



FCC CFR47 PART 15 SUBPART C

DTS Wireless LAN

CERTIFICATION TEST REPORT

FOR

CDMA Watch + Bluetooth/BLE and DTS b/g/n

MODEL NUMBER : SM-R735V

FCC ID: A3LSMR735C

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	02/22/16	Initial issue	Junwhan Lee
V2	02/26/16	Revised radiated test result of page 40	Junwhan Lee
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: CDMA Watch + Bluetooth/BLE and DTS b/g/n
MODEL NUMBER: SM-R735C
SERIAL NUMBER: A0000047485158, A0000047485152 (RADIATED);
A000004748515A (CONDUCTED)
DATE TESTED: FEB 17, 2016 - FEB 19, 2016

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:



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Junwhan Lee
Suwon Lab Engineer
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, 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, 16675, 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 CDMA Watch + Bluetooth/BLE and DTS b/g/n.
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	16.67	46.45
	802.11g	13.40	21.88
	802.11n HT20	12.37	17.26

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antennas, with a antenna's maximum gain of -6.8 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
Adapter	SAMSUNG	EP-TA20JWE	R37GB7Q0FK2SE3	N/A
Data Cable	SAMSUNG	EP-DG925UWZ	N/A	N/A
Wireless Charger	SAMSUNG	EP-OR720	RF7G91V4JKJTYS	A3LEPOR720

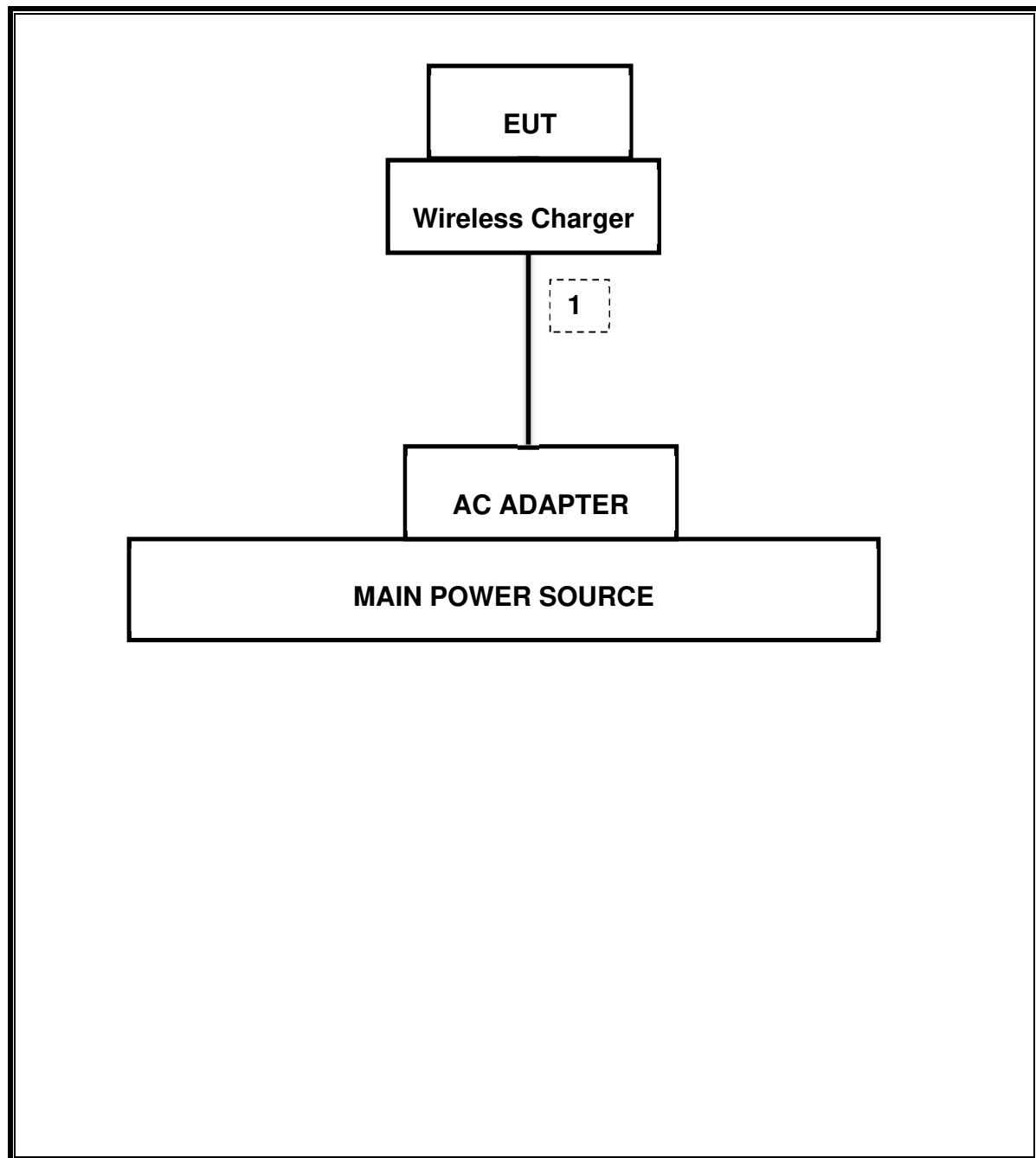
I/O CABLES

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

TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable DTS mode.

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	750	11-17-16
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-25-17
Antenna, Horn, 18 GHz	ETS	3115	00167211	09-20-16
Antenna, Horn, 18 GHz	ETS	3115	00161451	05-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168724	06-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168717	06-17-17
Antenna, Horn, 40 GHz	ETS	3116C	00166155	09-23-16
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	08-24-17
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-18-16
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-18-16
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-18-16
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-18-16
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-19-16
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-19-16
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	08-18-16
Average Power Sensor	R&S	NRZ-Z91	102681	08-18-16
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-18-16
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-19-16
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-19-16
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-19-16
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	009	08-18-16
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	015	08-18-16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	009	08-18-16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	010	08-18-16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	016	08-18-16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	015	08-18-16
LISN	R&S	ENV-216	101836	08-19-16
LISN	R&S	ENV-216	101837	08-19-16

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r04: Measurement Procedure §9.2.3.1 AVGPm is used for average power and §10.5 AVGPsd-2 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.

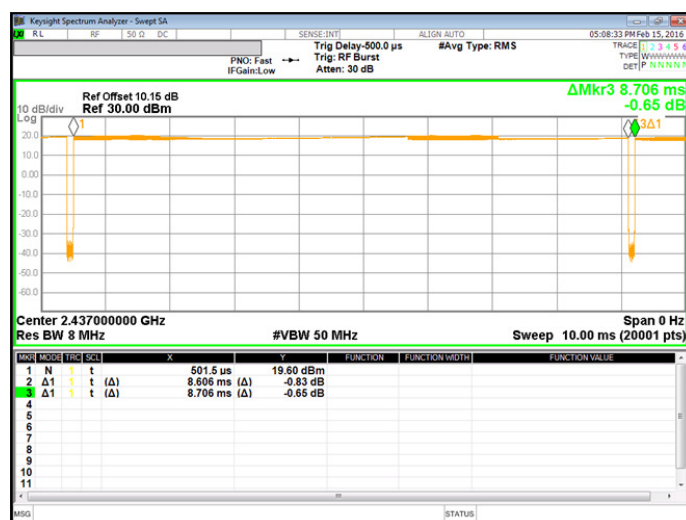
8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

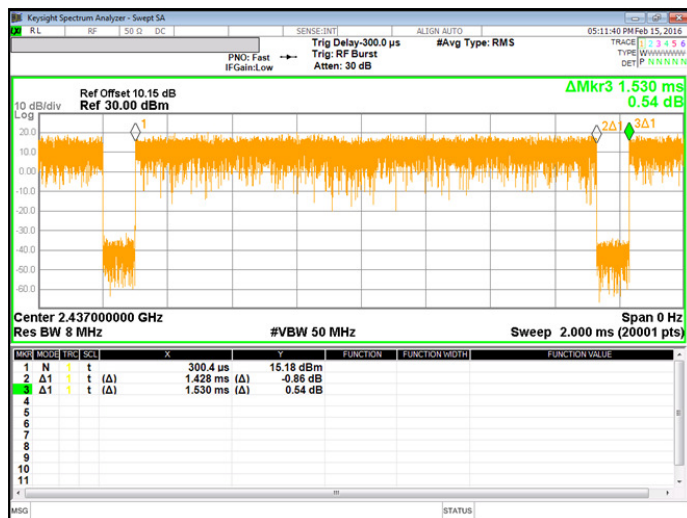
None; for reporting purposes only.

8.1. ON TIME AND DUTY CYCLE RESULTS

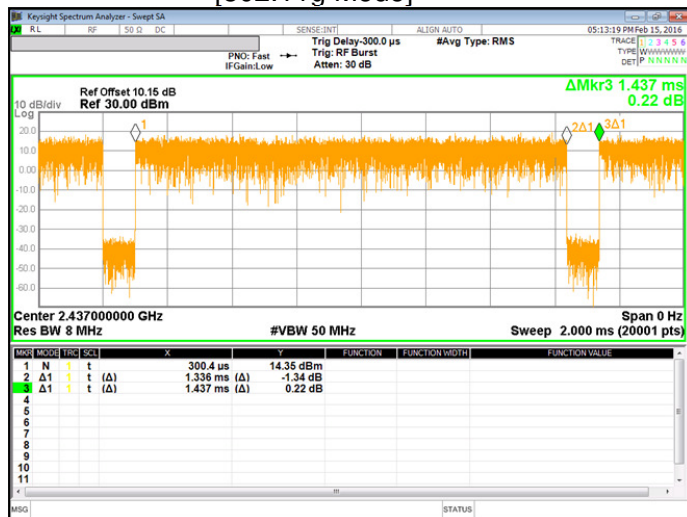
Mode	ON Time B [msec]	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2400MHz Bands						
802.11b	8.606	8.706	0.989	98.9%	0.00	0.010
802.11g	1.428	1.53	0.933	93.3%	0.30	0.700
802.11n HT20	1.336	1.437	0.930	93.0%	0.32	0.749



[802.11b Mode]



[802.11g Mode]



[802.11n Mode]

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	9.036 MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-30dBc		Pass	-30.153 dBm
15.247	TX conducted output power	<30dBm		Pass	16.67 dBm
15.247	PSD	<8dBm		Pass	-14.18 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	46.87 dBuV (PK)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	48.93 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 v03r04: 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	10.020	0.5
Mid	2437	9.043	0.5
High	2462	9.036	0.5
Worst		9.036	0.5

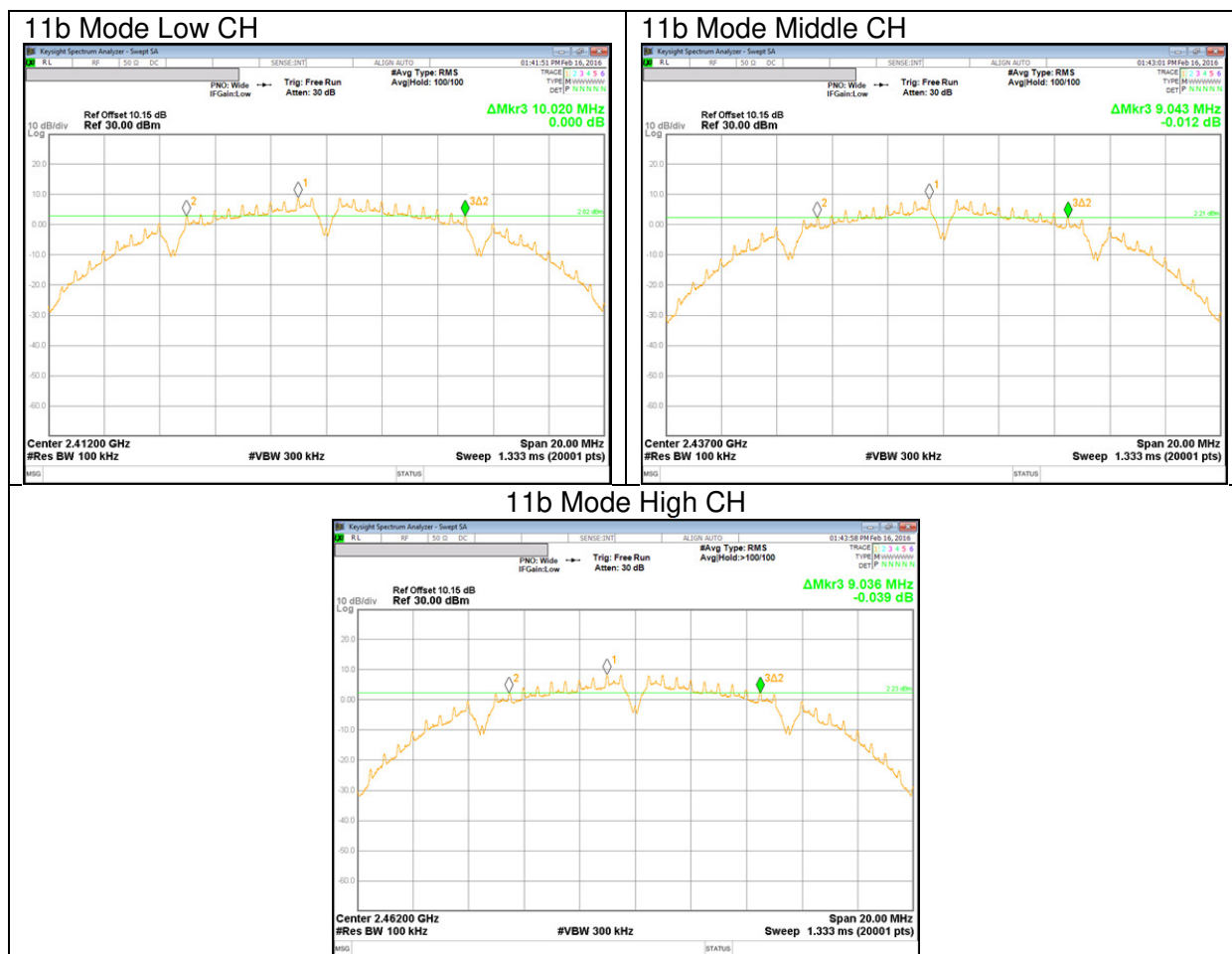
10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

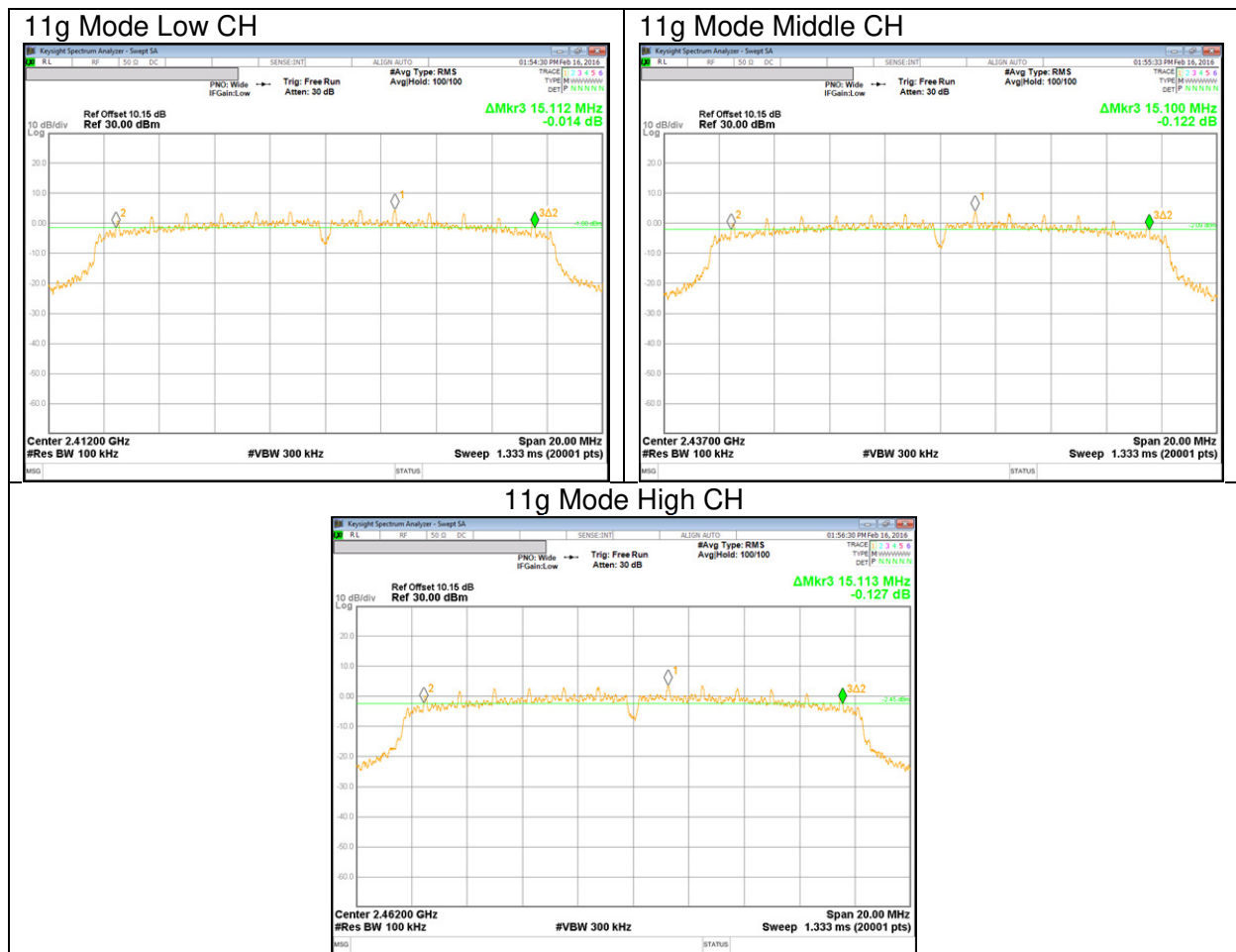
Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.112	0.5
Mid	2437	15.100	0.5
High	2462	15.113	0.5
Worst		15.100	0.5

