FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 2

DTS Wireless LAN

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC

MODEL NUMBER : SM-A205W

FCC ID: A3LSMA205W
IC : 649E-SMA205W

REPORT NUMBER: 4788962183-E1V2

ISSUE DATE: MAY 08, 2019

Prepared for
SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 16677, KOREA

Prepared by
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Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
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TEL: (031) 337-9902
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ACCREDITED
Testing Laboratory

TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	05/07/19	Initial issue	Junwhan Lee
V2	05/08/19	Updated to address TCB's question	Junwhan Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC

MODEL NUMBER: SM-A205W

SERIAL NUMBER: R38M307VGTM (CONDUCTED)
R38M307V1TX, R38M307V1JV (RADIATED)

DATE TESTED: APR 24, 2019 – MAY 07, 2019

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 Issue 2	Pass
INDUSTRY CANADA RSS-GEN Issue 5	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:

SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

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. IC RSS-GEN Issue 5
4. IC RSS-247 Issue 2
5. KDB 558074 D01 DTS Meas Guidance v05r02.
6. 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
☒ Chamber 3

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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, 30 MHz to 1 GHz	3.86 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.97 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.57 dB

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WCDMA/LTE Wrist device + BT/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	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2472	802.11b	18.16	65.46
	802.11g	15.91	38.99
	802.11n HT20	15.62	36.48

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antennas, with a antenna's maximum gain of -2.16 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 Y 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

Note : All radiated and power line conducted tests were performed connected with earphone and charger for evaluation of worst case mode.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA200	R37M1EKGA51DK3	N/A
Data Cable	SAMSUNG	EP-DR140AWE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

I/O CABLE

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	1.1m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.2m	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.

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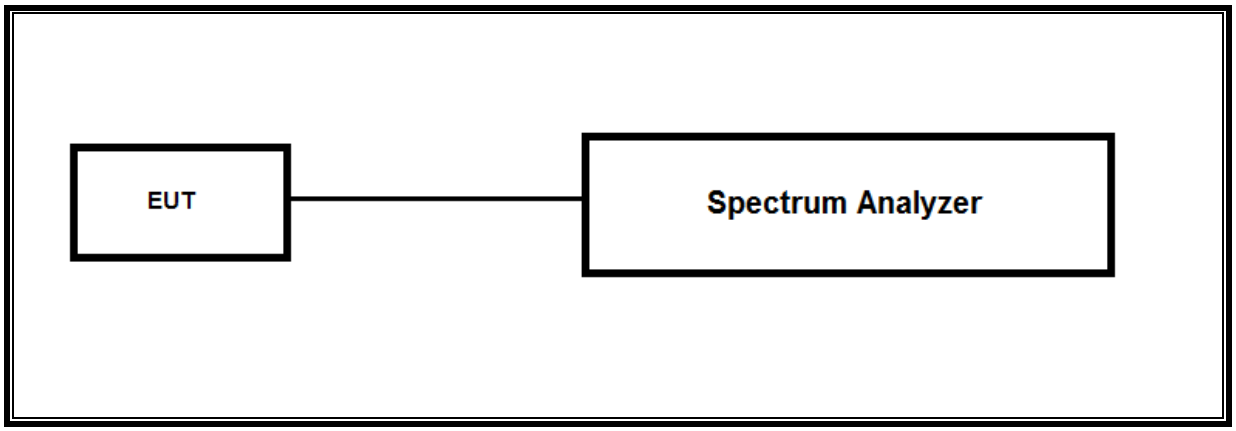
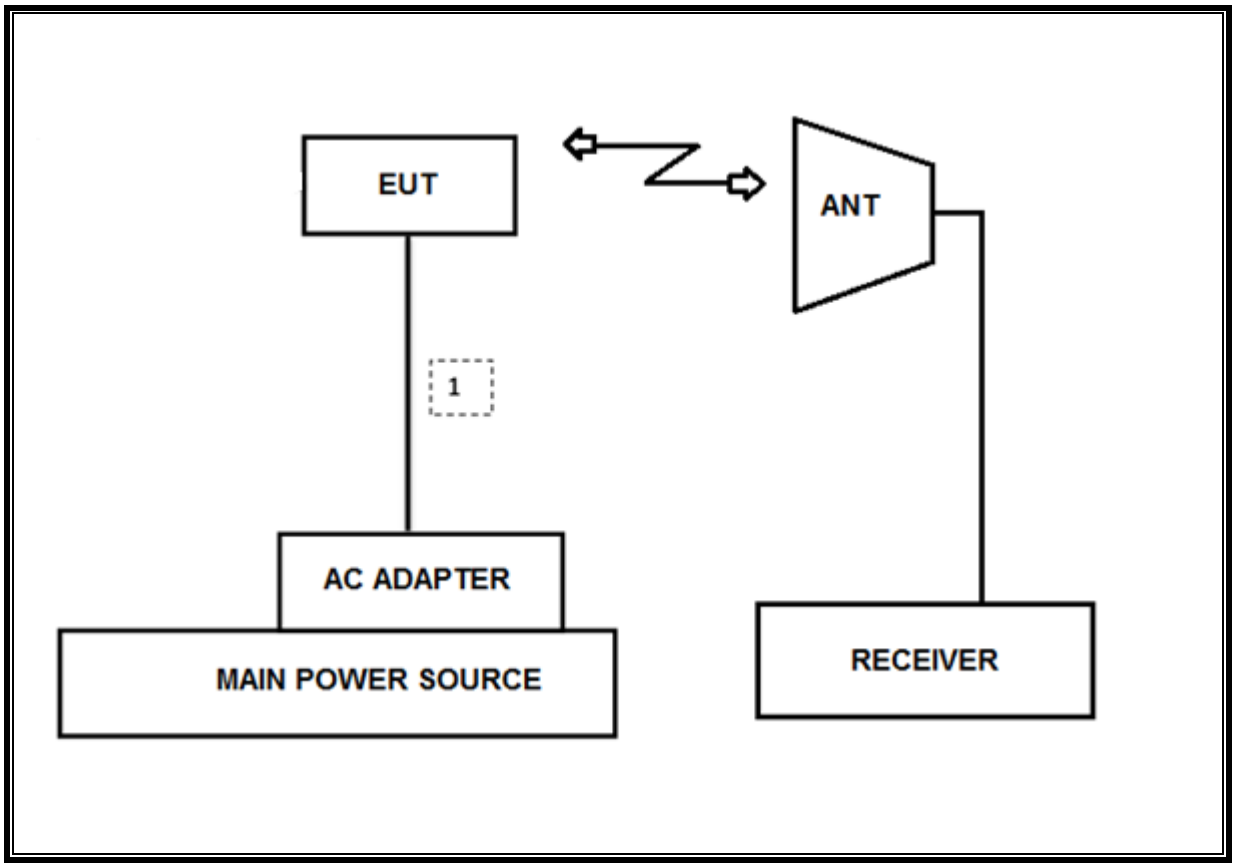
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	08-04-20
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-14-20
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	08-09-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-06-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-07-19
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-07-19
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-06-19
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-06-19
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-07-19
Attenuator	PASTERNACK	PE7087-10	A001	08-08-19
Attenuator	PASTERNACK	PE7087-10	A008	08-08-19
Attenuator	PASTERNACK	PE7004-10	2	08-07-19
Attenuator	PASTERNACK	PE7087-10	A009	08-08-19
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-19
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-19
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-06-19
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-06-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-07-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-07-19
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-06-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-07-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-07-19
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-06-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-07-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-07-19
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-06-19
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-26-19
LISN	R&S	ENV-216	101837	08-09-19
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

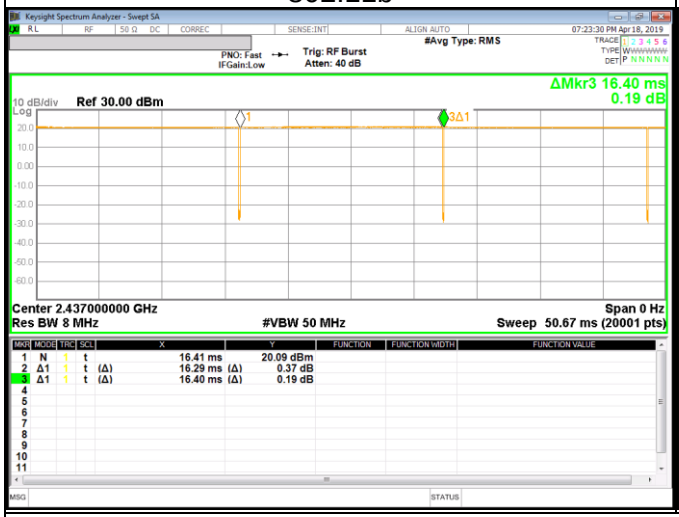
7.1. ON TIME AND DUTY CYCLE RESULTS

LIMITS

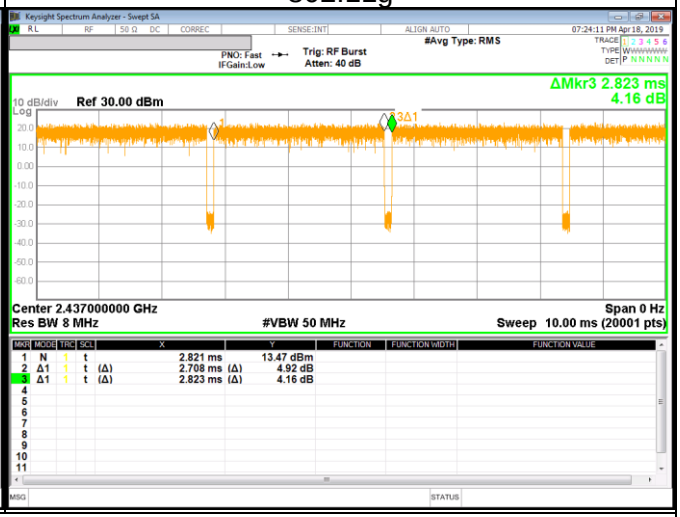
None; for reporting purposes only.

Mode	On Time B [mS]	Period [mS]	Duty Cycle X [linear]	Duty Cycle X [%]	Duty Cycle Correction Factor [dB]
802.11b	16.290	16.400	0.993292683	99.32926829	0.029227637
802.11g	2.708	2.823	0.959263195	95.92631952	0.180622181
802.11n HT20	2.516	2.631	0.956290384	95.62903839	0.194102113

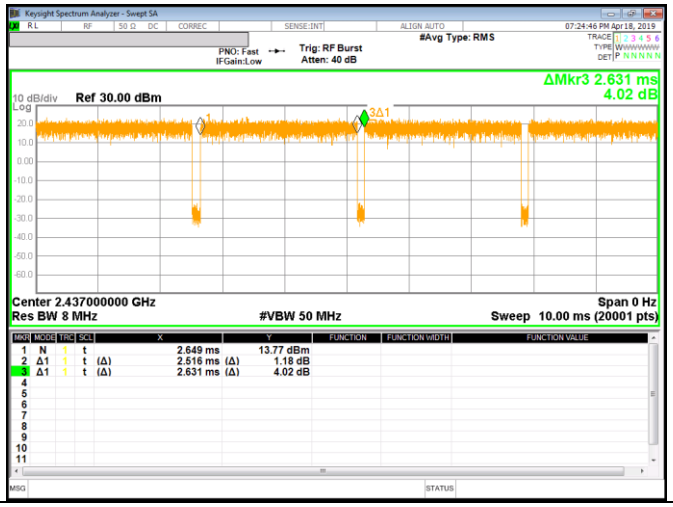
802.11b



802.11g



802.11n



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7.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

7.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
1	2412	12.956
6	2437	12.965
11	2462	13.024
12	2467	12.930
13	2472	13.064
Worst		13.064

7.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
1	2412	16.071
6	2437	16.081
11	2462	16.065
12	2467	16.056
13	2472	16.019
Worst		16.081

7.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
1	2412	16.787
6	2437	16.931
11	2462	16.916
12	2467	16.851
13	2472	16.873
Worst		16.931

