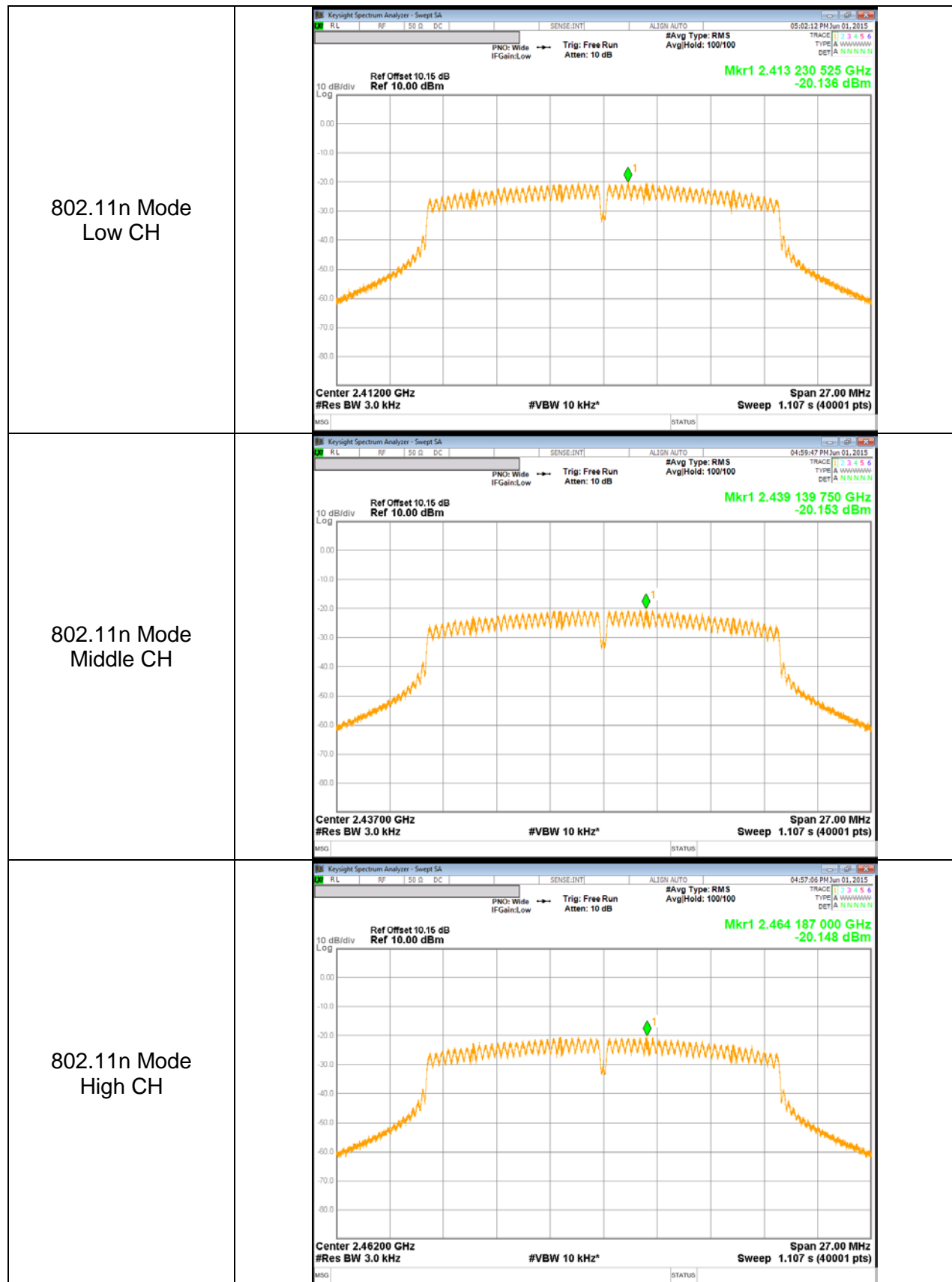
PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-20.136	0.32	-19.82	8.00	-28.14
Mid	2437	-20.153	0.32	-19.83	8.00	-28.15
High	2462	-20.148	0.32	-19.83	8.00	-28.15

10.4.4. PSD PLOTS

<p>802.11b Mode Low CH</p>	
<p>802.11b Mode Middle CH</p>	
<p>802.11b Mode High CH</p>	





10.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

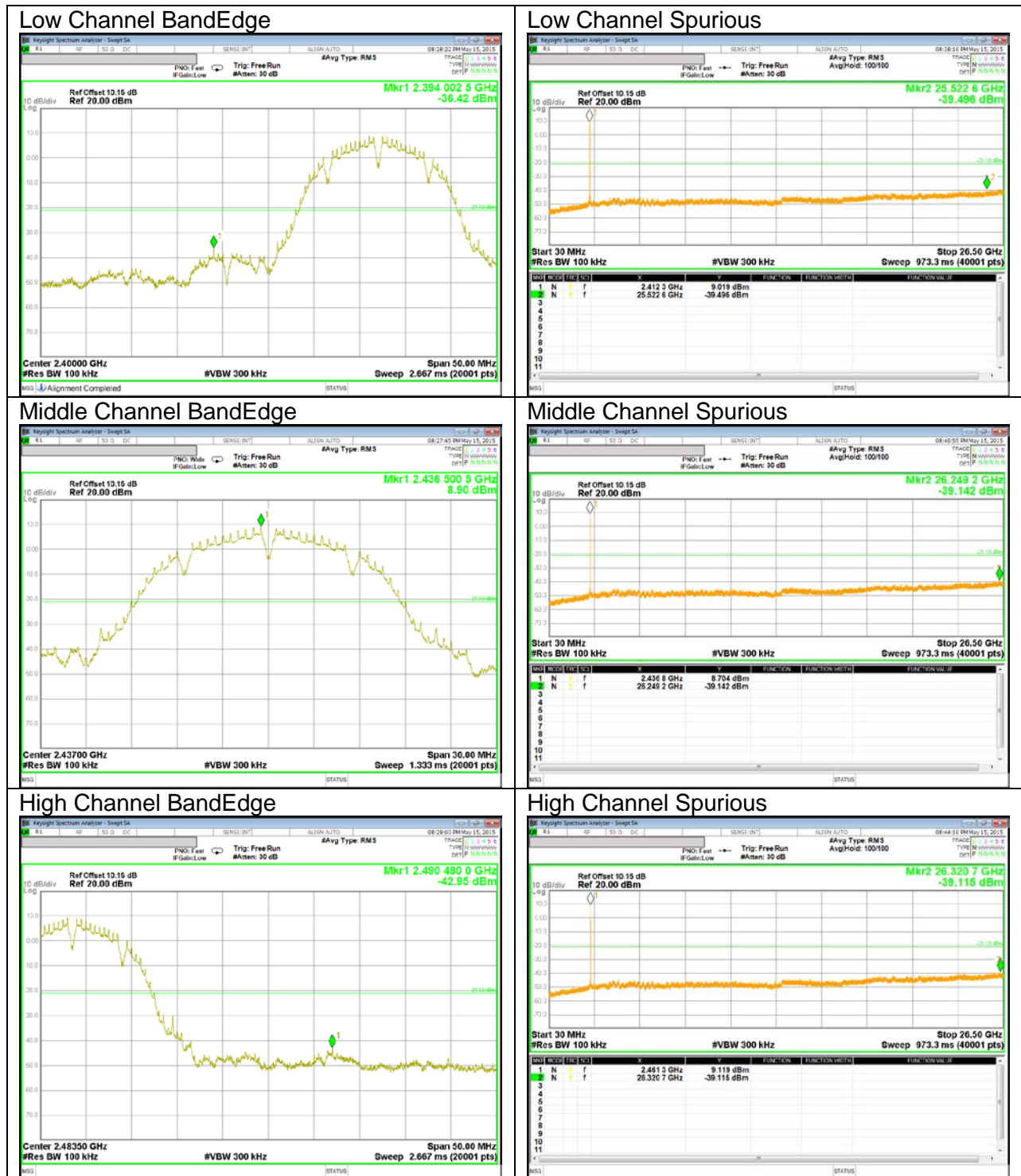
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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

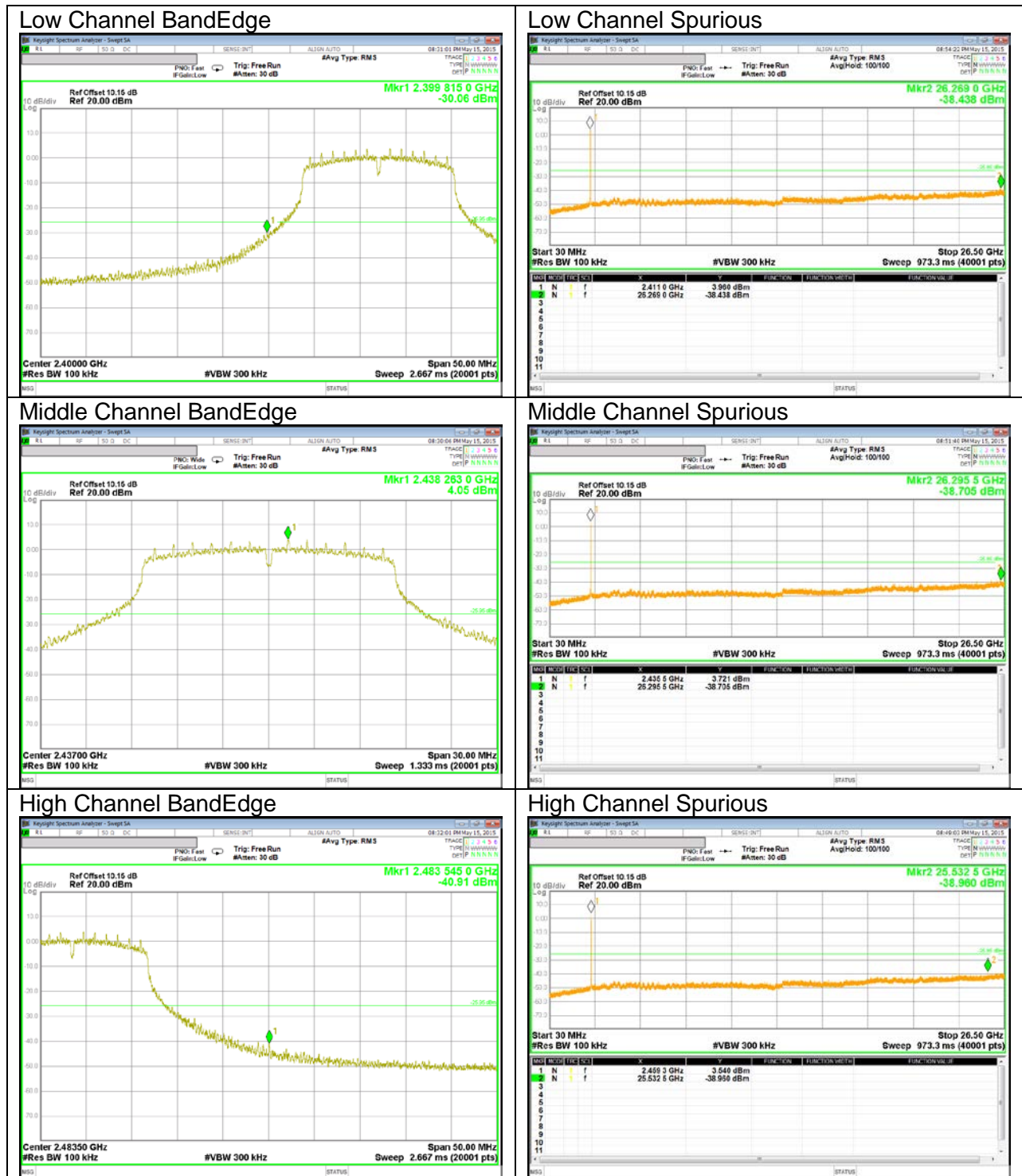
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

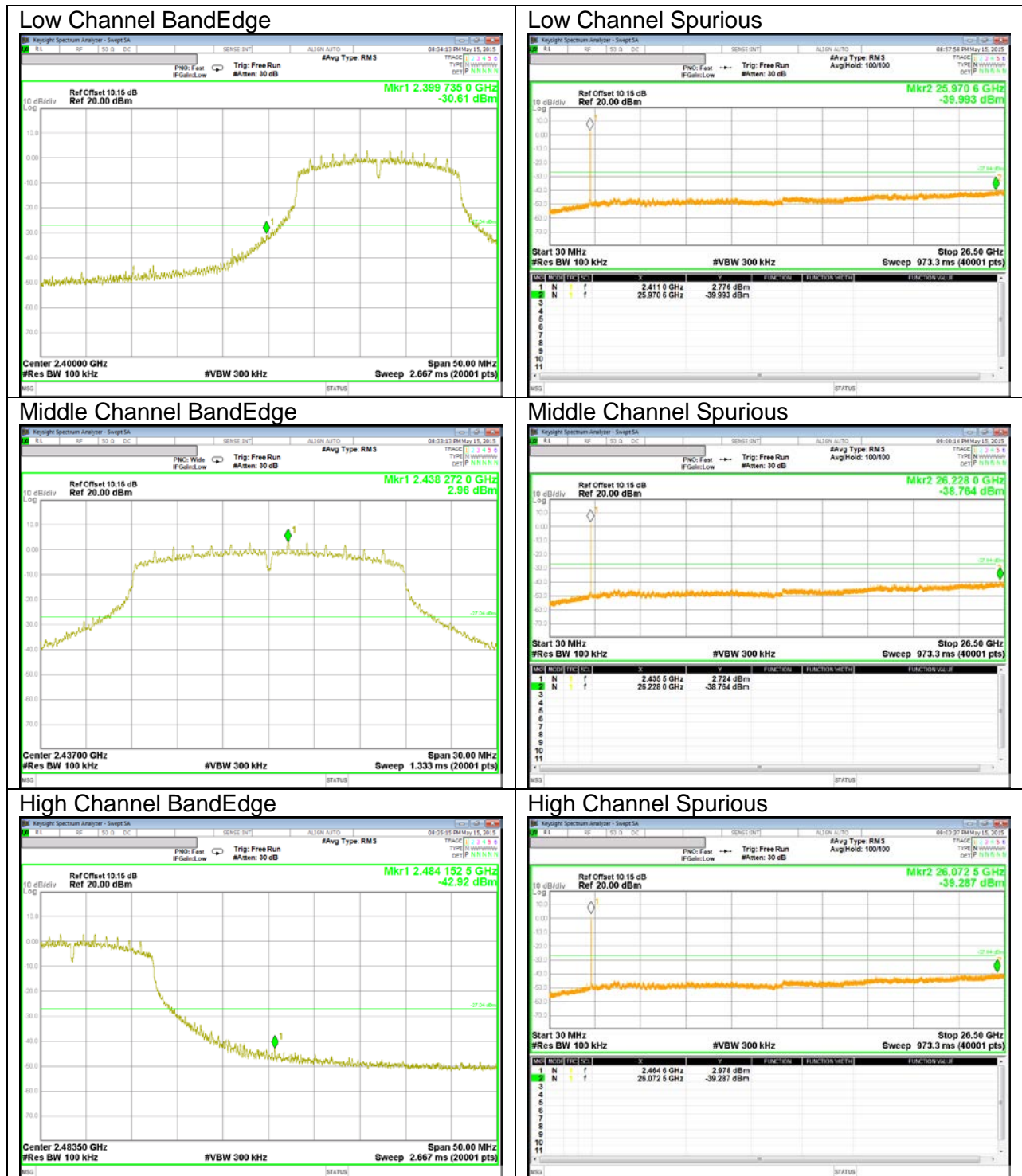
10.5.1. 802.11b MODE IN THE 2.4 GHZ BAND



10.5.2. 802.11g MODE IN THE 2.4 GHZ BAND



10.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND



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 = 0.30dB; 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.