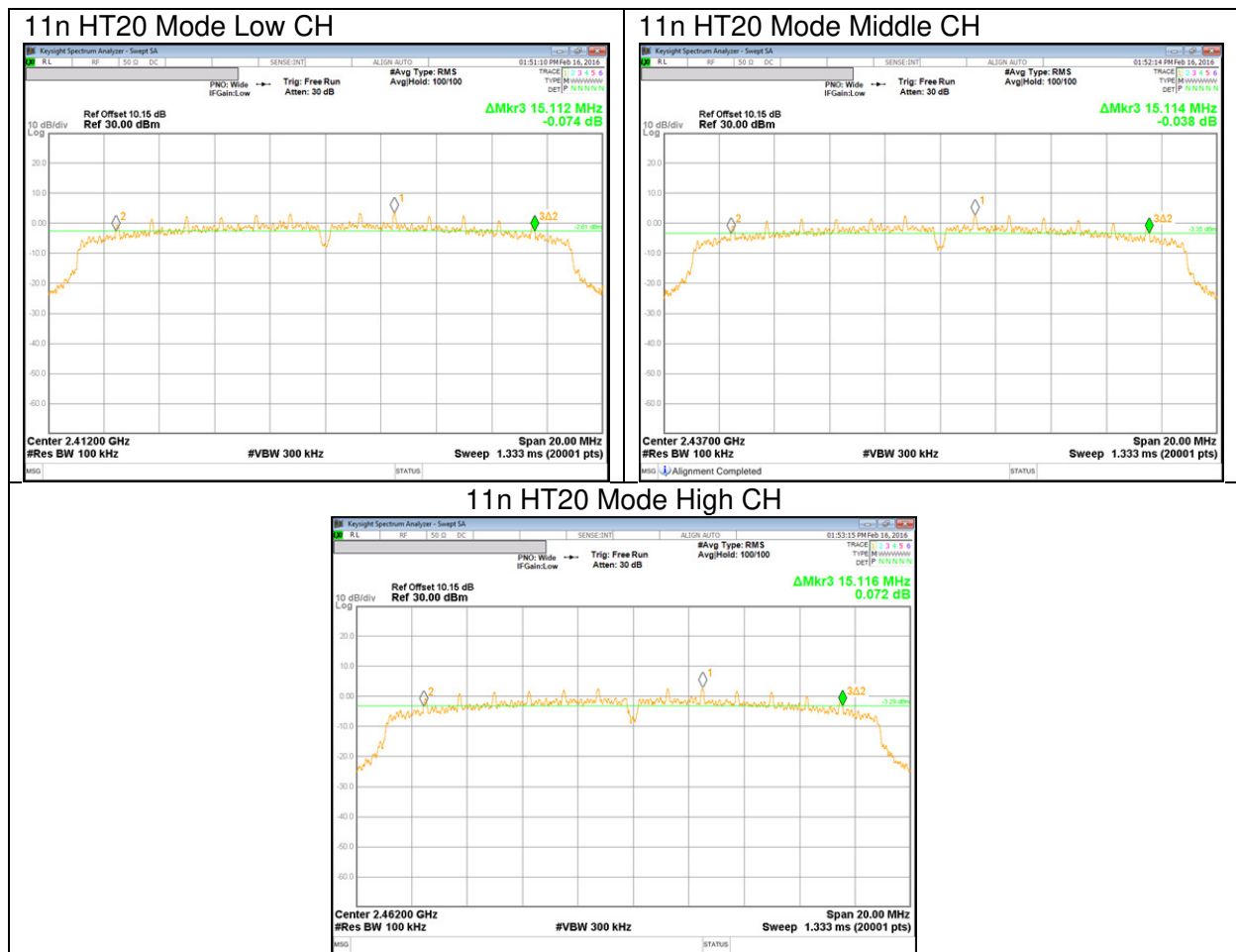
10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.112	0.5
Mid	2437	15.114	0.5
High	2462	15.116	0.5
Worst		15.112	0.5

10.1.4. 6 dB BANDWIDTH PLOTS







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	14.138
Mid	2437	14.202
High	2462	14.174
Worst		14.202

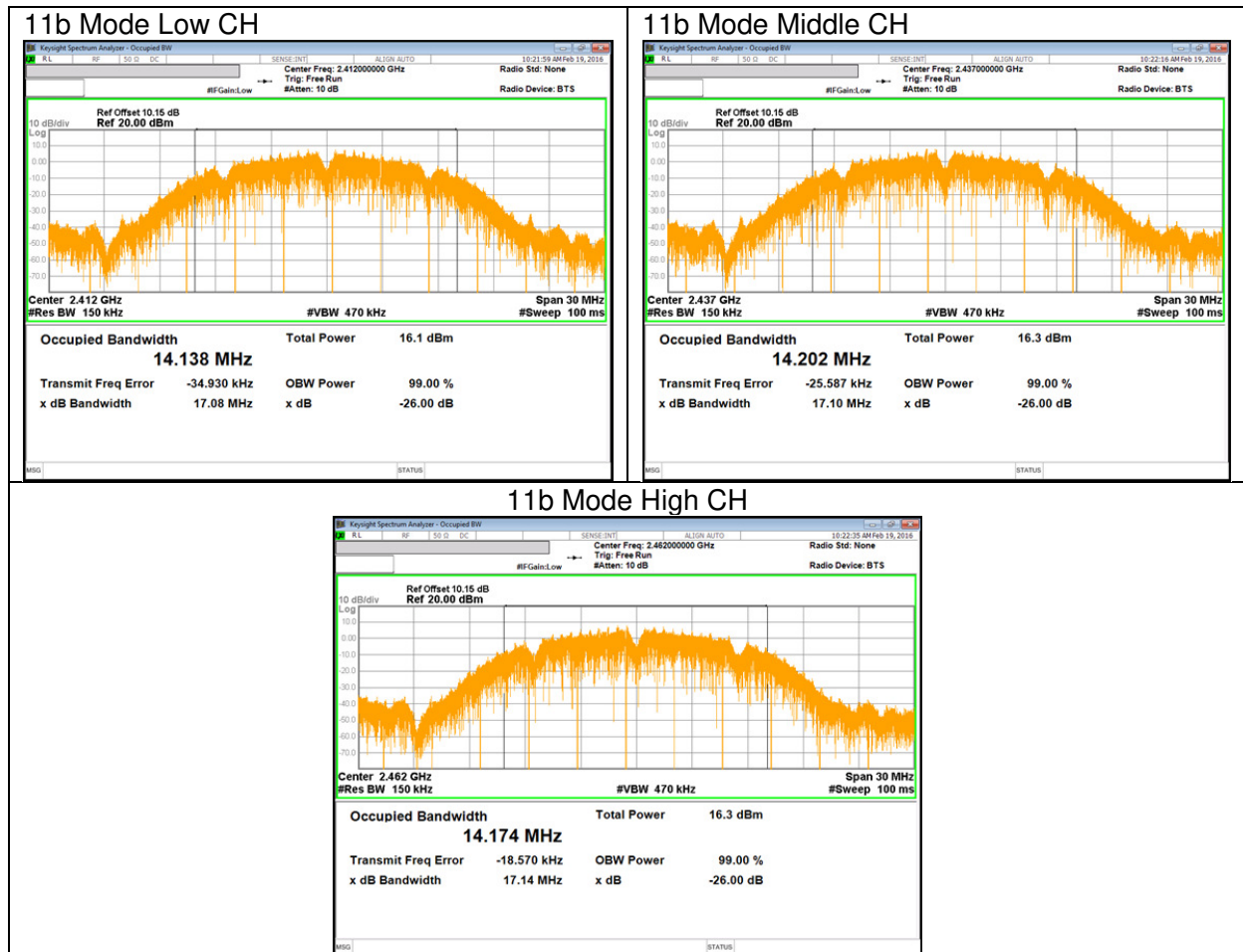
10.2.2. 802.11g MODE IN THE 2.4 GHz BAND

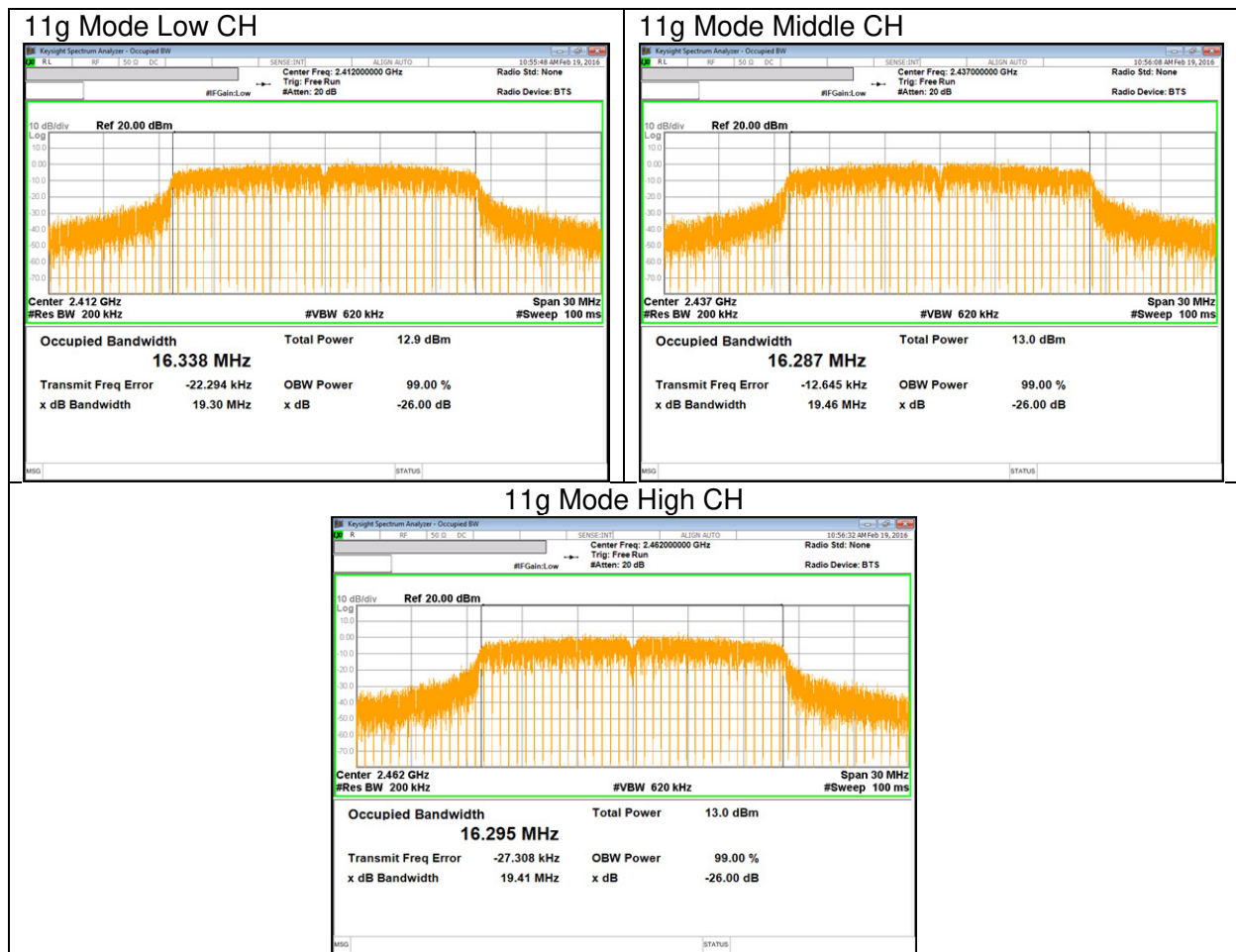
Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	2412	16.338
Mid	2437	16.287
High	2462	16.295
Worst		16.338

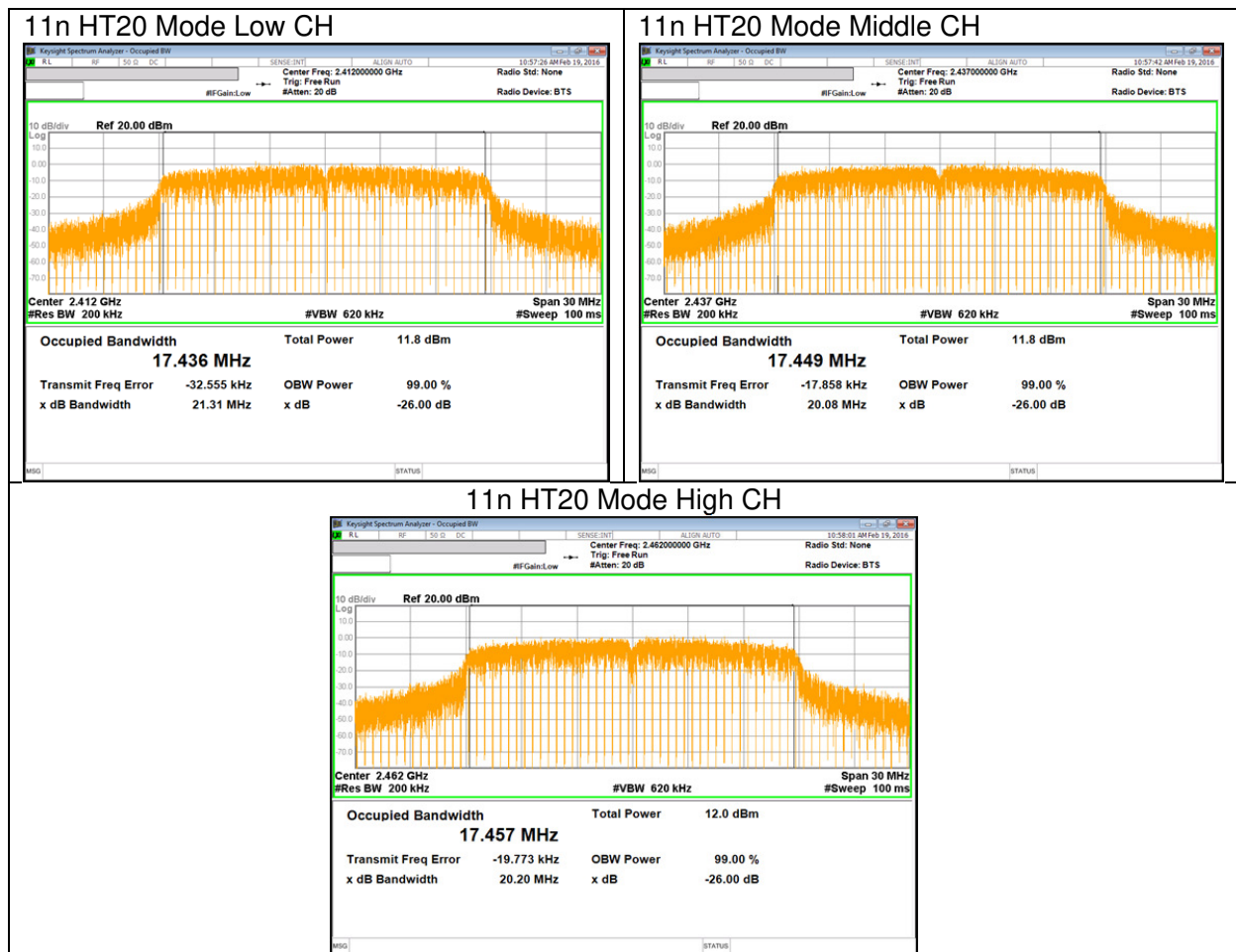
10.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	2412	17.436
Mid	2437	17.449
High	2462	17.457
Worst		17.457

10.2.4. 99% BANDWIDTH PLOTS







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.

Duty cycle correction factor is already added to the average output power results for duty cycle factor < 98%. (802.11g, 802.11n mode)

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	-6.80	30.00	30.00	36.00	30.00
Mid	2437	-6.80	30.00	30.00	36.00	30.00
High	2462	-6.80	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	16.57	16.57	30.00	-13.43
Mid	2437	16.56	16.56	30.00	-13.44
High	2462	16.67	16.67	30.00	-13.33
Worst			16.67	30.00	-13.33

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	-6.80	30.00	30.00	36.00	30.00
Mid	2437	-6.80	30.00	30.00	36.00	30.00
High	2462	-6.80	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	13.13	13.13	30.00	-16.87
Mid	2437	13.26	13.26	30.00	-16.74
High	2462	13.40	13.40	30.00	-16.60
Worst			13.40	30.00	-16.60

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	-6.80	30.00	30.00	36.00	30.00
Mid	2437	-6.80	30.00	30.00	36.00	30.00
High	2462	-6.80	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	12.11	12.11	30.00	-17.89
Mid	2437	12.25	12.25	30.00	-17.75
High	2462	12.37	12.37	30.00	-17.63
Worst			12.37	30.00	-17.63

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 AVGPS-2" under KDB558074 D01 DTS Meas Guidance v03r04

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	-14.424	0.00	-14.424	8.00	-22.424
Mid	2437	-14.218	0.00	-14.218	8.00	-22.218
High	2462	-14.180	0.00	-14.180	8.00	-22.180

10.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

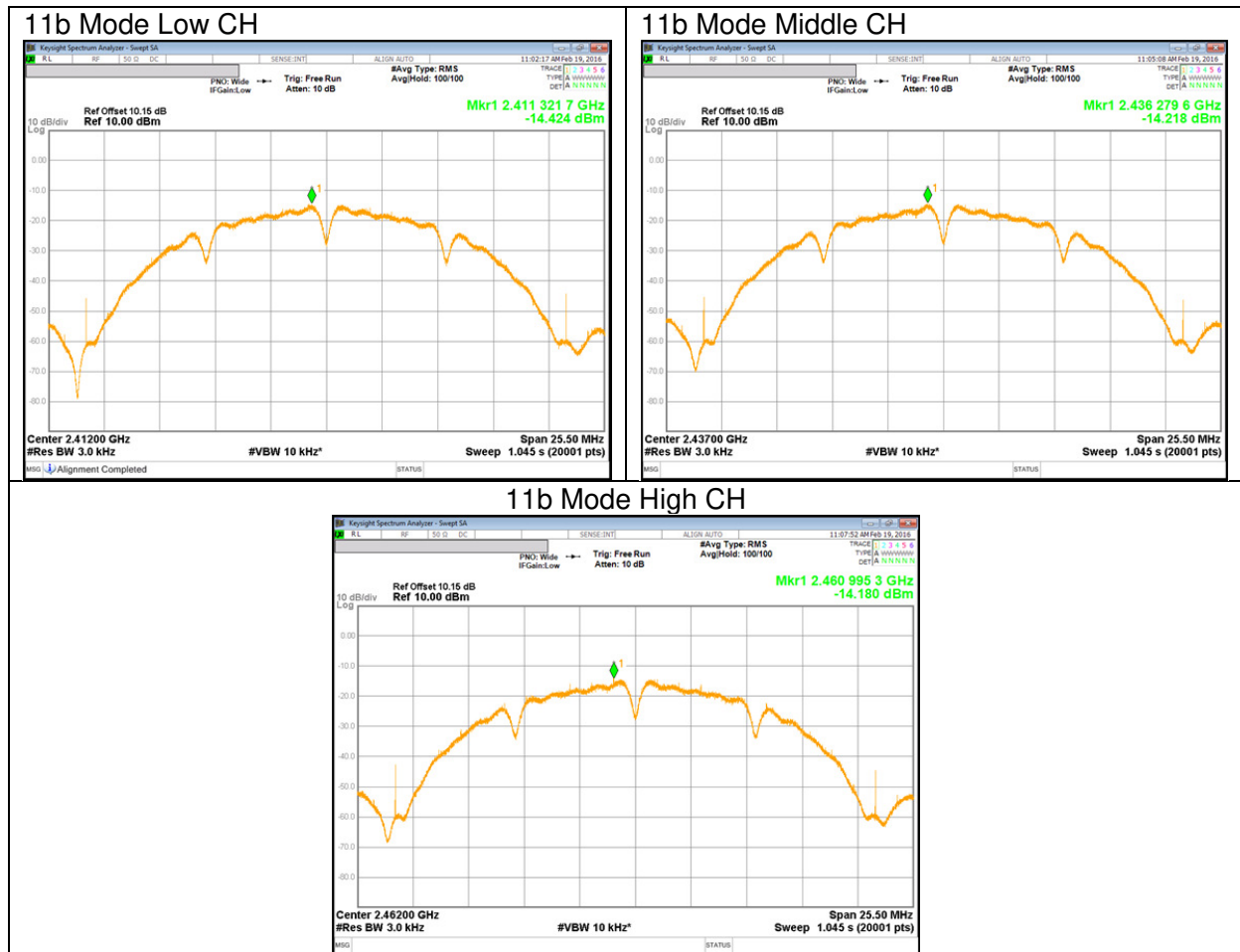
Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-20.504	0.30	-20.204	8.00	-28.504
Mid	2437	-20.453	0.30	-20.153	8.00	-28.453
High	2462	-20.065	0.30	-19.765	8.00	-28.065