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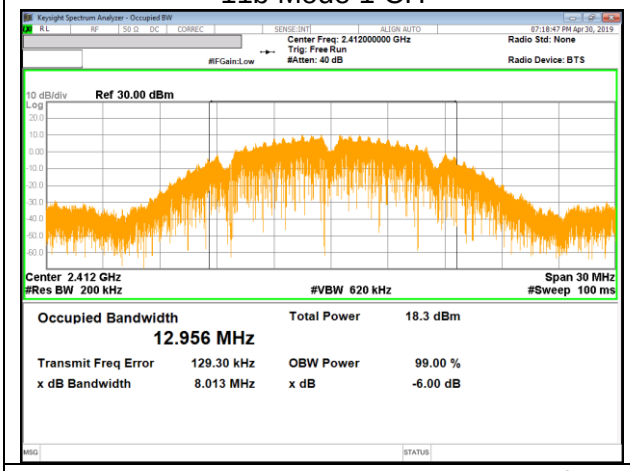
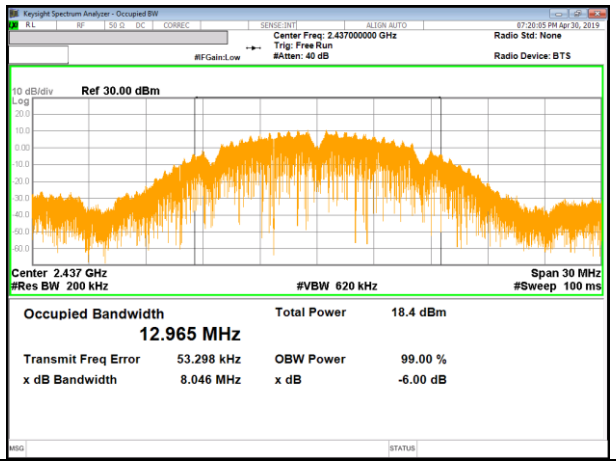
7.2.4. 99% BANDWIDTH PLOTS

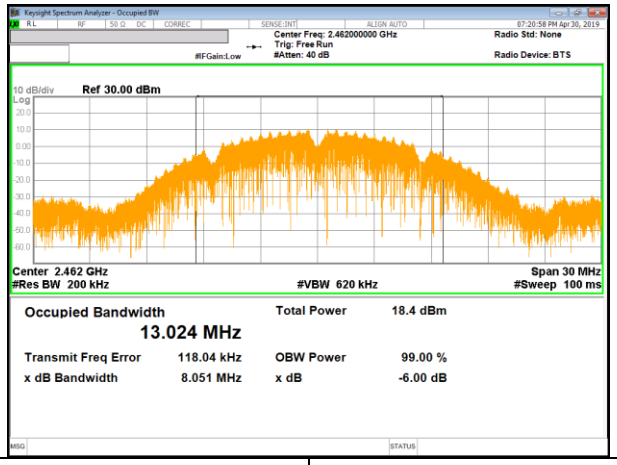
11b Mode 1 CH



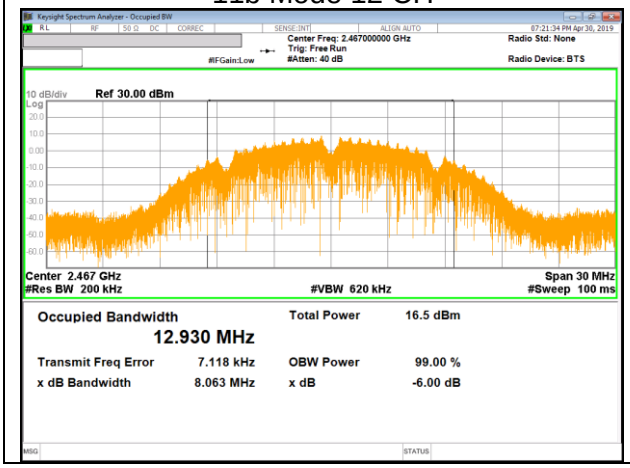
11b Mode 6 CH



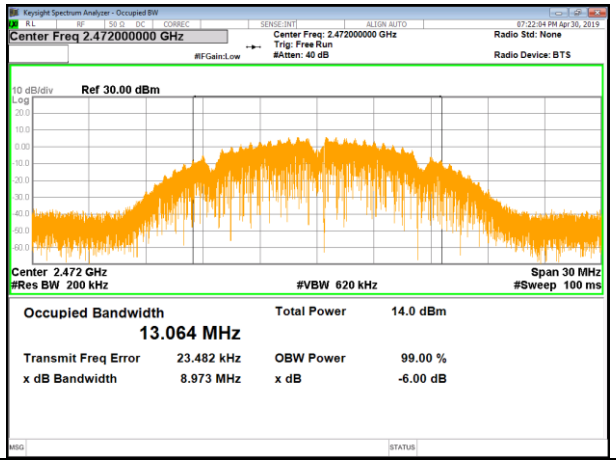
11b Mode 11 CH



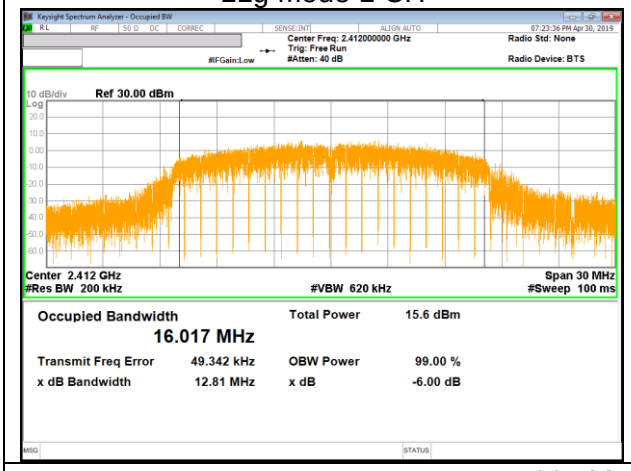
11b Mode 12 CH



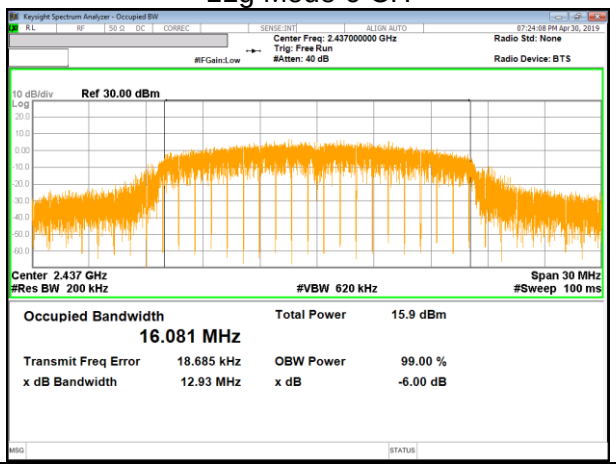
11b Mode 13 CH



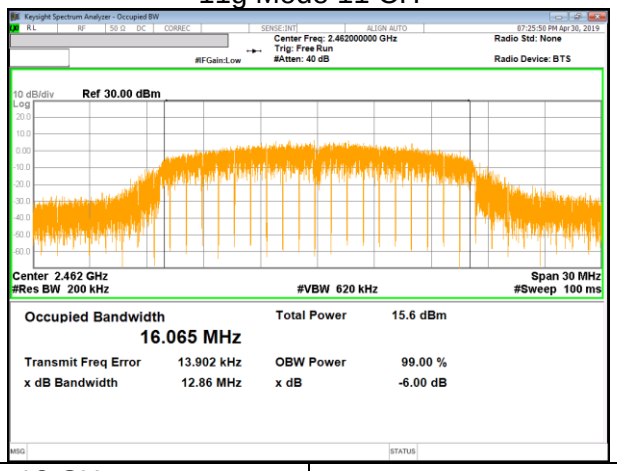
11g Mode 1 CH



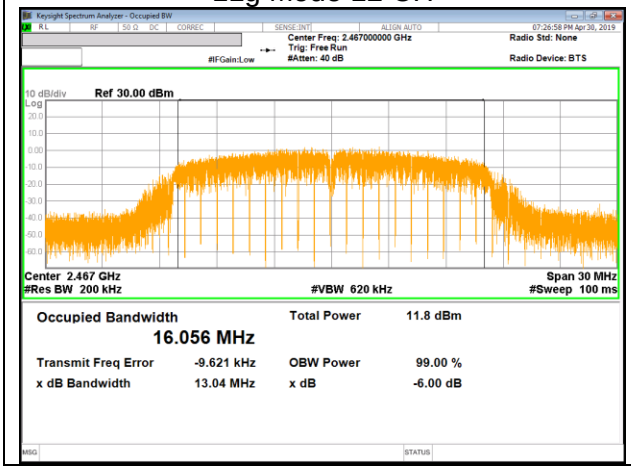
11g Mode 6 CH



11g Mode 11 CH



11g Mode 12 CH



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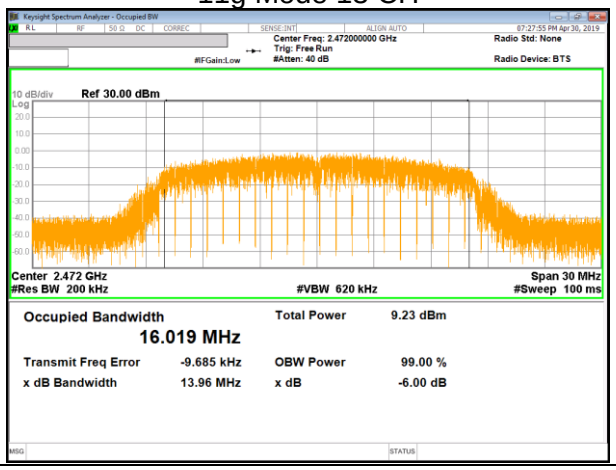
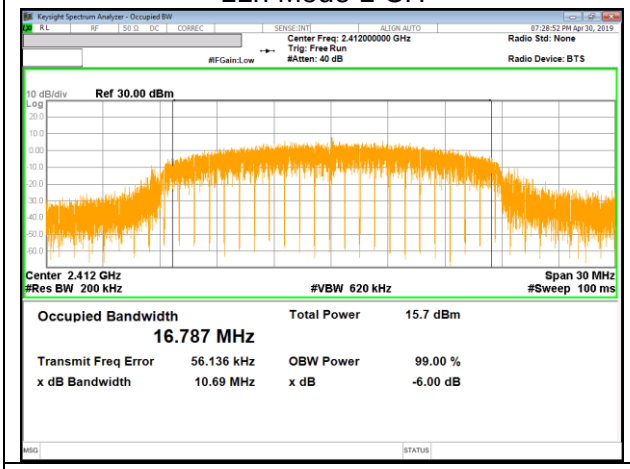
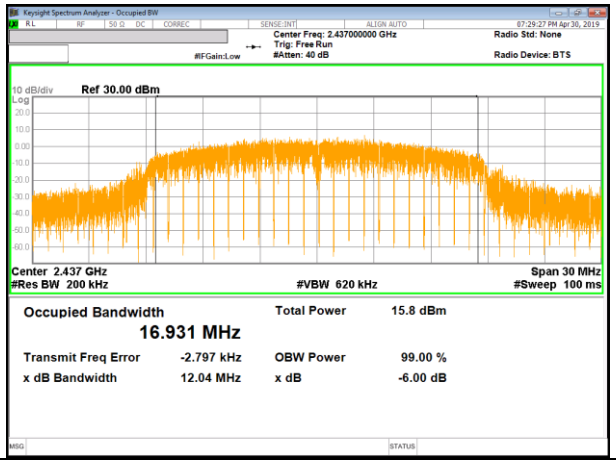


