



FCC CFR47 PART 15 SUBPART C

DTS Wireless LAN

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER : SM-Z400Y

FCC ID: A3LSMZ400Y

REPORT NUMBER: 4787873640-E1V1

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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: LTE Phone + Bluetooth/BLE and DTS b/g/n
MODEL NUMBER: SM-Z400Y
SERIAL NUMBER: R38J10147LK (RADIATED, Original model);
R38J208T1LJ (CONDUCTED, Original model)
R38J20AXXYA(RADIATED. A3LSMZ400Y);
DATE TESTED: FEB 14, 2017 - FEB 28, 2017 (Original Test)
MAR 10, 2017 – MAR 17, 2017 (A3LSMZ400Y)

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.

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Tested By:



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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMZ400F, DTS WLAN(FCC CFR 47 Part 15C). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMZ400Y shares the same enclosure and circuit board as FCC ID: A3LSMTZ400F. The WLAN circuitry and layout are identical between these two units. The WLAN antennas and surrounding circuitry are the same between these two units.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMZ400F remains representative of FCC ID: A3LSMZ400Y. The test data of FCC ID: A3LSMZ400F being submitted for this application to cover WLAN features.

1.3. SPOT CHECK VERIFICATION DATA

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-Z400F Results	SM-Z400Y Results		
					FCC ID : A3LSMZ400F	FCC ID : A3LSMZ400Y		
DTS WLAN (2.4GHz)	Band Edge	802.11b	2462 MHz	54 dBuV/m	45.26 dBuV/m	45.23 dBuV/m	-0.03 dBc	
	RSE	802.11b	2412 MHz	54 dBuV/m	44.83 dBuV/m	43.79 dBuV/m	-1.04 dBc	2nd Harmonic
	Band Edge	802.11g	2462 MHz	54 dBuV/m	49.94 dBuV/m	47.2 dBuV/m	-2.74 dBc	
	Band Edge	802.11g	2472 MHz	54 dBuV/m	50.15 dBuV/m	47.67 dBuV/m	-2.48 dBc	
	RSE	802.11g	2437 MHz	74 dBuV/m	39.66 dBuV/m	40.34 dBuV/m	0.68 dBc	Noise floor level (both data)
	Band Edge	802.11n	2462 MHz	54 dBuV/m	50.26 dBuV/m	46.81 dBuV/m	-3.45 dBc	
	RSE	802.11n	2412 MHz	74 dBuV/m	39.74 dBuV/m	39.76 dBuV/m	0.02 dBc	Noise floor level (both data)

Comparison of two models, higher deviation is within 3dB range and all test results are under FCC Technical Limits.

1.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Title / Section
DTS	A3LSMZ400F	Grant	4787852400-E1V1	Test	FCC Report DTS WLAN All sections
			4787852400-S1V1	RF Exposure	FCC Report SAR / Section 9.2, 10.2
DSS	A3LSMZ400F	Grant	4787852400-E3V1	Test	FCC Report BT / All sections
			4787852400-S1V1	RF Exposure	FCC Report SAR / Section 9.3, 10.3
PCE	A3LSMZ400F	Grant	4787852400-E4V1	Test	FCC Report WWAN / All sections
			4787852400-S1V1	RF Exposure	FCC Report SAR / Section 9.1, 10.1

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v03r05.
4. ANSI C63.10-2013.

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
<input checked="" type="checkbox"/> Chamber 1
<input checked="" 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 LTE Phone + 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 average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2472	802.11b	16.91	49.09
	802.11g	13.96	24.89
	802.11n HT20	12.82	19.14

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antennas, with a antenna's maximum gain of 0.91 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

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-TA60EBE	R37H81V 01Y2HM3	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

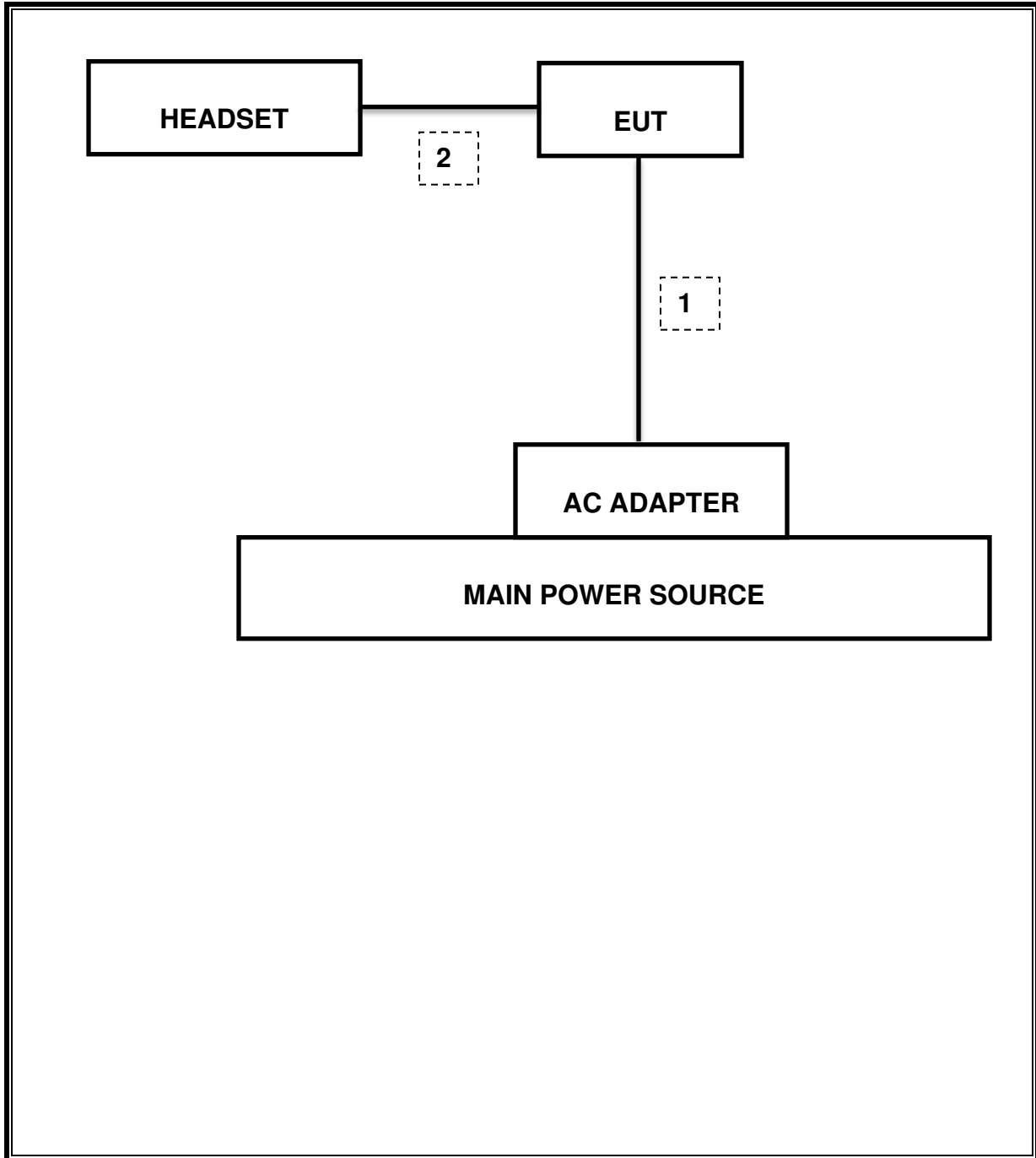
I/O CABLES

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	1.0m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.5m	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	10-14-18
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-25-17
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18
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	11-30-17
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	12-15-17
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-17-17
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-16-17
Preamplifier	ETS	3115-PA	00167475	08-17-17
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-16-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-17-17
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	08-17-17
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17
Average Power Sensor	R&S	NRP-Z91	102681	08-16-17
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-16-17
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-16-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-17-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-16-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-17-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-16-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	009	08-17-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	016	08-16-17
LISN	R&S	ENV-216	101836	08-16-17
LISN	R&S	ENV-216	101837	08-16-17
Attenuator	PASTERNAK	PE7087-10	A007	08-17-17
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

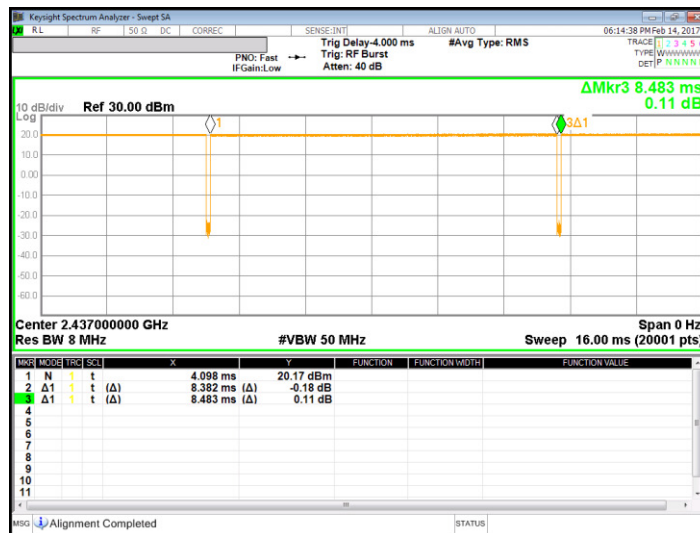
7. REFERENCE MEASUREMENT RESULTS

7.1. ON TIME AND DUTY CYCLE RESULTS

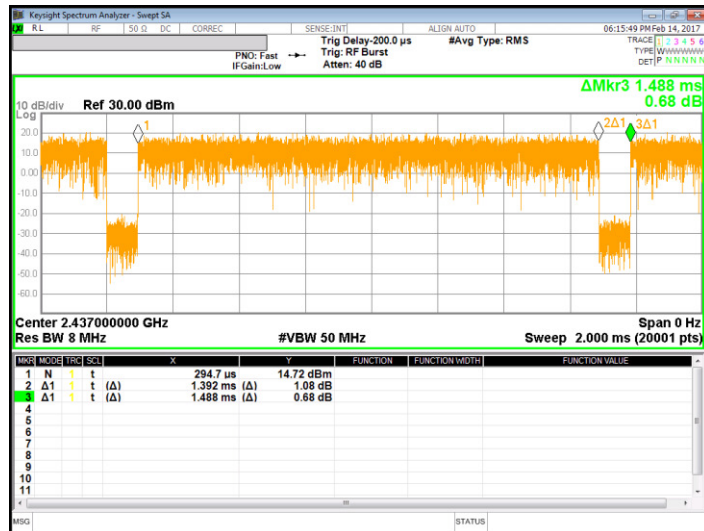
LIMITS

None; for reporting purposes only.

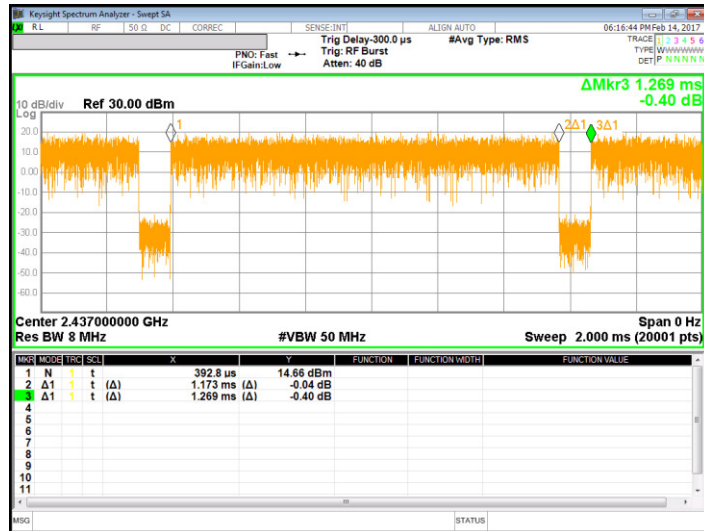
Mode	ON Time B [msec]	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2400MHz Bands						
802.11b	8.382	8.483	0.988	98.8%	0.00	0.010
802.11g	1.392	1.488	0.935	93.5%	0.29	0.718
802.11n HT20	1.173	1.269	0.924	92.4%	0.34	0.853



[802.11b]



[802.11g]



[802.11n]

8. 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	9.081 MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-30dBc		Pass	-30.831 dBm
15.247	TX conducted output power	<30dBm		Pass	16.91 dBm
15.247	PSD	<8dBm		Pass	-11.349 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	40.11 dBuV (Pk)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	50.26 dBuV/m (Av)

9. ANTENNA PORT TEST RESULTS

9.1. 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 v03r05: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	9.102	0.5
Mid	2437	9.081	0.5
High	2462	9.084	0.5
12	2467	9.091	0.5
13	2472	9.101	0.5
Worst		9.081	0.5

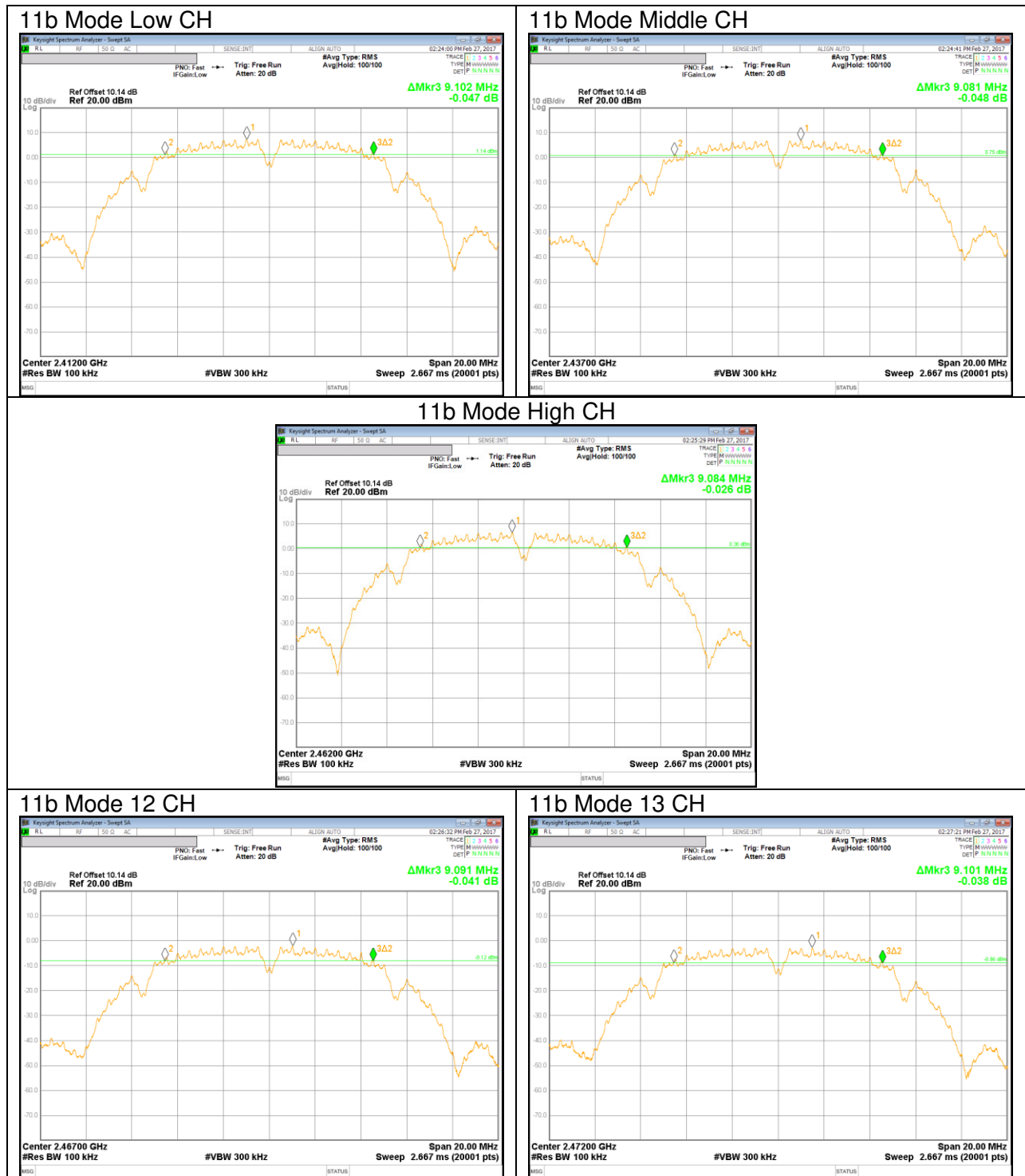
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

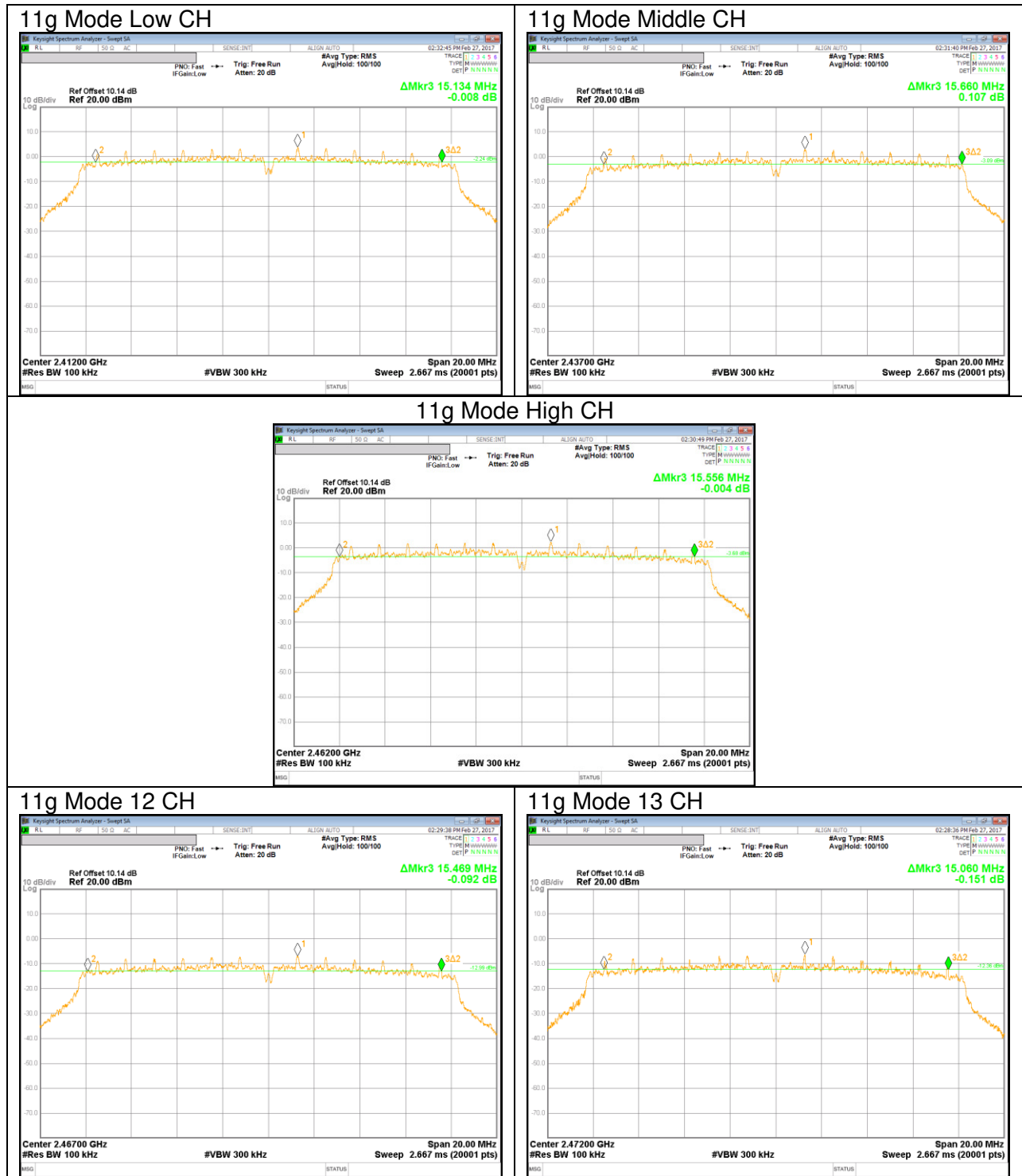
Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.134	0.5
Mid	2437	15.660	0.5
High	2462	15.556	0.5
12	2467	15.469	0.5
13	2472	15.060	0.5
Worst		15.060	0.5

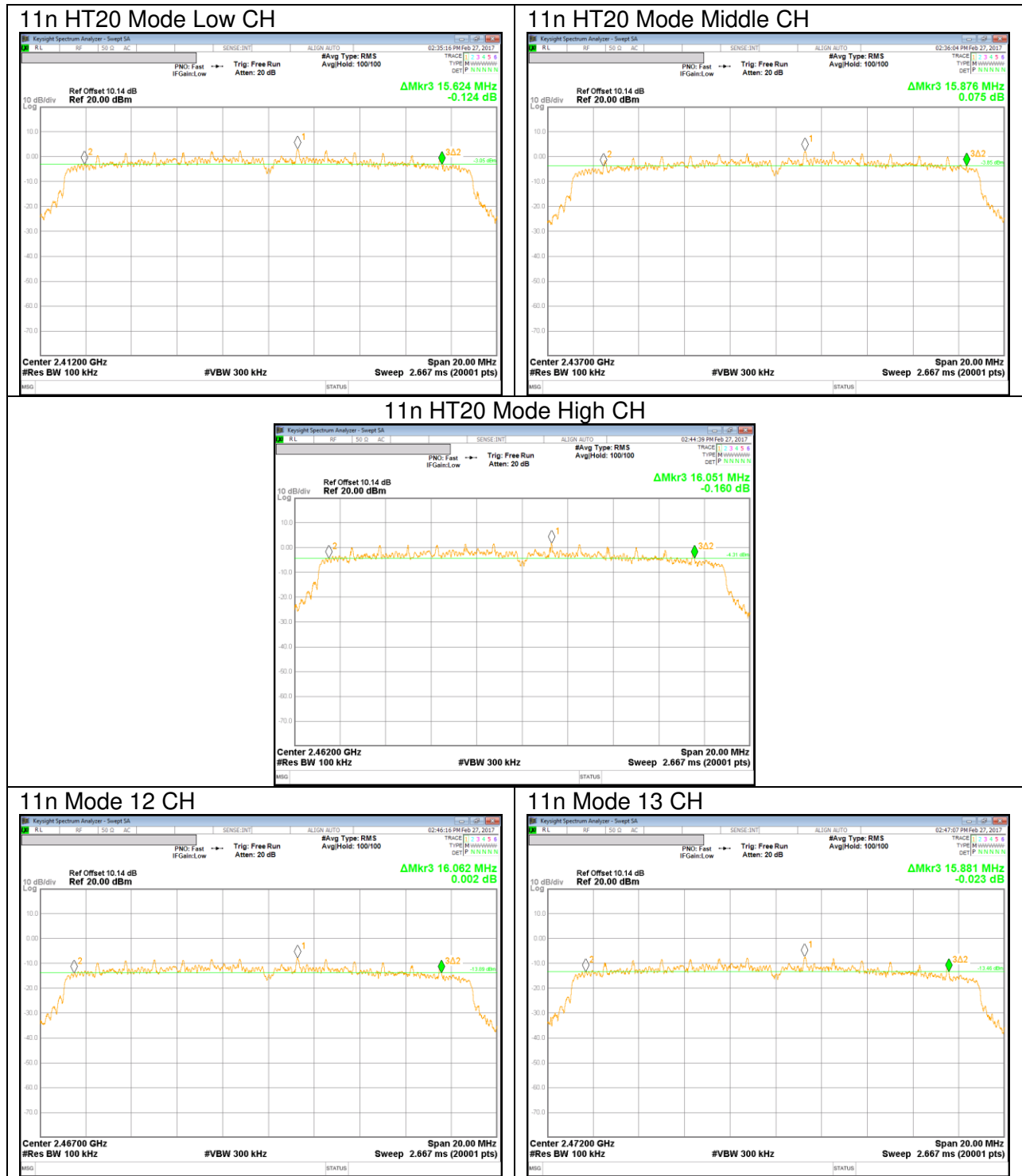
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.624	0.5
Mid	2437	15.876	0.5
High	2462	16.051	0.5
12	2467	16.062	0.5
13	2472	15.881	0.5
Worst		15.624	0.5

9.1.4. 6 dB BANDWIDTH PLOTS







9.2. 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 was entered as an offset in the power meter to allow for direct reading of power.

Output power measurement was performed utilizing the “§9.2.3.1 AVGPM” under KDB558074 D01 DTS Meas Guidance v03r05.

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

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
Low	2412	0.91	30.00	30.00
Mid	2437	0.91	30.00	30.00
High	2462	0.91	30.00	30.00
12	2467	0.91	30.00	30.00
13	2472	0.91	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	16.78	16.78	30.00	-13.22
Mid	2437	16.91	16.91	30.00	-13.09
High	2462	16.45	16.45	30.00	-13.55
12	2467	7.84	7.84	30.00	-22.16
13	2472	7.31	7.31	30.00	-22.69
Worst			16.91	30.00	-13.09

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
Low	2412	0.91	30.00	30.00
Mid	2437	0.91	30.00	30.00
High	2462	0.91	30.00	30.00
12	2467	0.91	30.00	30.00
13	2472	0.91	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	13.61	13.61	30.00	-16.39
Mid	2437	13.96	13.96	30.00	-16.04
High	2462	13.26	13.26	30.00	-16.74
12	2467	3.22	3.22	30.00	-26.78
13	2472	3.57	3.57	30.00	-26.43
Worst			13.96	30.00	-16.04

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
Low	2412	0.91	30.00	30.00
Mid	2437	0.91	30.00	30.00
High	2462	0.91	30.00	30.00
12	2467	0.91	30.00	30.00
13	2472	0.91	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	12.45	12.45	30.00	-17.55
Mid	2437	12.82	12.82	30.00	-17.18
High	2462	12.68	12.68	30.00	-17.32
12	2467	3.35	3.35	30.00	-26.65
13	2472	3.48	3.48	30.00	-26.52
Worst			12.82	30.00	-17.18

9.3. 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 §10.3 AVGPS-1 (802.11 b mode) and §10.5 AVGPS-2(802.11 g/n mode)” under KDB558074 D01 DTS Meas Guidance v03r05.

RESULTS

9.3.1. 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	-12.412	0.00	-12.412	8.00	-20.412
Mid	2437	-12.519	0.00	-12.519	8.00	-20.519
High	2462	-11.349	0.00	-11.349	8.00	-19.349
12	2467	-20.440	0.00	-20.440	8.00	-28.440
13	2472	-21.719	0.00	-21.719	8.00	-29.719

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

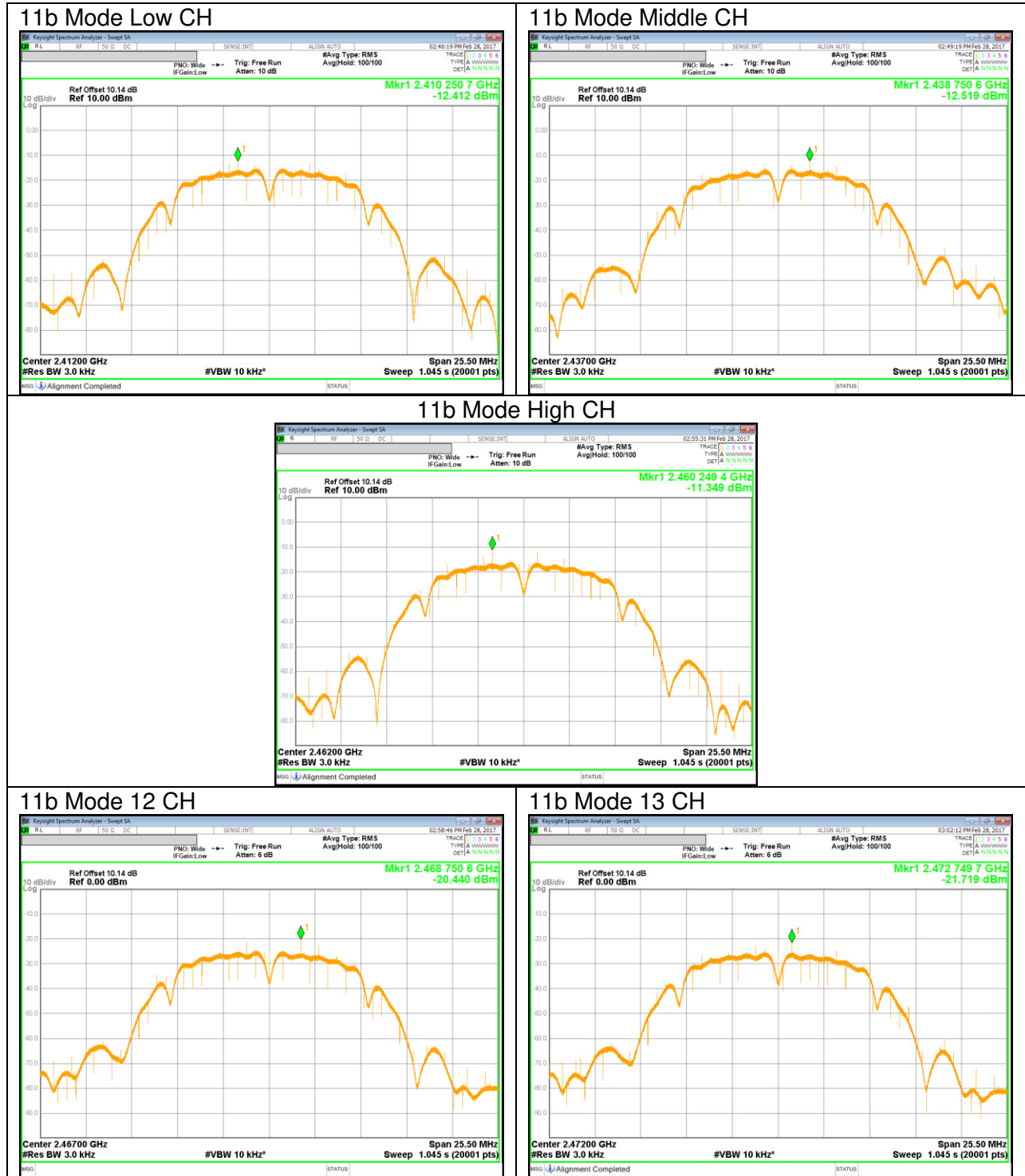
Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-14.618	0.29	-14.328	8.00	-22.618
Mid	2437	-14.682	0.29	-14.392	8.00	-22.682
High	2462	-14.716	0.29	-14.426	8.00	-22.716
12	2467	-22.715	0.29	-22.425	8.00	-30.715
13	2472	-22.001	0.29	-21.711	8.00	-30.001

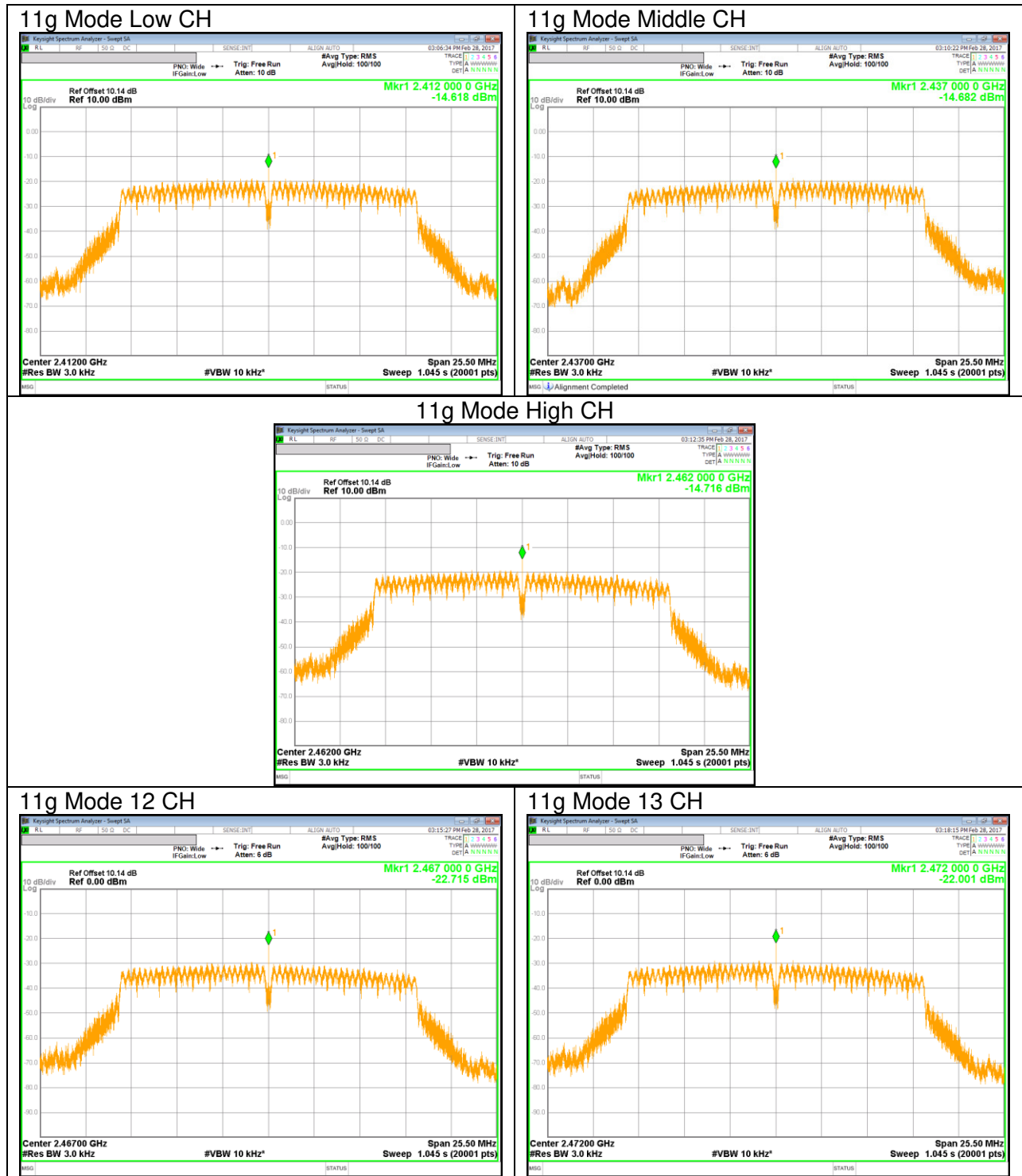
9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

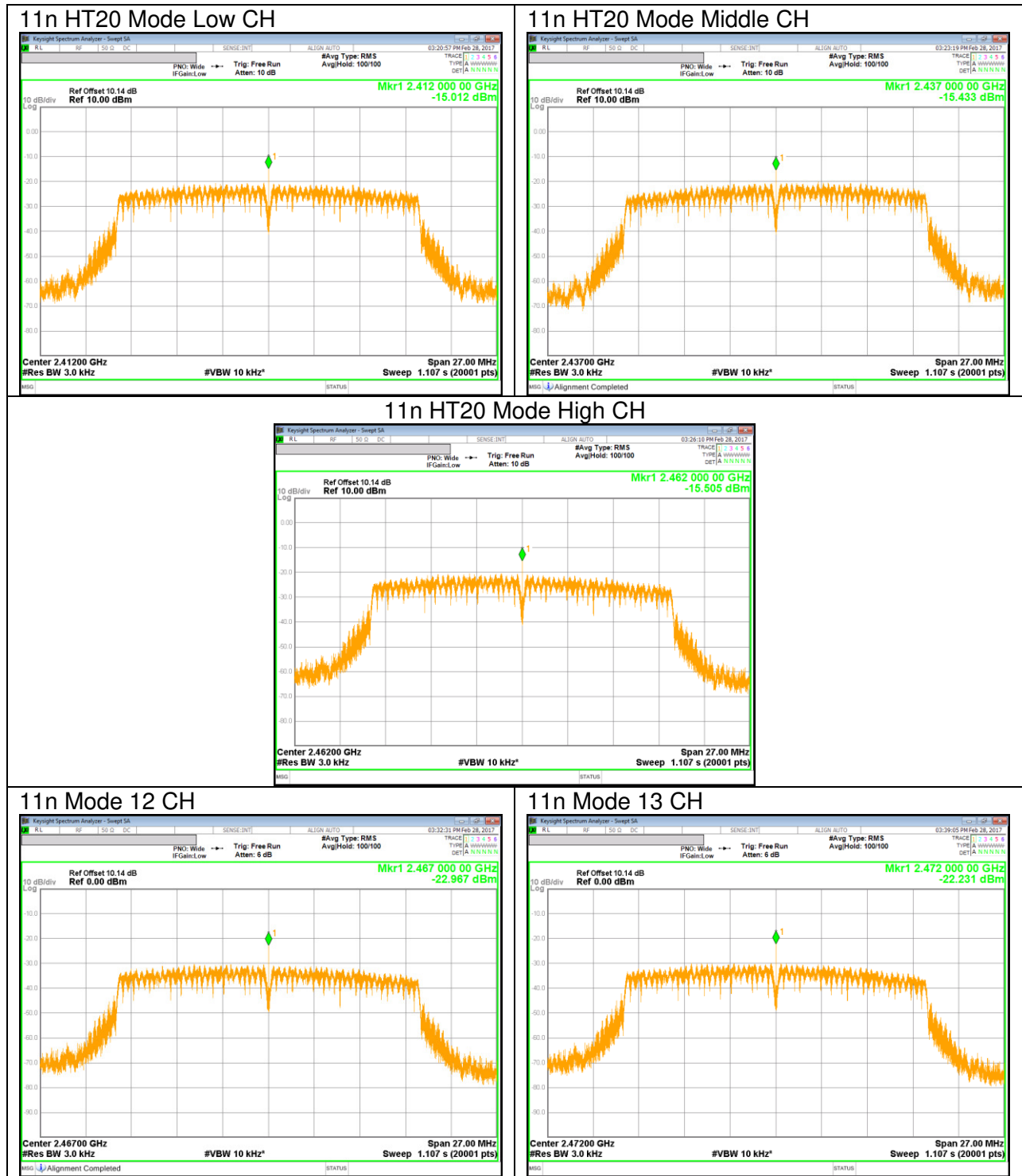
PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm]	Limit [dBm]	Margin [dB]
Low	2412	-15.012	0.34	-14.672	8.00	-23.012
Mid	2437	-15.433	0.34	-15.093	8.00	-23.433
High	2462	-15.505	0.34	-15.165	8.00	-23.505
12	2467	-22.967	0.34	-22.627	8.00	-30.967
13	2472	-22.231	0.34	-21.891	8.00	-30.231