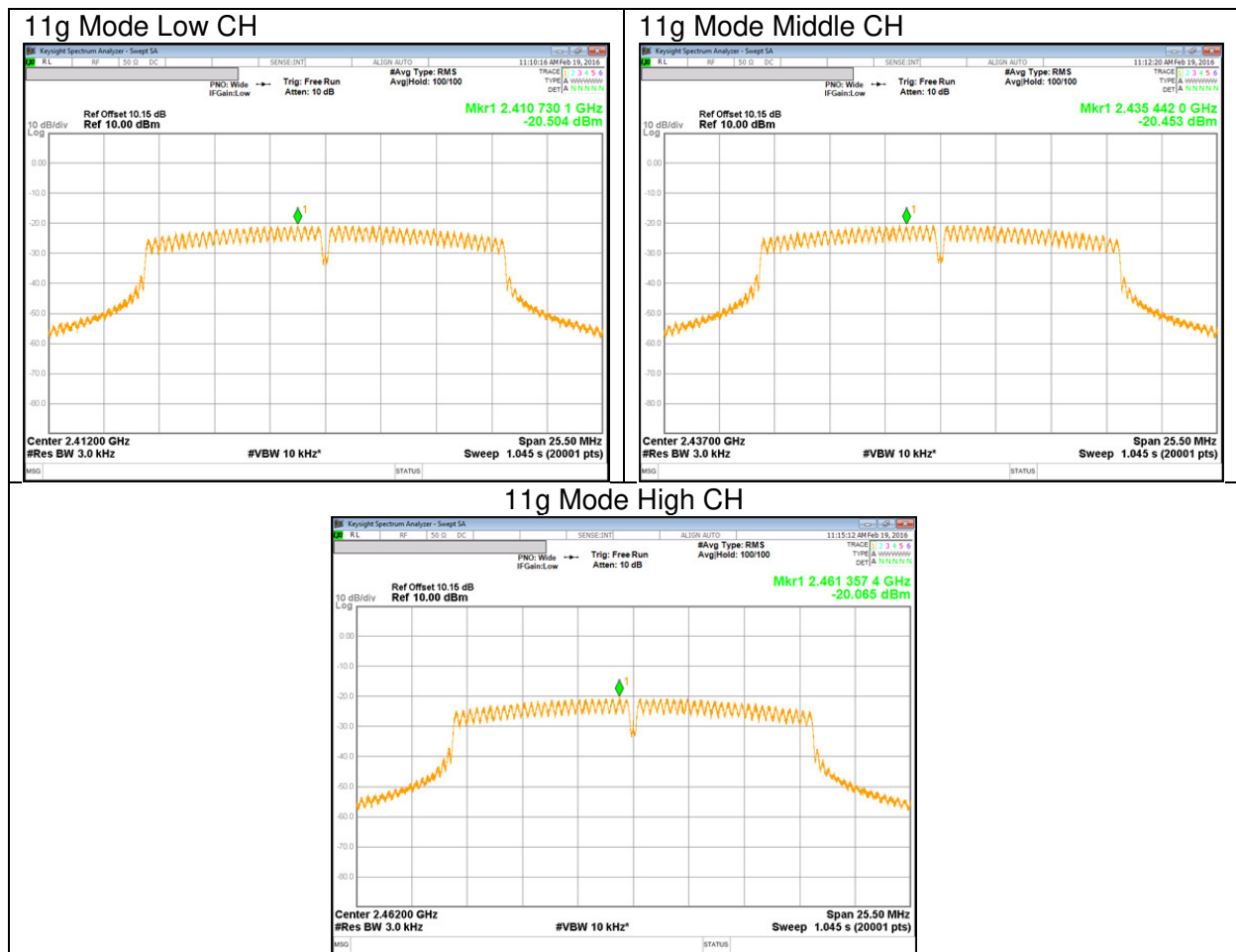
10.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

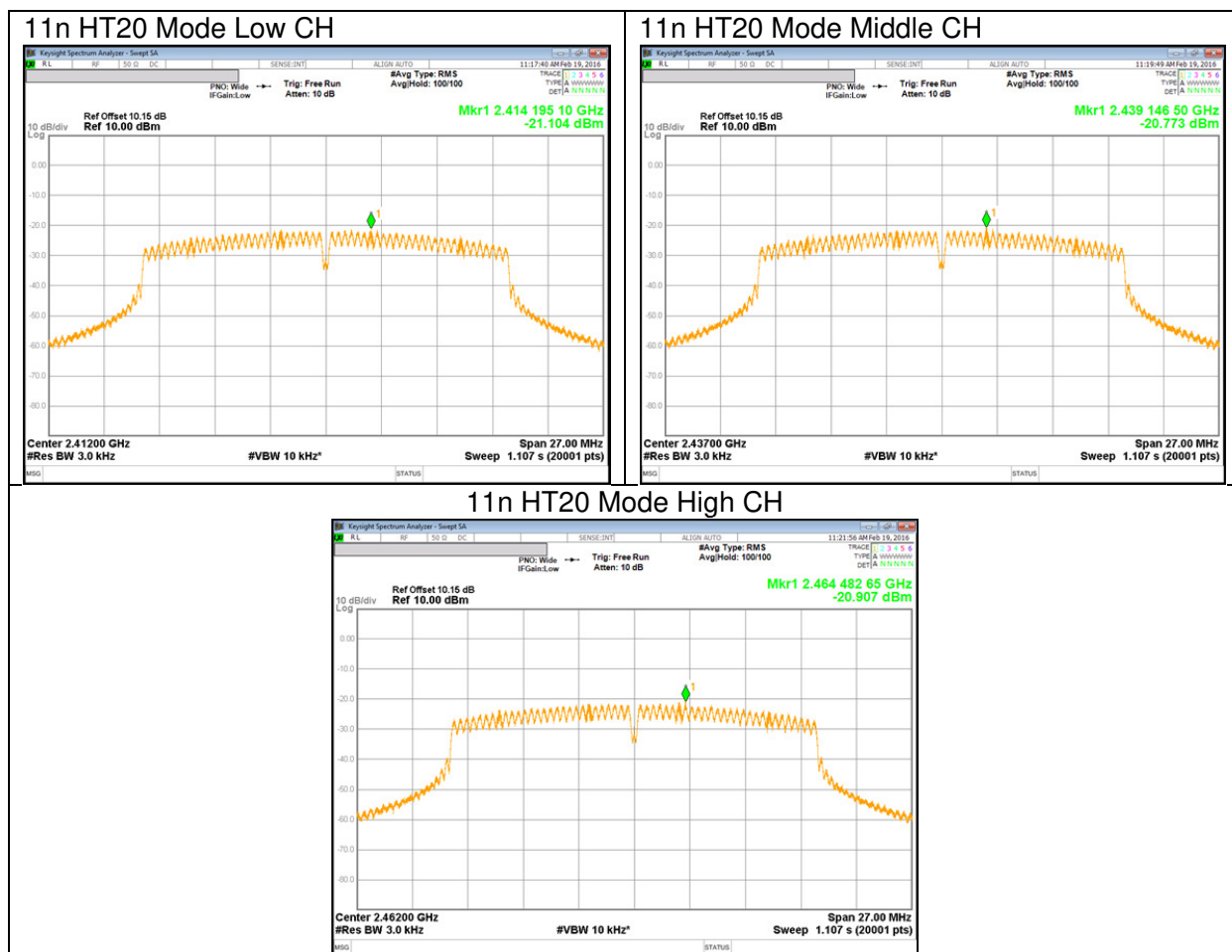
PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-21.104	0.32	-20.784	8.00	-29.104
Mid	2437	-20.773	0.32	-20.453	8.00	-28.773
High	2462	-20.907	0.32	-20.587	8.00	-28.907

10.4.4. PSD PLOTS







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

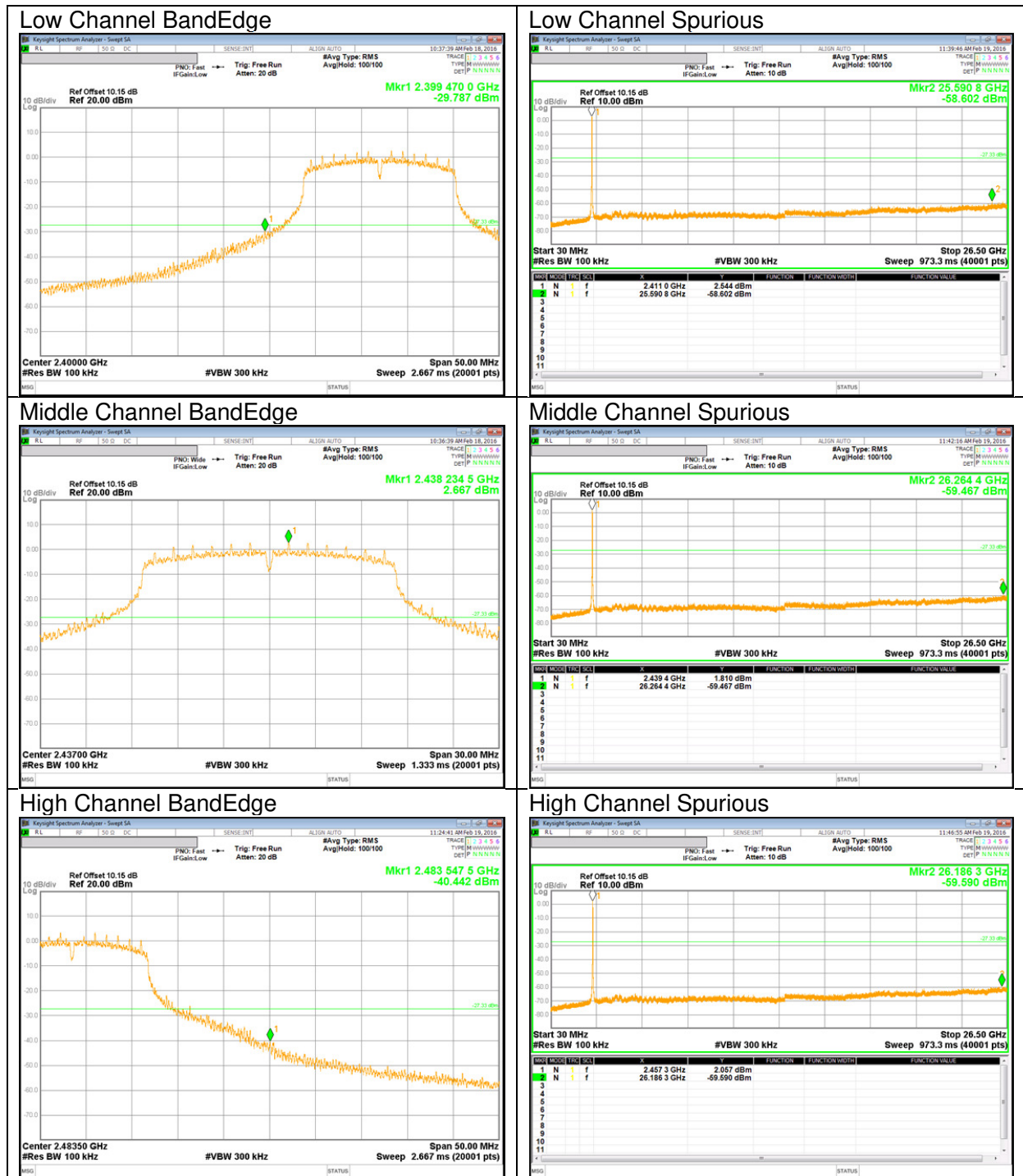
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

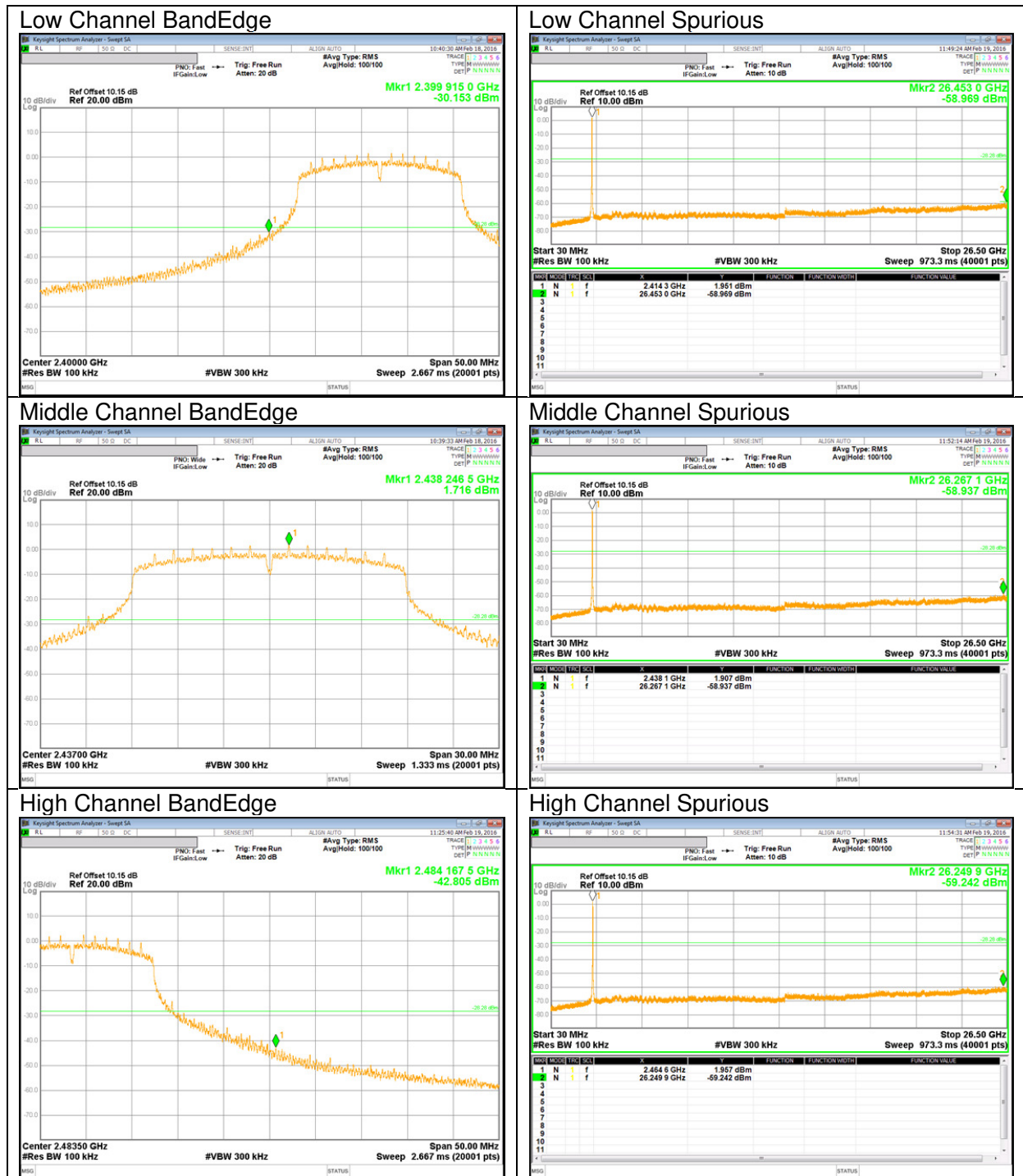
10.5.1. 802.11b MODE IN THE 2.4 GHz BAND



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.

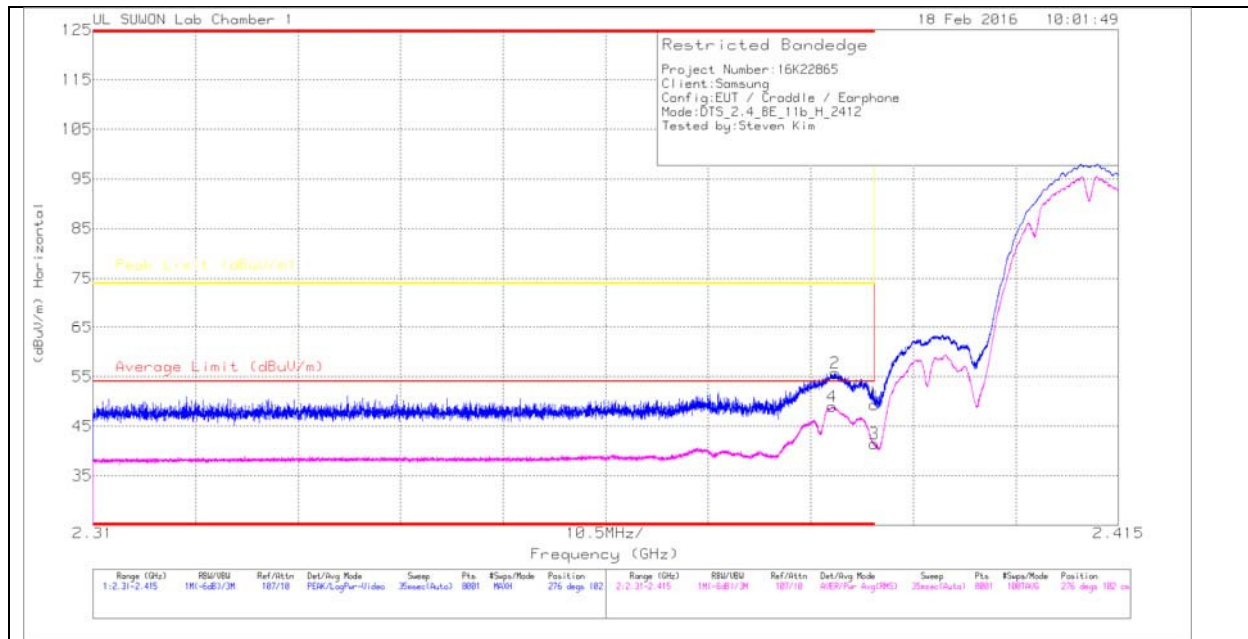
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

Trace Markers

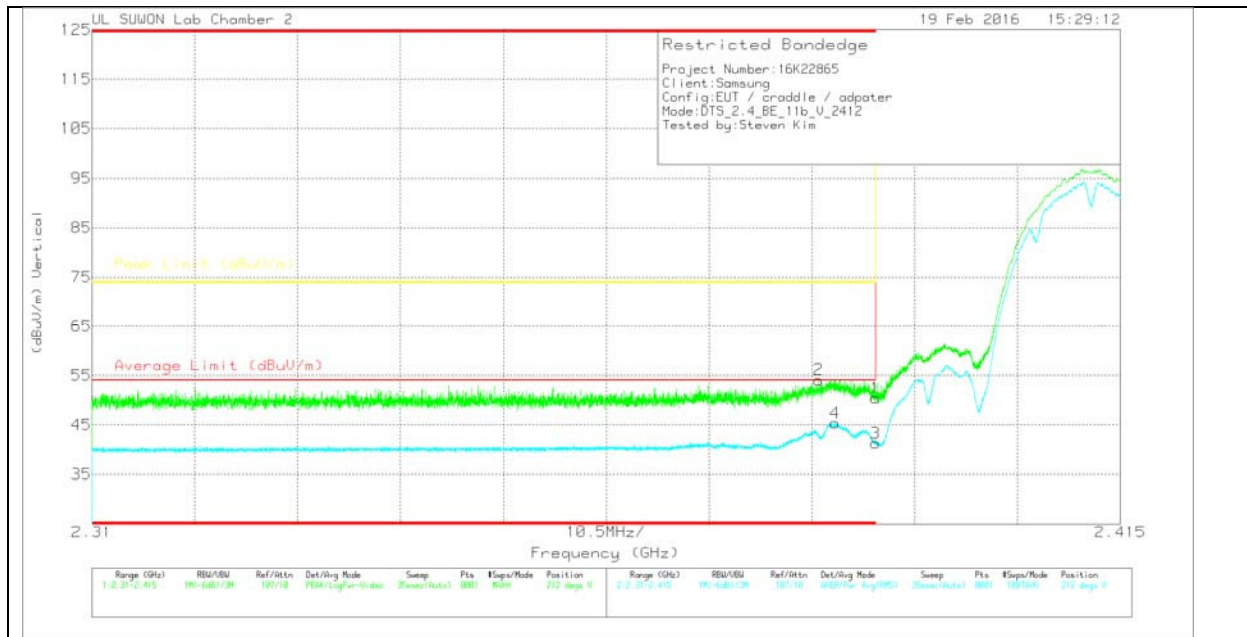
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	46.57	Pk	31.8	-29	0	49.37	-	-	74	-24.63	276	102	H
2	* 2.386	52.91	Pk	31.8	-29	0	55.71	-	-	74	-18.29	276	102	H
3	* 2.39	38.68	RMS	31.8	-29	0	41.48	54	-12.52	-	-	276	102	H
4	* 2.386	46.13	RMS	31.8	-29	0	48.93	54	-5.07	-	-	276	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