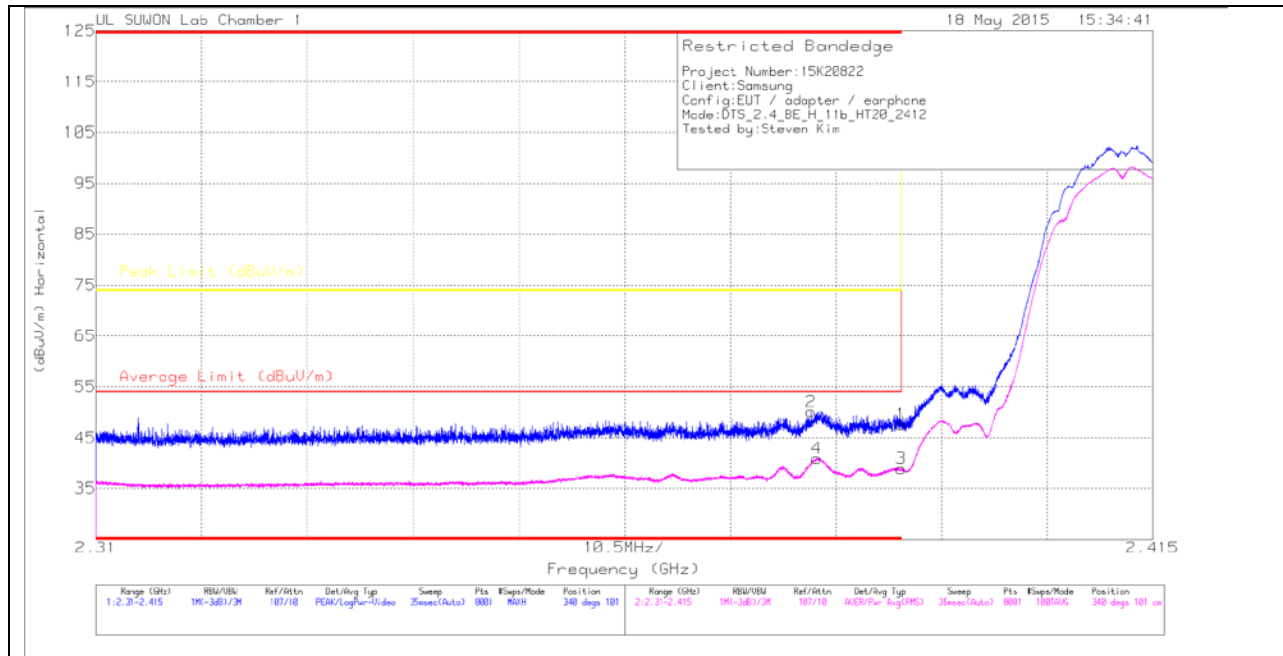
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

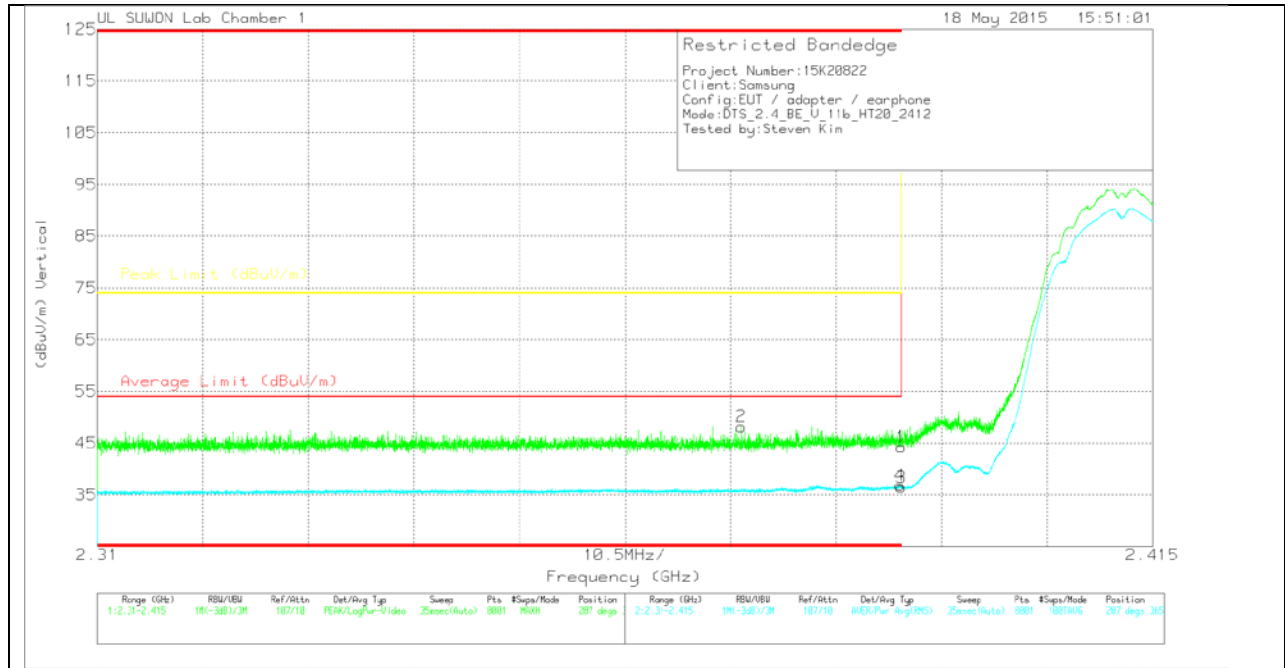
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.53	Pk	27.9	-22.8	0	47.63	-	-	74	-26.37	340	101	H
2	* 2.381	45.03	Pk	27.9	-22.8	0	50.13	-	-	74	-23.87	340	101	H
3	* 2.39	33.81	RMS	27.9	-22.8	0	38.91	54	-15.09	-	-	340	101	H
4	* 2.382	35.86	RMS	27.9	-22.8	0	40.96	54	-13.04	-	-	340	101	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	Path_2_10dB	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	39.19	Pk	27.9	-22.8	0	44.29	-	-	74	-29.71	287	365	V
2	* 2.374	43.21	Pk	27.8	-22.8	0	48.21	-	-	74	-25.79	287	365	V
3	* 2.39	31.38	RMS	27.9	-22.8	0	36.48	54	-17.52	-	-	287	365	V
4	* 2.39	31.74	RMS	27.9	-22.8	0	36.84	54	-17.16	-	-	287	365	V

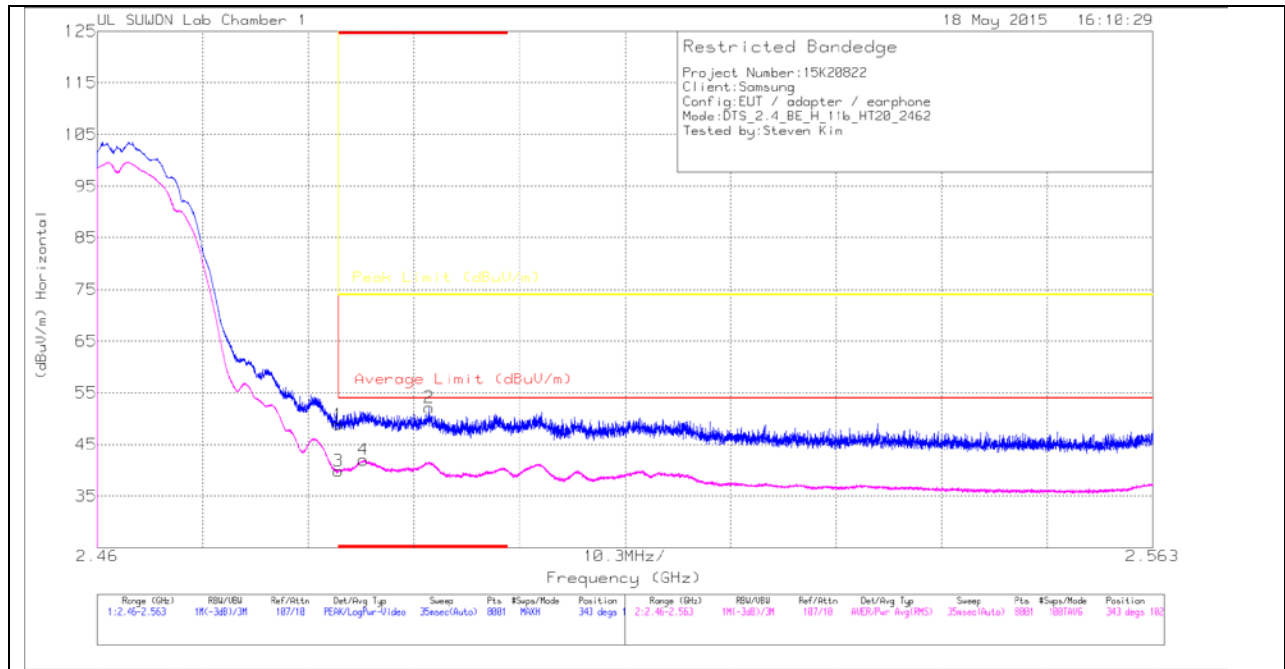
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

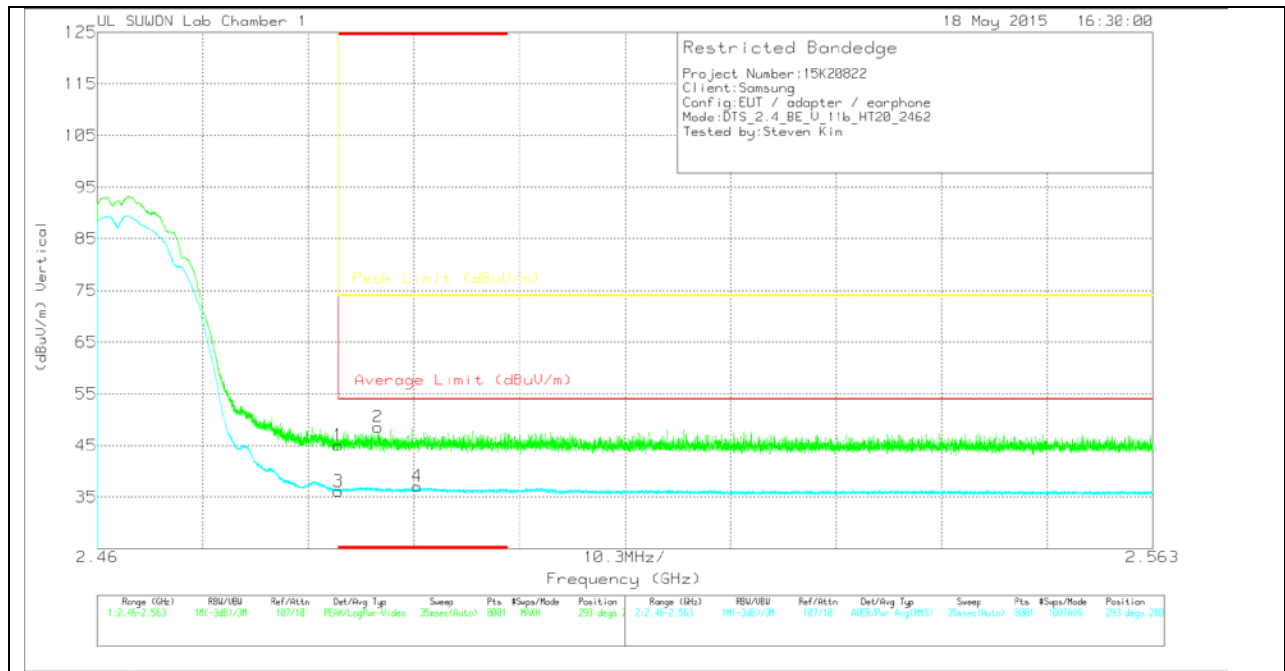
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10d B	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.58	Pk	27.9	-22.6	0	48.88	-	-	74	-25.12	343	102	H
2	* 2.492	46.84	Pk	27.9	-22.6	0	52.14	-	-	74	-21.86	343	102	H
3	* 2.484	34.58	RMS	27.9	-22.6	0	39.88	54	-14.12	-	-	343	102	H
4	* 2.486	36.73	RMS	27.9	-22.6	0	42.03	54	-11.97	-	-	343	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	Path_2_10dB	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	39.73	Pk	27.9	-22.6	0	45.03	-	-	74	-28.97	293	280	V
2	* 2.487	43.3	Pk	27.9	-22.6	0	48.6	-	-	74	-25.4	293	280	V
3	* 2.484	30.87	RMS	27.9	-22.6	0	36.17	54	-17.83	-	-	293	280	V
4	* 2.491	31.81	RMS	27.9	-22.6	0	37.11	54	-16.89	-	-	293	280	V

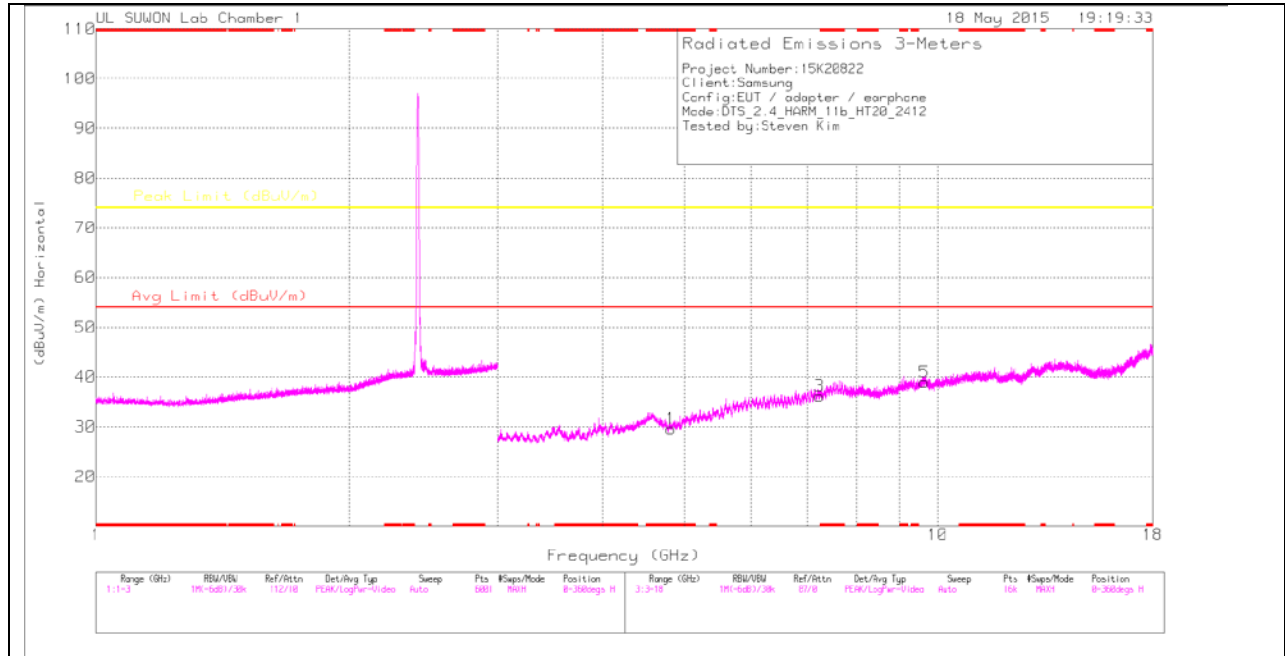
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

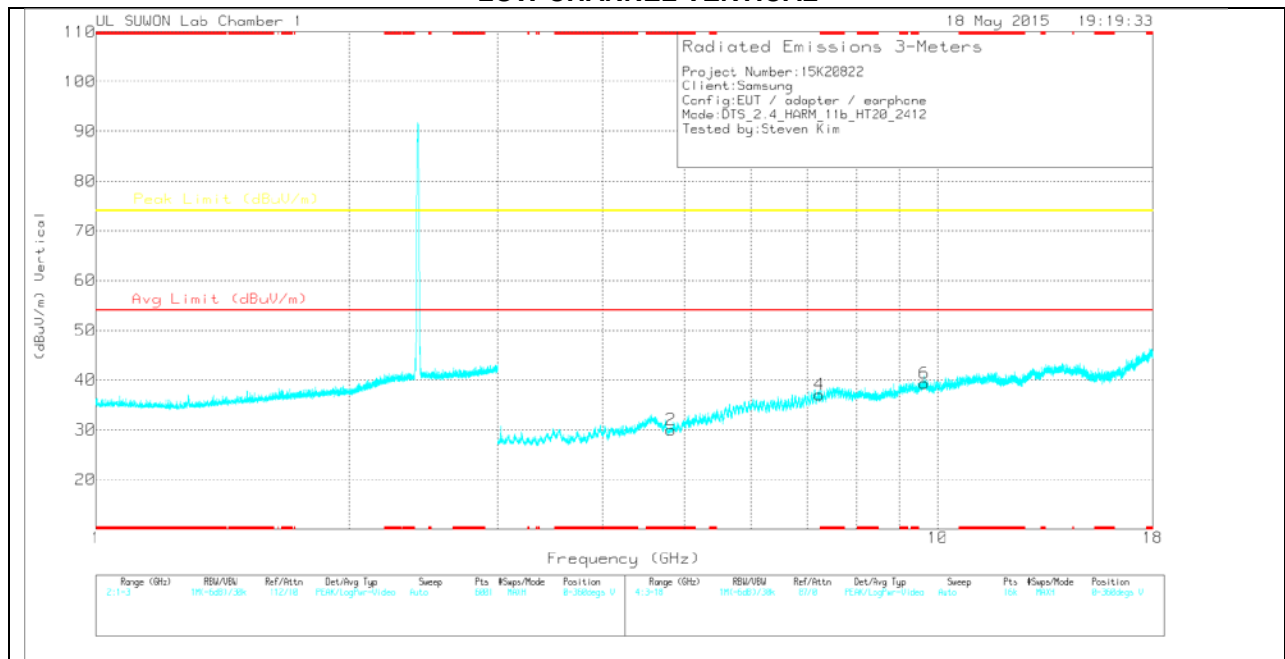
RMS - RMS detection

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	Path_3_3GHP	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	27.28	PK	31.9	-29.6	0	29.58	-	-	74	-44.42	0-360	100	H
3	7.236	24.68	PK	37	-25.5	0	36.18	-	-	-	-	0-360	100	H
5	9.648	22.13	PK	37.6	-20.8	0	38.93	-	-	-	-	0-360	100	H
2	* 4.824	27.72	PK	31.9	-29.6	0	30.02	-	-	74	-43.98	0-360	200	V
4	7.236	25.54	PK	37	-25.5	0	37.04	-	-	-	-	0-360	100	V
6	9.648	22.5	PK	37.6	-20.8	0	39.3	-	-	-	-	0-360	100	V