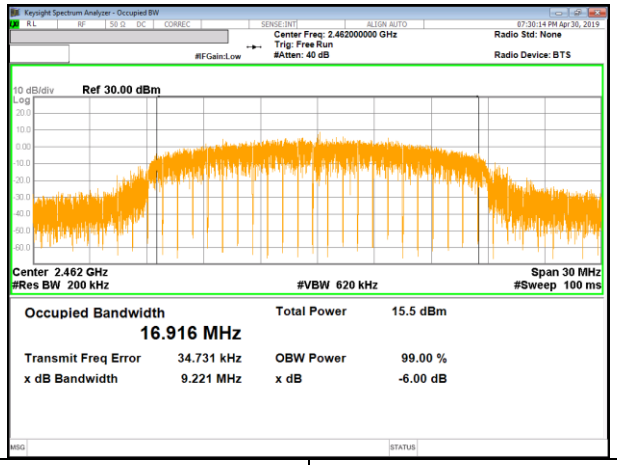
11n Mode 1 CH



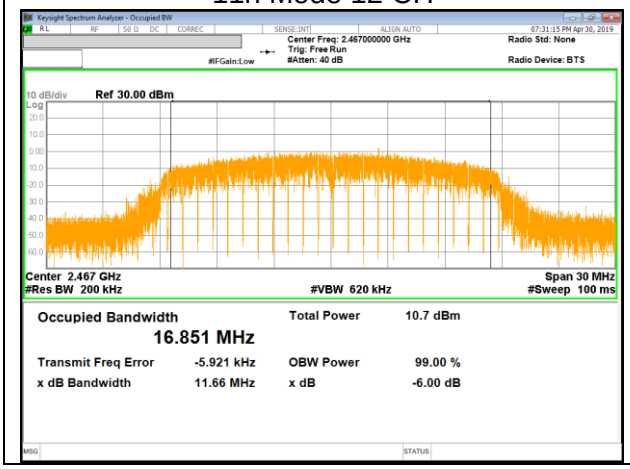
11n Mode 6 CH



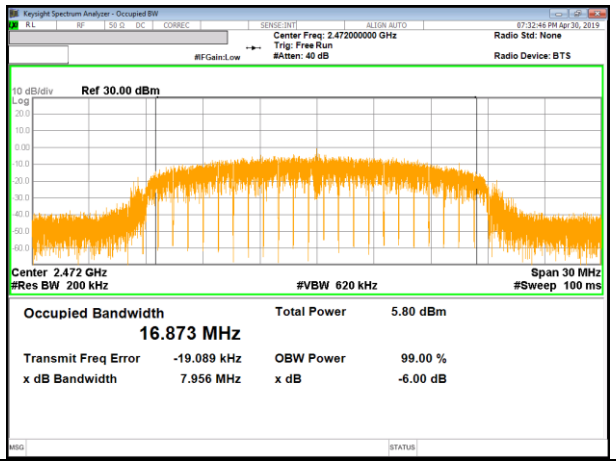
11n Mode 11 CH



11n Mode 12 CH



11n Mode 13 CH



8. MEASUREMENT METHODS

6 dB BW : KDB 558074 D01 v05r02, Section 8.2.

OUTPUT POWER : KDB 558074 D01 v05r02, Section 8.3.1.1.

POWER SPECTRAL DENSITY : KDB 558074 D01 v05r02, Section 8.4.

Out-of-band EMISSIONS (Conducted) : KDB 558074 D01 v05r02, Section 8.5.

Out-of-band EMISSIONS IN NON-RESTRICTED BANDS: KDB 558074 D01 v05r02, Section 8.5.

Out-of-band EMISSIONS IN RESTRICTED BANDS : KDB 558074 D01 v05r02, Section 8.6.

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2.

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9. SUMMARY TABLE

FCC Part Section	IC Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-30dBc		Pass
15.247 (b)(3)	RSS-247 5.4(d)	TX conducted output power	<30dBm		Pass
15.247 (e)	RSS-247 5.2(b)	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN Clause 8.8	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass
15.205, 15.209	RSS-GEN Clause 7 & 8.9	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass

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10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)
IC RSS-247 §5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 D01 15.247 Meas Guidance: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

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RESULTS

10.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	7.581	0.5
Mid	2437	8.005	0.5
High	2462	8.534	0.5
12	2467	7.542	0.5
13	2472	7.567	0.5
Worst		7.542	0.5

10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	13.740	0.5
Mid	2437	12.510	0.5
High	2462	11.860	0.5
12	2467	12.590	0.5
13	2472	10.890	0.5
Worst		10.890	0.5

10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	11.690	0.5
Mid	2437	11.660	0.5
High	2462	13.820	0.5
12	2467	9.808	0.5
13	2472	11.250	0.5
Worst		9.808	0.5

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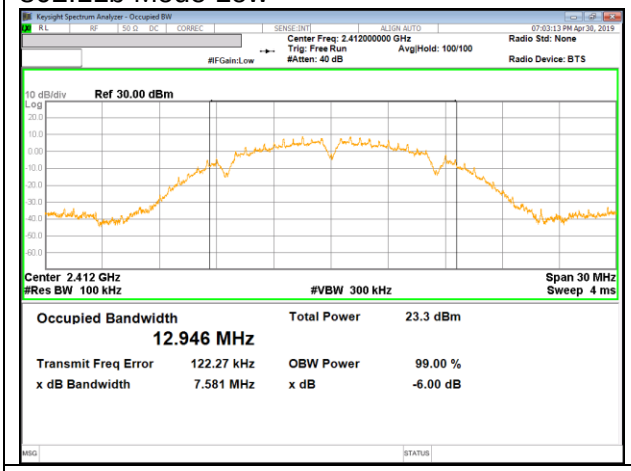
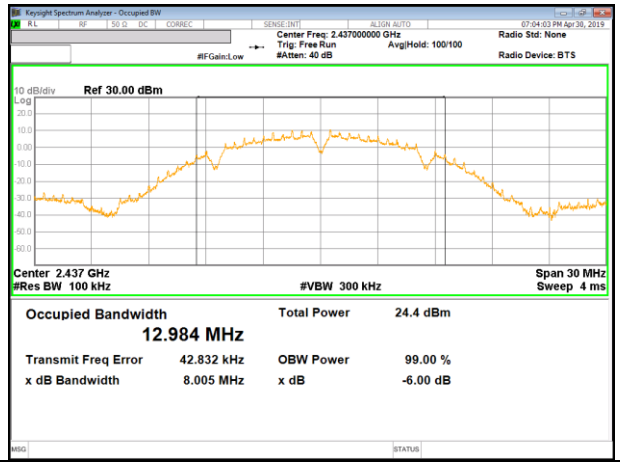
10.1.4. 6 dB BANDWIDTH PLOTS