9.3.4. PSD PLOTS







9.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

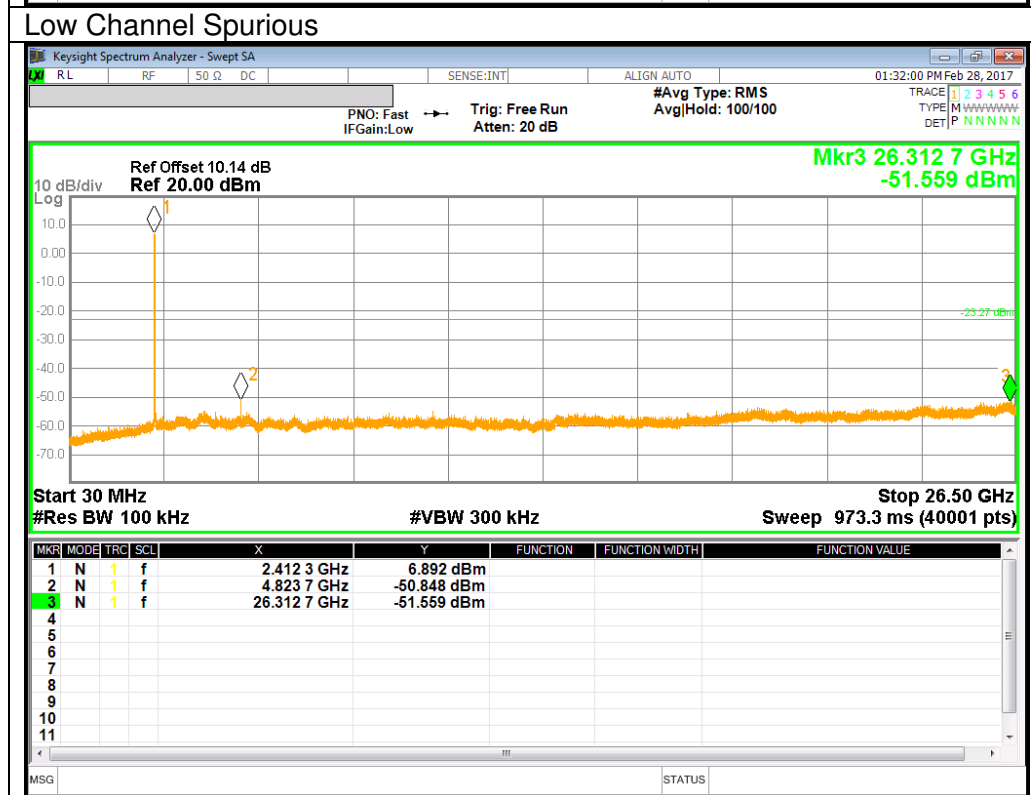
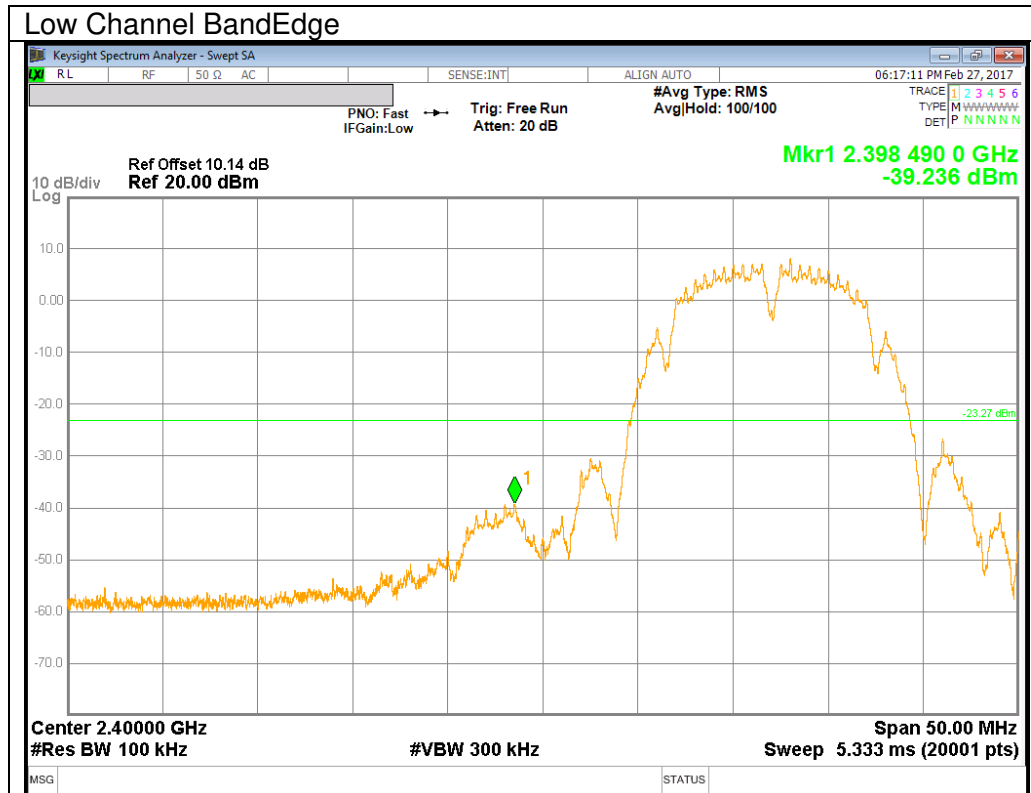
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

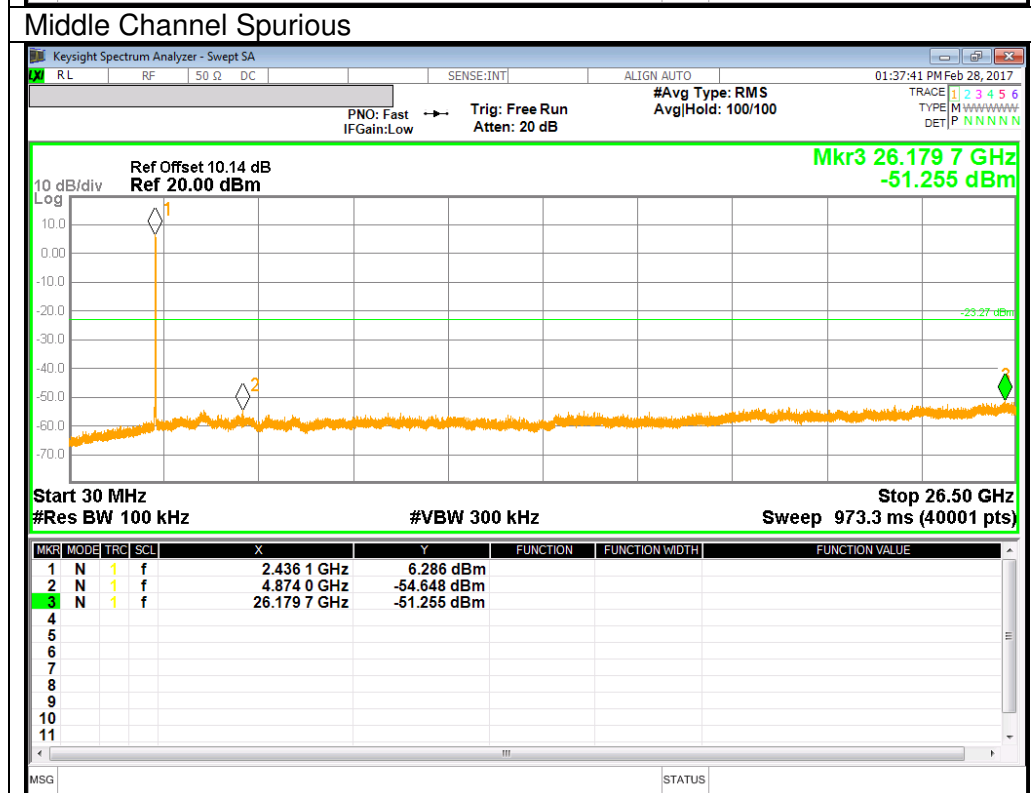
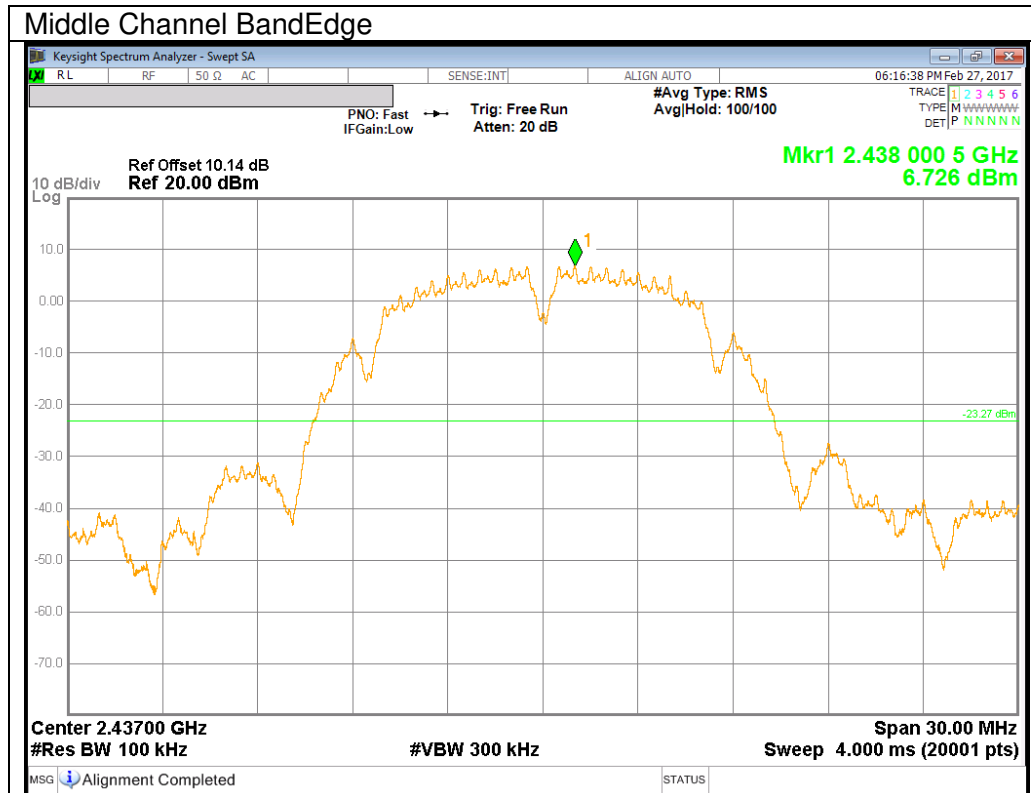
TEST PROCEDURE

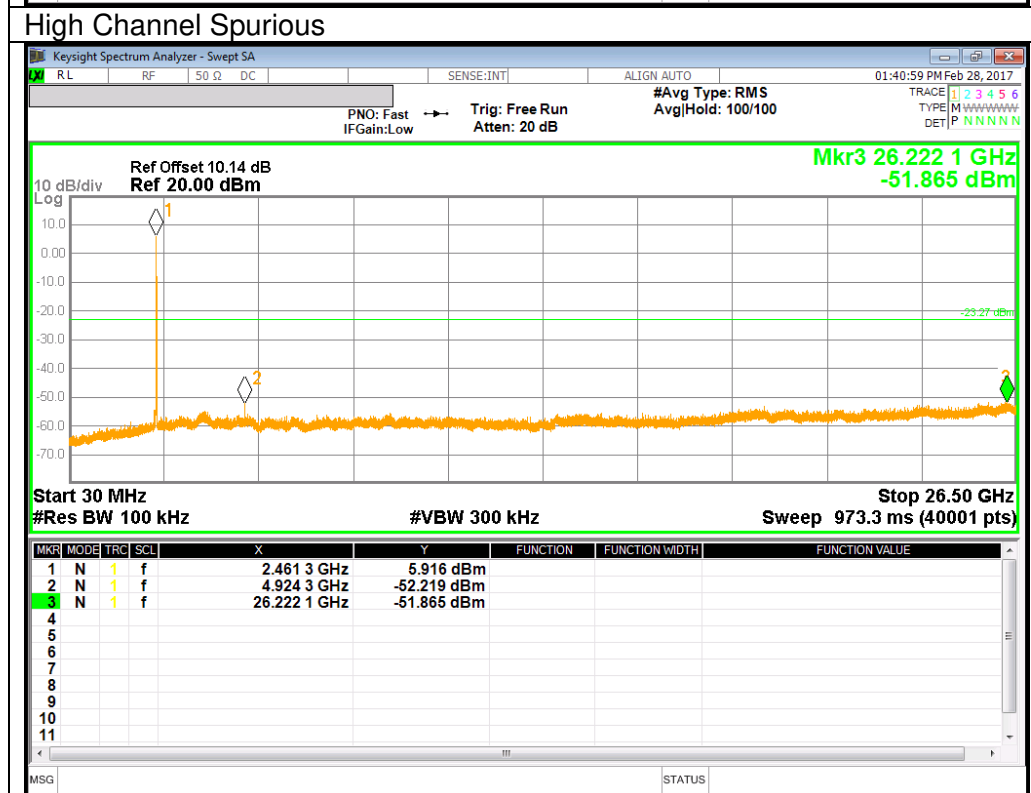
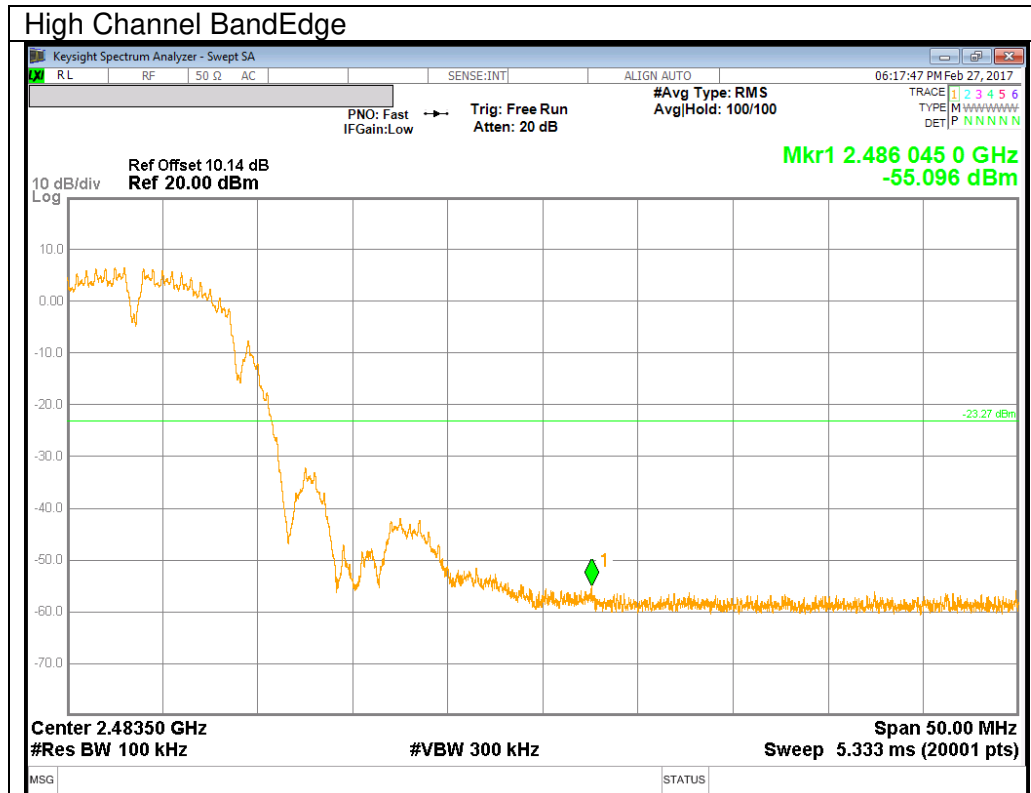
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

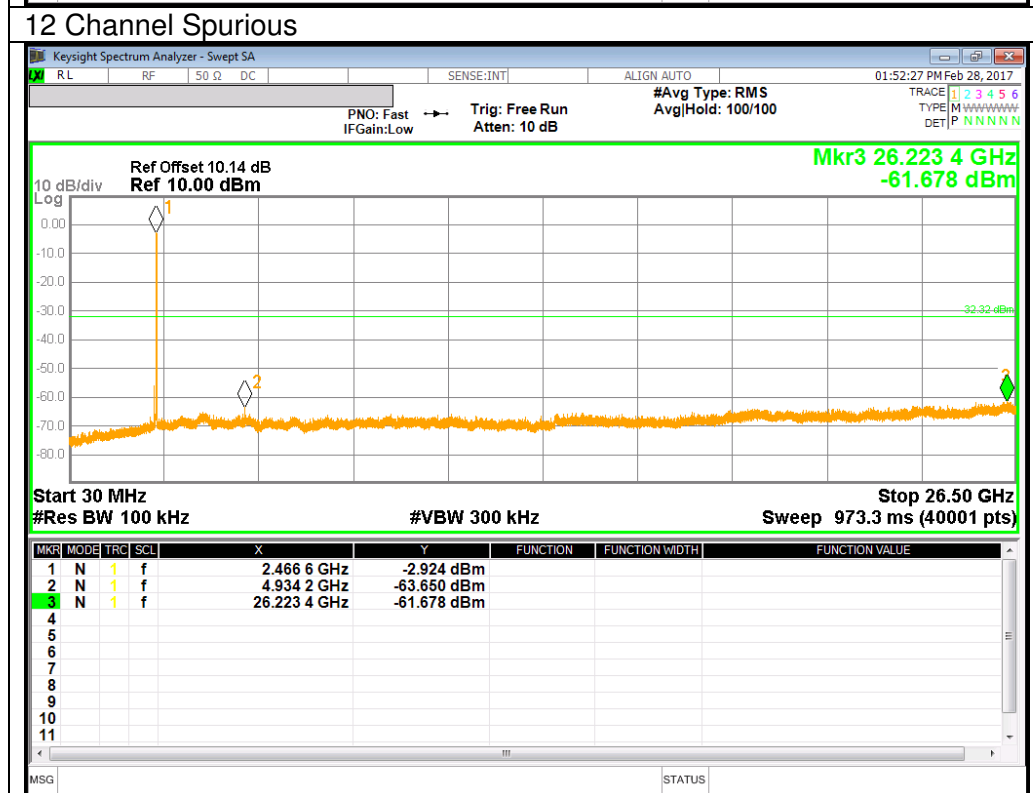
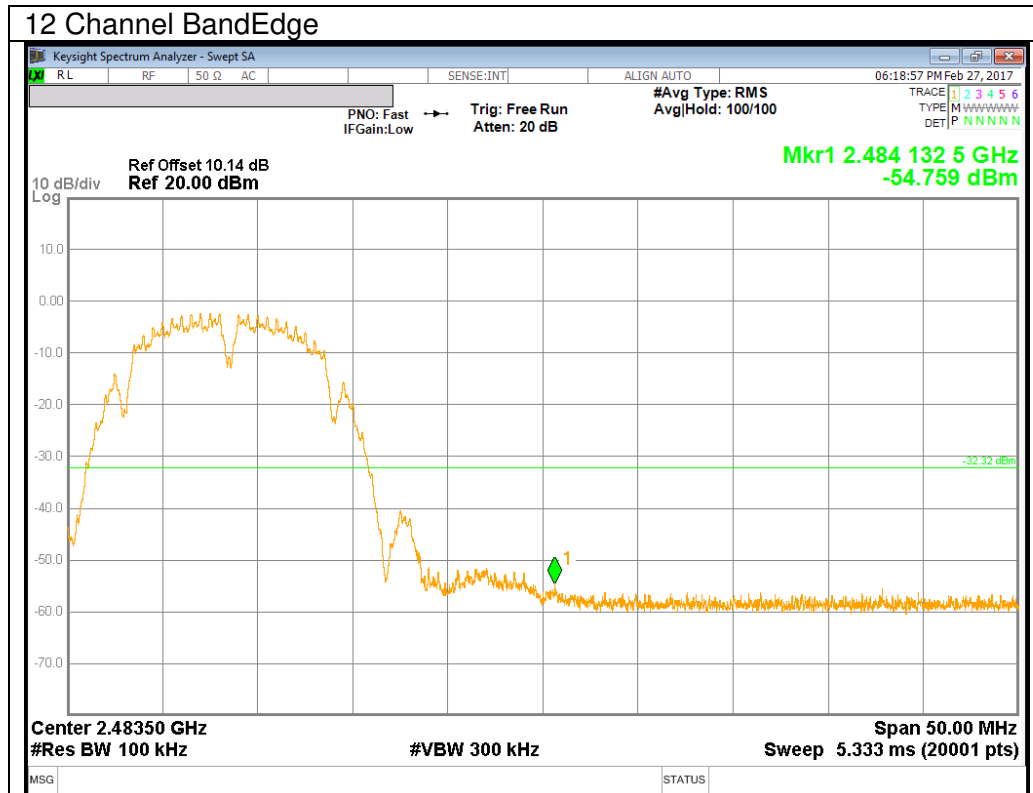
RESULTS

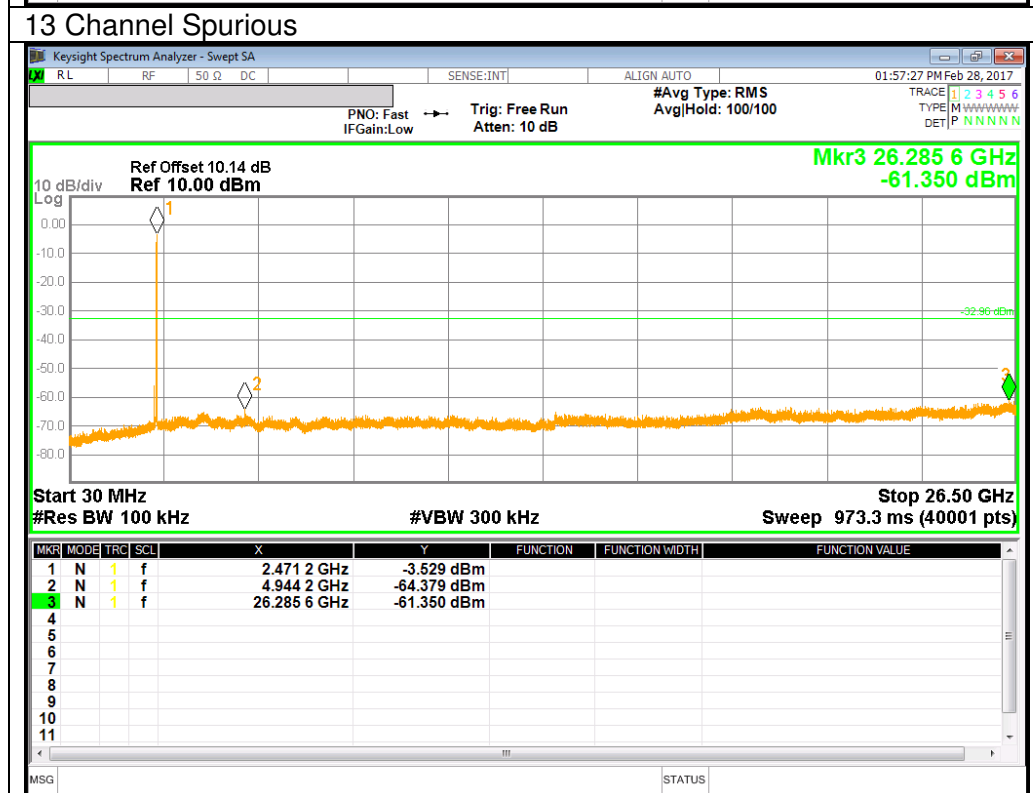
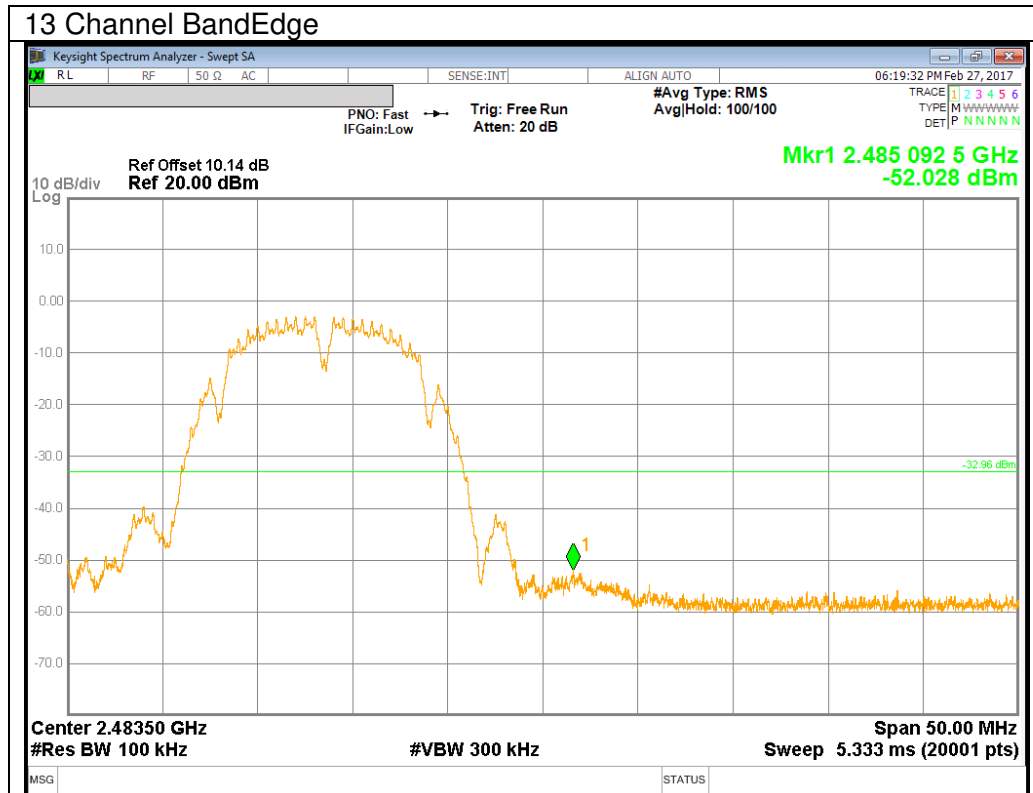
9.4.1. 802.11b MODE IN THE 2.4 GHz BAND



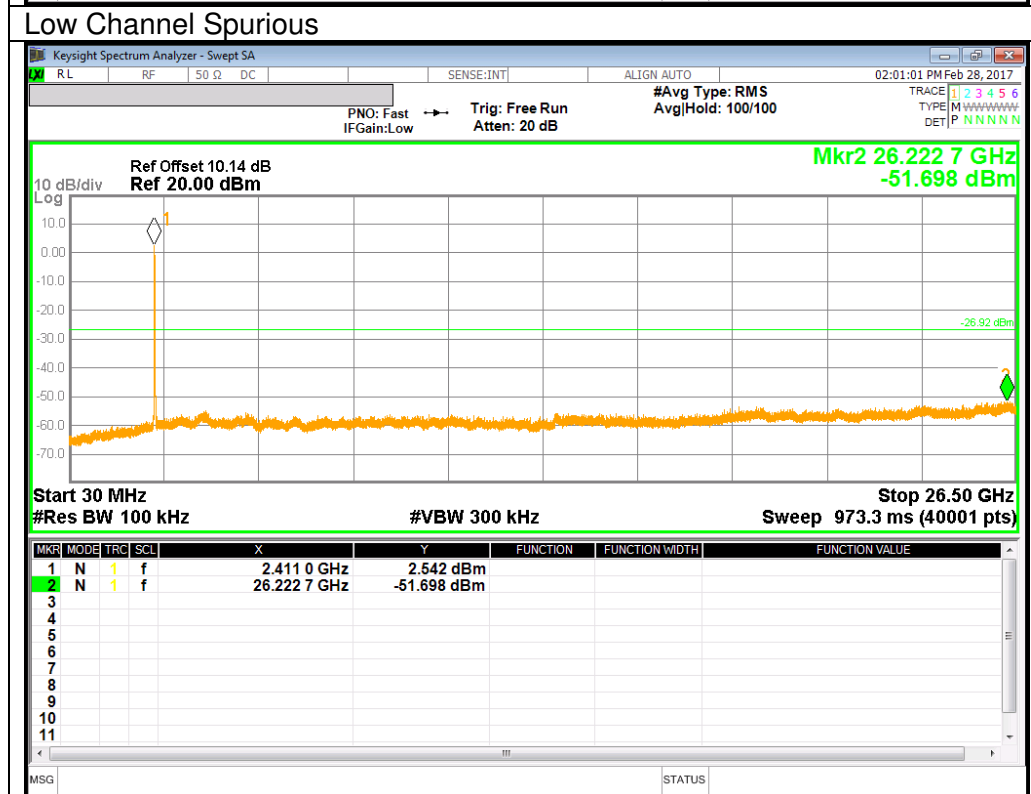
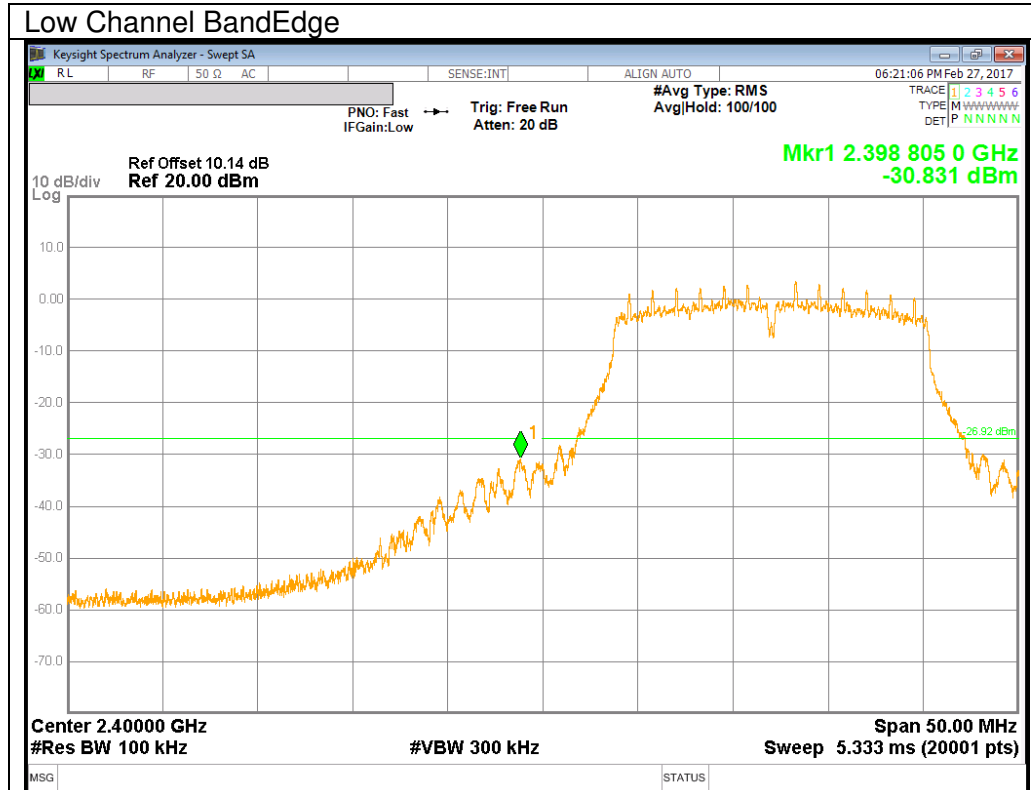


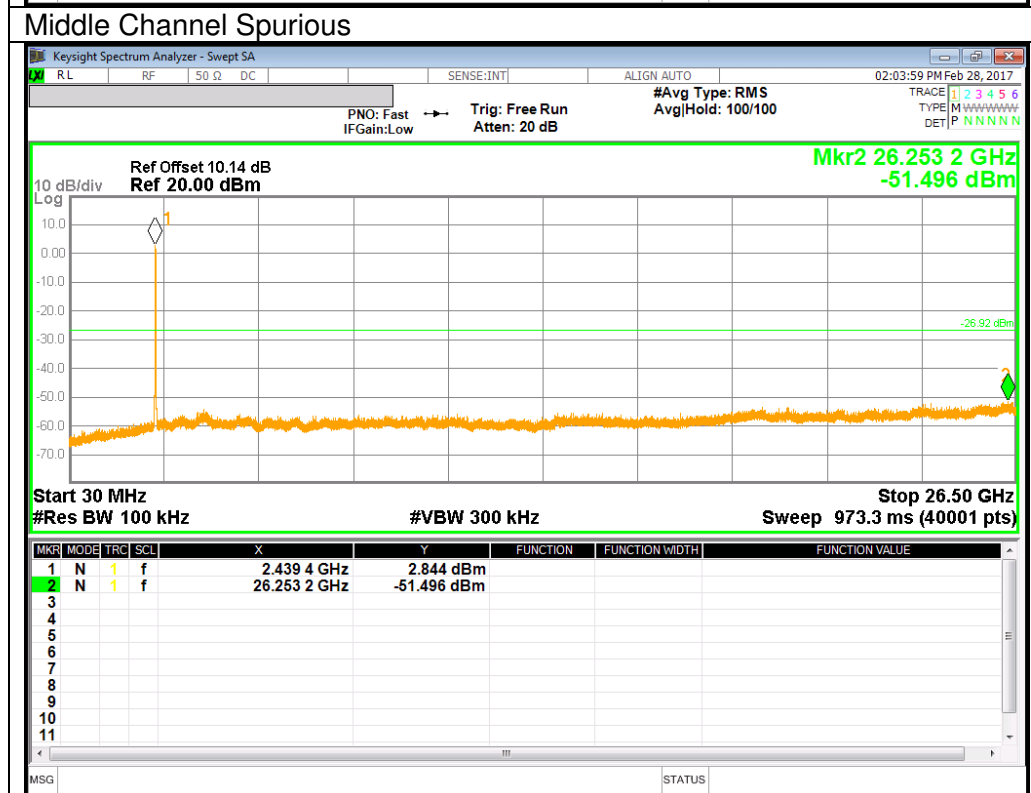
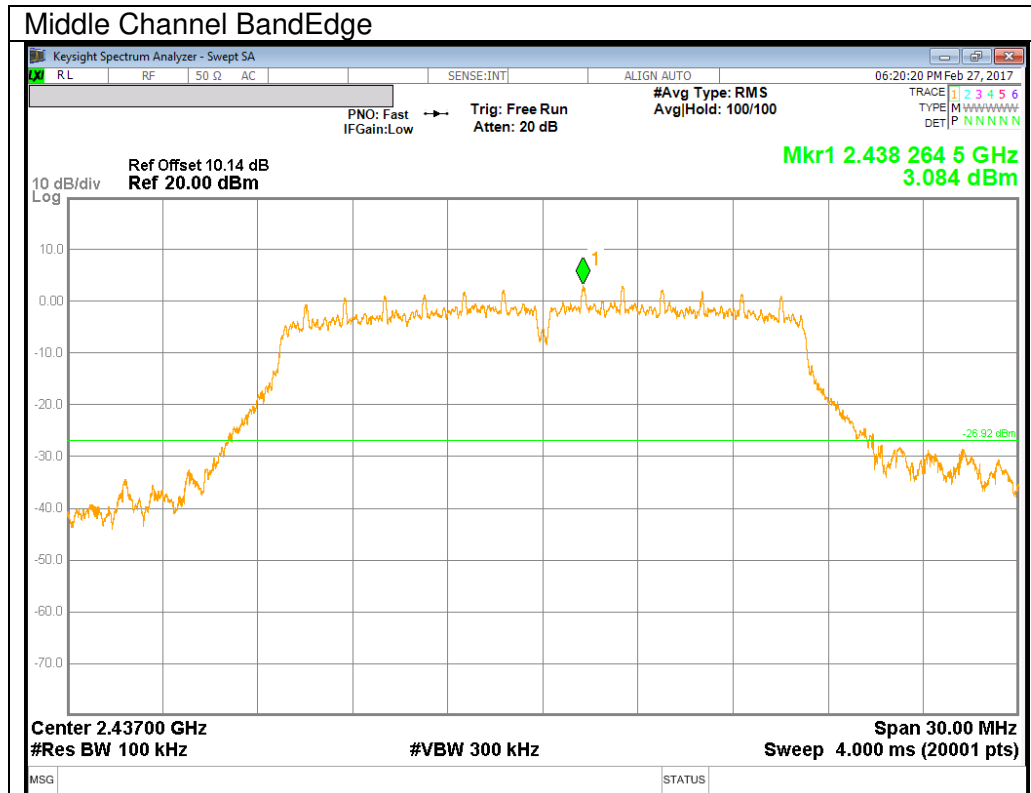