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

PK – Peak Detector

Radiated Emissions

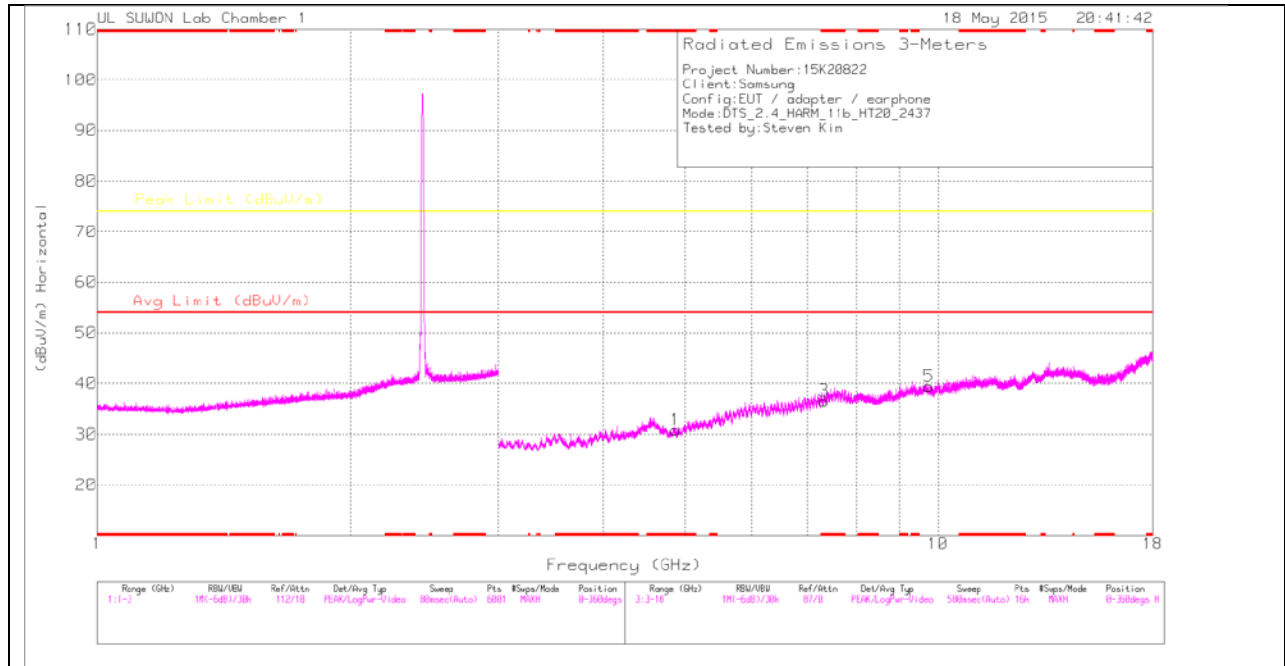
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	39.13	PK2	31.9	-29.6	0	41.43	-	-	74	-32.57	90	307	H
* 4.823	27.08	MAv1	31.9	-29.6	0	29.38	54	-24.62	-	-	90	307	H
7.236	38.1	PK2	37	-25.5	0	49.6	-	-	-	-	18	369	H
7.235	26.48	MAv1	37	-25.5	0	37.98	-	-	-	-	18	369	H
9.648	33.01	PK2	37.6	-20.8	0	49.81	-	-	-	-	128	396	H
9.648	20.81	MAv1	37.6	-20.8	0	37.61	-	-	-	-	128	396	H
* 4.825	39.08	PK2	31.9	-29.5	0	41.48	-	-	74	-32.52	171	338	V
* 4.824	26.97	MAv1	31.9	-29.6	0	29.27	54	-24.73	-	-	171	338	V
7.237	37.03	PK2	37	-25.5	0	48.53	-	-	-	-	263	388	V
7.235	24.85	MAv1	37	-25.5	0	36.35	-	-	-	-	263	388	V
9.648	33.36	PK2	37.6	-20.8	0	50.16	-	-	-	-	346	104	V
9.648	22.69	MAv1	37.6	-20.8	0	39.49	-	-	-	-	346	104	V

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

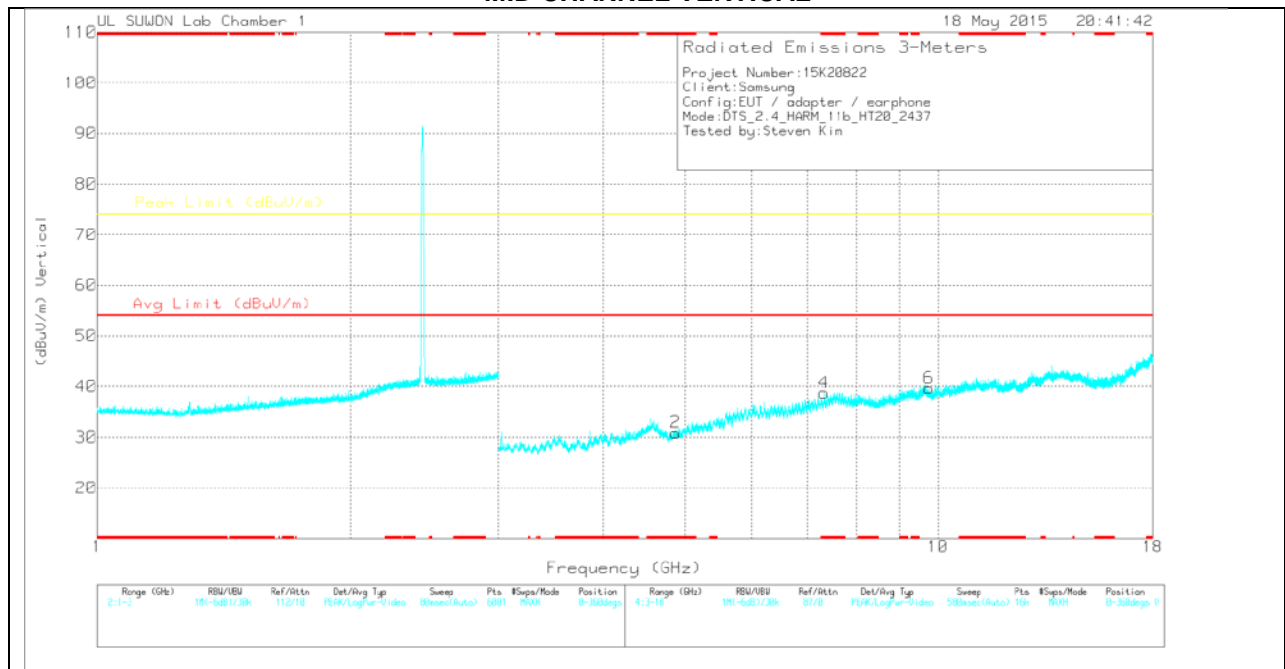
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	28.02	PK	32	-29.2	0	30.82	-	-	74	-43.18	0-360	100	H
3	* 7.311	25.19	PK	37.1	-25.7	0	36.59	-	-	74	-37.41	0-360	200	H
5	9.748	23.75	PK	37.6	-21.9	0	39.45	-	-	-	-	0-360	200	H
2	* 4.874	28.1	PK	32	-29.2	0	30.9	-	-	74	-43.1	0-360	100	V
4	* 7.311	27.36	PK	37.1	-25.7	0	38.76	-	-	74	-35.24	0-360	100	V
6	9.748	24.01	PK	37.6	-21.9	0	39.71	-	-	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

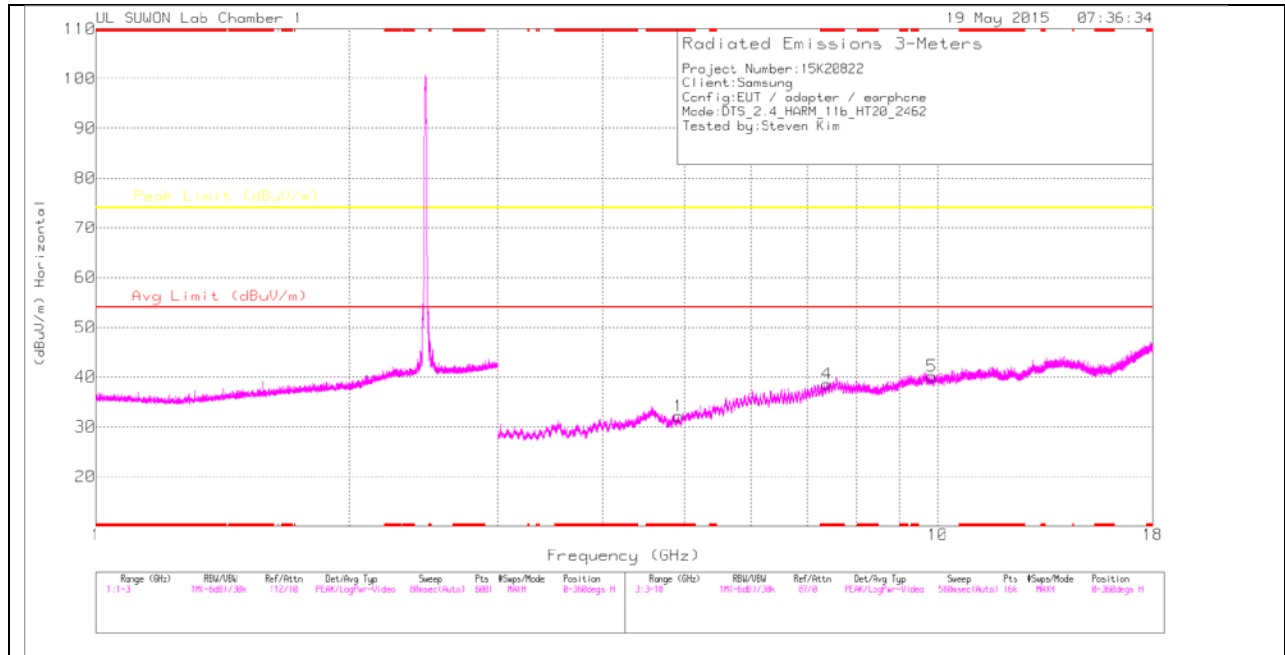
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.873	39.18	PK2	32	-29.2	0	41.98	-	-	74	-32.02	245	236	H
* 4.872	26.62	MAv1	32	-29.2	0	29.42	54	-24.58	-	-	245	236	H
* 7.31	37.22	PK2	37.1	-25.7	0	48.62	-	-	74	-25.38	10	297	H
* 7.312	24.65	MAv1	37.1	-25.7	0	36.05	54	-17.95	-	-	10	297	H
9.75	33.7	PK2	37.6	-21.9	0	49.4	-	-	-	-	241	276	H
9.748	21.37	MAv1	37.6	-21.9	0	37.07	-	-	-	-	241	276	H
* 4.874	39.39	PK2	32	-29.2	0	42.19	-	-	74	-31.81	251	255	V
* 4.874	26.64	MAv1	32	-29.2	0	29.44	54	-24.56	-	-	251	255	V
* 7.313	37.45	PK2	37.1	-25.7	0	48.85	-	-	74	-25.15	280	289	V
* 7.313	25.2	MAv1	37.1	-25.7	0	36.6	54	-17.4	-	-	280	289	V
9.747	33.92	PK2	37.6	-21.9	0	49.62	-	-	-	-	350	281	V
9.748	21.35	MAv1	37.6	-21.9	0	37.05	-	-	-	-	350	281	V

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

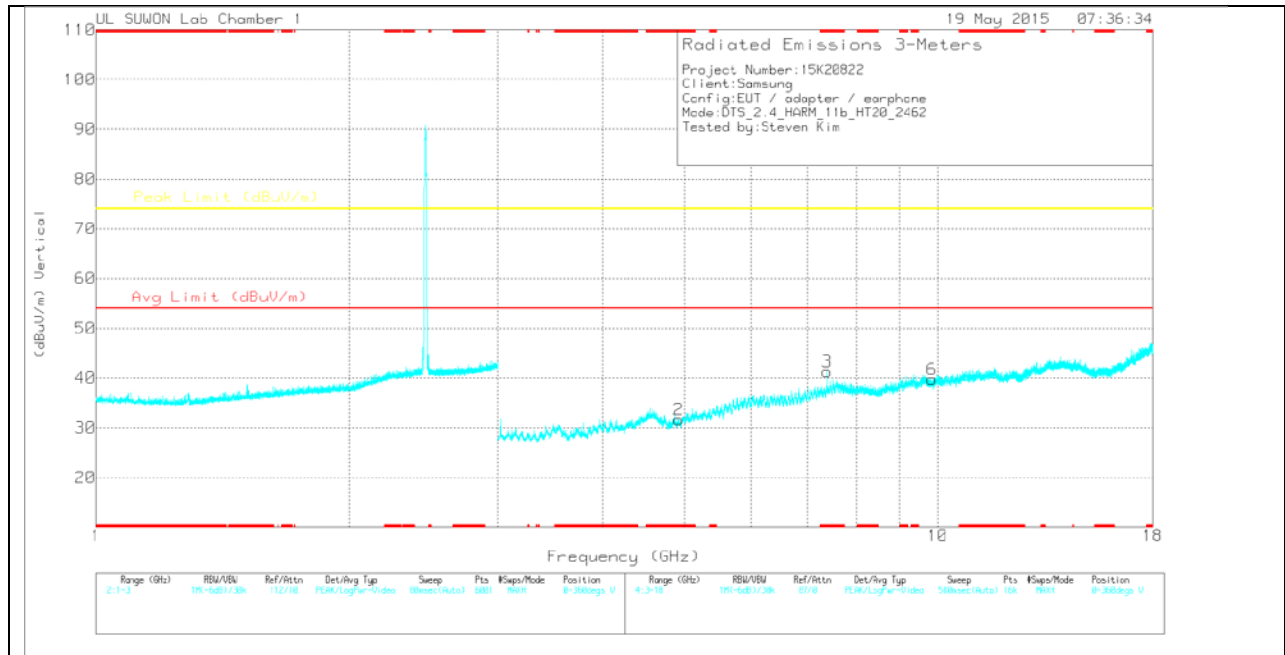
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	* 4.921	29.19	PK	32.1	-29.1	0	32.19	-	-	74	-41.81	0-360	200	H
4	* 7.386	26.55	PK	37.2	-25.1	0	38.65	-	-	74	-35.35	0-360	200	H
5	9.841	24.17	PK	37.7	-21.7	0	40.17	-	-	-	-	0-360	100	H
2	* 4.922	28.53	PK	32.1	-29	0	31.63	-	-	74	-42.37	0-360	200	V
3	* 7.385	29.21	PK	37.2	-25.1	0	41.31	-	-	74	-32.69	0-360	100	V
6	9.848	23.54	PK	37.8	-21.6	0	39.74	-	-	-	-	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	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.919	39.09	PK2	32.1	-29.1	0	42.09	-	-	74	-31.91	357	200	H
* 4.92	25.93	MAv1	32.1	-29.1	0	28.93	54	-25.07	-	-	357	200	H
* 7.385	37.42	PK2	37.2	-25.1	0	49.52	-	-	74	-24.48	357	200	H
* 7.384	23.59	MAv1	37.2	-25.1	0	35.69	54	-18.31	-	-	357	200	H
9.842	33.62	PK2	37.7	-21.7	0	49.62	-	-	-	-	259	100	H
9.84	20.78	MAv1	37.7	-21.7	0	36.78	-	-	-	-	259	100	H
* 4.922	39.28	PK2	32.1	-29	0	42.38	-	-	74	-31.62	213	235	V
* 4.922	26.81	MAv1	32.1	-29	0	29.91	54	-24.09	-	-	213	235	V
* 7.387	38.89	PK2	37.2	-25.1	0	50.99	-	-	74	-23.01	263	261	V
* 7.387	27.72	MAv1	37.2	-25.1	0	39.82	54	-14.18	-	-	263	261	V
9.849	34.11	PK2	37.8	-21.6	0	50.31	-	-	-	-	248	176	V
9.847	20.69	MAv1	37.8	-21.6	0	36.89	-	-	-	-	248	176	V