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	38.22	Pk	31.7	-19.5	0	50.42	-	-	74	-23.58	212	297	V
2	* 2.384	41.9	Pk	31.7	-19.5	0	54.1	-	-	74	-19.9	212	297	V
3	* 2.39	29.15	RMS	31.7	-19.5	0	41.35	54	-12.65	-	-	212	297	V
4	* 2.386	33.17	RMS	31.7	-19.5	0	45.37	54	-8.63	-	-	212	297	V

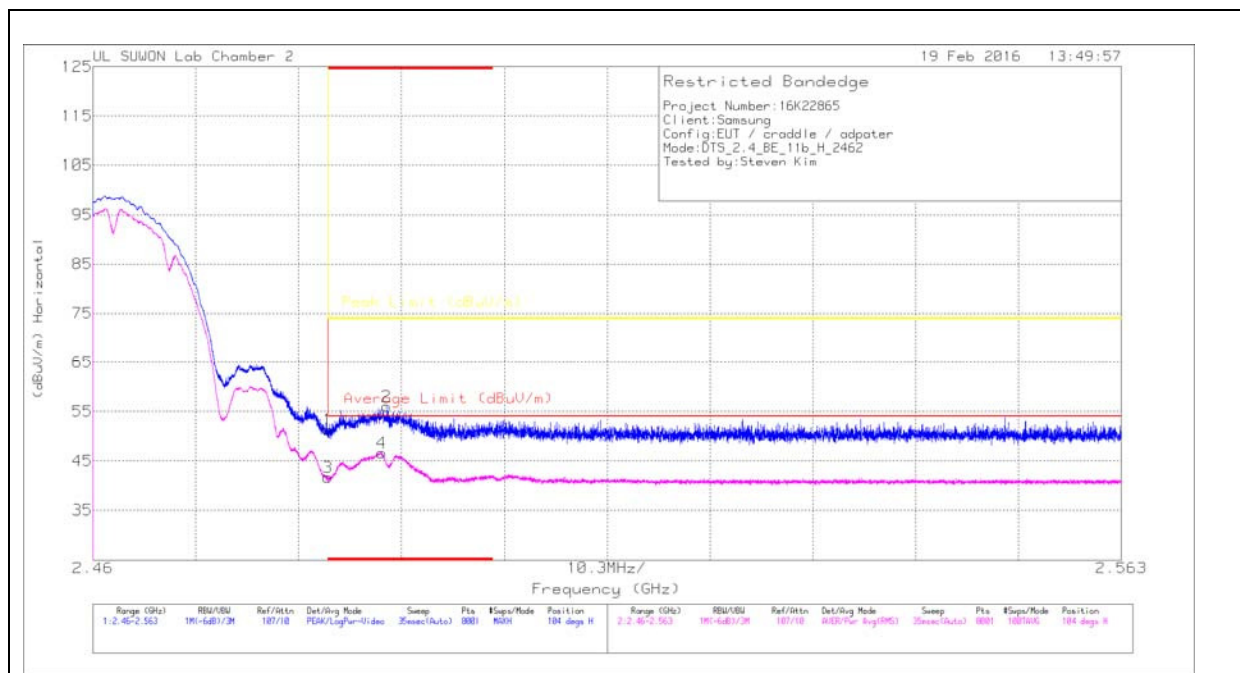
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

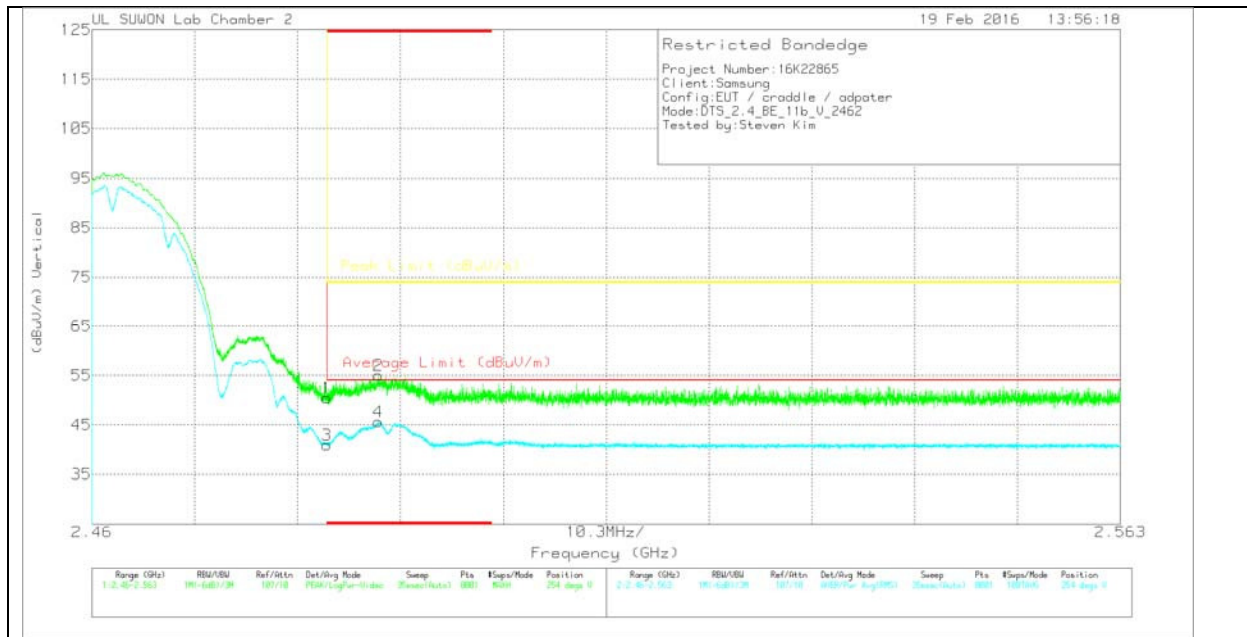
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.484	38.91	Pk	31.8	-19.4	0	51.31	-	-	74	-22.69	104	145	H
2	* 2.489	43.59	Pk	31.8	-19.4	0	55.99	-	-	74	-18.01	104	145	H
3	* 2.484	29.28	RMS	31.8	-19.4	0	41.68	54	-12.32	-	-	104	145	H
4	* 2.489	34.27	RMS	31.8	-19.4	0	46.67	54	-7.33	-	-	104	145	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	38.08	Pk	31.8	-19.4	0	50.48	-	-	74	-23.52	254	291	V
2	* 2.489	42.63	Pk	31.8	-19.4	0	55.03	-	-	74	-18.97	254	291	V
3	* 2.484	28.52	RMS	31.8	-19.4	0	40.92	54	-13.08	-	-	254	291	V
4	* 2.489	33.19	RMS	31.8	-19.4	0	45.59	54	-8.41	-	-	254	291	V

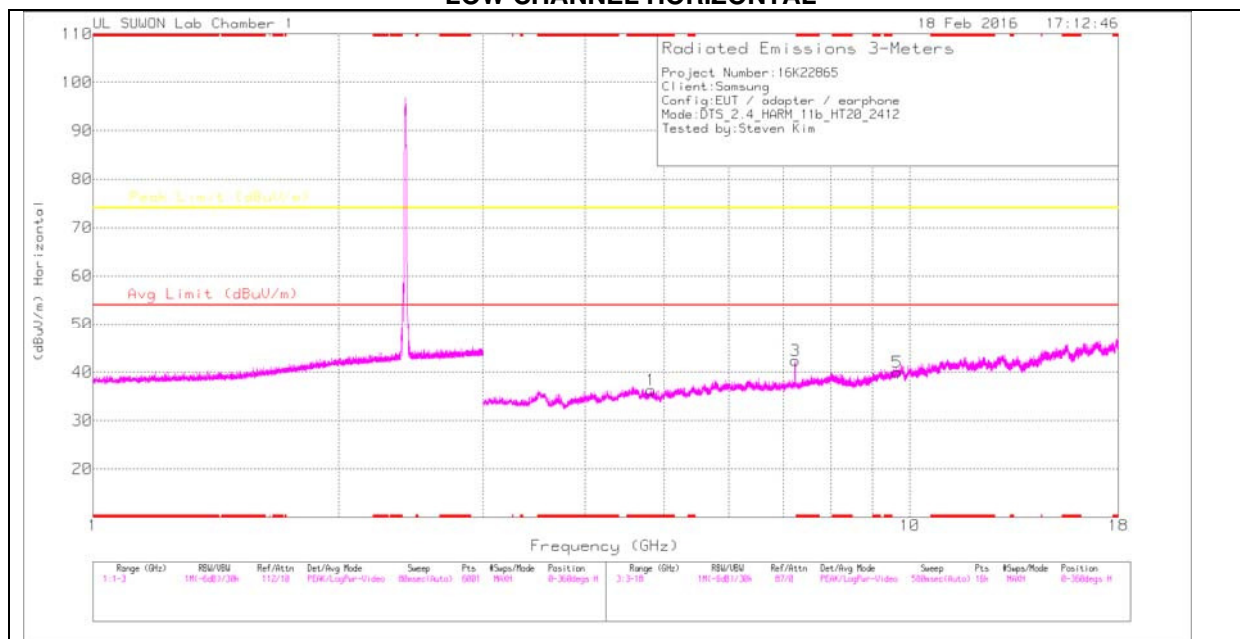
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

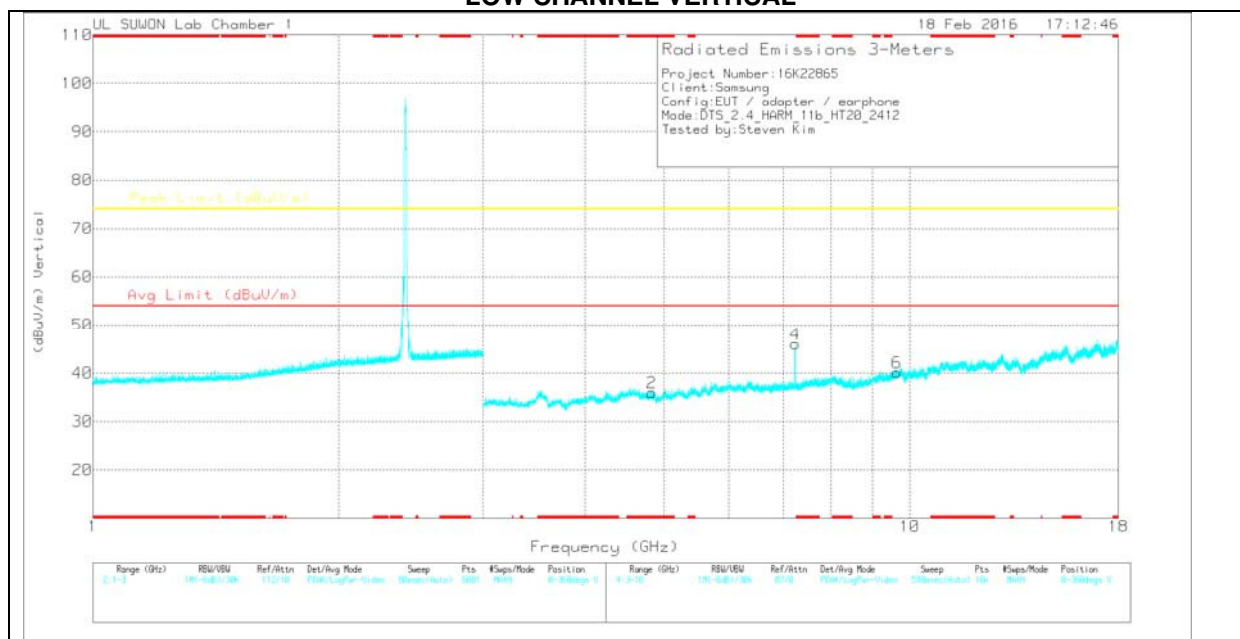
RMS - RMS detection

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	3117(001687 17)_150619	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
1	* 4.823	36.08	PK	34	-33.8	0	36.28	-	-	74	-37.72	0-360	100	H
3	7.235	37.6	PK	35.7	-30.9	0	42.4	-	-	74	-31.6	0-360	200	H
5	9.647	30.26	PK	37.1	-27.4	0	39.96	-	-	74	-34.04	0-360	100	H
2	* 4.826	35.75	PK	34	-33.8	0	35.95	-	-	74	-38.05	0-360	200	V
4	7.237	41.22	PK	35.7	-30.9	0	46.02	-	-	74	-27.98	0-360	100	V
6	9.646	30.42	PK	37.1	-27.4	0	40.12	-	-	74	-33.88	0-360	200	V

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

PK – Peak detector

Radiated Emissions

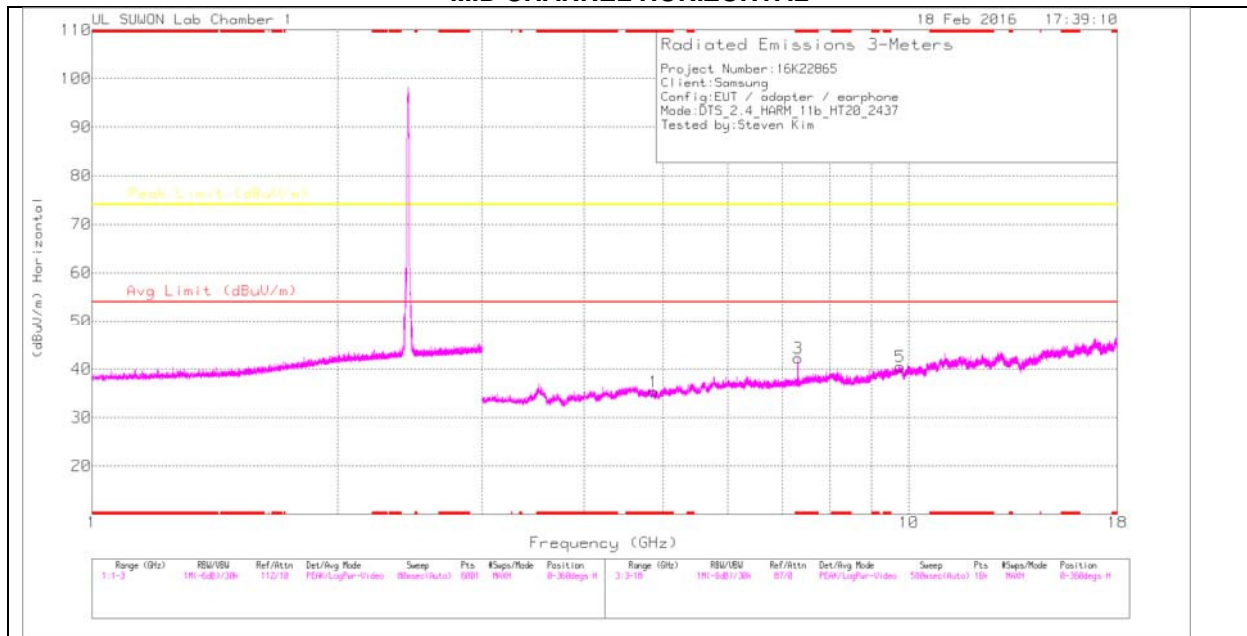
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.237	45.78	PK2	35.7	-30.9	0	50.58	-	-	74	-23.42	214	283	H
7.237	34.79	MAv1	35.7	-30.9	0	39.59	54	- 14.41	-	-	214	283	H
7.237	49.78	PK2	35.7	-30.9	0	54.58	-	-	74	-19.42	163	100	V
7.237	42.52	MAv1	35.7	-30.9	0	47.32	54	- 6.68	-	-	163	100	V

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

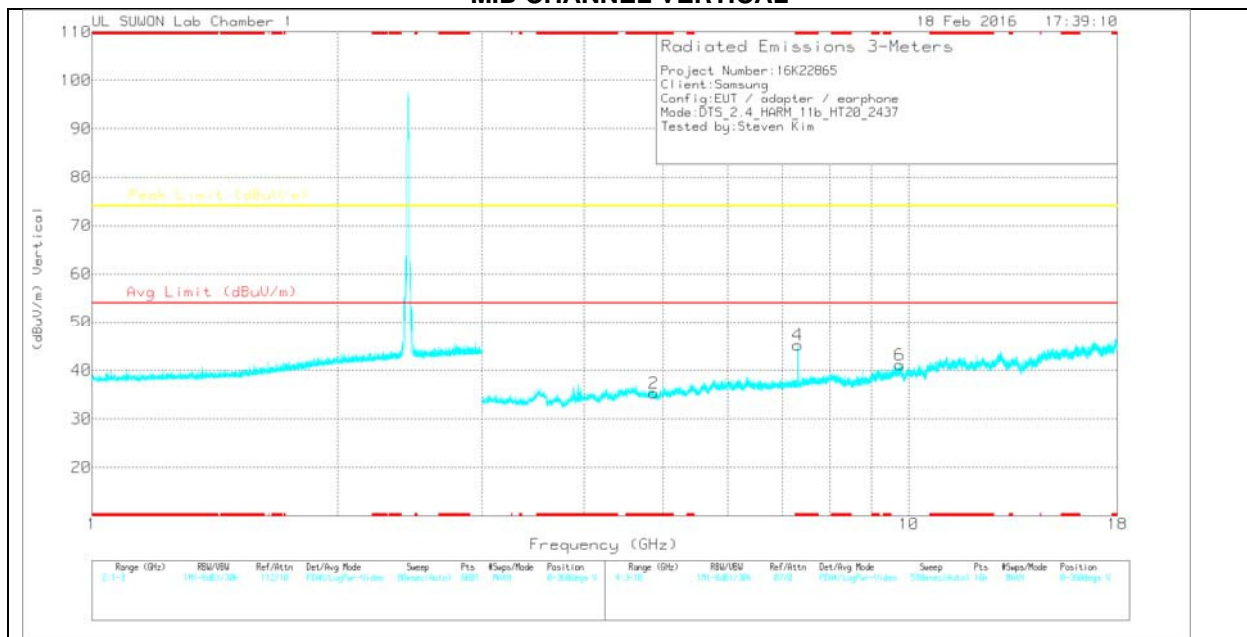
PK2 - KDB558074 Method: Maximum Peak

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	3117(001687 17)_150619	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
1	* 4.874	35.31	PK	34	-34	0	35.31	-	-	74	-38.69	0-360	100	H
3	* 7.311	37.48	PK	35.7	-30.9	0	42.28	-	-	74	-31.72	0-360	200	H
5	9.754	30	PK	37.2	-26.7	0	40.5	-	-	74	-33.5	0-360	100	H
2	* 4.875	35.3	PK	34	-34	0	35.3	-	-	74	-38.7	0-360	100	V
4	* 7.31	40.43	PK	35.7	-30.9	0	45.23	-	-	74	-28.77	0-360	100	V
6	9.748	30.73	PK	37.2	-26.8	0	41.13	-	-	74	-32.87	0-360	100	V

