



FCC CFR47 PART 15 SUBPART C
DTS Wireless LAN
C2PC CERTIFICATION TEST REPORT
FOR
LTE Watch + Bluetooth/BLE and DTS b/g/n
MODEL NUMBER : SM-R775S
FCC ID: A3LSMR775S
REPORT NUMBER: 4787686874-E1V1
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Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	11/23/16	Initial issue	Junwhan Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: LTE Watch + Bluetooth/BLE and DTS b/g/n
MODEL NUMBER: SM-R775S
SERIAL NUMBER: R3AHB004RX, R3AHB004RL(RADIATED)
DATE TESTED: NOV 14, 2016 - NOV 23, 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
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Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v03r05 and 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	
☒	Chamber 1
☒	Chamber 2

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a LTE 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 average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2472	802.11b	17.37	54.58
	802.11g	15.26	33.57
	802.11n HT20	14.22	26.42

**Note: Conducted output power data is from test result of original filing.
(FCC ID: A3LSMR775S, TEST REPORT: 4787656438-E1V1)**

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antennas, with a antenna's maximum gain of -4.5 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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z 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-TA60KBK	R73H58A0B72DK3	N/A
Wireless Charger	SAMSUNG	EP-YO760	N/A	A3LEPYO760

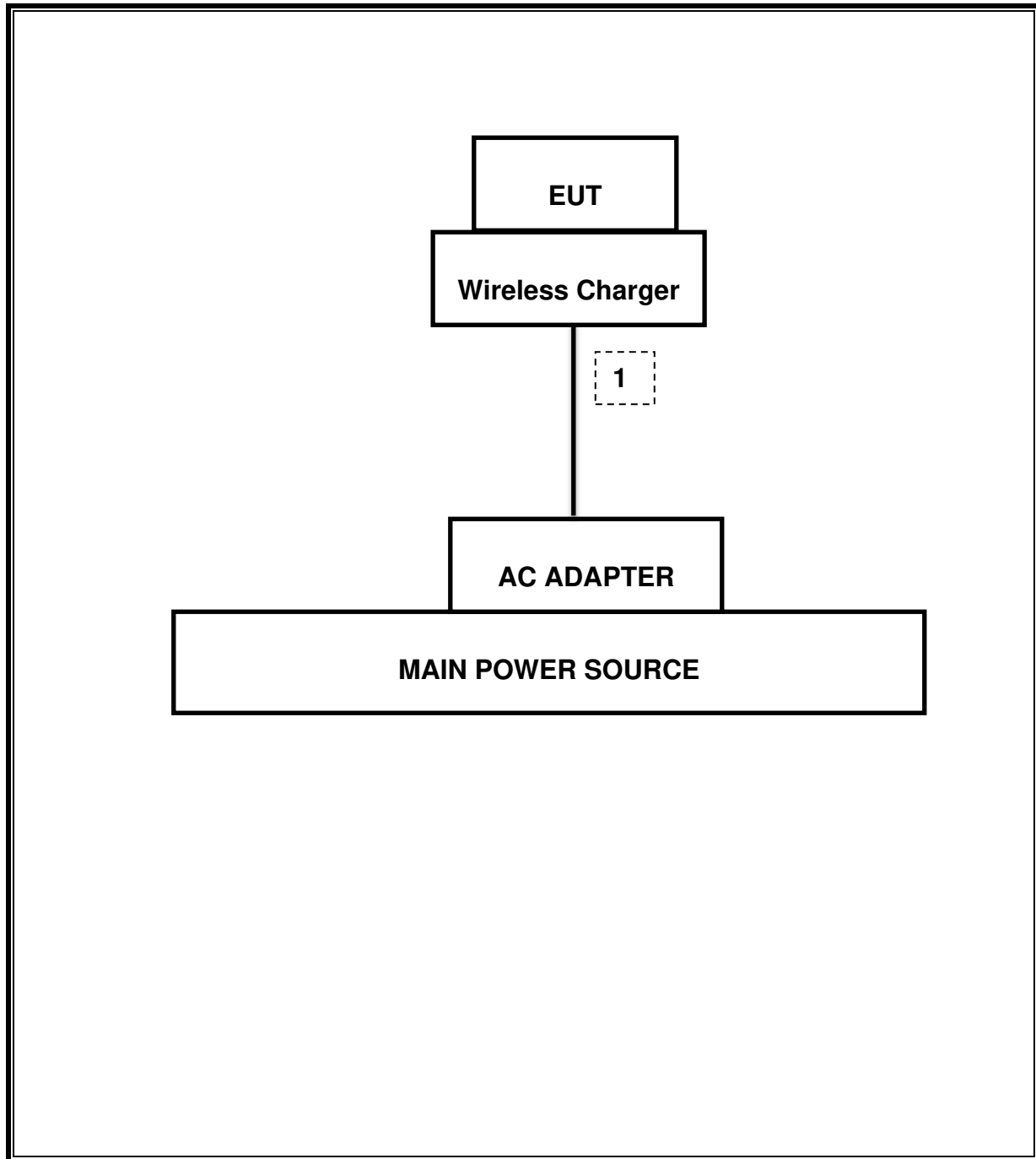
I/O CABLES

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	749	04-25-17
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	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, 44 GHz	Agilent / HP	N9030A	MY54490312	08-16-17
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	08-18-17
Average Power Sensor	R&S	NRZ-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
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
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	A009	08-16-17
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r05: Measurement Procedure §9.2.3.1 AVGPM is used for average power and §10.3 AVGPDS-1, §10.5 AVGPDS-2 are 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.

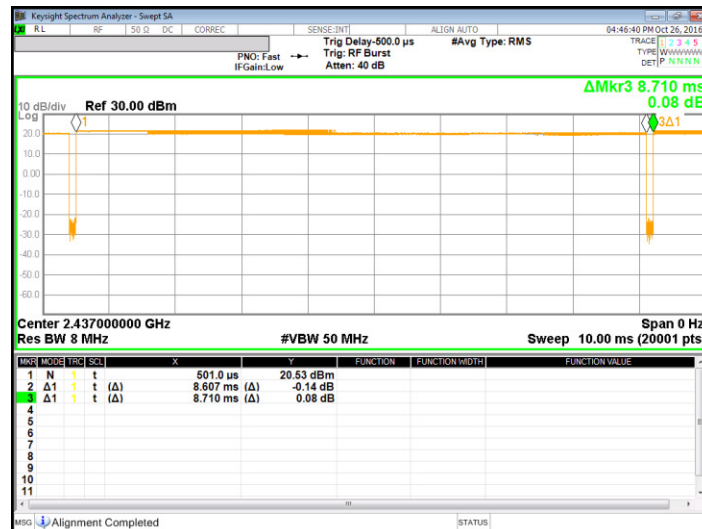
8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

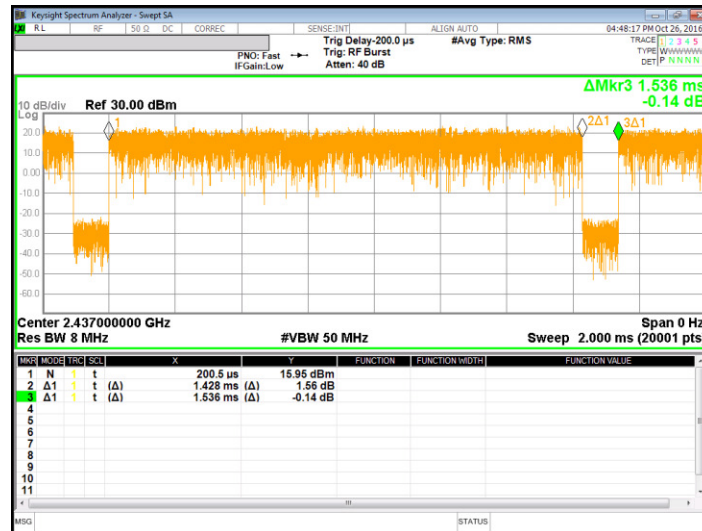
8.1. ON TIME AND DUTY CYCLE RESULTS

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	8.607	8.71	0.988	98.8%	0.00	0.010
802.11g	1.428	1.536	0.930	93.0%	0.32	0.700
802.11n HT20	1.336	1.444	0.925	92.5%	0.34	0.749

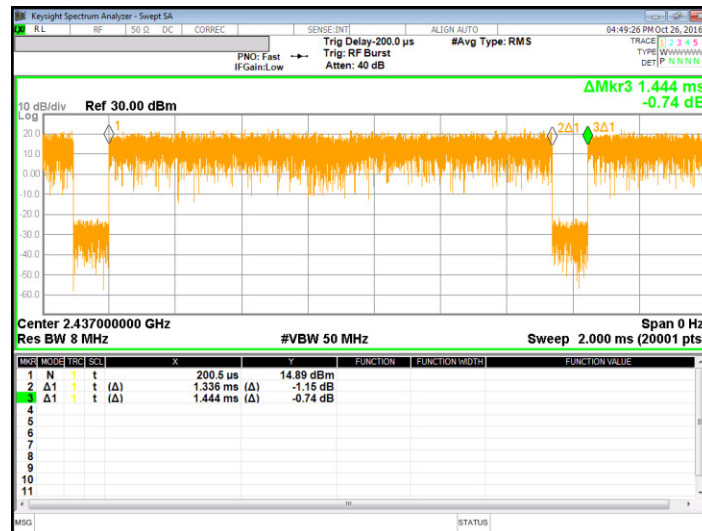


[802.11b]

**Note: Duty cycle test data is from test result of original filing.
(FCC ID: A3LSMR775S, TEST REPORT: 4787656438-E1V1)**



[802.11g]



[802.11n]

9. SUMMARY TABLE

C2PC Reason: Please see A3LSMR775S C2PC description for details.

: The changes of this C2PC model are minor circuitry for non-transmitter portions.

So we tested only radiated items.

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	See original
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	See original
15.247	TX conducted output power	<30dBm		Pass	See original
15.247	PSD	<8dBm		Pass	See original
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	41.6 dBuV (Pk)
15.205, 15.209	Radiated Spurious Emission	< 74dBuV/m	Radiated	Pass	70.79 dBuV/m (Pk)

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 = 0.32dB; 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.

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.

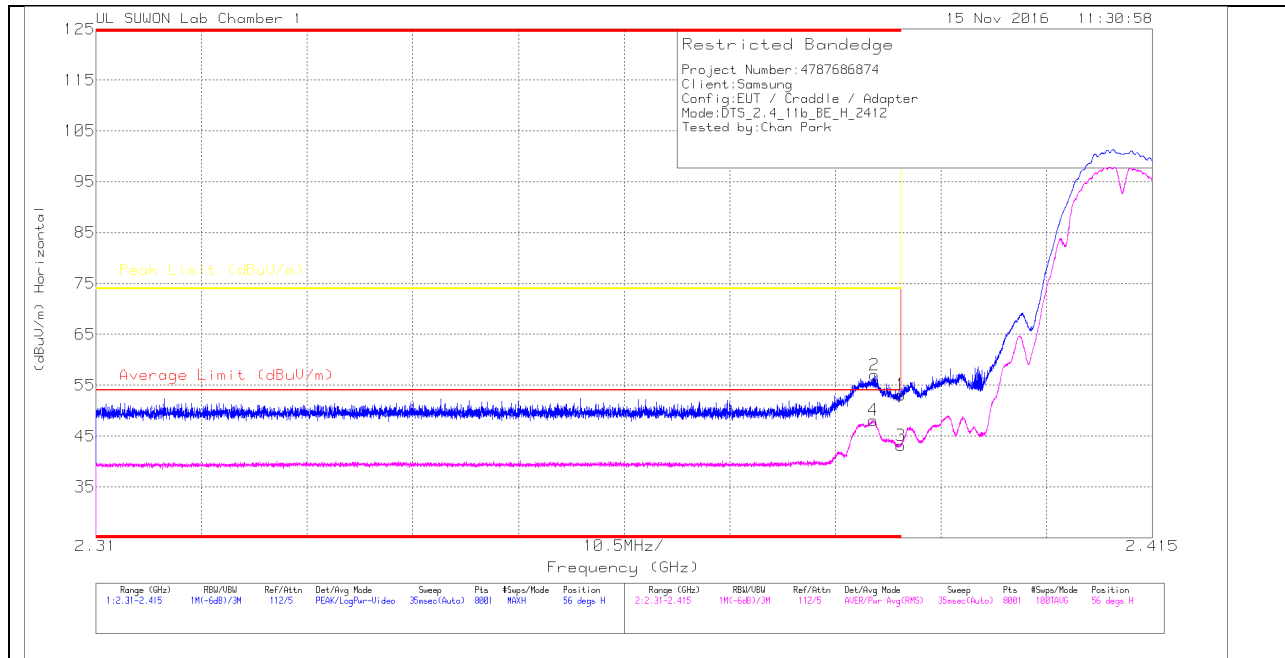
Formula for converting the field strength from uV/m to dBuV/m is:
Limit (dBuV/m) = $20 \log \text{limit (uV/m)}$

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

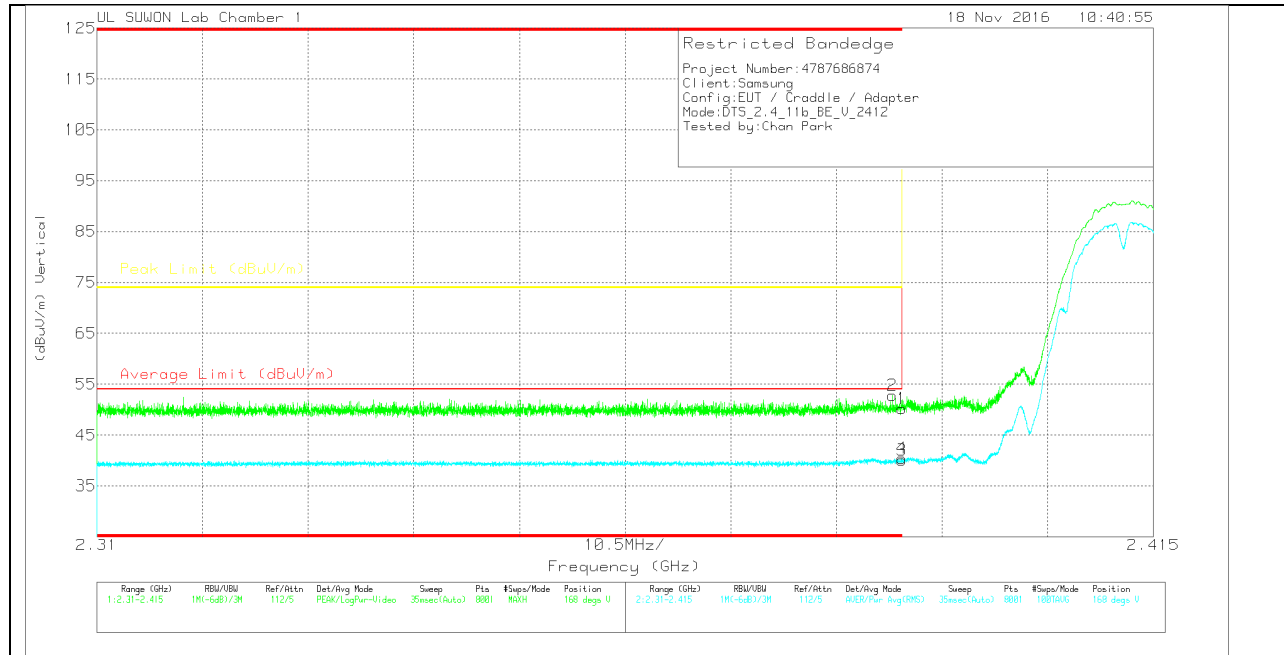
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	49.71	Pk	31.8	-28.4	0	53.11	-	-	74	-20.89	56	174	H
2	* 2.387	53.73	Pk	31.8	-28.5	0	57.03	-	-	74	-16.97	56	174	H
3	* 2.39	39.8	RMS	31.8	-28.4	0	43.2	54	-10.8	-	-	56	174	H
4	* 2.387	44.86	RMS	31.8	-28.5	0	48.16	54	-5.84	-	-	56	174	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(00168 717)_15061 9	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	46.85	Pk		-28.4	0	50.25	-	-	74	-23.75	168	201	V
2	* 2.389	49.42	Pk		-28.4	0	52.82	-	-	74	-21.18	168	201	V
3	* 2.39	36.64	RMS		-28.4	0	40.04	54	-13.96	-	-	168	201	V
4	* 2.39	37.08	RMS		-28.4	0	40.48	54	-13.52	-	-	168	201	V

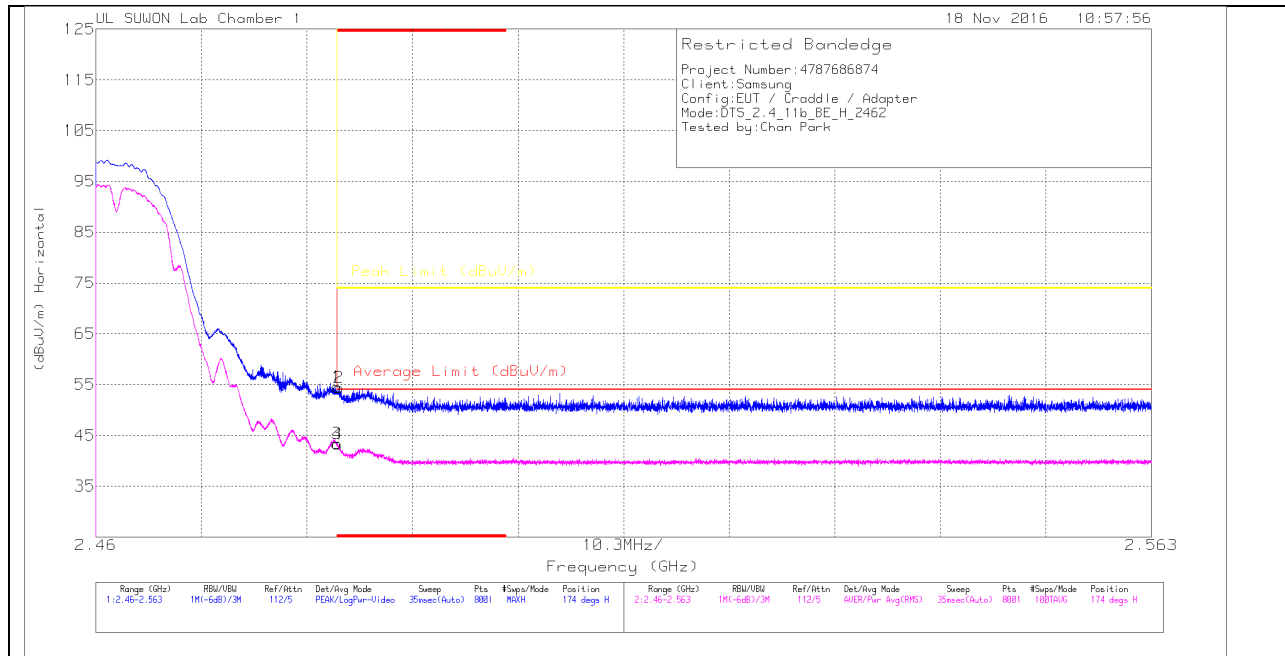
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

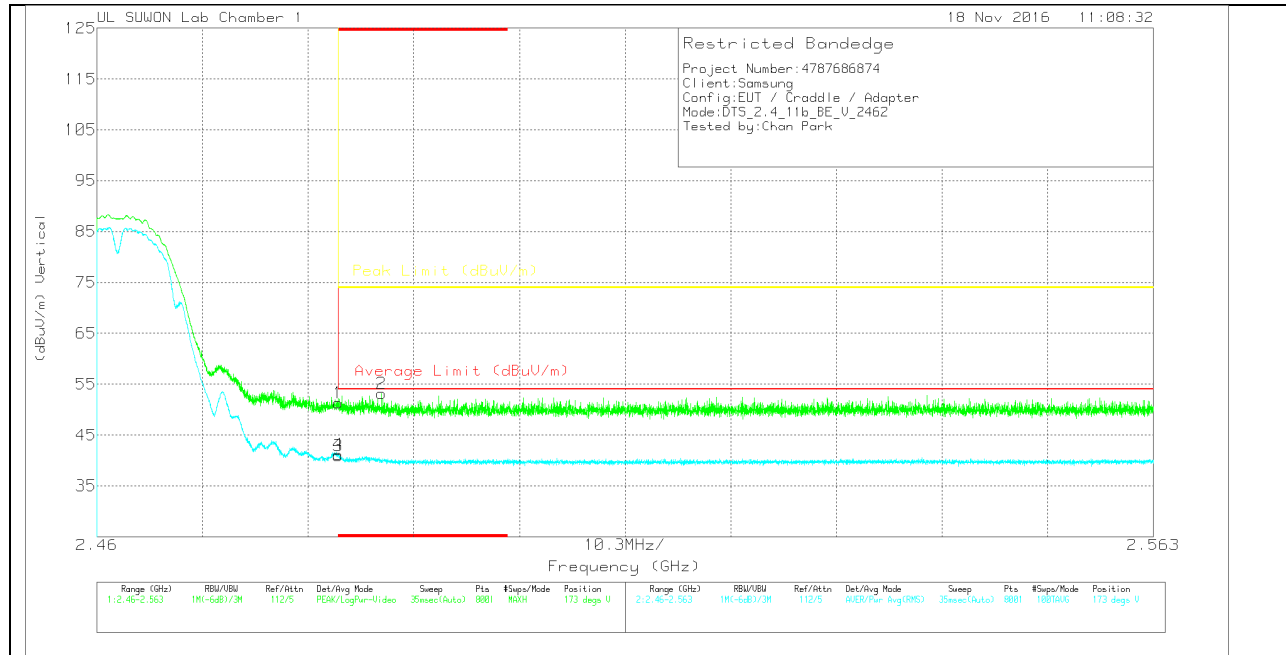
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 717)_15061 9	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.81	Pk	32	-28.3	0	54.51	-	-	74	-19.49	174	183	H
2	* 2.484	50.67	Pk	32	-28.3	0	54.37	-	-	74	-19.63	174	183	H
3	* 2.484	39.67	RMS	32	-28.3	0	43.37	54	-10.63	-	-	174	183	H
4	* 2.484	39.61	RMS	32	-28.3	0	43.31	54	-10.69	-	-	174	183	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(00168 717)_15061 9	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	47.62	Pk	32	-28.3	0	51.32	-	-	74	-22.68	173	105	V
2	* 2.488	49.52	Pk	32	-28.3	0	53.22	-	-	74	-20.78	173	105	V
3	* 2.484	37.26	RMS	32	-28.3	0	40.96	54	-13.04	-	-	173	105	V
4	* 2.484	37.51	RMS	32	-28.3	0	41.21	54	-12.79	-	-	173	105	V