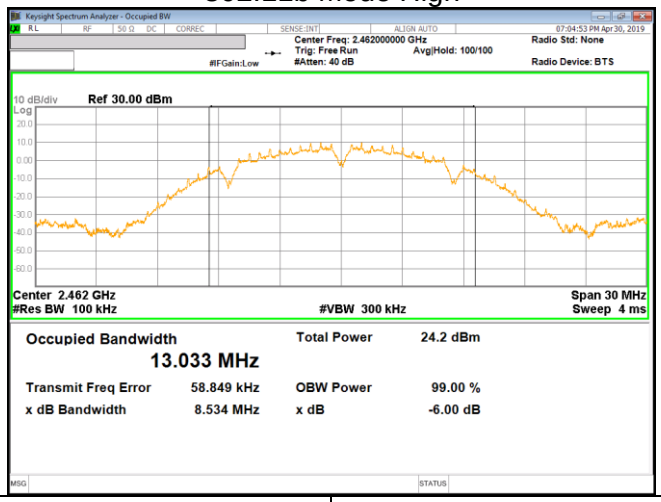
802.11b Mode Low



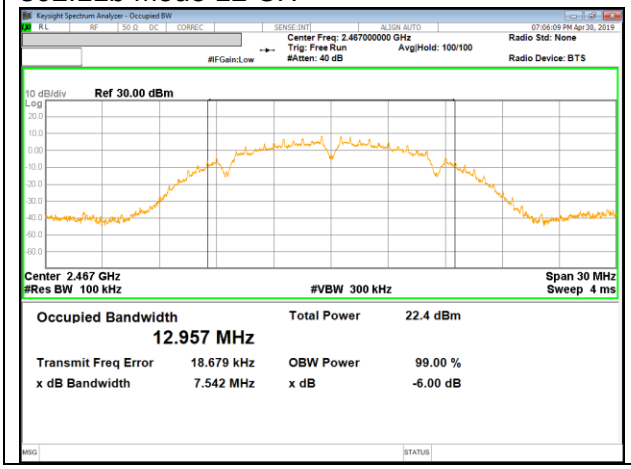
802.11b Mode Mid



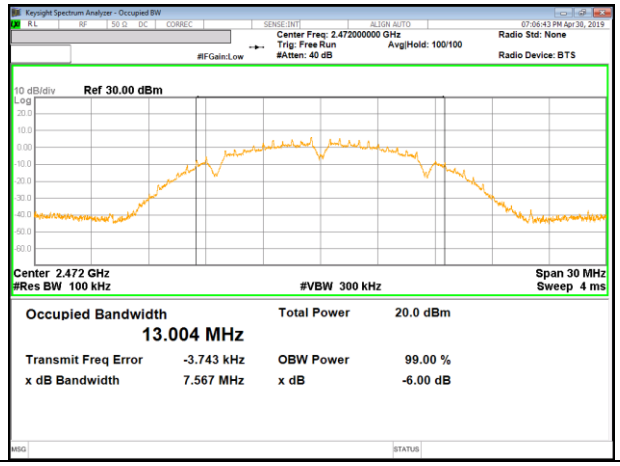
802.11b Mode High



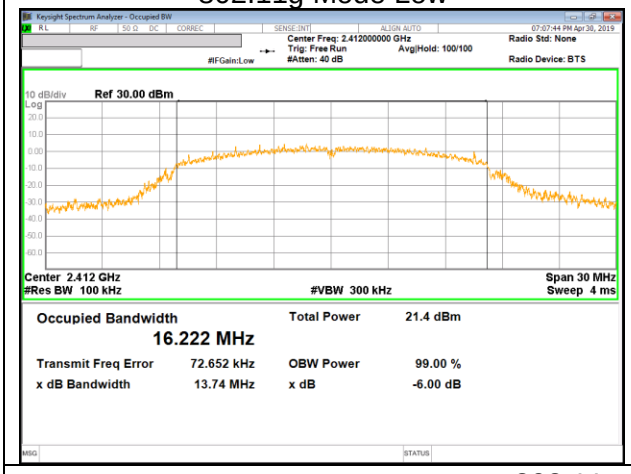
802.11b Mode 12 CH



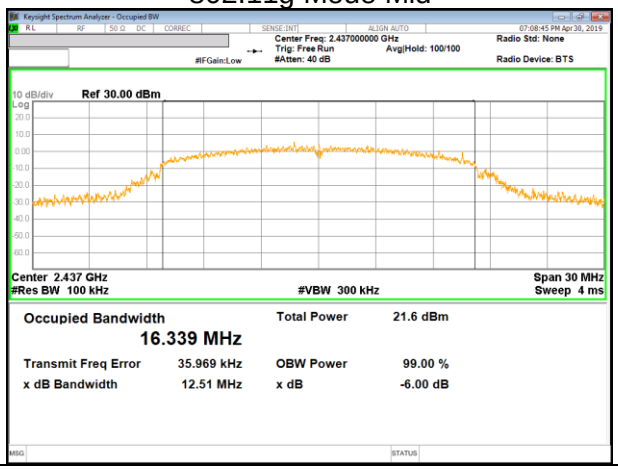
802.11b Mode 13 CH



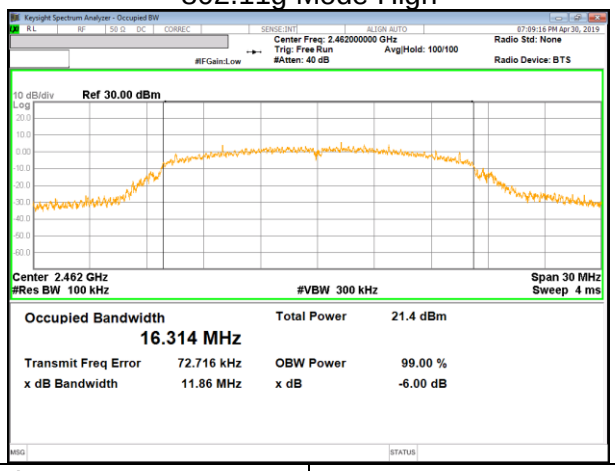
802.11g Mode Low



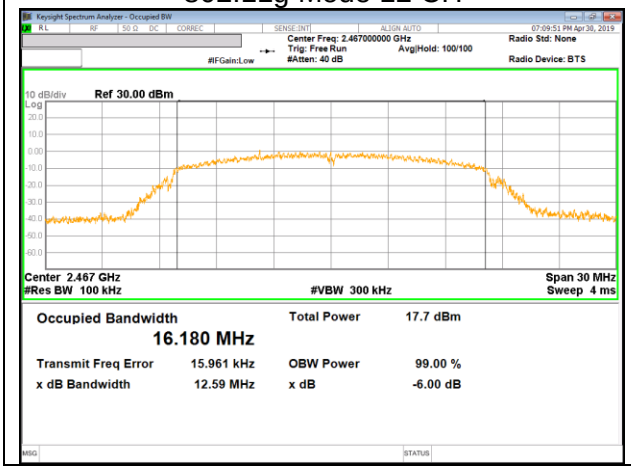
802.11g Mode Mid



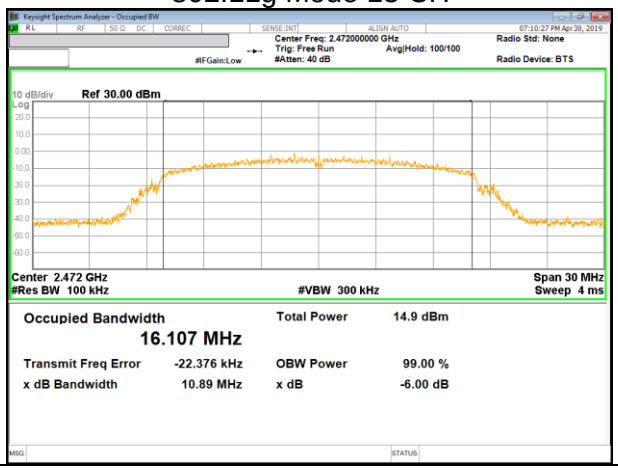
802.11g Mode High



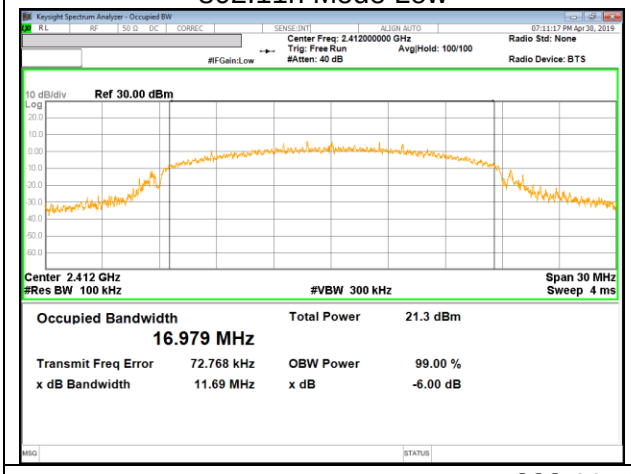
802.11g Mode 12 CH



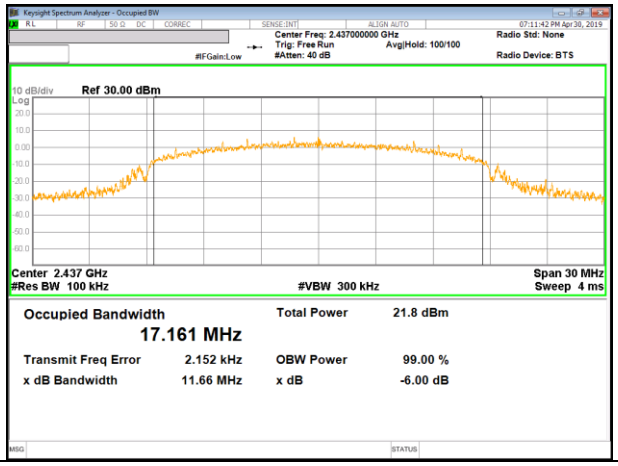
802.11g Mode 13 CH



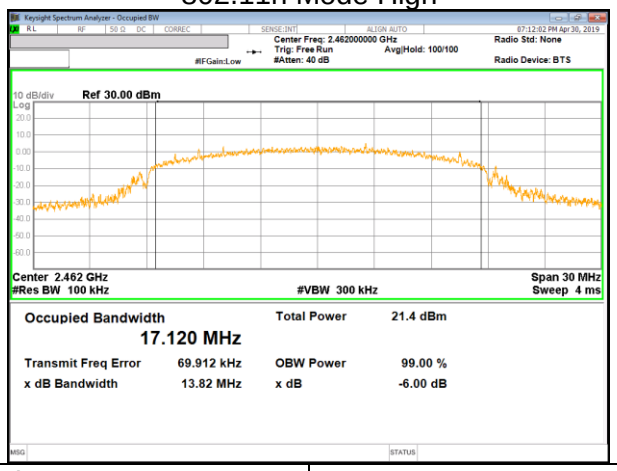
802.11n Mode Low



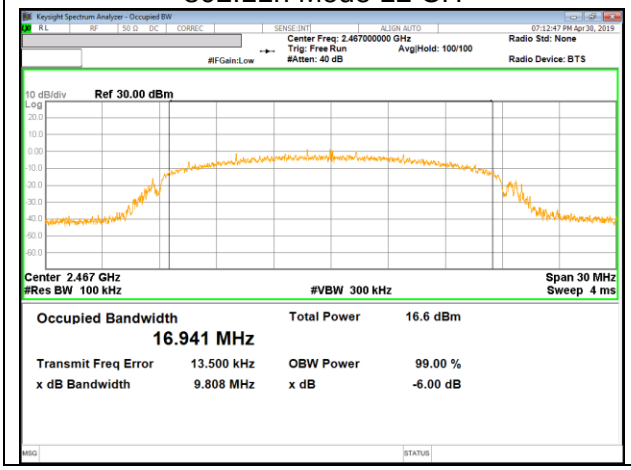
802.11n Mode Mid



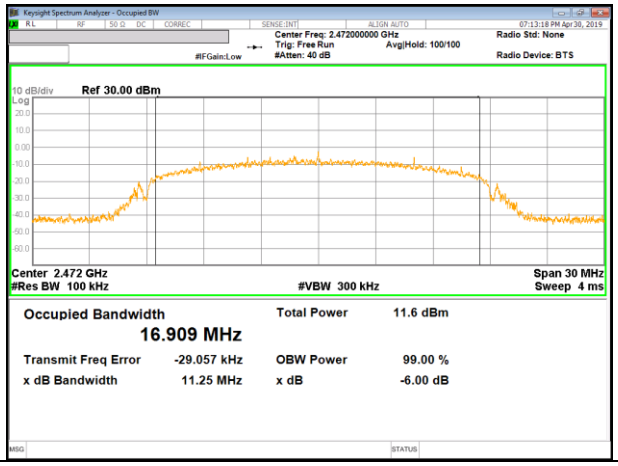
802.11n Mode High



802.11n Mode 12 CH



802.11n Mode 13 CH



10.2. OUTPUT POWER

LIMITS

FCC §15.247
IC RSS-247 §5.4 (d)

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.

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 8.3.2.3 under KDB558074 D01 15.247 Meas Guidance.

Duty cycle correction factor is not added to the average output power results for duty cycle factor > 98%. (All mode)

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

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RESULTS

10.2.1.802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
Low	2412	-2.16	30.00	30.00
Mid	2437	-2.16	30.00	30.00
High	2462	-2.16	30.00	30.00
12	2467	-2.16	30.00	30.00
13	2472	-2.16	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	17.80	17.80	30.00	-12.20
Mid	2437	18.16	18.16	30.00	-11.84
High	2462	17.70	17.70	30.00	-12.30
12	2467	16.22	16.22	30.00	-13.78
13	2472	13.93	13.93	30.00	-16.07
Worst			18.16	30.00	-11.84

10.2.2.802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency [MHz]	Directional Gain Primary [dBi]	FCC Power Limit [dBm]	Max Power [dBm]
Low	2412	-2.16	30.00	30.00
Mid	2437	-2.16	30.00	30.00
High	2462	-2.16	30.00	30.00
12	2467	-2.16	30.00	30.00
13	2472	-2.16	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	15.70	15.70	30.00	-14.30
Mid	2437	15.91	15.91	30.00	-14.09
High	2462	15.71	15.71	30.00	-14.29
12	2467	12.01	12.01	30.00	-17.99
13	2472	9.12	9.12	30.00	-20.88
Worst			15.91	30.00	-14.09

10.2.3.802.11n 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	-2.16	30.00	30.00
Mid	2437	-2.16	30.00	30.00
High	2462	-2.16	30.00	30.00
12	2467	-2.16	30.00	30.00
13	2472	-2.16	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	15.51	15.51	30.00	-14.49
Mid	2437	15.62	15.62	30.00	-14.38
High	2462	15.50	15.50	30.00	-14.50
12	2467	10.79	10.79	30.00	-19.21
13	2472	5.84	5.84	30.00	-24.16
Worst			15.62	30.00	-14.38

10.3. PSD

LIMITS

FCC §15.247
IC RSS-247 §5.2 (b)

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 section8.4 under KDB558074 D01 15.247 Meas Guidance.

RESULTS

10.3.1.802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
Low	2412	-12.384	0.00	-12.384	8.00	-20.384
Mid	2437	-12.209	0.00	-12.209	8.00	-20.209
High	2462	-12.304	0.00	-12.304	8.00	-20.304
12	2467	-14.316	0.00	-14.316	8.00	-22.316
13	2472	-22.218	0.00	-22.218	8.00	-30.218

10.3.2.802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
Low	2412	-16.106	0.15	-15.956	8.00	-24.106
Mid	2437	-15.541	0.15	-15.391	8.00	-23.541
High	2462	-15.891	0.15	-15.741	8.00	-23.891
12	2467	-18.958	0.15	-18.808	8.00	-26.958
13	2472	-19.990	0.15	-19.840	8.00	-27.990

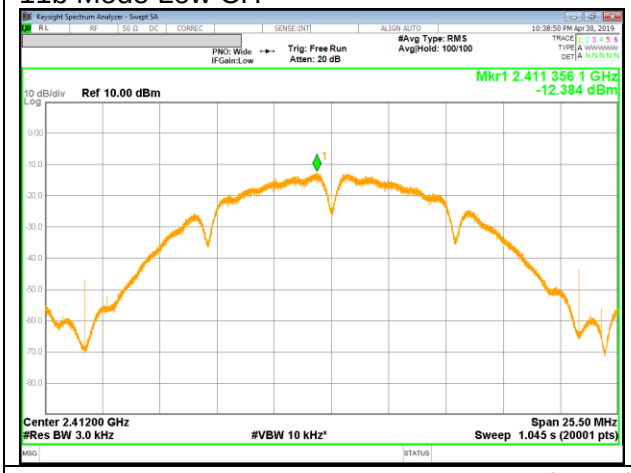
10.3.3.802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

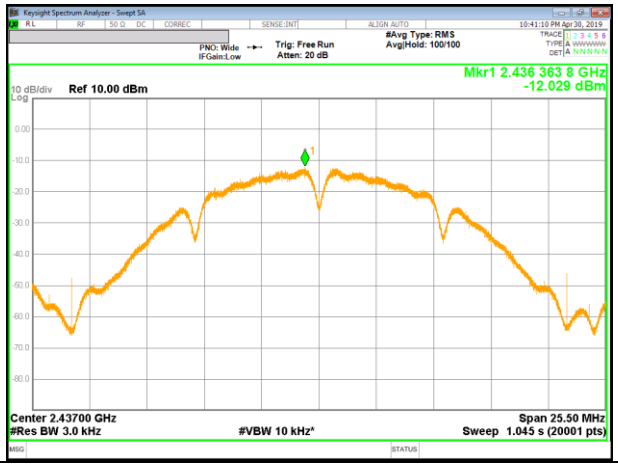
Channel	Frequency [MHz]	PSD Meas [dBm]	Duty Factor [dB]	Final PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
1	2412	-16.578	0.16	-16.418	8.00	-24.578
6	2437	-16.198	0.16	-16.038	8.00	-24.198
11	2462	-16.671	0.16	-16.511	8.00	-24.671
12	2467	-21.268	0.16	-21.108	8.00	-29.268
13	2472	-20.639	0.16	-20.479	8.00	-28.639