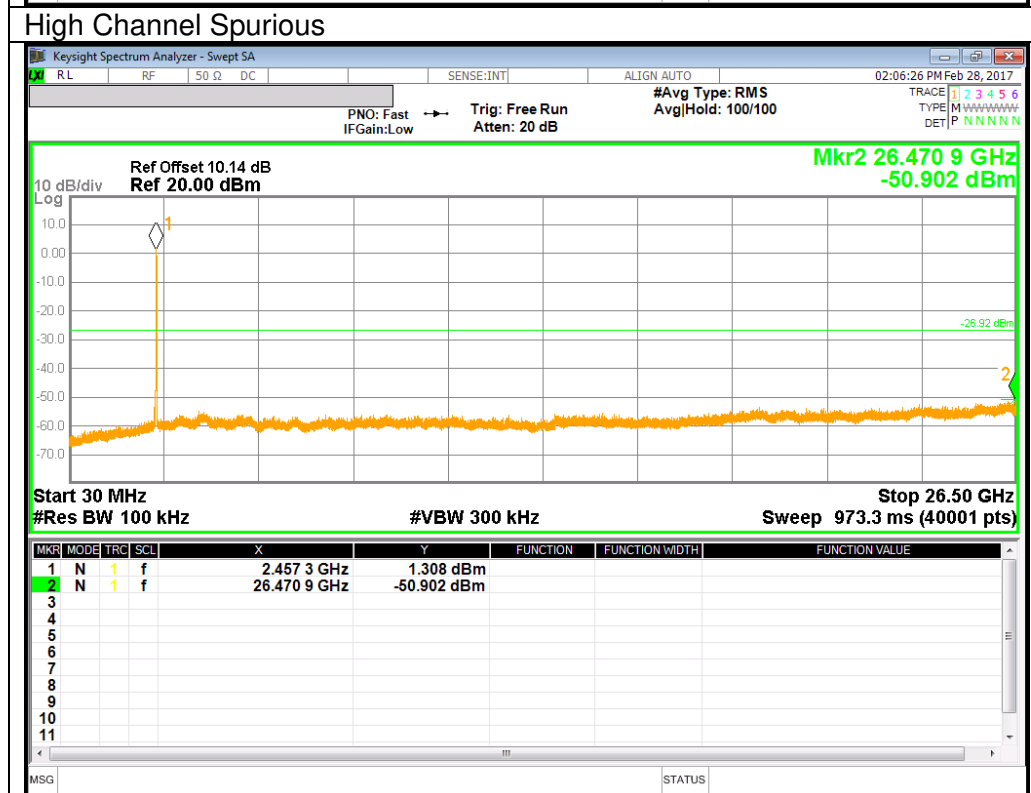
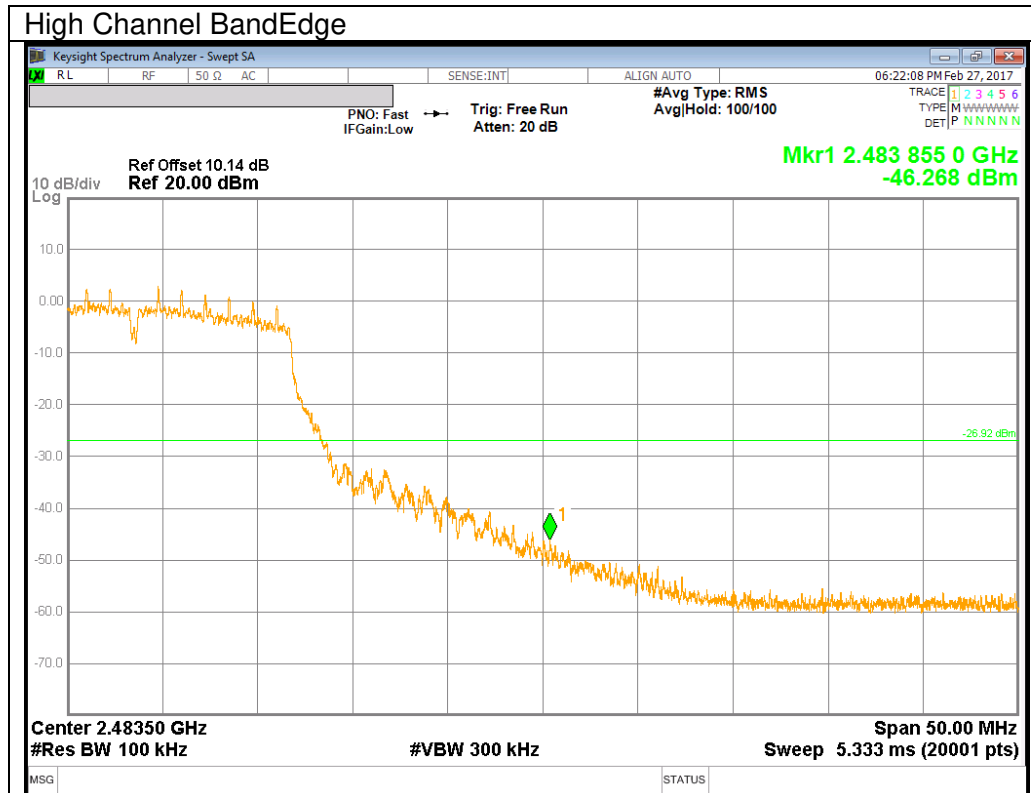


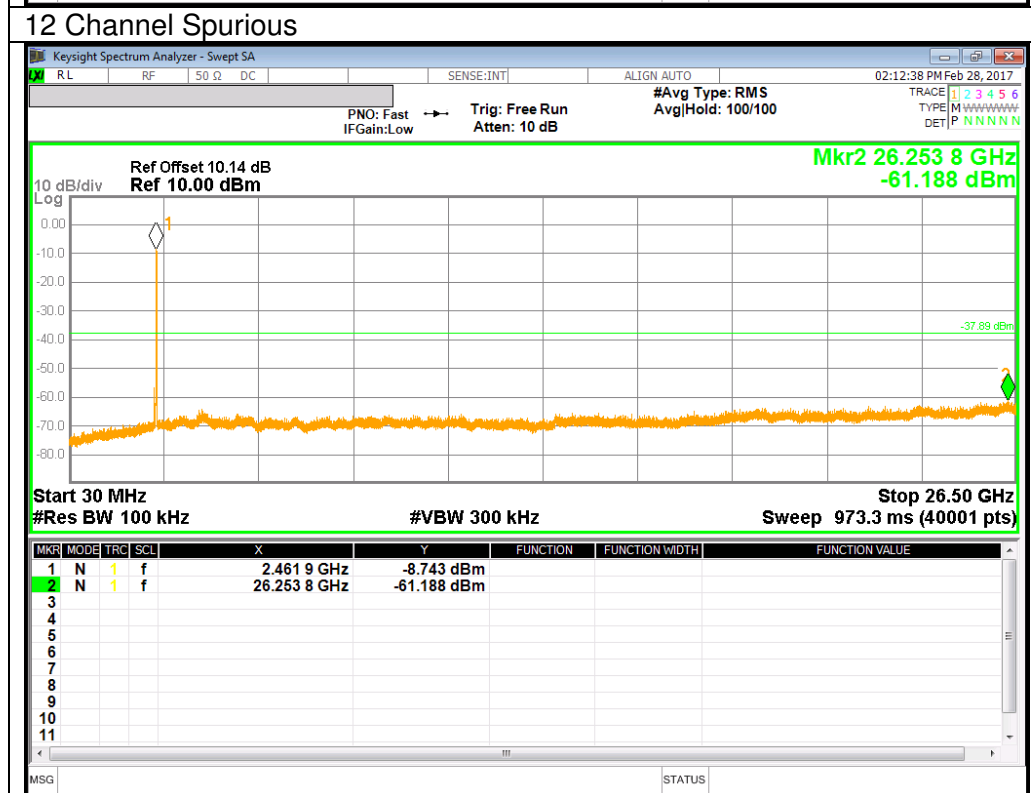
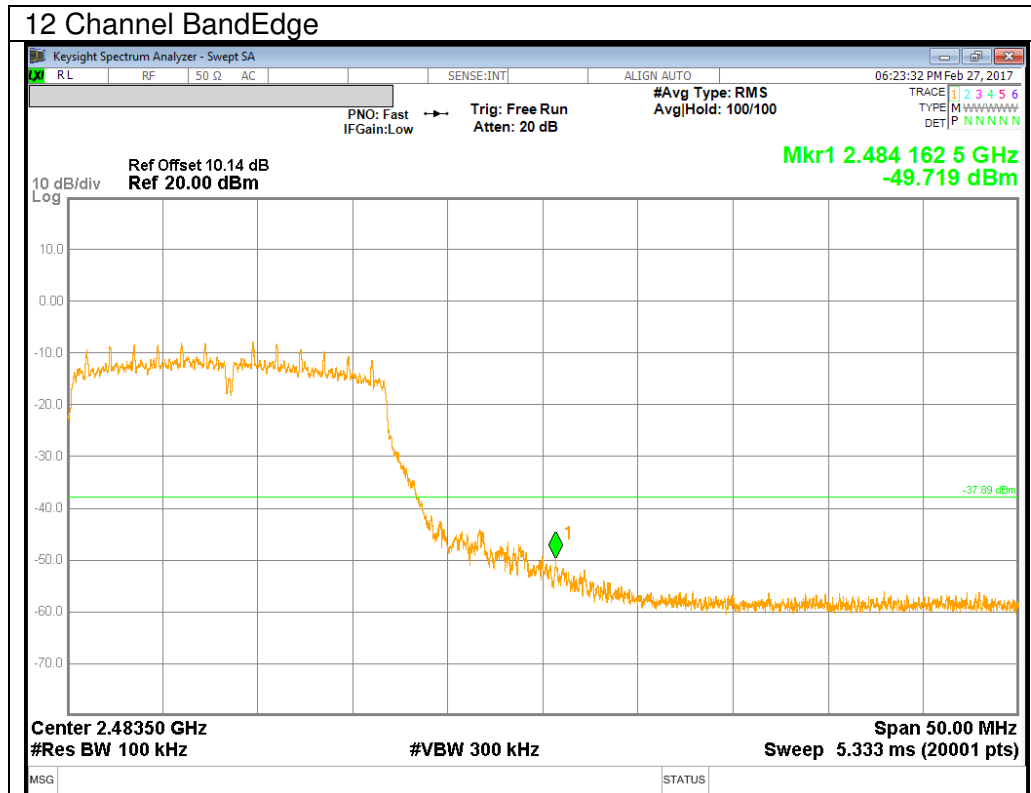


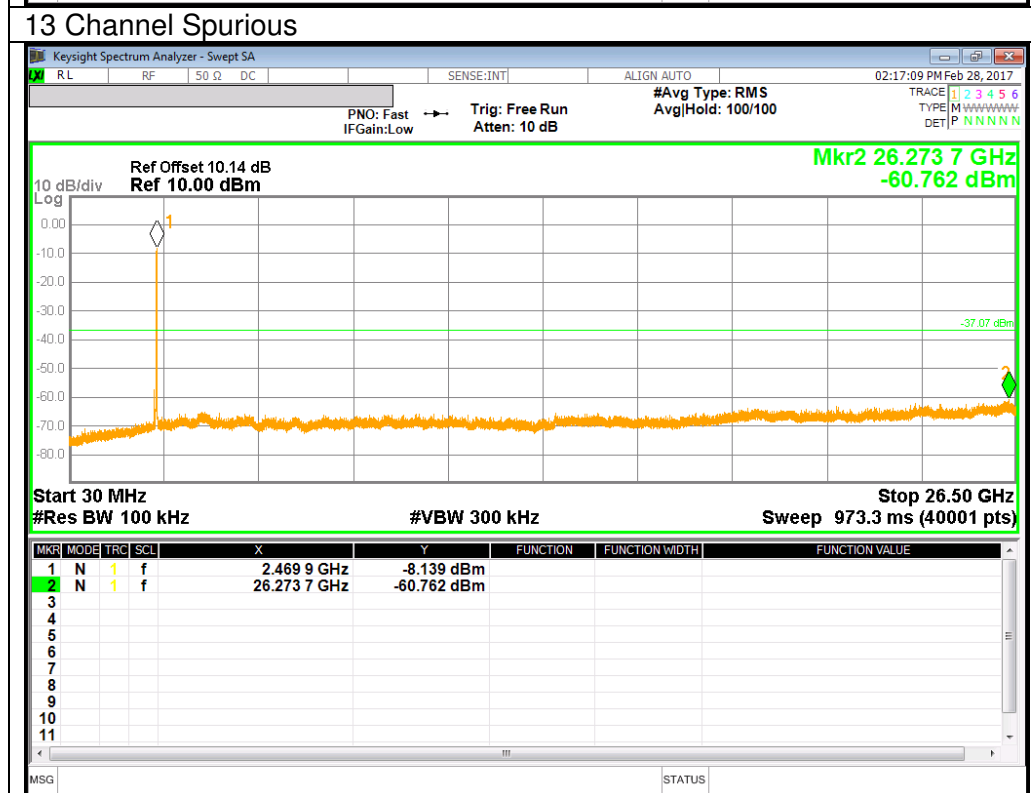
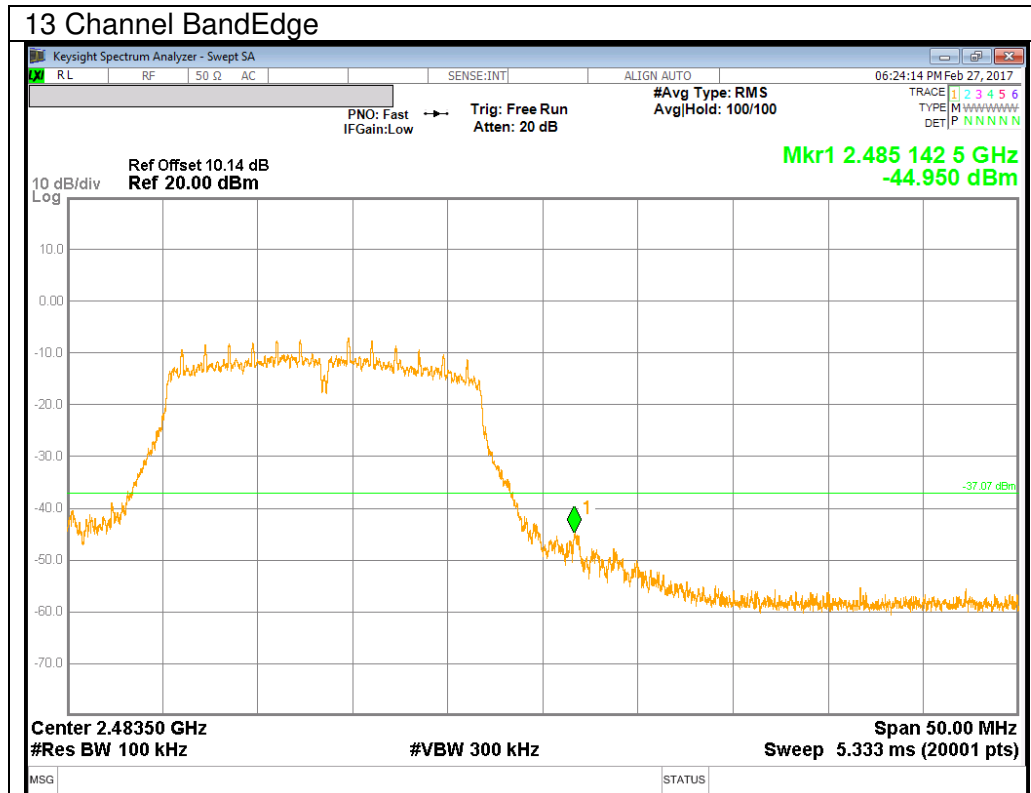
9.4.2. 802.11g MODE IN THE 2.4 GHz BAND



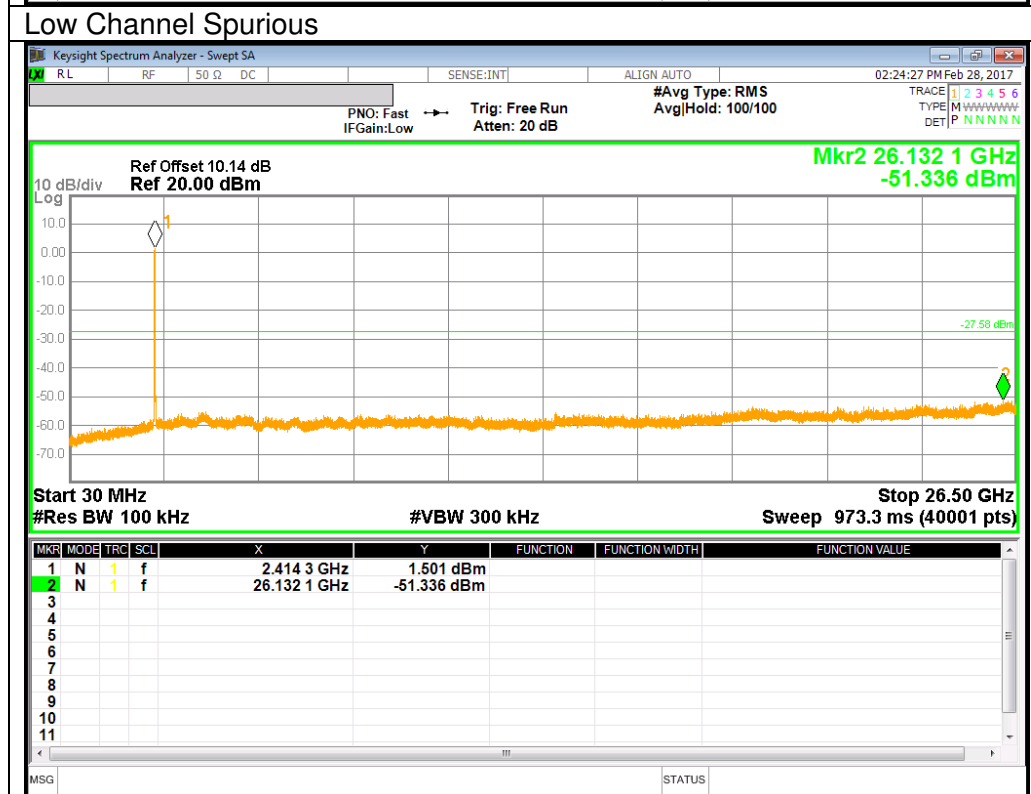
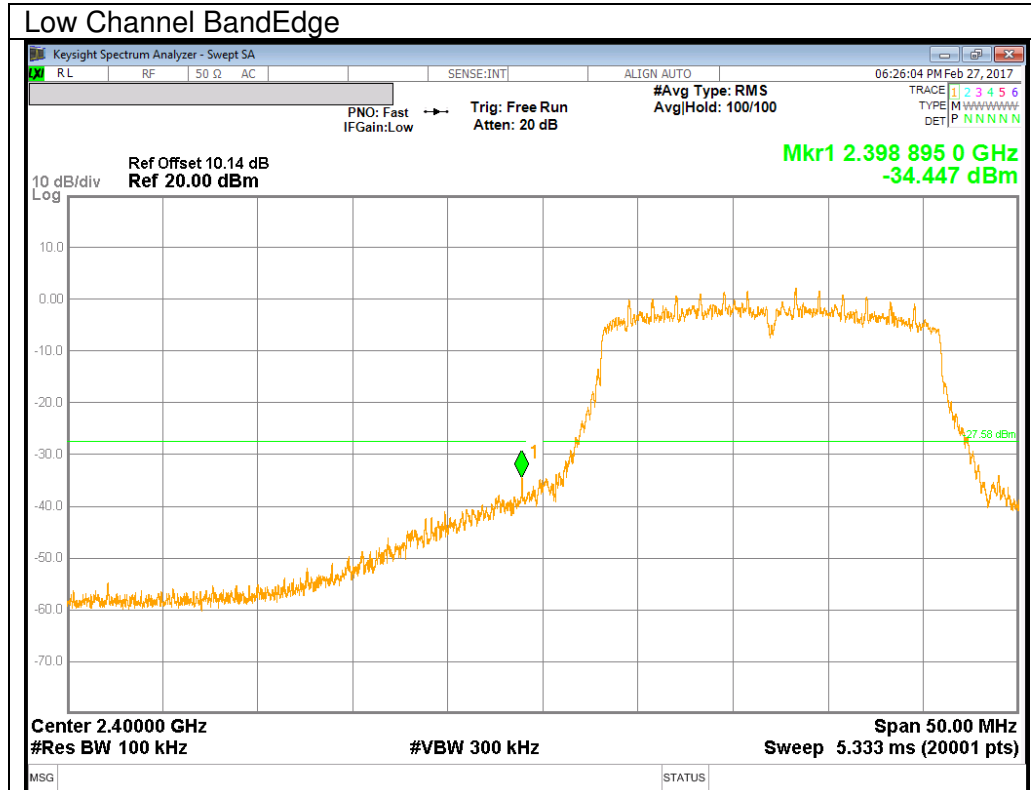


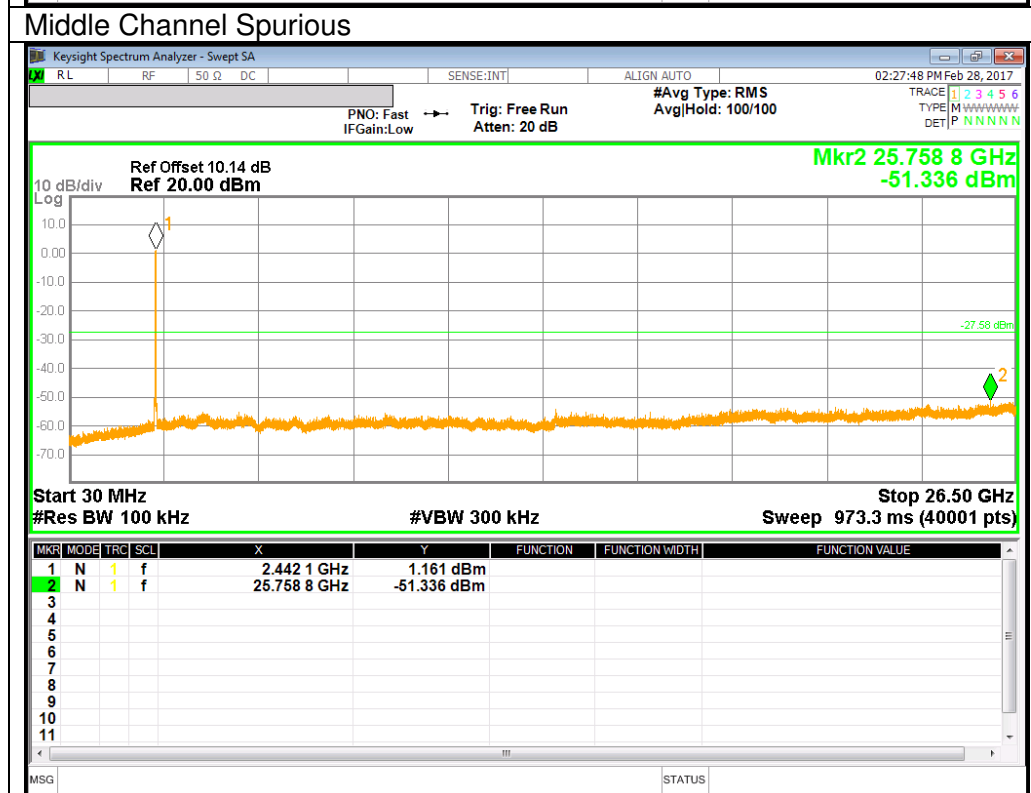
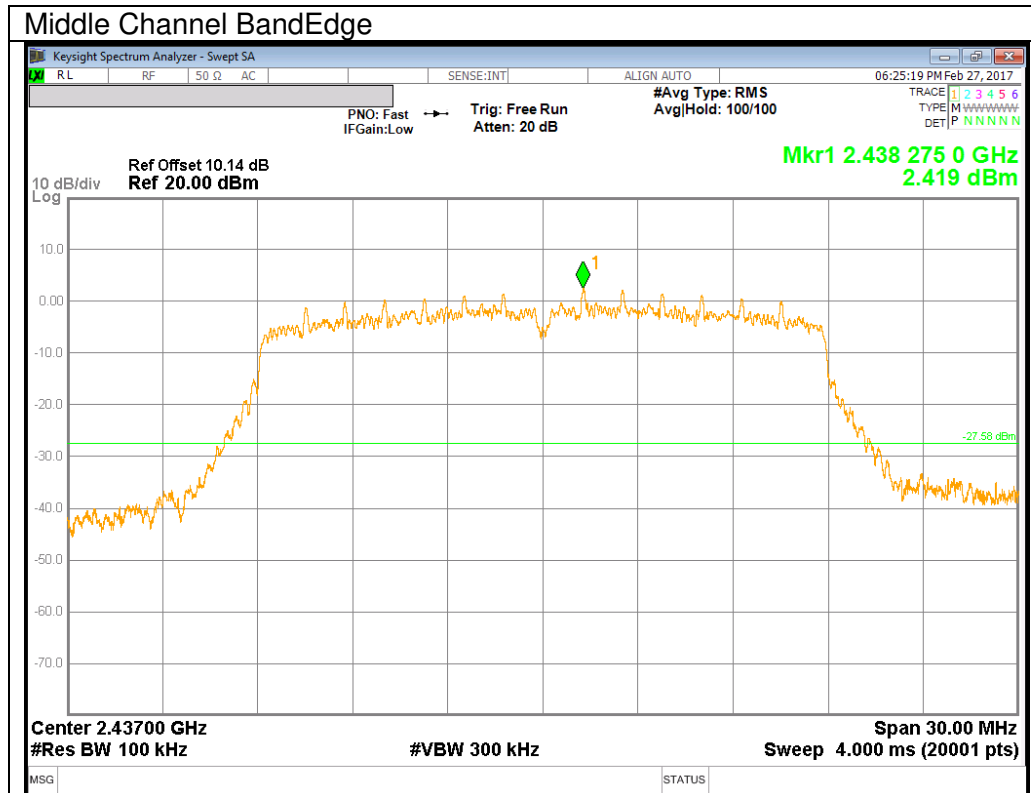


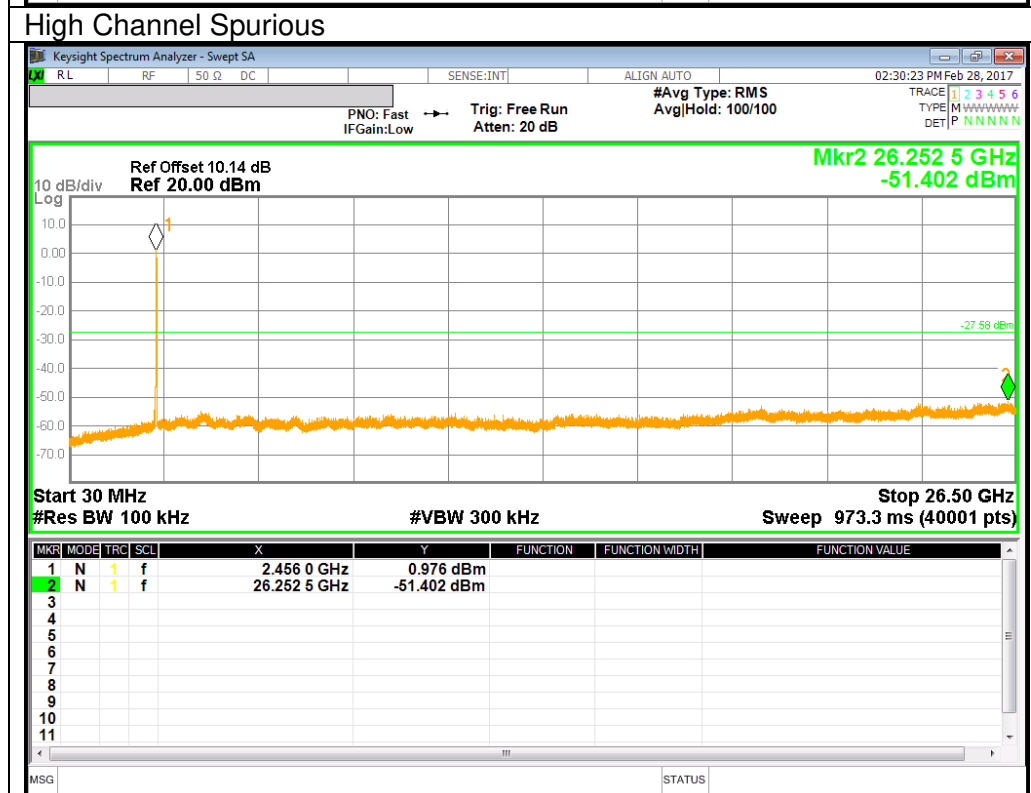
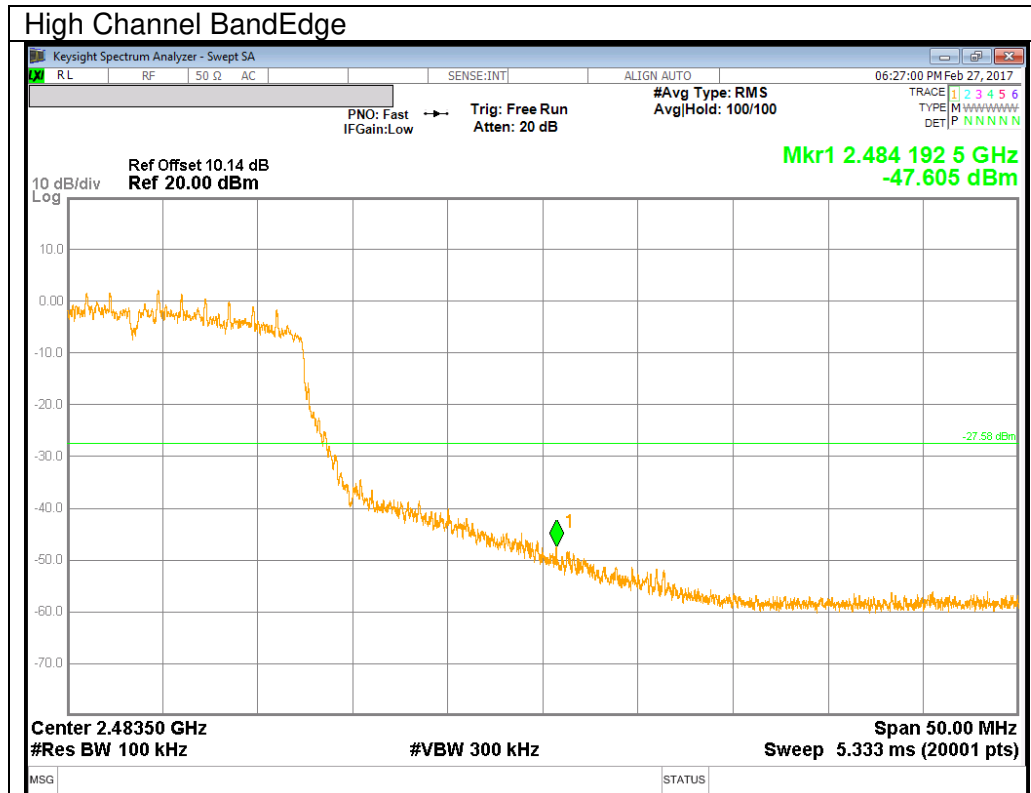


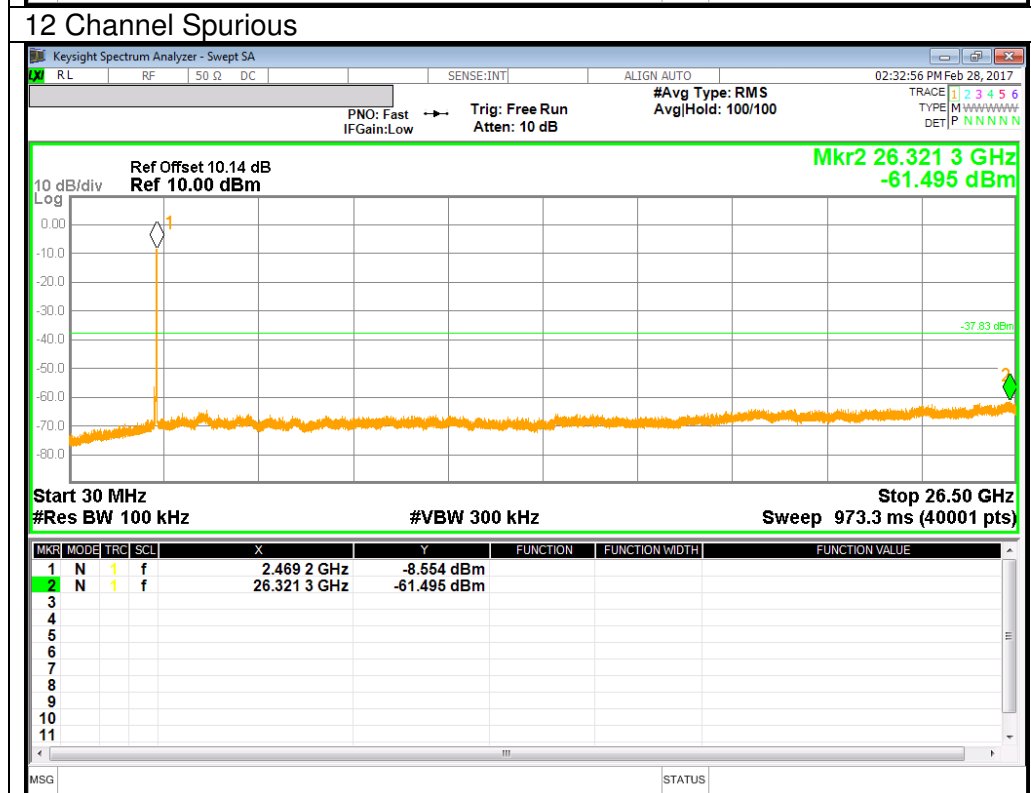
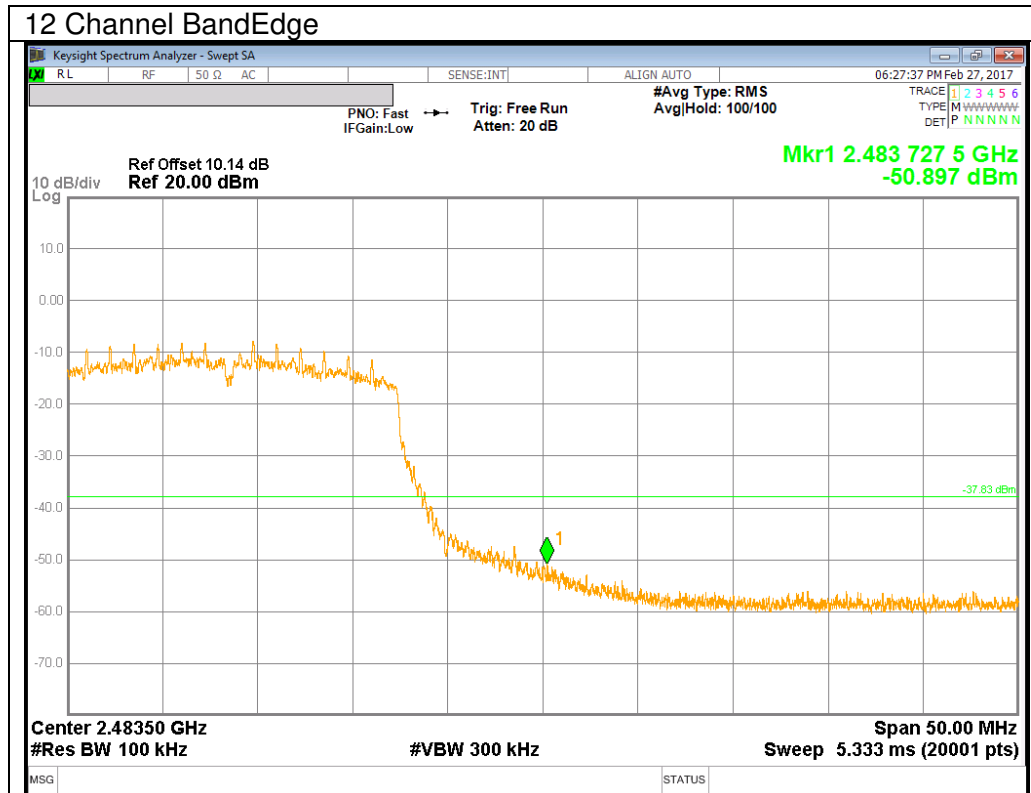


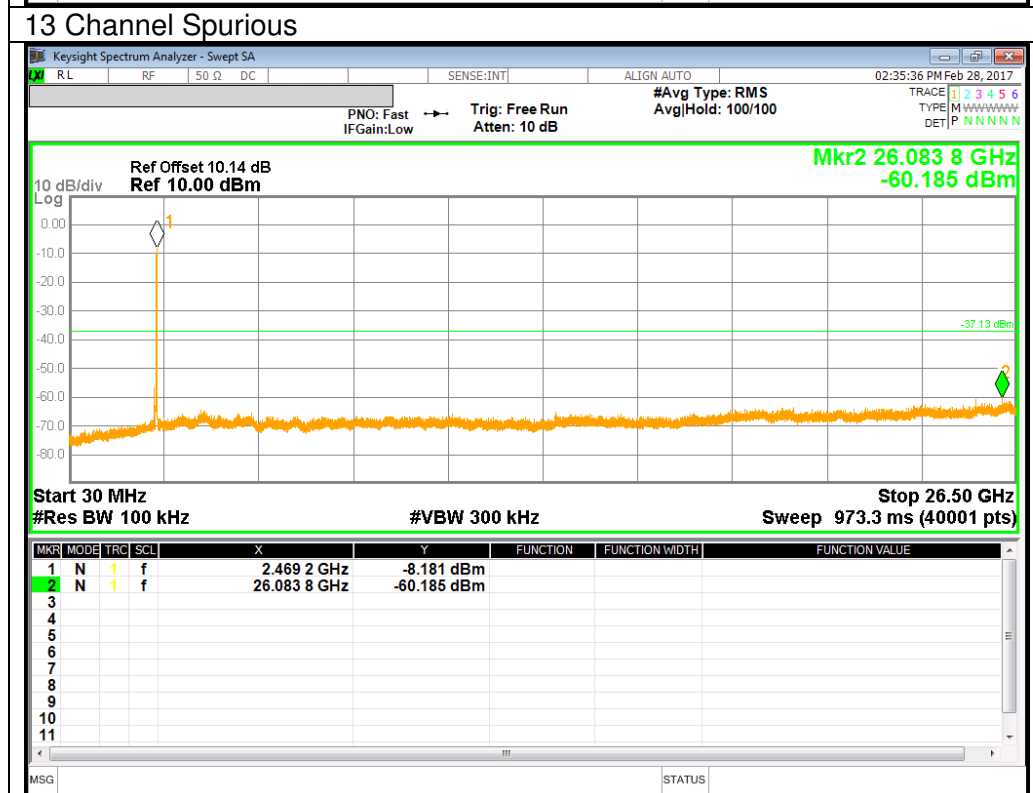
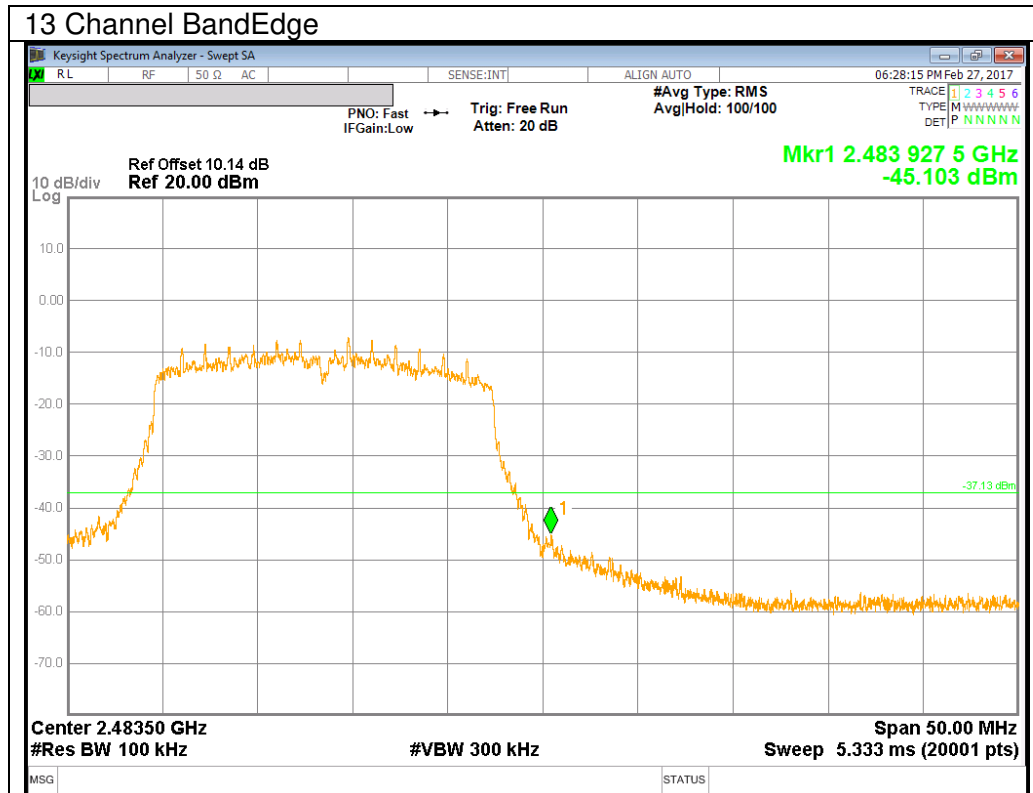
9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND











10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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. (Restricted bandedge, Final detection of spurious harmonic emissions)
Duty cycle factor= $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.29dB; N mode = 0.34dB.