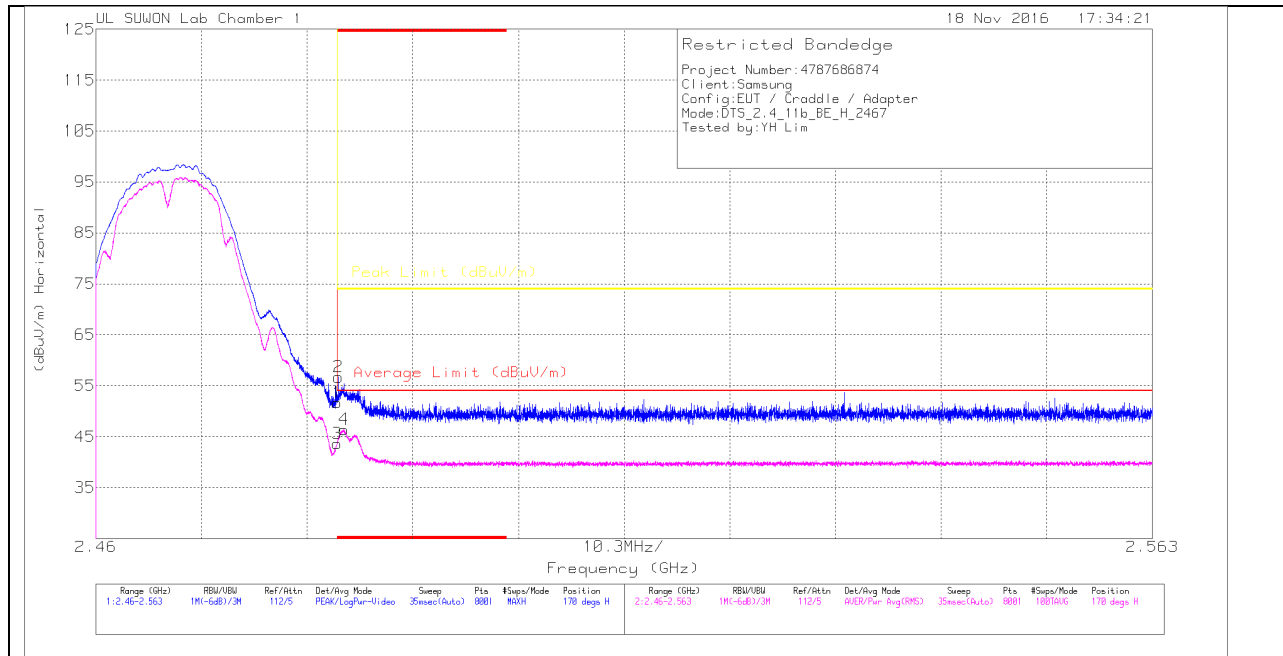
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

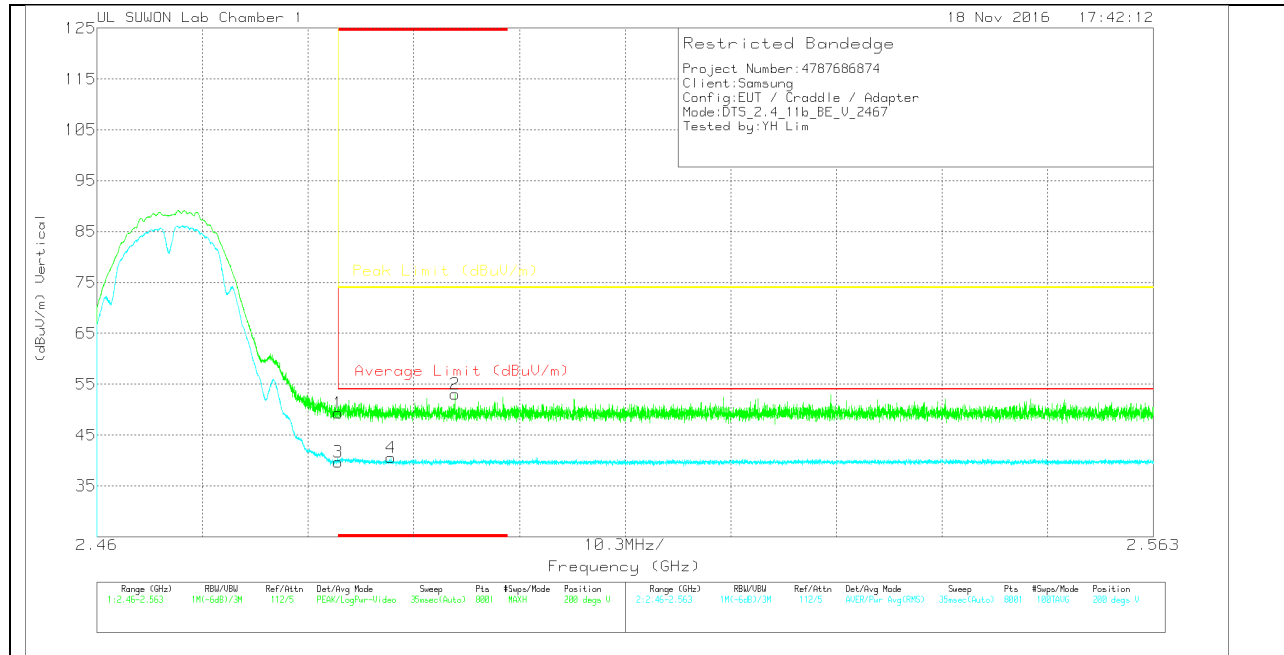
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 717)_15061 9	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.03	Pk	32	-28.3	0	51.73	-	-	74	-22.27	170	134	H
2	* 2.484	53	Pk	32	-28.3	0	56.7	-	-	74	-17.3	170	134	H
3	* 2.484	39.99	RMS	32	-28.3	0	43.69	54	-10.31	-	-	170	134	H
4	* 2.484	42.73	RMS	32	-28.3	0	46.43	54	-7.57	-	-	170	134	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(00168 717)_15061 9	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	45.68	Pk	32	-28.3	0	49.38	-	-	74	-24.62	200	145	V
2	* 2.495	49.3	Pk	32	-28.3	0	53	-	-	74	-21	200	145	V
3	* 2.484	36.04	RMS	32	-28.3	0	39.74	54	-14.26	-	-	200	145	V
4	* 2.489	36.88	RMS	32	-28.3	0	40.58	54	-13.42	-	-	200	145	V

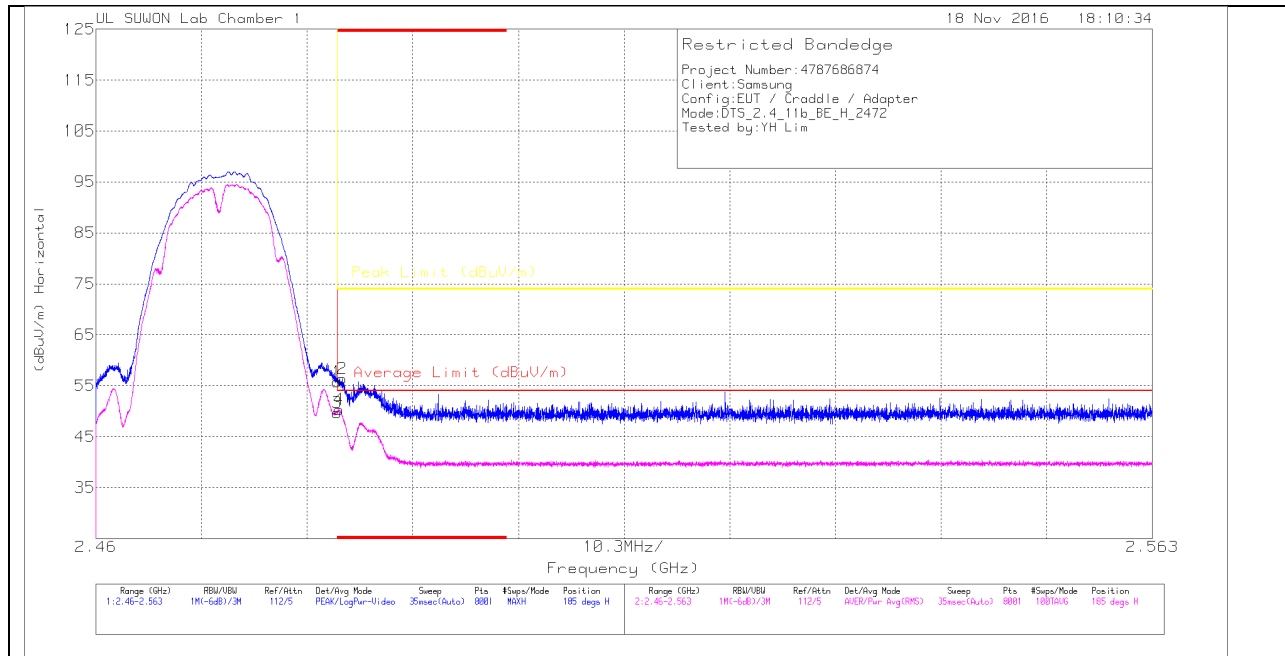
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

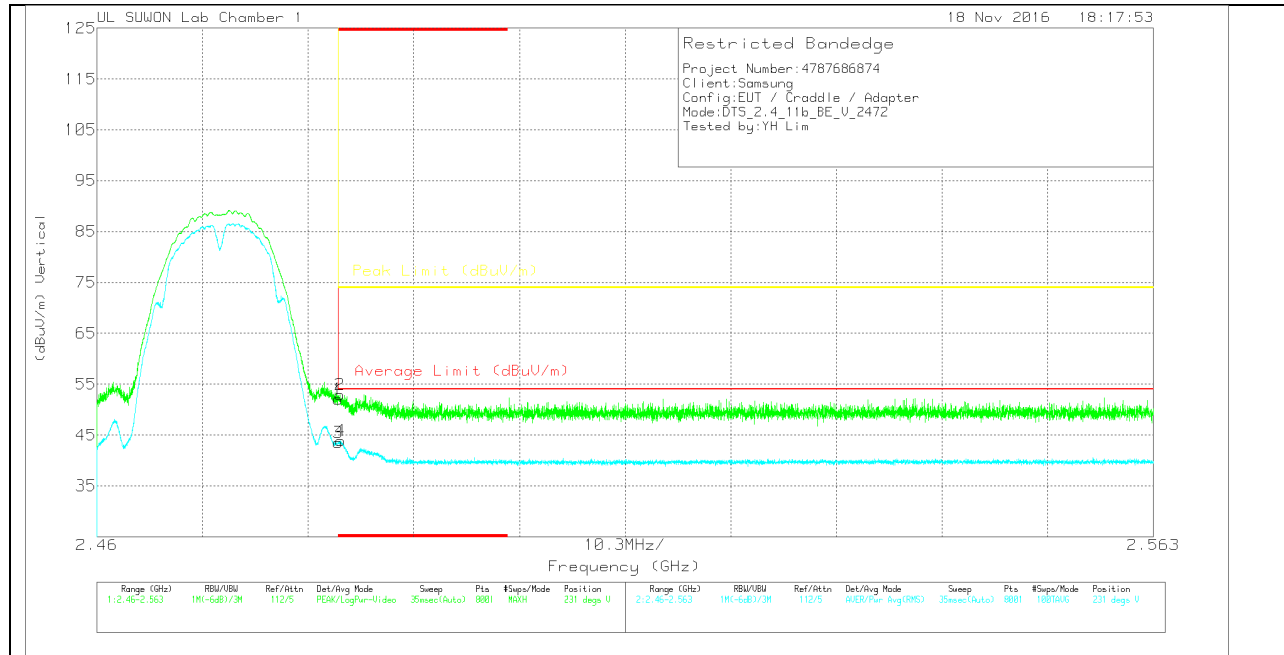
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	52.1	Pk	32	-28.3	0	55.8	-	-	74	-18.2	185	134	H
2	* 2.484	52.71	Pk	32	-28.3	0	56.41	-	-	74	-17.59	185	134	H
3	* 2.484	46.02	RMS	32	-28.3	0	49.72	54	-4.28	-	-	185	134	H
4	* 2.484	46.58	RMS	32	-28.3	0	50.28	54	-3.72	-	-	185	134	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(00168 717)_15061 9	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	48.39	Pk	32	-28.3	0	52.09	-	-	74	-21.91	231	106	V
2	* 2.484	49.2	Pk	32	-28.3	0	52.9	-	-	74	-21.1	231	106	V
3	* 2.484	39.88	RMS	32	-28.3	0	43.58	54	-10.42	-	-	231	106	V
4	* 2.484	40.19	RMS	32	-28.3	0	43.89	54	-10.11	-	-	231	106	V

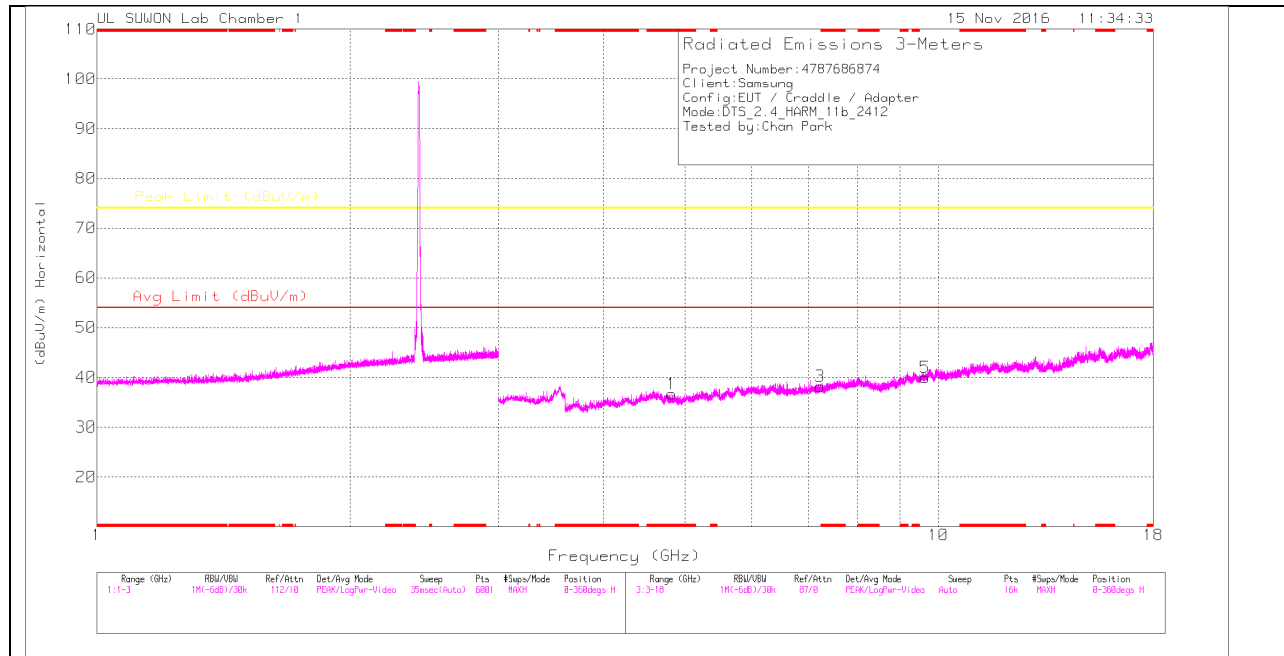
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

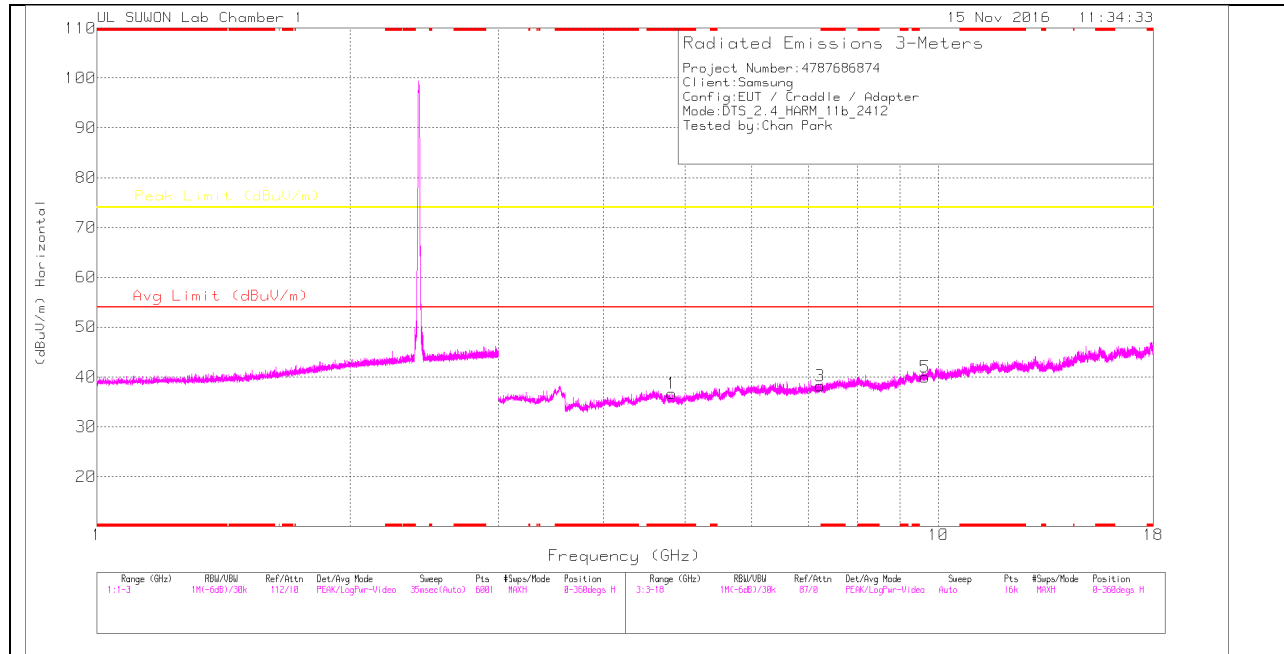
RMS - RMS detection

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

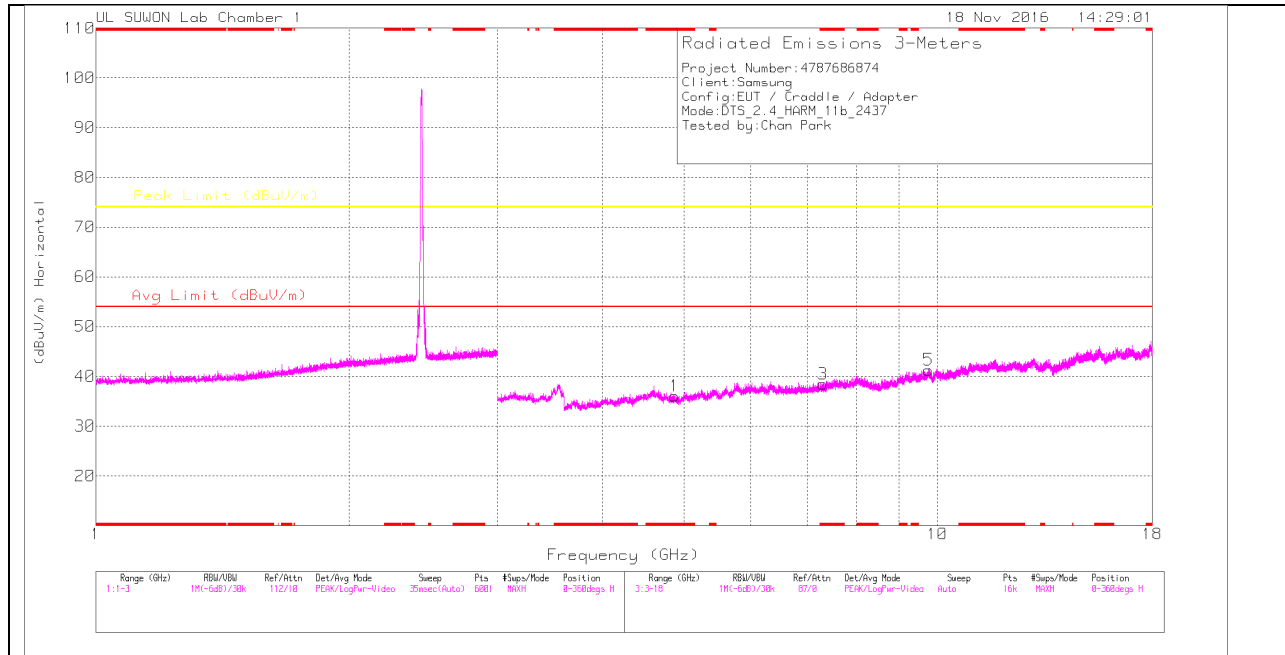
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.823	36.21	PK	34	-33.5	0	36.71	-	-	74	-37.29	0-360	150	H
3	7.235	33.36	PK	35.7	-30.8	0	38.26	-	-	74	-35.74	0-360	250	H
5	9.646	30.27	PK	37.1	-27.4	0	39.97	-	-	74	-34.03	0-360	250	H
2	* 4.821	35.73	PK	34	-33.5	0	36.23	-	-	74	-37.77	0-360	250	V
4	7.239	33.23	PK	35.7	-30.7	0	38.23	-	-	74	-35.77	0-360	150	V
6	9.652	30.77	PK	37.1	-27.4	0	40.47	-	-	74	-33.53	0-360	250	V

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

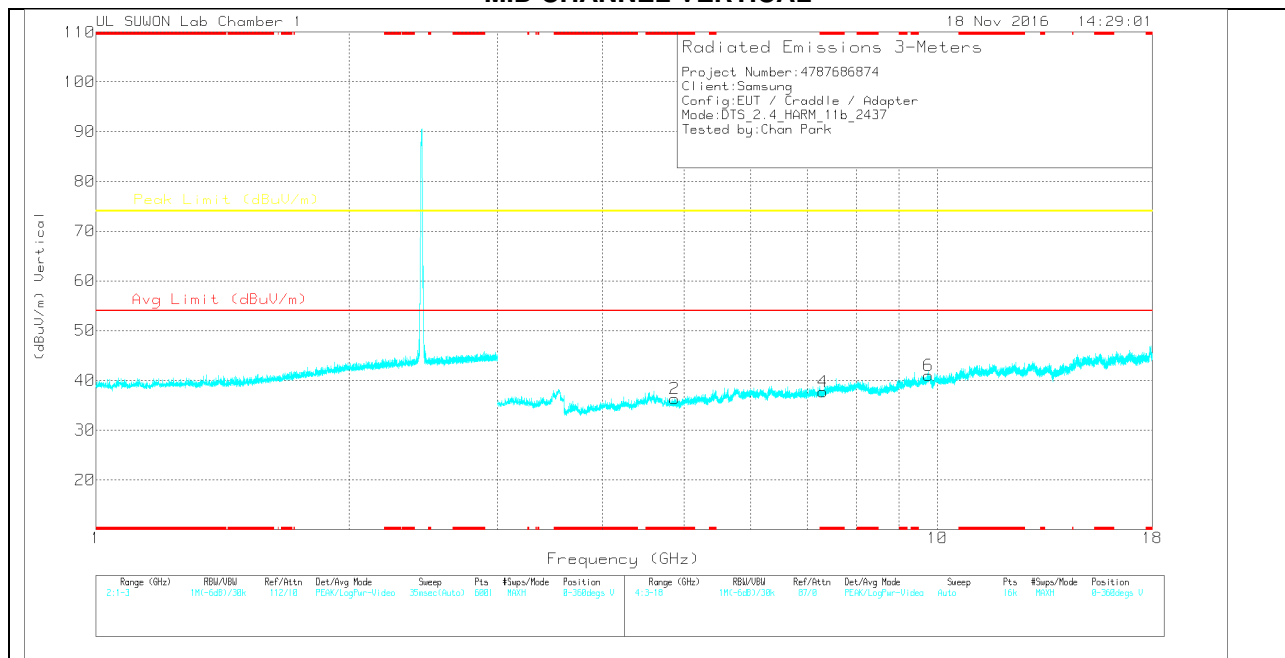
PK – Peak detector

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

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

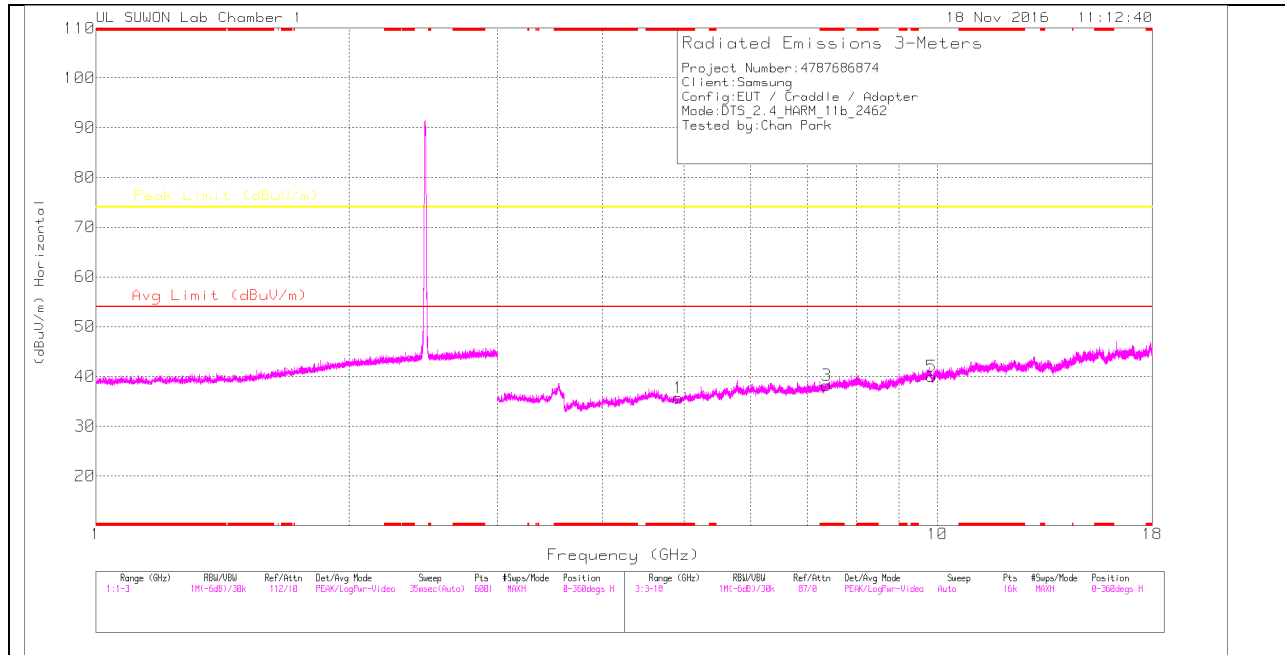
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.874	35.68	PK	34	-33.6	0	36.08	-	-	74	-37.92	0-360	250	H
3	* 7.312	33.21	PK	35.7	-30.5	0	38.41	-	-	74	-35.59	0-360	150	H
5	9.754	30.71	PK	37.2	-26.6	0	41.31	-	-	74	-32.69	0-360	150	H
2	* 4.869	35.96	PK	34	-33.6	0	36.36	-	-	74	-37.64	0-360	150	V
4	* 7.308	32.52	PK	35.7	-30.5	0	37.72	-	-	74	-36.28	0-360	150	V
6	9.751	30.63	PK	37.2	-26.8	0	41.03	-	-	74	-32.97	0-360	250	V