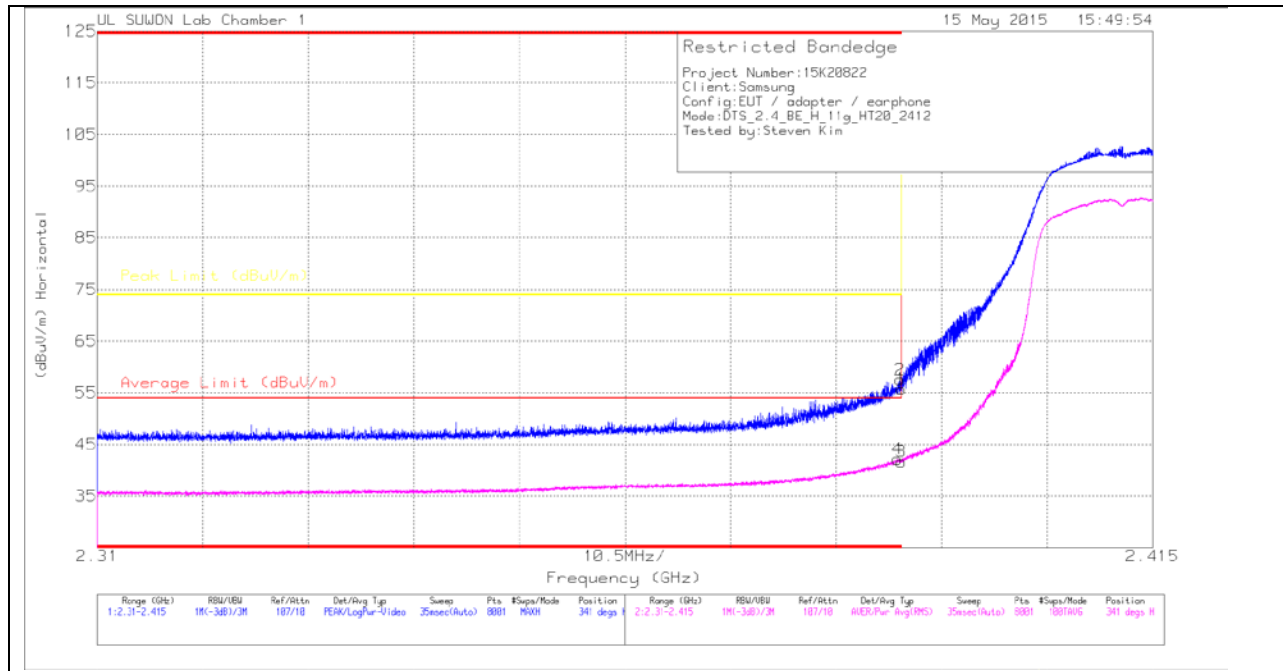
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

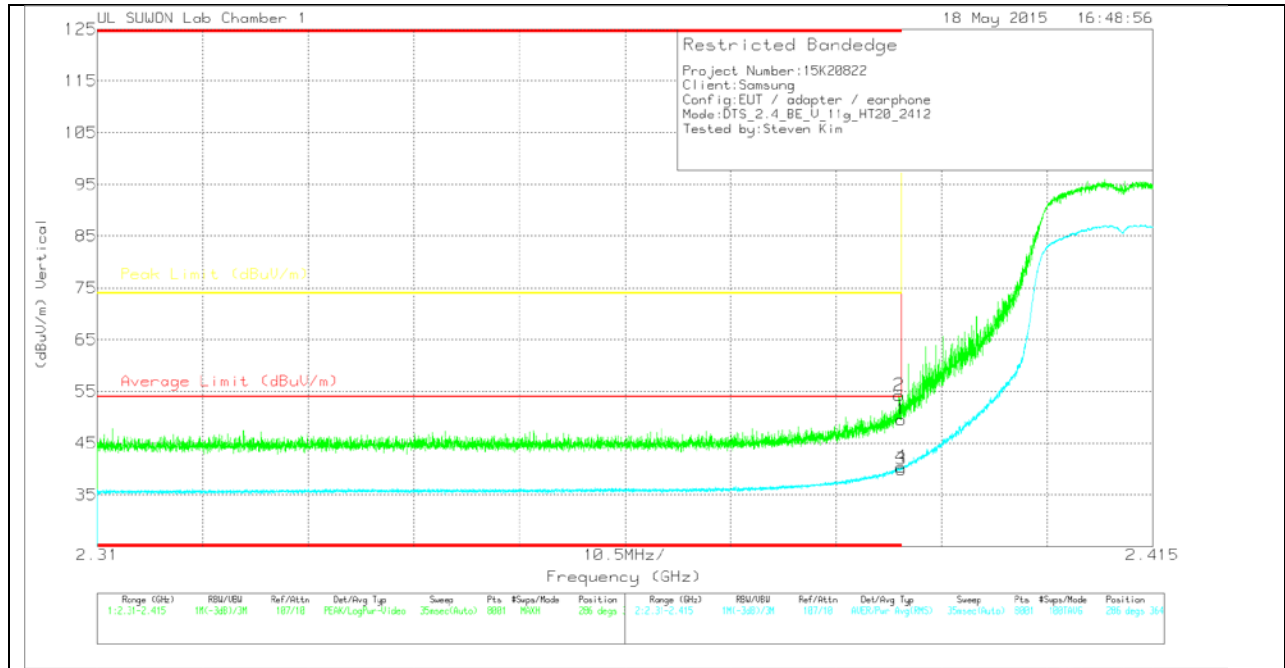
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	50.64	Pk	27.9	-22.8	0	55.74	-	-	74	-18.26	341	111	H
2	* 2.39	52.41	Pk	27.9	-22.8	0	57.51	-	-	74	-16.49	341	111	H
3	* 2.39	36.29	RMS	27.9	-22.8	.29	41.68	54	-12.32	-	-	341	111	H
4	* 2.39	36.78	RMS	27.9	-22.8	.29	42.17	54	-11.83	-	-	341	111	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	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	44.47	Pk	27.9	-22.8	0	49.57	-	-	74	-24.43	286	364	V
2	* 2.39	49.17	Pk	27.9	-22.8	0	54.27	-	-	74	-19.73	286	364	V
3	* 2.39	34.59	RMS	27.9	-22.8	.29	39.98	54	-14.02	-	-	286	364	V
4	* 2.39	35.02	RMS	27.9	-22.8	.29	40.41	54	-13.59	-	-	286	364	V

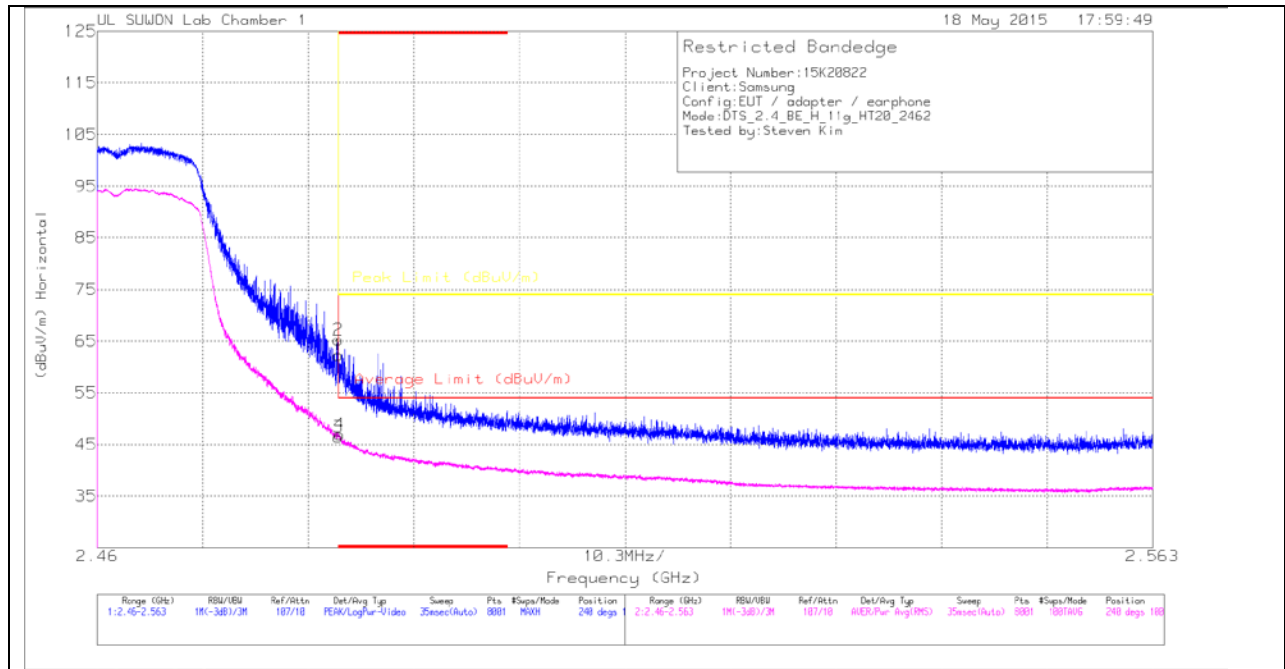
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

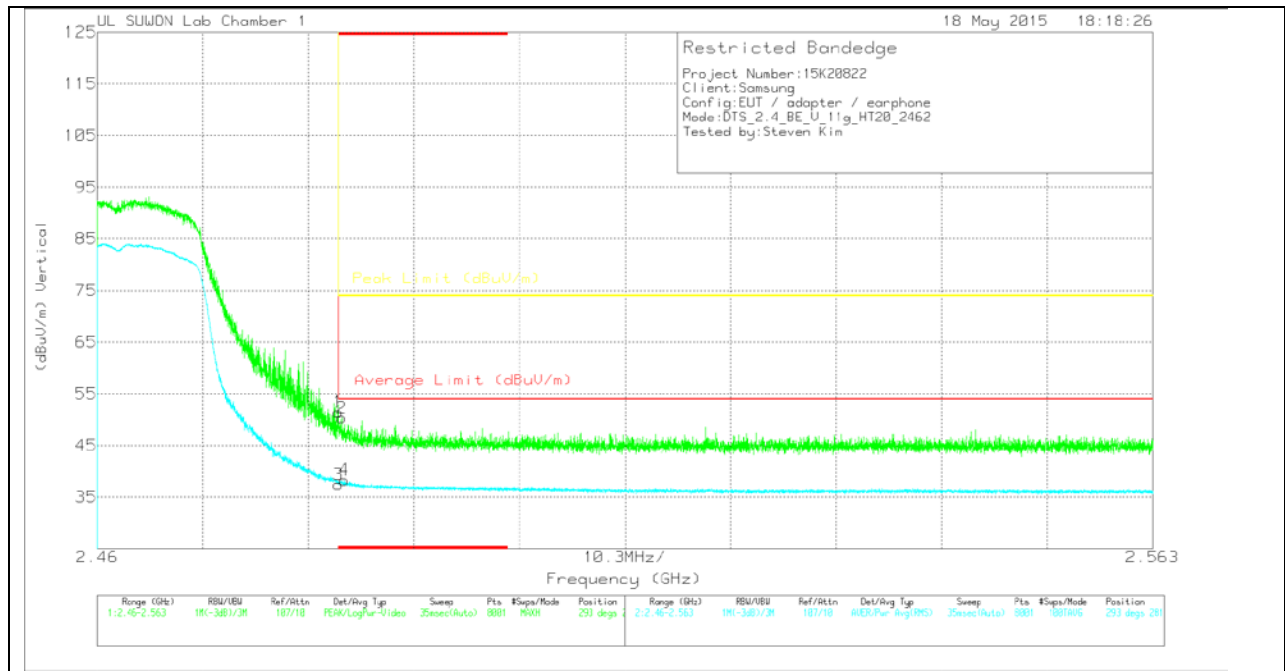
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10d B	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	56.98	Pk	27.9	-22.6	0	62.28	-	-	74	-11.72	240	100	H
2	* 2.484	59.95	Pk	27.9	-22.6	0	65.25	-	-	74	-8.75	240	100	H
3	* 2.484	40.87	RMS	27.9	-22.6	.29	46.46	54	-7.54	-	-	240	100	H
4	* 2.484	41.33	RMS	27.9	-22.6	.29	46.92	54	-7.08	-	-	240	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	Path_2_10dB	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	46.18	Pk	27.9	-22.6	0	51.48	-	-	74	-22.52	293	281	V
2	* 2.484	45.04	Pk	27.9	-22.6	0	50.34	-	-	74	-23.66	293	281	V
3	* 2.484	31.87	RMS	27.9	-22.6	.29	37.46	54	-16.54	-	-	293	281	V
4	* 2.484	32.74	RMS	27.9	-22.6	.29	38.33	54	-15.67	-	-	293	281	V

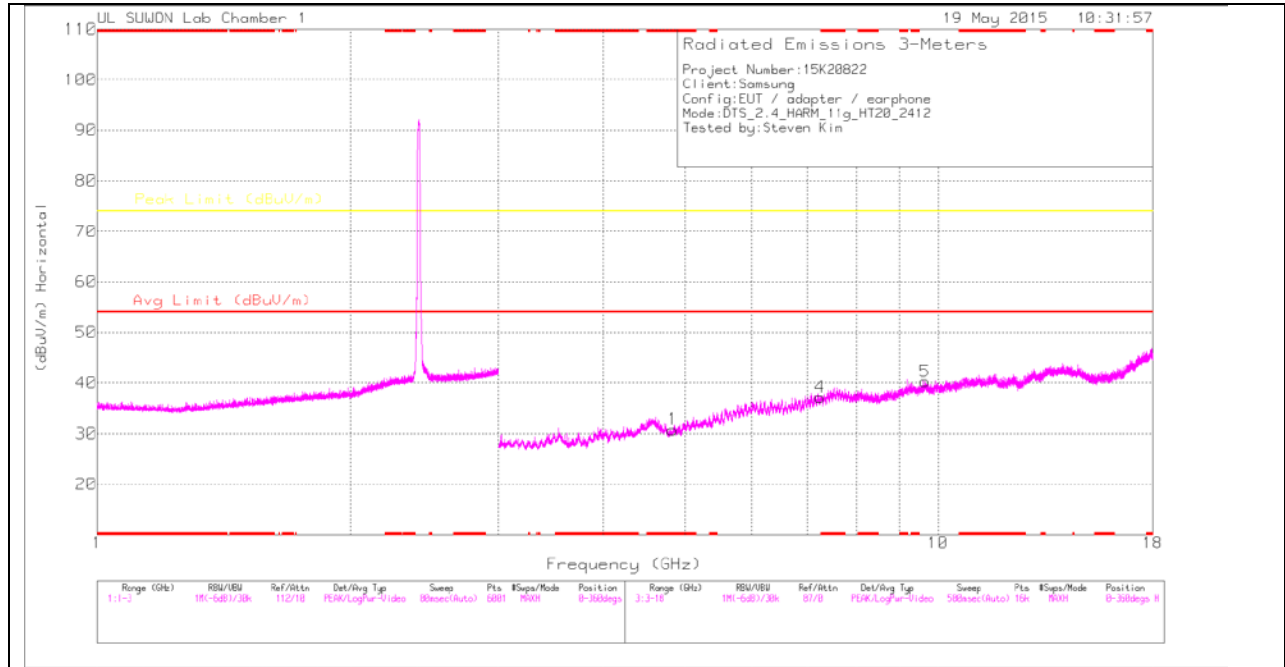
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