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

PK – Peak detector

Radiated Emissions

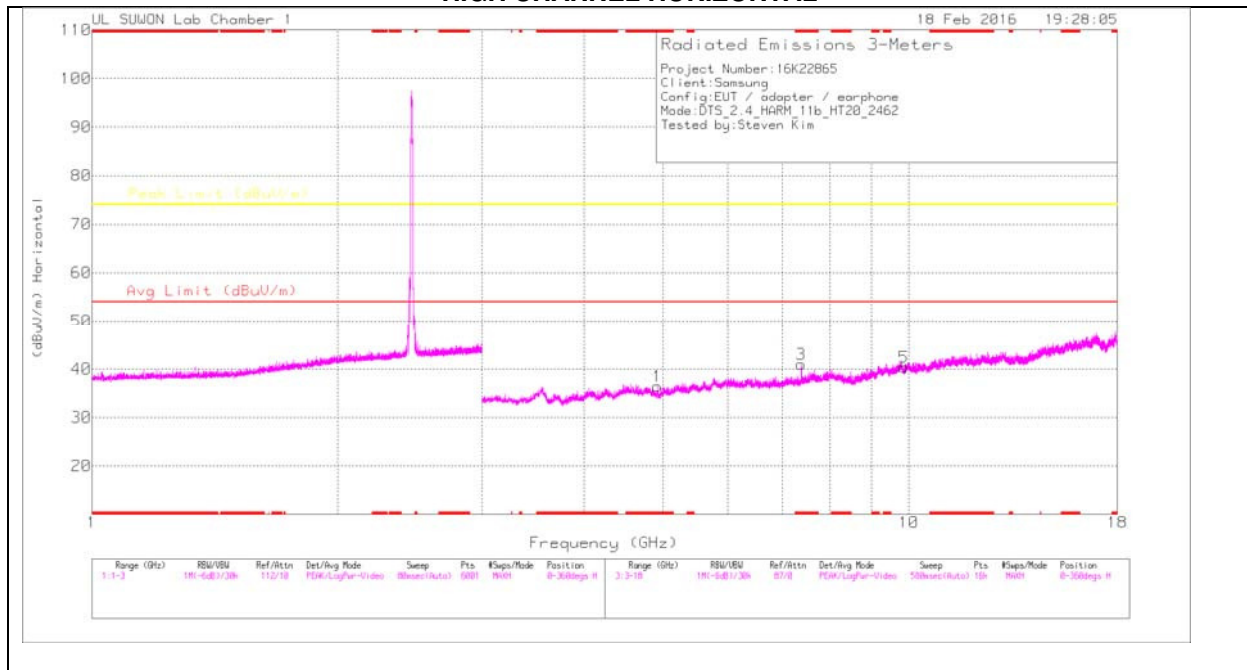
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001 68717)_1 50619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.311	46.92	PK2	35.7	-30.9	0	51.72	-	-	74	-22.28	141	375	H
* 7.312	38.14	MAv1	35.7	-30.9	0	42.94	54	-11.06	-	-	141	375	H
* 7.311	49.17	PK2	35.7	-30.9	0	53.97	-	-	74	-20.03	34	101	V
* 7.312	41.11	MAv1	35.7	-30.9	0	45.91	54	-8.09	-	-	34	101	V

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

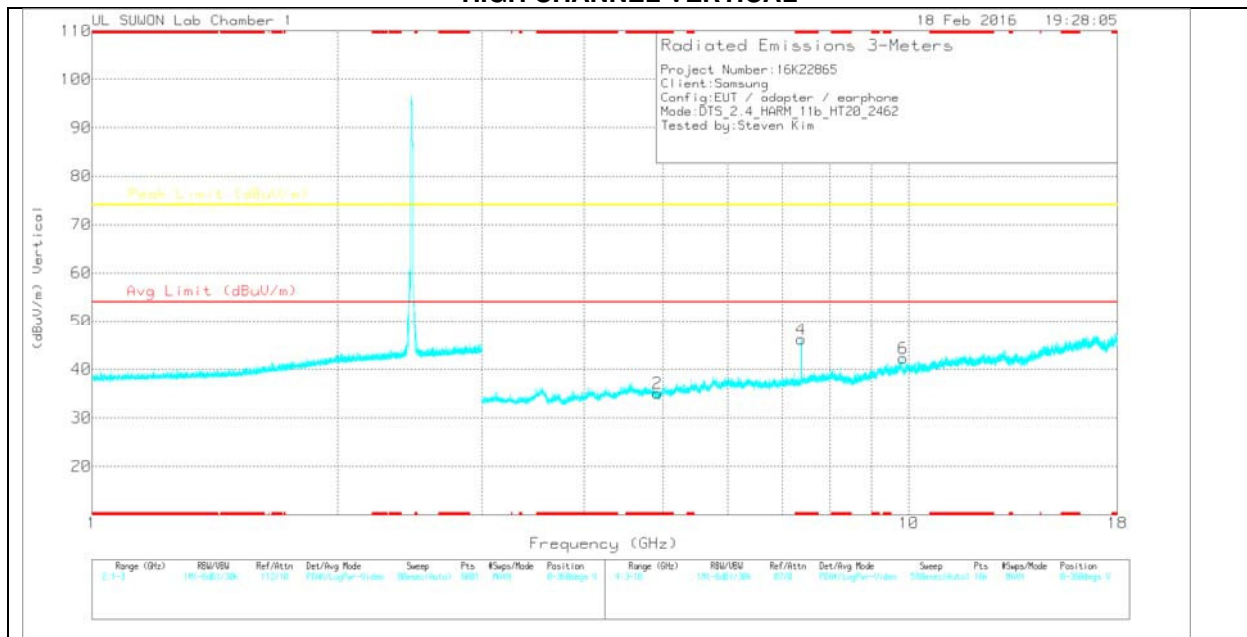
PK2 - KDB558074 Method: Maximum Peak

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	3117(001687 17)_150619	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
1	* 4.924	36.4	PK	34	-34	0	36.4	-	-	74	-37.6	0-360	100	H
3	* 7.385	35.87	PK	35.8	-30.7	0	40.97	-	-	74	-33.03	0-360	200	H
5	9.852	30.72	PK	37.3	-27.7	0	40.32	-	-	74	-33.68	0-360	200	H
2	* 4.926	35.06	PK	34	-34	0	35.06	-	-	74	-38.94	0-360	100	V
4	* 7.385	41.04	PK	35.8	-30.7	0	46.14	-	-	74	-27.86	0-360	100	V
6	9.848	32.51	PK	37.3	-27.6	0	42.21	-	-	74	-31.79	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	3117(001 68717)_1 50619	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
* 7.388	46.25	PK2	35.8	-30.7	0	51.35	-	-	74	-22.65	124	363	H
* 7.387	35.86	MAv1	35.8	-30.7	0	40.96	54	-13.04	-	-	124	363	H
* 7.387	49.37	PK2	35.8	-30.7	0	54.47	-	-	74	-19.53	21	100	V
* 7.385	41.28	MAv1	35.8	-30.7	0	46.38	54	-7.62	-	-	21	100	V

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

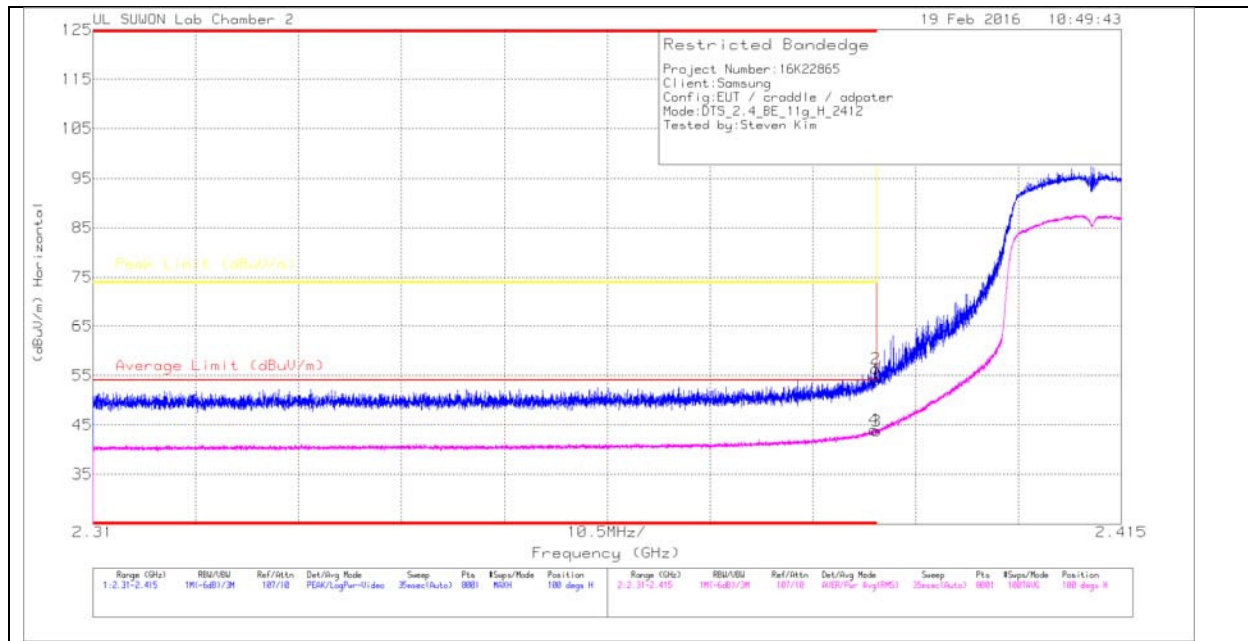
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

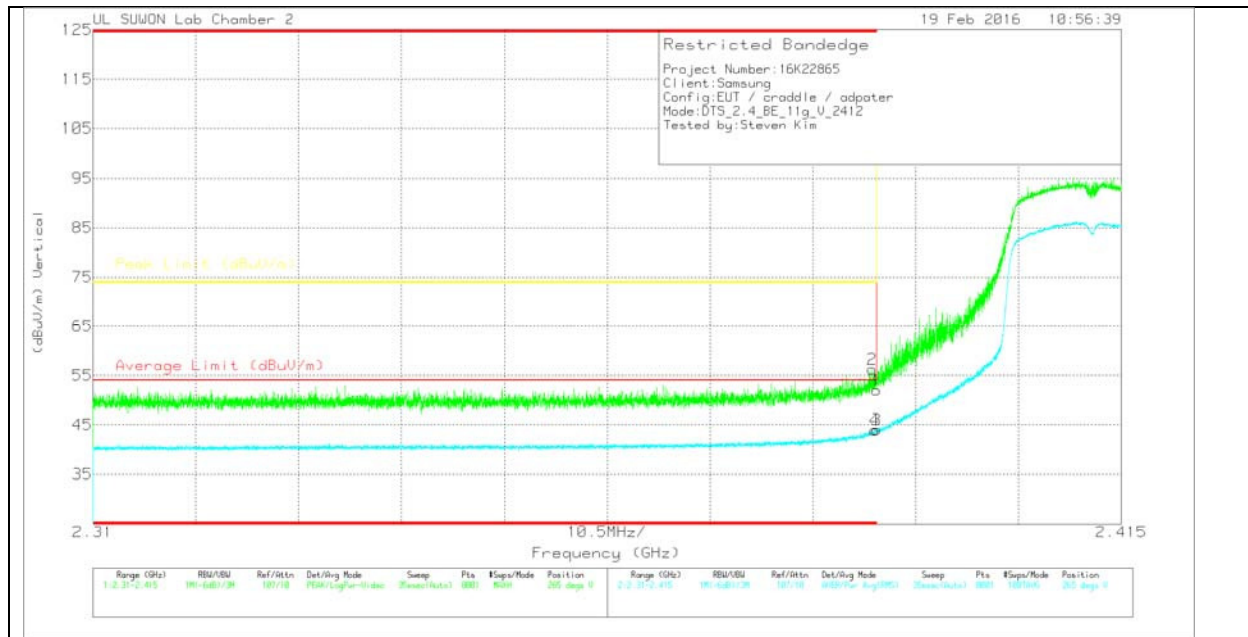
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.81	Pk	31.7	-19.5	0	54.01	-	-	74	-19.99	100	302	H
2	* 2.39	44.24	Pk	31.7	-19.5	0	56.44	-	-	74	-17.56	100	302	H
3	* 2.39	31.22	RMS	31.7	-19.5	.3	43.72	54	-10.28	-	-	100	302	H
4	* 2.39	31.49	RMS	31.7	-19.5	.3	43.99	54	-10.01	-	-	100	302	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	39.82	Pk	31.7	-19.5	0	52.02	-	-	74	-21.98	265	117	V
2	* 2.39	44.09	Pk	31.7	-19.5	0	56.29	-	-	74	-17.71	265	117	V
3	* 2.39	31.52	RMS	31.7	-19.5	.3	44.02	54	-9.98	-	-	265	117	V
4	* 2.39	31.42	RMS	31.7	-19.5	.3	43.92	54	-10.08	-	-	265	117	V

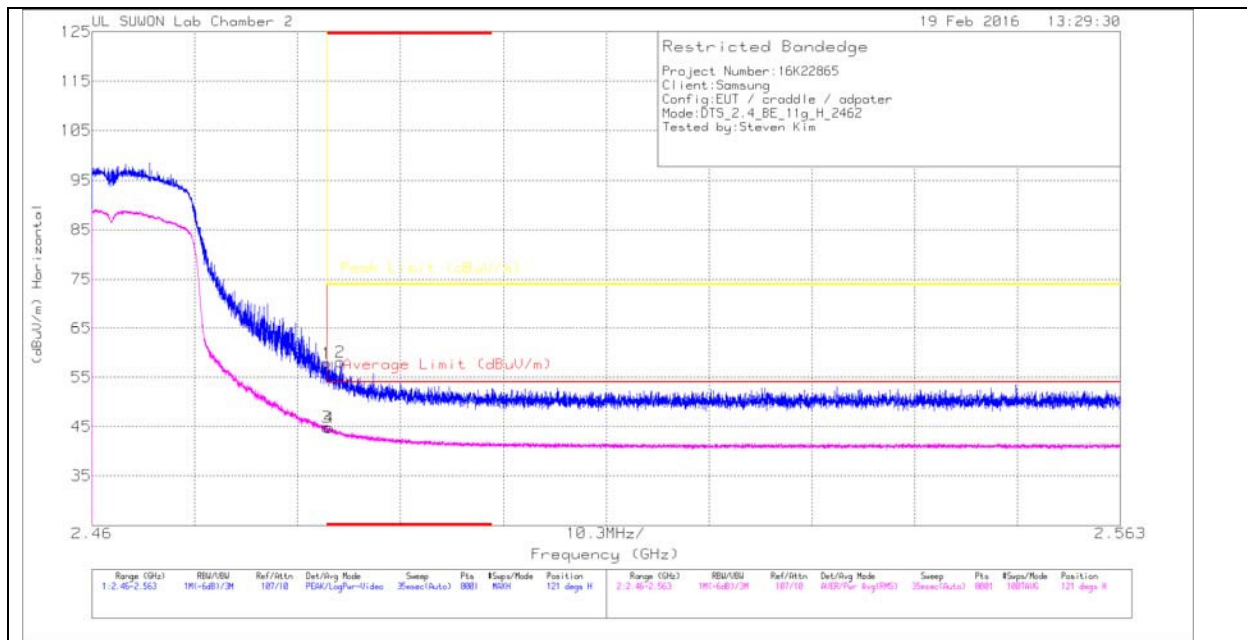
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

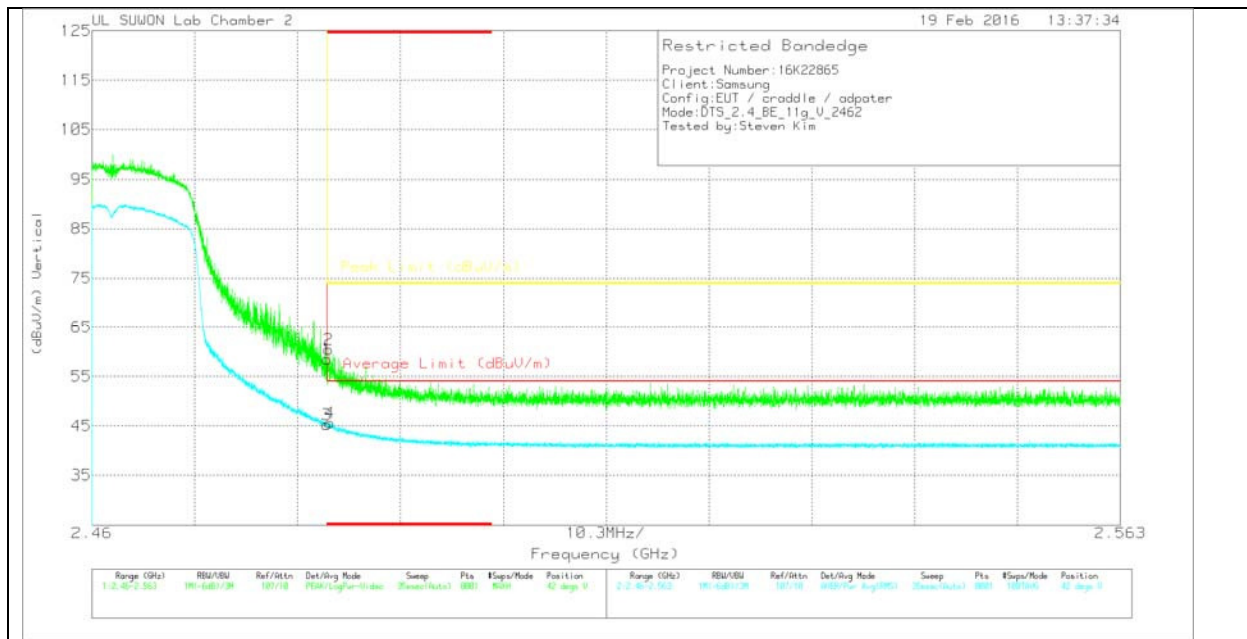
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	45.49	Pk	31.8	-19.4	0	57.89	-	-	74	-16.11	121	283	H
2	* 2.485	45.77	Pk	31.8	-19.4	0	58.17	-	-	74	-15.83	121	283	H
3	* 2.484	32.21	RMS	31.8	-19.4	.3	44.91	54	-9.09	-	-	121	283	H
4	* 2.484	32.02	RMS	31.8	-19.4	.3	44.72	54	-9.28	-	-	121	283	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	46.07	Pk	31.8	-19.4	0	58.47	-	-	74	-15.53	42	349	V
2	* 2.484	48.11	Pk	31.8	-19.4	0	60.51	-	-	74	-13.49	42	349	V
3	* 2.484	32.55	RMS	31.8	-19.4	.3	45.25	54	-8.75	-	-	42	349	V
4	* 2.484	32.88	RMS	31.8	-19.4	.3	45.58	54	-8.42	-	-	42	349	V

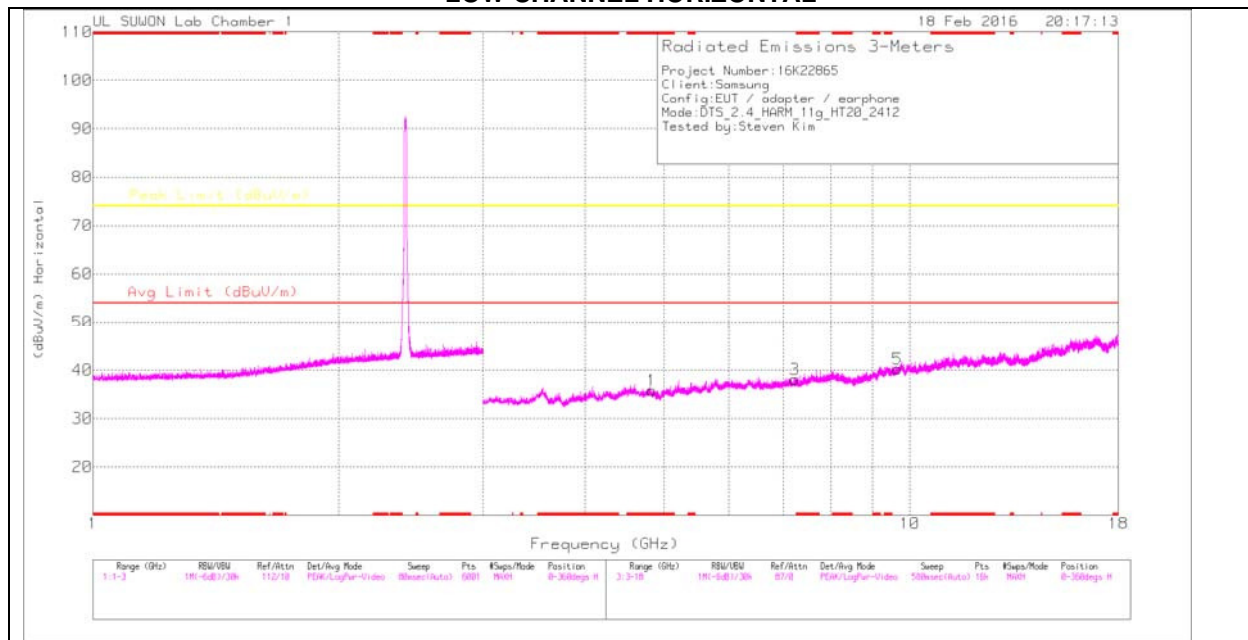
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