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

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.

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.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

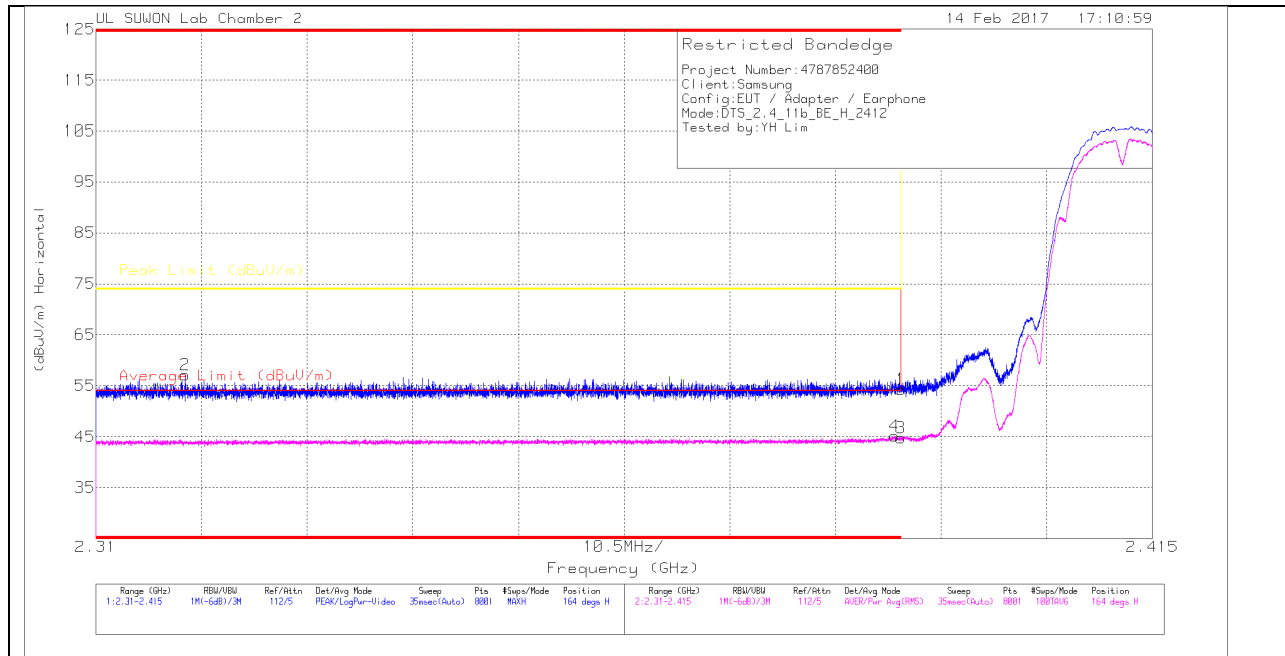
Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = $20 \log \text{limit (uV/m)}$

10.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

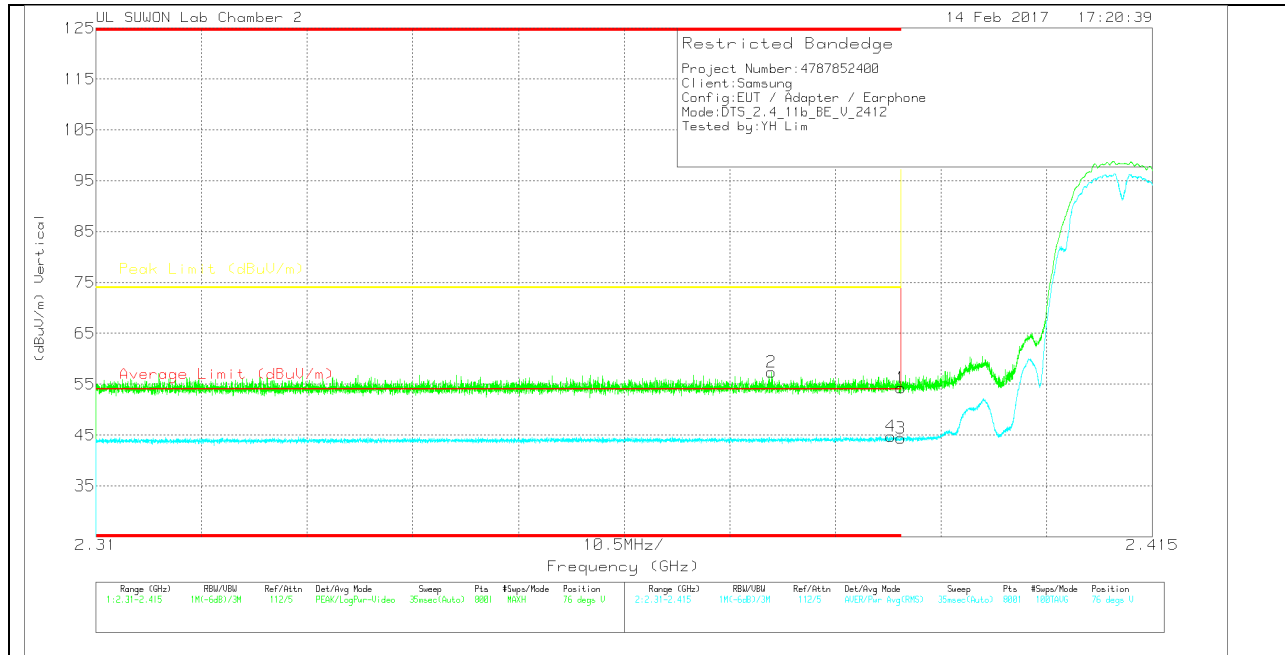
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 24_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.79	PK		-18.2	0	54.29	-	-	74	-19.71	164	376	H
2	* 2.319	43.95	PK		-18.4	0	57.15	-	-	74	-16.85	164	376	H
3	* 2.39	31.22	RMS		-18.2	0	44.72	54	-9.28	-	-	164	376	H
4	* 2.389	31.59	RMS		-18.2	0	45.09	54	-8.91	-	-	164	376	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.73	Pk	31.7	-18.2	0	54.23	-	-	74	-19.77	76	145	V
2	* 2.377	43.95	PK	31.7	-18.3	0	57.35	-	-	74	-16.65	76	145	V
3	* 2.39	30.84	RMS	31.7	-18.2	0	44.34	54	-9.66	-	-	76	145	V
4	* 2.389	31.29	RMS	31.7	-18.2	0	44.79	54	-9.21	-	-	76	145	V

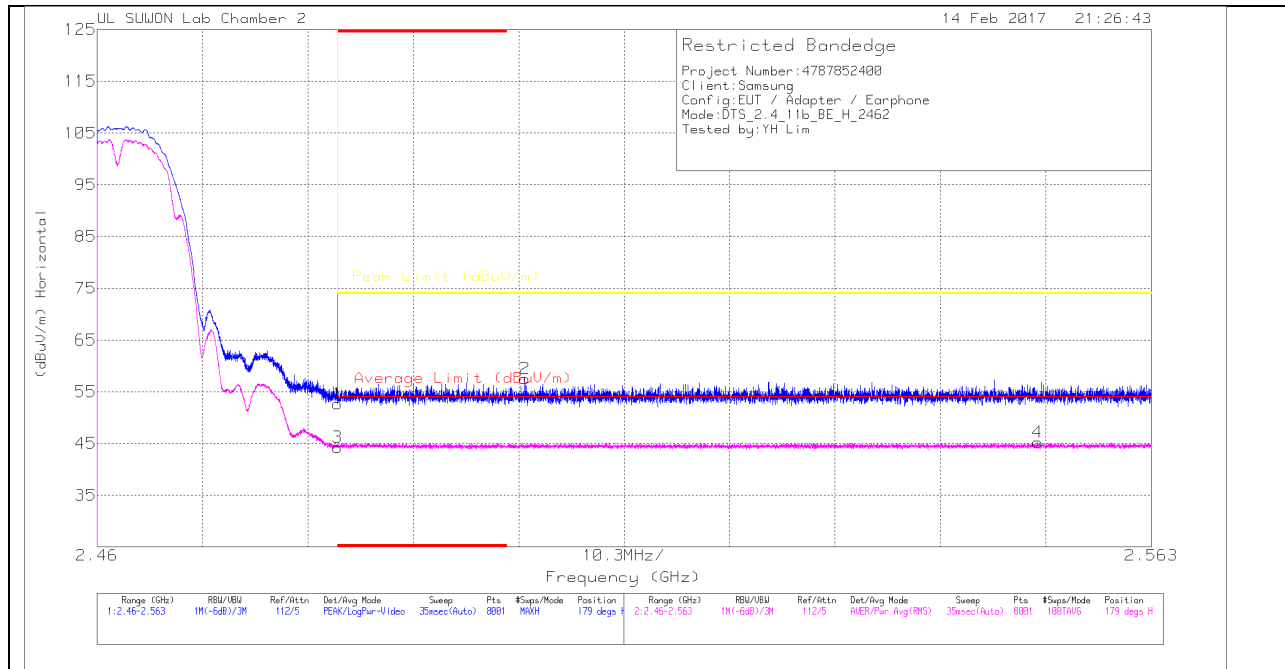
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

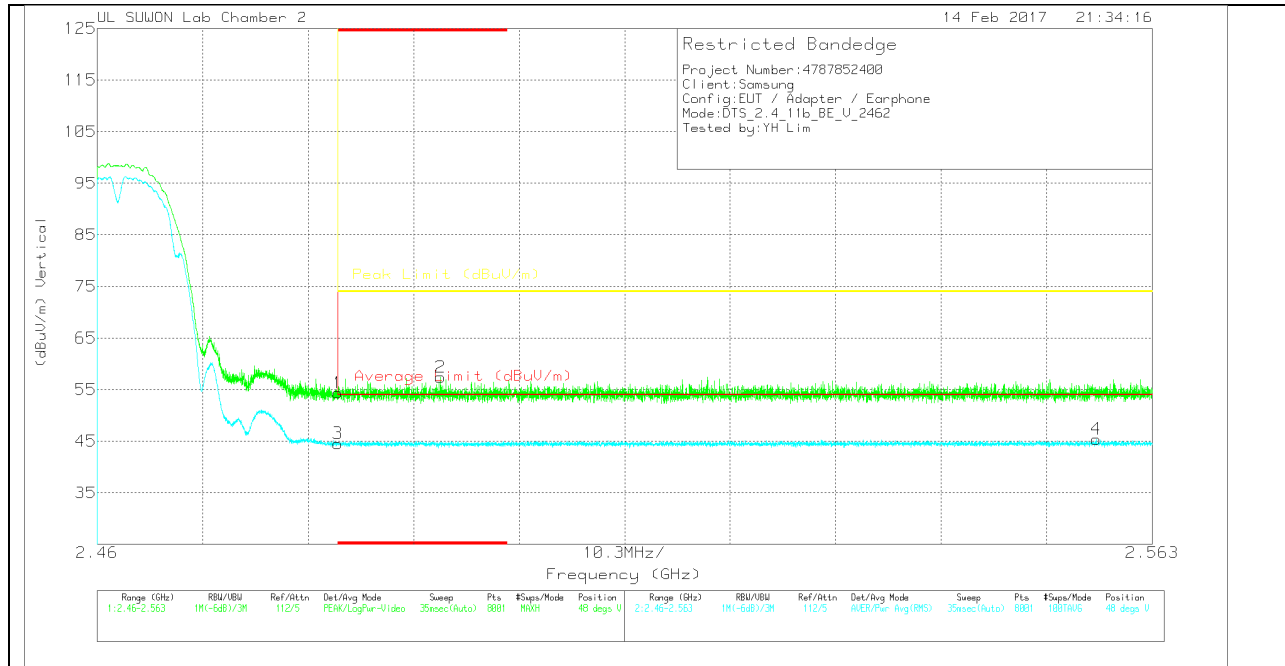
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.88	Pk	31.8	-18	0	52.68	-	-	74	-21.32	179	154	H
2	2.502	43.61	Pk	31.9	-18	0	57.51	-	-	74	-16.49	179	154	H
3	* 2.484	30.47	RMS	31.8	-18	0	44.27	54	-9.73	-	-	179	154	H
4	2.552	31.36	RMS	31.9	-18	0	45.26	54	-8.74	-	-	179	154	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.56	Pk		-18	0	54.36	-	-	74	-19.64	48	153	V
2	* 2.494	43.62	Pk		-18	0	57.42	-	-	74	-16.58	48	153	V
3	* 2.484	30.76	RMS		-18	0	44.56	54	-9.44	-	-	48	153	V
4	2.558	31.51	RMS		-18	0	45.41	54	-8.59	-	-	48	153	V

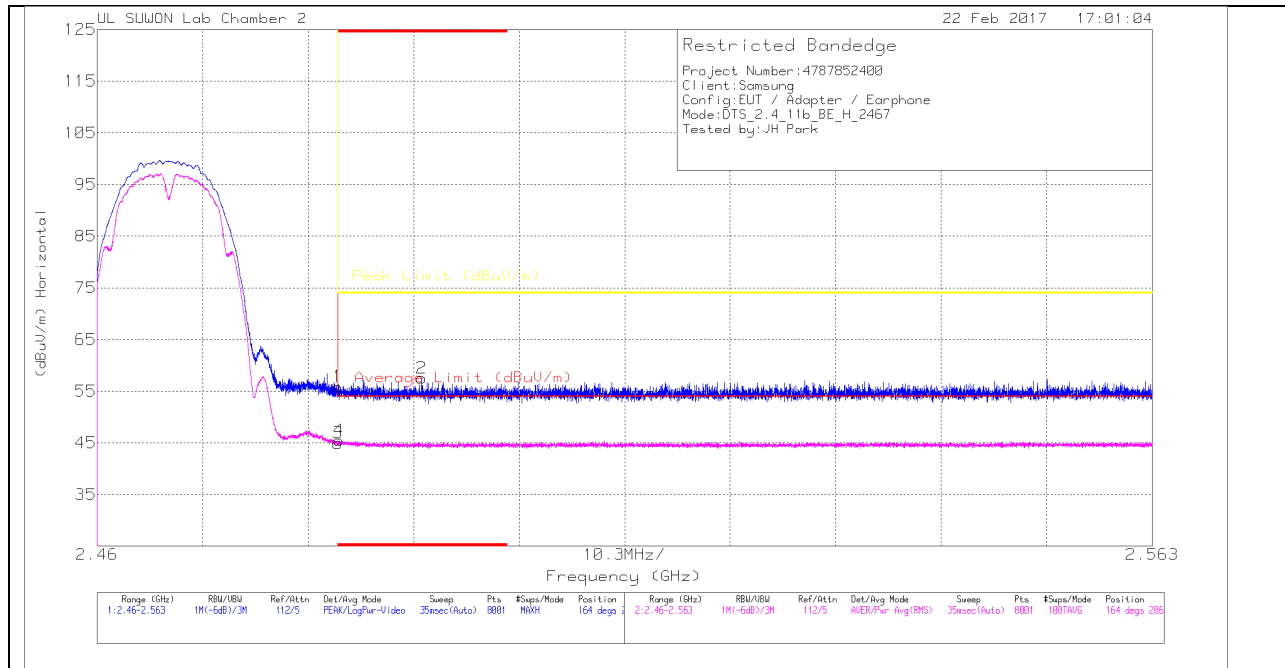
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

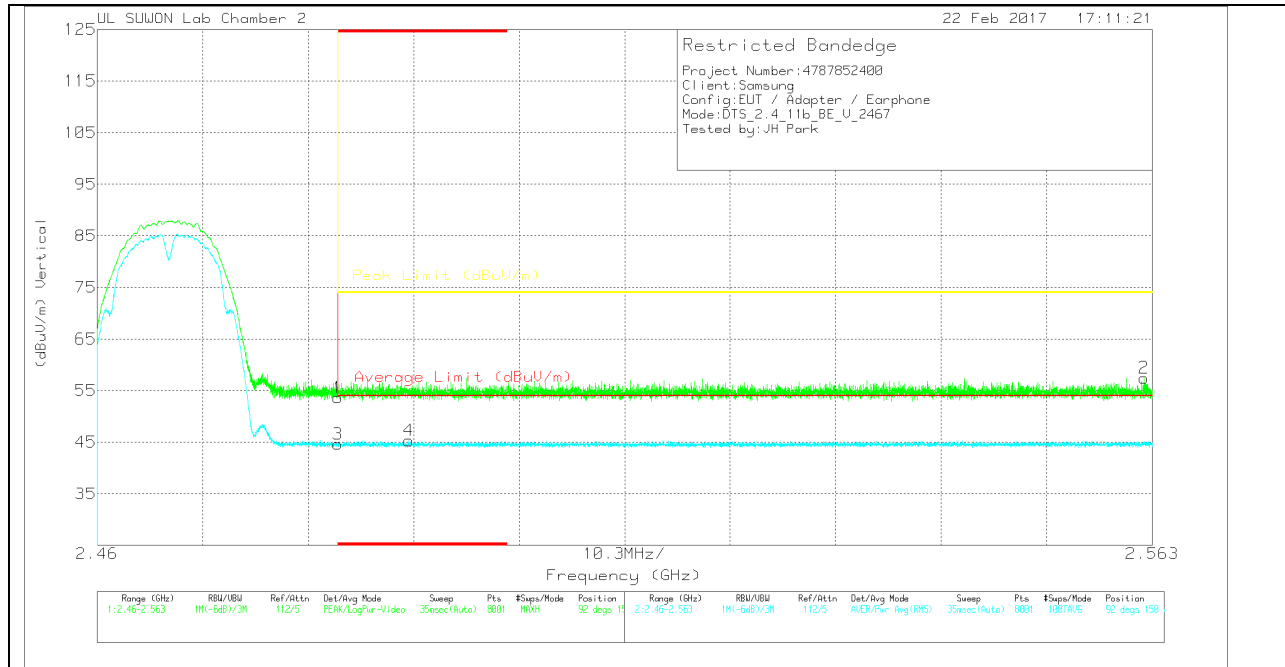
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.09	Pk		-18	0	55.89	-	-	74	-18.11	164	206	H
2	* 2.492	43.73	Pk		-18	0	57.53	-	-	74	-16.47	164	206	H
3	* 2.484	31.16	RMS		-18	0	44.96	54	-9.04	-	-	164	206	H
4	* 2.484	31.69	RMS		-18	0	45.49	54	-8.51	-	-	164	206	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.84	Pk	31.8	-18	0	53.64	-	-	74	-20.36	92	150	V
2	2.562	43.56	Pk	31.9	-18	0	57.46	-	-	74	-16.54	92	150	V
3	* 2.484	30.81	RMS	31.8	-18	0	44.61	54	-9.39	-	-	92	150	V
4	* 2.49	31.53	RMS	31.8	-18	0	45.33	54	-8.67	-	-	92	150	V

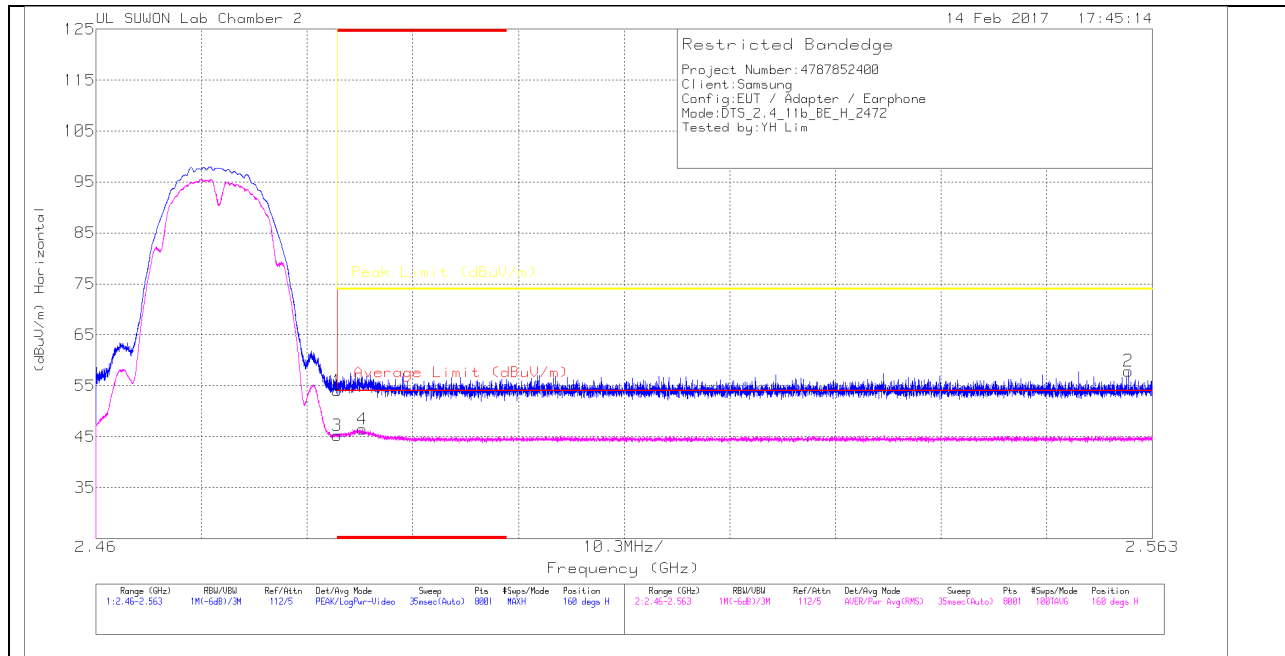
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

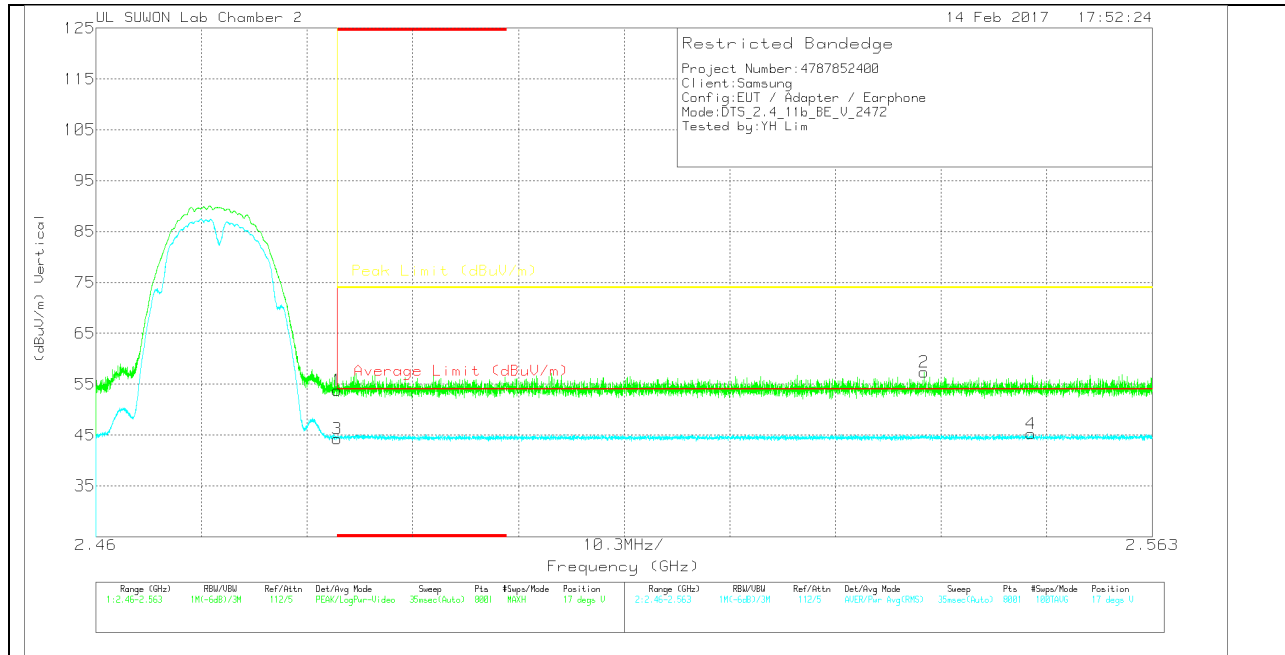
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 24_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.27	PK		-18	0	54.07	-	-	74	-19.93	160	193	H
2	2.561	44.03	PK		-18	0	57.93	-	-	74	-16.07	160	193	H
3	* 2.484	31.48	RMS		-18	0	45.28	54	-8.72	-	-	160	193	H
4	* 2.486	32.68	RMS		-18	0	46.48	54	-7.52	-	-	160	193	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40	Pk	31.8	-18	0	53.8	-	-	74	-20.2	17	146	V
2	2.541	43.43	PK	31.9	-18	0	57.33	-	-	74	-16.67	17	146	V
3	* 2.484	30.5	RMS	31.8	-18	0	44.3	54	-9.7	-	-	17	146	V
4	2.551	31.41	RMS	31.9	-18	0	45.31	54	-8.69	-	-	17	146	V

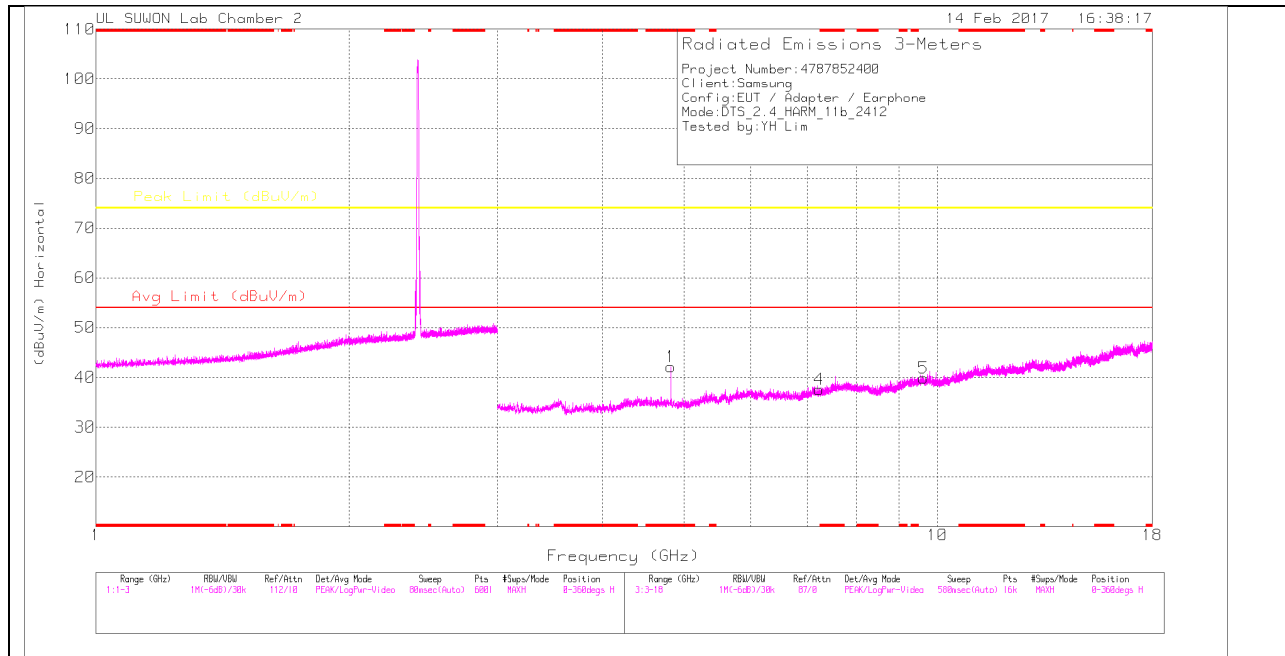
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

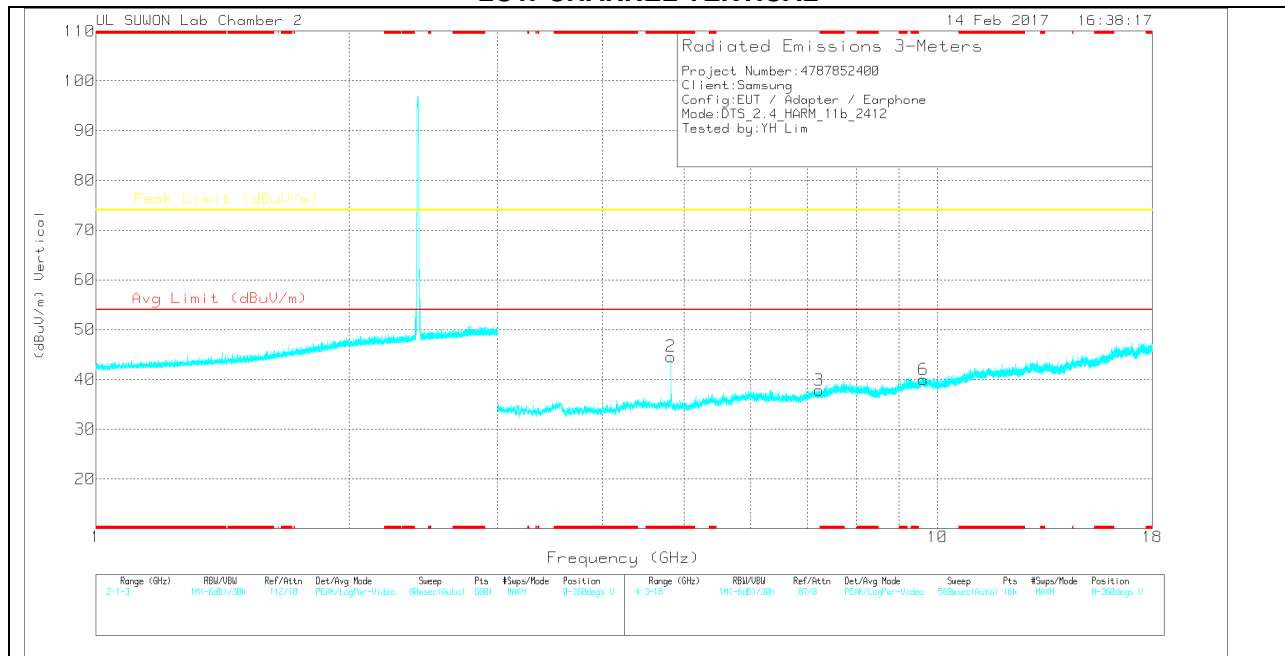
RMS - RMS detection

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(00168724)_150619	3GHz_HP[dB]	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	32.54	Pk	33.9	-24.3	0	42.14	-	-	74	-31.86	0-360	150	H
4	7.235	23.73	Pk	35.8	-21.9	0	37.63	-	-	74	-36.37	0-360	250	H
5	9.625	21.23	Pk	36.9	-18.3	0	39.83	-	-	74	-34.17	0-360	250	H
2	* 4.823	35	Pk	33.9	-24.3	0	44.6	-	-	74	-29.4	0-360	150	V
3	7.238	24.07	Pk	35.8	-22	0	37.87	-	-	74	-36.13	0-360	250	V
6	9.623	21.42	Pk	36.9	-18.3	0	40.02	-	-	74	-33.98	0-360	250	V