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

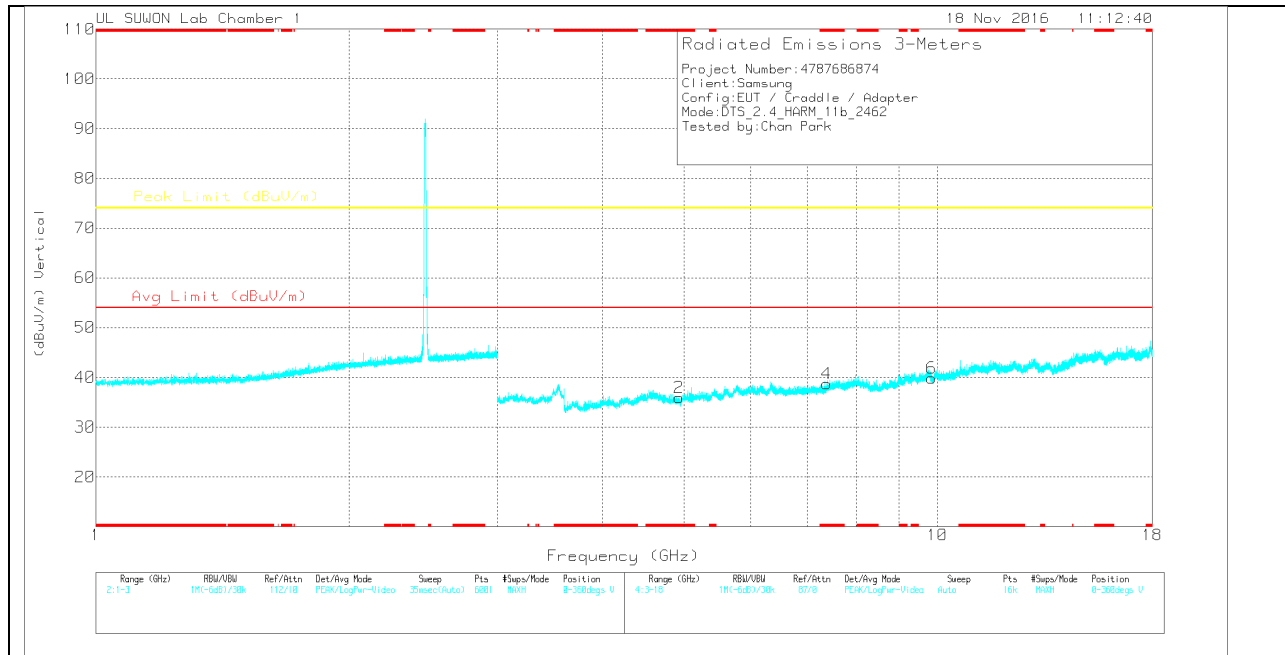
PK – Peak detector

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

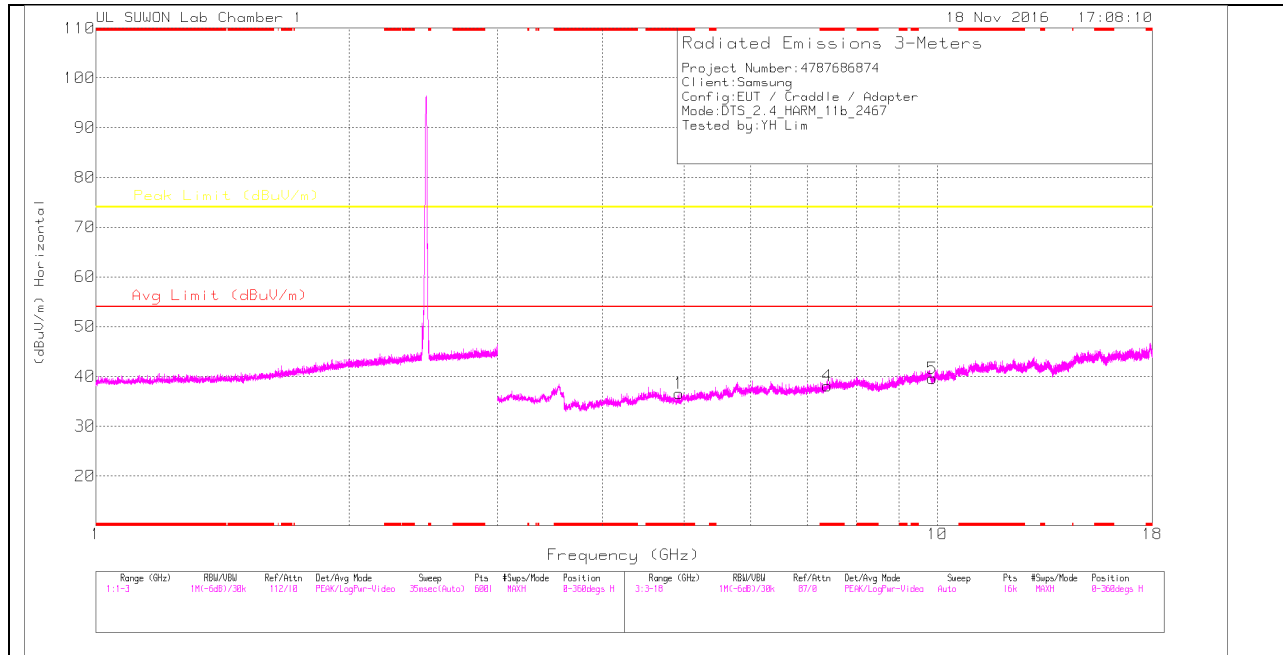
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.926	35.08	PK	34	-33.4	0	35.68	-	-	74	-38.32	0-360	150	H
3	* 7.389	32.93	PK	35.8	-30.5	0	38.23	-	-	74	-35.77	0-360	250	H
5	9.843	30.13	PK	37.3	-27.4	0	40.03	-	-	74	-33.97	0-360	150	H
2	* 4.926	35.33	PK	34	-33.4	0	35.93	-	-	74	-38.07	0-360	250	V
4	* 7.389	33.4	PK	35.8	-30.5	0	38.7	-	-	74	-35.3	0-360	250	V
6	9.845	30.03	PK	37.3	-27.5	0	39.83	-	-	74	-34.17	0-360	250	V

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

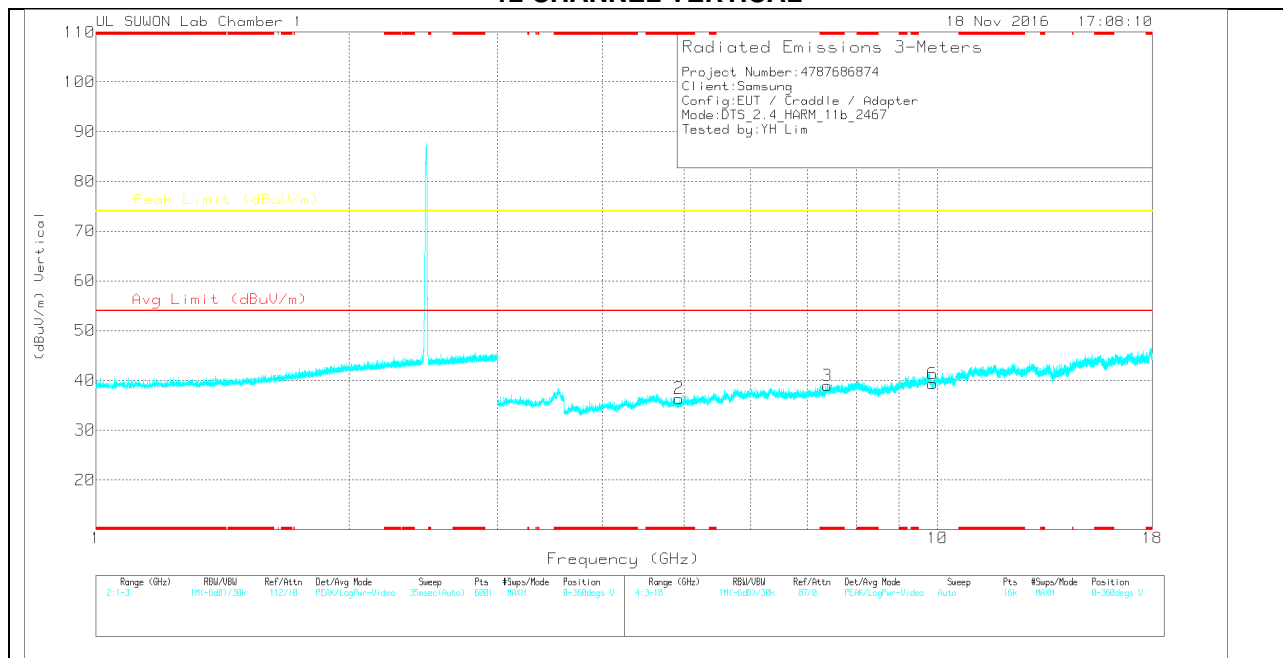
PK – Peak detector

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

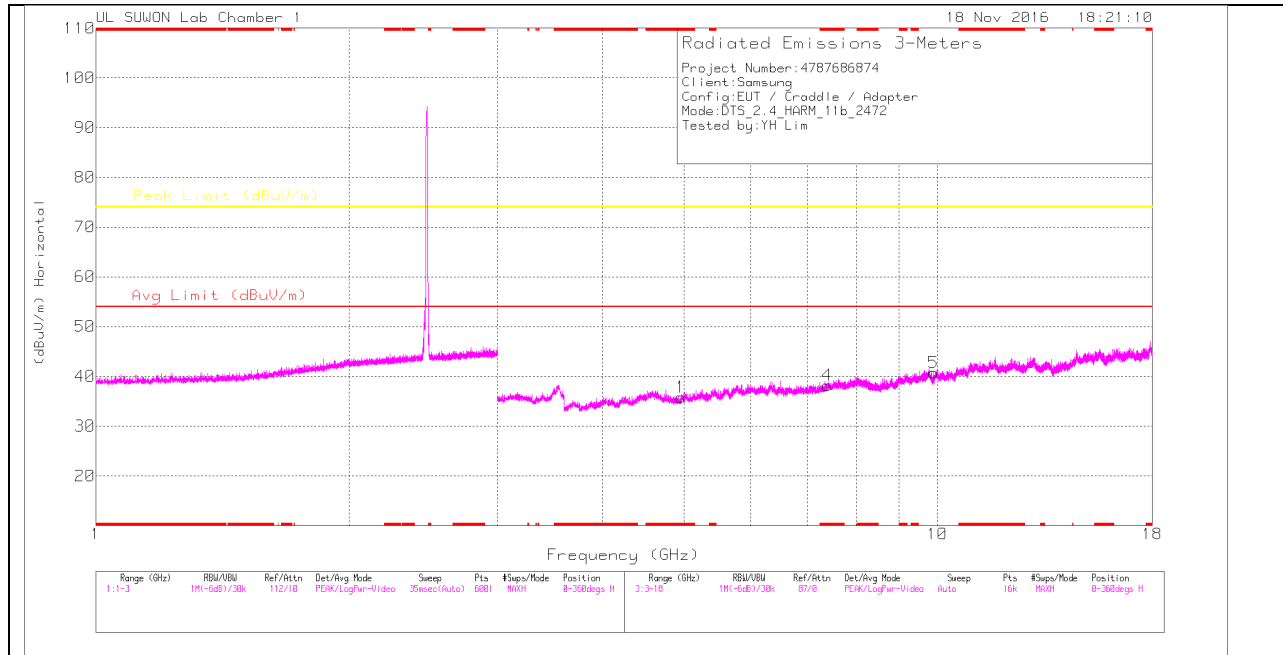
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.934	35.98	PK	34	-33.4	0	36.58	-	-	74	-37.42	0-360	250	H
4	* 7.398	32.84	PK	35.8	-30.5	0	38.14	-	-	74	-35.86	0-360	150	H
5	9.864	30.06	PK	37.3	-27.7	0	39.66	-	-	74	-34.34	0-360	150	H
2	* 4.934	35.78	PK	34	-33.4	0	36.38	-	-	74	-37.62	0-360	250	V
3	* 7.393	33.73	PK	35.8	-30.5	0	39.03	-	-	74	-34.97	0-360	150	V
6	9.867	29.79	PK	37.3	-27.7	0	39.39	-	-	74	-34.61	0-360	250	V

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

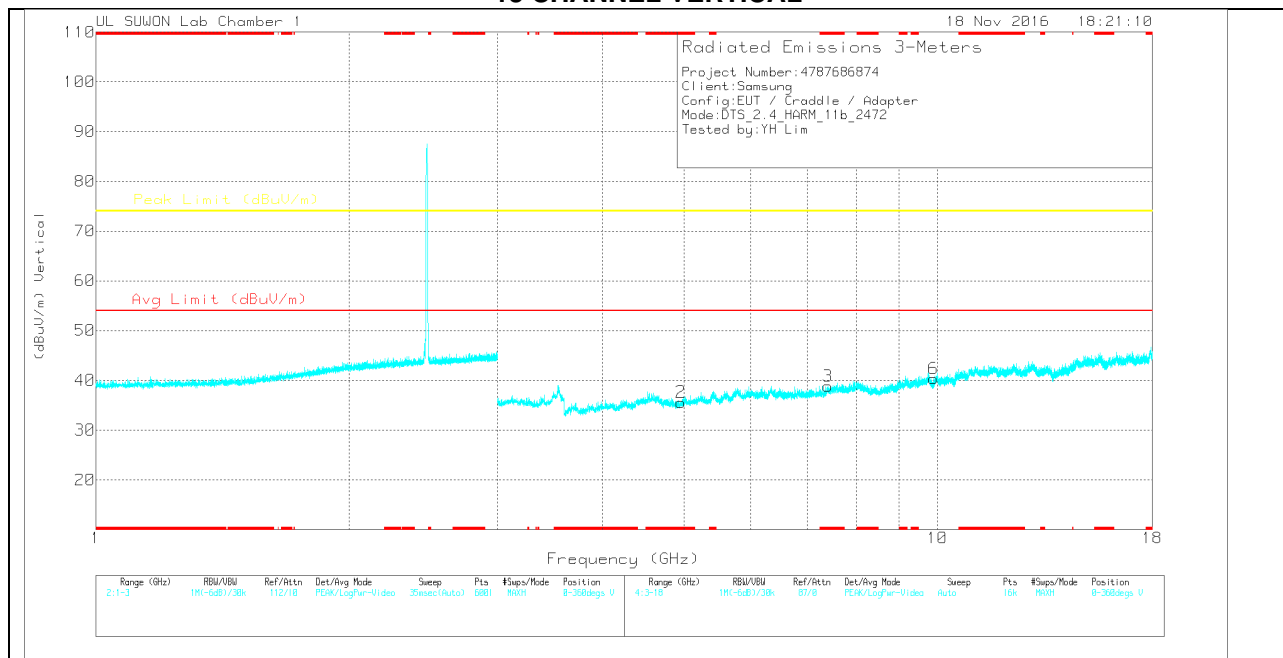
PK – Peak detector

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 17]_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	* 4.954	35.46	PK	34	-33.6	0	35.86	-	-	74	-38.14	0-360	150	H
4	* 7.399	32.89	PK	35.8	-30.5	0	38.19	-	-	74	-35.81	0-360	150	H
5	9.896	30.98	PK	37.4	-27.6	0	40.78	-	-	74	-33.22	0-360	250	H
2	* 4.956	35.22	PK	34	-33.6	0	35.62	-	-	74	-38.38	0-360	250	V
3	* 7.407	33.47	PK	35.8	-30.4	0	38.87	-	-	74	-35.13	0-360	150	V
6	9.895	30.58	PK	37.4	-27.6	0	40.38	-	-	74	-33.62	0-360	150	V

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

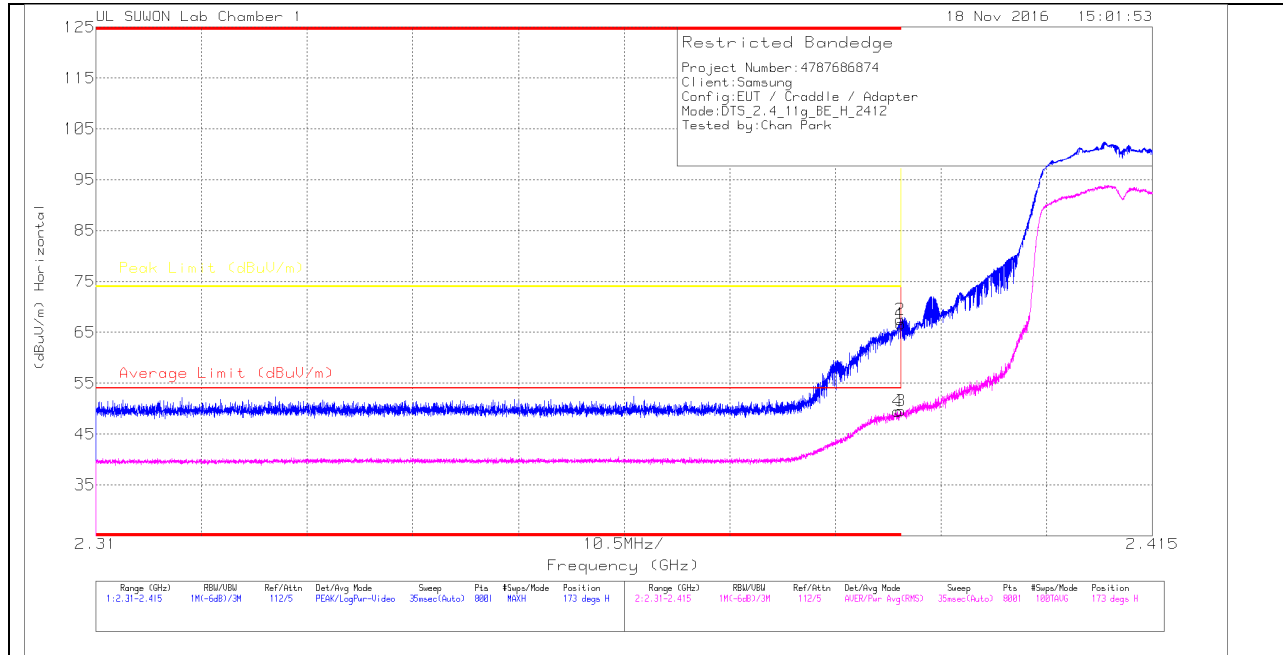
PK – Peak detector

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

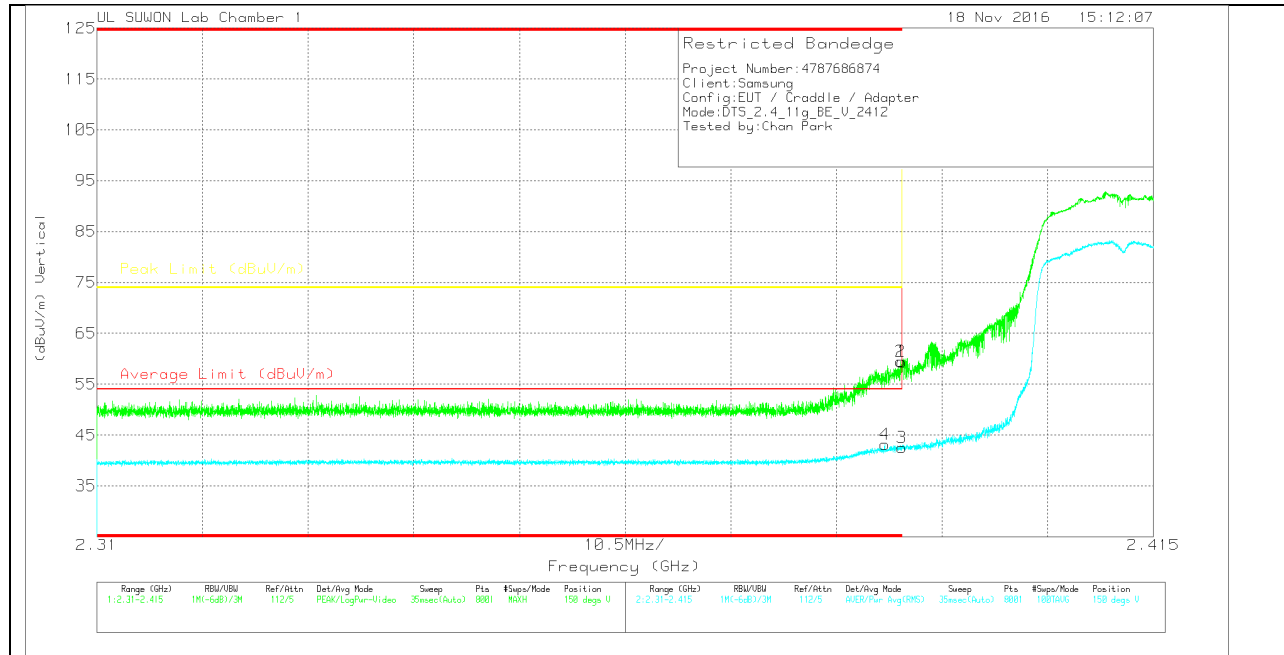
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	63.28	Pk		-28.4	0	66.68	-	-	74	-7.32	173	192	H
2	* 2.39	64.13	Pk		-28.4	0	67.53	-	-	74	-6.47	173	192	H
3	* 2.39	45.84	RMS		-28.4	.32	49.56	54	-4.44	-	-	173	192	H
4	* 2.39	45.79	RMS		-28.4	.32	49.51	54	-4.49	-	-	173	192	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(00168 717)_15061 9	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	56.02	Pk		-28.4	0	59.42	-	-	74	-14.58	150	180	V
2	* 2.39	56.07	Pk		-28.4	0	59.47	-	-	74	-14.53	150	180	V
3	* 2.39	38.81	RMS		-28.4	.32	42.53	54	-11.47	-	-	150	180	V
4	* 2.388	39.41	RMS		-28.4	.32	43.13	54	-10.87	-	-	150	180	V