10.3.4. PSD PLOTS

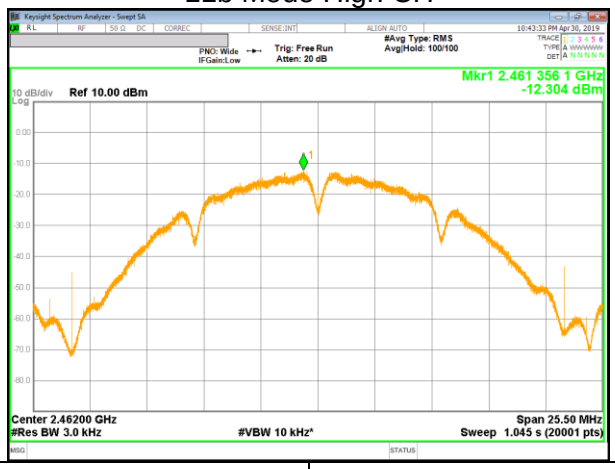
11b Mode Low CH



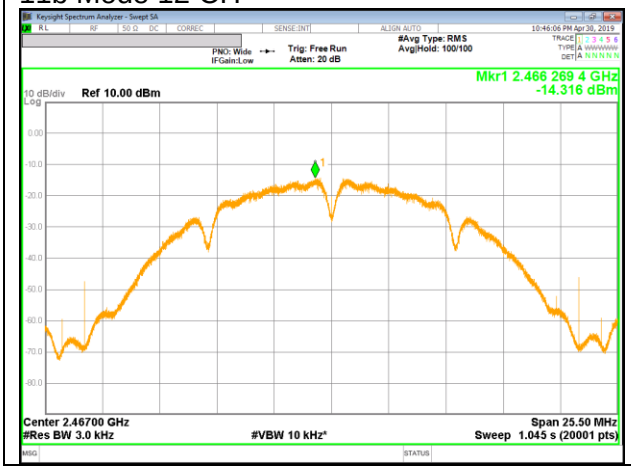
11b Mode Middle CH



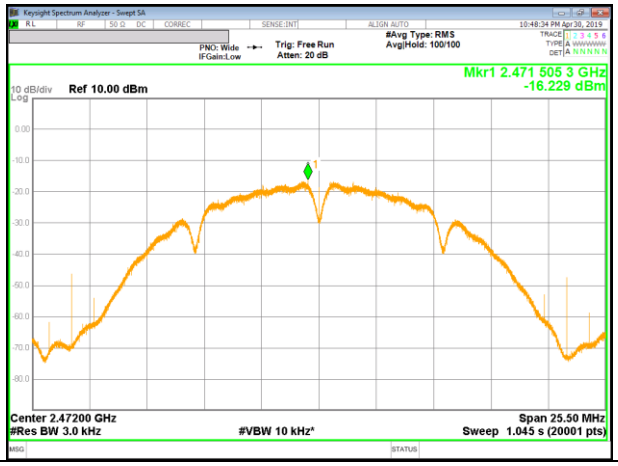
11b Mode High CH



11b Mode 12 CH



11b Mode 13 CH



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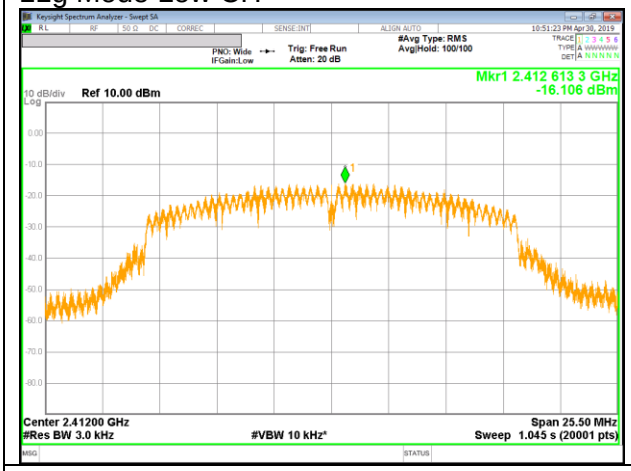
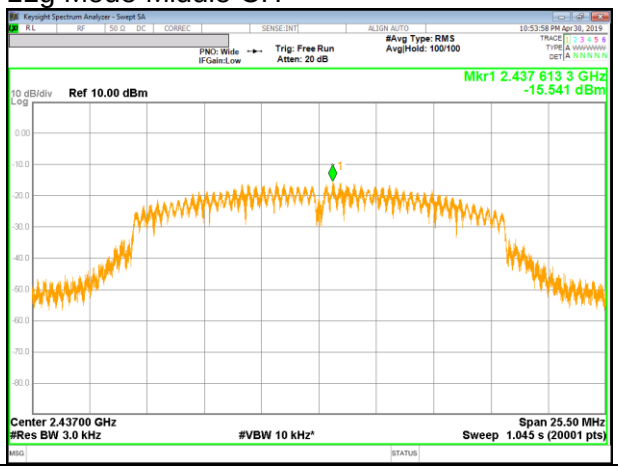
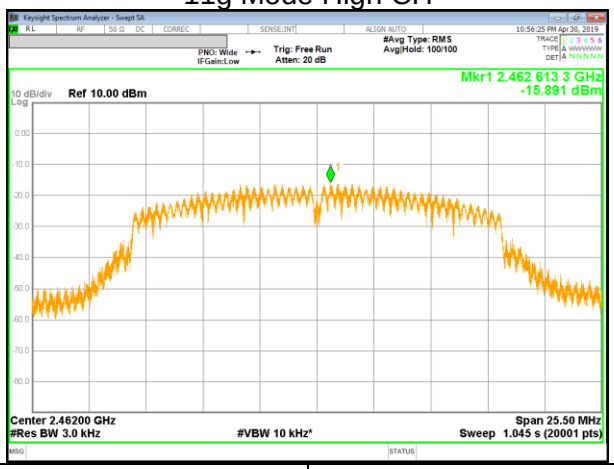
11g Mode Low CH



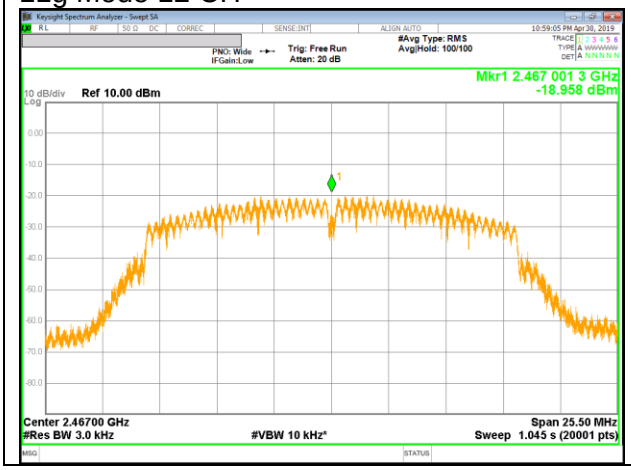
11g Mode Middle CH



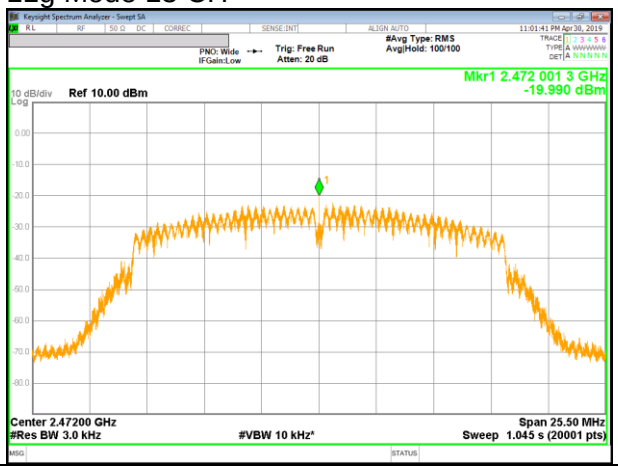
11g Mode High CH



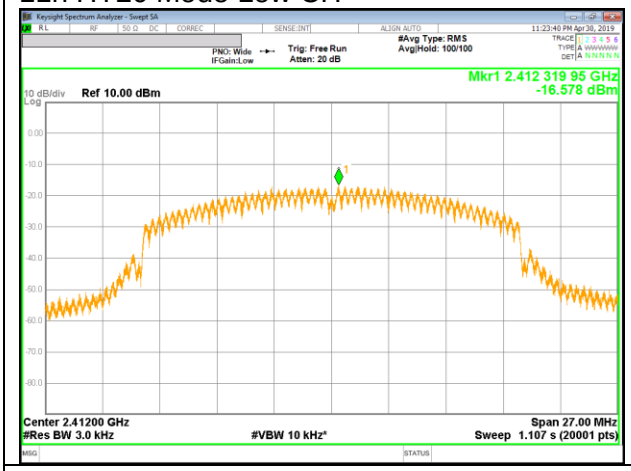
11g Mode 12 CH



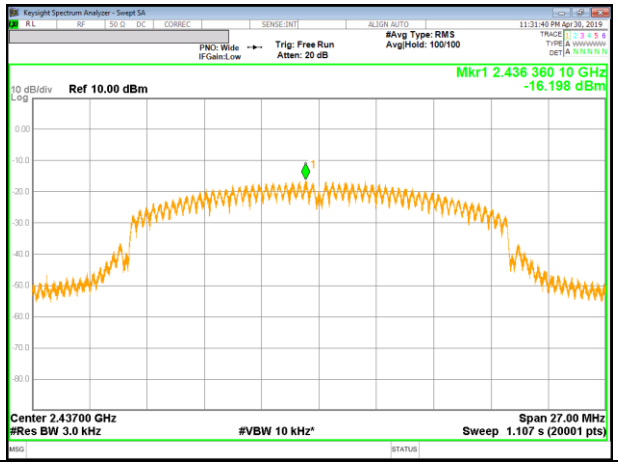
11g Mode 13 CH



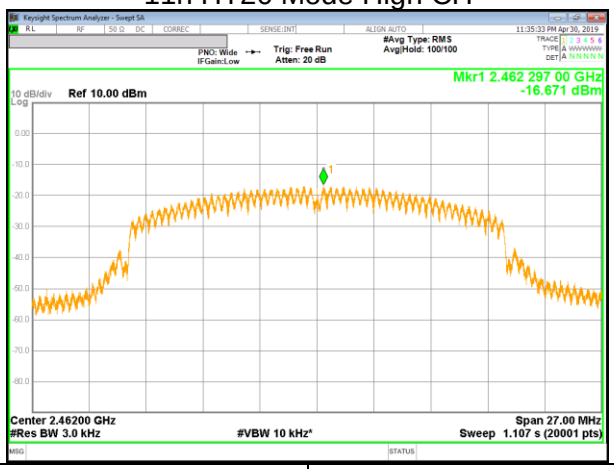
11n HT20 Mode Low CH



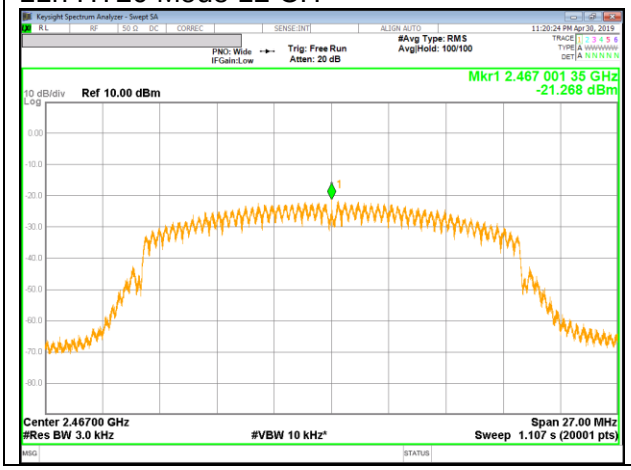
11n HT20 Mode Middle CH



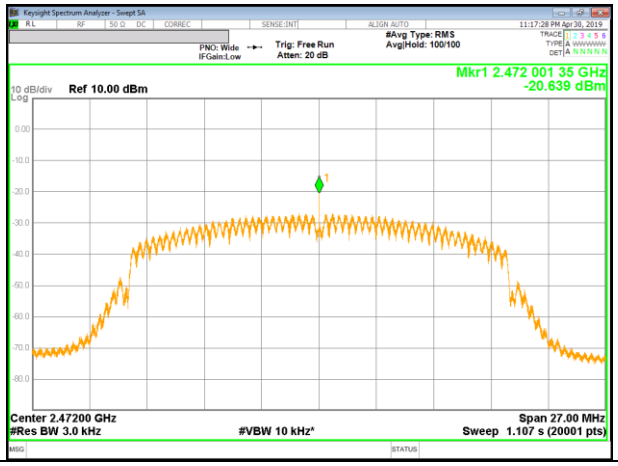
11n HT20 Mode High CH



11n HT20 Mode 12 CH



11n HT20 Mode 13 CH



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10.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)
IC RSS-247 §5.2 (b)