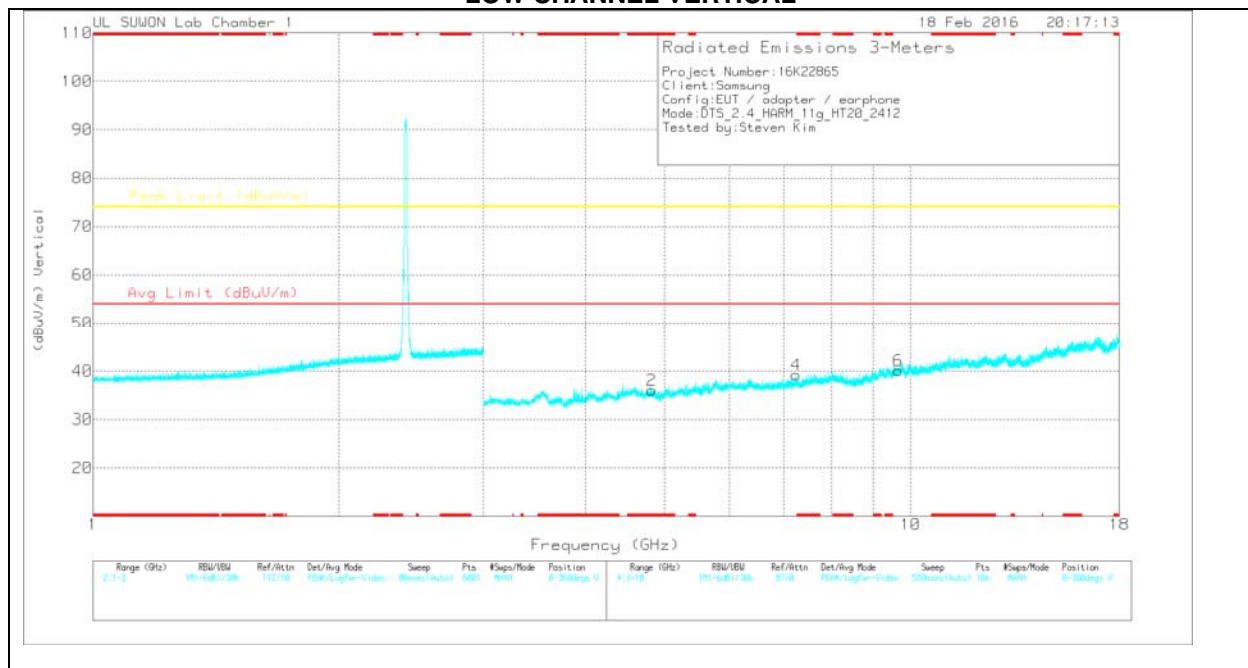
RMS - RMS detection

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

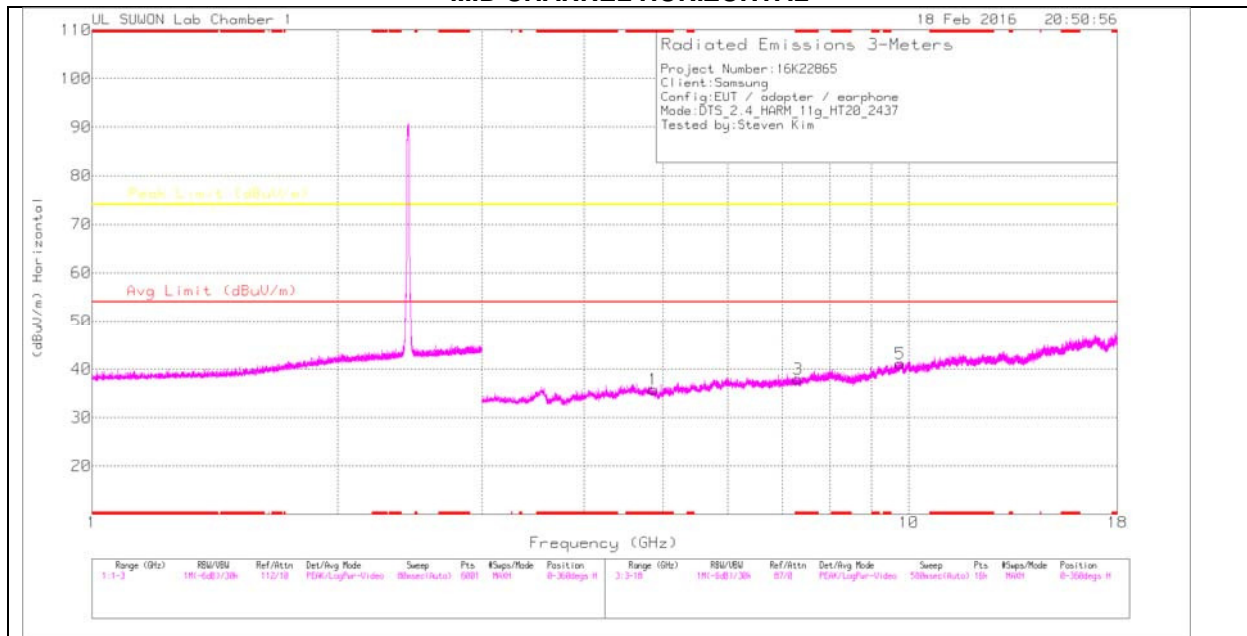
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.827	35.61	PK	34	-33.8	0	35.81	-	-	74	-38.19	0-360	100	H
3	7.231	33.43	PK	35.7	-31	0	38.13	-	-	74	-35.87	0-360	200	H
5	9.652	30.57	PK	37.1	-27.4	0	40.27	-	-	74	-33.73	0-360	200	H
2	* 4.825	35.83	PK	34	-33.8	0	36.03	-	-	74	-37.97	0-360	200	V
4	7.235	34.37	PK	35.7	-30.9	0	39.17	-	-	74	-34.83	0-360	100	V
6	9.652	30.4	PK	37.1	-27.4	0	40.1	-	-	74	-33.9	0-360	200	V

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

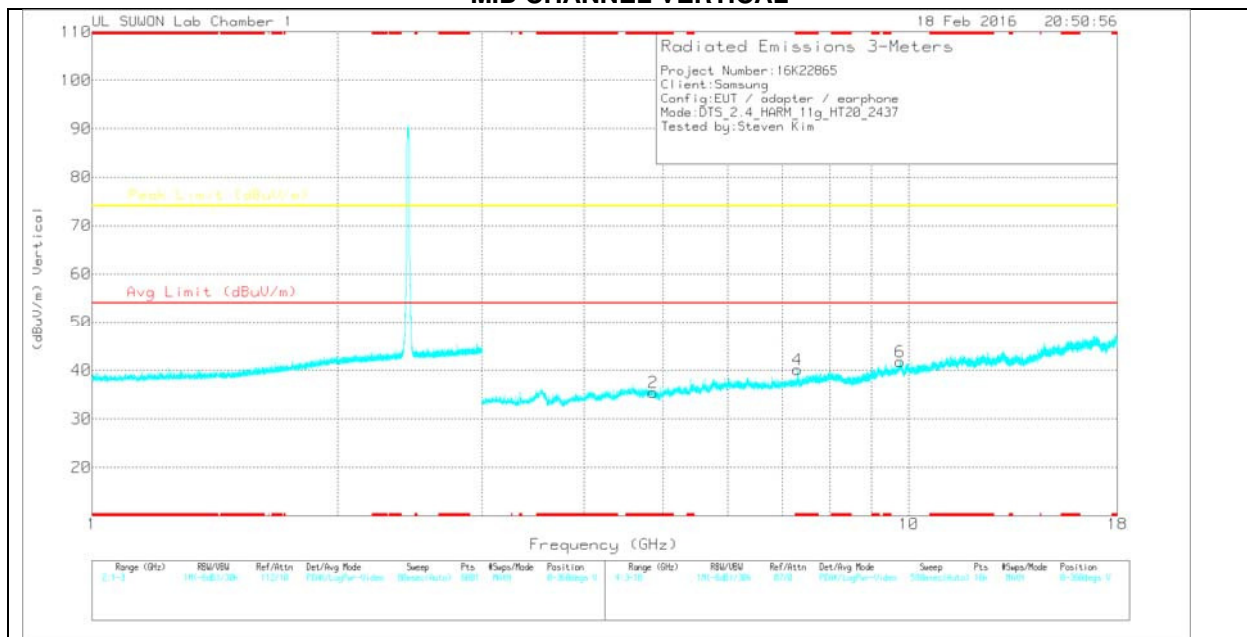
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	3117(001687 17)_150619	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
1	* 4.864	35.86	PK	34	-34	0	35.86	-	-	74	-38.14	0-360	100	H
3	* 7.314	33.06	PK	35.8	-30.9	0	37.96	-	-	74	-36.04	0-360	100	H
5	9.758	30.62	PK	37.2	-26.7	0	41.12	-	-	74	-32.88	0-360	200	H
2	* 4.867	35.41	PK	34	-34	0	35.41	-	-	74	-38.59	0-360	200	V
4	* 7.308	35.32	PK	35.7	-30.9	0	40.12	-	-	74	-33.88	0-360	100	V
6	9.751	31.31	PK	37.2	-26.8	0	41.71	-	-	74	-32.29	0-360	200	V

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

PK – Peak detector

Radiated Emissions

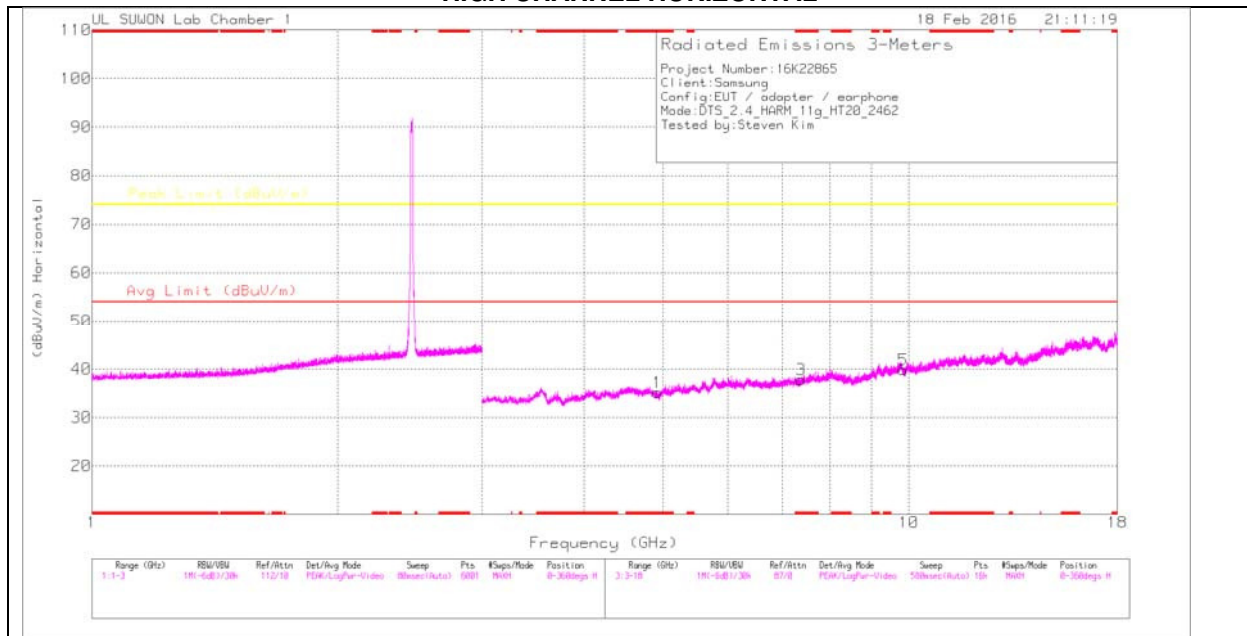
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001 68717)_1 50619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.313	46.57	PK2	35.8	-30.9	0	51.47	-	-	74	-22.53	15	103	V
* 7.311	33.35	MAv1	35.7	-30.9	.3	38.45	54	-15.55	-	-	15	103	V

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

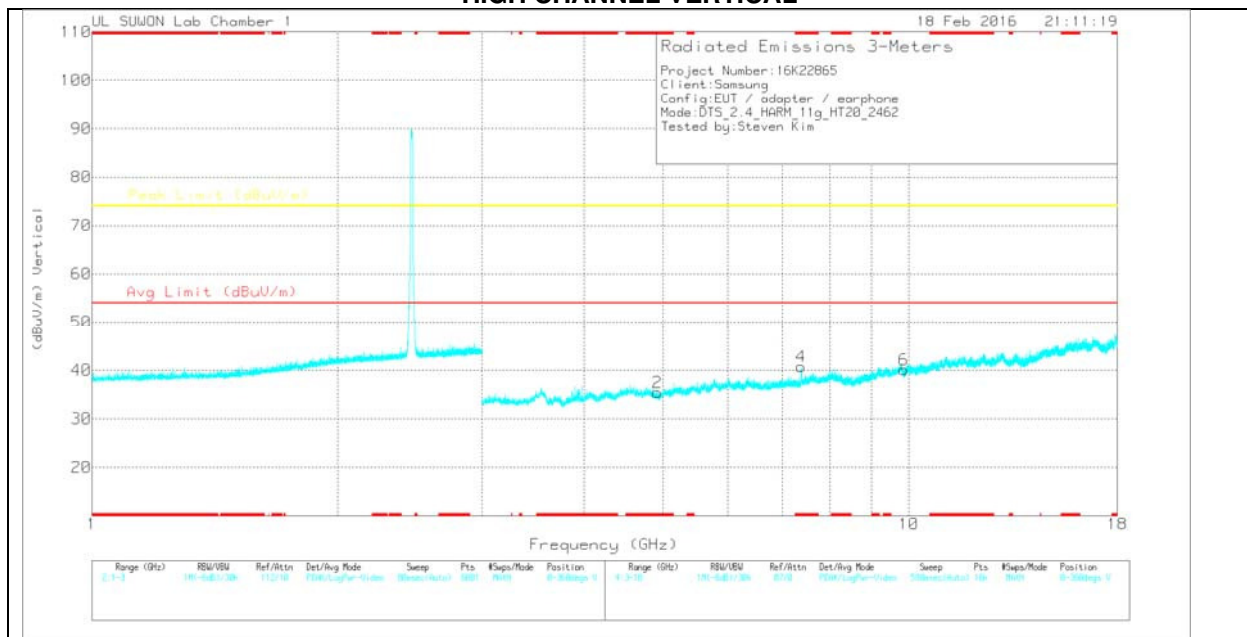
PK2 - KDB558074 Method: Maximum Peak

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	3117(00168717)_150619	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
1	* 4.926	35.16	PK	34	-34	0	35.16	-	-	74	-38.84	0-360	200	H
3	* 7.383	32.83	PK	35.8	-30.8	0	37.83	-	-	74	-36.17	0-360	200	H
5	9.846	30.18	PK	37.3	-27.6	0	39.88	-	-	74	-34.12	0-360	100	H
2	* 4.926	35.4	PK	34	-34	0	35.4	-	-	74	-38.6	0-360	100	V
4	* 7.385	35.69	PK	35.8	-30.7	0	40.79	-	-	74	-33.21	0-360	100	V
6	9.851	30.56	PK	37.3	-27.7	0	40.16	-	-	74	-33.84	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	3117(00168717)_150619	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
* 7.385	46.84	PK2	35.8	-30.7	0	51.94	-	-	74	-22.06	23	103	V
* 7.386	31.01	MAv1	35.8	-30.7	.3	36.41	54	-17.59	-	-	23	103	V

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

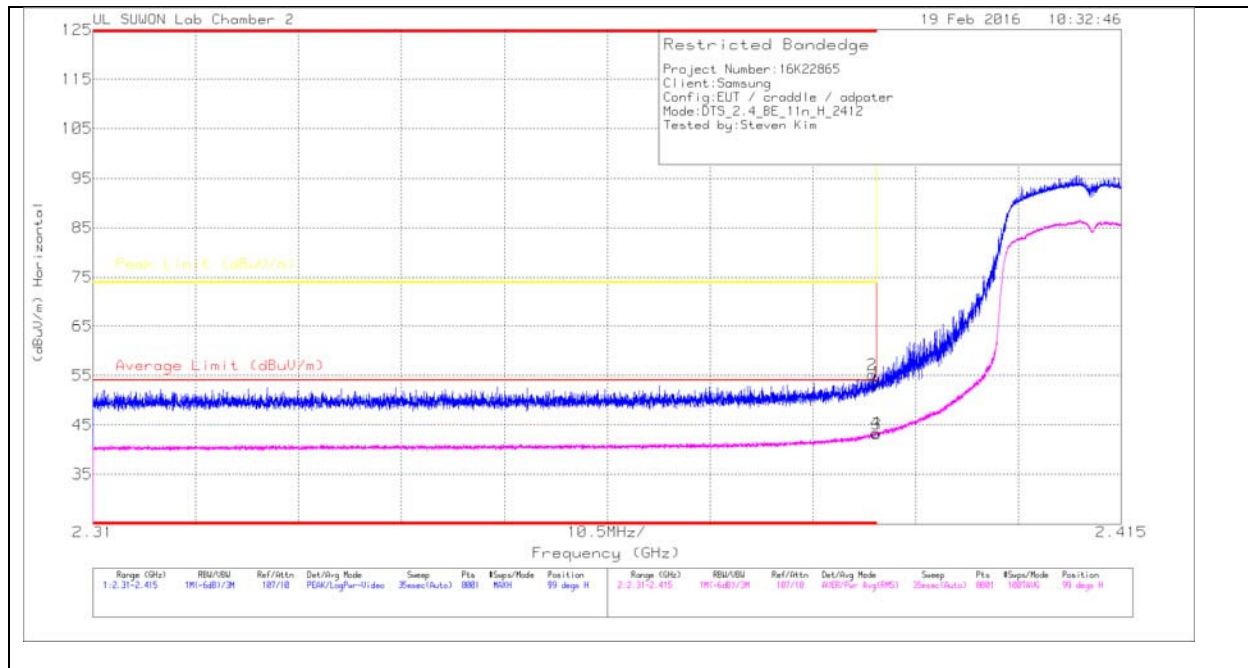
PK2 - KDB558074 Method: Maximum Peak

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

Trace Markers

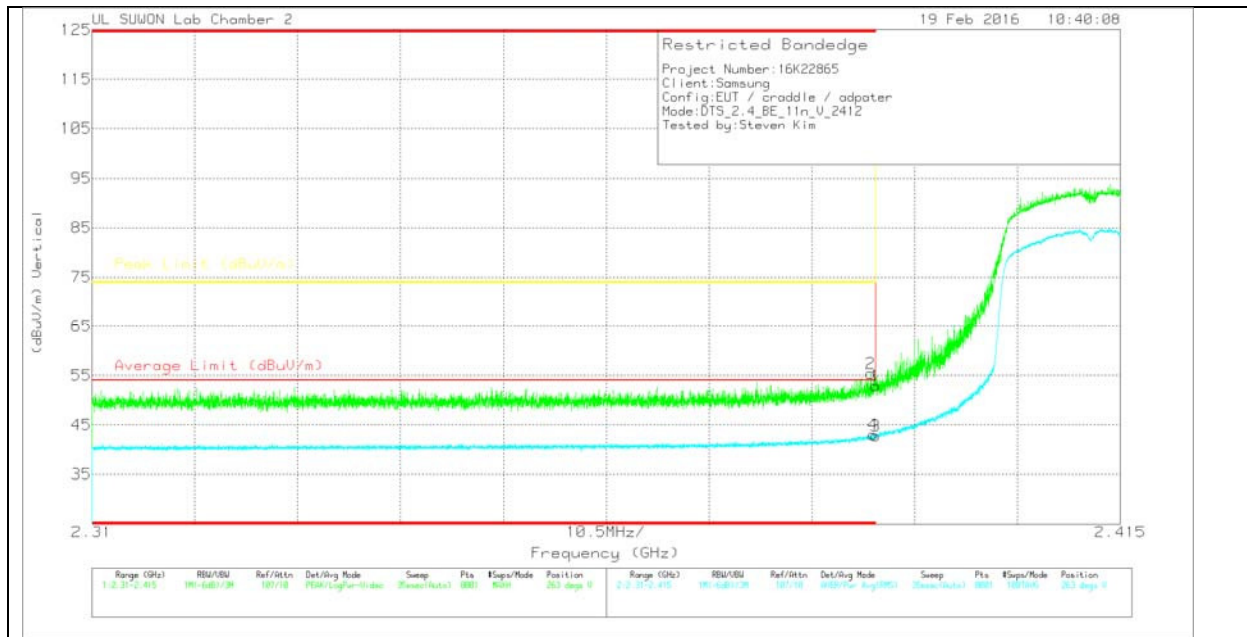
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.49	Pk	31.7	-19.5	0	53.69	-	-	74	-20.31	99	298	H
2	* 2.39	42.92	Pk	31.7	-19.5	0	55.12	-	-	74	-18.88	99	298	H
3	* 2.39	30.62	RMS	31.7	-19.5	.32	43.14	54	-10.86	-	-	99	298	H
4	* 2.39	30.91	RMS	31.7	-19.5	.32	43.43	54	-10.57	-	-	99	298	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	40.68	Pk	31.7	-19.5	0	52.88	-	-	74	-21.12	263	158	V
2	* 2.39	43.25	Pk	31.7	-19.5	0	55.45	-	-	74	-18.55	263	158	V
3	* 2.39	30.24	RMS	31.7	-19.5	.32	42.76	54	-11.24	-	-	263	158	V
4	* 2.39	30.51	RMS	31.7	-19.5	.32	43.03	54	-10.97	-	-	263	158	V