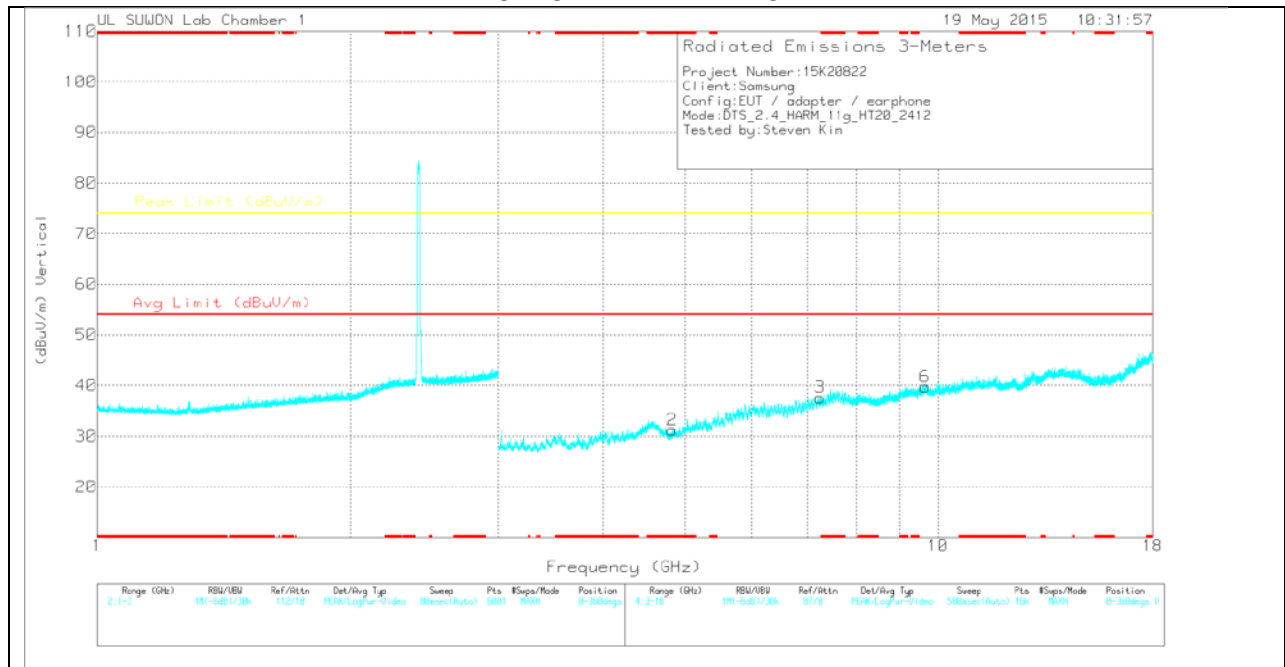
RMS - RMS detection

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	Path_3_3GHP	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	* 4.836	28.27	PK	31.9	-29.4	0	30.77	-	-	74	-43.23	0-360	200	H
4	7.237	25.68	PK	37	-25.5	0	37.18	-	-	-	-	0-360	100	H
5	9.656	23.46	PK	37.6	-20.8	0	40.26	-	-	-	-	0-360	200	H
2	* 4.834	28.68	PK	31.9	-29.4	0	31.18	-	-	74	-42.82	0-360	100	V
3	7.243	26.11	PK	37	-25.5	0	37.61	-	-	-	-	0-360	100	V
6	9.65	22.94	PK	37.6	-20.8	0	39.74	-	-	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

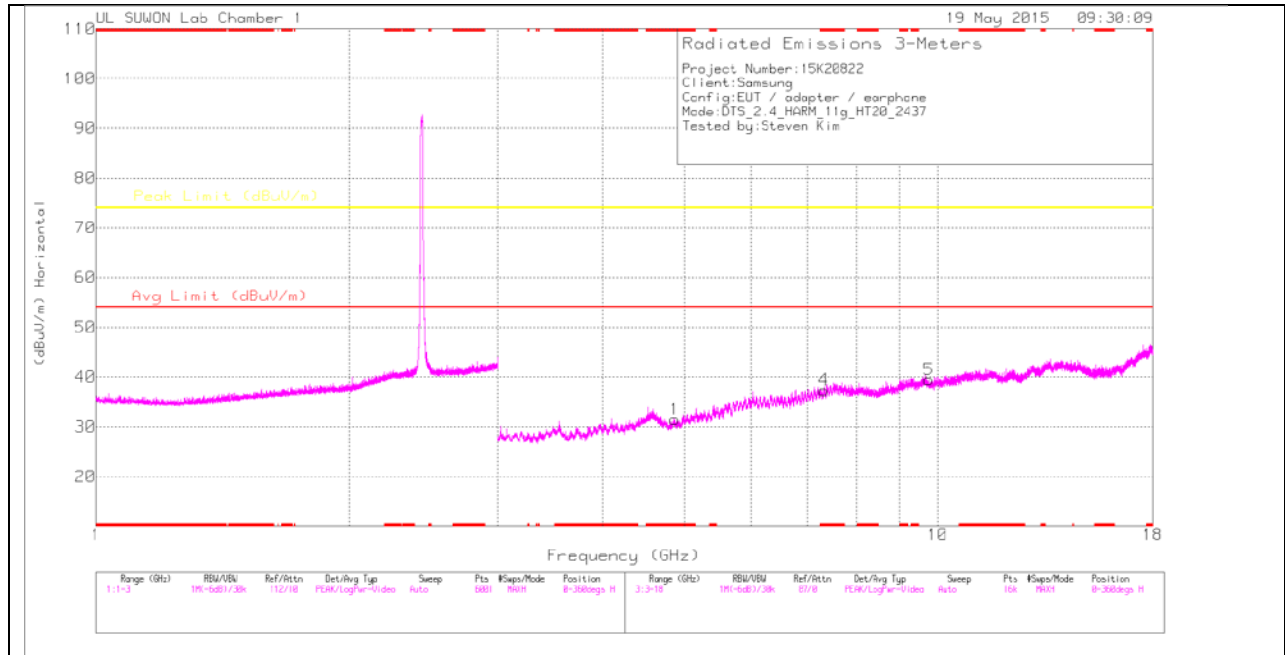
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.835	39.12	PK2	31.9	-29.4	0	41.62	-	-	74	-32.38	358	200	H
* 4.836	28.05	MAv1	31.9	-29.4	0	30.55	54	-23.45	-	-	358	200	H
7.237	36.23	PK2	37	-25.5	0	47.73	-	-	-	-	358	100	H
7.239	22.64	MAv1	37	-25.5	.29	34.43	-	-	-	-	358	100	H
9.655	32.74	PK2	37.6	-20.8	0	49.54	-	-	-	-	358	200	H
9.657	22.13	MAv1	37.6	-20.8	.29	39.22	-	-	-	-	358	200	H
* 4.835	39.58	PK2	31.9	-29.4	0	42.08	-	-	74	-31.92	358	100	V
* 4.836	27.24	MAv1	31.9	-29.4	0	29.74	54	-24.26	-	-	358	100	V
7.245	36.13	PK2	37	-25.5	0	47.63	-	-	-	-	358	100	V
7.244	23.81	MAv1	37	-25.5	.29	35.6	-	-	-	-	358	100	V
9.651	32.55	PK2	37.6	-20.8	0	49.35	-	-	-	-	358	200	V
9.648	21.47	MAv1	37.6	-20.8	.29	38.56	-	-	-	-	358	200	V

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

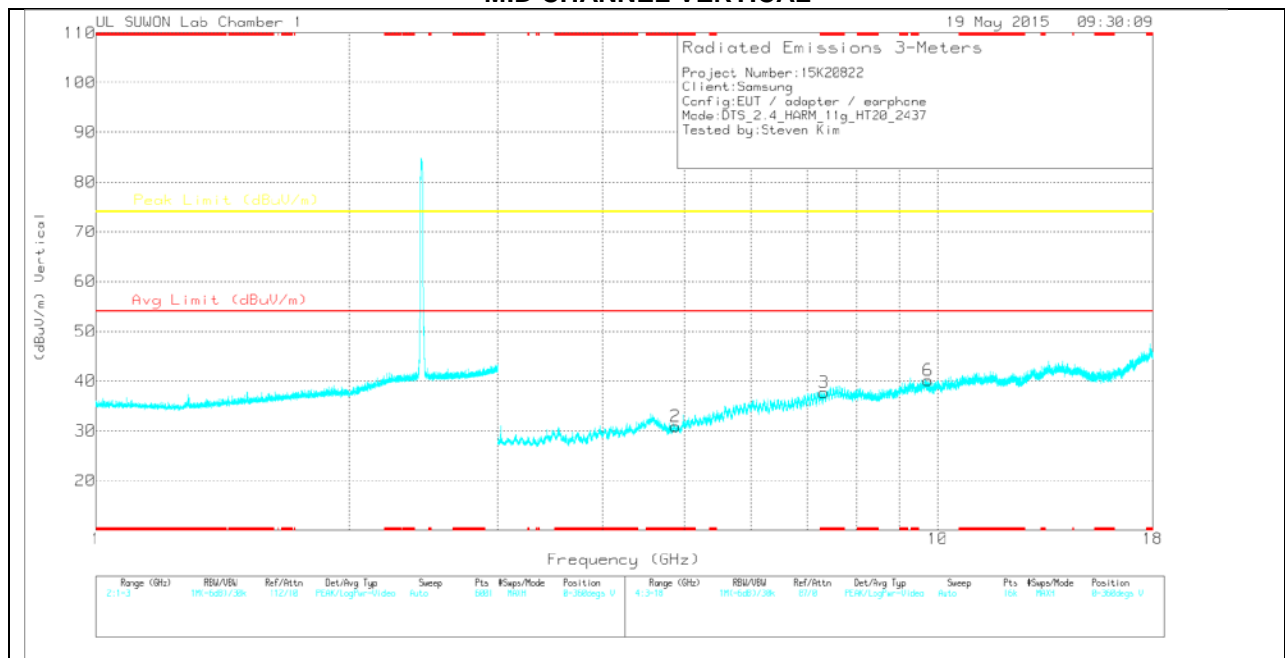
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	* 4.875	28.71	PK	32	-29.2	0	31.51	-	-	74	-42.49	0-360	100	H
4	* 7.318	25.89	PK	37.1	-25.6	0	37.39	-	-	74	-36.61	0-360	100	H
5	9.754	23.86	PK	37.6	-22	0	39.46	-	-	-	-	0-360	100	H
2	* 4.876	28.04	PK	32	-29.2	0	30.84	-	-	74	-43.16	0-360	200	V
3	* 7.32	26.21	PK	37.1	-25.6	0	37.71	-	-	74	-36.29	0-360	200	V
6	9.748	24.47	PK	37.6	-21.9	0	40.17	-	-	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

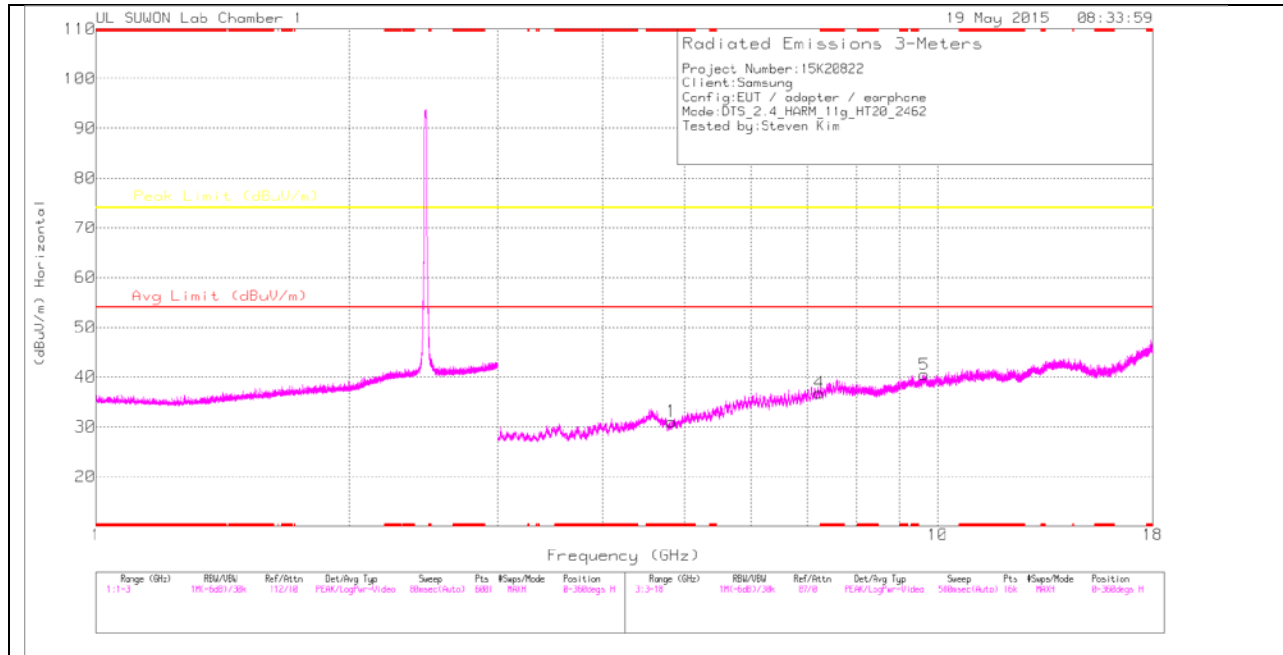
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.873	38.84	PK2	32	-29.2	0	41.64	-	-	74	-32.36	357	100	H
* 4.875	24.82	MAv1	32	-29.2	.29	27.91	54	-26.09	-	-	357	100	H
* 7.319	37.07	PK2	37.1	-25.6	0	48.57	-	-	74	-25.43	357	100	H
* 7.317	23.11	MAv1	37.1	-25.6	.29	34.9	54	-19.1	-	-	357	100	H
9.756	34.46	PK2	37.6	-22	0	50.06	-	-	-	-	357	100	H
9.753	19.16	MAv1	37.6	-22	.29	35.05	-	-	-	-	357	100	H
* 4.877	38.65	PK2	32	-29.1	0	41.55	-	-	74	-32.45	357	200	V
* 4.874	25.97	MAv1	32	-29.2	.29	29.06	54	-24.94	-	-	357	200	V
* 7.32	37.27	PK2	37.1	-25.6	0	48.77	-	-	74	-25.23	357	200	V
* 7.321	23.59	MAv1	37.1	-25.6	.29	35.38	54	-18.62	-	-	357	200	V
9.748	34.89	PK2	37.6	-21.9	0	50.59	-	-	-	-	342	106	V
9.748	22.51	MAv1	37.6	-21.9	.29	38.5	-	-	-	-	342	106	V

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

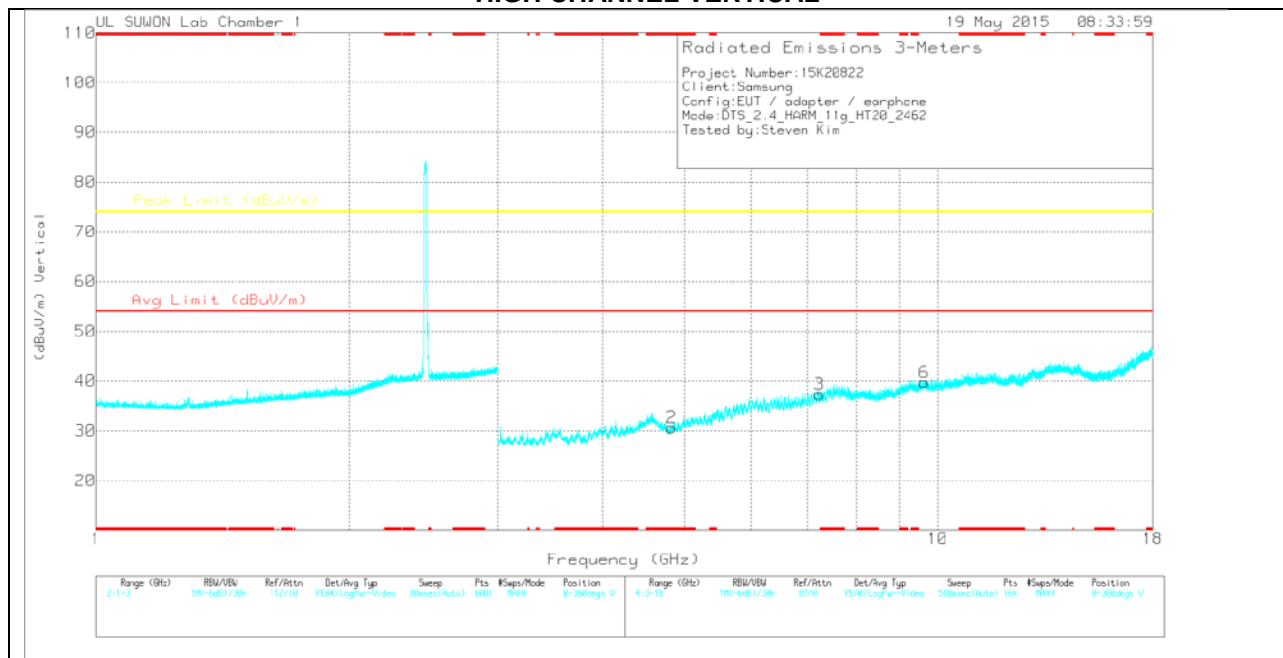
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	* 4.832	28.67	PK	31.9	-29.5	0	31.07	-	-	74	-42.93	0-360	200	H
4	7.236	25.36	PK	37	-25.5	0	36.86	-	-	-	-	0-360	200	H
5	9.646	23.65	PK	37.6	-20.8	0	40.45	-	-	-	-	0-360	100	H
2	* 4.833	28.27	PK	31.9	-29.5	0	30.67	-	-	74	-43.33	0-360	200	V
3	7.233	25.82	PK	37	-25.5	0	37.32	-	-	-	-	0-360	200	V
6	9.645	22.95	PK	37.6	-20.8	0	39.75	-	-	-	-	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	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.832	39	PK2	31.9	-29.5	0	41.4	-	-	74	-32.6	358	200	H
* 4.832	27.17	MAv1	31.9	-29.5	.29	29.86	54	-24.14	-	-	358	200	H
7.236	35.74	PK2	37	-25.5	0	47.24	-	-	-	-	358	200	H
7.238	24.72	MAv1	37	-25.5	.29	36.51	-	-	-	-	358	200	H
9.647	32.89	PK2	37.6	-20.8	0	49.69	-	-	-	-	358	100	H
9.646	21.15	MAv1	37.6	-20.8	.29	38.24	-	-	-	-	358	100	H
* 4.834	39.07	PK2	31.9	-29.4	0	41.57	-	-	74	-32.43	358	200	V
* 4.832	25.62	MAv1	31.9	-29.5	.29	28.31	54	-25.69	-	-	358	200	V
7.232	35.77	PK2	37	-25.5	0	47.27	-	-	-	-	358	200	V
7.233	24.33	MAv1	37	-25.5	.29	36.12	-	-	-	-	358	200	V
9.643	32.83	PK2	37.6	-20.8	0	49.63	-	-	-	-	358	100	V
9.646	19.57	MAv1	37.6	-20.8	.29	36.66	-	-	-	-	358	100	V