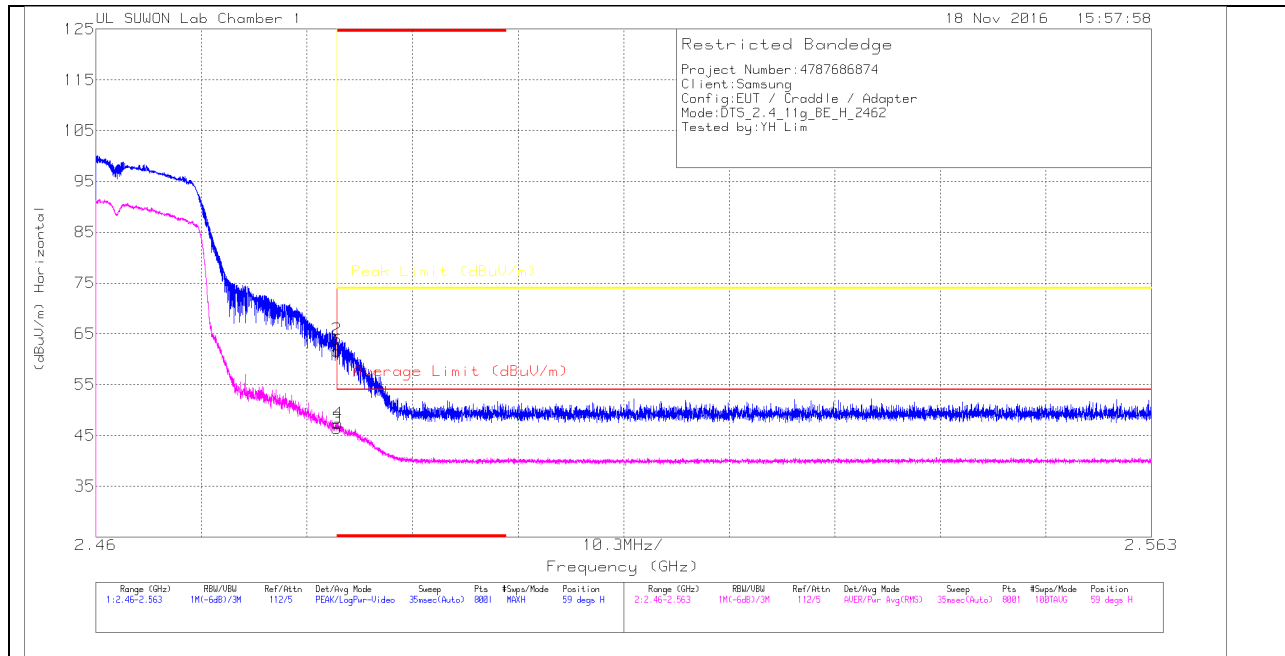
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

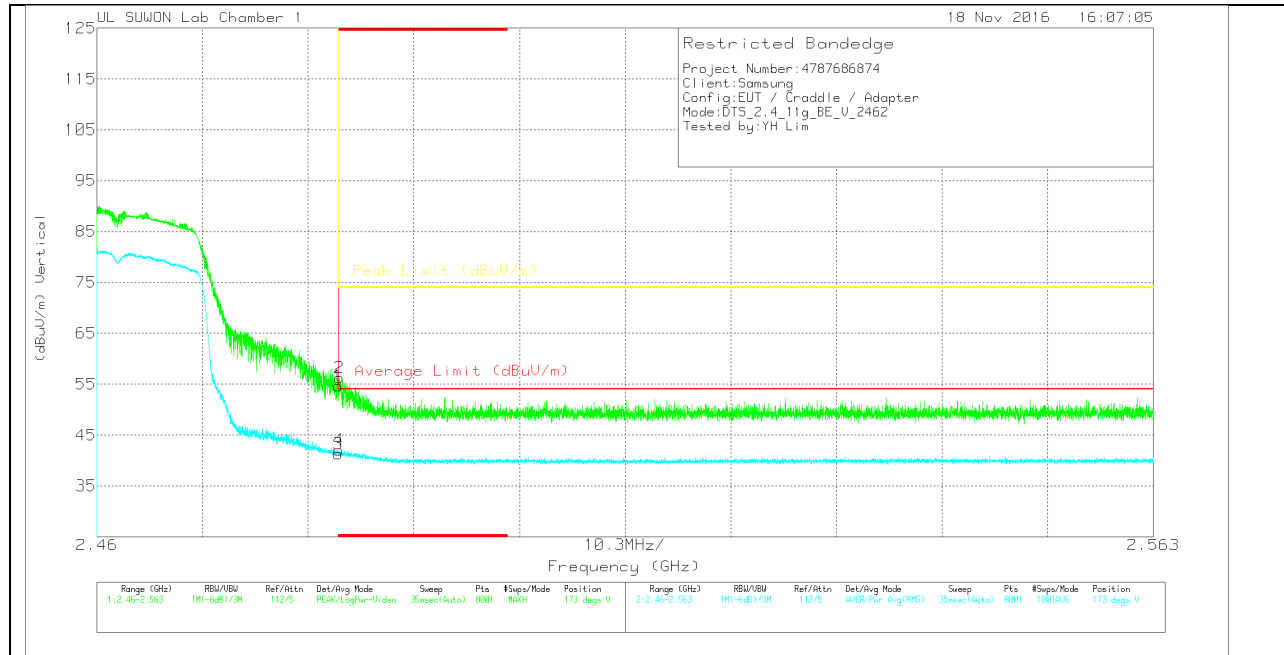
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	57.94	Pk	32	-28.3	0	61.64	-	-	74	-12.36	59	134	H
2	* 2.484	60.19	Pk	32	-28.3	0	63.89	-	-	74	-10.11	59	134	H
3	* 2.484	42.39	RMS	32	-28.3	.32	46.41	54	-7.59	-	-	59	134	H
4	* 2.484	43.29	RMS	32	-28.3	.32	47.31	54	-6.69	-	-	59	134	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(00168 717)_15061 9	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	50.98	Pk	32	-28.3	0	54.68	-	-	74	-19.32	173	103	V
2	* 2.484	52.55	Pk	32	-28.3	0	56.25	-	-	74	-17.75	173	103	V
3	* 2.484	37.29	RMS	32	-28.3	.32	41.31	54	-12.69	-	-	173	103	V
4	* 2.484	38	RMS	32	-28.3	.32	42.02	54	-11.98	-	-	173	103	V

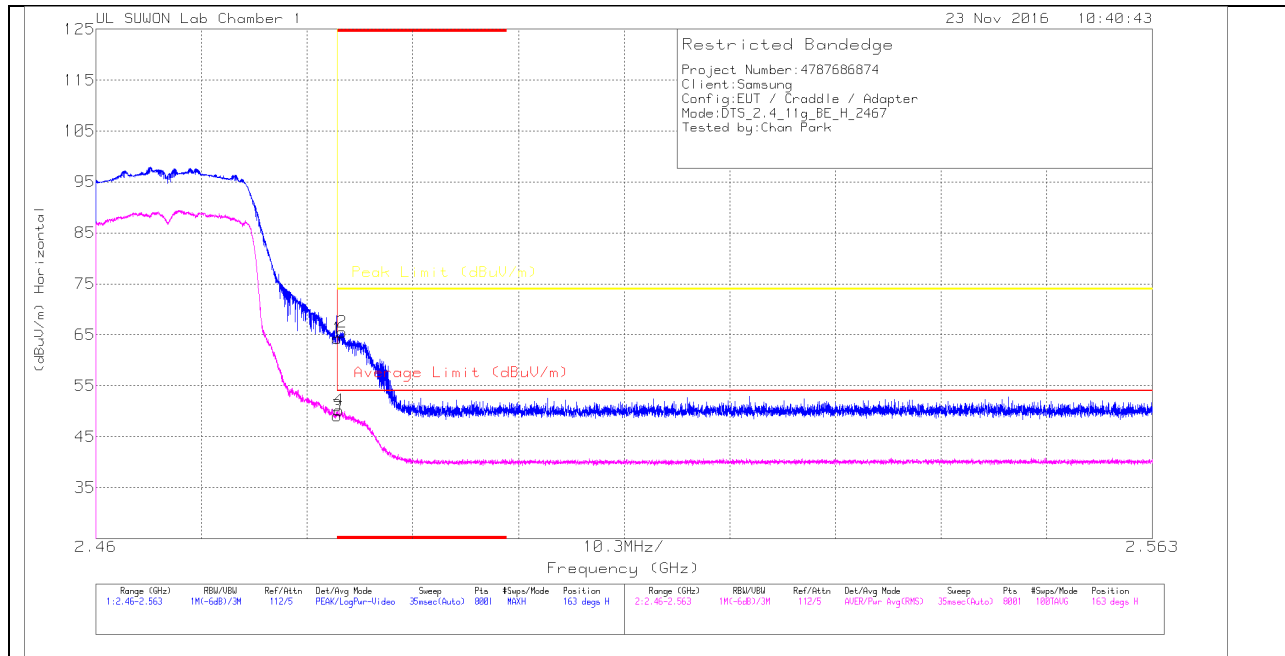
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

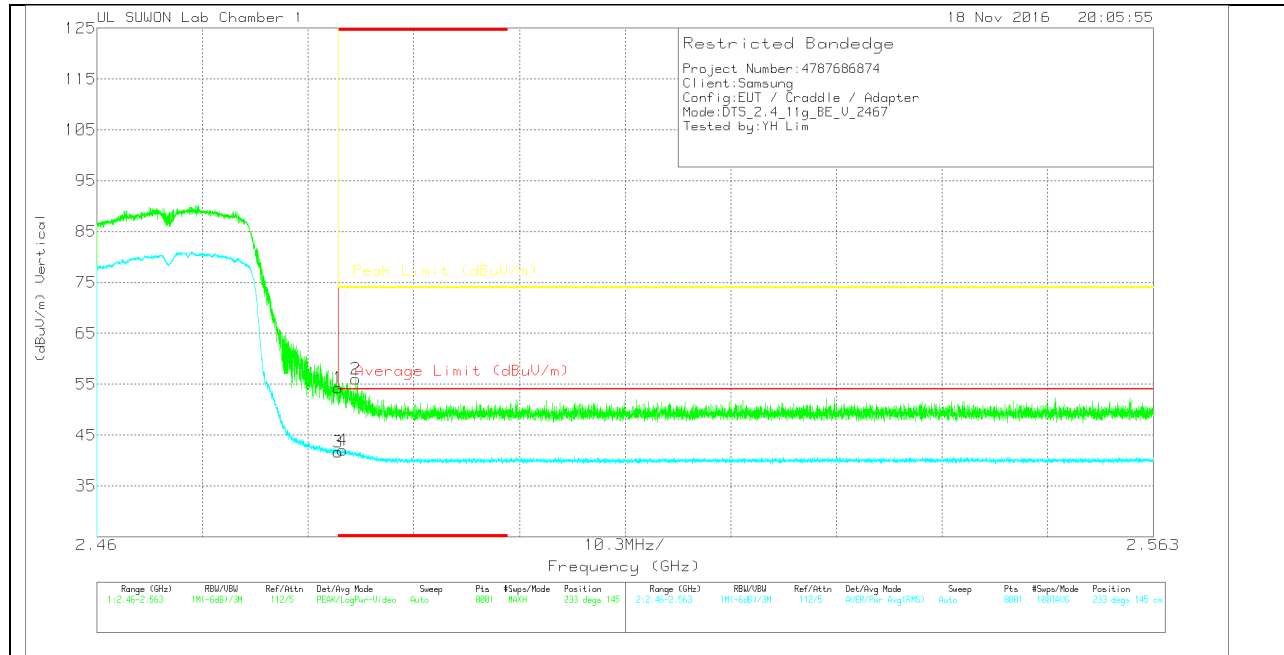
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 17_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	60.63	Pk	32	-28.3	0	64.33	-	-	74	-9.67	163	300	H
2	* 2.484	61.79	Pk	32	-28.3	0	65.49	-	-	74	-8.51	163	300	H
3	* 2.484	45.08	RMS	32	-28.3	.32	49.1	54	-4.9	-	-	163	300	H
4	* 2.484	46.15	RMS	32	-28.3	.32	50.17	54	-3.83	-	-	163	300	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	3117/00168 717/_15061 9	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	50.58	Pk	32	-28.3	0	54.28	-	-	74	-19.72	233	145	V
2	* 2.485	52.27	Pk	32	-28.3	0	55.97	-	-	74	-18.03	233	145	V
3	* 2.484	37.66	RMS	32	-28.3	.32	41.68	54	-12.32	-	-	233	145	V
4	* 2.484	38.06	RMS	32	-28.3	.32	42.08	54	-11.92	-	-	233	145	V

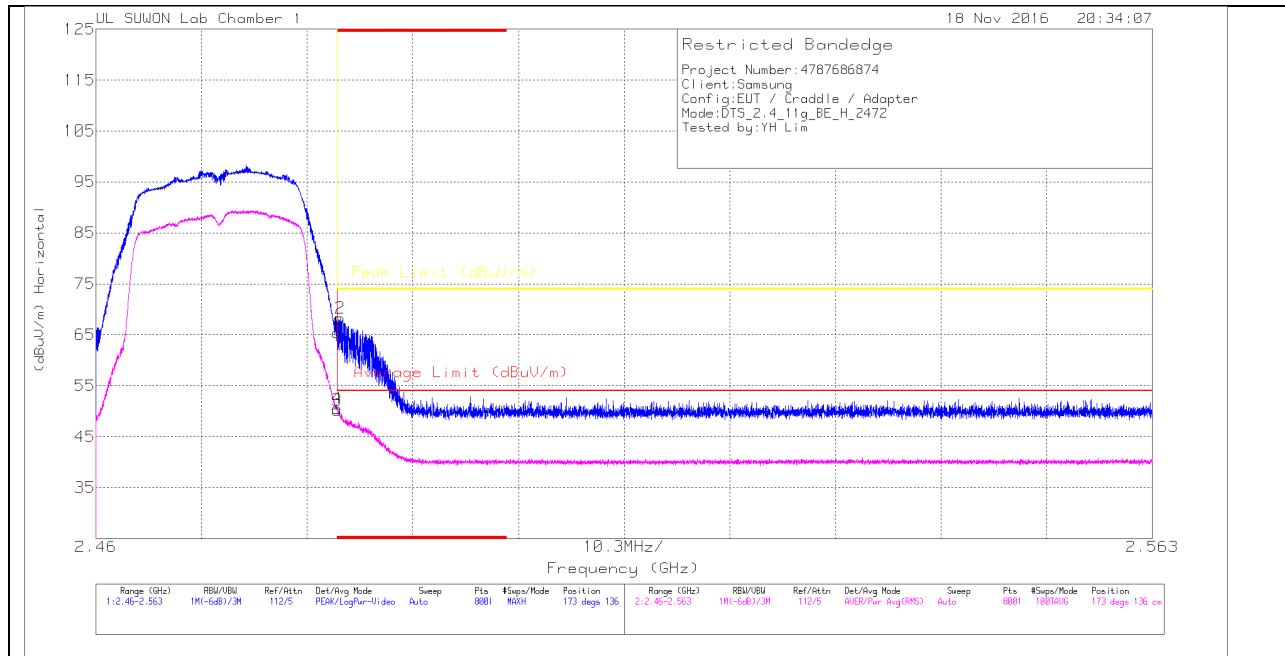
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

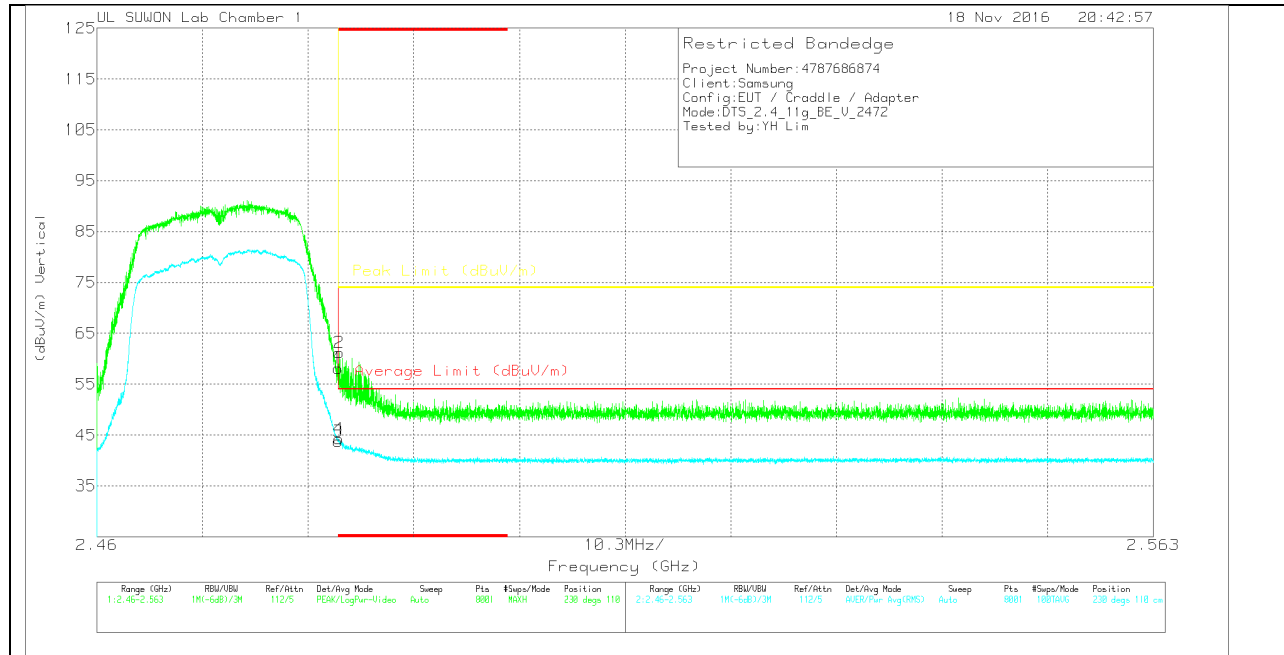
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	61.68	Pk	32	-28.3	0	65.38	-	-	74	-8.62	173	136	H
2	* 2.484	64.55	Pk	32	-28.3	0	68.25	-	-	74	-5.75	173	136	H
3	* 2.484	46.13	RMS	32	-28.3	.32	50.15	54	-3.85	-	-	173	136	H
4	* 2.484	46.59	RMS	32	-28.3	.32	50.61	54	-3.39	-	-	173	136	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(00168 717)_15061 9	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	54.43	Pk	32	-28.3	0	58.13	-	-	74	-15.87	230	110	V
2	* 2.484	57.47	Pk	32	-28.3	0	61.17	-	-	74	-12.83	230	110	V
3	* 2.484	39.77	RMS	32	-28.3	.32	43.79	54	-10.21	-	-	230	110	V
4	* 2.484	40.24	RMS	32	-28.3	.32	44.26	54	-9.74	-	-	230	110	V

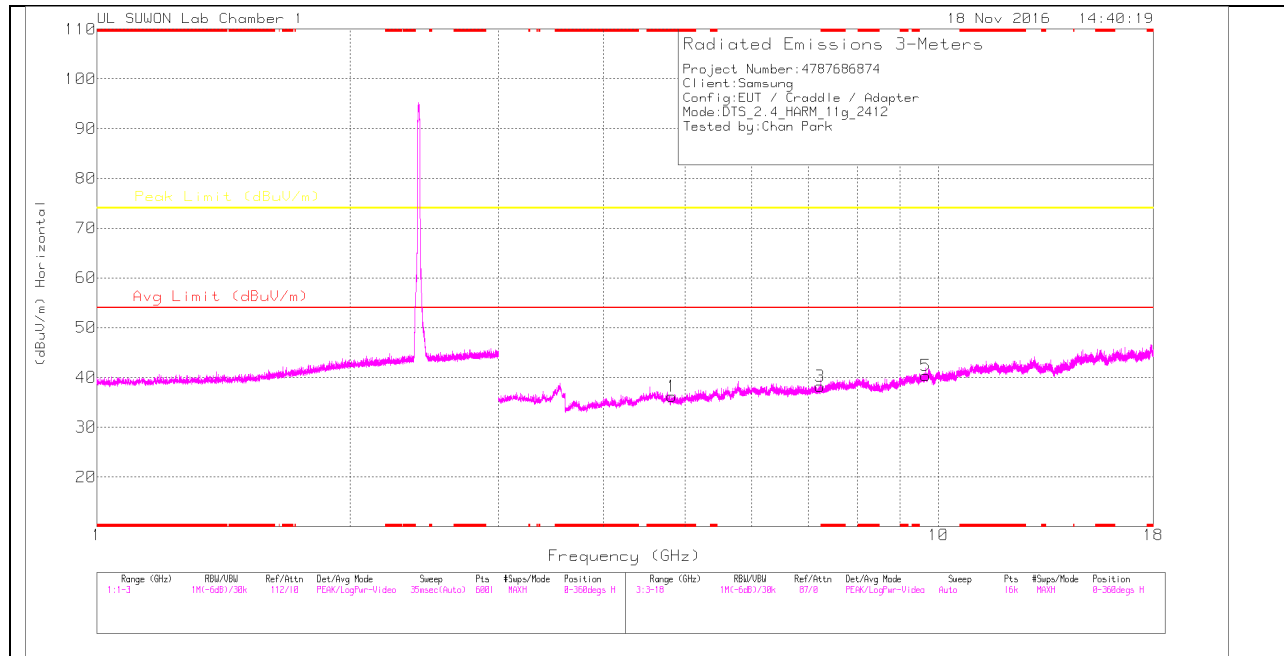
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