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

Pk – Peak detector

Radiated Emissions

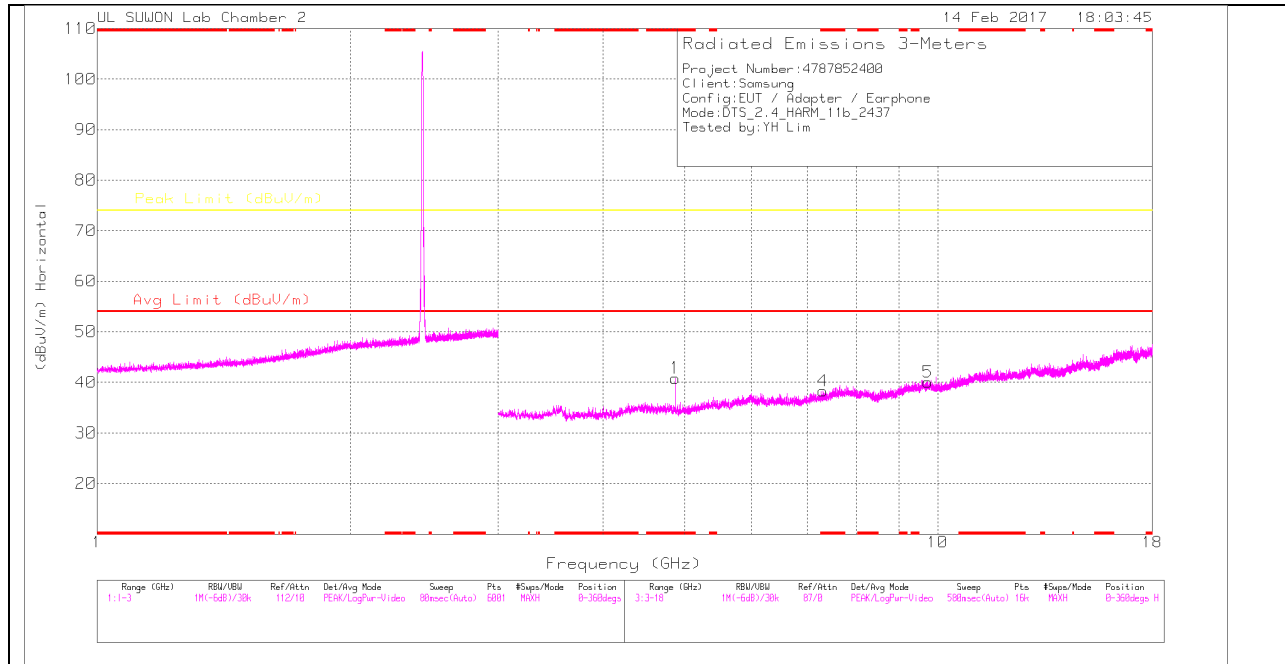
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168724)_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	38.96	PK2	33.9	-24.3	0	48.56	-	-	74	-25.44	64	107	H
* 4.824	32.09	MAv1	33.9	-24.3	0	41.69	54	-12.31	-	-	64	107	H
* 4.824	40.86	PK2	33.9	-24.3	0	50.46	-	-	74	-23.54	316	121	V
* 4.824	35.23	MAv1	33.9	-24.3	0	44.83	54	-9.17	-	-	316	121	V

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

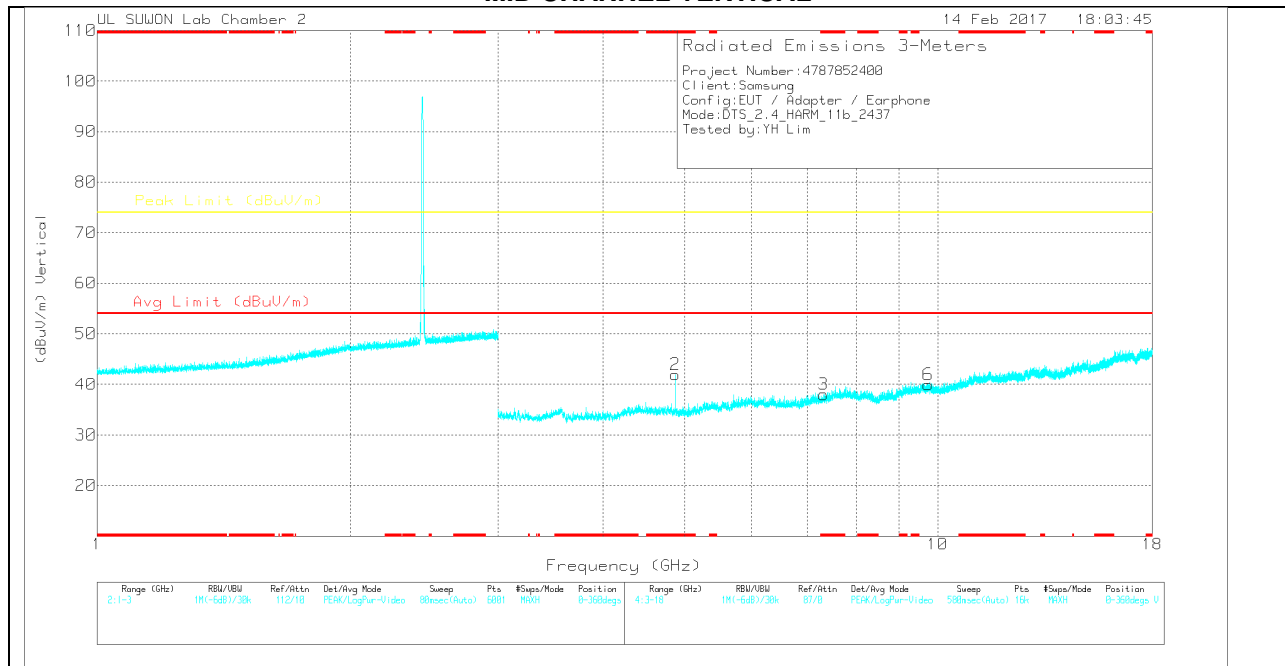
PK2 - KDB558074 Method: Maximum Peak

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 24_150619)	3GHz_HP[dB]	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	31.44	Pk	33.9	-24.5	0	40.84	-	-	74	-33.16	0-360	150	H
4	* 7.307	24.4	Pk	35.9	-22	0	38.3	-	-	74	-35.7	0-360	250	H
5	9.739	21.14	Pk	37	-18.1	0	40.04	-	-	74	-33.96	0-360	250	H
2	* 4.874	32.54	Pk	33.9	-24.5	0	41.94	-	-	74	-32.06	0-360	150	V
3	* 7.311	24.1	Pk	35.9	-22	0	38	-	-	74	-36	0-360	150	V
6	9.744	21.05	Pk	37	-18.1	0	39.95	-	-	74	-34.05	0-360	150	V

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

Pk – Peak detector

Radiated Emissions

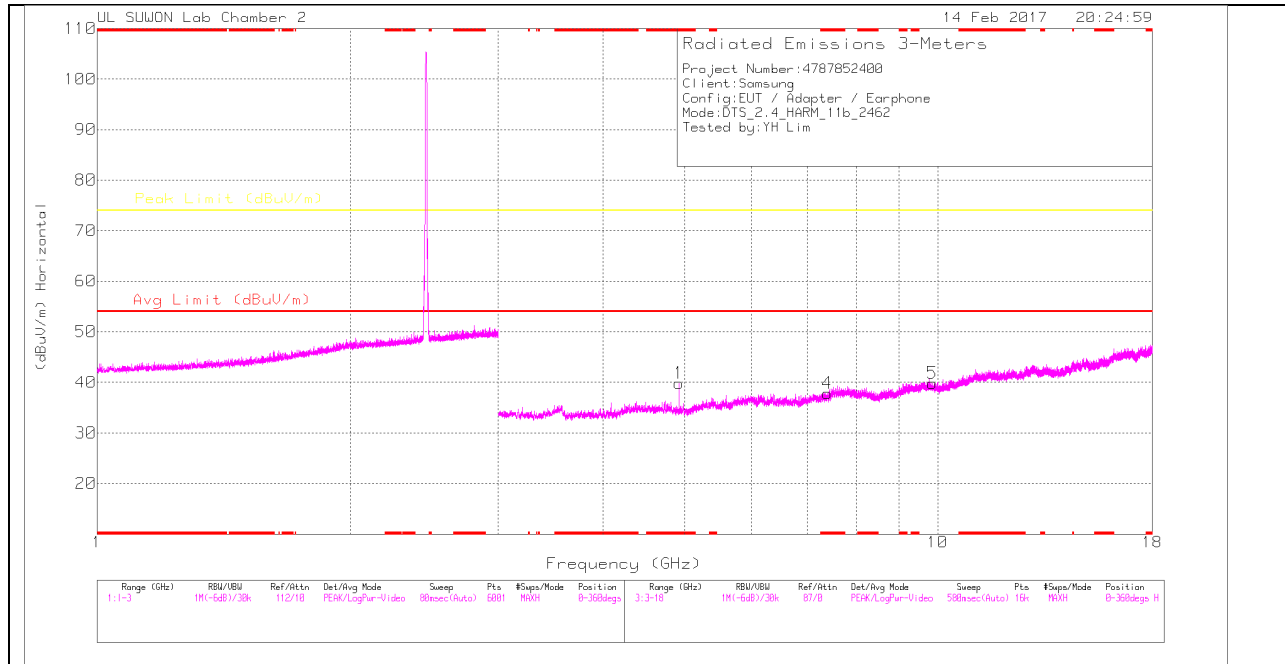
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	39.58	PK2	33.9	-24.5	0	48.98	-	-	74	-25.02	68	100	H
* 4.874	32.93	MAv1	33.9	-24.5	0	42.33	54	-11.67	-	-	68	100	H
* 4.874	40.52	PK2	33.9	-24.5	0	49.92	-	-	74	-24.08	245	135	V
* 4.874	34.55	MAv1	33.9	-24.5	0	43.95	54	-10.05	-	-	245	135	V

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

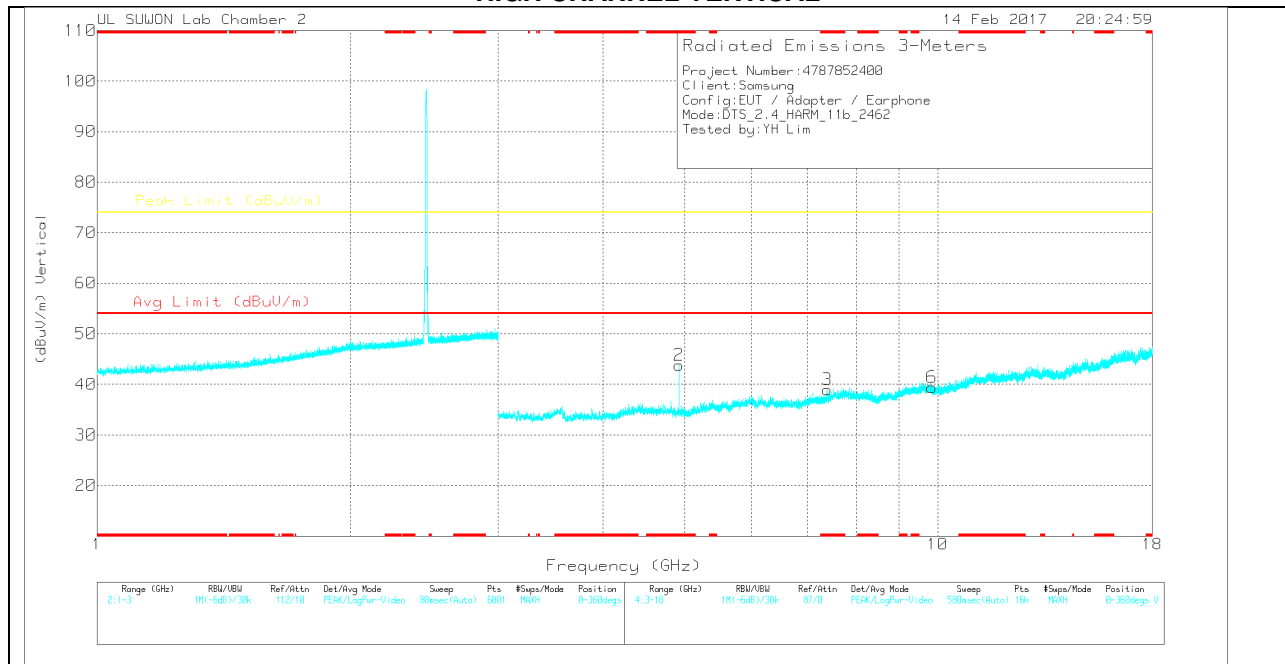
PK2 - KDB558074 Method: Maximum Peak

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 24_150619)	3GHz_HP[dB]	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	30.64	Pk	33.9	-24.7	0	39.84	-	-	74	-34.16	0-360	150	H
4	* 7.389	23.32	Pk	35.9	-21.4	0	37.82	-	-	74	-36.18	0-360	150	H
5	9.849	20.63	Pk	37.1	-17.9	0	39.83	-	-	74	-34.17	0-360	250	H
2	* 4.924	34.62	Pk	33.9	-24.7	0	43.82	-	-	74	-30.18	0-360	150	V
3	* 7.393	24.34	Pk	35.9	-21.3	0	38.94	-	-	74	-35.06	0-360	150	V
6	9.845	20.25	Pk	37.1	-17.9	0	39.45	-	-	74	-34.55	0-360	150	V

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

Pk – Peak detector

Radiated Emissions

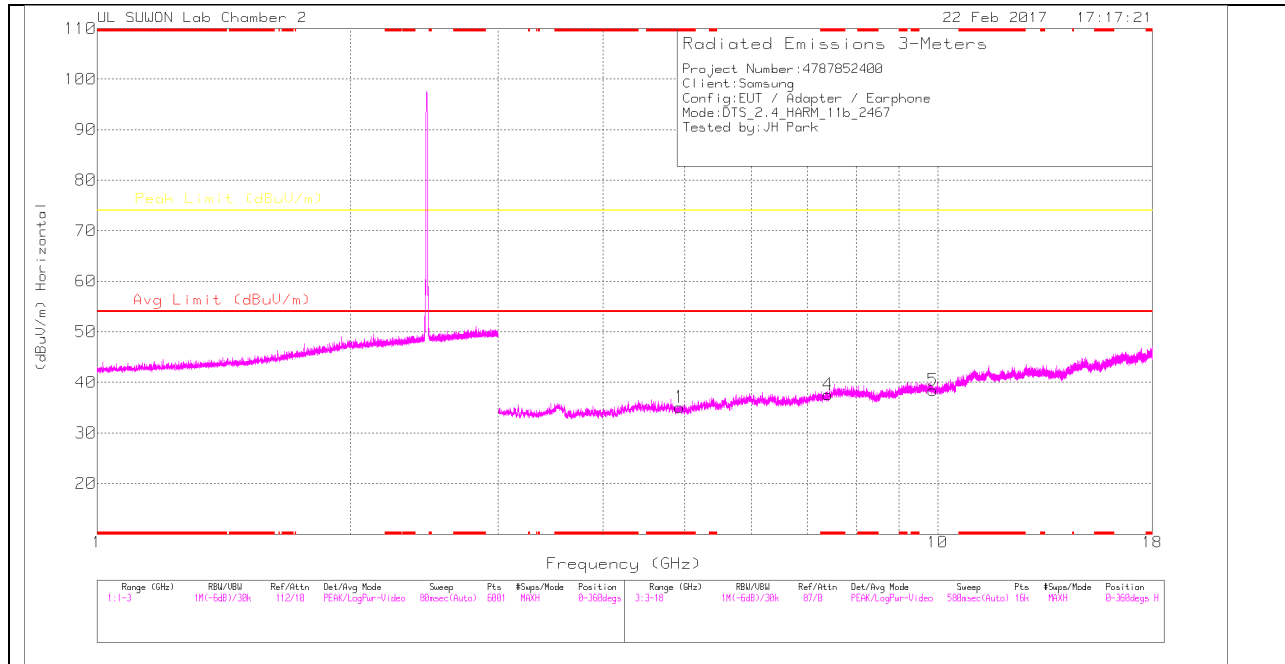
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.924	38.71	PK2	33.9	-24.7	0	47.91	-	-	74	-26.09	66	124	H
* 4.924	31.42	MAv1	33.9	-24.7	0	40.62	54	-13.38	-	-	66	124	H
* 4.924	39.2	PK2	33.9	-24.7	0	48.4	-	-	74	-25.6	318	125	V
* 4.924	32.24	MAv1	33.9	-24.7	0	41.44	54	-12.56	-	-	318	125	V

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

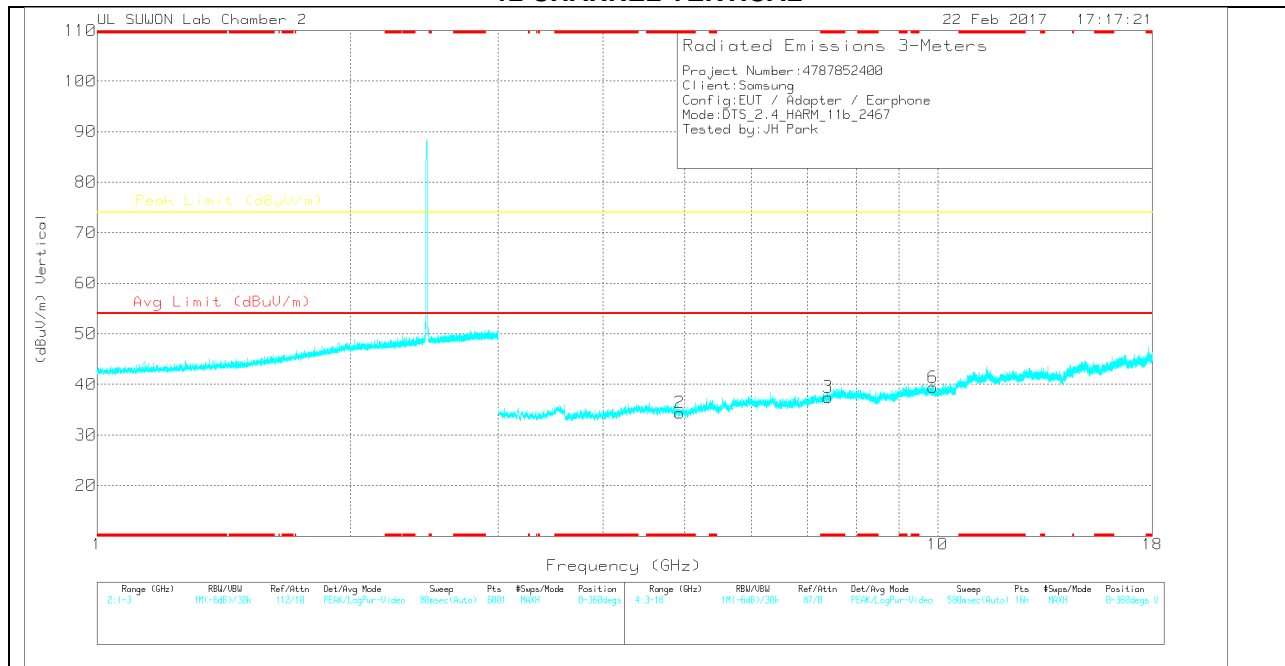
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

12 CHANNEL HORIZONTAL



12 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.

12 CHANNEL DATA

Trace Markers

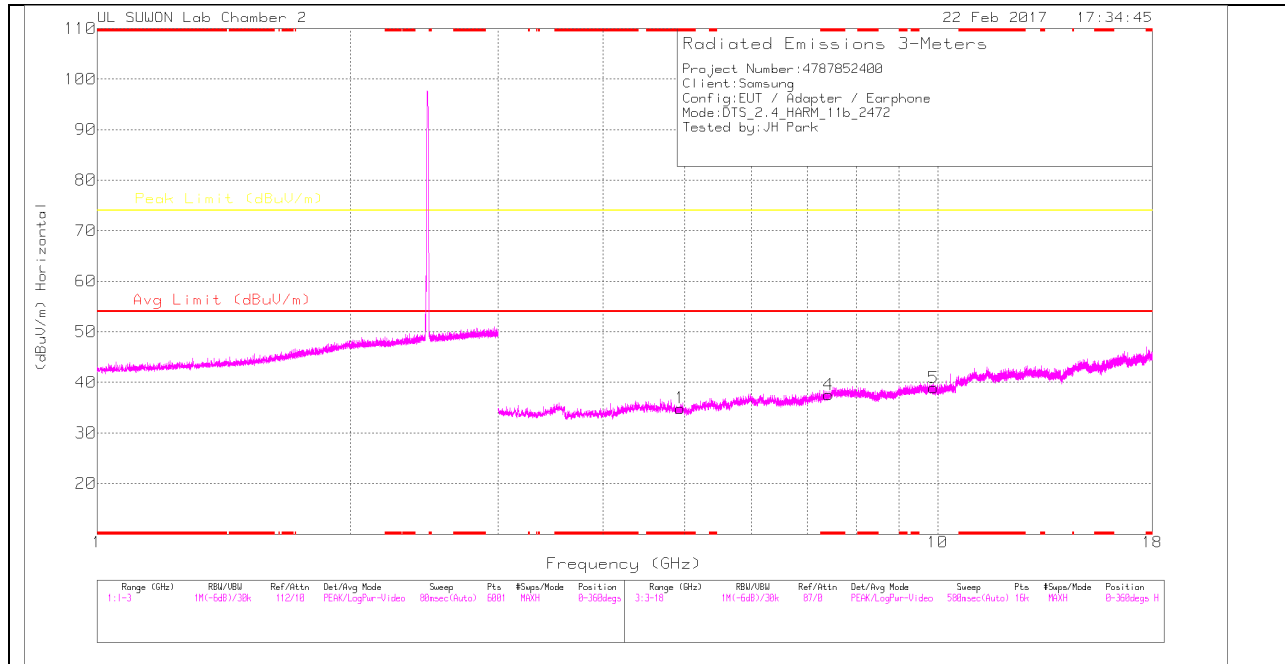
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.935	25.89	PK	33.9	-24.7	0	35.09	-	-	74	-38.91	0-360	250	H
4	* 7.405	22.88	PK	36	-21.3	0	37.58	-	-	74	-36.42	0-360	250	H
5	9.867	19.38	PK	37.1	-18	0	38.48	-	-	74	-35.52	0-360	150	H
2	* 4.935	25.18	PK	33.9	-24.7	0	34.38	-	-	74	-39.62	0-360	250	V
3	* 7.402	22.78	PK	36	-21.3	0	37.48	-	-	74	-36.52	0-360	150	V
6	9.872	20.32	PK	37.1	-18	0	39.42	-	-	74	-34.58	0-360	150	V

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

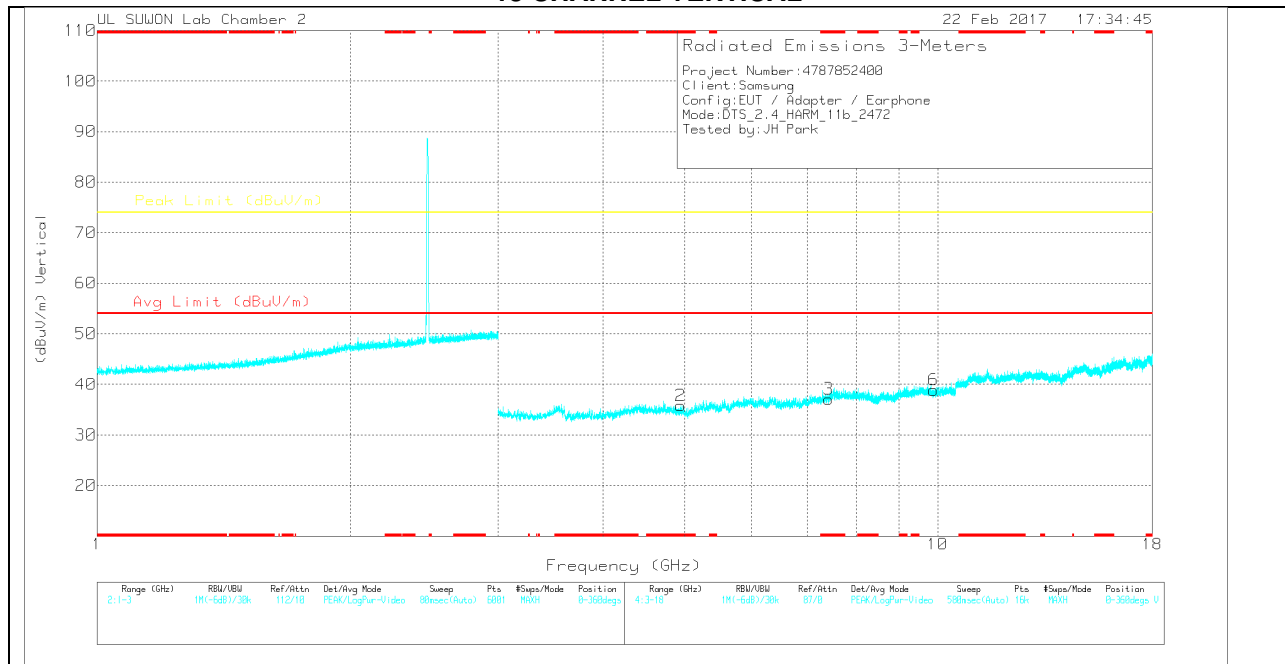
PK – Peak Detector

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

13 CHANNEL HORIZONTAL



13 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.

13 CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	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	* 4.943	25.68	PK	33.9	-24.7	0	34.88	-	-	74	-39.12	0-360	250	H
4	* 7.413	22.74	PK	36	-21.2	0	37.54	-	-	74	-36.46	0-360	150	H
5	9.889	19.8	PK	37.1	-18	0	38.9	-	-	74	-35.1	0-360	150	H
2	* 4.945	26.61	PK	33.9	-24.7	0	35.81	-	-	74	-38.19	0-360	250	V
3	* 7.415	22.28	PK	36	-21.2	0	37.08	-	-	74	-36.92	0-360	250	V
6	9.885	19.78	PK	37.1	-18	0	38.88	-	-	74	-35.12	0-360	150	V

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

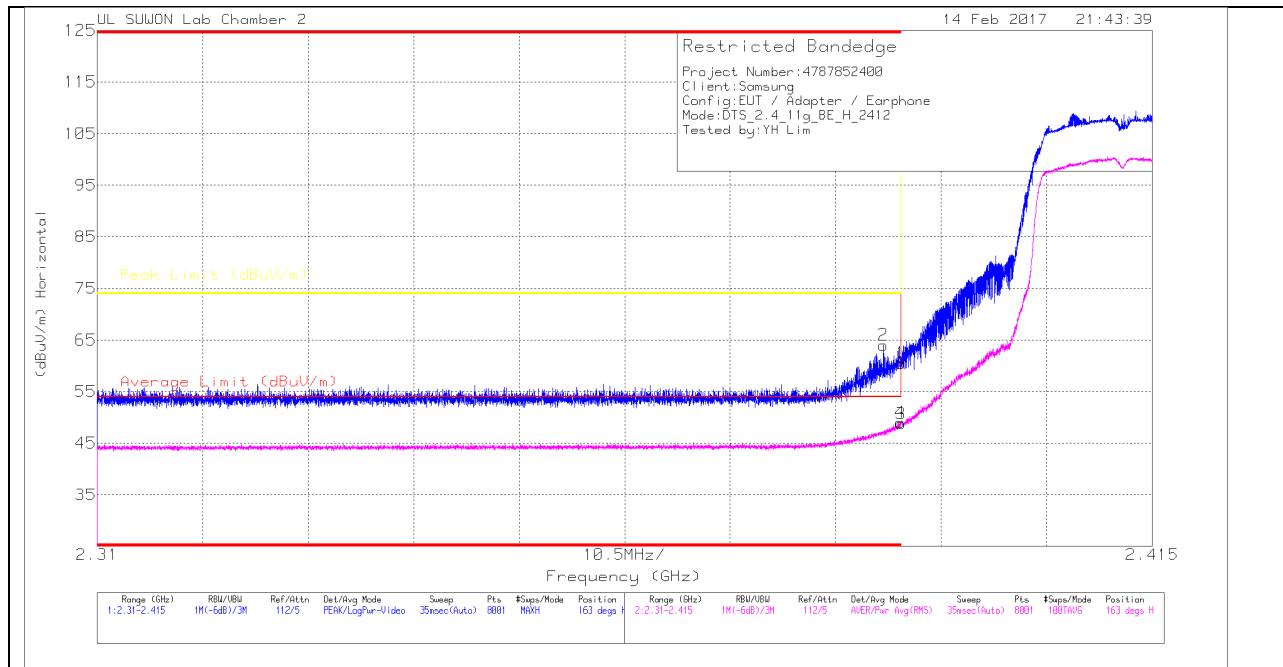
PK – Peak Detector

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

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

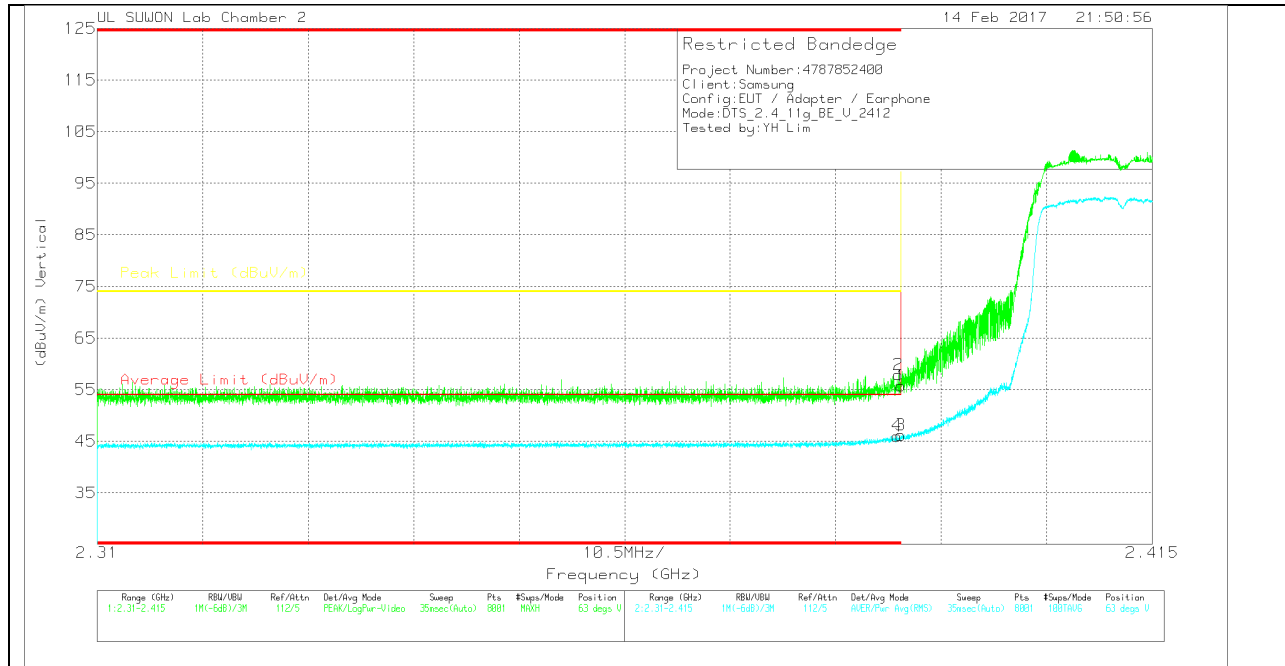
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	47	Pk	31.7	-18.2	0	60.5	-	-	74	-13.5	163	203	H
2	* 2.388	50.52	Pk	31.7	-18.2	0	64.02	-	-	74	-9.98	163	203	H
3	* 2.39	34.98	RMS	31.7	-18.2	.29	48.77	54	-5.23	-	-	163	203	H
4	* 2.39	35.23	RMS	31.7	-18.2	.29	49.02	54	-4.98	-	-	163	203	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	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.22	Pk	31.7	-18.2	0	55.72	-	-	74	-18.28	63	273	V
2	* 2.39	44.39	Pk	31.7	-18.2	0	57.89	-	-	74	-16.11	63	273	V
3	* 2.39	32.38	RMS	31.7	-18.2	.29	46.17	54	-7.83	-	-	63	273	V
4	* 2.39	32.24	RMS	31.7	-18.2	.29	46.03	54	-7.97	-	-	63	273	V

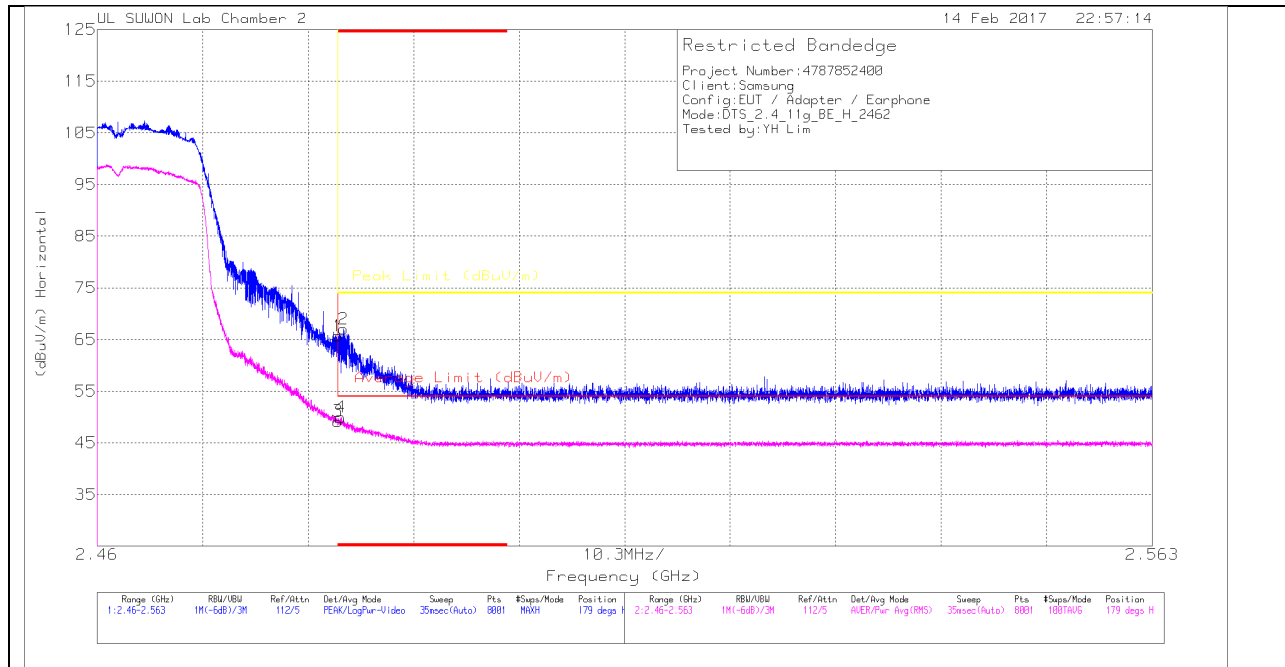
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

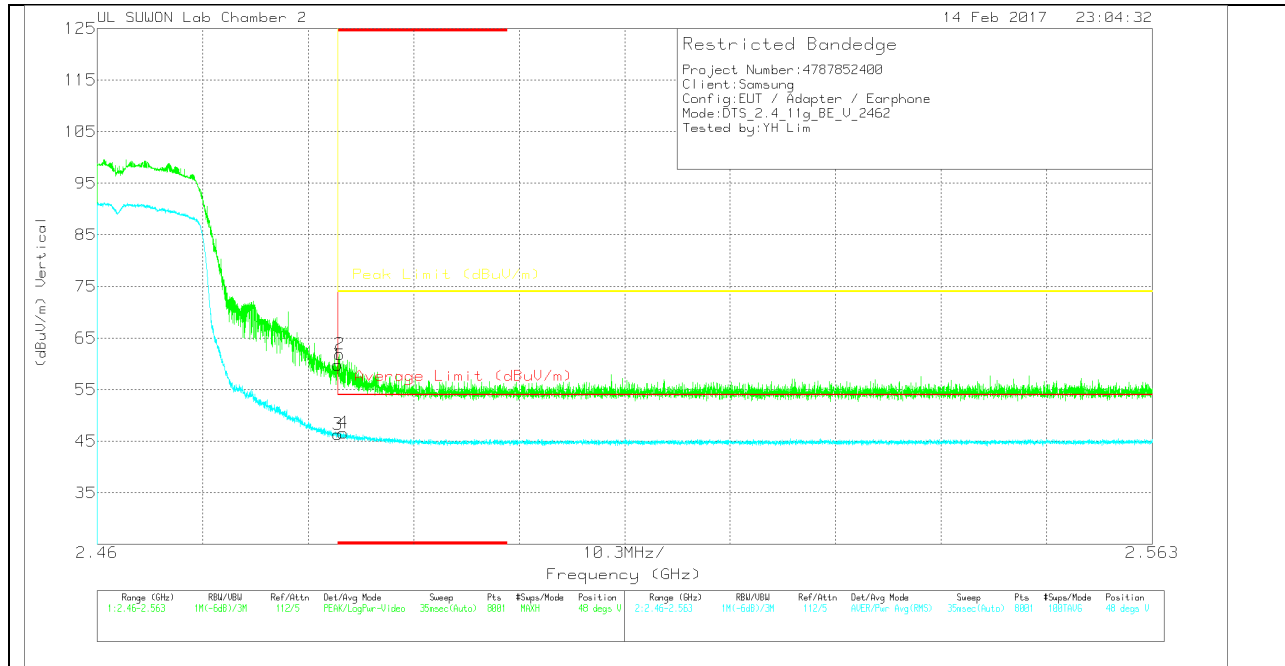
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	51.9	Pk		-18	0	65.7	-	-	74	-8.3	179	316	H
2	* 2.484	53.22	Pk		-18	0	67.02	-	-	74	-6.98	179	316	H
3	* 2.484	35.09	RMS		-18	.29	49.18	54	-4.82	-	-	179	316	H
4	* 2.484	35.85	RMS		-18	.29	49.94	54	-4.06	-	-	179	316	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	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.02	Pk		-18	0	59.82	-	-	74	-14.18	48	154	V
2	* 2.484	48.07	Pk		-18	0	61.87	-	-	74	-12.13	48	154	V
3	* 2.484	32.28	RMS		-18	.29	46.37	54	-7.63	-	-	48	154	V
4	* 2.484	32.55	RMS		-18	.29	46.64	54	-7.36	-	-	48	154	V