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, out-of-band emissions (where measurements to the general radiated limits will not be made)

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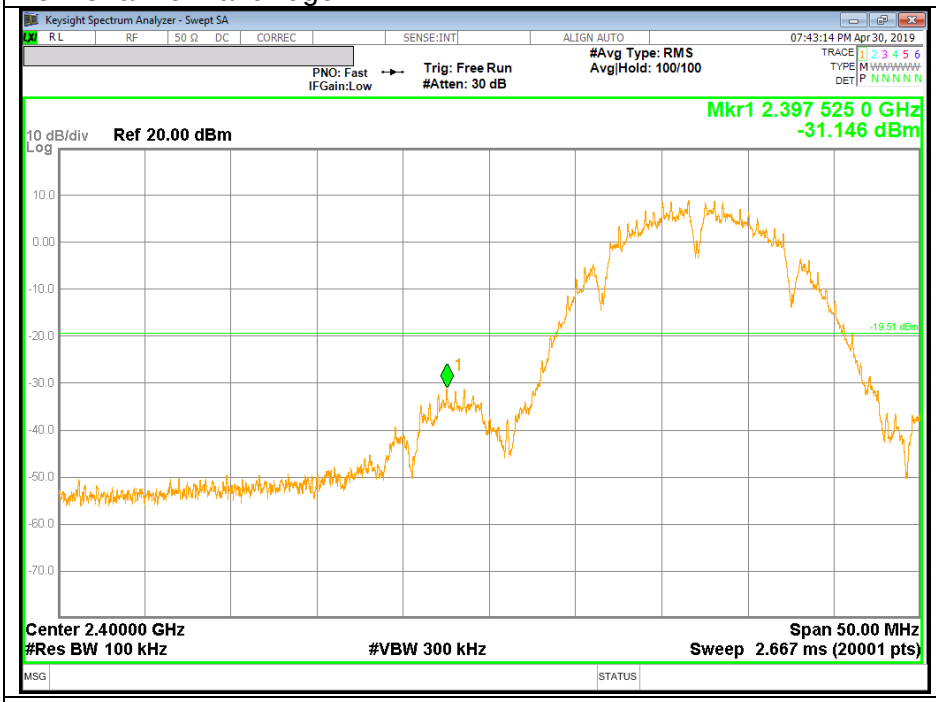
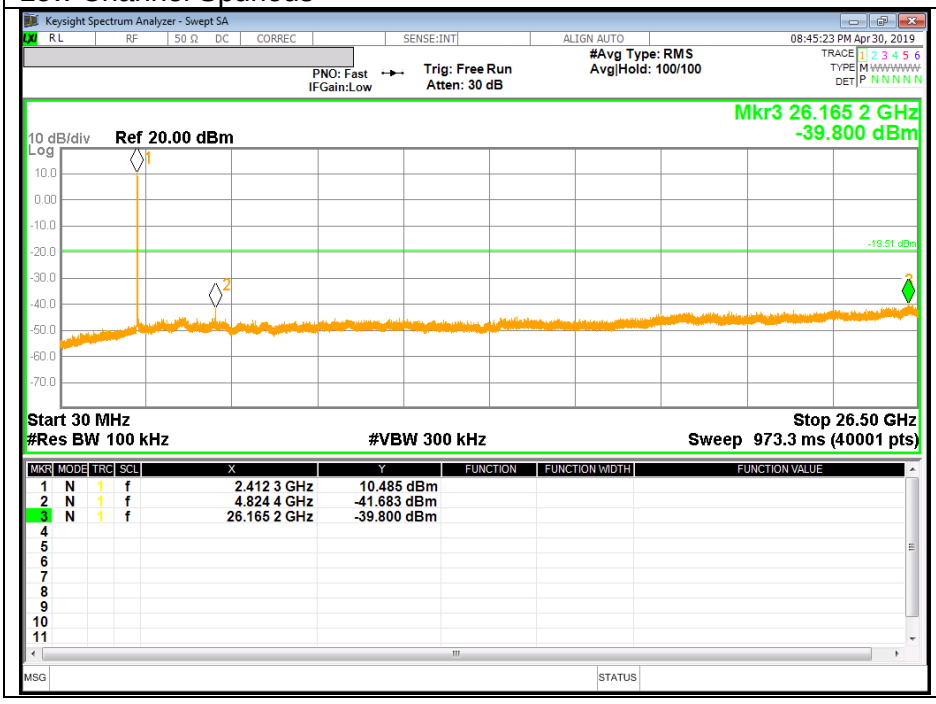
RESULTS

10.4.1. 802.11b MODE IN THE 2.4 GHz BAND

Low Channel BandEdge



Low Channel Spurious



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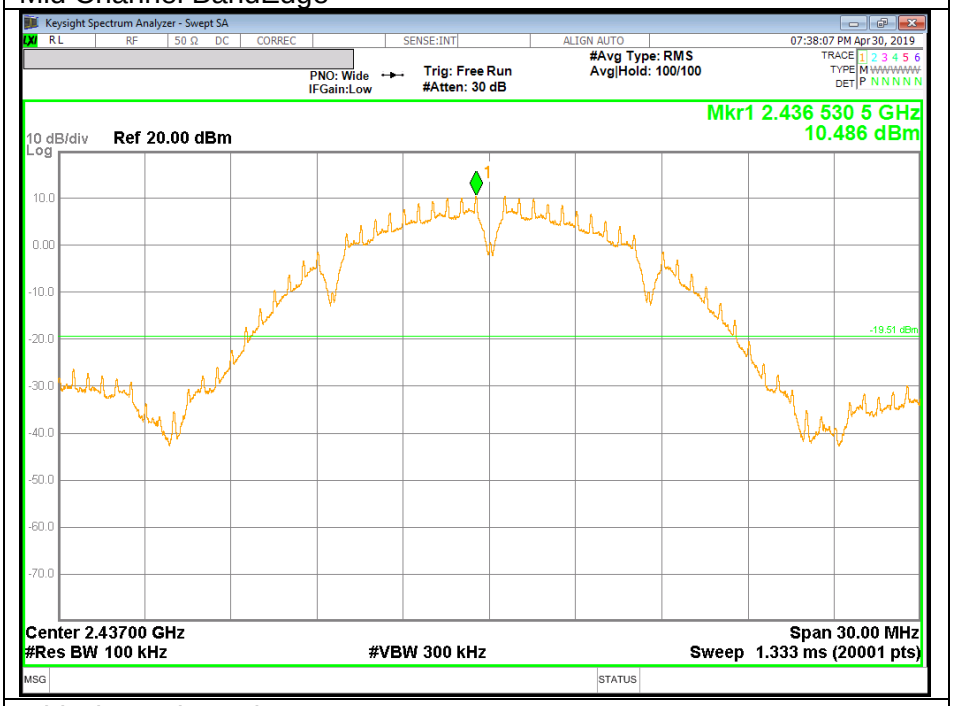
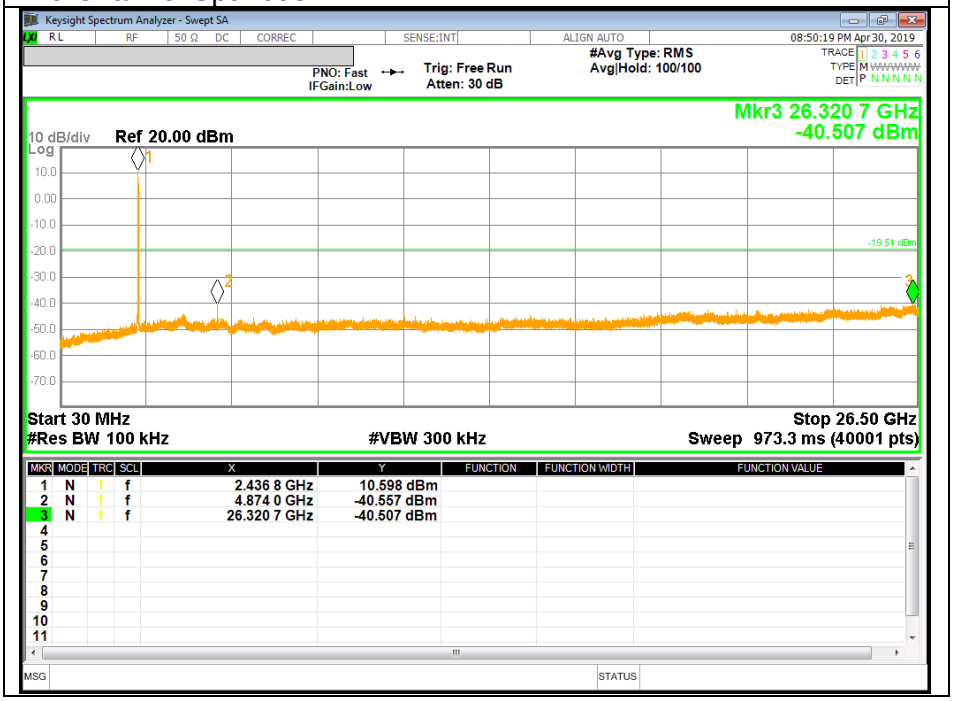
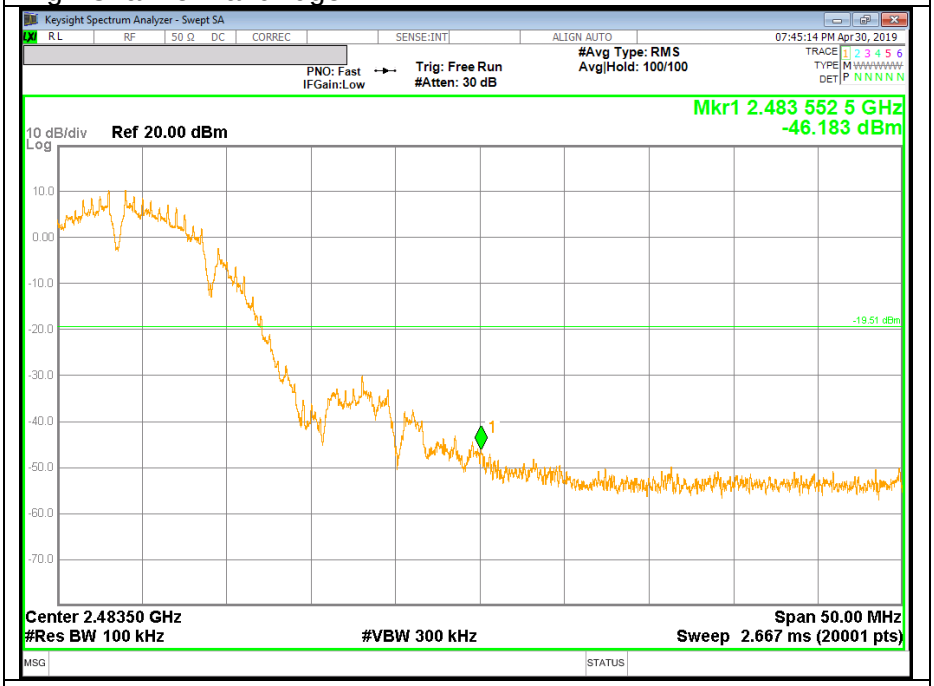
Mid Channel BandEdge