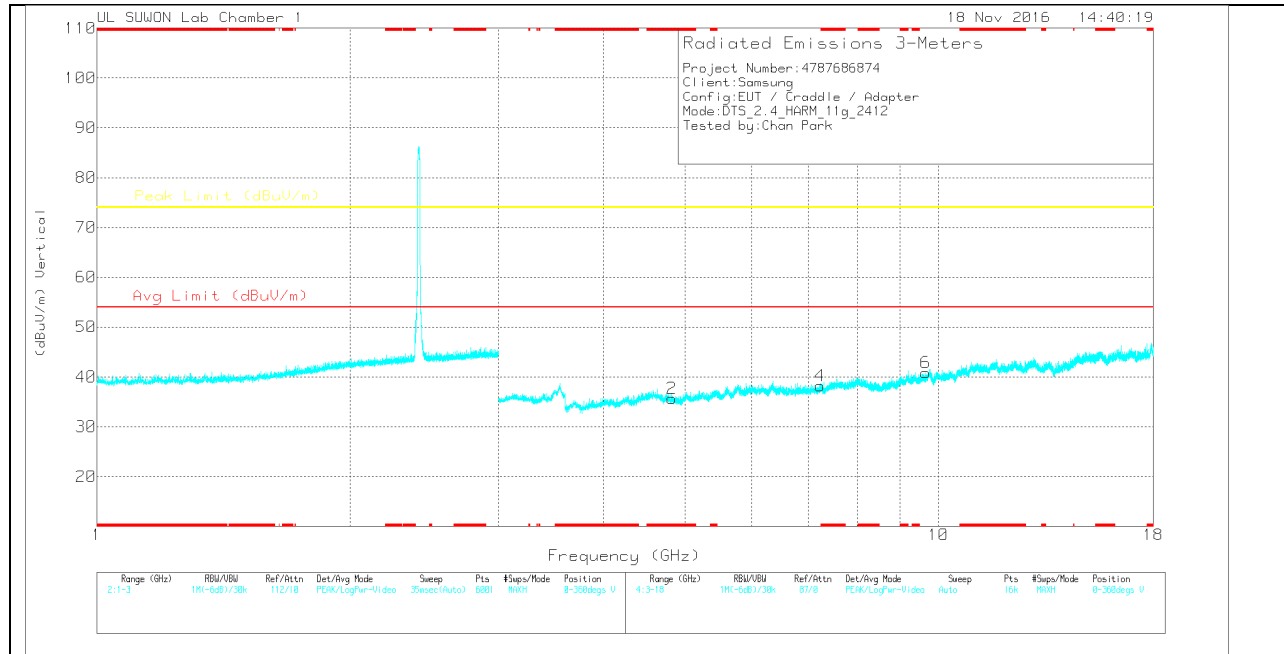
RMS - RMS detection

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

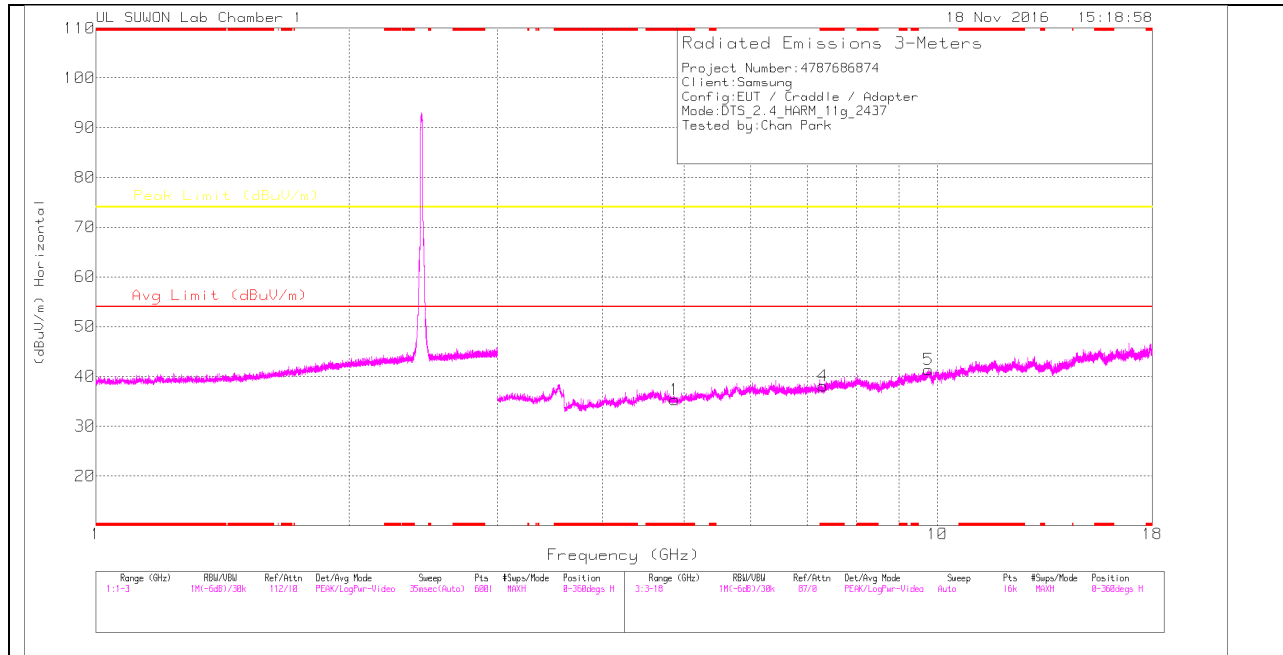
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.823	35.67	PK	34	-33.5	0	36.17	-	-	74	-37.83	0-360	150	H
3	7.238	33.17	PK	35.7	-30.7	0	38.17	-	-	74	-35.83	0-360	150	H
5	9.651	30.66	PK	37.1	-27.4	0	40.36	-	-	74	-33.64	0-360	150	H
2	* 4.824	35.21	PK	34	-33.5	0	35.71	-	-	74	-38.29	0-360	150	V
4	7.233	33.34	PK	35.7	-30.8	0	38.24	-	-	74	-35.76	0-360	250	V
6	9.651	31.22	PK	37.1	-27.4	0	40.92	-	-	74	-33.08	0-360	150	V

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

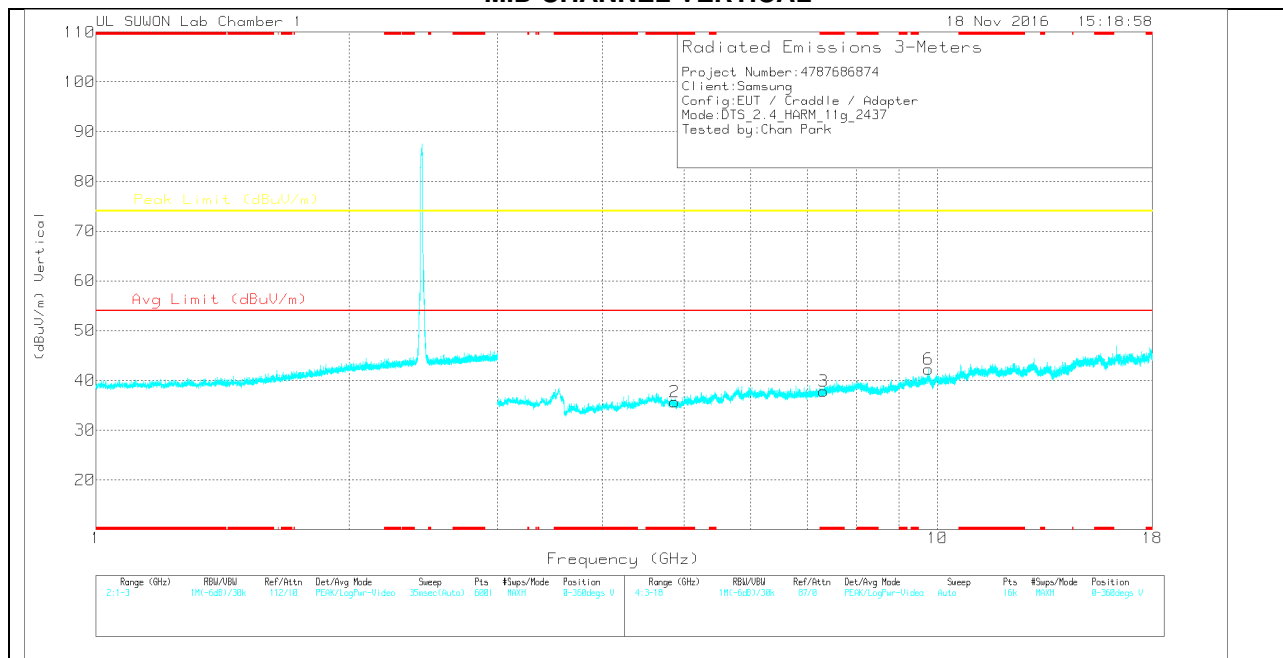
PK – Peak detector

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

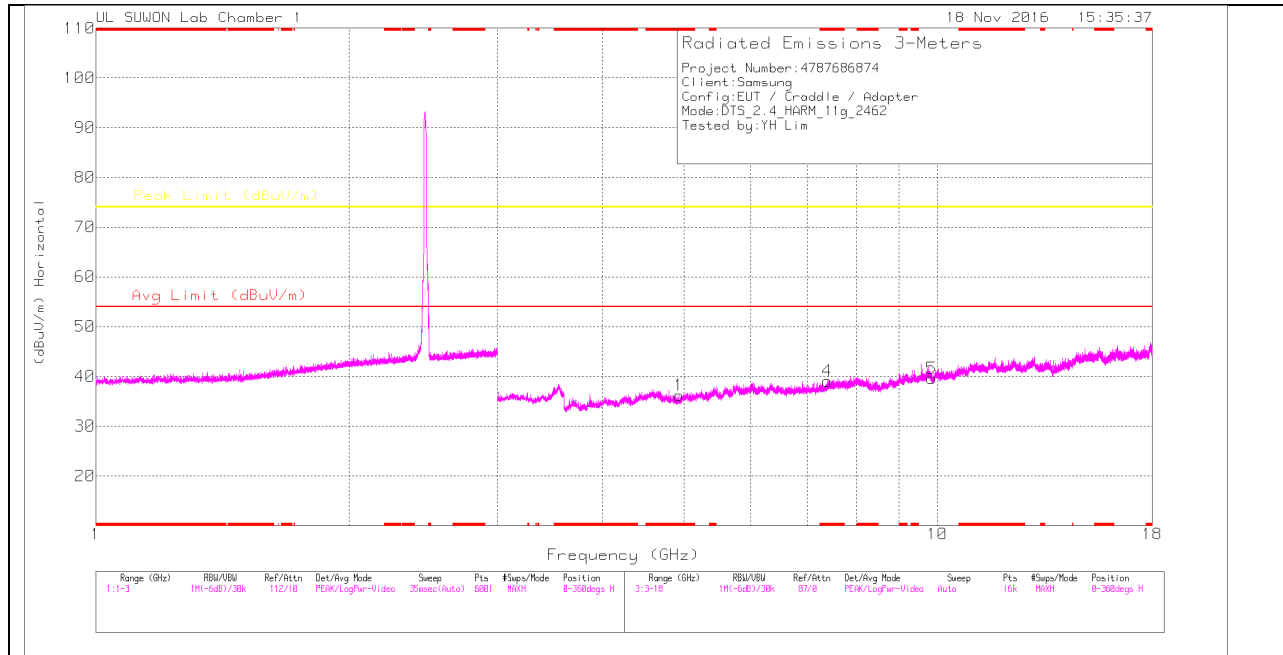
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.872	34.87	PK	34	-33.6	0	35.27	-	-	74	-38.73	0-360	150	H
4	* 7.312	32.89	PK	35.7	-30.5	0	38.09	-	-	74	-35.91	0-360	150	H
5	9.757	30.78	PK	37.2	-26.6	0	41.38	-	-	74	-32.62	0-360	250	H
2	* 4.868	35.32	PK	34	-33.6	0	35.72	-	-	74	-38.28	0-360	250	V
3	* 7.318	32.67	PK	35.8	-30.6	0	37.87	-	-	74	-36.13	0-360	250	V
6	9.757	31.62	PK	37.2	-26.6	0	42.22	-	-	74	-31.78	0-360	150	V

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

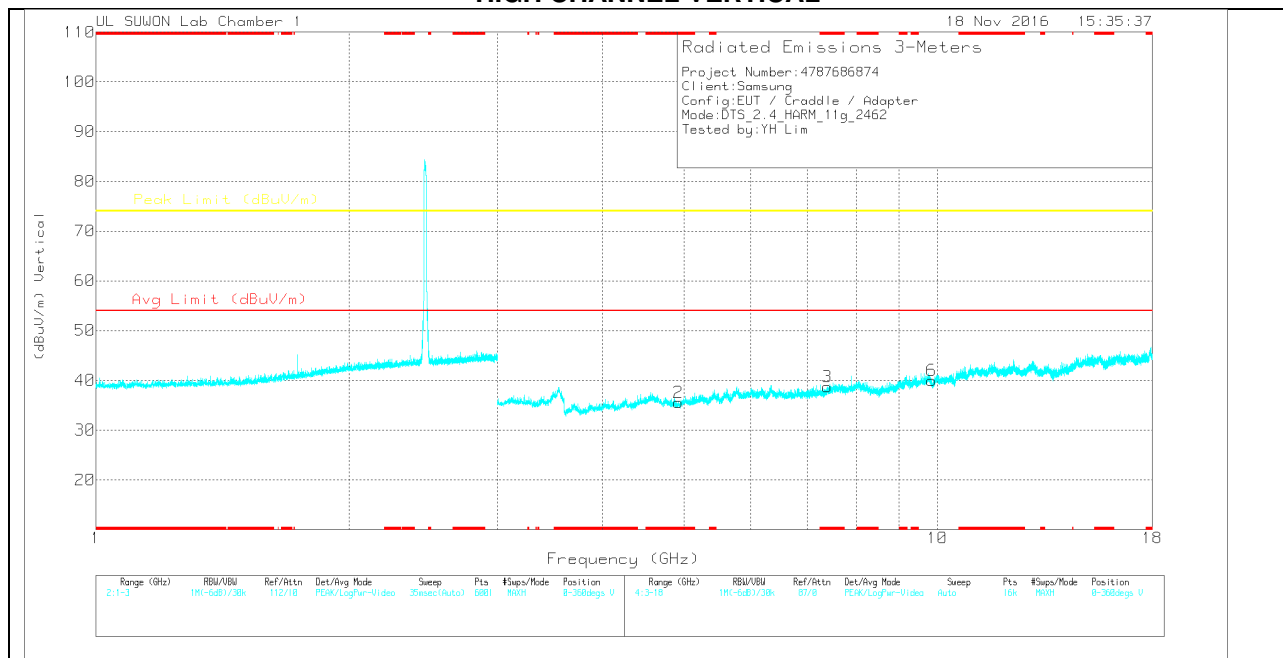
PK – Peak detector

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

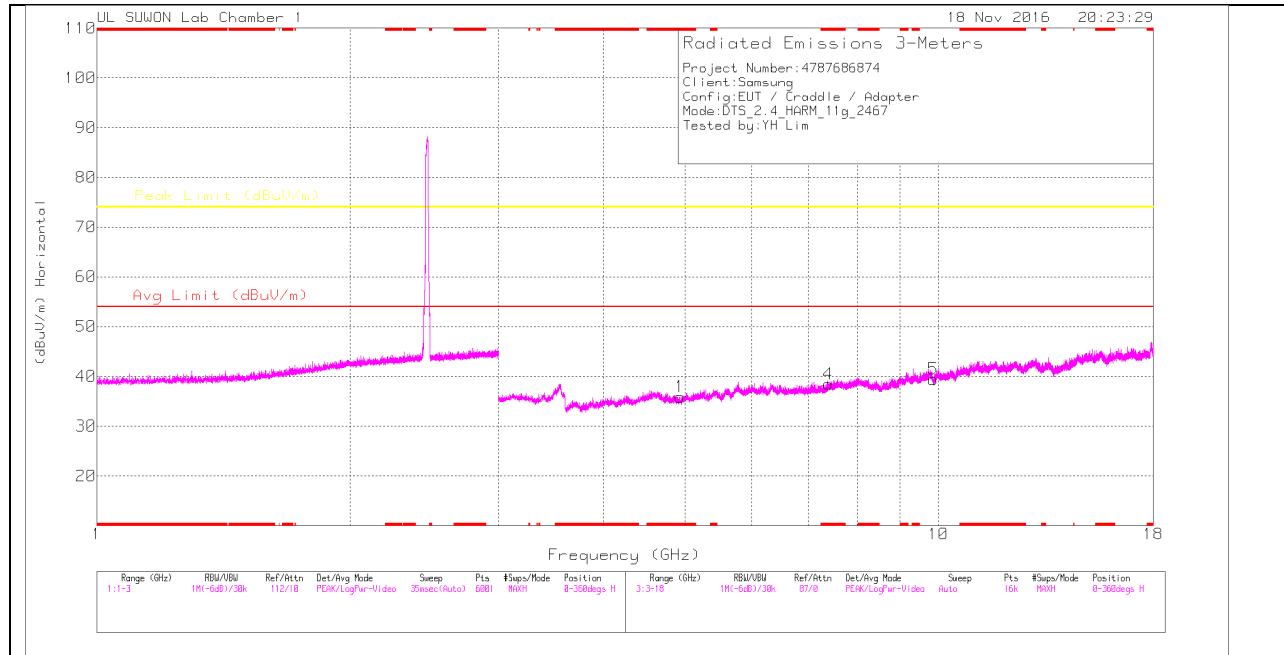
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.93	35.6	PK	34	-33.4	0	36.2	-	-	74	-37.8	0-360	250	H
4	* 7.396	33.74	PK	35.8	-30.5	0	39.04	-	-	74	-34.96	0-360	150	H
5	9.843	29.71	PK	37.3	-27.4	0	39.61	-	-	74	-34.39	0-360	250	H
2	* 4.926	34.96	PK	34	-33.4	0	35.56	-	-	74	-38.44	0-360	150	V
3	* 7.392	33.46	PK	35.8	-30.5	0	38.76	-	-	74	-35.24	0-360	250	V
6	9.84	29.99	PK	37.3	-27.3	0	39.99	-	-	74	-34.01	0-360	250	V

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

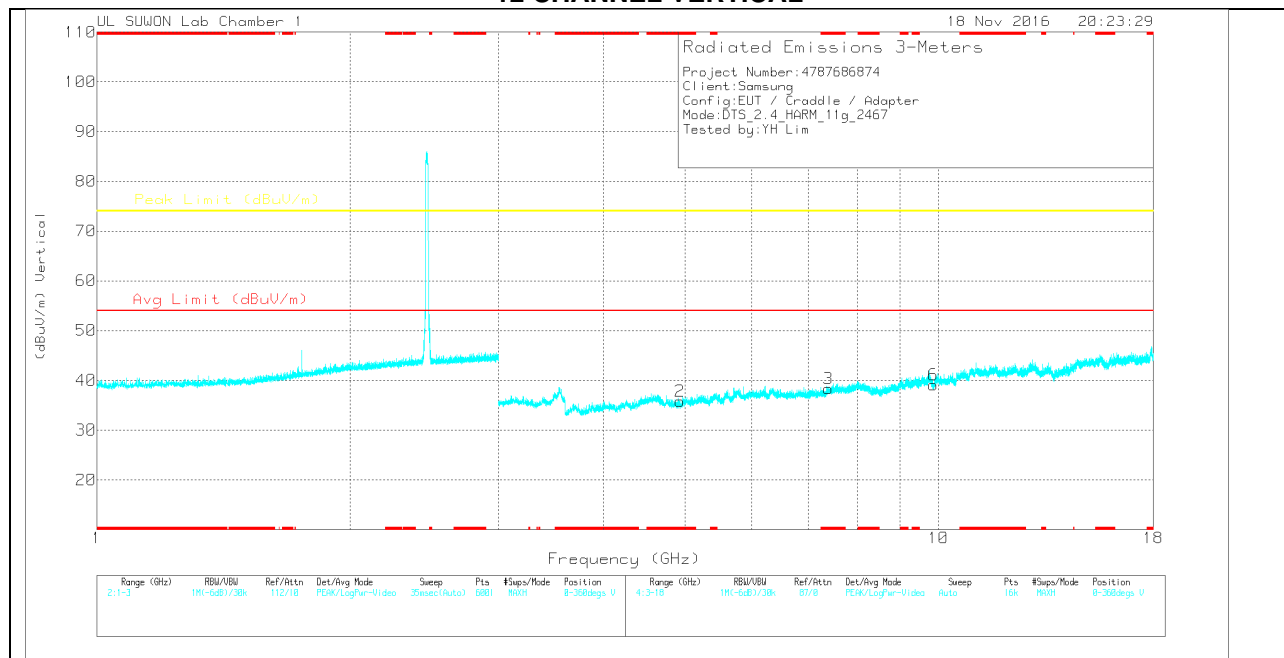
PK – Peak detector

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

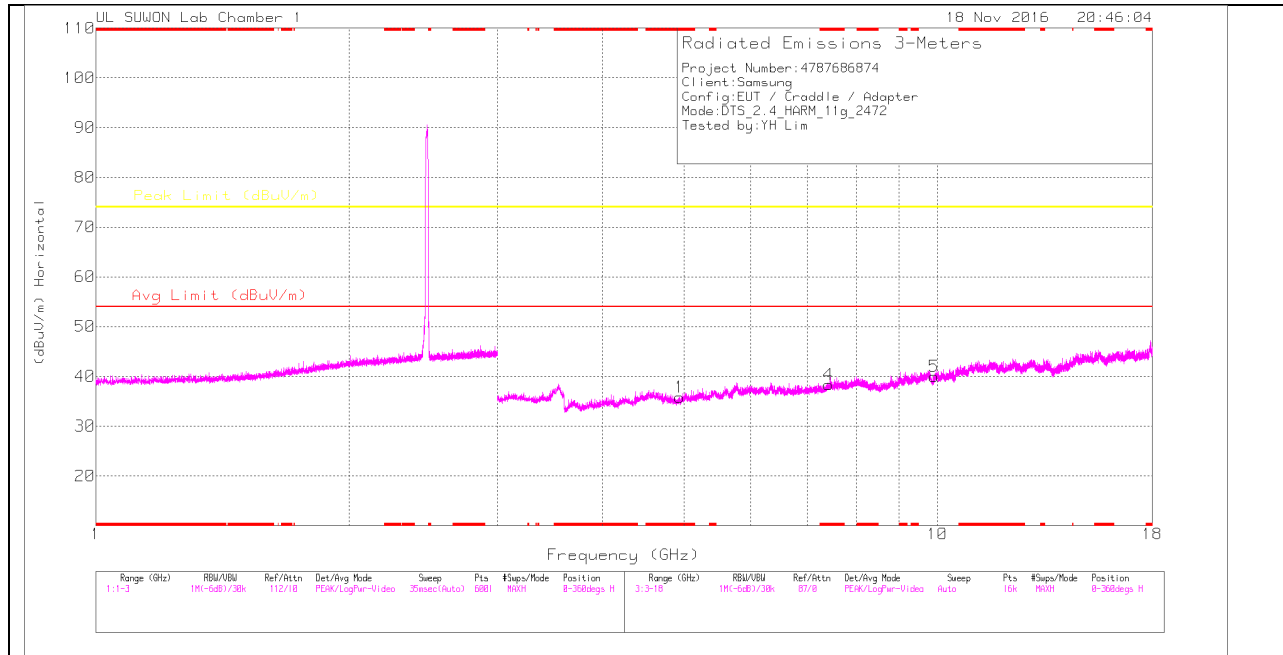
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.926	35.28	PK	34	-33.4	0	35.88	-	-	74	-38.12	0-360	150	H
4	* 7.398	33.13	PK	35.8	-30.5	0	38.43	-	-	74	-35.57	0-360	150	H
5	9.866	29.82	PK	37.3	-27.7	0	39.42	-	-	74	-34.58	0-360	250	H
2	* 4.934	35.21	PK	34	-33.4	0	35.81	-	-	74	-38.19	0-360	150	V
3	* 7.401	32.9	PK	35.8	-30.4	0	38.3	-	-	74	-35.7	0-360	150	V
6	9.863	29.54	PK	37.3	-27.7	0	39.14	-	-	74	-34.86	0-360	250	V