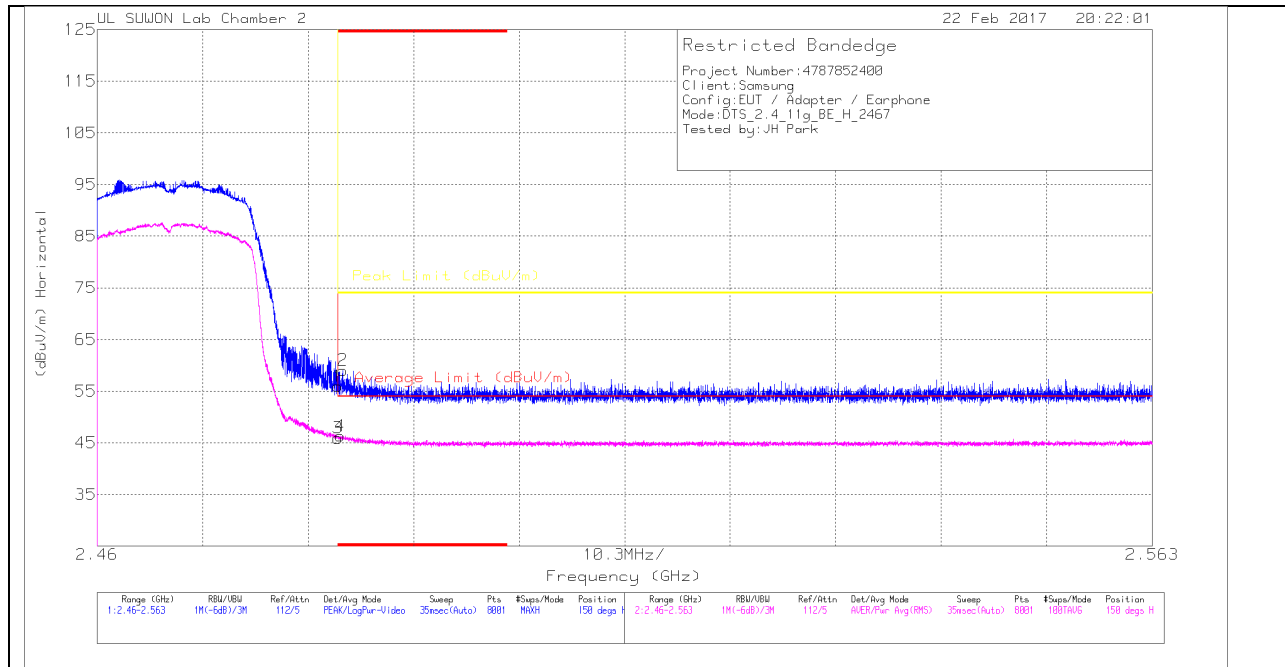
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

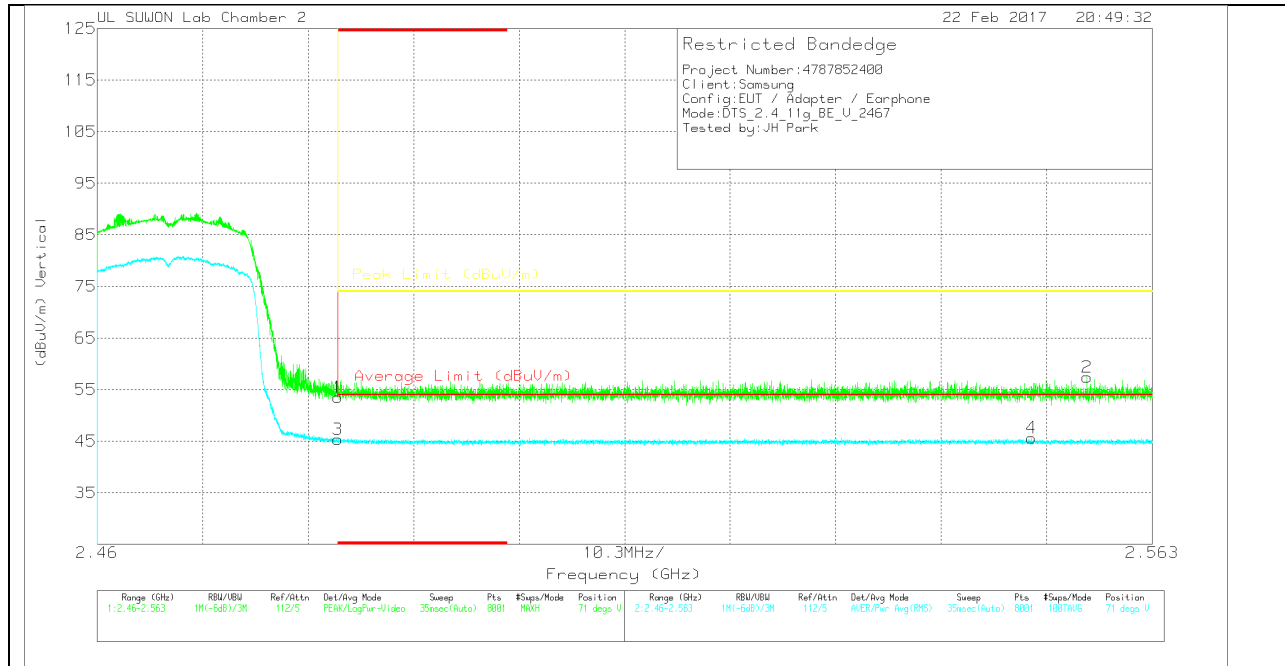
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.17	Pk	31.8	-18	0	59.97	-	-	74	-18.03	150	222	H
2	* 2.484	45.23	Pk	31.8	-18	0	59.03	-	-	74	-14.97	150	222	H
3	* 2.484	31.84	RMS	31.8	-18	.29	45.93	54	-8.07	-	-	150	222	H
4	* 2.484	32.24	RMS	31.8	-18	.29	46.33	54	-7.67	-	-	150	222	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.72	Pk		-18	0	53.52	-	-	74	-20.48	71	105	V
2	2.557	43.49	Pk		-18	0	57.39	-	-	74	-16.61	71	105	V
3	* 2.484	31.27	RMS		-18	.29	45.36	54	-8.64	-	-	71	105	V
4	2.551	31.44	RMS		-18	.29	45.63	54	-8.37	-	-	71	105	V

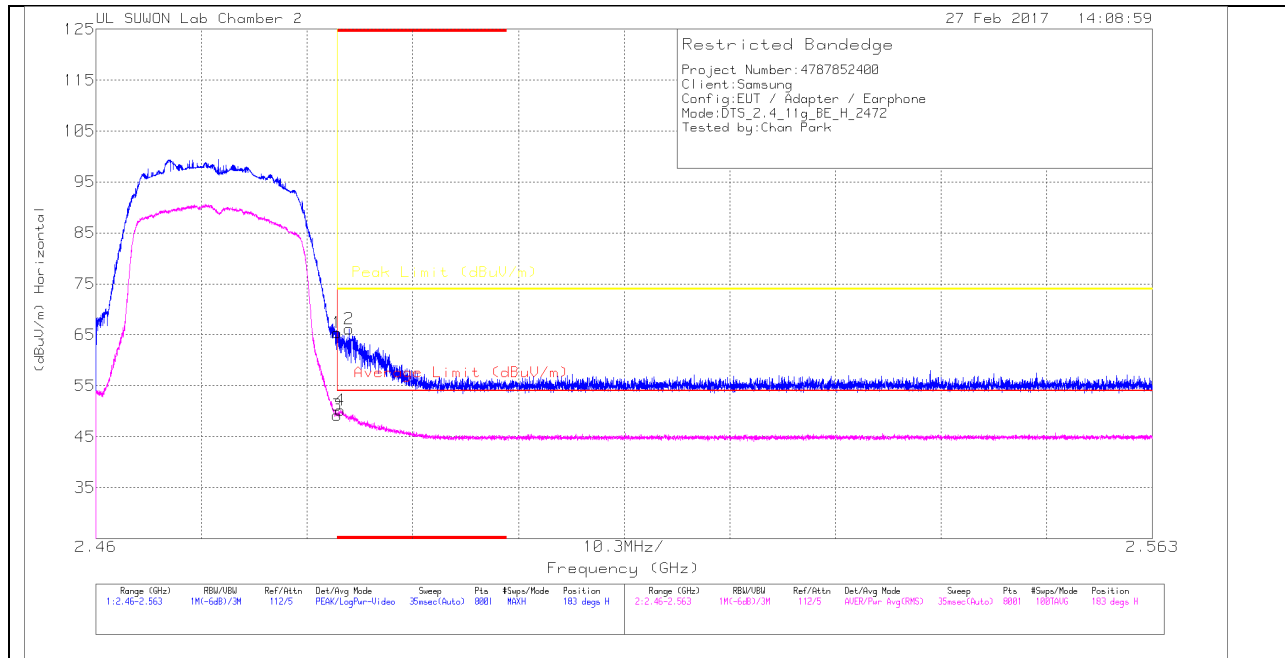
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

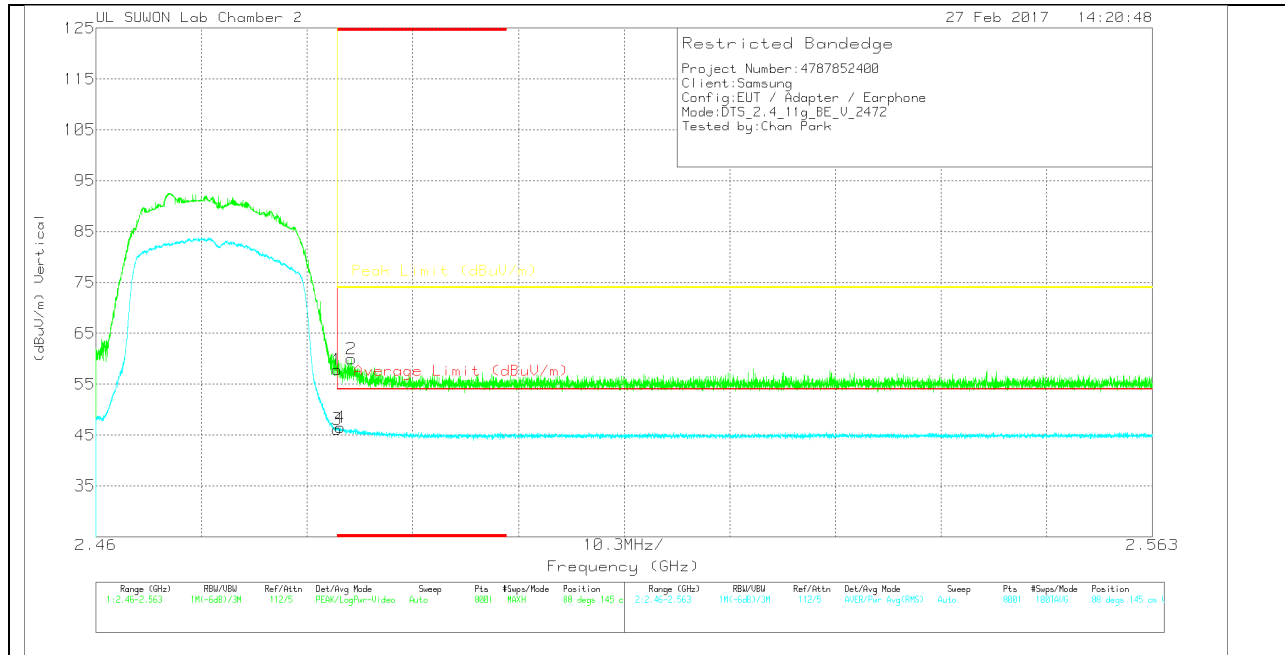
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 24_150619	10dB[dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	51.57	PK	31.8	-18	0	65.37	-	-	74	-8.63	183	223	H
2	* 2.485	52.35	PK	31.8	-18	0	66.15	-	-	74	-7.85	183	223	H
3	* 2.484	35.18	RMS	31.8	-18	.29	49.27	54	-4.73	-	-	183	223	H
4	* 2.484	36.06	RMS	31.8	-18	.29	50.15	54	-3.85	-	-	183	223	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	44.04	Pk	31.8	-18	0	57.84	-	-	74	-16.16	88	145	V
2	* 2.485	46.18	PK	31.8	-18	0	59.98	-	-	74	-14.02	88	145	V
3	* 2.484	32.09	RMS	31.8	-18	.29	46.18	54	-7.82	-	-	88	145	V
4	* 2.484	32.35	RMS	31.8	-18	.29	46.44	54	-7.56	-	-	88	145	V

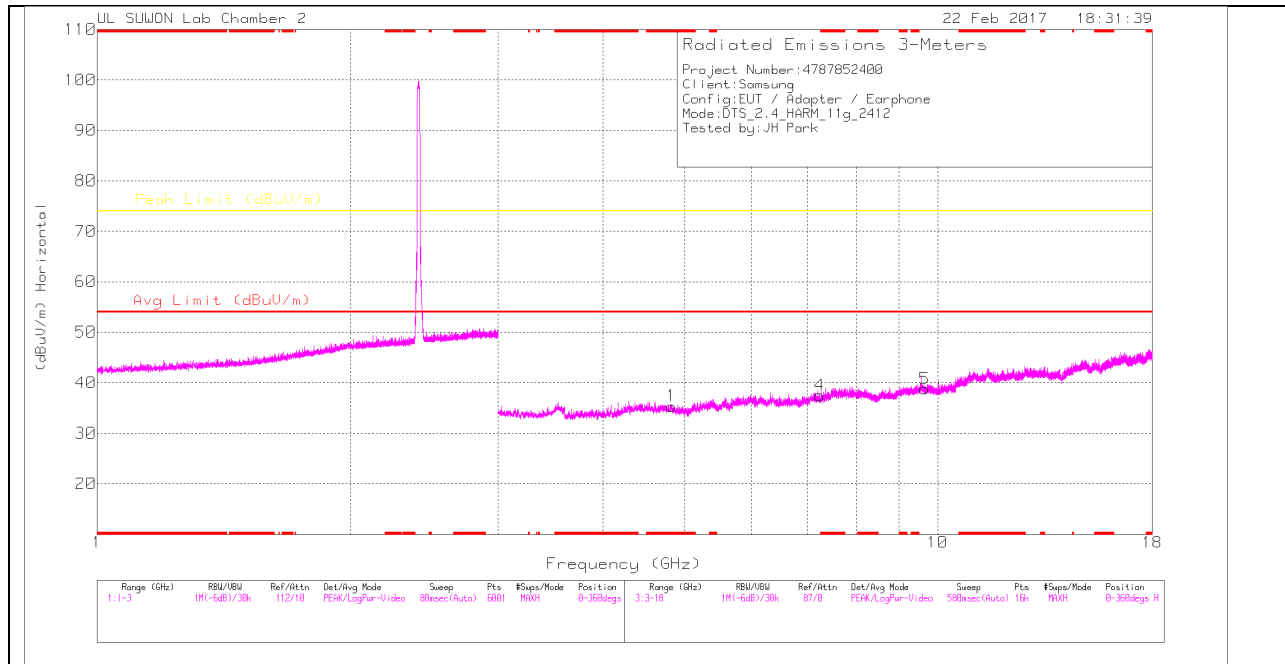
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

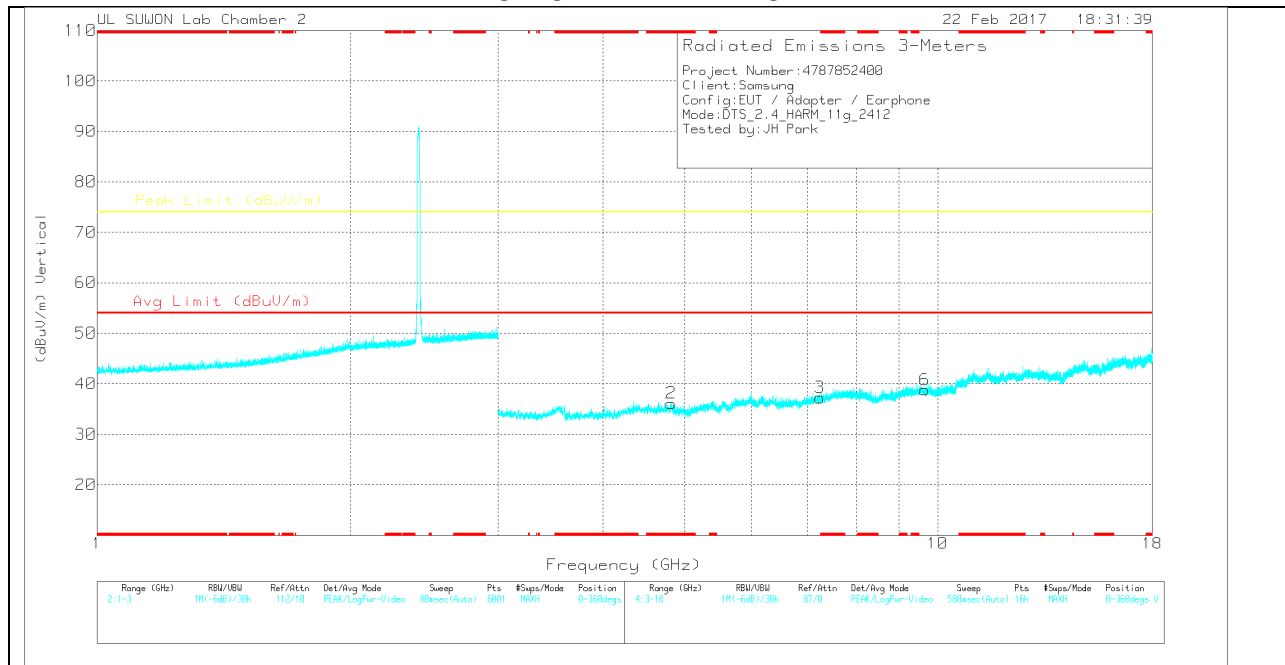
RMS - RMS detection

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

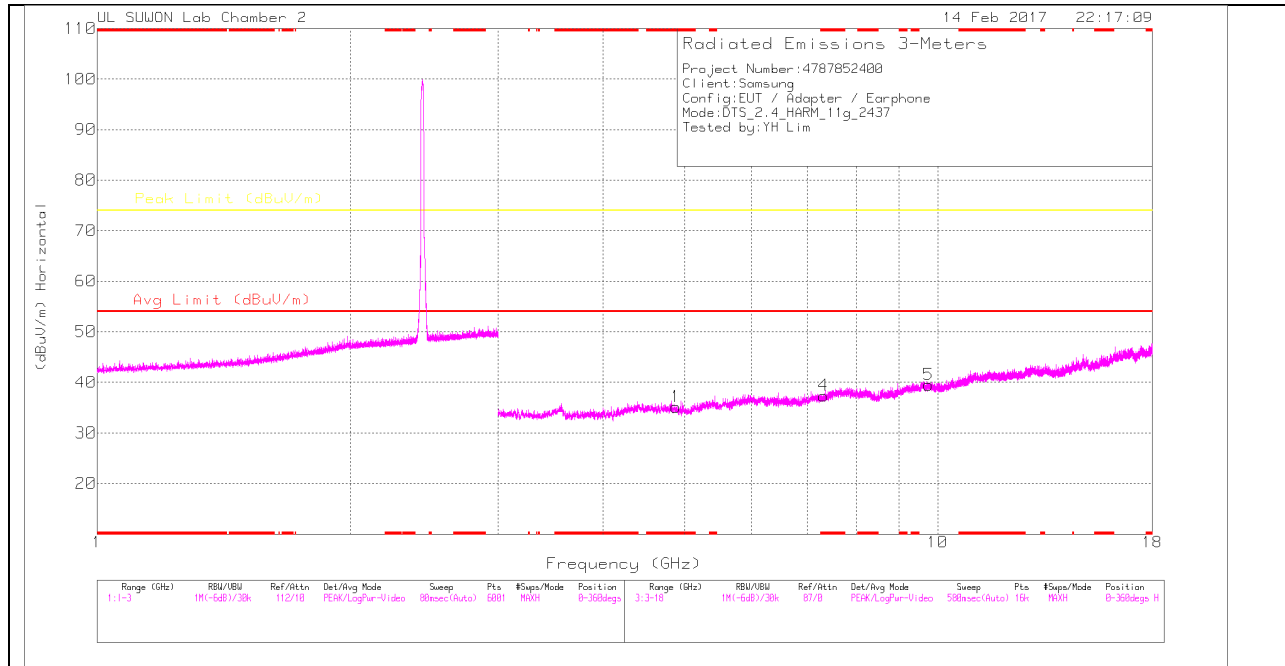
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.823	25.77	PK	33.9	-24.3	0	35.37	-	-	74	-38.63	0-360	150	H
4	7.236	23.7	PK	35.8	-22	0	37.5	-	-	74	-36.5	0-360	250	H
5	9.65	20.2	PK	36.9	-18.3	0	38.8	-	-	74	-35.2	0-360	250	H
2	* 4.82	26.52	PK	33.9	-24.3	0	36.12	-	-	74	-37.88	0-360	150	V
3	7.237	23.45	PK	35.8	-22	0	37.25	-	-	74	-36.75	0-360	150	V
6	9.647	20.2	PK	36.9	-18.3	0	38.8	-	-	74	-35.2	0-360	150	V

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

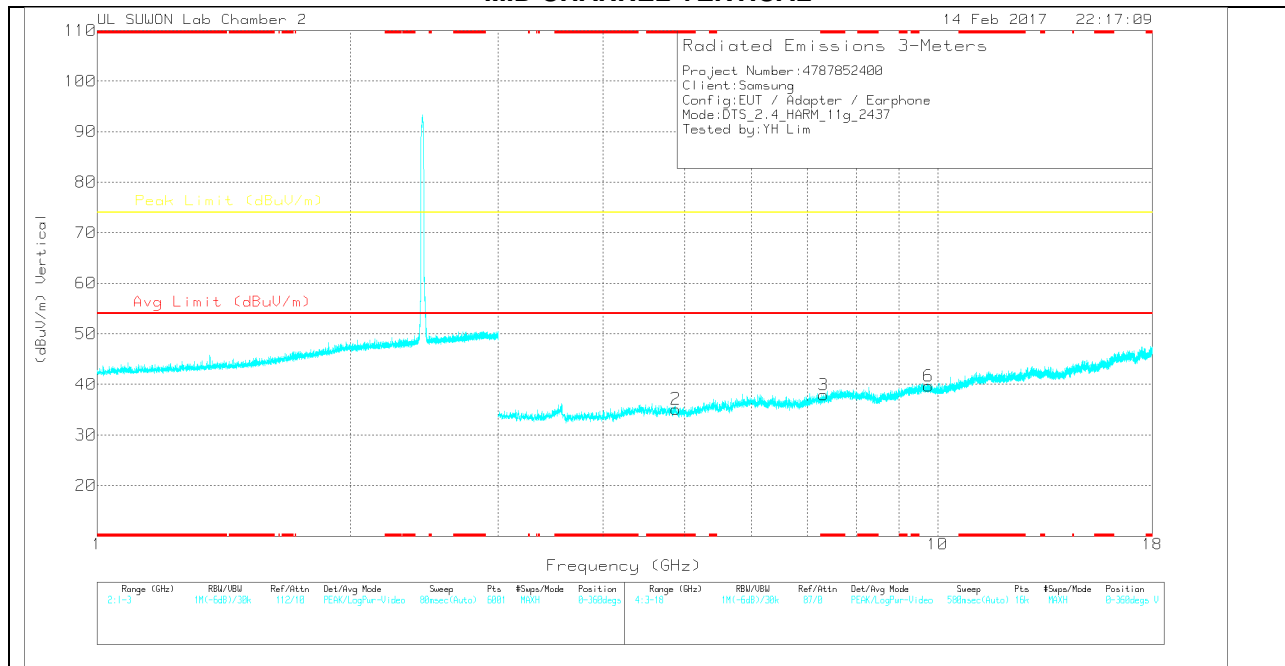
PK – Peak Detector

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

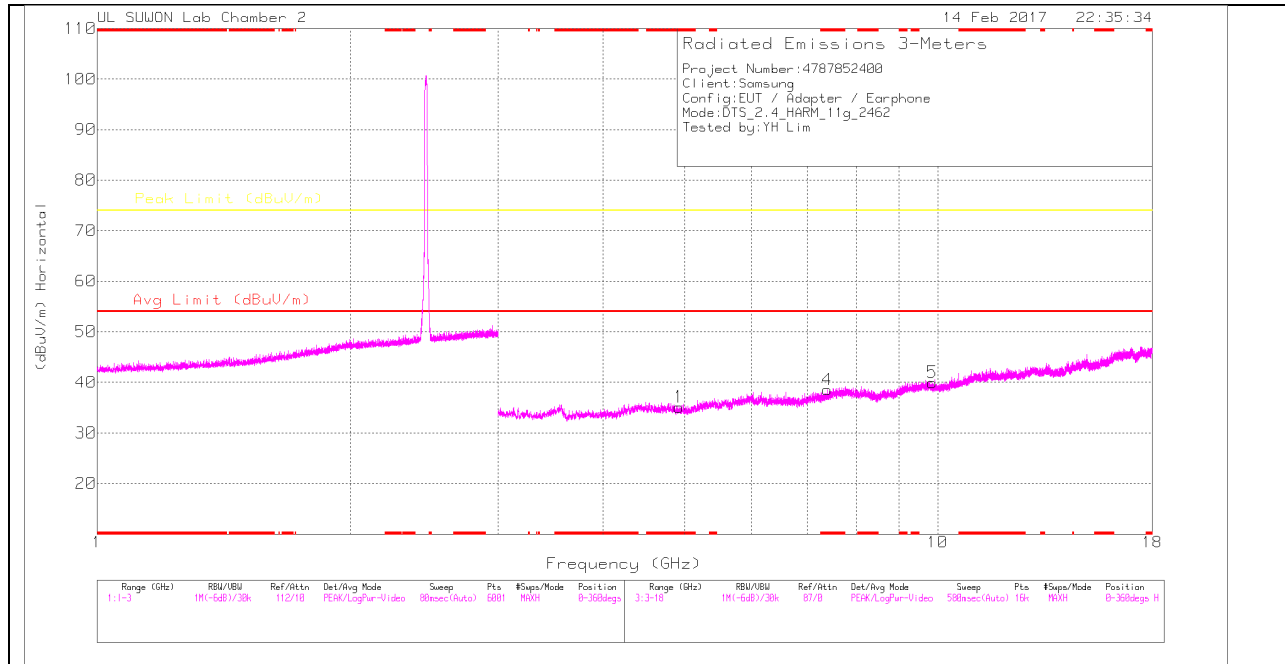
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.884	25.84	Pk	33.9	-24.6	0	35.14	-	-	74	-38.86	0-360	250	H
4	* 7.316	23.47	Pk	35.9	-22	0	37.37	-	-	74	-36.63	0-360	150	H
5	9.748	20.61	Pk	37	-18.1	0	39.51	-	-	74	-34.49	0-360	150	H
2	* 4.881	25.8	Pk	33.9	-24.6	0	35.1	-	-	74	-38.9	0-360	250	V
3	* 7.311	24.03	Pk	35.9	-22	0	37.93	-	-	74	-36.07	0-360	150	V
6	9.75	20.76	Pk	37	-18.1	0	39.66	-	-	74	-34.34	0-360	250	V

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

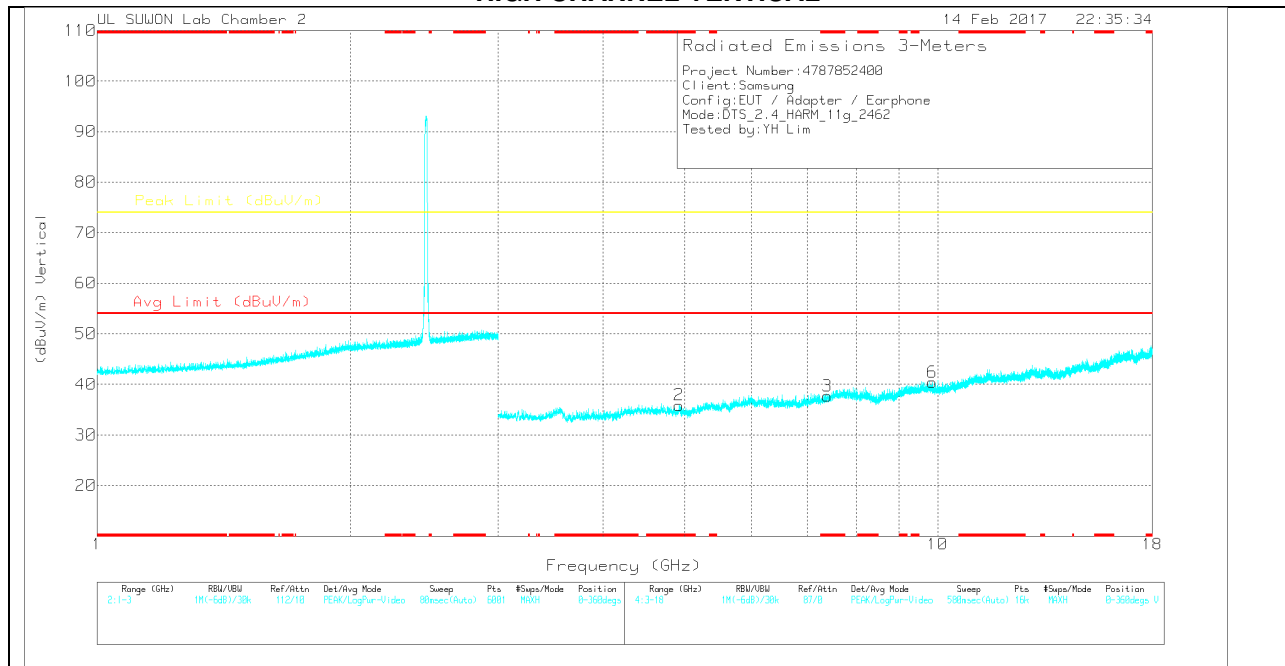
Pk – Peak detector

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

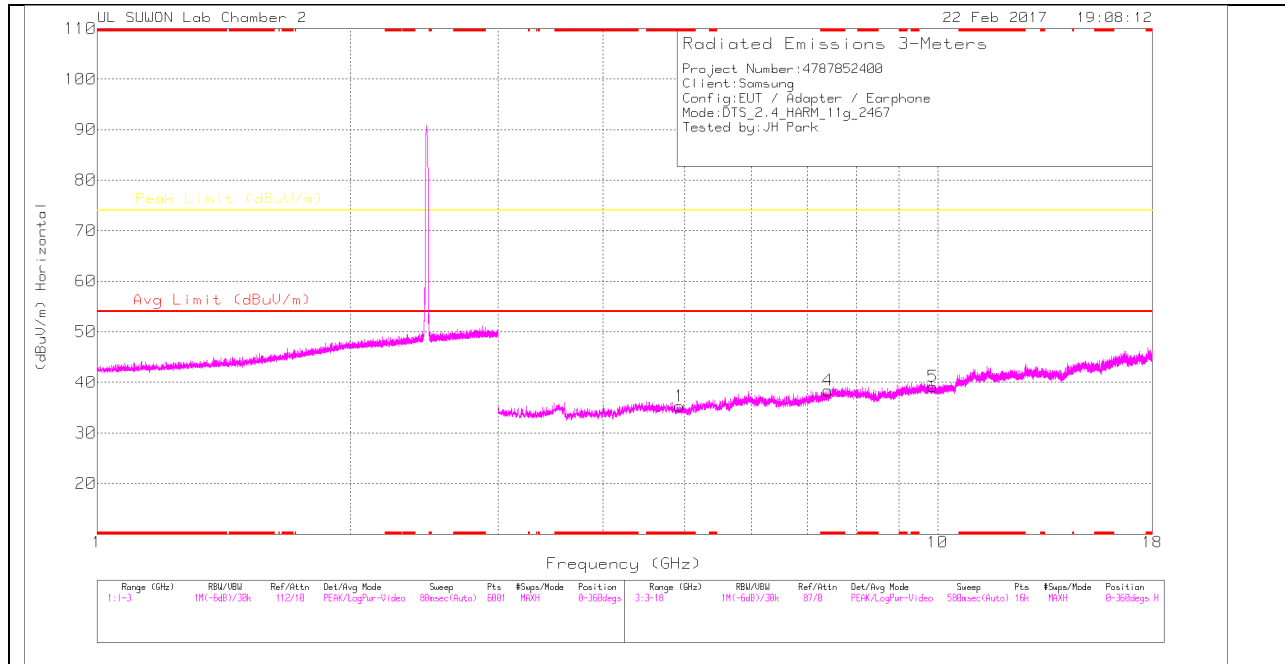
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.923	25.91	Pk	33.9	-24.7	0	35.11	-	-	74	-38.89	0-360	250	H
4	* 7.39	23.93	Pk	35.9	-21.3	0	38.53	-	-	74	-35.47	0-360	150	H
5	9.855	20.75	Pk	37.1	-17.9	0	39.95	-	-	74	-34.05	0-360	150	H
2	* 4.921	26.67	Pk	33.9	-24.7	0	35.87	-	-	74	-38.13	0-360	150	V
3	* 7.393	23.05	Pk	35.9	-21.3	0	37.65	-	-	74	-36.35	0-360	250	V
6	9.856	21.22	Pk	37.1	-17.9	0	40.42	-	-	74	-33.58	0-360	150	V

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

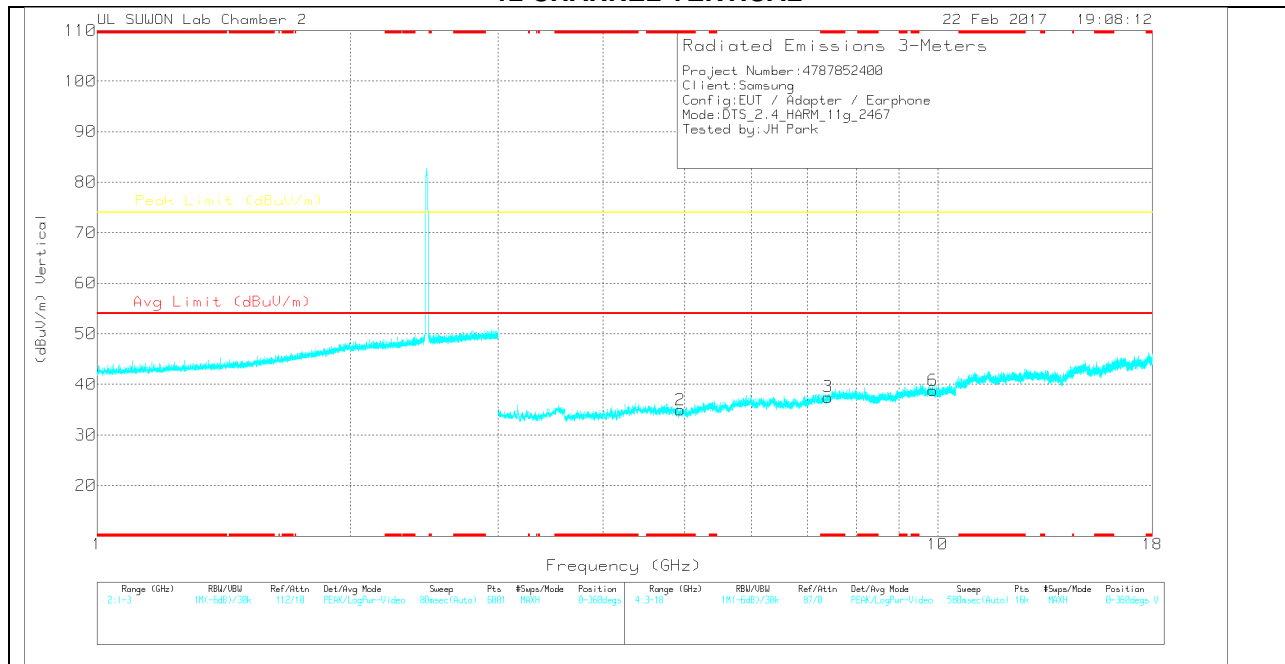
Pk – Peak detector

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

12 CHANNEL HORIZONTAL



12 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.