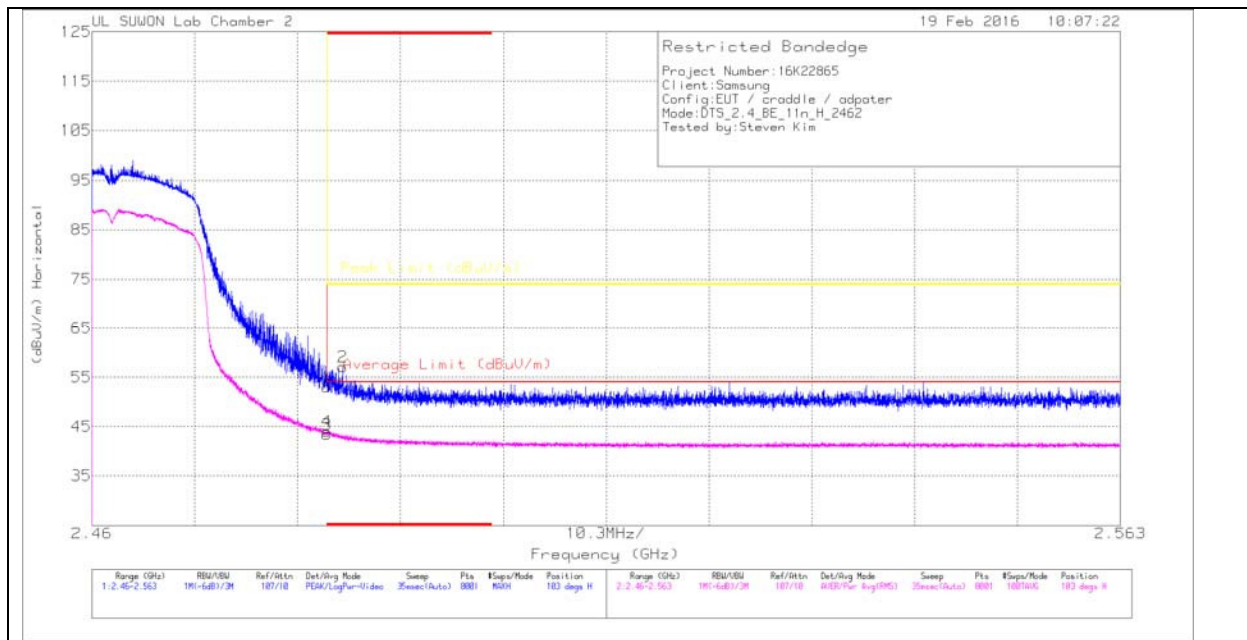
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

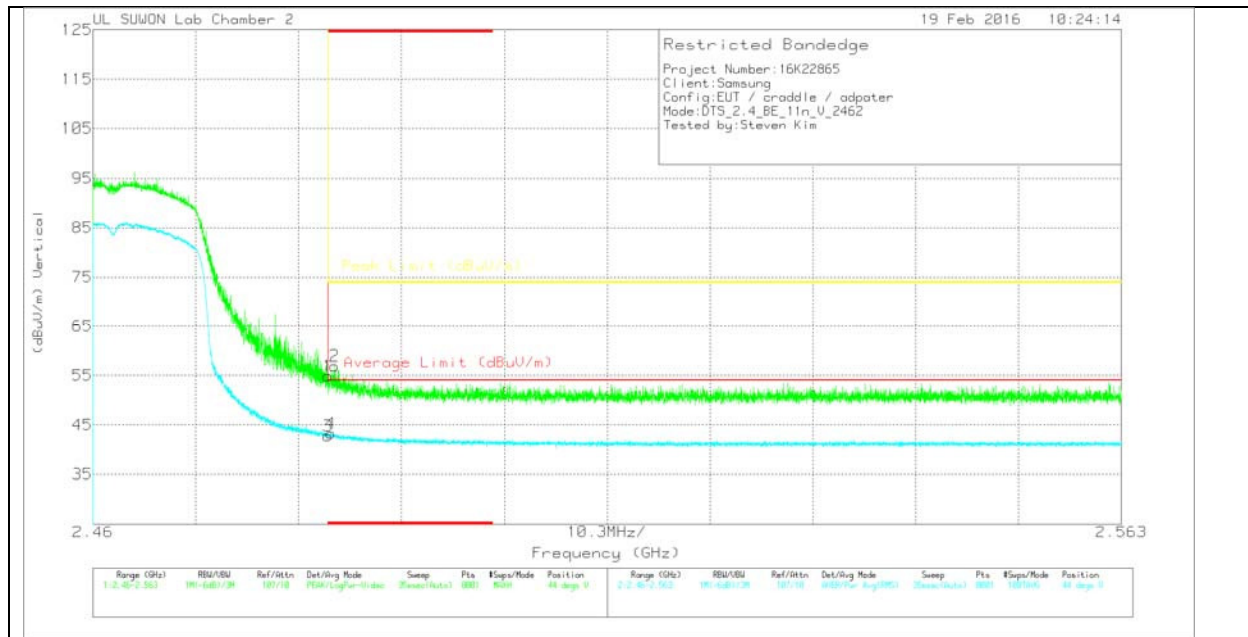
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	Path_2_10dB	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.68	Pk	31.8	-19.4	0	53.08	-	-	74	-20.92	103	290	H
2	* 2.485	44.72	Pk	31.8	-19.4	0	57.12	-	-	74	-16.88	103	290	H
3	* 2.484	30.72	RMS	31.8	-19.4	.32	43.44	54	-10.56	-	-	103	290	H
4	* 2.484	31.27	RMS	31.8	-19.4	.32	43.99	54	-10.01	-	-	103	290	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	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	42.46	Pk	31.8	-19.4	0	54.86	-	-	74	-19.14	44	345	V
2	* 2.484	44.54	Pk	31.8	-19.4	0	56.94	-	-	74	-17.06	44	345	V
3	* 2.484	30.1	RMS	31.8	-19.4	.32	42.82	54	-11.18	-	-	44	345	V
4	* 2.484	30.61	RMS	31.8	-19.4	.32	43.33	54	-10.67	-	-	44	345	V

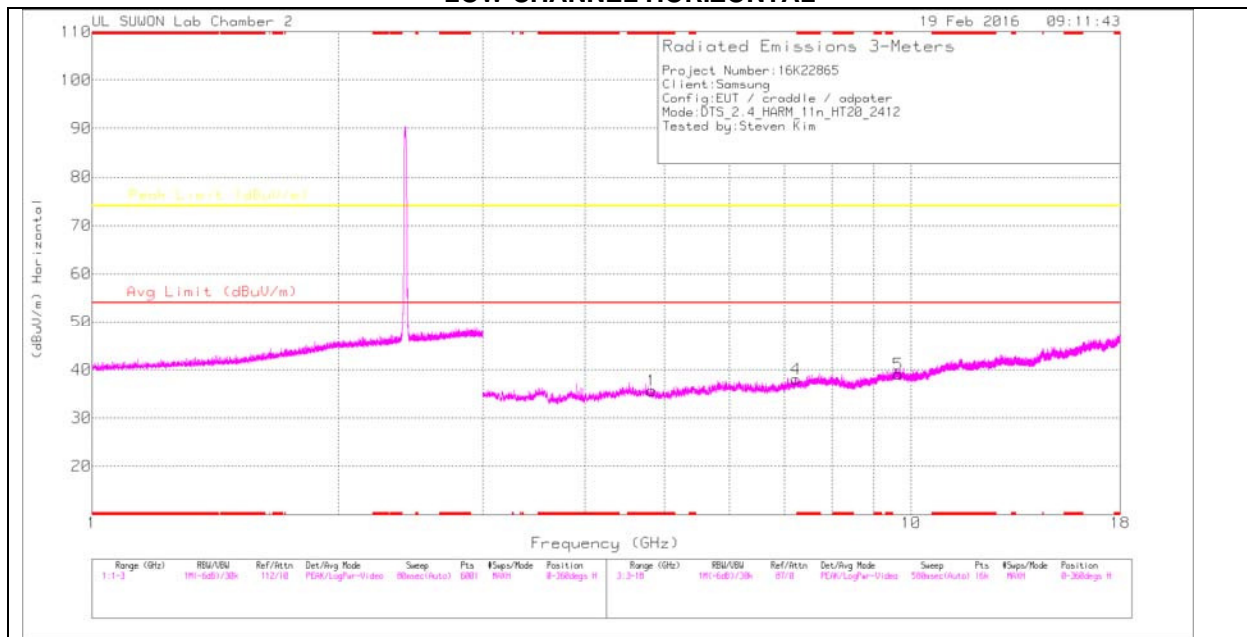
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

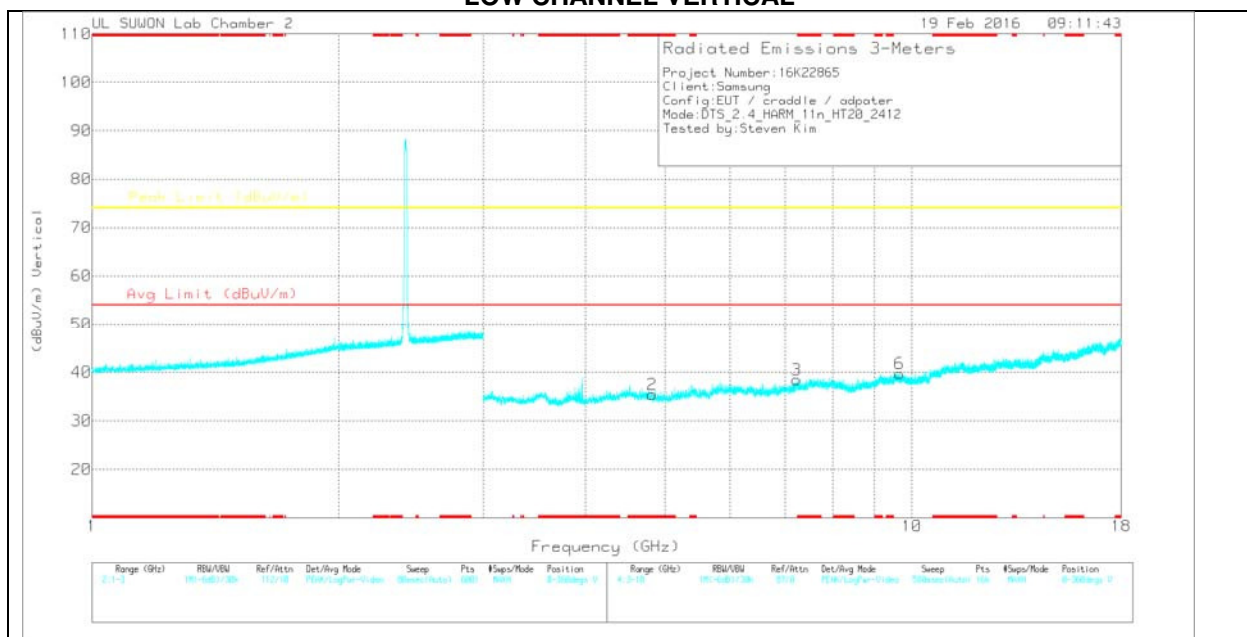
RMS - RMS detection

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

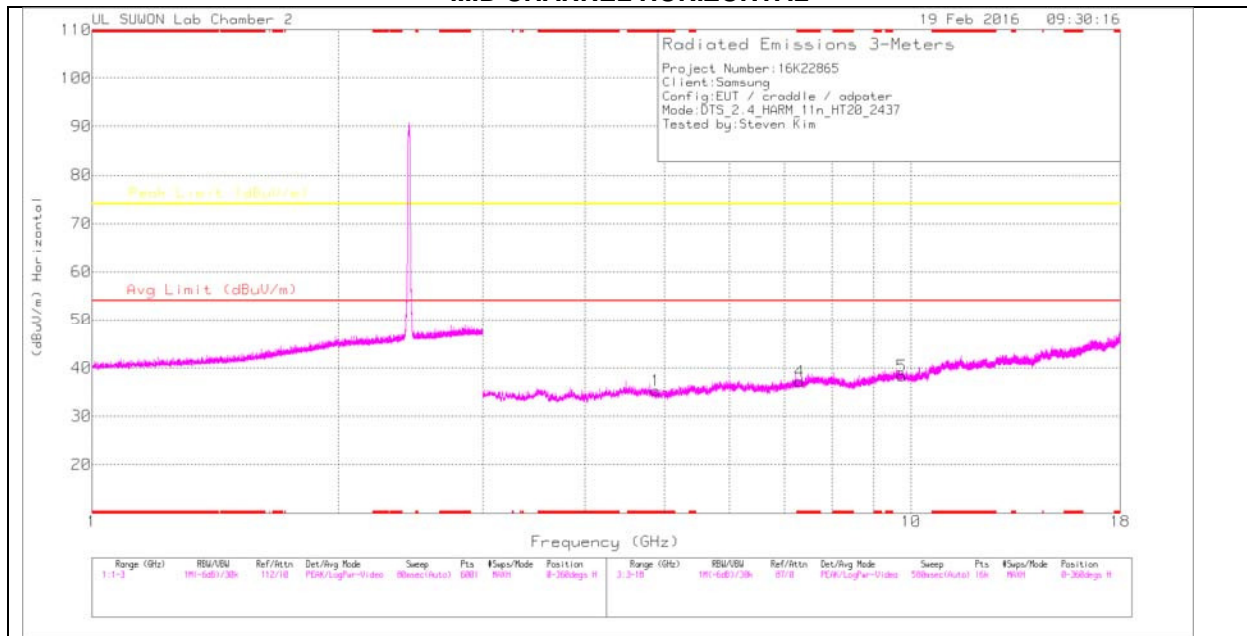
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016872 4)_150619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.822	27.08	PK	33.9	-25.3	0	35.68	-	-	74	-38.32	0-360	100	H
4	7.229	25.3	PK	35.8	-23	0	38.1	-	-	74	-35.9	0-360	200	H
5	9.647	21.19	PK	36.9	-19	0	39.09	-	-	74	-34.91	0-360	200	H
2	* 4.819	26.86	PK	33.9	-25.3	0	35.46	-	-	74	-38.54	0-360	200	V
3	7.234	25.72	PK	35.8	-23	0	38.52	-	-	74	-35.48	0-360	200	V
6	9.649	21.87	PK	36.9	-19	0	39.77	-	-	74	-34.23	0-360	200	V

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

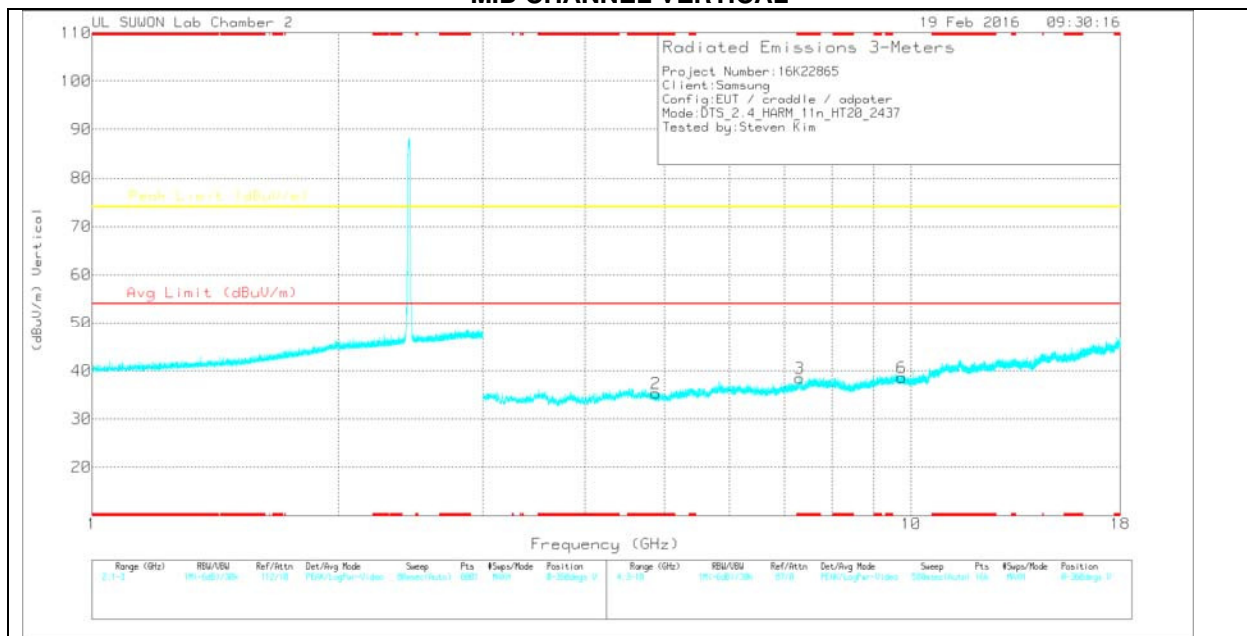
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