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

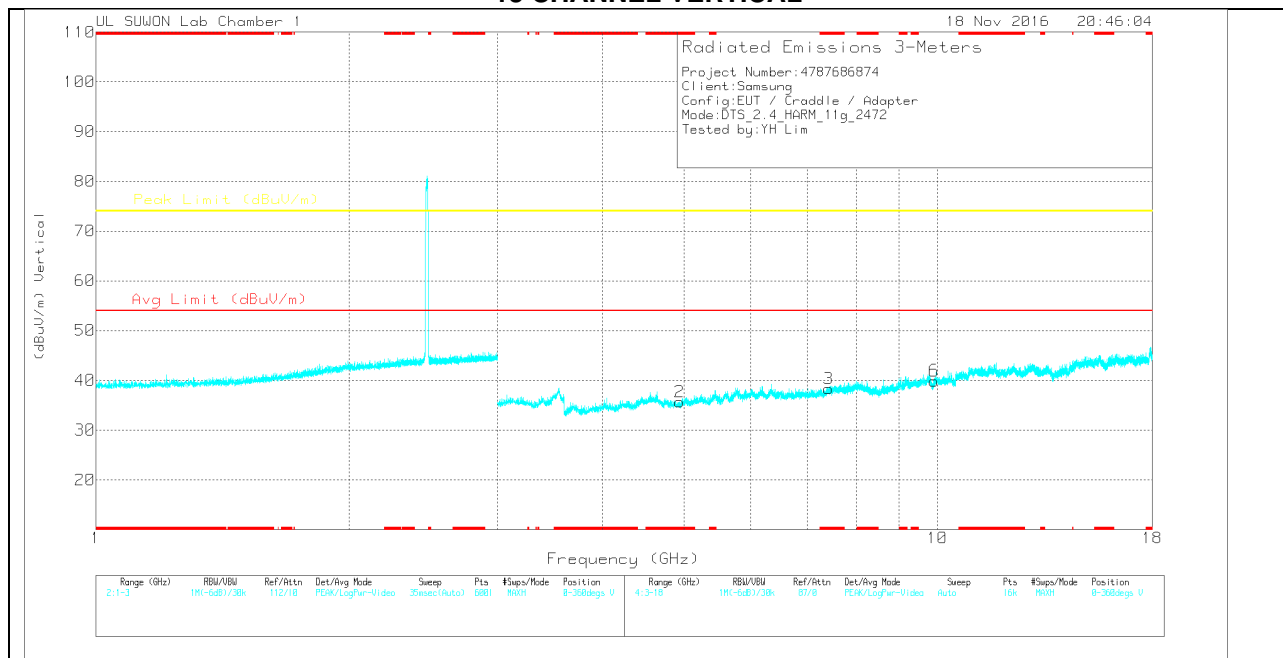
PK – Peak detector

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 17]_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	* 4.94	35.31	PK	34	-33.5	0	35.81	-	-	74	-38.19	0-360	250	H
4	* 7.419	32.97	PK	35.8	-30.4	0	38.37	-	-	74	-35.63	0-360	250	H
5	9.901	30.08	PK	37.4	-27.5	0	39.98	-	-	74	-34.02	0-360	150	H
2	* 4.939	35.16	PK	34	-33.5	0	35.66	-	-	74	-38.34	0-360	150	V
3	* 7.425	33.09	PK	35.8	-30.5	0	38.39	-	-	74	-35.61	0-360	150	V
6	9.908	29.92	PK	37.4	-27.4	0	39.92	-	-	74	-34.08	0-360	250	V

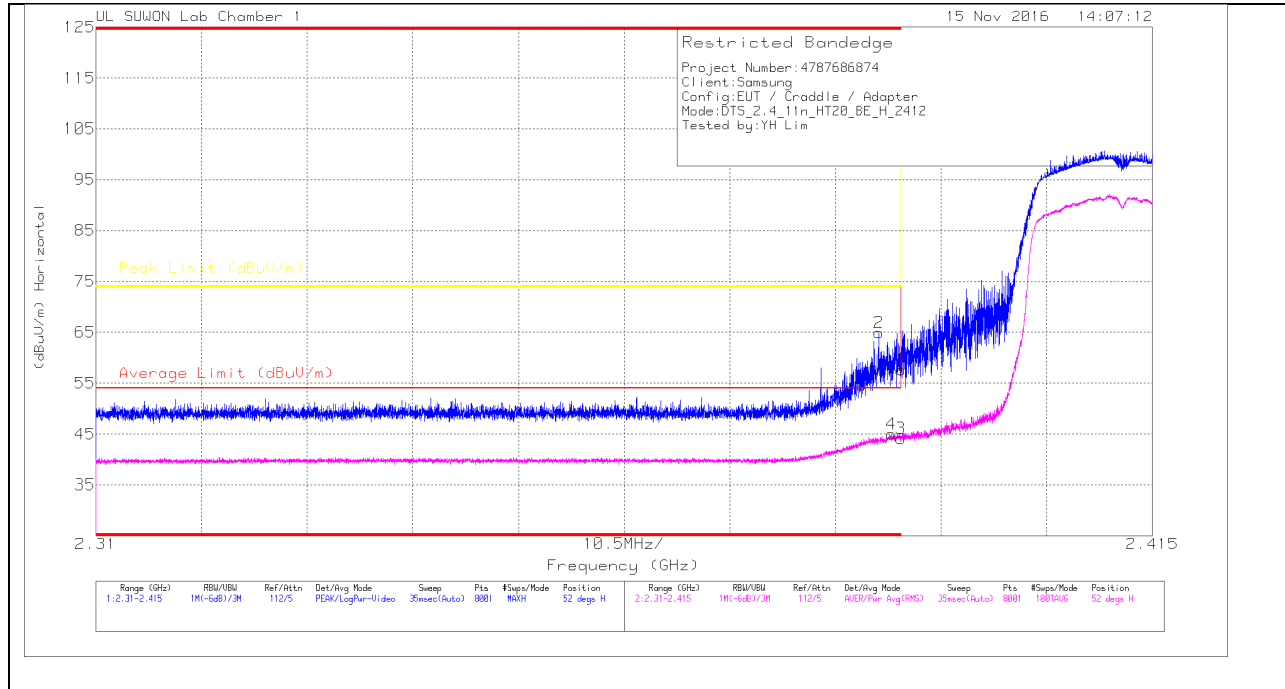
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak detector

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

10.2.3. 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

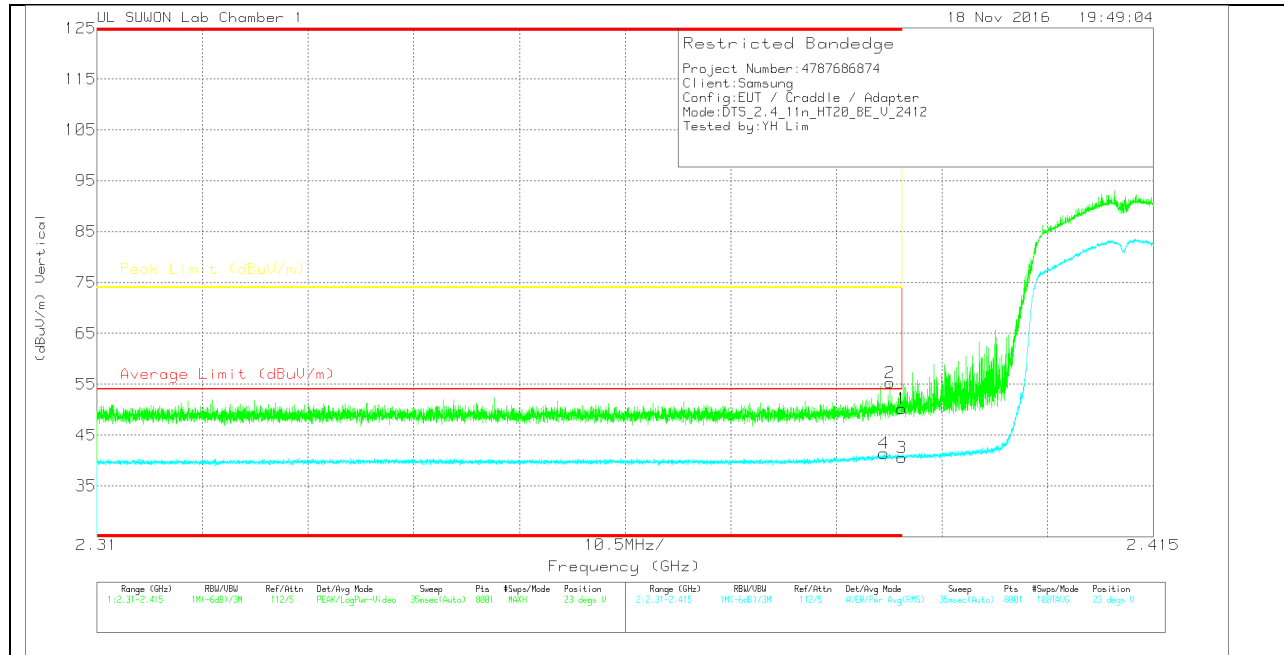
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 17)_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	54.2	Pk	31.8	-28.4	0	57.6	-	-	74	-16.4	52	121	H
2	* 2.388	61.54	Pk	31.8	-28.4	0	64.94	-	-	74	-9.06	52	121	H
3	* 2.39	40.42	RMS	31.8	-28.4	.34	44.16	54	-9.84	-	-	52	121	H
4	* 2.389	41.27	RMS	31.8	-28.4	.34	45.01	54	-8.99	-	-	52	121	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(00168 717)_15061 9	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	46.85	Pk	31.8	-28.4	0	50.25	-	-	74	-23.75	23	101	V
2	* 2.389	51.82	Pk	31.8	-28.4	0	55.22	-	-	74	-18.78	23	101	V
3	* 2.39	36.81	RMS	31.8	-28.4	.34	40.55	54	-13.45	-	-	23	101	V
4	* 2.388	37.66	RMS	31.8	-28.4	.34	41.4	54	-12.6	-	-	23	101	V

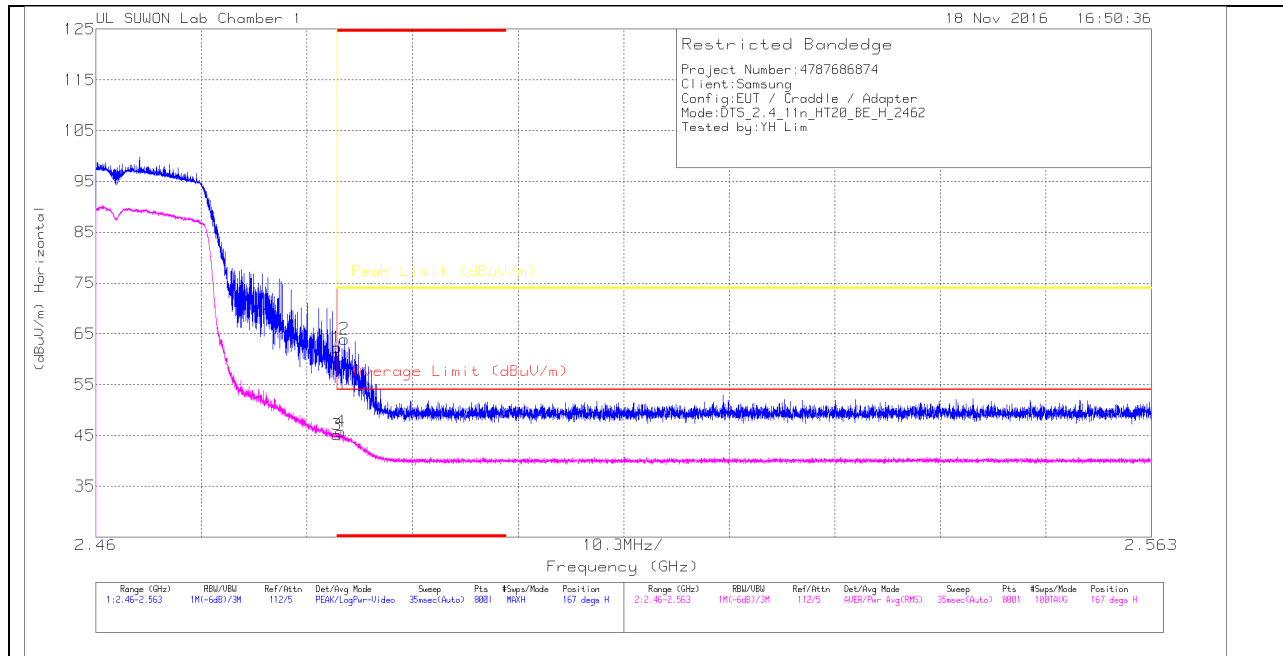
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

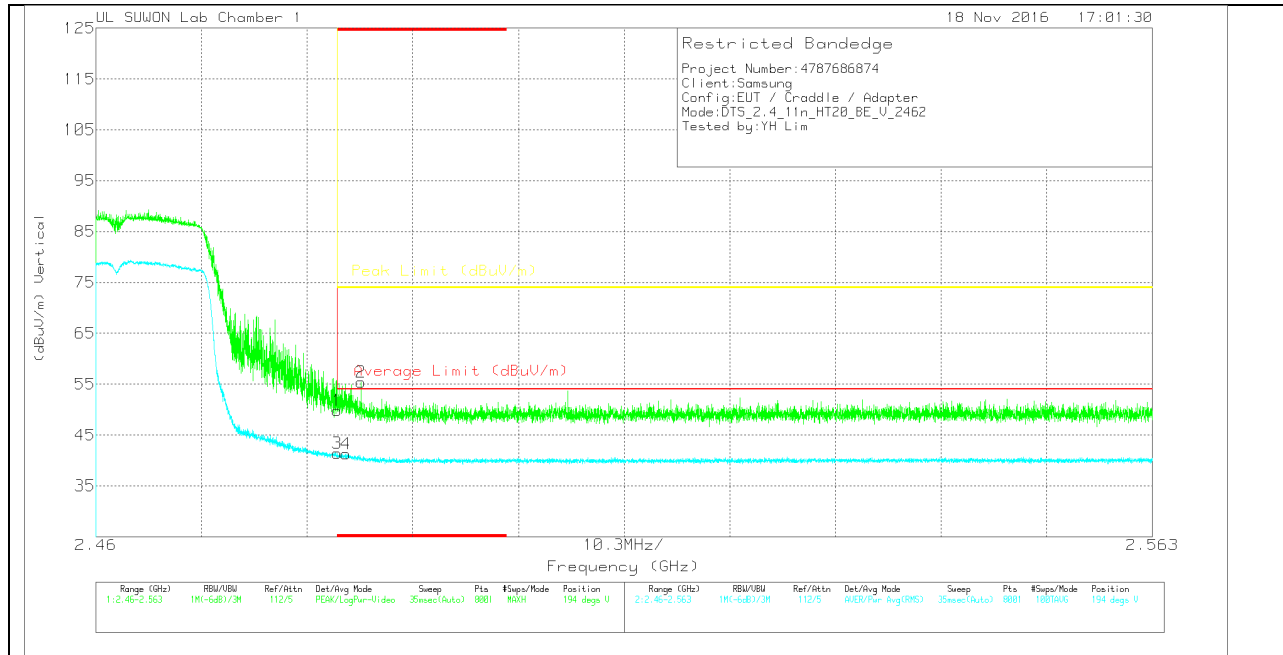
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr [dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	58.57	Pk	32	-28.3	0	62.27	-	-	74	-11.73	167	113	H
2	* 2.484	60.29	Pk	32	-28.3	0	63.99	-	-	74	-10.01	167	113	H
3	* 2.484	41.04	RMS	32	-28.3	.34	45.08	54	-8.92	-	-	167	113	H
4	* 2.484	41.66	RMS	32	-28.3	.34	45.7	54	-8.3	-	-	167	113	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(00168 717)_15061 9	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	46.13	Pk	32	-28.3	0	49.83	-	-	74	-24.17	194	120	V
2	* 2.486	51.66	Pk	32	-28.3	0	55.36	-	-	74	-18.64	194	120	V
3	* 2.484	37.39	RMS	32	-28.3	.34	41.43	54	-12.57	-	-	194	120	V
4	* 2.484	37.27	RMS	32	-28.3	.34	41.31	54	-12.69	-	-	194	120	V

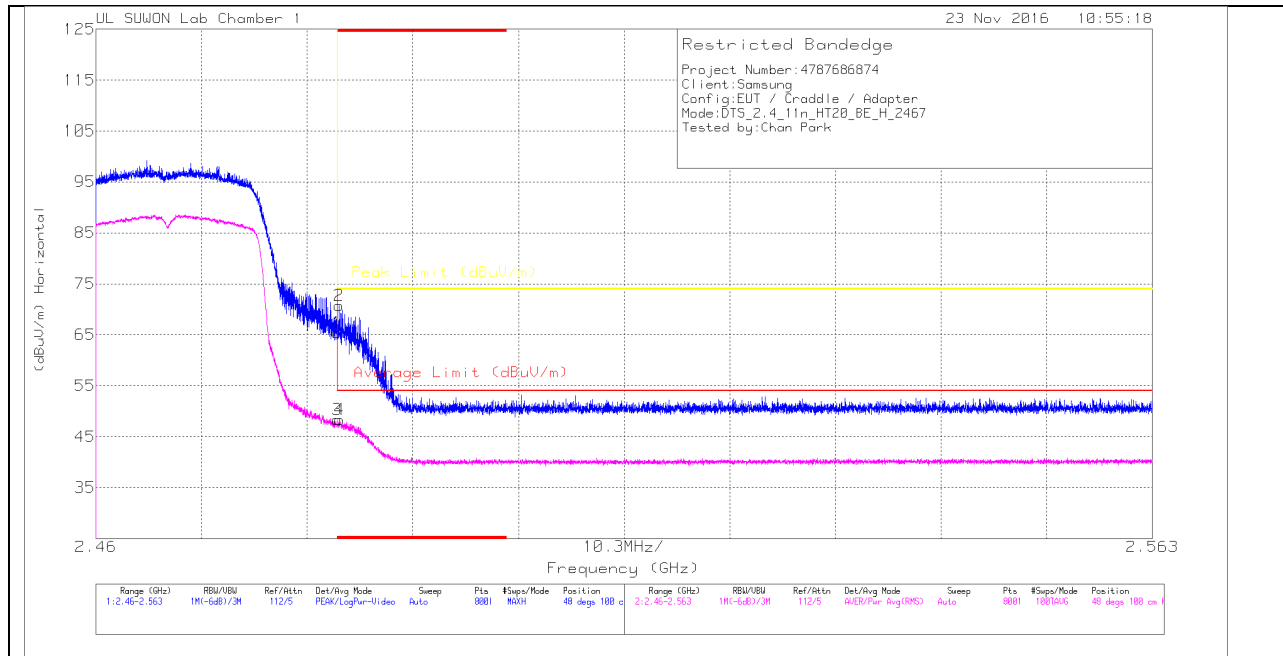
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

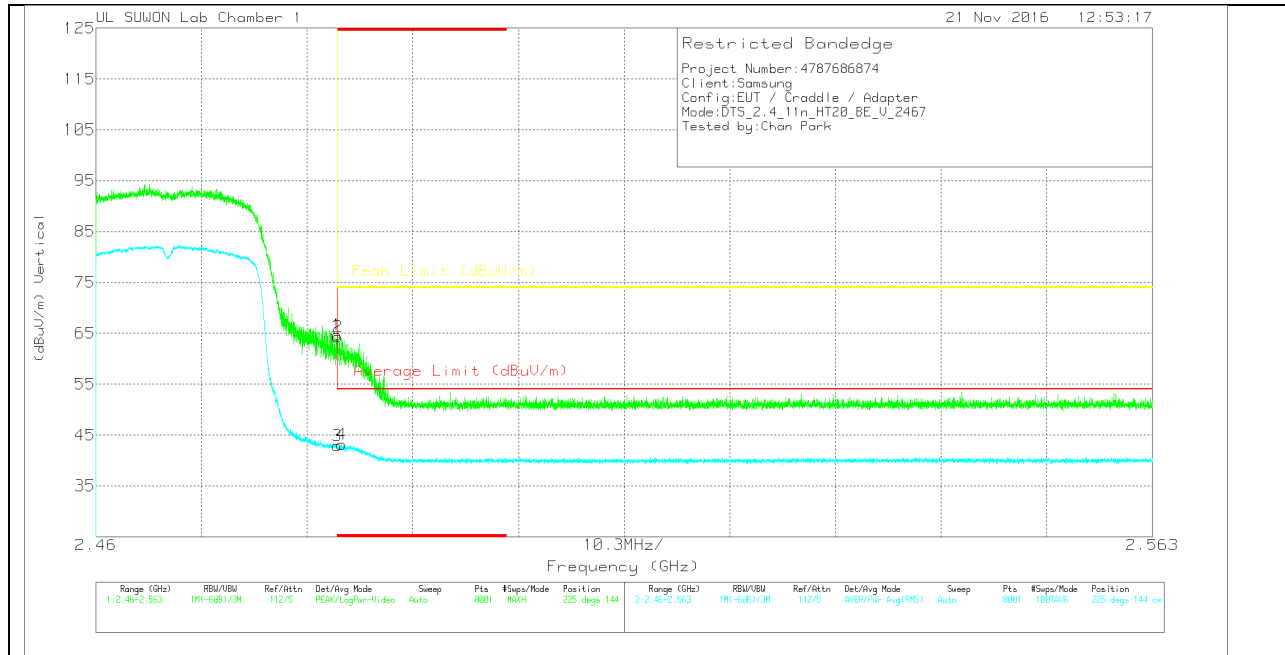
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 171_150619	10dB[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	61.68	Pk	32	-28.3	0	65.38	-	-	74	-8.62	48	100	H
2	* 2.484	67.09	Pk	32	-28.3	0	70.79	-	-	74	-3.21	48	100	H
3	* 2.484	44.3	RMS	32	-28.3	.34	48.34	54	-5.66	-	-	48	100	H
4	* 2.484	44.3	RMS	32	-28.3	.34	48.34	54	-5.66	-	-	48	100	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/00168 717/15061 9	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	60.97	Pk	32	-28.3	0	64.67	-	-	74	-9.33	225	144	V
2	* 2.484	60.59	Pk	32	-28.3	0	64.29	-	-	74	-9.71	225	144	V
3	* 2.484	38.86	RMS	32	-28.3	.34	42.9	54	-11.1	-	-	225	144	V
4	* 2.484	39.07	RMS	32	-28.3	.34	43.11	54	-10.89	-	-	225	144	V

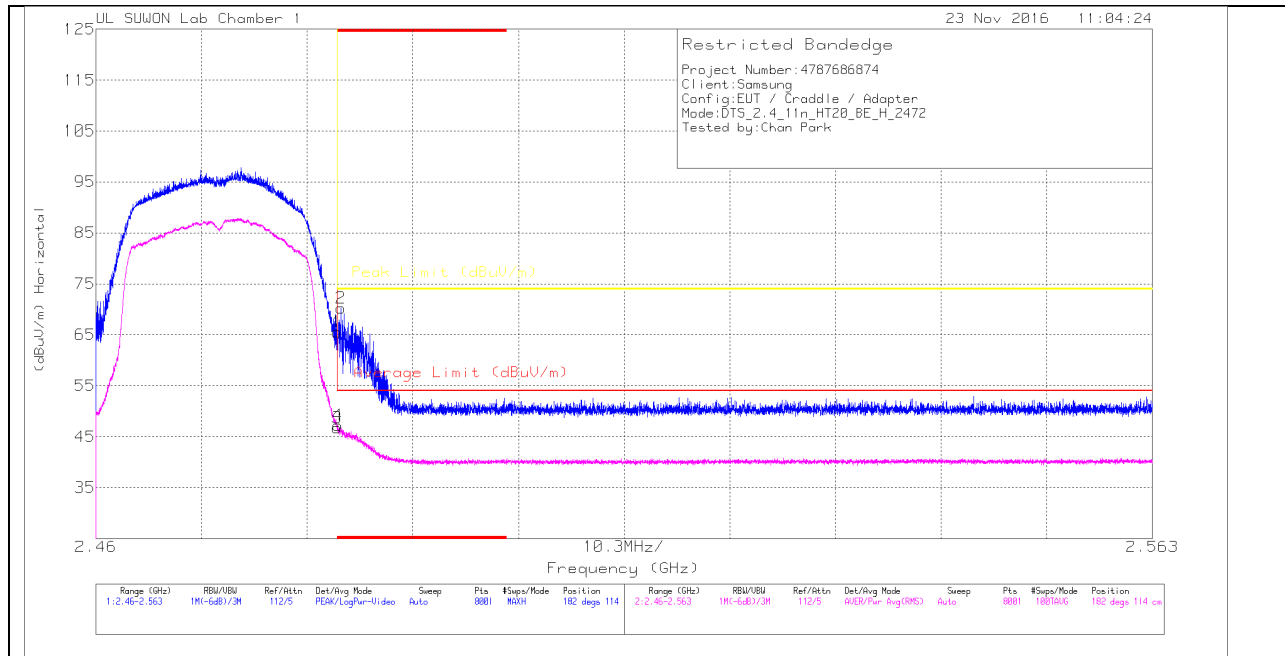
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