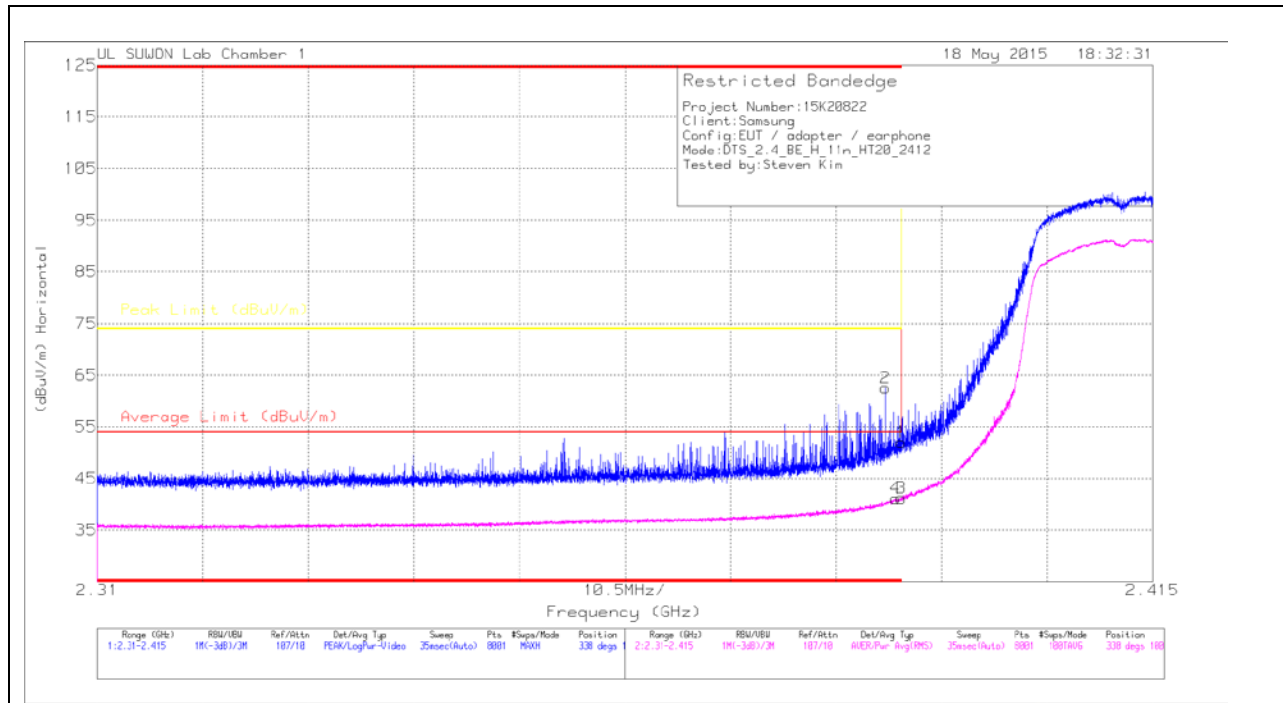
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

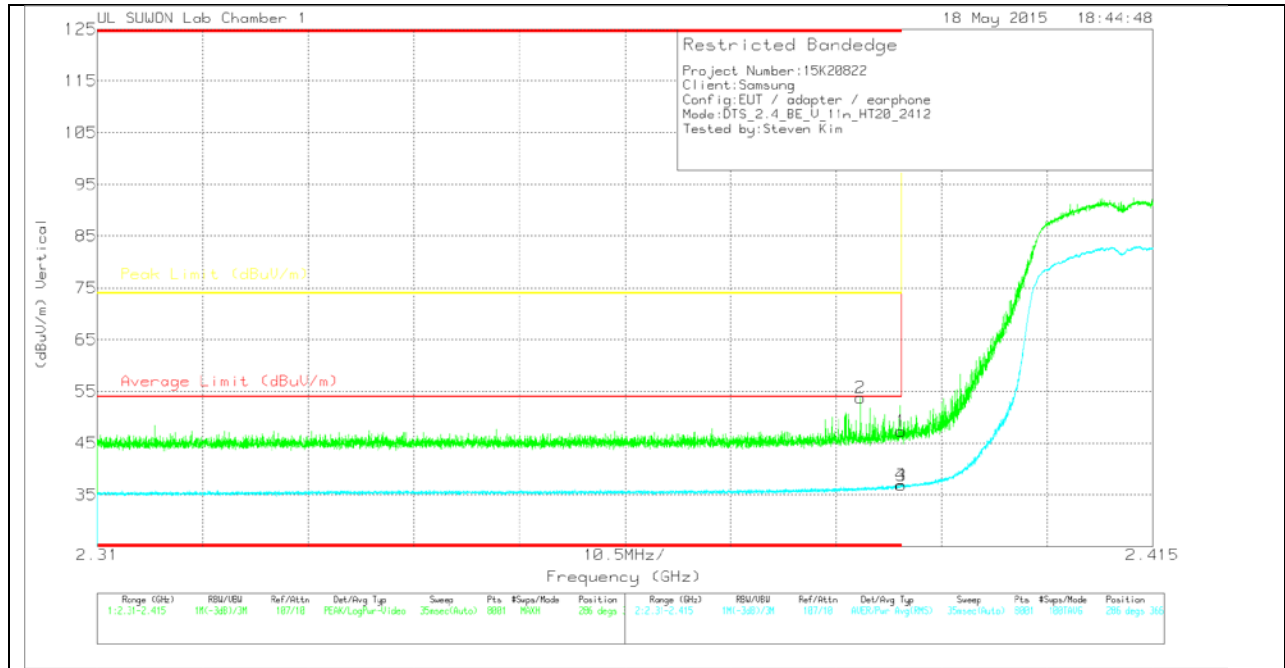
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	46.91	Pk	27.9	-22.8	0	52.01	-	-	74	-21.99	338	100	H
2	* 2.388	57.43	Pk	27.9	-22.8	0	62.53	-	-	74	-11.47	338	100	H
3	* 2.39	35.77	RMS	27.9	-22.8	.32	41.19	54	-12.81	-	-	338	100	H
4	* 2.389	35.74	RMS	27.9	-22.8	.32	41.16	54	-12.84	-	-	338	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	Path_2_10dB	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	42.21	Pk	27.9	-22.8	0	47.31	-	-	74	-26.69	286	366	V
2	* 2.386	48.64	Pk	27.9	-22.8	0	53.74	-	-	74	-20.26	286	366	V
3	* 2.39	31.73	RMS	27.9	-22.8	.32	37.15	54	-16.85	-	-	286	366	V
4	* 2.39	31.83	RMS	27.9	-22.8	.32	37.25	54	-16.75	-	-	286	366	V

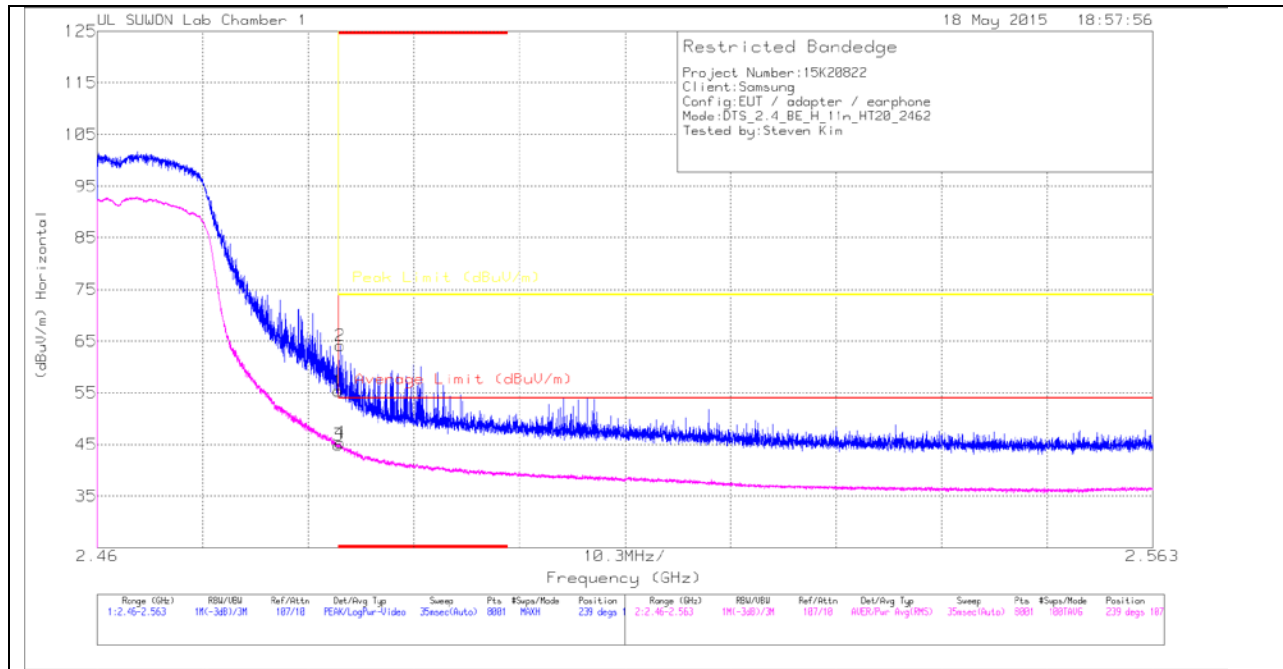
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

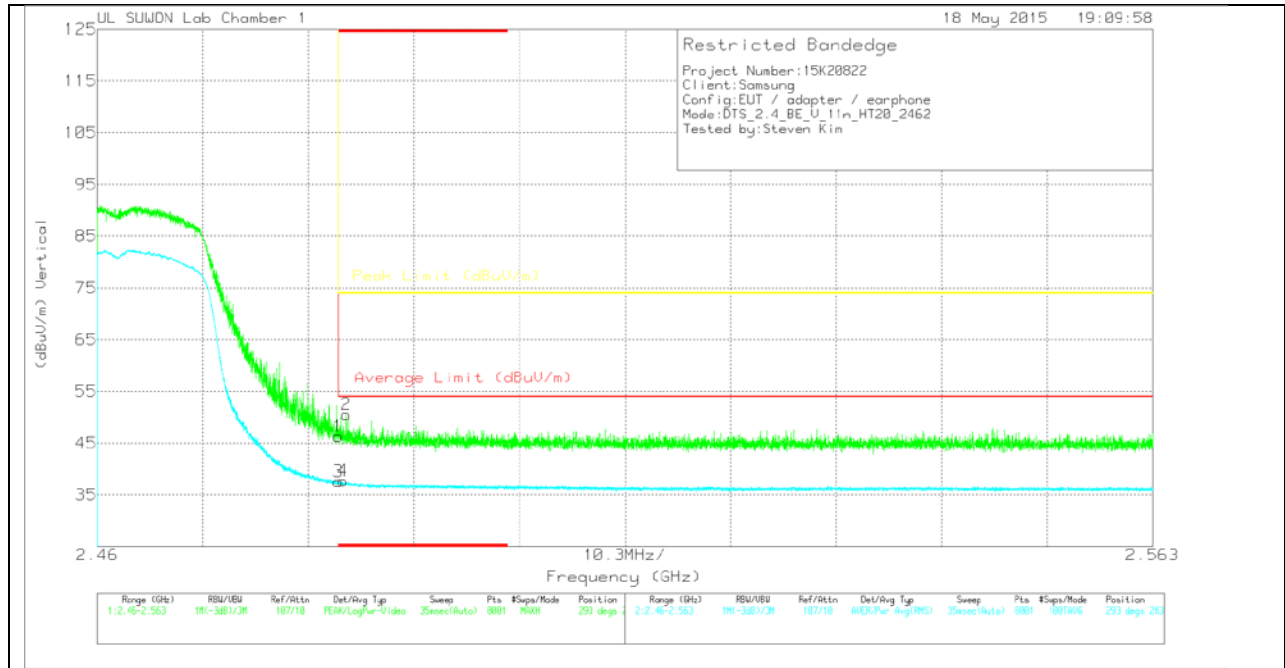
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.06	Pk	27.9	-22.6	0	55.36	-	-	74	-18.64	239	107	H
2	* 2.484	58.83	Pk	27.9	-22.6	0	64.13	-	-	74	-9.87	239	107	H
3	* 2.484	39.28	RMS	27.9	-22.6	.32	44.9	54	-9.1	-	-	239	107	H
4	* 2.484	39.76	RMS	27.9	-22.6	.32	45.38	54	-8.62	-	-	239	107	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	Path_2_10dB	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	41.01	Pk	27.9	-22.6	0	46.31	-	-	74	-27.69	293	283	V
2	* 2.484	45.24	Pk	27.9	-22.6	0	50.54	-	-	74	-23.46	293	283	V
3	* 2.484	32	RMS	27.9	-22.6	.32	37.62	54	-16.38	-	-	293	283	V
4	* 2.484	32.1	RMS	27.9	-22.6	.32	37.72	54	-16.28	-	-	293	283	V

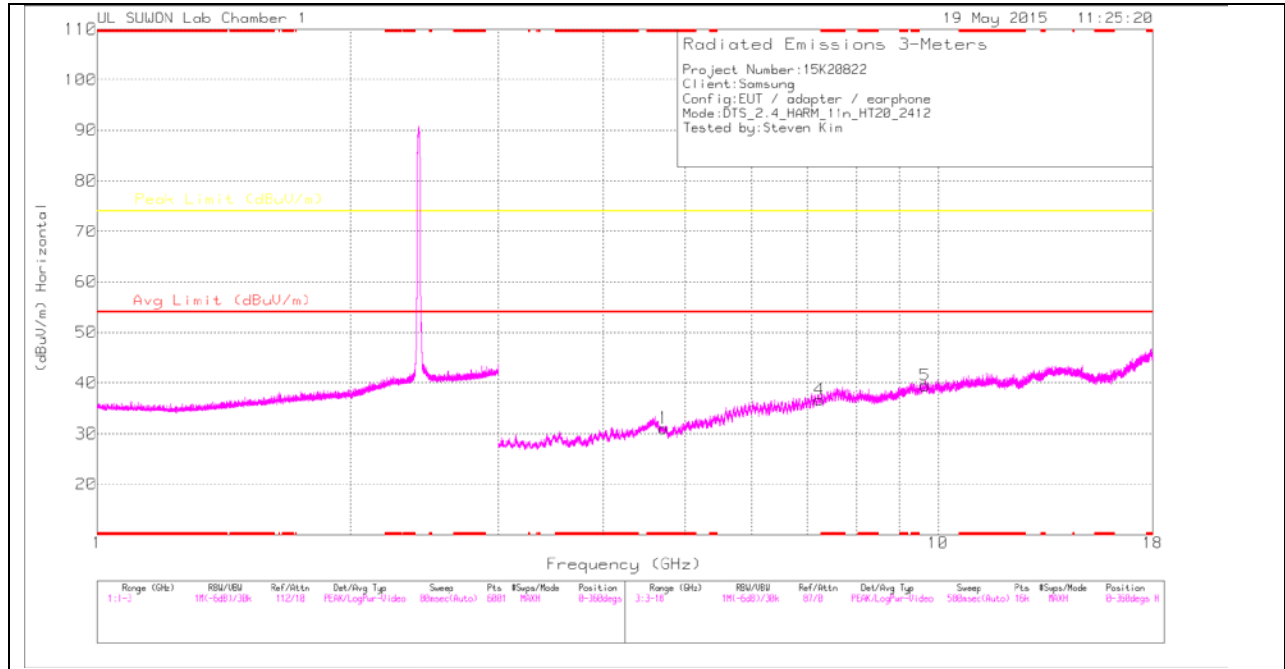
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