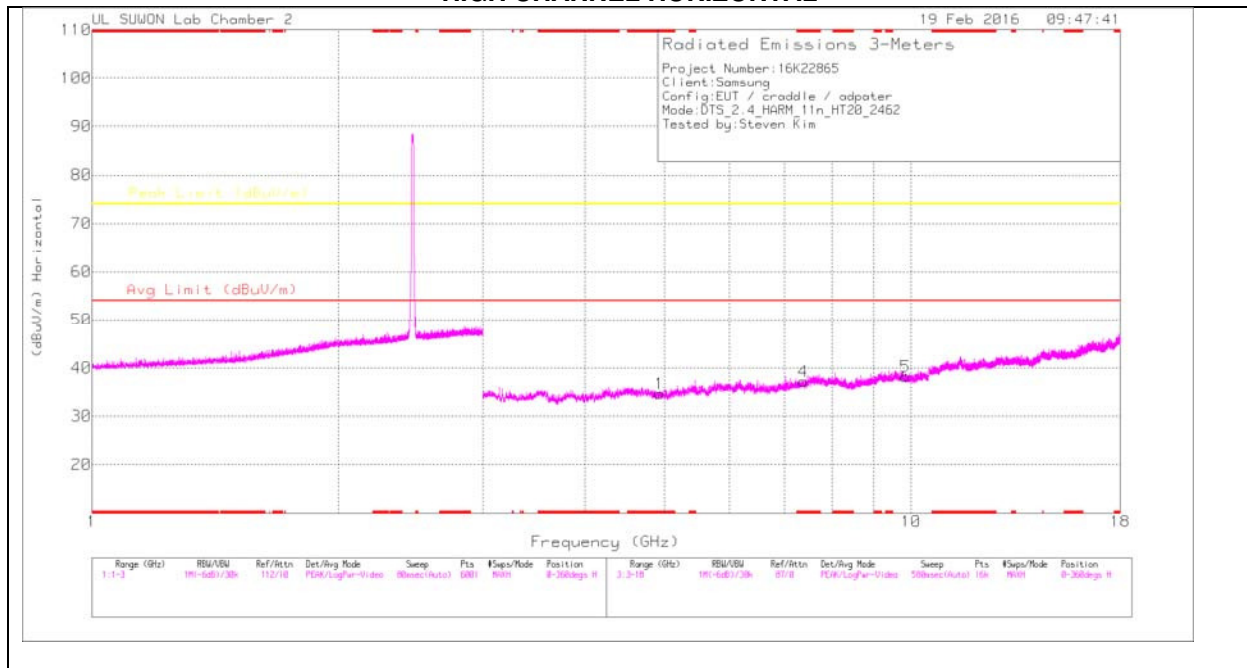
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016872 4)_150619	Path_3	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.877	26.59	PK	33.9	-25.2	0	35.29	-	-	74	-38.71	0-360	100	H
4	* 7.307	23.94	PK	35.9	-22.6	0	37.24	-	-	74	-36.76	0-360	100	H
5	9.748	20.67	PK	37	-19.3	0	38.37	-	-	74	-35.63	0-360	200	H
2	* 4.881	26.6	PK	33.9	-25.2	0	35.3	-	-	74	-38.7	0-360	200	V
3	* 7.31	25.14	PK	35.9	-22.6	0	38.44	-	-	74	-35.56	0-360	100	V
6	9.744	20.94	PK	37	-19.3	0	38.64	-	-	74	-35.36	0-360	100	V

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

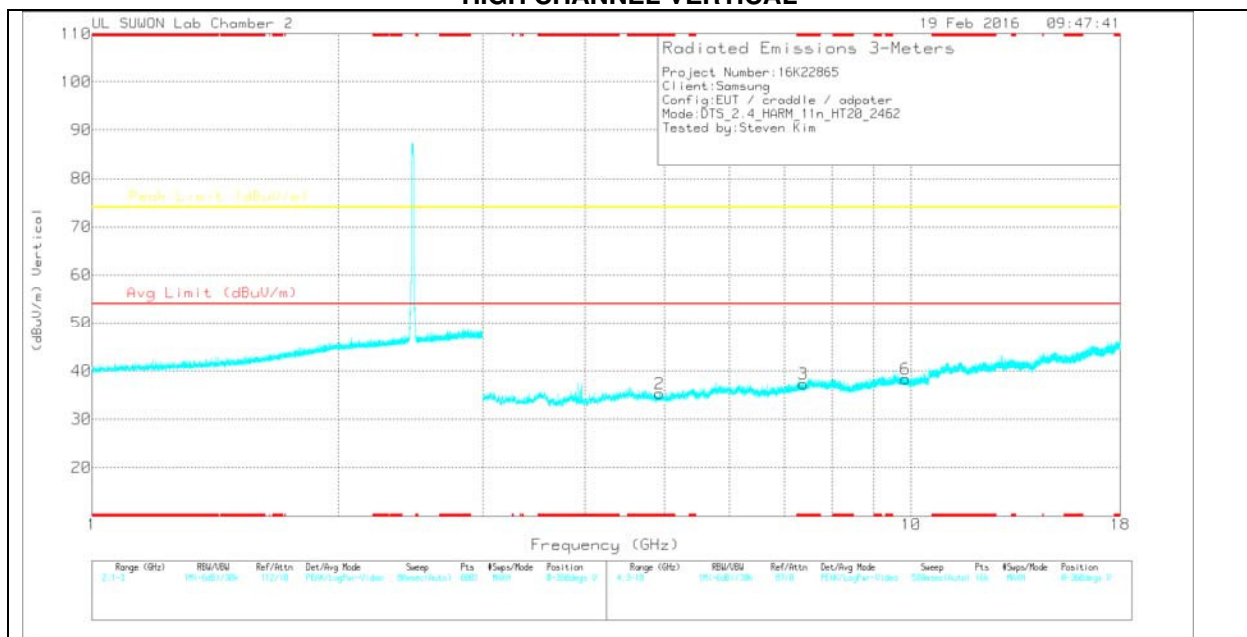
PK – Peak detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	3117(0016872 4)_150619	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
1	* 4.928	25.87	PK	33.9	-25.1	0	34.67	-	-	74	-39.33	0-360	100	H
4	* 7.383	23.45	PK	35.9	-22.2	0	37.15	-	-	74	-36.85	0-360	100	H
5	9.845	20.27	PK	37.1	-19.2	0	38.17	-	-	74	-35.83	0-360	100	H
2	* 4.928	26.49	PK	33.9	-25.1	0	35.29	-	-	74	-38.71	0-360	200	V
3	* 7.385	23.6	PK	35.9	-22.2	0	37.3	-	-	74	-36.7	0-360	200	V
6	9.848	20.47	PK	37.1	-19.2	0	38.37	-	-	74	-35.63	0-360	200	V

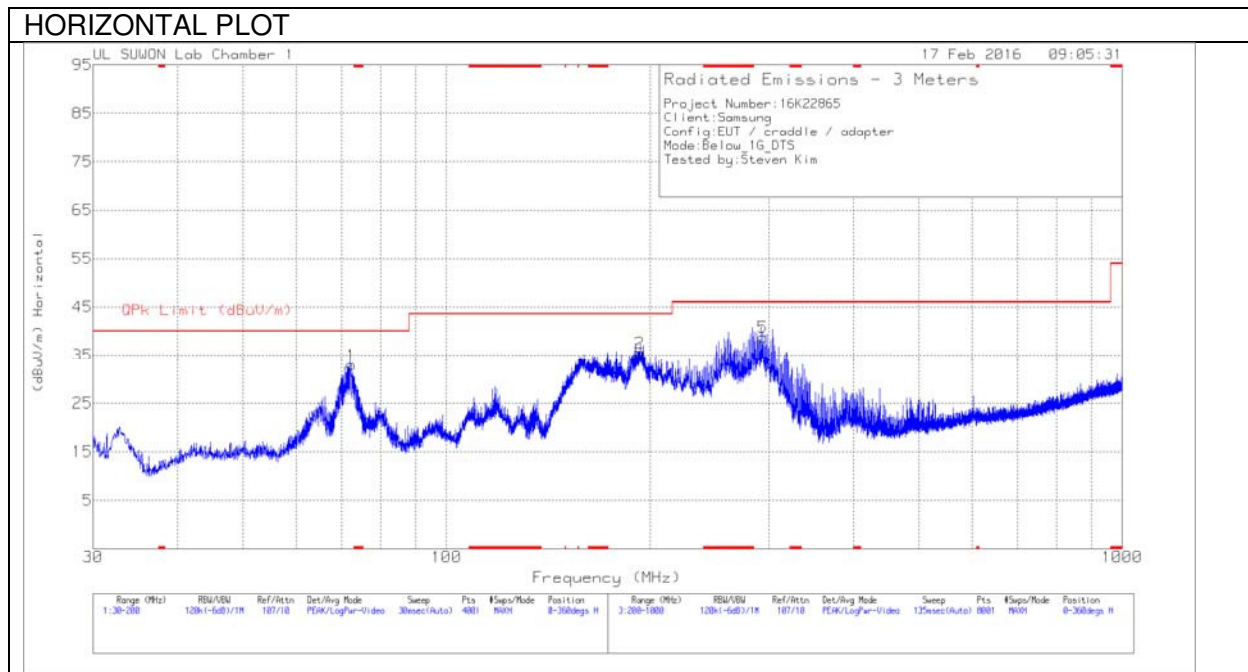
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak detector

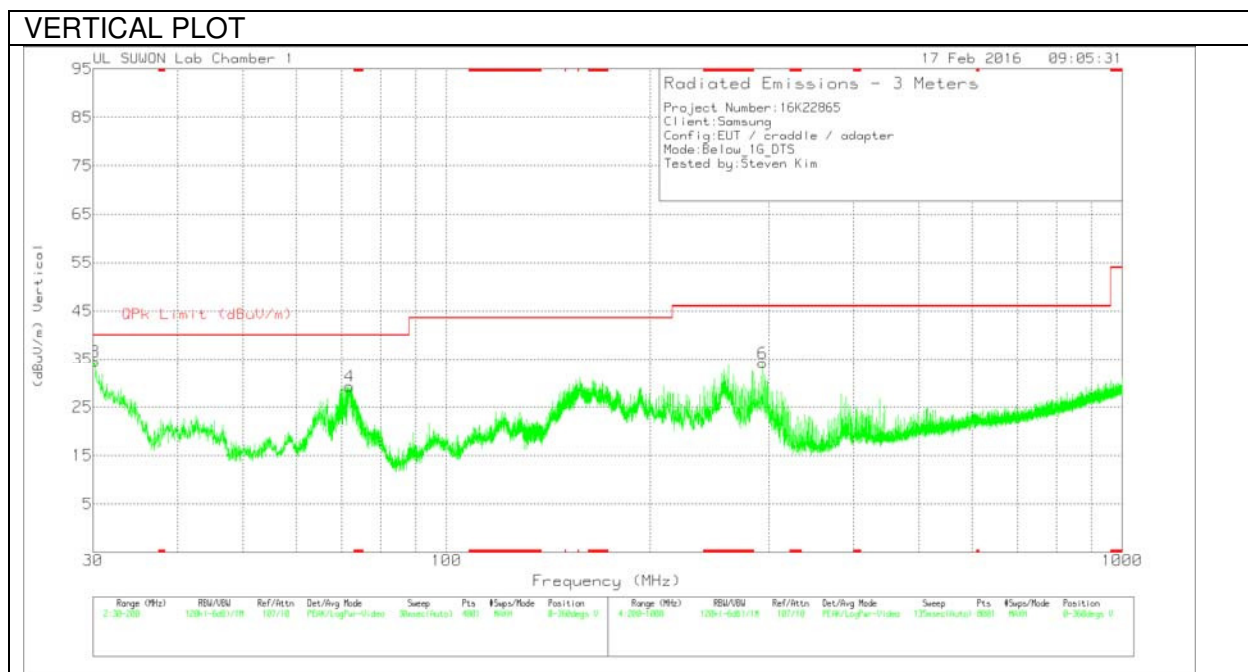
Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

Trace Markers

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	72.33	53.61	Pk	9	-29.7	0	32.91	40	-7.09	0-360	300	H
2	193.2	52.97	Pk	10.7	-28.2	0	35.47	43.52	-8.05	0-360	200	H
3	30.17	54.73	Pk	10.3	-30.5	0	34.53	40	-5.47	0-360	100	V
4	71.82	49.94	Pk	9.1	-29.7	0	29.34	40	-10.66	0-360	300	V
5	293.9	53.08	Pk	13.2	-27.5	0	38.78	46.02	-7.24	0-360	101	H
6	293.9	48.5	Pk	13.2	-27.5	0	34.2	46.02	-11.82	0-360	101	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 C63.10 2009.

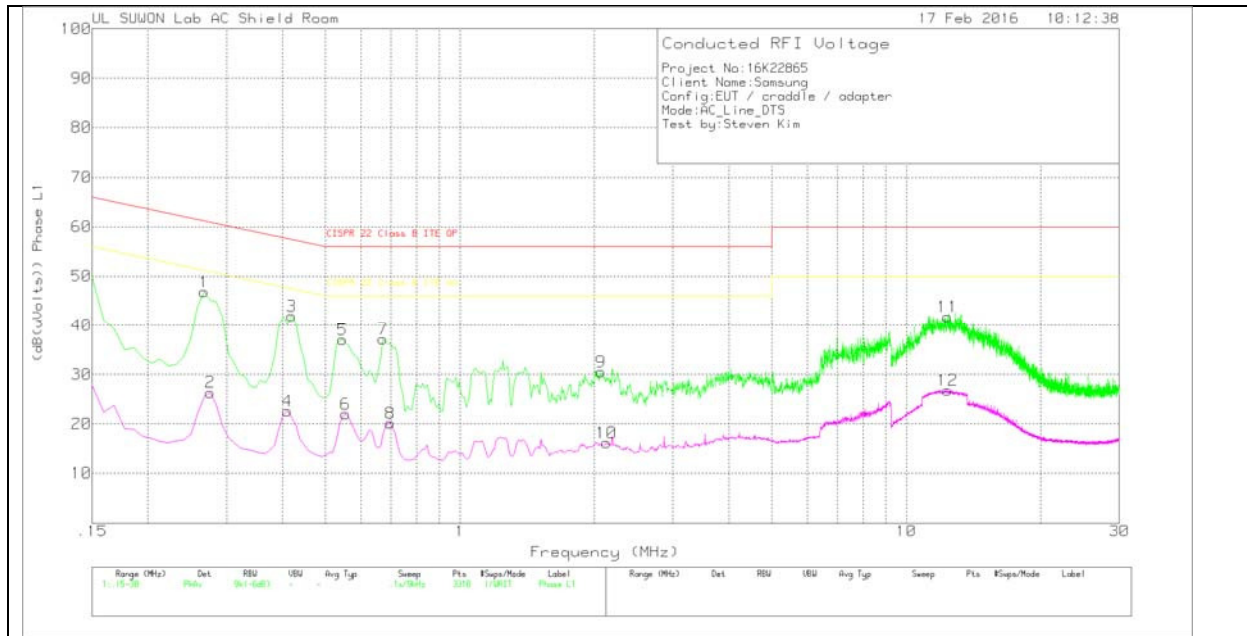
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

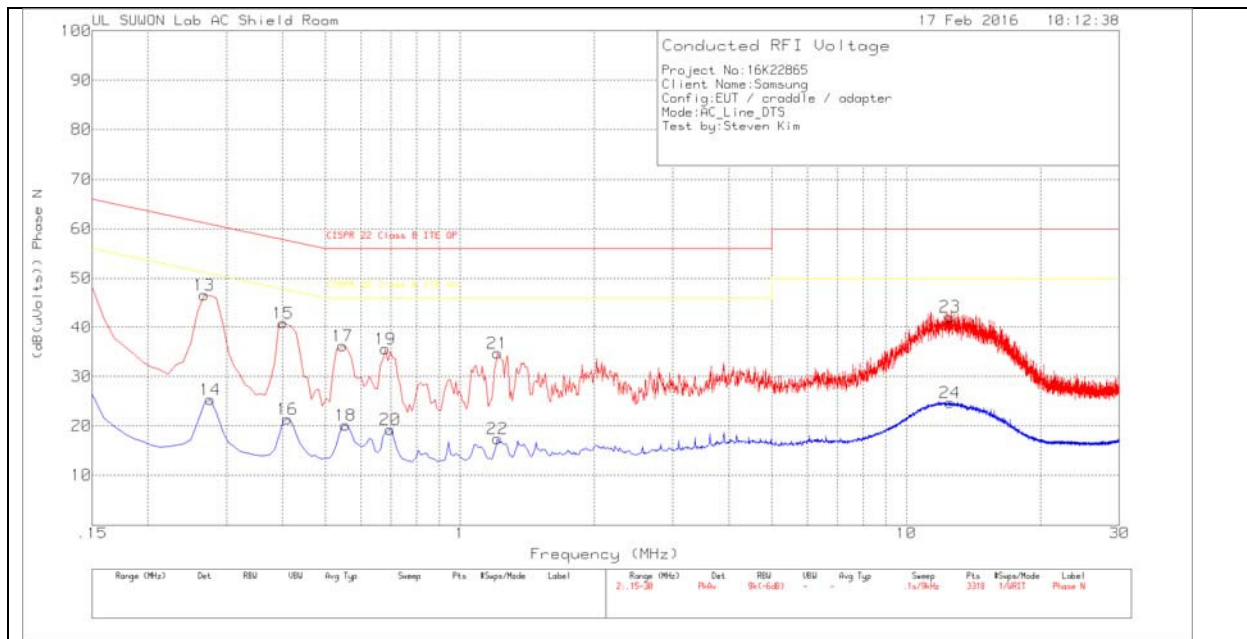
Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex- cord_L1	CE Shield Room	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.267	37.07	Pk	9.8	0	46.87	61.21	-14.34	-	-
2	.276	16.58	Av	9.8	0	26.38	-	-	50.94	-24.56
3	.42	31.83	Pk	10.1	0	41.93	57.45	-15.52	-	-
4	.411	12.48	Av	10.1	0	22.58	-	-	47.63	-25.05
5	.546	26.94	Pk	10.1	0	37.04	56	-18.96	-	-
6	.555	11.85	Av	10.1	0	21.95	-	-	46	-24.05
7	.672	27.06	Pk	10.1	0	37.16	56	-18.84	-	-
8	.699	10.02	Av	10.1	0	20.12	-	-	46	-25.88
9	2.067	20.58	Pk	9.8	.1	30.48	56	-25.52	-	-
10	2.13	6.26	Av	9.8	.1	16.16	-	-	46	-29.84
11	12.372	31.43	Pk	10.1	.2	41.73	60	-18.27	-	-
12	12.381	16.55	Av	10.1	.2	26.85	-	-	50	-23.15

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex- cord_N	CE Shield Room	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.267	36.81	Pk	9.8	0	46.61	61.21	-14.6	-	-
14	.276	15.54	Av	9.8	0	25.34	-	-	50.94	-25.6
15	.402	30.84	Pk	10.1	0	40.94	57.81	-16.87	-	-
16	.411	11.3	Av	10.1	0	21.4	-	-	47.63	-26.23
17	.546	26.09	Pk	10.1	0	36.19	56	-19.81	-	-
18	.555	9.98	Av	10.1	0	20.08	-	-	46	-25.92
19	.681	25.6	Pk	10	0	35.6	56	-20.4	-	-
20	.699	9.23	Av	10	0	19.23	-	-	46	-26.77
21	1.212	24.8	Pk	9.8	.1	34.7	56	-21.3	-	-
22	1.212	7.56	Av	9.8	.1	17.46	-	-	46	-28.54
23	12.543	31.81	Pk	10.2	.2	42.21	60	-17.79	-	-
24	12.516	14.35	Av	10.2	.2	24.75	-	-	50	-25.25

Pk - Peak detector

Av - Average detection