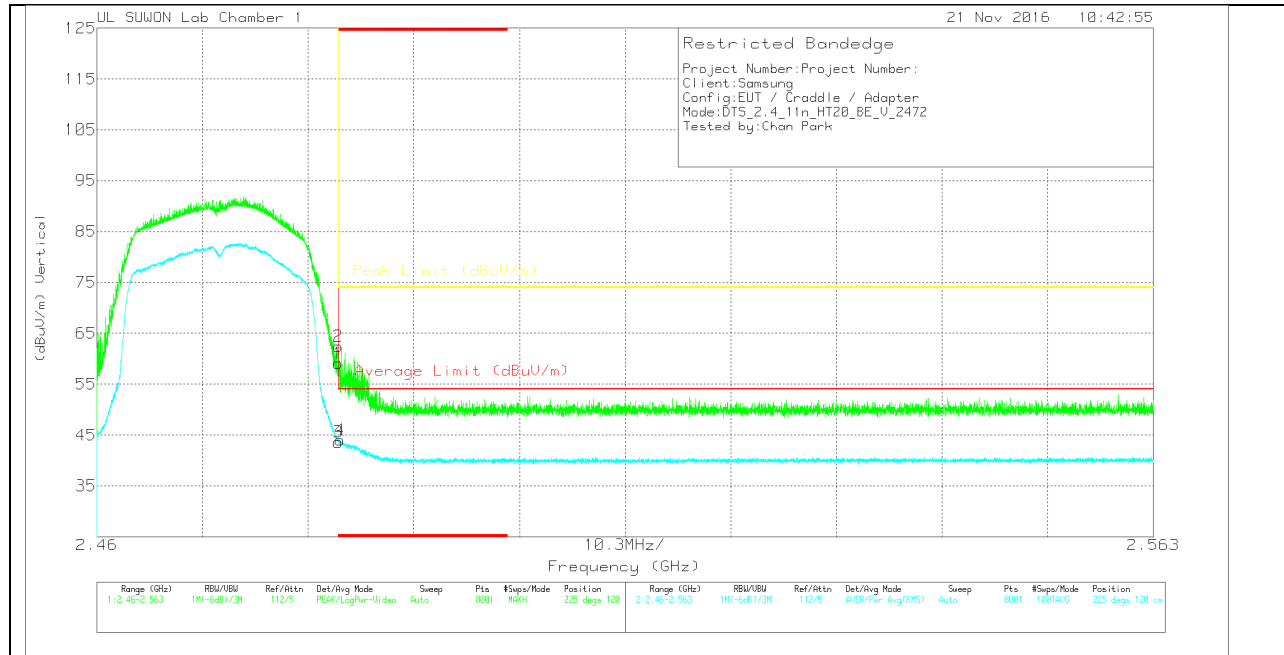
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/001687 17)_150619	10dB(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	61.84	Pk	32	-28.3	0	65.54	-	-	74	-8.46	182	114	H
2	* 2.484	66.52	Pk	32	-28.3	0	70.22	-	-	74	-3.78	182	114	H
3	* 2.484	42.68	RMS	32	-28.3	.34	46.72	54	-7.28	-	-	182	114	H
4	* 2.484	43.14	RMS	32	-28.3	.34	47.18	54	-6.82	-	-	182	114	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	3117/00168 717/_15061 9	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	55.42	Pk	32	-28.3	0	59.12	-	-	74	-14.88	225	120	V
2	* 2.484	58.72	Pk	32	-28.3	0	62.42	-	-	74	-11.58	225	120	V
3	* 2.484	39.55	RMS	32	-28.3	.34	43.59	54	-10.41	-	-	225	120	V
4	* 2.484	40.02	RMS	32	-28.3	.34	44.06	54	-9.94	-	-	225	120	V

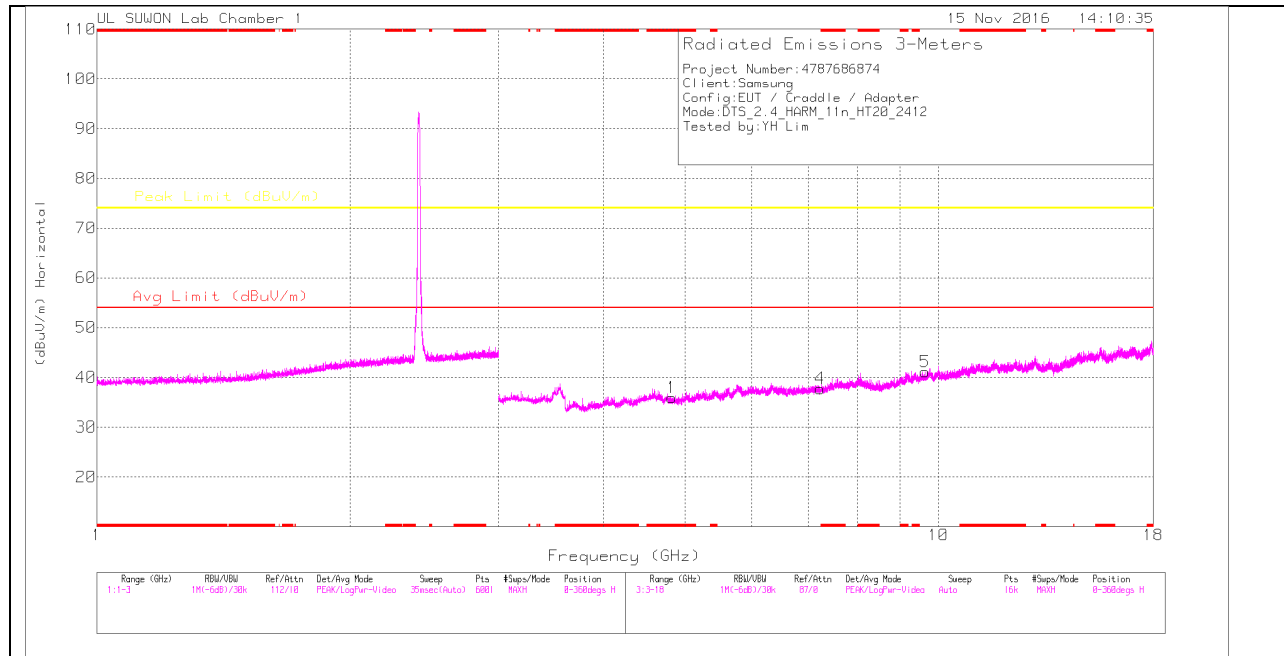
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

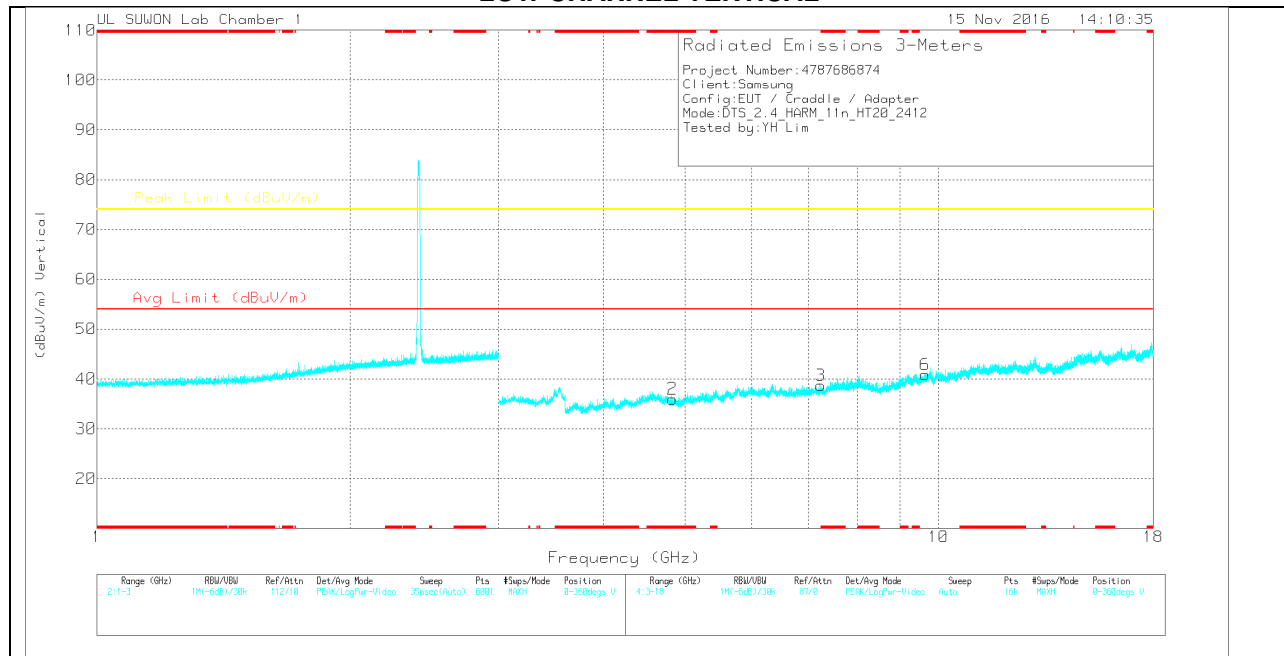
RMS - RMS detection

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

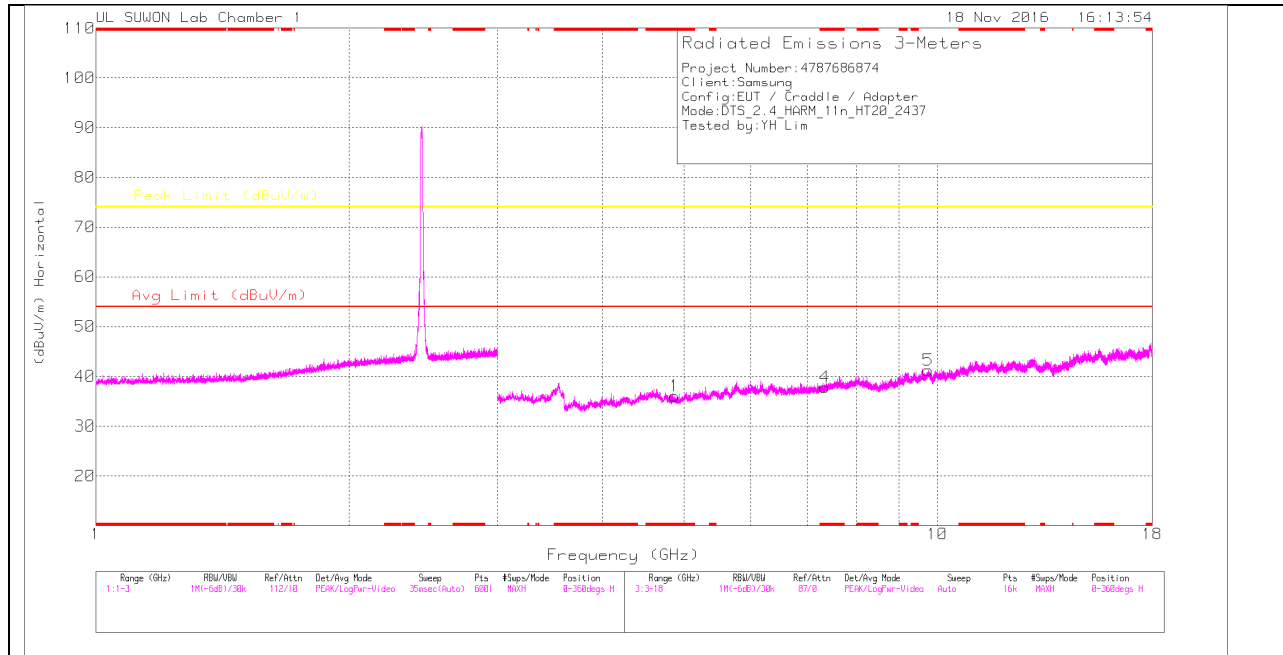
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.824	35.4	PK	34	-33.5	0	35.9	-	-	74	-38.1	0-360	250	H
4	7.238	32.77	PK	35.7	-30.7	0	37.77	-	-	74	-36.23	0-360	150	H
5	9.648	31.38	PK	37.1	-27.4	0	41.08	-	-	74	-32.92	0-360	250	H
2	* 4.827	35.5	PK	34	-33.5	0	36	-	-	74	-38	0-360	150	V
3	7.241	33.67	PK	35.7	-30.7	0	38.67	-	-	74	-35.33	0-360	250	V
6	9.647	31.17	PK	37.1	-27.4	0	40.87	-	-	74	-33.13	0-360	150	V

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

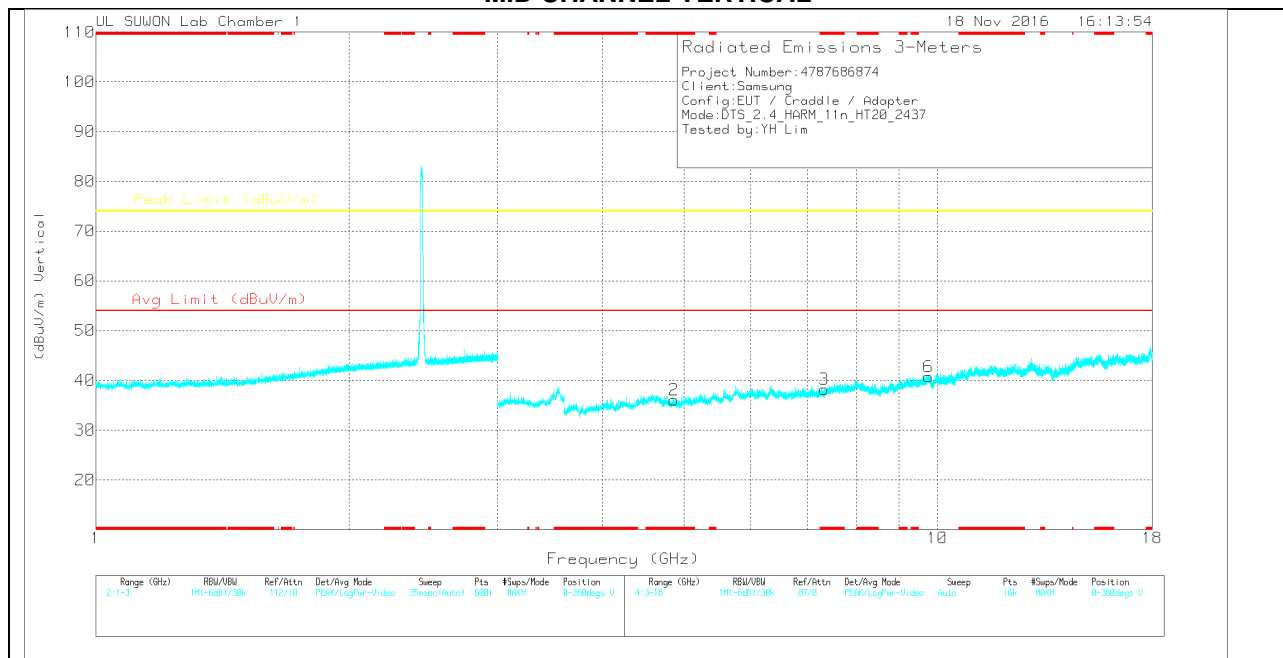
PK – Peak detector

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

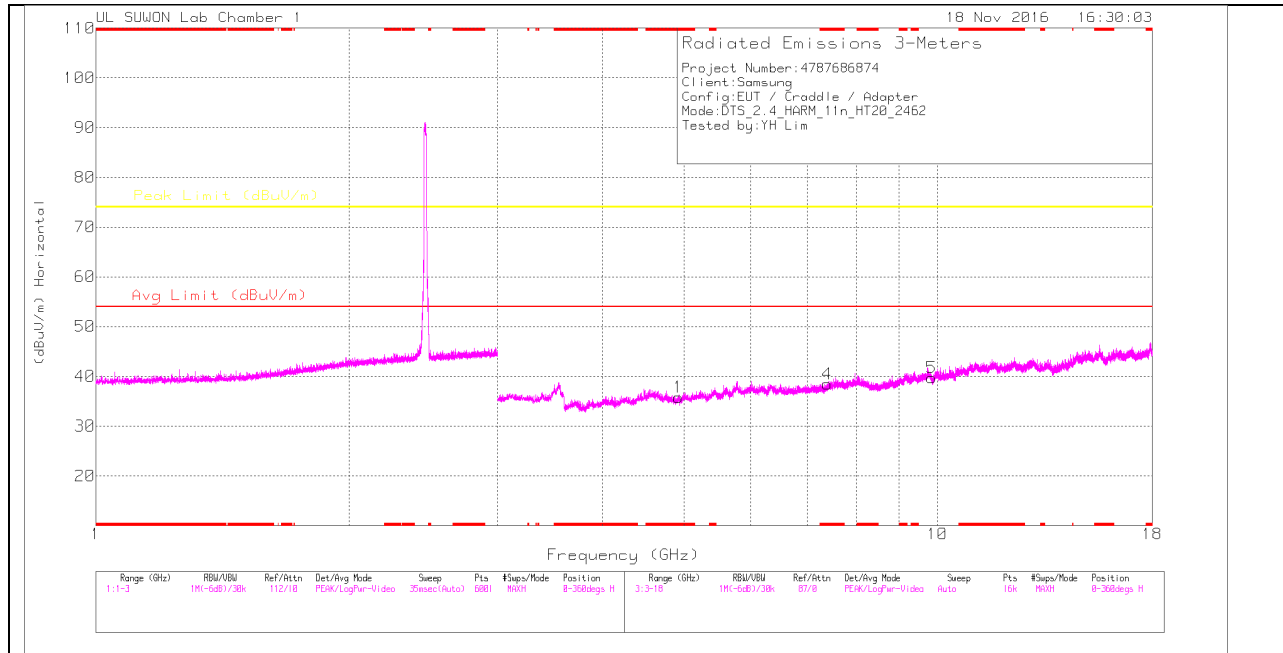
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.868	35.72	PK	34	-33.6	0	36.12	-	-	74	-37.88	0-360	150	H
4	* 7.348	32.52	PK	35.8	-30.5	0	37.82	-	-	74	-36.18	0-360	150	H
5	9.749	30.82	PK	37.2	-26.8	0	41.22	-	-	74	-32.78	0-360	150	H
2	* 4.866	35.67	PK	34	-33.6	0	36.07	-	-	74	-37.93	0-360	250	V
3	* 7.34	32.96	PK	35.8	-30.5	0	38.26	-	-	74	-35.74	0-360	250	V
6	9.756	30.19	PK	37.2	-26.6	0	40.79	-	-	74	-33.21	0-360	250	V

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

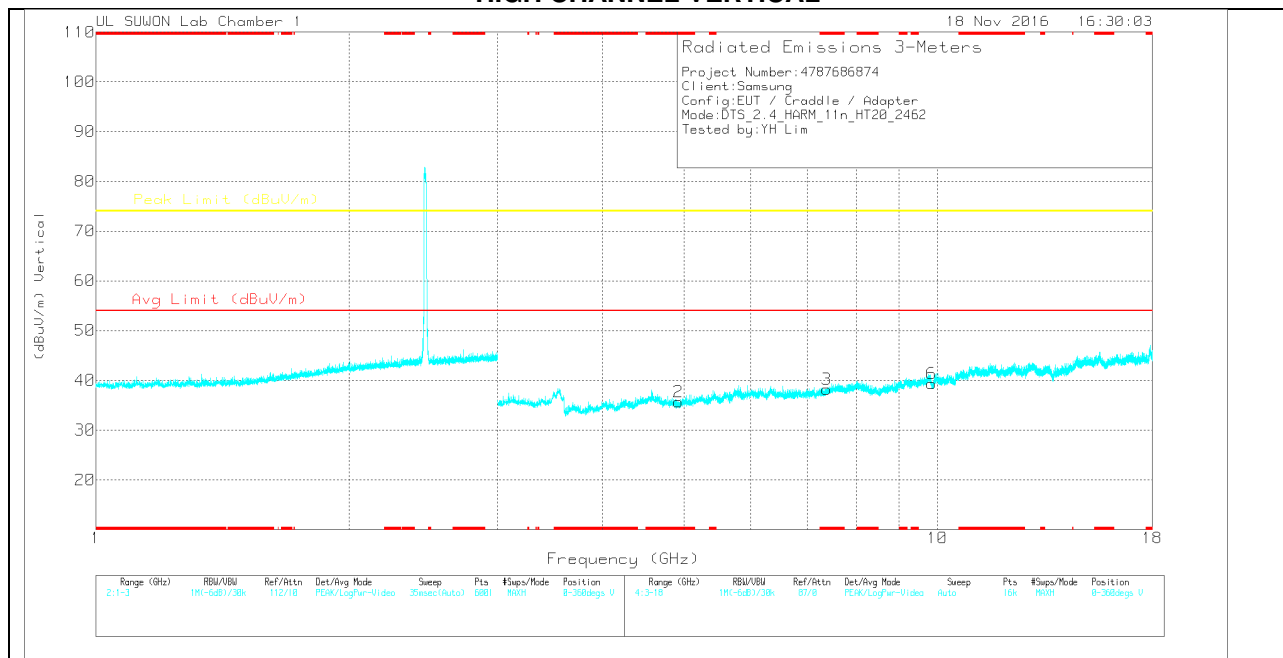
PK – Peak detector

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

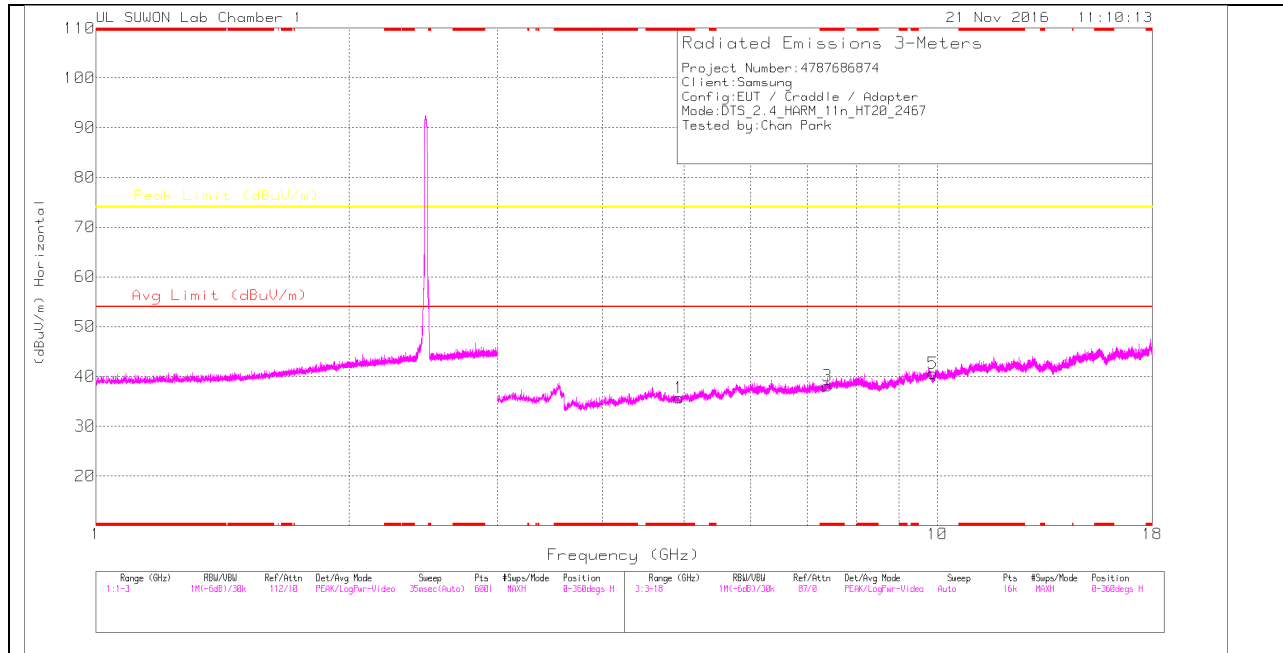
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.924	35.22	PK	34	-33.4	0	35.82	-	-	74	-38.18	0-360	150	H
4	* 7.392	33.16	PK	35.8	-30.5	0	38.46	-	-	74	-35.54	0-360	150	H
5	9.849	29.88	PK	37.3	-27.5	0	39.68	-	-	74	-34.32	0-360	150	H
2	* 4.922	35.03	PK	34	-33.4	0	35.63	-	-	74	-38.37	0-360	150	V
3	* 7.389	32.9	PK	35.8	-30.5	0	38.2	-	-	74	-35.8	0-360	150	V
6	9.846	29.53	PK	37.3	-27.5	0	39.33	-	-	74	-34.67	0-360	250	V