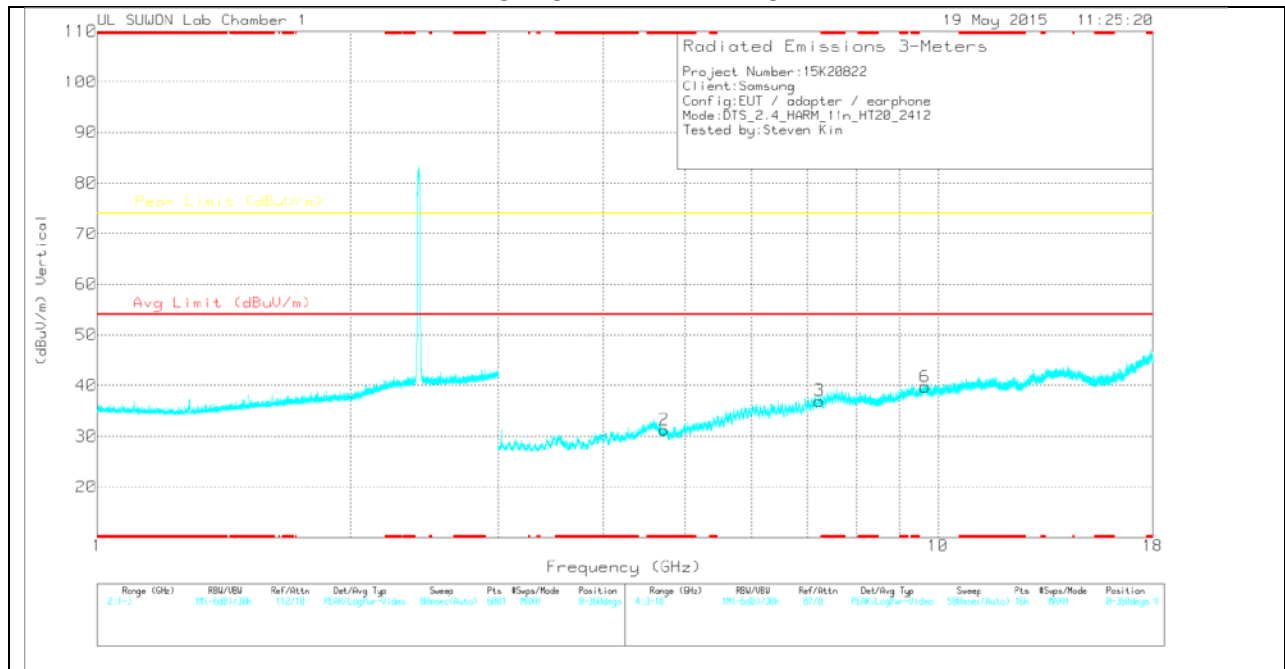
RMS - RMS detection

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	Path_3_3GHP	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	* 4.716	28.39	PK	31.8	-29.2	0	30.99	-	-	74	-43.01	0-360	200	H
4	7.233	25.15	PK	37	-25.5	0	36.65	-	-	-	-	0-360	100	H
5	9.652	22.7	PK	37.6	-20.8	0	39.5	-	-	-	-	0-360	100	H
2	* 4.725	28.74	PK	31.8	-29.3	0	31.24	-	-	74	-42.76	0-360	200	V
3	7.232	25.5	PK	37	-25.5	0	37	-	-	-	-	0-360	100	V
6	9.648	22.96	PK	37.6	-20.8	0	39.76	-	-	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

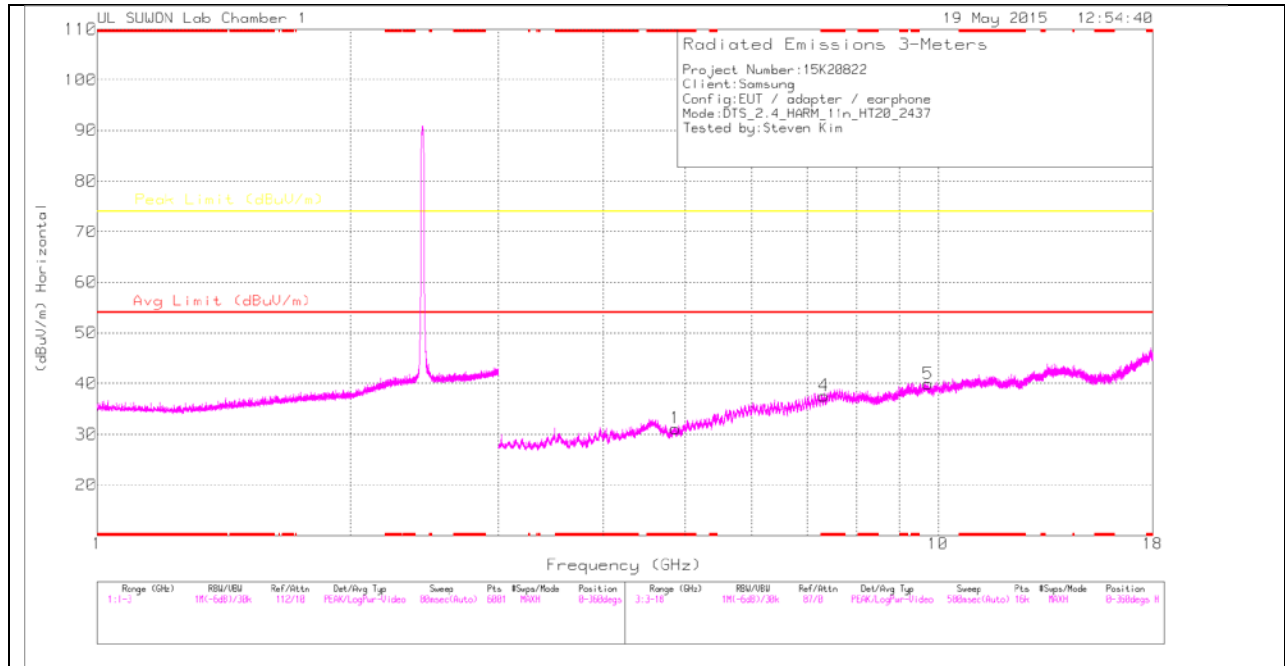
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.718	39.61	PK2	31.8	-29.3	0	42.11	-	-	74	-31.89	357	200	H
* 4.717	27.13	MAv1	31.8	-29.3	.32	29.95	54	-24.05	-	-	357	200	H
7.232	35.72	PK2	37	-25.5	0	47.22	-	-	-	-	357	100	H
7.232	23.52	MAv1	37	-25.5	.32	35.34	-	-	-	-	357	100	H
9.651	33.05	PK2	37.6	-20.8	0	49.85	-	-	-	-	357	100	H
9.653	19.72	MAv1	37.6	-20.8	.32	36.84	-	-	-	-	357	100	H
* 4.726	39.28	PK2	31.8	-29.3	0	41.78	-	-	74	-32.22	357	200	V
* 4.724	27.82	MAv1	31.8	-29.3	.32	30.64	54	-23.36	-	-	357	200	V
7.232	36.04	PK2	37	-25.5	0	47.54	-	-	-	-	357	100	V
7.231	23.61	MAv1	37	-25.5	.32	35.43	-	-	-	-	357	100	V
9.648	20.38	MAv1	37.6	-20.8	.32	37.5	-	-	-	-	357	200	V

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

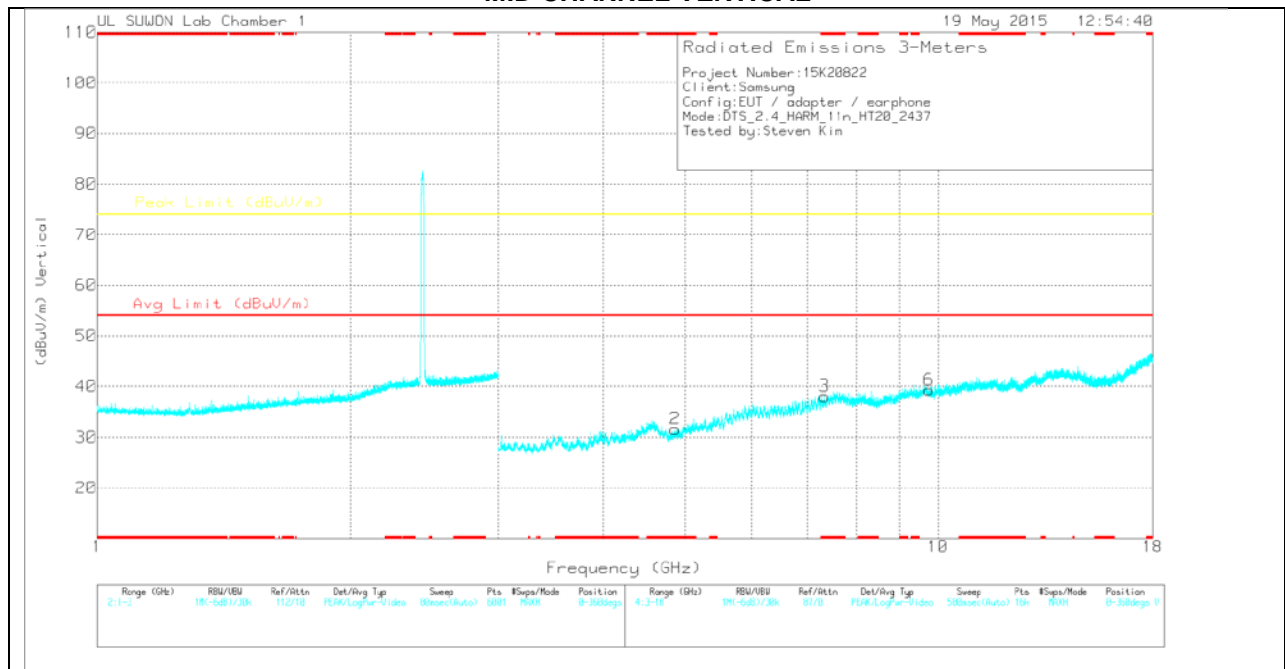
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	* 4.87	28.35	PK	32	-29.2	0	31.15	-	-	74	-42.85	0-360	200	H
4	* 7.316	26.07	PK	37.1	-25.6	0	37.57	-	-	74	-36.43	0-360	100	H
5	9.739	24.15	PK	37.6	-21.8	0	39.95	-	-	-	-	0-360	200	H
2	* 4.869	28.85	PK	32	-29.2	0	31.65	-	-	74	-42.35	0-360	100	V
3	* 7.323	26.49	PK	37.2	-25.6	0	38.09	-	-	74	-35.91	0-360	200	V
6	9.748	23.62	PK	37.6	-21.9	0	39.32	-	-	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

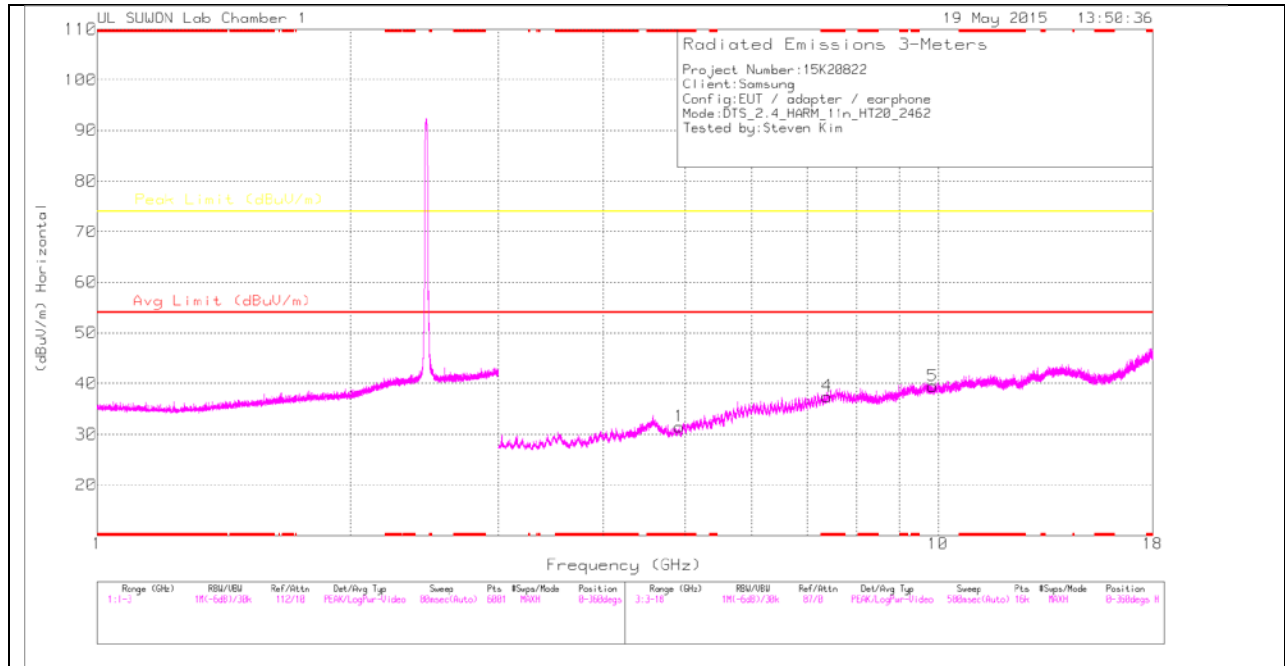
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.868	39.24	PK2	32	-29.2	0	42.04	-	-	74	-31.96	357	200	H
* 4.869	27.48	MAv1	32	-29.2	.32	30.6	54	-23.4	-	-	357	200	H
* 7.318	37.1	PK2	37.1	-25.6	0	48.6	-	-	74	-25.4	357	100	H
* 7.317	25.7	MAv1	37.1	-25.6	.32	37.52	54	-16.48	-	-	357	100	H
9.738	33.48	PK2	37.6	-21.8	0	49.28	-	-	-	-	357	200	H
9.741	21.15	MAv1	37.6	-21.8	.32	37.27	-	-	-	-	357	200	H
* 4.868	39.31	PK2	32	-29.2	0	42.11	-	-	74	-31.89	357	100	V
* 4.87	25.42	MAv1	32	-29.2	.32	28.54	54	-25.46	-	-	357	100	V
* 7.324	37.18	PK2	37.2	-25.6	0	48.78	-	-	74	-25.22	357	200	V
* 7.324	24.61	MAv1	37.2	-25.6	.32	36.53	54	-17.47	-	-	357	200	V
9.748	34	PK2	37.6	-21.9	0	49.7	-	-	-	-	356	388	V
9.748	21.49	MAv1	37.6	-21.9	.32	37.51	-	-	-	-	356	388	V

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

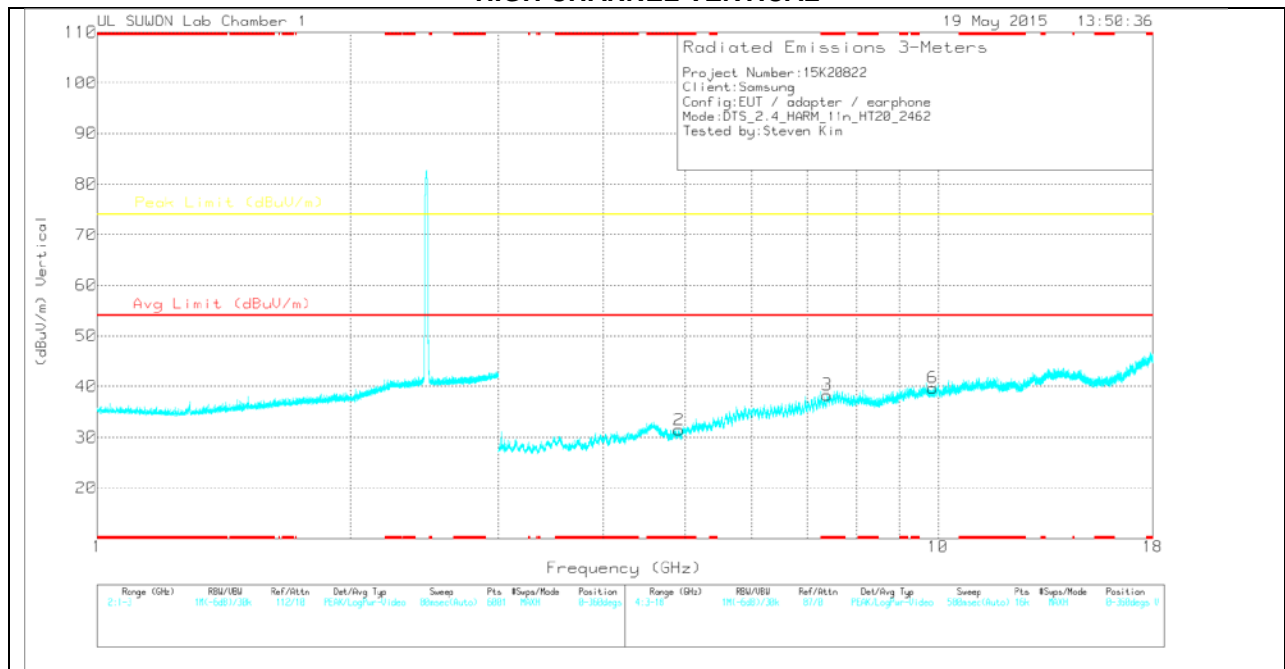
PK2 - KDB558074 Method: Maximum Peak

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	Path_3_3GHP	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	* 4.923	28.42	PK	32.1	-29	0	31.52	-	-	74	-42.48	0-360	100	H
4	* 7.376	25.48	PK	37.2	-25.2	0	37.48	-	-	74	-36.52	0-360	200	H
5	9.854	23.2	PK	37.8	-21.5	0	39.5	-	-	-	-	0-360	100	H
2	* 4.92	28.46	PK	32.1	-29.1	0	31.46	-	-	74	-42.54	0-360	200	V
3	* 7.38	26.32	PK	37.2	-25.2	0	38.32	-	-	74	-35.68	0-360	200	V
6	9.854	23.43	PK	37.8	-21.5	0	39.73	-	-	-	-	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	Path_3_3 GHP	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.921	39.84	PK2	32.1	-29.1	0	42.84	-	-	74	-31.16	358	100	H
* 4.922	26.95	MAv1	32.1	-29	.32	30.37	54	-23.63	-	-	358	100	H
* 7.376	36.28	PK2	37.2	-25.2	0	48.28	-	-	74	-25.72	358	200	H
* 7.377	25.13	MAv1	37.2	-25.2	.32	37.45	54	-16.55	-	-	358	200	H
9.853	33.59	PK2	37.8	-21.5	0	49.89	-	-	-	-	358	100	H
9.854	22.41	MAv1	37.8	-21.5	.32	39.03	-	-	-	-	358	100	H
* 4.919	39.3	PK2	32.1	-29.1	0	42.3	-	-	74	-31.7	358	200	V
* 4.919	25.75	MAv1	32.1	-29.1	.32	29.07	54	-24.93	-	-	358	200	V
* 7.382	36.43	PK2	37.2	-25.1	0	48.53	-	-	74	-25.47	358	200	V
* 7.379	22.14	MAv1	37.2	-25.2	.32	34.46	54	-19.54	-	-	358	200	V
9.854	33.6	PK2	37.8	-21.5	0	49.9	-	-	-	-	358	200	V
9.853	21.38	MAv1	37.8	-21.5	.32	38	-	-	-	-	358	200	V