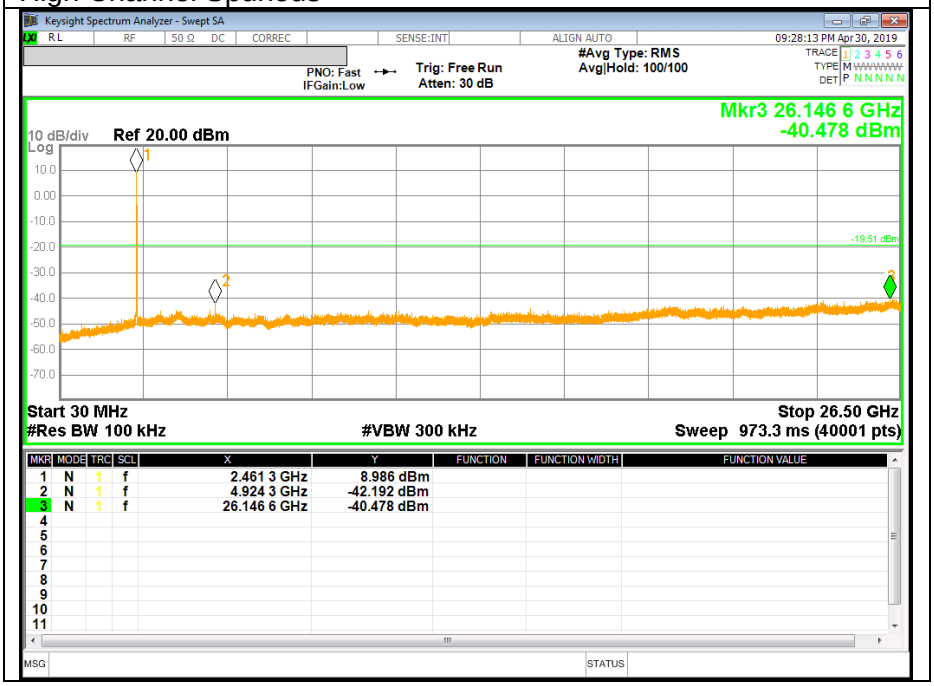
Mid Channel Spurious



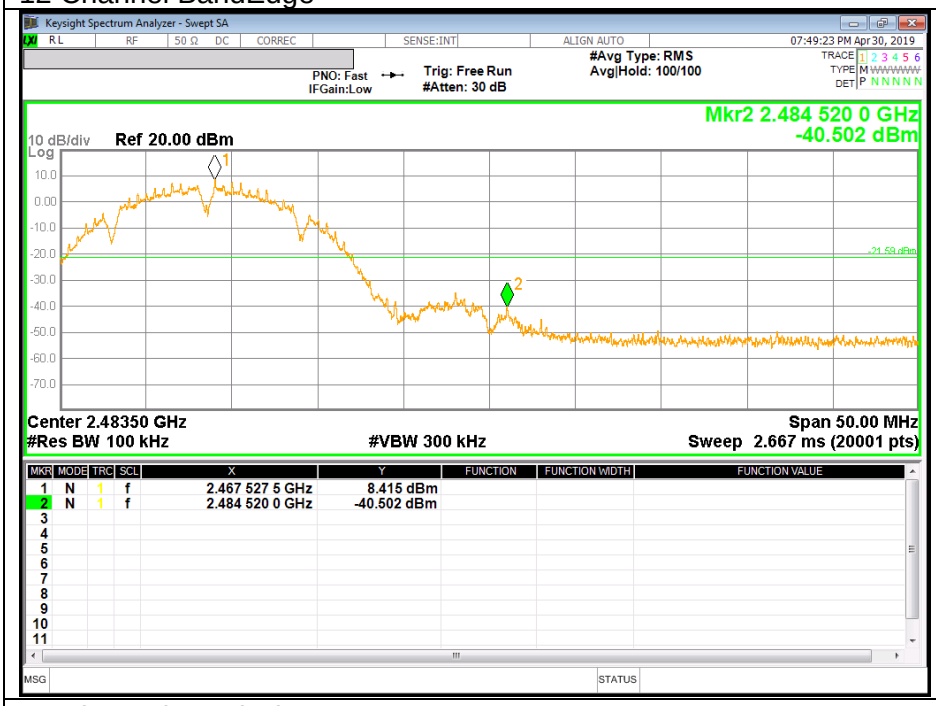
High Channel BandEdge



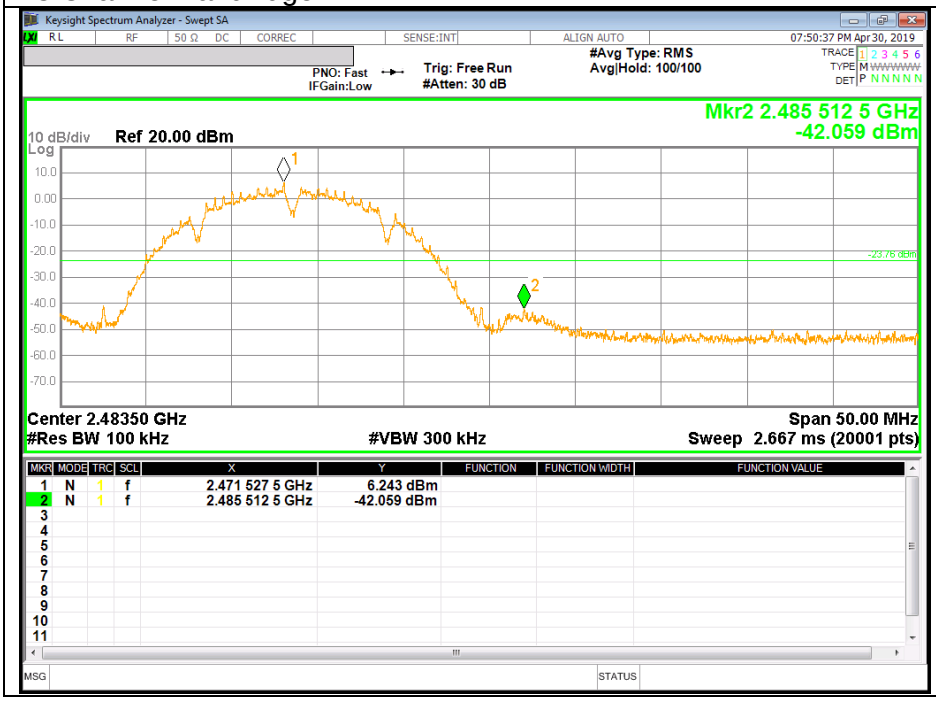
High Channel Spurious



12 Channel BandEdge

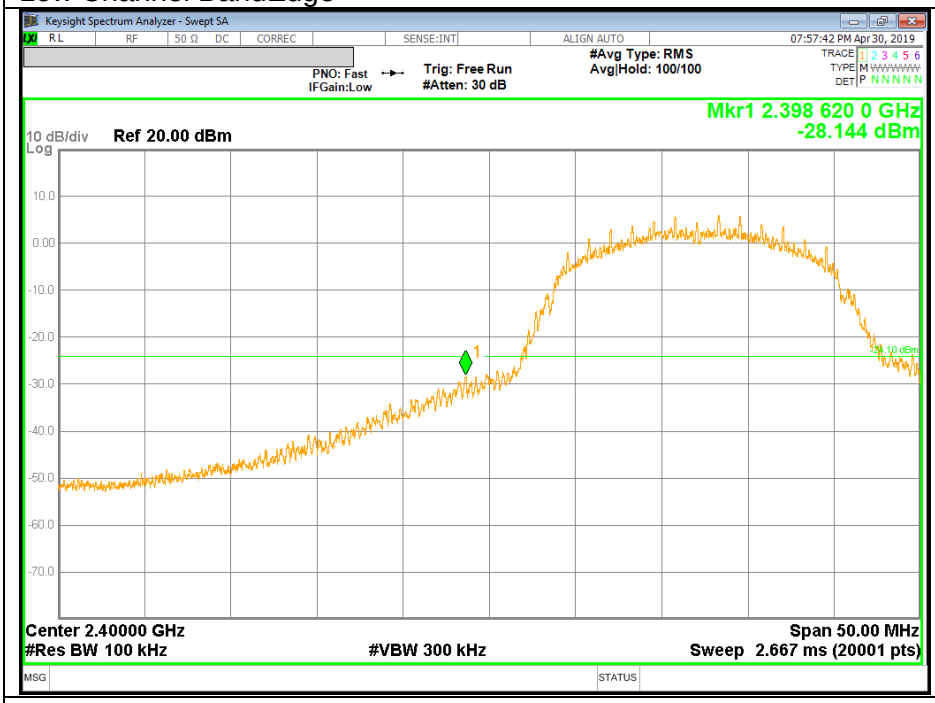


13 Channel BandEdge

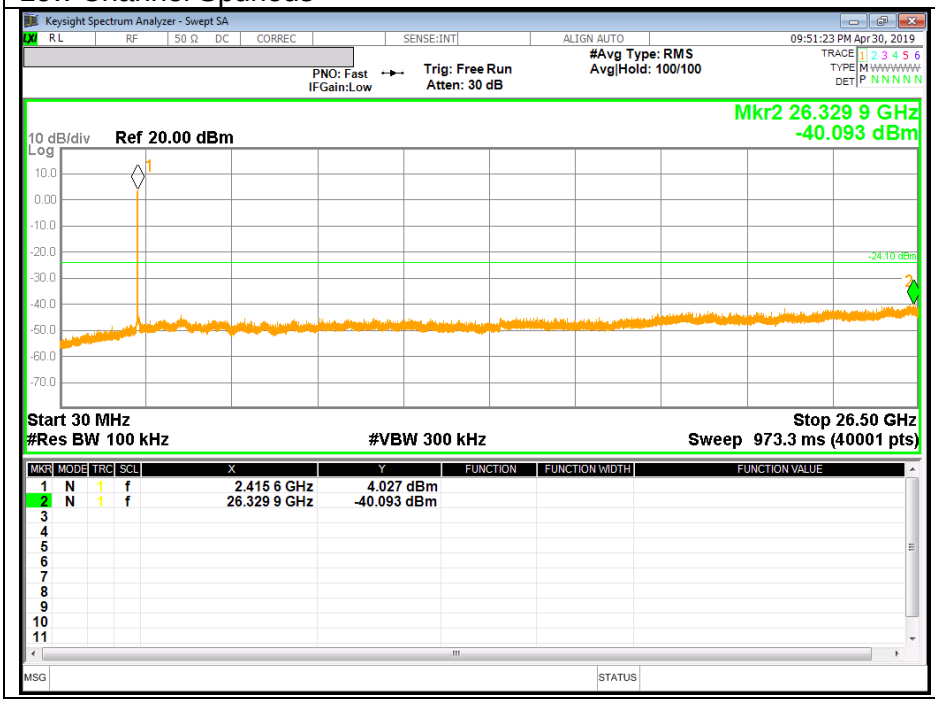


10.4.2. 802.11g MODE IN THE 2.4 GHz BAND

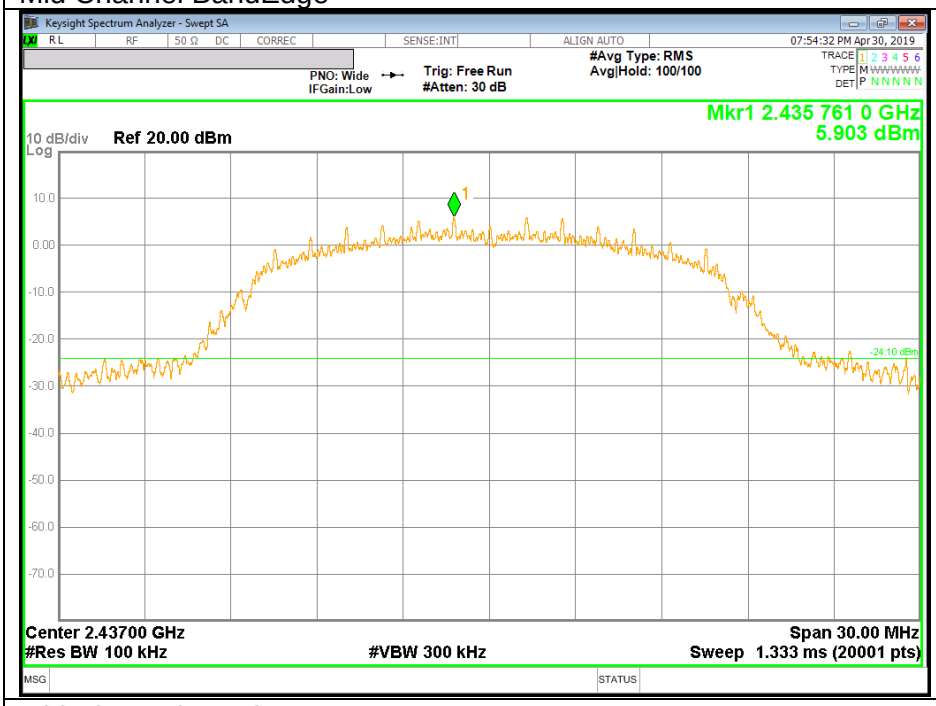