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

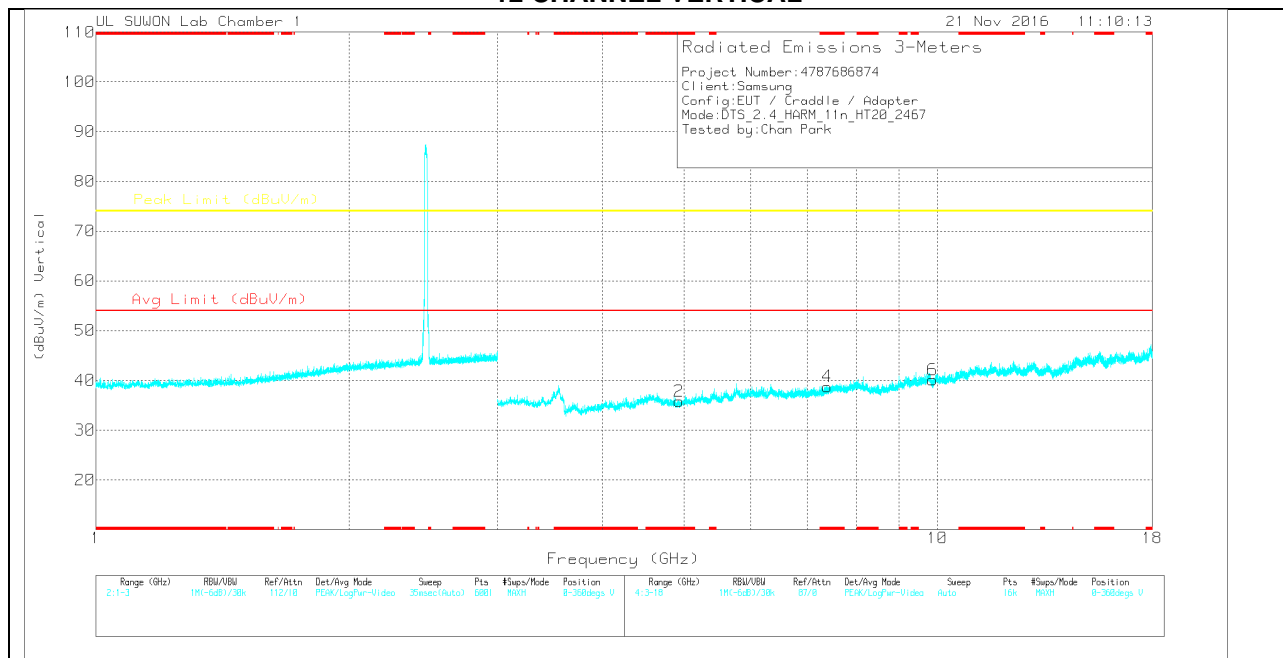
PK – Peak detector

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

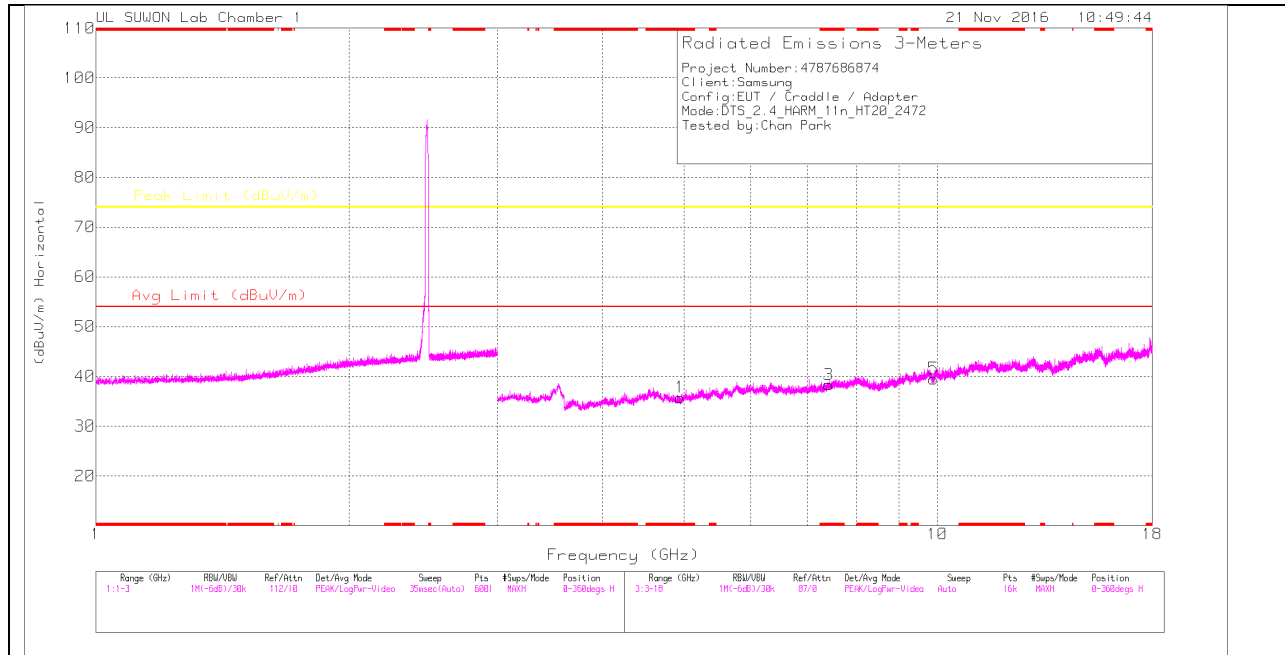
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[001687 17]_150619	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.934	35.14	PK	34	-33.4	0	35.74	-	-	74	-38.26	0-360	250	H
3	* 7.401	32.64	PK	35.8	-30.4	0	38.04	-	-	74	-35.96	0-360	250	H
5	9.868	30.99	PK	37.3	-27.7	0	40.59	-	-	74	-33.41	0-360	150	H
2	* 4.93	35.22	PK	34	-33.4	0	35.82	-	-	74	-38.18	0-360	250	V
4	* 7.401	33.38	PK	35.8	-30.4	0	38.78	-	-	74	-35.22	0-360	150	V
6	9.867	30.53	PK	37.3	-27.7	0	40.13	-	-	74	-33.87	0-360	150	V

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

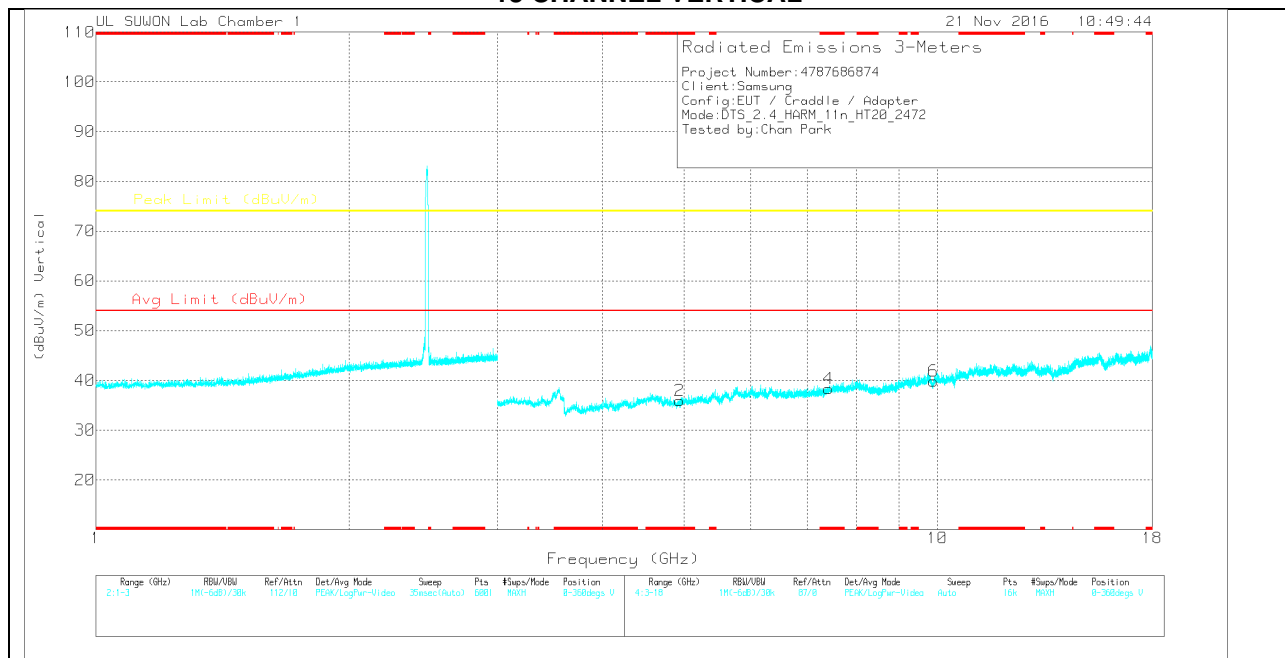
PK – Peak detector

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 17]_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	35.15	PK	34	-33.4	0	35.75	-	-	74	-38.25	0-360	150	H
3	* 7.419	32.96	PK	35.8	-30.4	0	38.36	-	-	74	-35.64	0-360	150	H
5	9.889	29.84	PK	37.3	-27.6	0	39.54	-	-	74	-34.46	0-360	150	H
2	* 4.941	35.49	PK	34	-33.5	0	35.99	-	-	74	-38.01	0-360	150	V
4	* 7.418	32.94	PK	35.8	-30.4	0	38.34	-	-	74	-35.66	0-360	250	V
6	9.885	30.25	PK	37.3	-27.7	0	39.85	-	-	74	-34.15	0-360	250	V

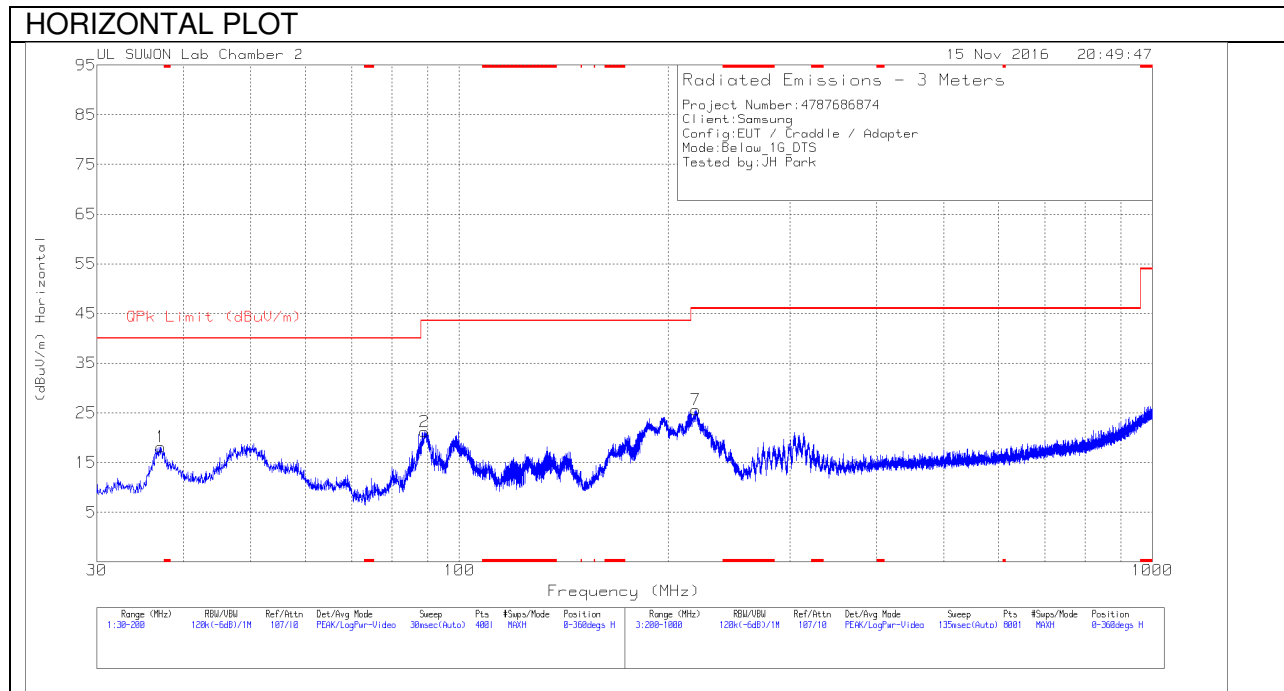
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak detector

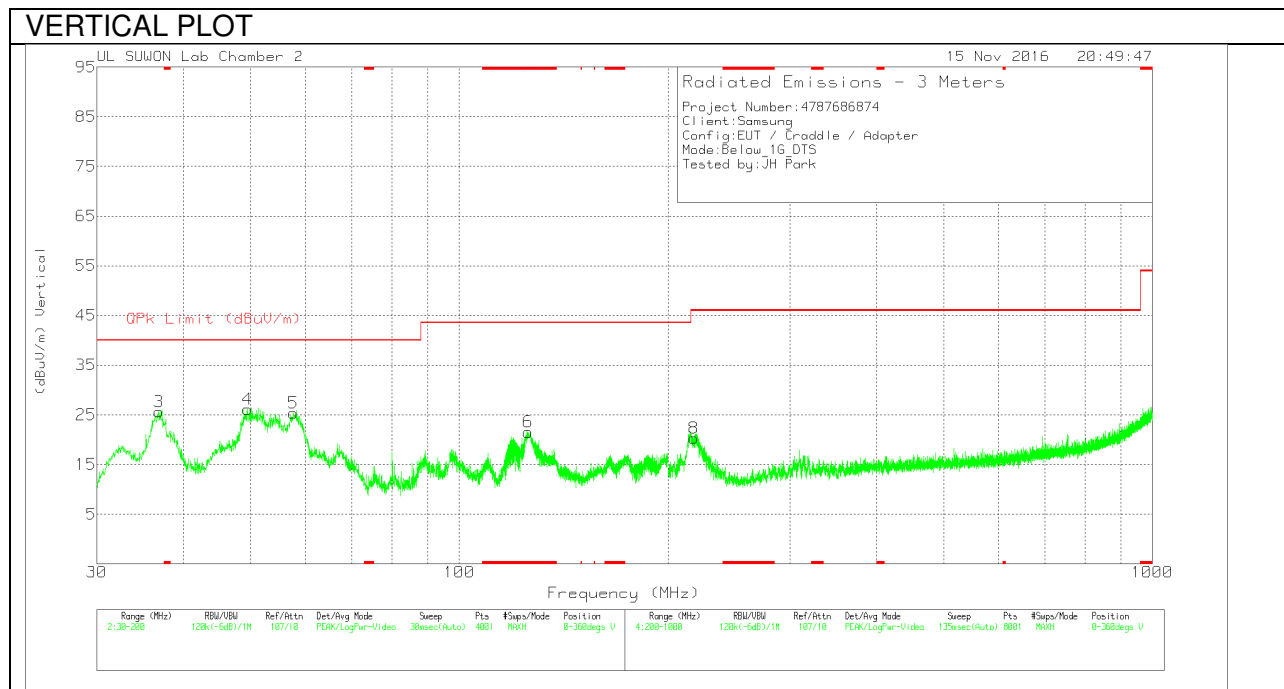
Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	VULB9163-749	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	37.14	38.19	Pk	11.6	-31.6	18.19	40	-21.81	0-360	300	H
2	89.075	42.89	Pk	9.4	-31.1	21.19	43.52	-22.33	0-360	300	H
3	36.8425	45.77	Pk	11.5	-31.6	25.67	40	-14.33	0-360	100	V
4	49.465	43.39	Pk	14.1	-31.4	26.09	40	-13.91	0-360	200	V
5	57.625	43.72	Pk	13.1	-31.4	25.42	40	-14.58	0-360	100	V
6	* 125.71	43.01	Pk	9.4	-30.9	21.51	43.52	-22.01	0-360	100	V
7	219.3	44.17	Pk	11.8	-30.4	25.57	46.02	-20.45	0-360	100	H
8	218.1	38.84	Pk	11.8	-30.3	20.34	46.02	-25.68	0-360	200	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.

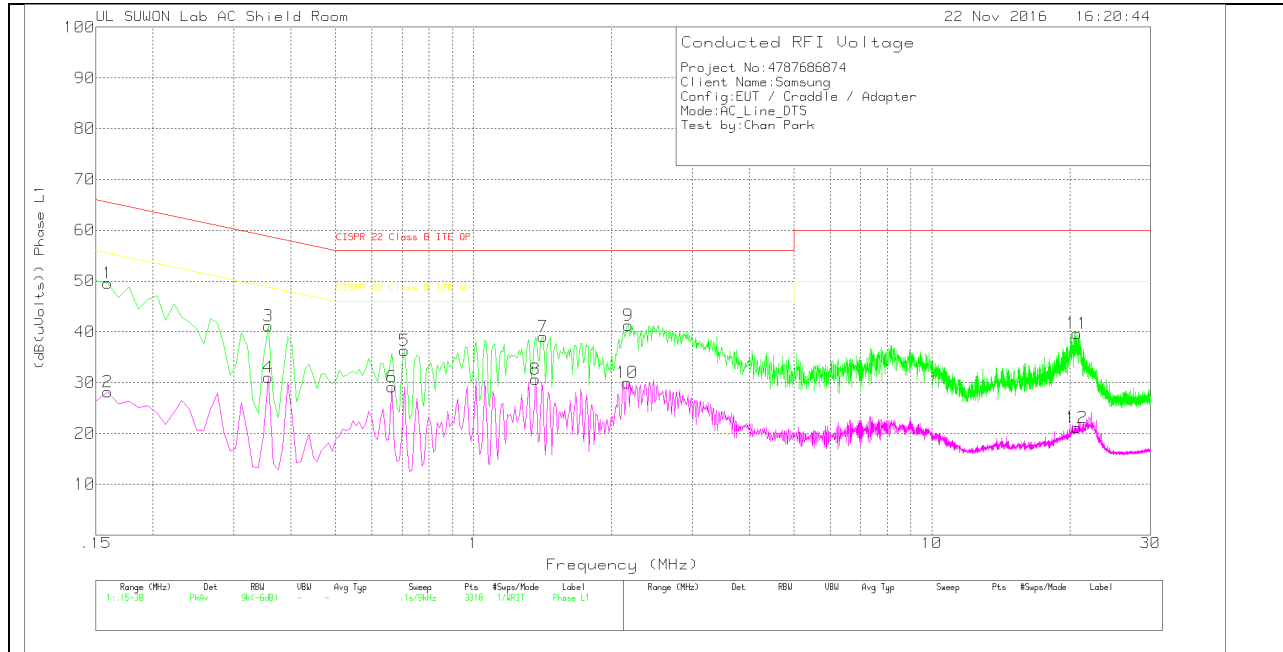
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



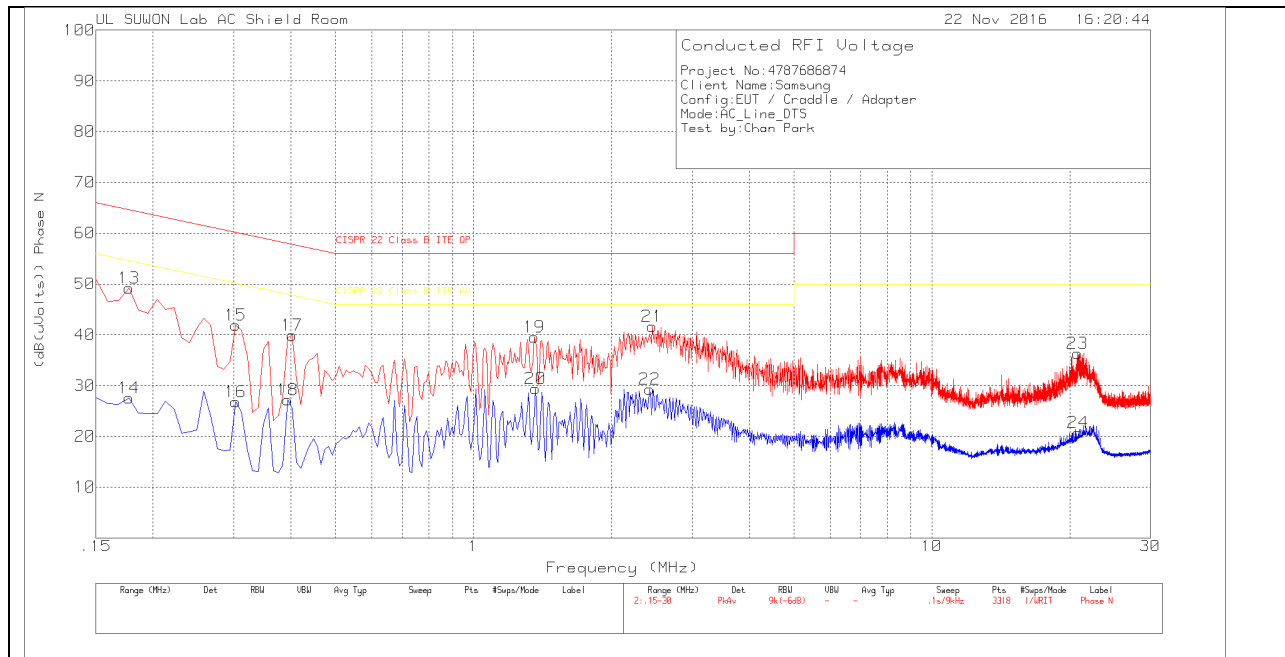
LINE 1 RESULTS

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	.159	39.68	Pk	9.9	0	49.58	65.52	-15.94	-	-
2	.159	18.32	Av	9.9	0	28.22	-	-	55.52	-27.3
3	.357	31.37	Pk	9.8	0	41.17	58.8	-17.63	-	-
4	.357	21.17	Av	9.8	0	30.97	-	-	48.8	-17.83
5	.708	26.44	Pk	9.9	0	36.34	56	-19.66	-	-
6	.663	19.27	Av	9.9	0	29.17	-	-	46	-16.83
7	1.419	29.12	Pk	9.8	.1	39.02	56	-16.98	-	-
8	1.365	20.8	Av	9.8	.1	30.7	-	-	46	-15.3
9	2.175	31.47	Pk	9.7	.1	41.27	56	-14.73	-	-
10	2.166	20.17	Av	9.7	.1	29.97	-	-	46	-16.03
11	20.715	29.02	Pk	10.4	.2	39.62	60	-20.38	-	-
12	20.706	10.49	Av	10.4	.2	21.09	-	-	50	-28.91

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

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	.177	39.18	Pk	10	0	49.18	64.63	-15.45	-	-
14	.177	17.57	Av	10	0	27.57	-	-	54.63	-27.06
15	.303	32.17	Pk	9.7	0	41.87	60.16	-18.29	-	-
16	.303	17.11	Av	9.7	0	26.81	-	-	50.16	-23.35
17	.402	30.05	Pk	9.9	0	39.95	57.81	-17.86	-	-
18	.393	17.33	Av	9.9	0	27.23	-	-	48	-20.77
19	1.356	29.67	Pk	9.8	.1	39.57	56	-16.43	-	-
20	1.365	19.54	Av	9.8	.1	29.44	-	-	46	-16.56
21	2.454	31.8	Pk	9.7	.1	41.6	56	-14.4	-	-
22	2.427	19.47	Av	9.7	.1	29.27	-	-	46	-16.73
23	20.814	25.4	Pk	10.7	.2	36.3	60	-23.7	-	-
24	20.85	9.83	Av	10.7	.2	20.73	-	-	50	-29.27

Pk - Peak detector

Av - Average detection