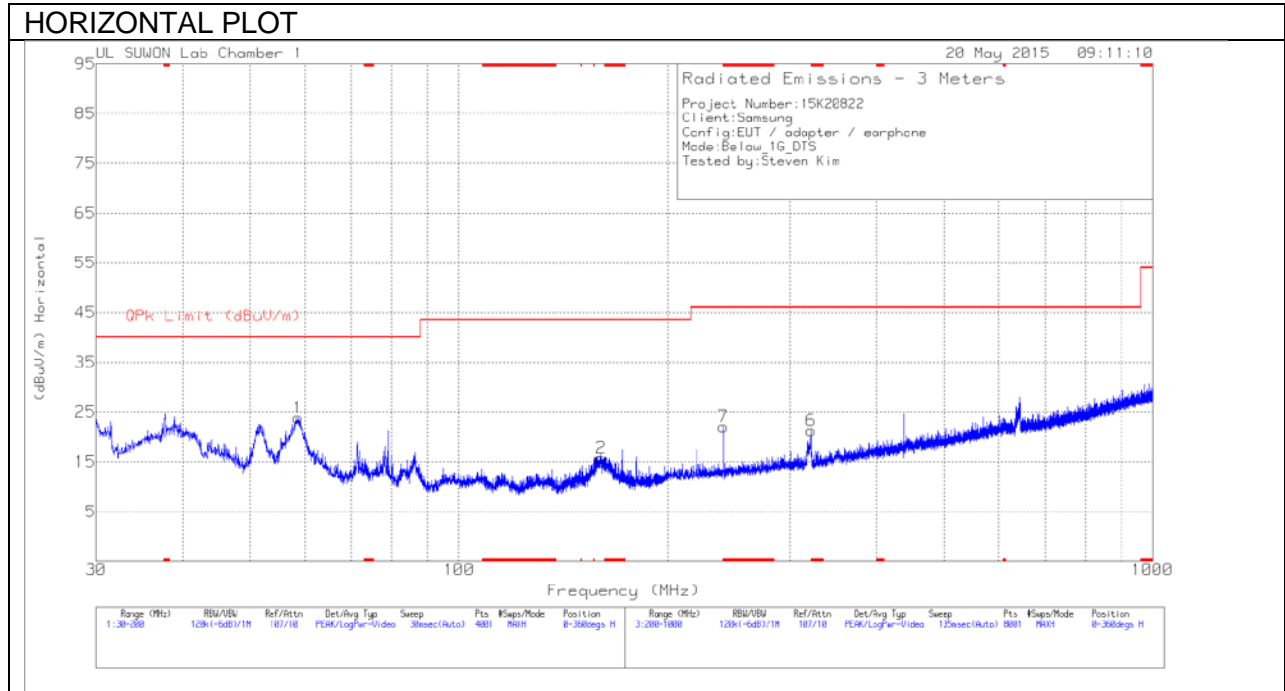
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

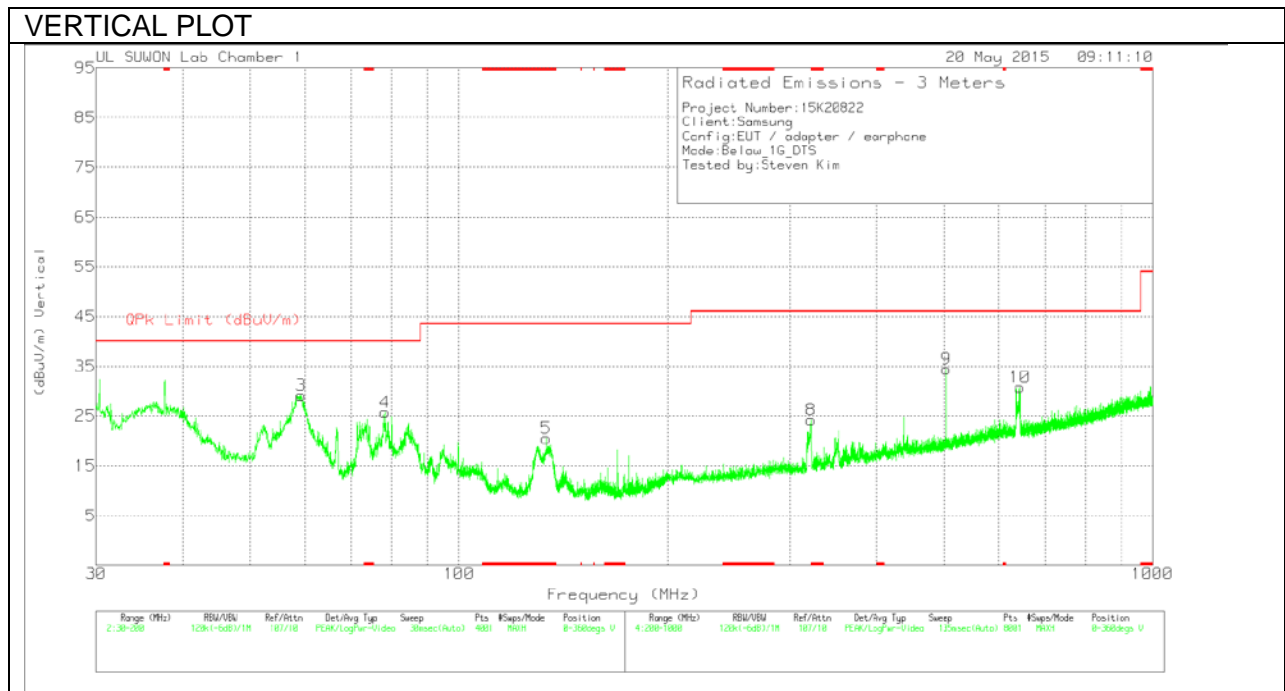
MAv1 - KDB558074 Option 1 Maximum RMS Average

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	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	58.56	41.07	Pk	12.8	-30	0	23.87	40	-16.13	0-360	400	H
2	160.305	35.85	Pk	8.5	-28.6	0	15.75	43.52	-27.77	0-360	200	H
3	59.24	46.4	Pk	12.7	-29.9	0	29.2	40	-10.8	0-360	100	V
4	78.3225	48	Pk	7.3	-29.6	0	25.7	40	-14.3	0-360	200	V
5	* 133.5725	40.89	Pk	8.5	-28.8	0	20.59	43.52	-22.93	0-360	100	V
6	* 322	34.77	Pk	13.8	-27.3	0	21.27	46.02	-24.75	0-360	400	H
7	* 240.5	37.72	Pk	12.1	-27.8	0	22.02	46.02	-24	0-360	100	H
8	* 322	37.77	Pk	13.8	-27.3	0	24.27	46.02	-21.75	0-360	100	V
9	504	43.62	Pk	17.1	-26.2	0	34.52	46.02	-11.5	0-360	100	V
10	644.2	37.02	Pk	19.3	-25.5	0	30.82	46.02	-15.2	0-360	100	V

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.

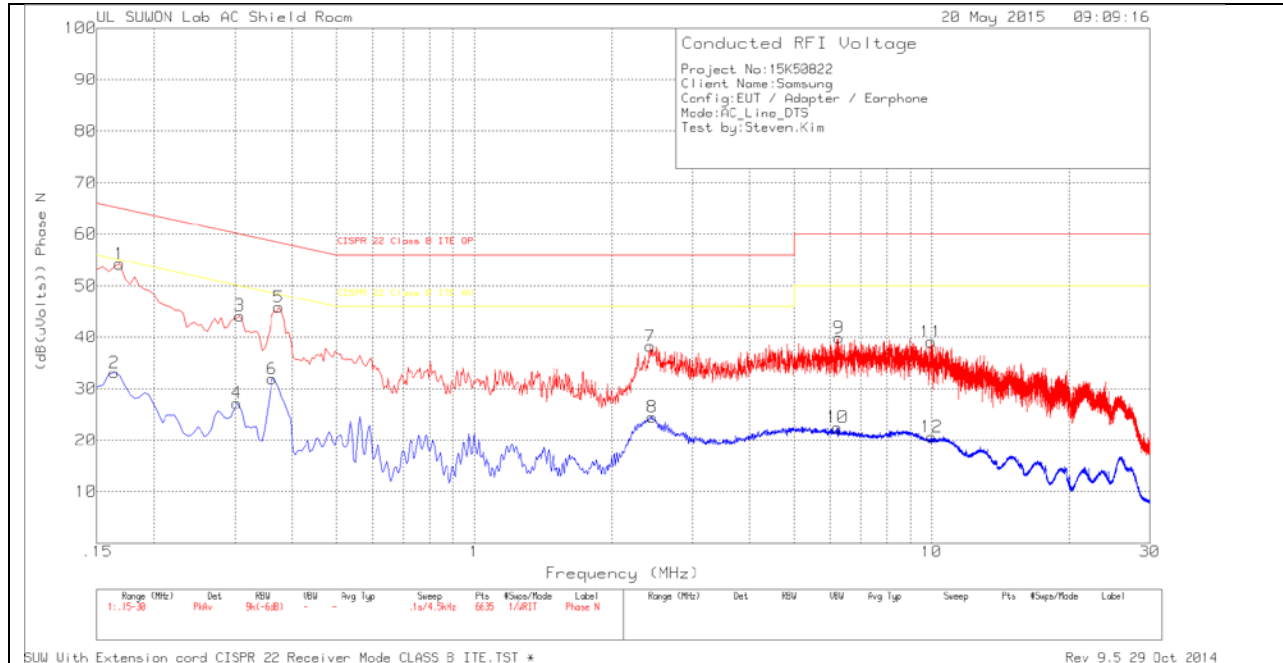
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

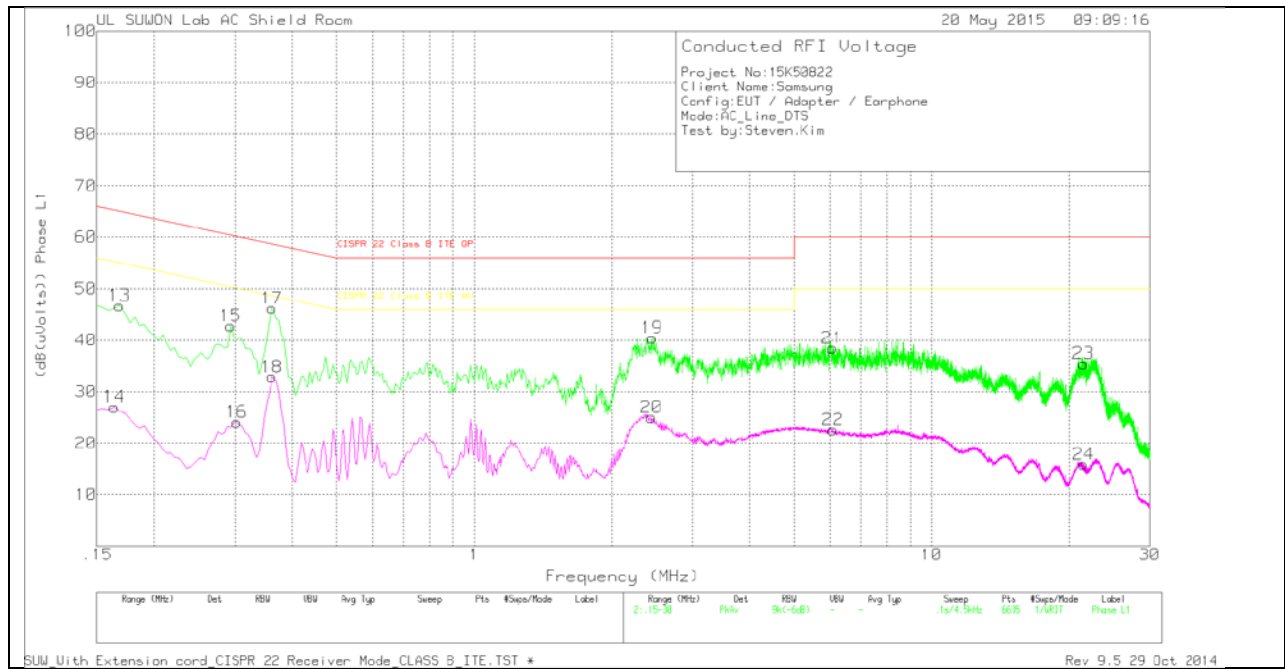
Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN HPF ON and Extension cord	CE Shield Room	Corrected Reading (dBuV)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.168	44.1	Pk	10.1	0	54.2	65.06	-10.86	-	-
2	.1635	23.02	Av	10.1	0	33.12	-	-	55.28	-22.16
3	.3075	34.24	Pk	9.9	0	44.14	60.04	-15.9	-	-
4	.303	17.3	Av	9.9	0	27.2	-	-	50.16	-22.96
5	.375	35.69	Pk	10.1	0	45.79	58.39	-12.6	-	-
6	.3615	21.86	Av	10	0	31.86	-	-	48.69	-16.83
7	2.427	28.31	Pk	9.8	.1	38.21	56	-17.79	-	-
8	2.4495	14.58	Av	9.8	.1	24.48	-	-	46	-21.52
9	6.2745	29.88	Pk	9.9	.1	39.88	60	-20.12	-	-
10	6.234	12.54	Av	9.8	.1	22.44	-	-	50	-27.56
11	9.9825	28.85	Pk	10	.2	39.05	60	-20.95	-	-
12	10.0005	10.41	Av	10	.2	20.61	-	-	50	-29.39

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith extension cord_L1	CE Shield Room	Corrected Reading (dBuV)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.168	36.52	Pk	10.2	0	46.72	65.06	-18.34	-	-
14	.1635	16.94	Av	10.1	0	27.04	-	-	55.28	-28.24
15	.294	32.86	Pk	9.9	0	42.76	60.41	-17.65	-	-
16	.303	14.21	Av	9.9	0	24.11	-	-	50.16	-26.05
17	.3615	36.15	Pk	10	0	46.15	58.69	-12.54	-	-
18	.3615	22.88	Av	10	0	32.88	-	-	48.69	-15.81
19	2.4495	30.57	Pk	9.8	.1	40.47	56	-15.53	-	-
20	2.445	15.09	Av	9.8	.1	24.99	-	-	46	-21.01
21	6.0675	28.59	Pk	9.8	.1	38.49	60	-21.51	-	-
22	6.0945	12.69	Av	9.8	.1	22.59	-	-	50	-27.41
23	21.48	24.87	Pk	10.4	.2	35.47	60	-24.53	-	-
24	21.5205	5.25	Av	10.4	.2	15.85	-	-	50	-34.15

Pk - Peak detector

Av - Average detection