12 CHANNEL DATA

Trace Markers

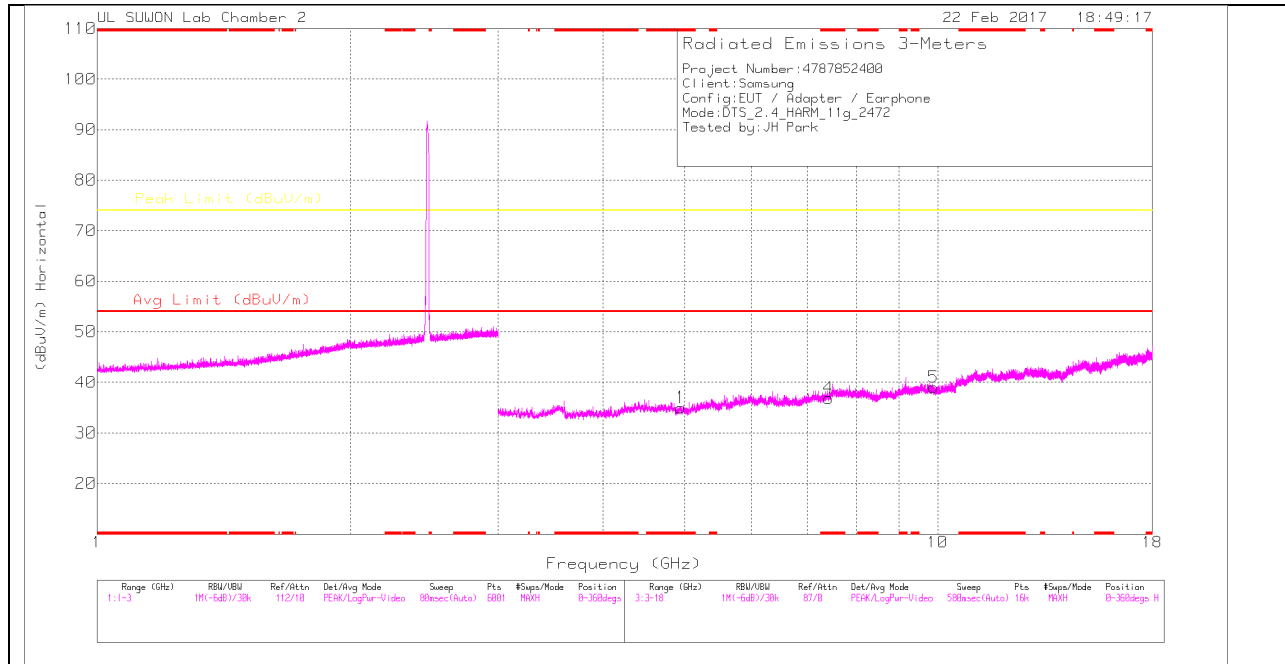
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.935	26.11	PK	33.9	-24.7	0	35.31	-	-	74	-38.69	0-360	150	H
4	* 7.403	23.67	PK	36	-21.3	0	38.37	-	-	74	-35.63	0-360	150	H
5	9.869	20.04	PK	37.1	-18	0	39.14	-	-	74	-34.86	0-360	150	H
2	* 4.938	25.81	PK	33.9	-24.8	0	34.91	-	-	74	-39.09	0-360	150	V
3	* 7.403	22.79	PK	36	-21.3	0	37.49	-	-	74	-36.51	0-360	150	V
6	9.864	19.7	PK	37.1	-18	0	38.8	-	-	74	-35.2	0-360	250	V

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

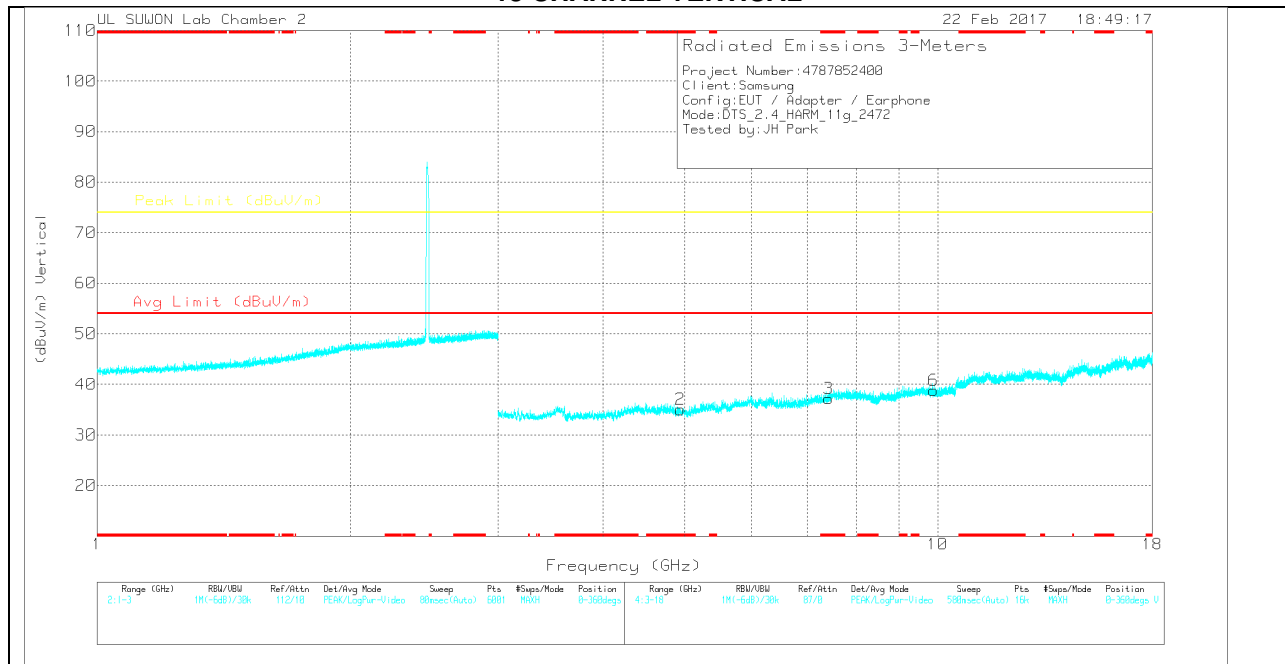
PK – Peak Detector

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

13 CHANNEL HORIZONTAL



13 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.

13 CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	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	* 4.946	25.77	PK	33.9	-24.7	0	34.97	-	-	74	-39.03	0-360	250	H
4	* 7.415	22.08	PK	36	-21.2	0	36.88	-	-	74	-37.12	0-360	150	H
5	9.889	19.92	PK	37.1	-18	0	39.02	-	-	74	-34.98	0-360	250	H
2	* 4.94	25.92	PK	33.9	-24.8	0	35.02	-	-	74	-38.98	0-360	150	V
3	* 7.415	22.35	PK	36	-21.2	0	37.15	-	-	74	-36.85	0-360	150	V
6	9.887	19.71	PK	37.1	-18	0	38.81	-	-	74	-35.19	0-360	150	V

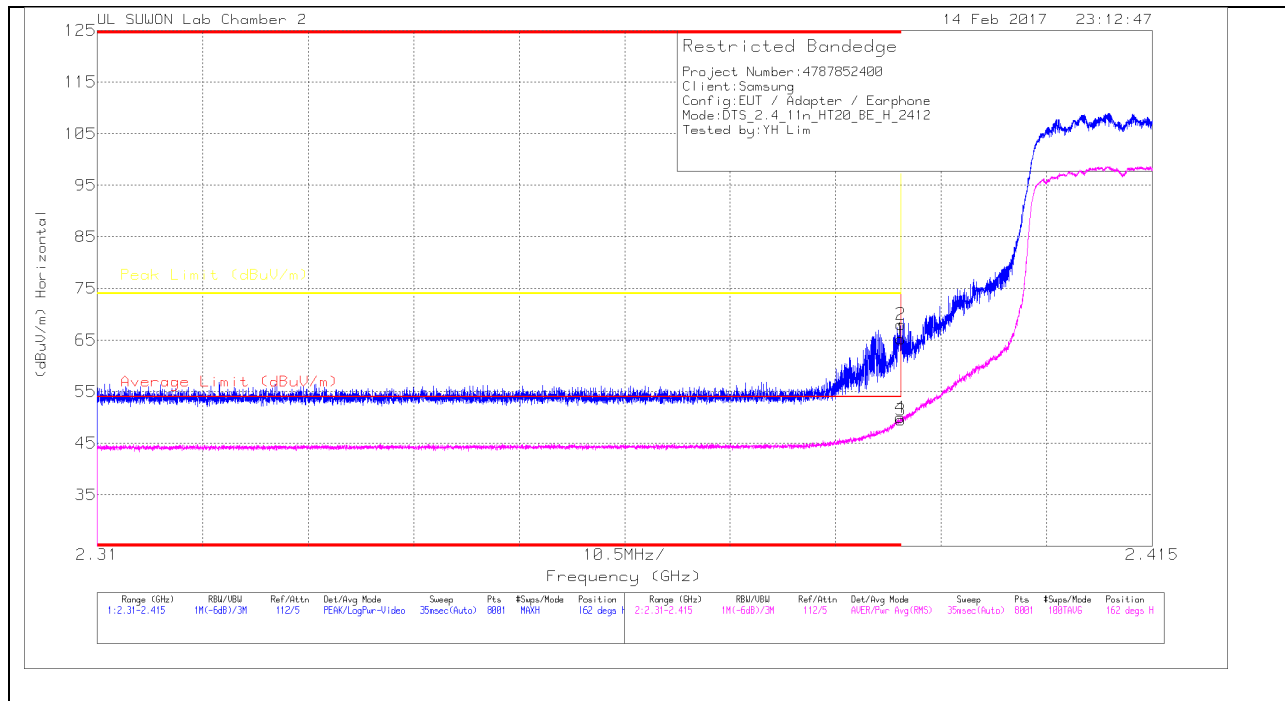
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak Detector

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

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

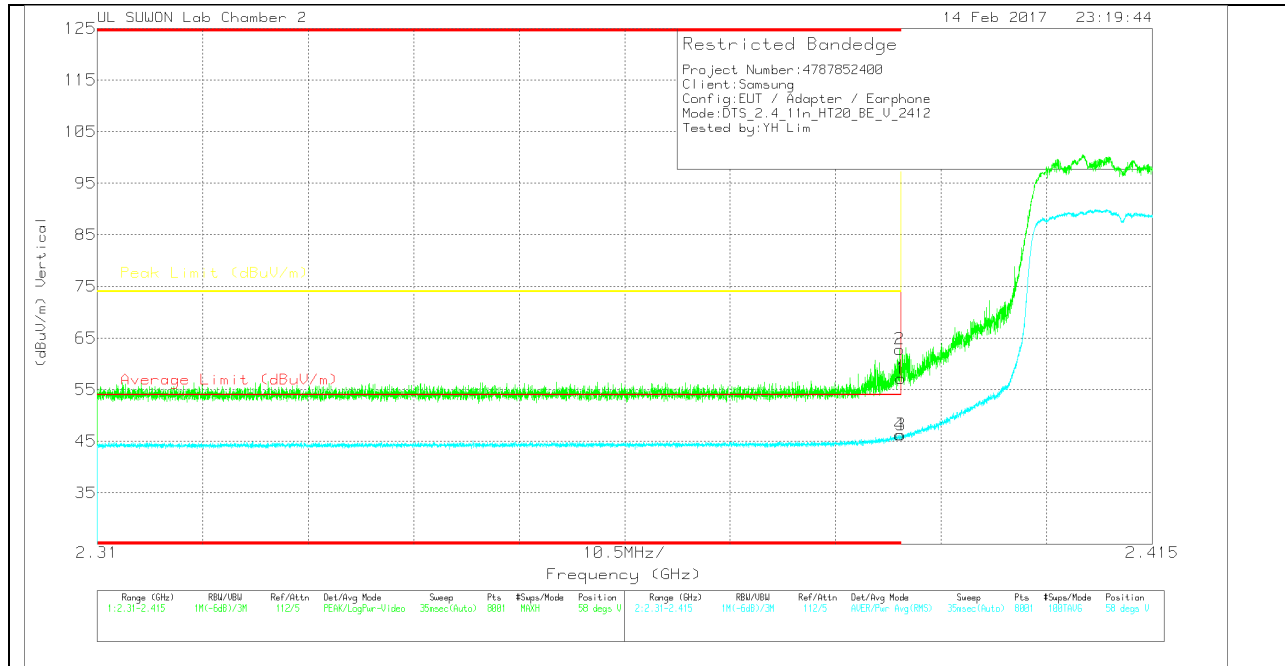
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	51.71	Pk	31.7	-18.2	0	65.21	-	-	74	-8.79	162	198	H
2	* 2.39	54.53	PK	31.7	-18.2	0	68.03	-	-	74	-5.97	162	198	H
3	* 2.39	35.68	RMS	31.7	-18.2	.34	49.52	54	-4.48	-	-	162	198	H
4	* 2.39	36.16	RMS	31.7	-18.2	.34	50	54	-4	-	-	162	198	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	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.68	Pk	31.7	-18.2	0	57.18	-	-	74	-16.82	58	273	V
2	* 2.39	49.34	Pk	31.7	-18.2	0	62.84	-	-	74	-11.16	58	273	V
3	* 2.39	32.41	RMS	31.7	-18.2	.34	46.25	54	-7.75	-	-	58	273	V
4	* 2.39	32.35	RMS	31.7	-18.2	.34	46.19	54	-7.81	-	-	58	273	V

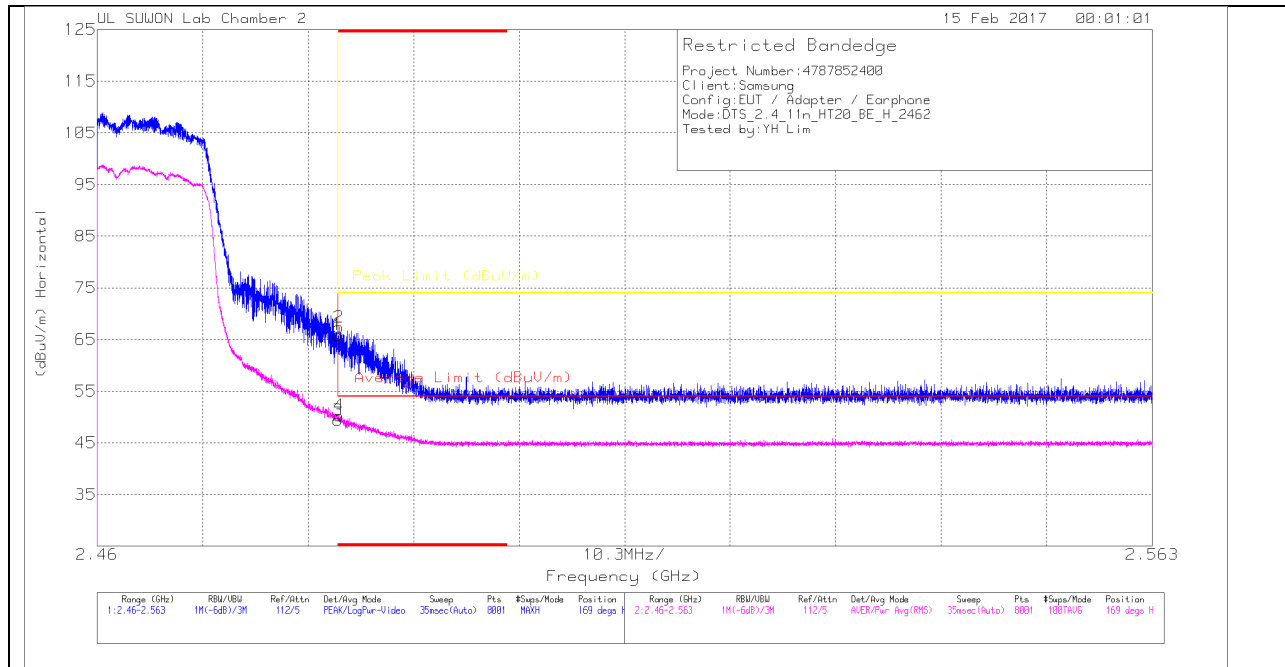
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

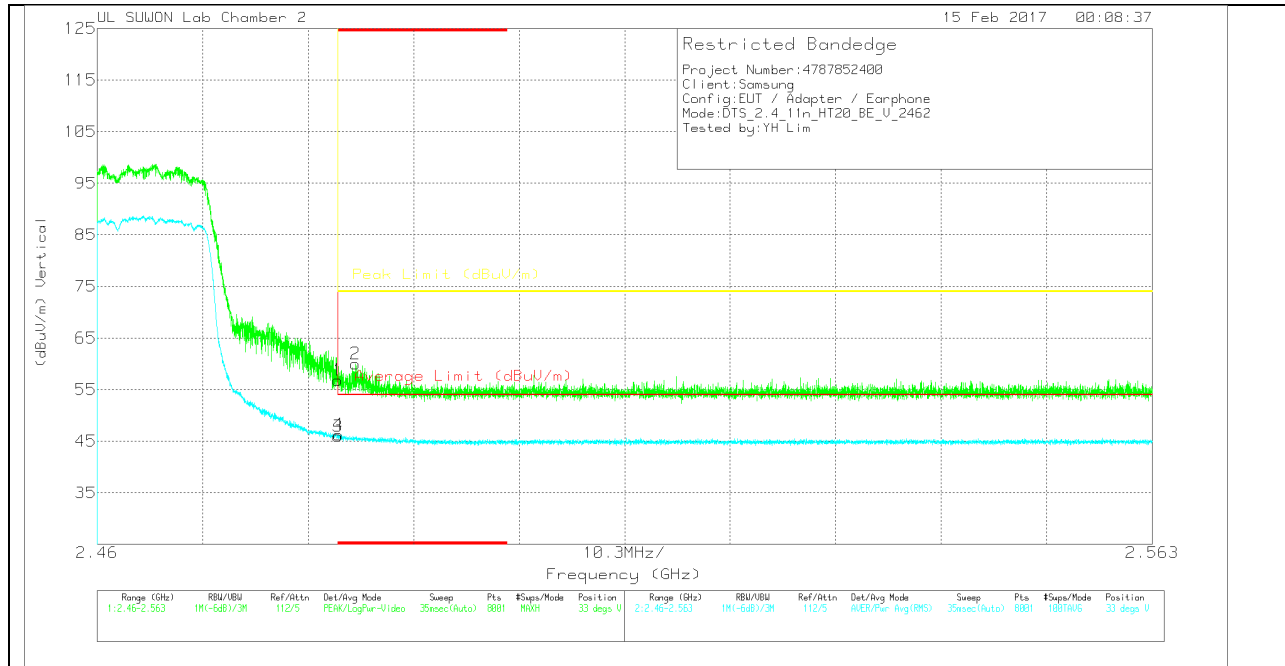
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	52.09	Pk		-18	0	65.89	-	-	74	-8.11	169	150	H
2	* 2.484	53.6	Pk		-18	0	67.4	-	-	74	-6.6	169	150	H
3	* 2.484	35.22	RMS		-18	.34	49.36	54	-4.64	-	-	169	150	H
4	* 2.484	36.12	RMS		-18	.34	50.26	54	-3.74	-	-	169	150	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	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.04	Pk	31.8	-18	0	56.84	-	-	74	-17.16	33	148	V
2	* 2.485	46.2	Pk	31.8	-18	0	60	-	-	74	-14	33	148	V
3	* 2.484	31.82	RMS	31.8	-18	.34	45.96	54	-8.04	-	-	33	148	V
4	* 2.484	32.12	RMS	31.8	-18	.34	46.26	54	-7.74	-	-	33	148	V

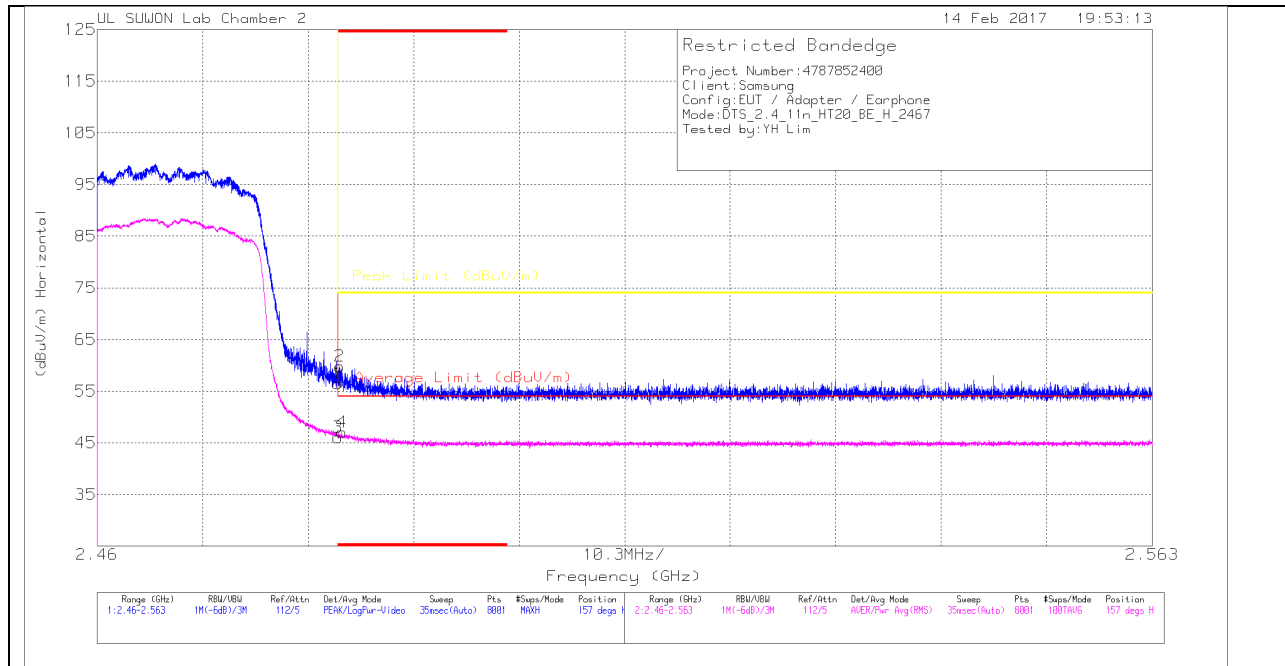
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

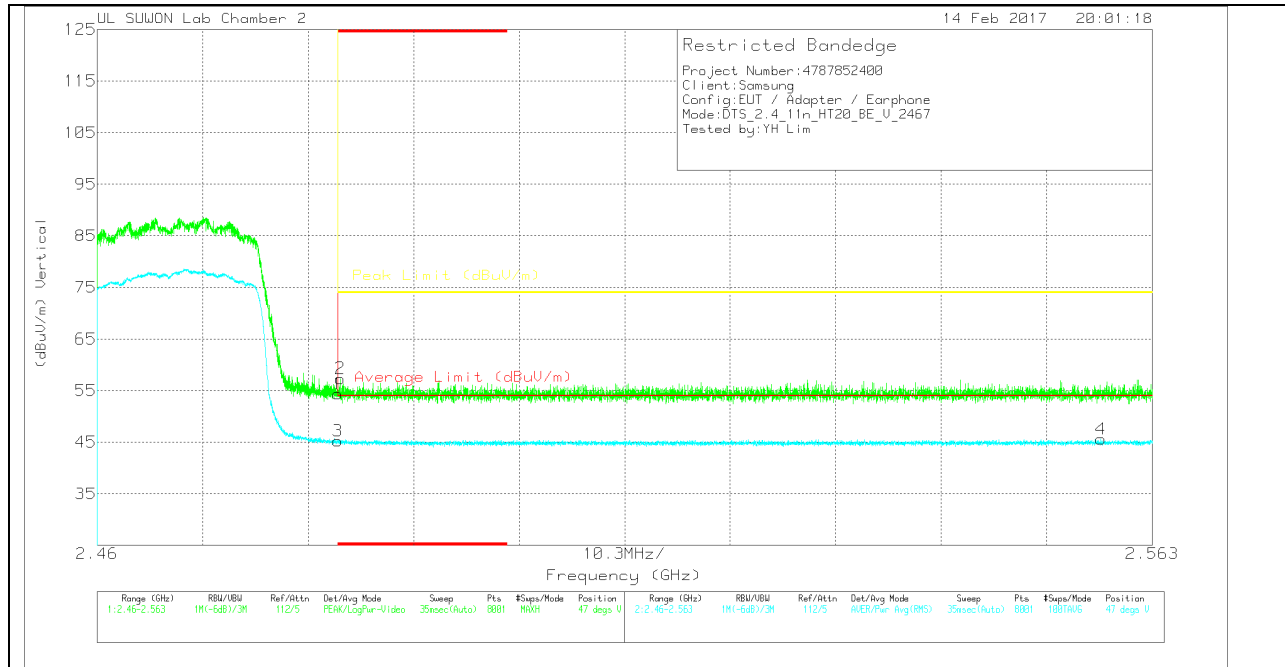
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.62	Pk		-18	0	56.42	-	-	74	-17.58	157	193	H
2	* 2.484	46	Pk		-18	0	59.8	-	-	74	-14.2	157	193	H
3	* 2.484	31.91	RMS		-18	.34	46.05	54	-7.95	-	-	157	193	H
4	* 2.484	32.91	RMS		-18	.34	47.05	54	-6.95	-	-	157	193	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.59	Pk	31.8	-18	0	54.39	-	-	74	-19.61	47	147	V
2	* 2.484	43.53	Pk	31.8	-18	0	57.33	-	-	74	-16.67	47	147	V
3	* 2.484	31.08	RMS	31.8	-18	.34	45.22	54	-8.78	-	-	47	147	V
4	2.558	31.38	RMS	31.9	-18	.34	45.62	54	-8.38	-	-	47	147	V

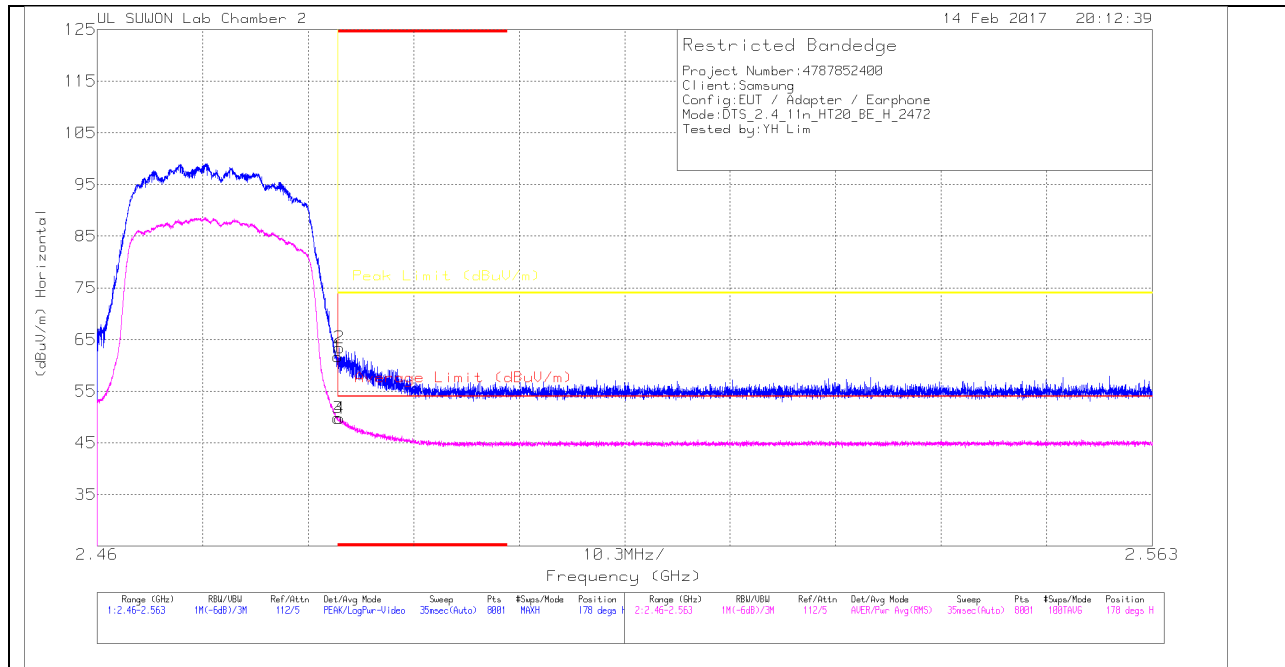
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

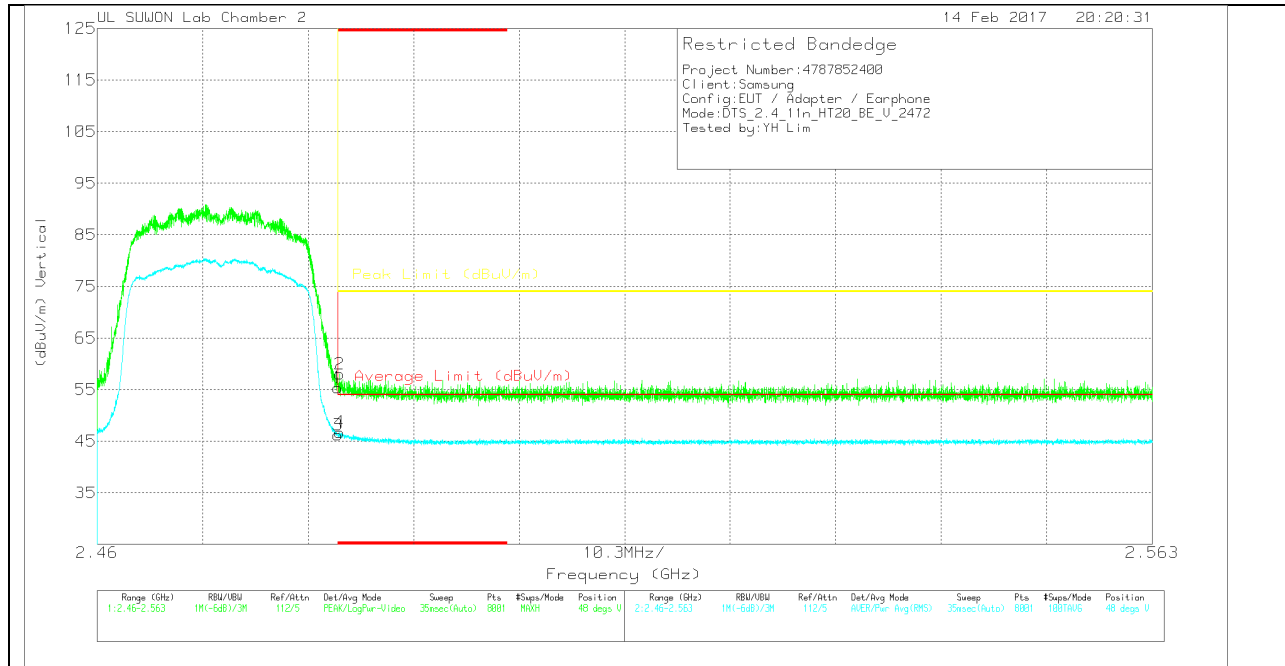
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.87	Pk	31.8	-18	0	61.67	-	-	74	-12.33	178	223	H
2	* 2.484	49.62	Pk	31.8	-18	0	63.42	-	-	74	-10.58	178	223	H
3	* 2.484	35.69	RMS	31.8	-18	.34	49.83	54	-4.17	-	-	178	223	H
4	* 2.484	35.63	RMS	31.8	-18	.34	49.77	54	-4.23	-	-	178	223	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	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.58	Pk	31.8	-18	0	55.38	-	-	74	-18.62	48	147	V
2	* 2.484	44.22	Pk	31.8	-18	0	58.02	-	-	74	-15.98	48	147	V
3	* 2.484	32.07	RMS	31.8	-18	.34	46.21	54	-7.79	-	-	48	147	V
4	* 2.484	32.59	RMS	31.8	-18	.34	46.73	54	-7.27	-	-	48	147	V

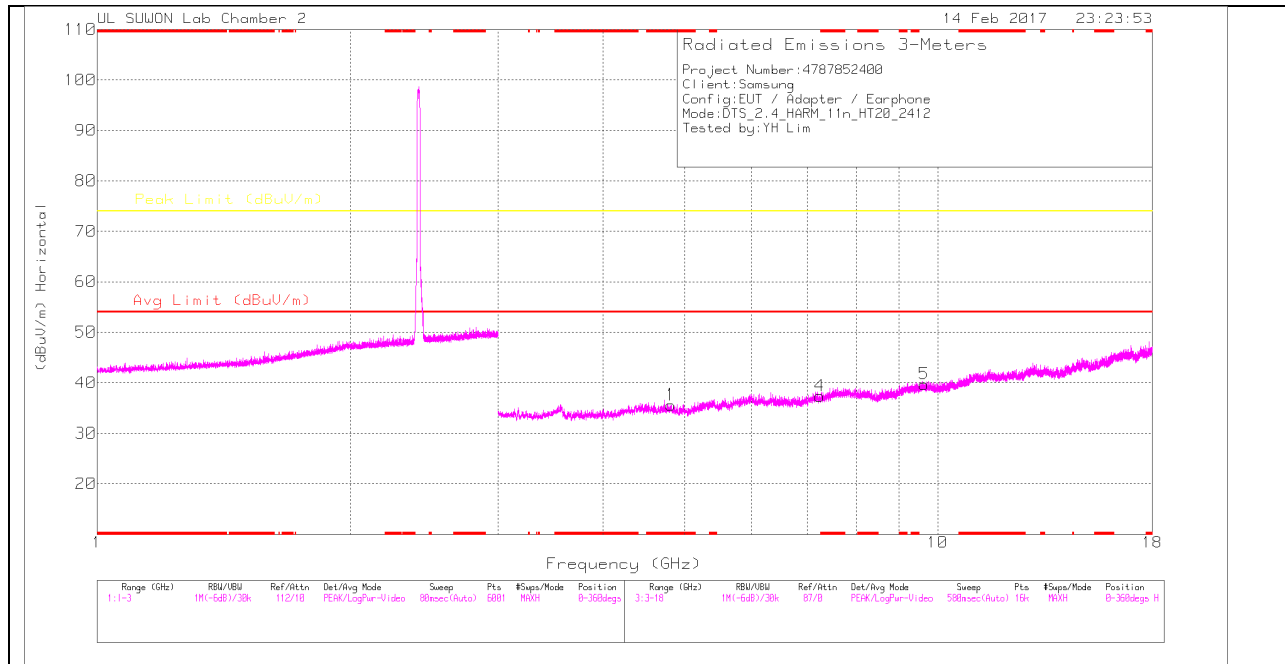
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

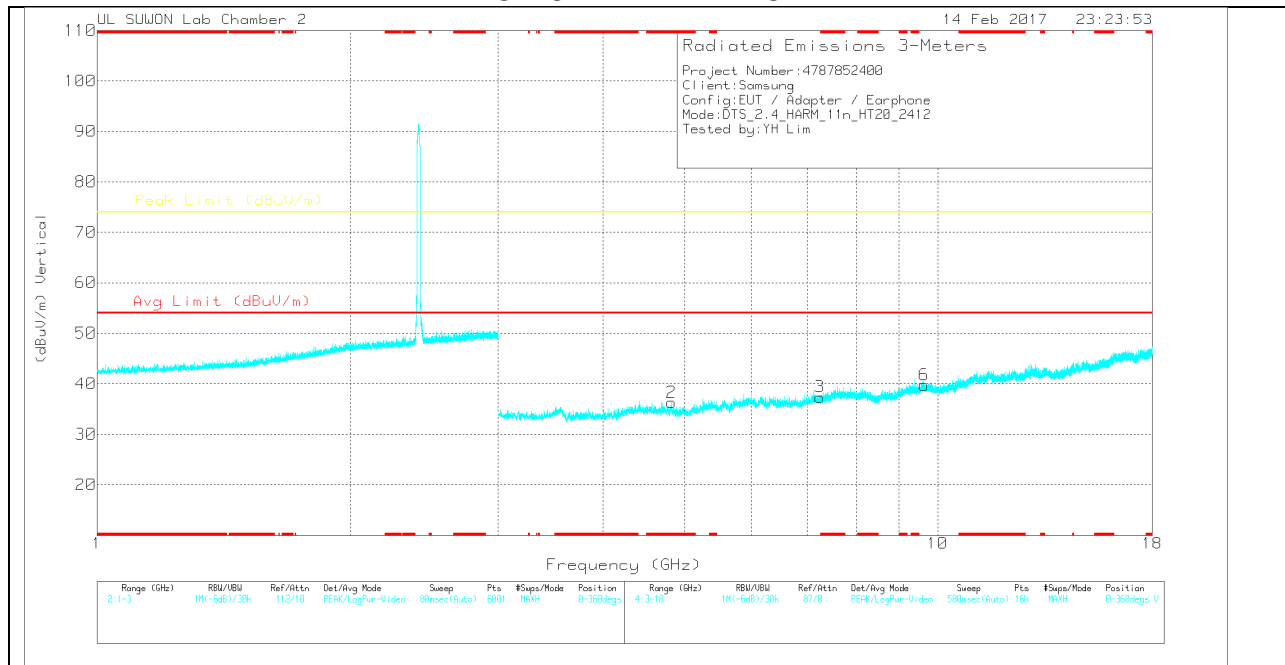
RMS - RMS detection

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

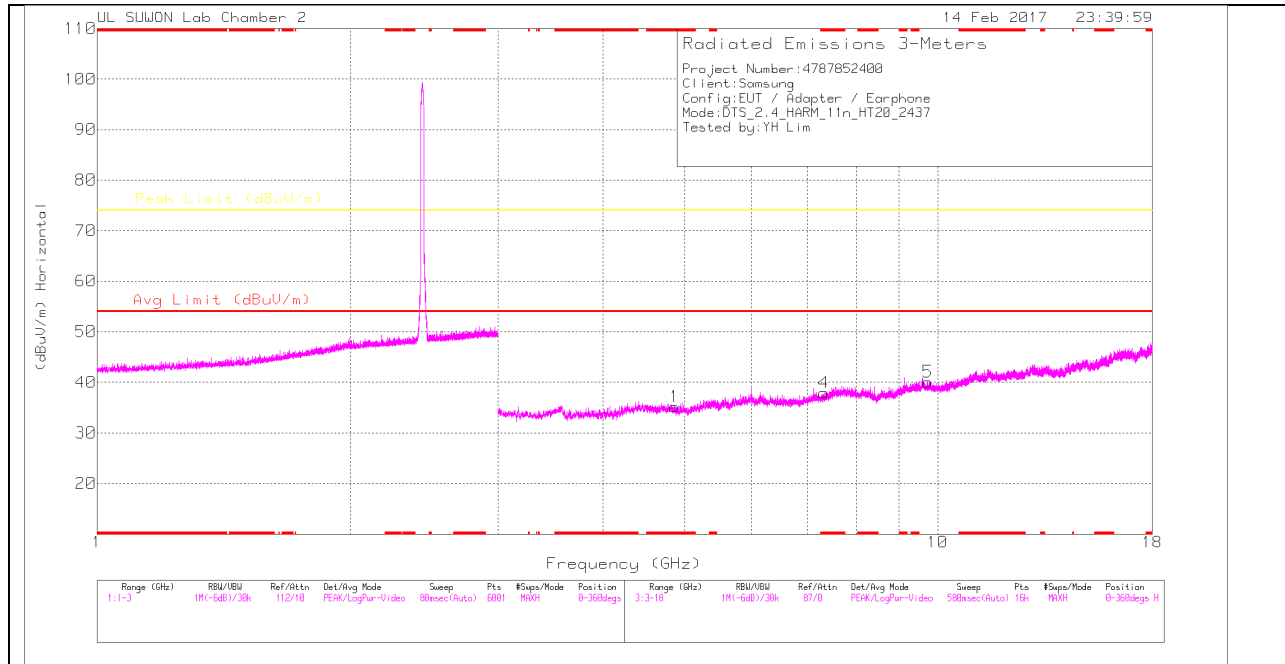
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.815	26	Pk	33.9	-24.3	0	35.6	-	-	74	-38.4	0-360	150	H
4	7.238	23.59	Pk	35.8	-22	0	37.39	-	-	74	-36.61	0-360	150	H
5	9.637	21.13	Pk	36.9	-18.3	0	39.73	-	-	74	-34.27	0-360	250	H
2	* 4.824	26.68	Pk	33.9	-24.3	0	36.28	-	-	74	-37.72	0-360	150	V
3	7.238	23.57	Pk	35.8	-22	0	37.37	-	-	74	-36.63	0-360	150	V
6	9.639	21.14	Pk	36.9	-18.3	0	39.74	-	-	74	-34.26	0-360	150	V

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

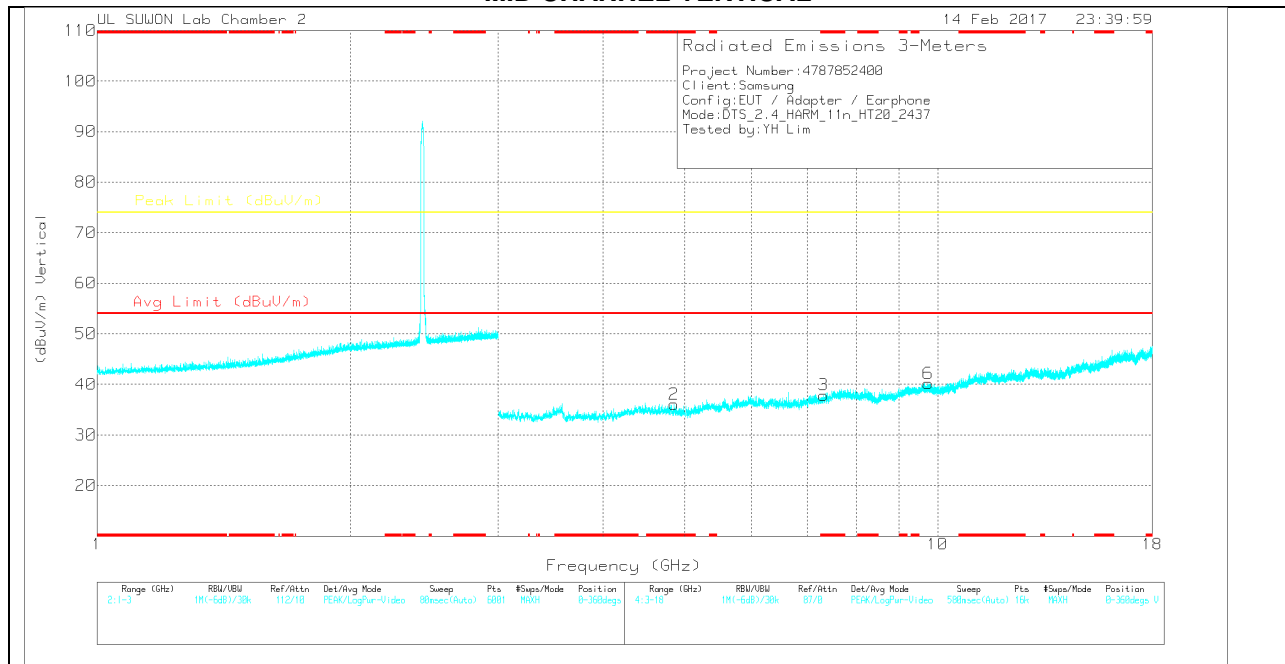
Pk – Peak detector

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

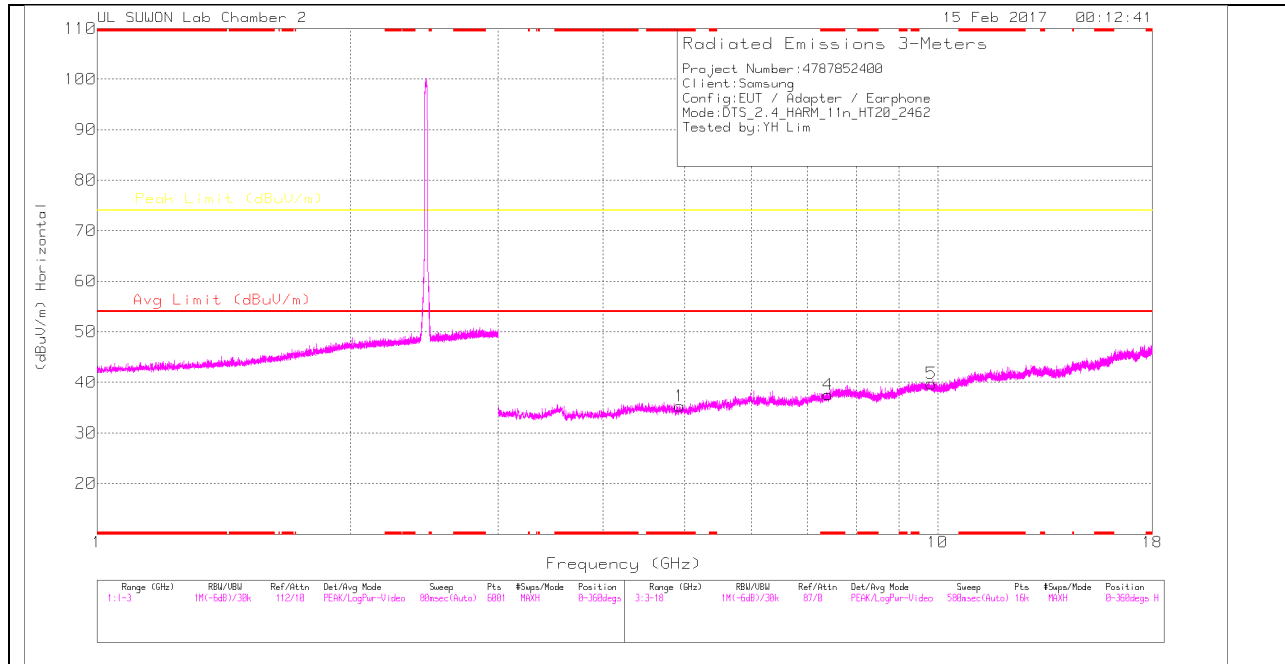
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.865	25.66	Pk	33.9	-24.4	0	35.16	-	-	74	-38.84	0-360	150	H
4	* 7.322	23.91	Pk	35.9	-21.9	0	37.91	-	-	74	-36.09	0-360	150	H
5	9.737	21.17	Pk	37	-18.1	0	40.07	-	-	74	-33.93	0-360	150	H
2	* 4.86	26.57	Pk	33.9	-24.4	0	36.07	-	-	74	-37.93	0-360	150	V
3	* 7.32	23.97	Pk	35.9	-22	0	37.87	-	-	74	-36.13	0-360	150	V
6	9.742	21.25	Pk	37	-18.1	0	40.15	-	-	74	-33.85	0-360	150	V

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

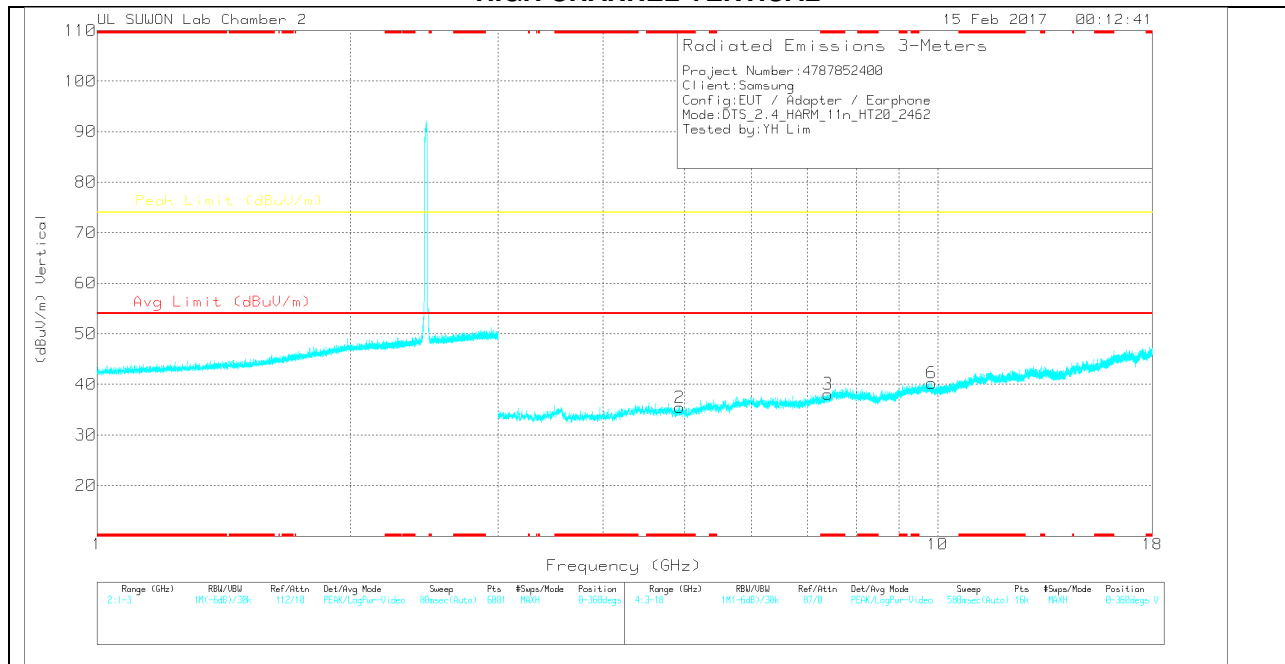
Pk – Peak detector

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

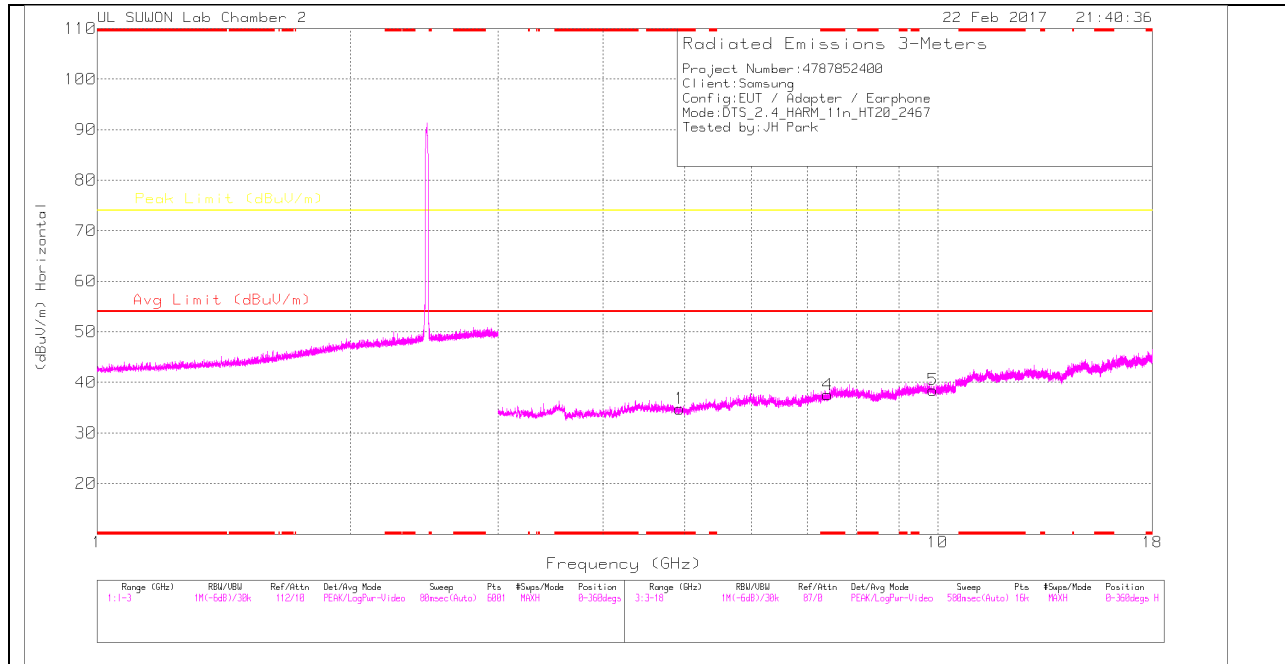
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.936	26.11	Pk	33.9	-24.7	0	35.31	-	-	74	-38.69	0-360	250	H
4	* 7.407	22.83	Pk	36	-21.3	0	37.53	-	-	74	-36.47	0-360	250	H
5	9.828	20.54	Pk	37.1	-17.9	0	39.74	-	-	74	-34.26	0-360	250	H
2	* 4.933	26.23	Pk	33.9	-24.7	0	35.43	-	-	74	-38.57	0-360	250	V
3	* 7.405	23.37	Pk	36	-21.3	0	38.07	-	-	74	-35.93	0-360	150	V
6	9.839	21.05	Pk	37.1	-17.9	0	40.25	-	-	74	-33.75	0-360	250	V

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

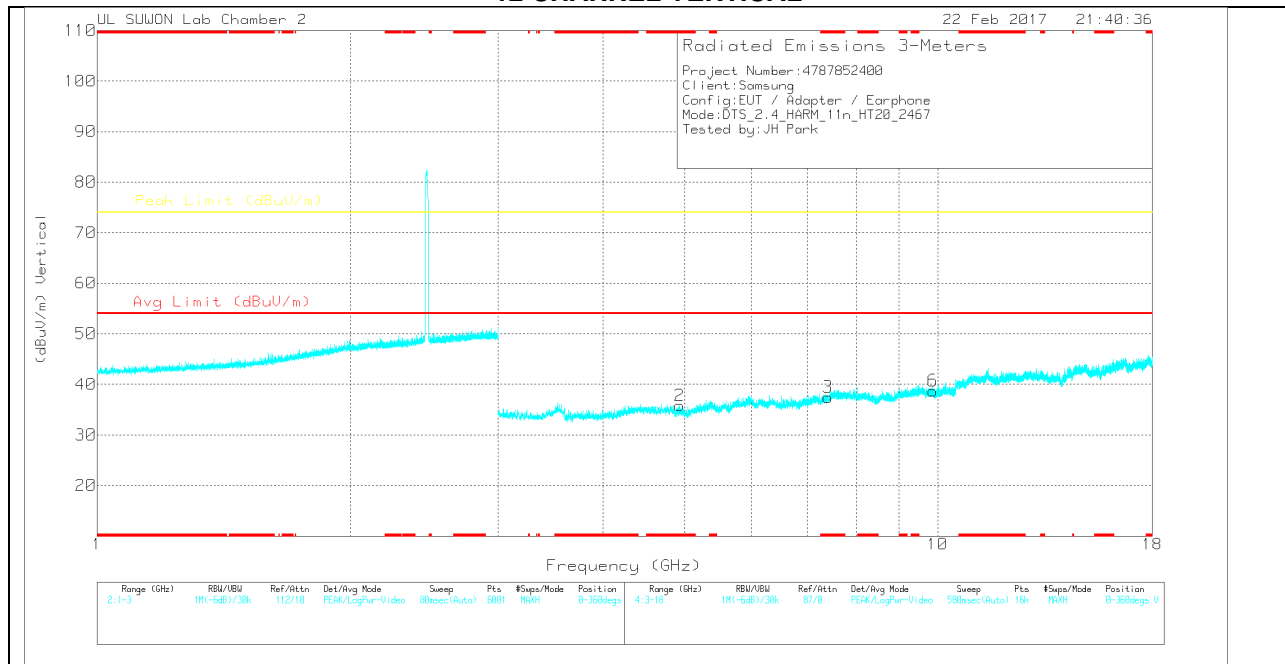
Pk – Peak detector

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

12 CHANNEL HORIZONTAL



12 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.

12 CHANNEL DATA

Trace Markers

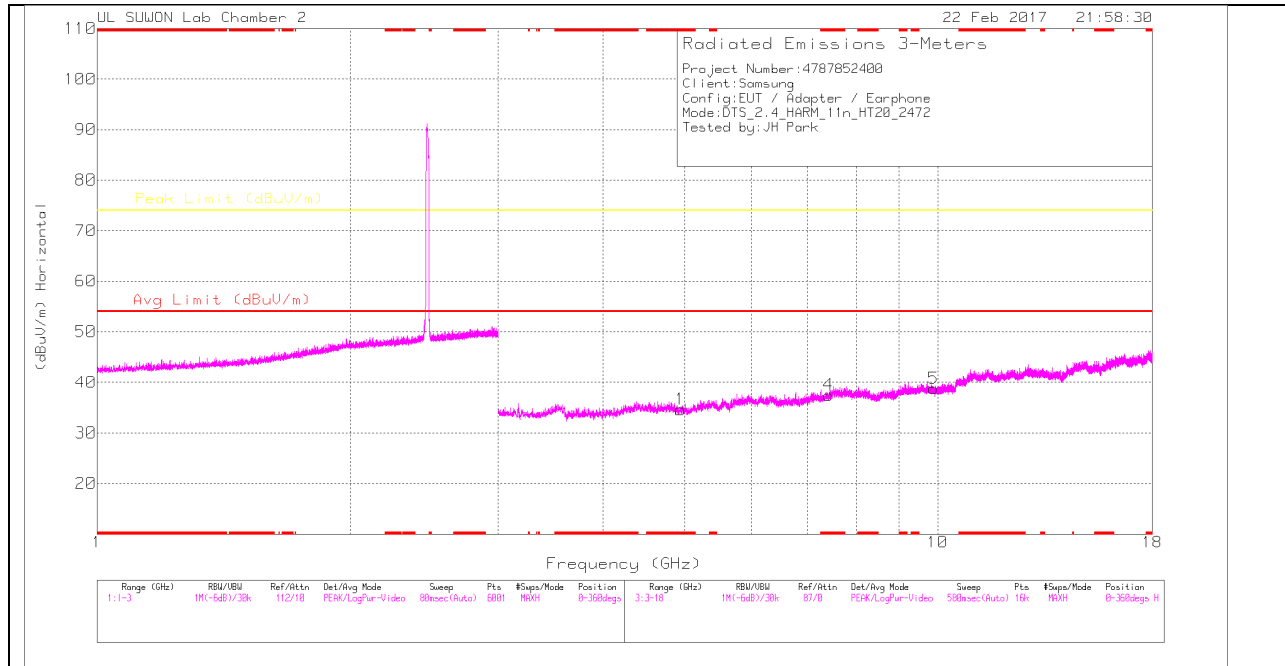
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.935	25.57	PK	33.9	-24.7	0	34.77	-	-	74	-39.23	0-360	250	H
4	* 7.398	22.83	PK	36	-21.3	0	37.53	-	-	74	-36.47	0-360	250	H
5	9.867	19.39	PK	37.1	-18	0	38.49	-	-	74	-35.51	0-360	150	H
2	* 4.934	26.6	PK	33.9	-24.7	0	35.8	-	-	74	-38.2	0-360	150	V
3	* 7.402	22.75	PK	36	-21.3	0	37.45	-	-	74	-36.55	0-360	250	V
6	9.87	19.62	PK	37.1	-18	0	38.72	-	-	74	-35.28	0-360	250	V

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

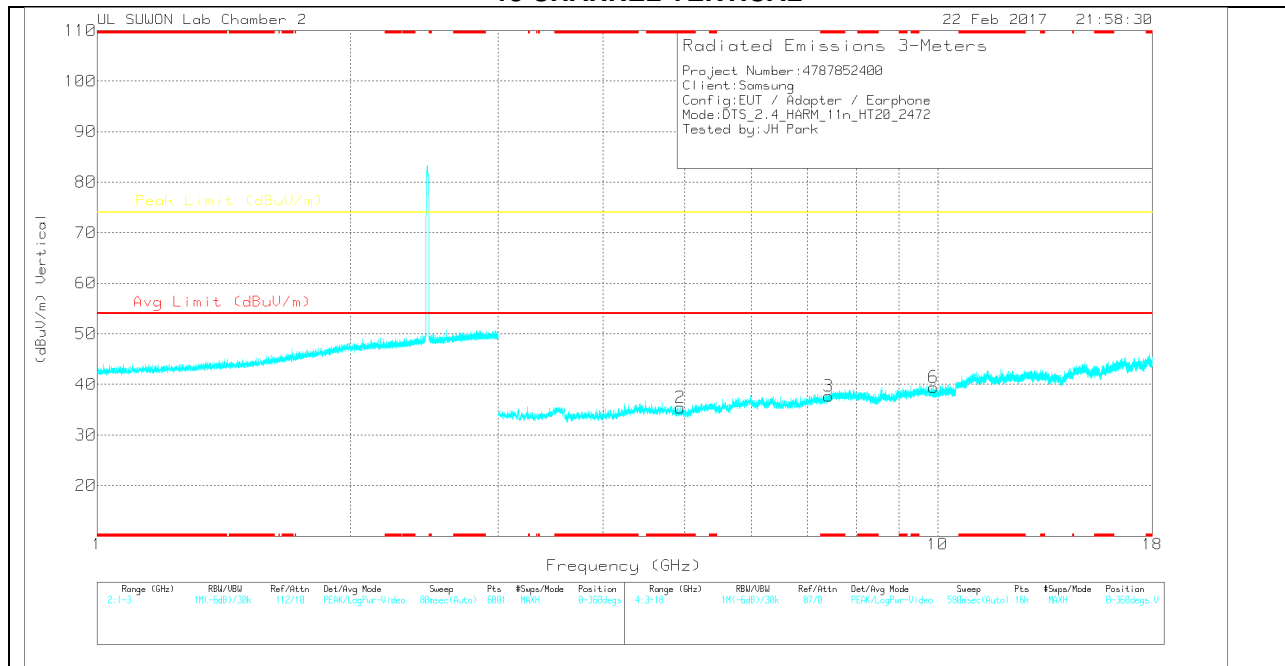
PK – Peak Detector

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

13 CHANNEL HORIZONTAL



13 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.

13 CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 24_150619)	3GHz_HP[dB]	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	* 4.945	25.44	PK	33.9	-24.7	0	34.64	-	-	74	-39.36	0-360	150	H
4	* 7.413	22.68	PK	36	-21.2	0	37.48	-	-	74	-36.52	0-360	150	H
5	9.89	19.69	PK	37.1	-18	0	38.79	-	-	74	-35.21	0-360	150	H
2	* 4.941	26.29	PK	33.9	-24.8	0	35.39	-	-	74	-38.61	0-360	250	V
3	* 7.418	22.88	PK	36	-21.2	0	37.68	-	-	74	-36.32	0-360	150	V
6	9.891	20.34	PK	37.1	-18	0	39.44	-	-	74	-34.56	0-360	250	V

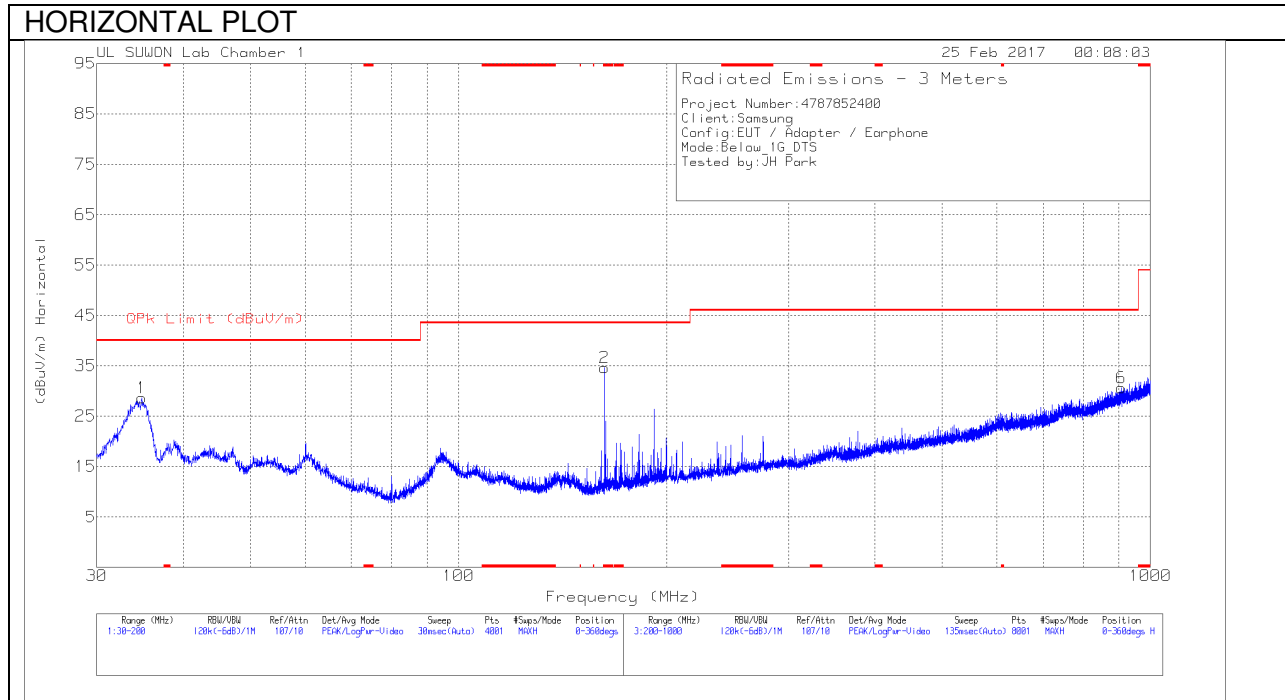
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak Detector

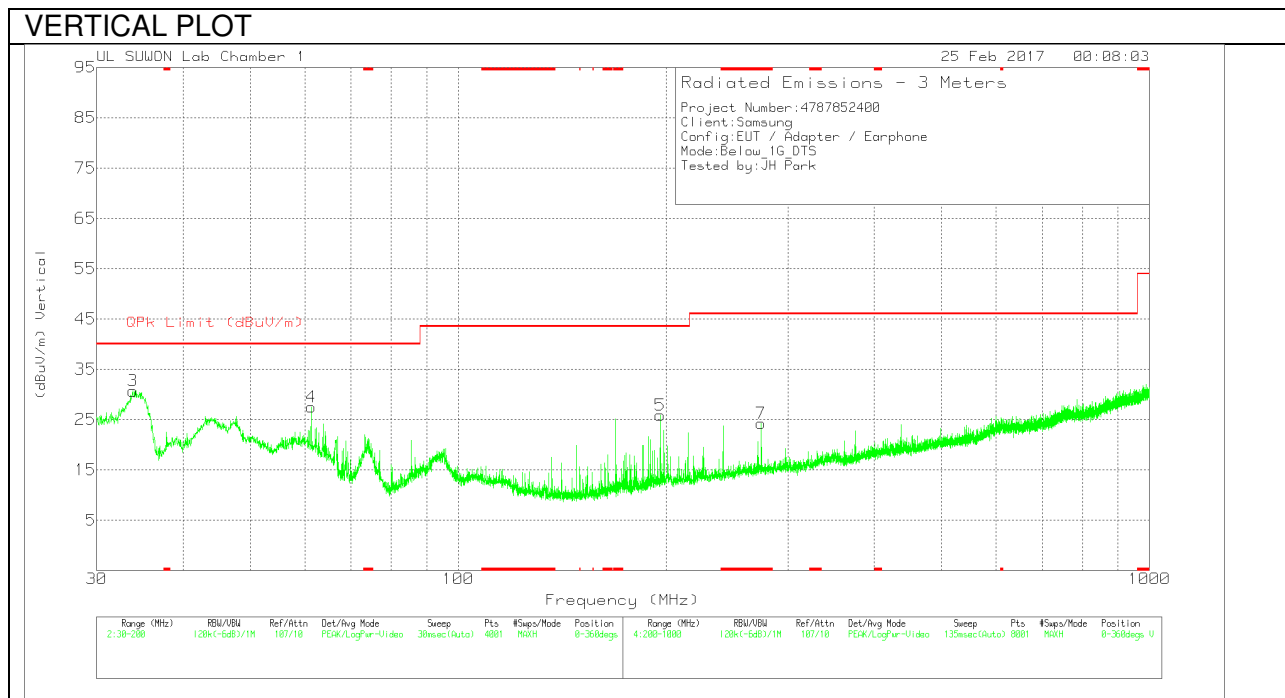
Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

10.3. WORST-CASE BELOW 1 GHz

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



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



Below 1G Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_7 50(dB)	30-1000MHz(dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.845	46.51	Pk	10.7	-28.6	28.61	40	-11.39	0-360	300	H
2	* 162.6	52.78	Pk	8.6	-26.8	34.58	43.52	-8.94	0-360	200	H
3	33.825	48.4	Pk	10.6	-28.3	30.7	40	-9.3	0-360	100	V
4	61.28	43.41	Pk	12.2	-28.1	27.51	40	-12.49	0-360	300	V
5	196.005	41.49	Pk	11	-26.6	25.89	43.52	-17.63	0-360	100	V
6	907.6	30.22	Pk	22	-21.6	30.62	46.02	-15.4	0-360	400	H
7	* 274.4	37.67	Pk	12.7	-26.1	24.27	46.02	-21.75	0-360	100	V

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

Pk - Peak detector

11. 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.

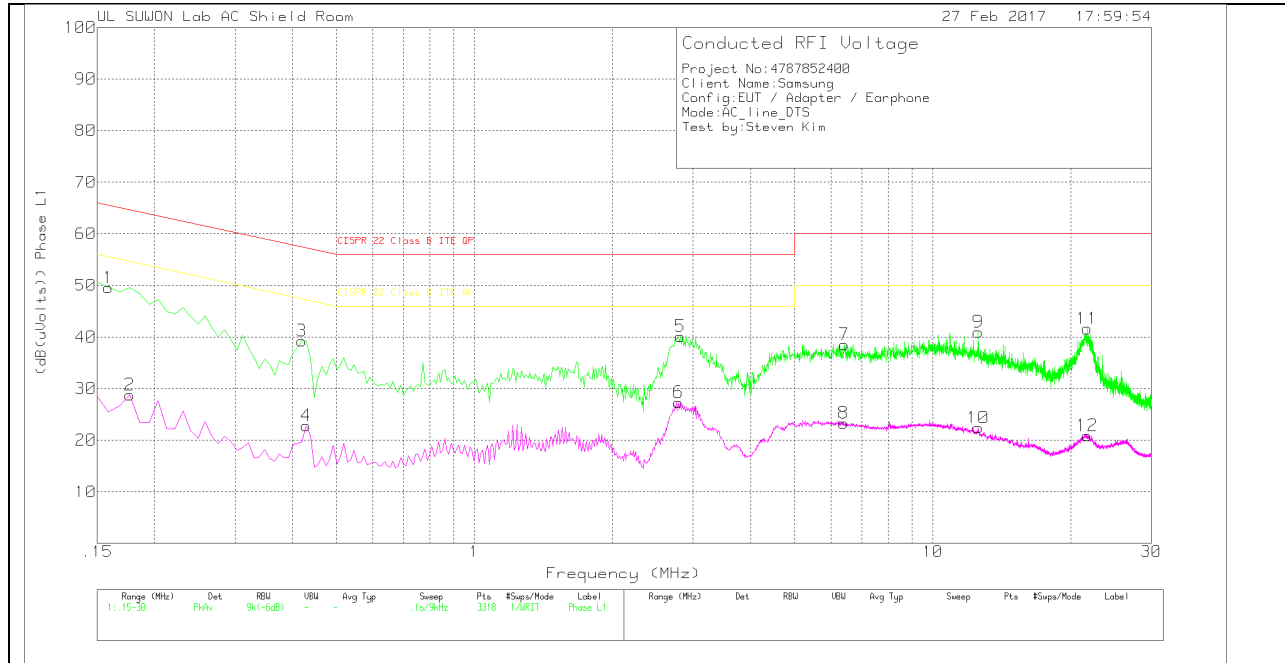
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

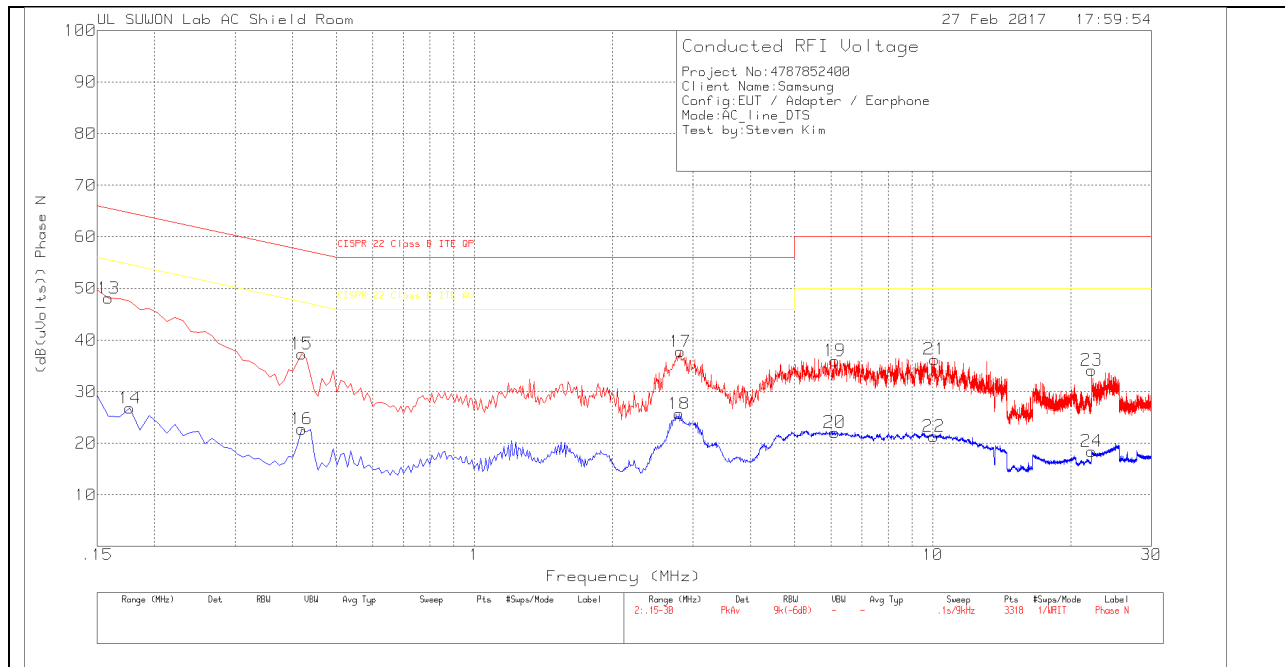
Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex-cord_L1	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.159	39.58	Pk	9.9	.1	49.58	65.52	-15.94	-	-
2	.177	18.59	Av	10	.2	28.79	-	-	54.63	-25.84
3	.42	29.15	Pk	9.9	.2	39.25	57.45	-18.2	-	-
4	.429	12.72	Av	9.9	.2	22.82	-	-	47.27	-24.45
5	2.814	30.11	Pk	9.7	.3	40.11	56	-15.89	-	-
6	2.787	17.36	Av	9.7	.3	27.36	-	-	46	-18.64
7	6.414	28.42	Pk	9.8	.3	38.52	60	-21.48	-	-
8	6.396	13.23	Av	9.8	.3	23.33	-	-	50	-26.67
9	12.57	30.58	Pk	10.1	.3	40.98	60	-19.02	-	-
10	12.57	12.02	Av	10.1	.3	22.42	-	-	50	-27.58
11	21.75	30.82	Pk	10.4	.4	41.62	60	-18.38	-	-
12	21.723	10.09	Av	10.4	.4	20.89	-	-	50	-29.11

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	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.159	38.09	Pk	9.9	.1	48.09	65.52	-17.43	-	-
14	.177	16.59	Av	10	.2	26.79	-	-	54.63	-27.84
15	.42	27.22	Pk	9.9	.2	37.32	57.45	-20.13	-	-
16	.42	12.66	Av	9.9	.2	22.76	-	-	47.45	-24.69
17	2.814	27.76	Pk	9.7	.3	37.76	56	-18.24	-	-
18	2.796	15.71	Av	9.7	.3	25.71	-	-	46	-20.29
19	6.117	25.8	Pk	9.9	.3	36	60	-24	-	-
20	6.108	11.9	Av	9.9	.3	22.1	-	-	50	-27.9
21	10.086	25.75	Pk	10.1	.4	36.25	60	-23.75	-	-
22	10.05	10.86	Av	10.1	.4	21.36	-	-	50	-28.64
23	22.218	23.07	Pk	10.7	.4	34.17	60	-25.83	-	-
24	22.2225	7.37	Av	10.7	.4	18.47	-	-	50	-31.53

Pk - Peak detector

Av - Average detection