Low Channel BandEdge



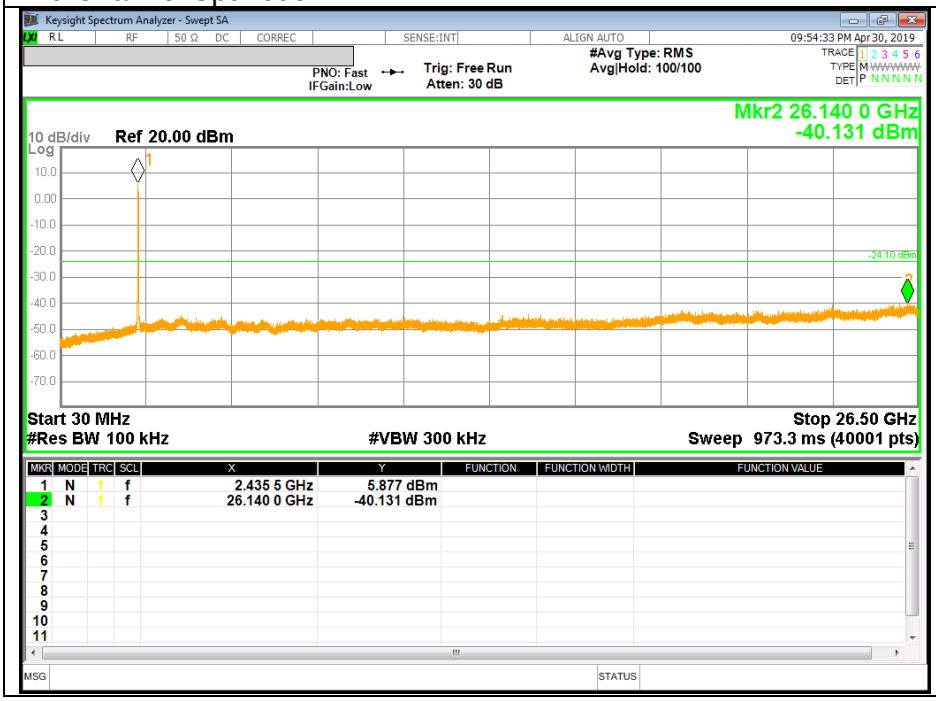
Low Channel Spurious



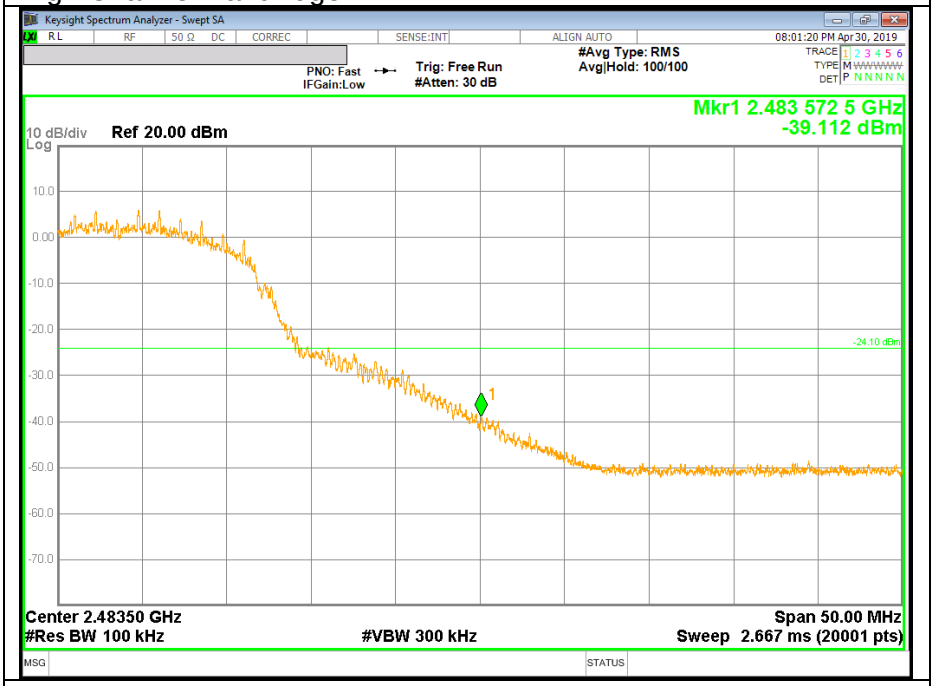
Mid Channel BandEdge



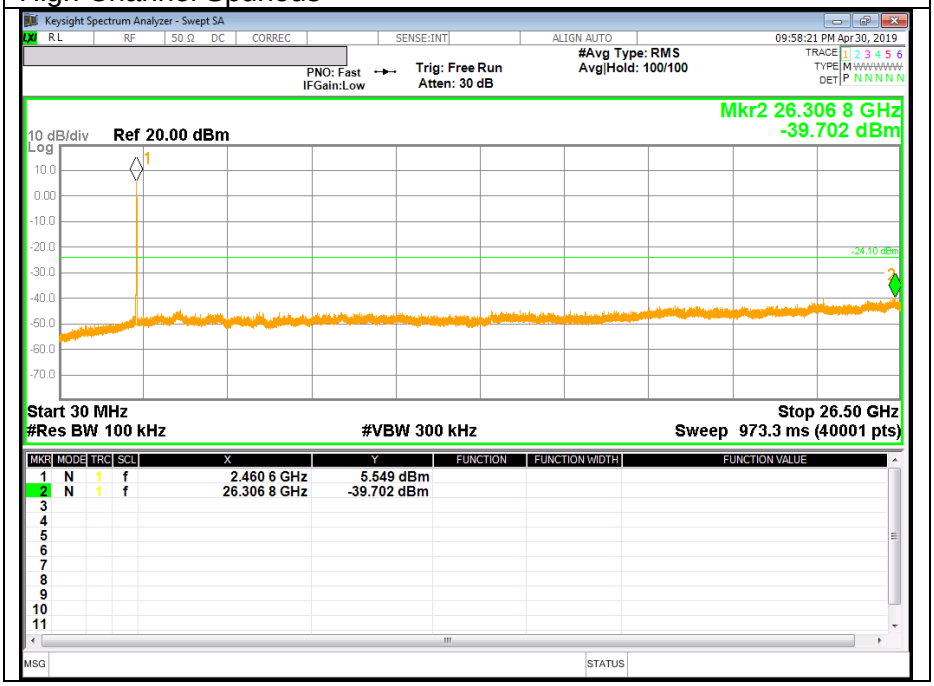
Mid Channel Spurious



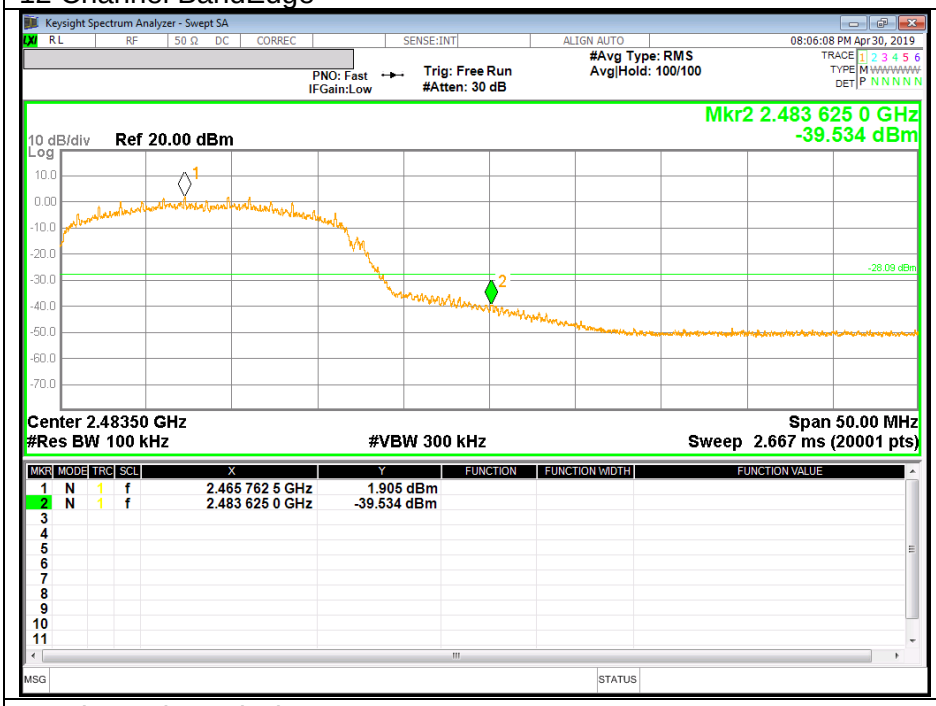
High Channel BandEdge



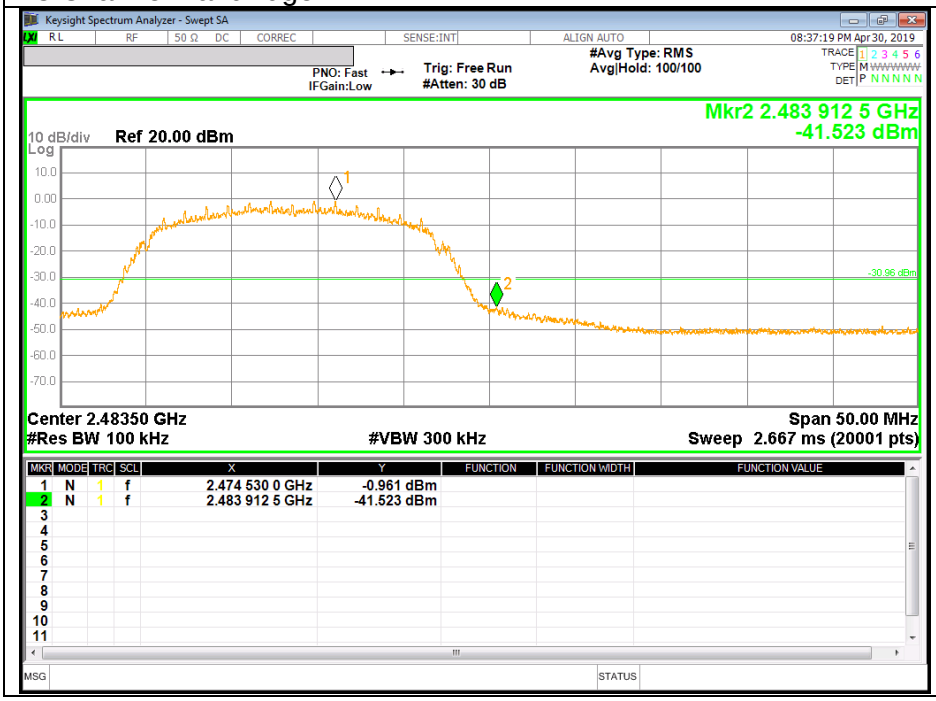
High Channel Spurious



12 Channel BandEdge

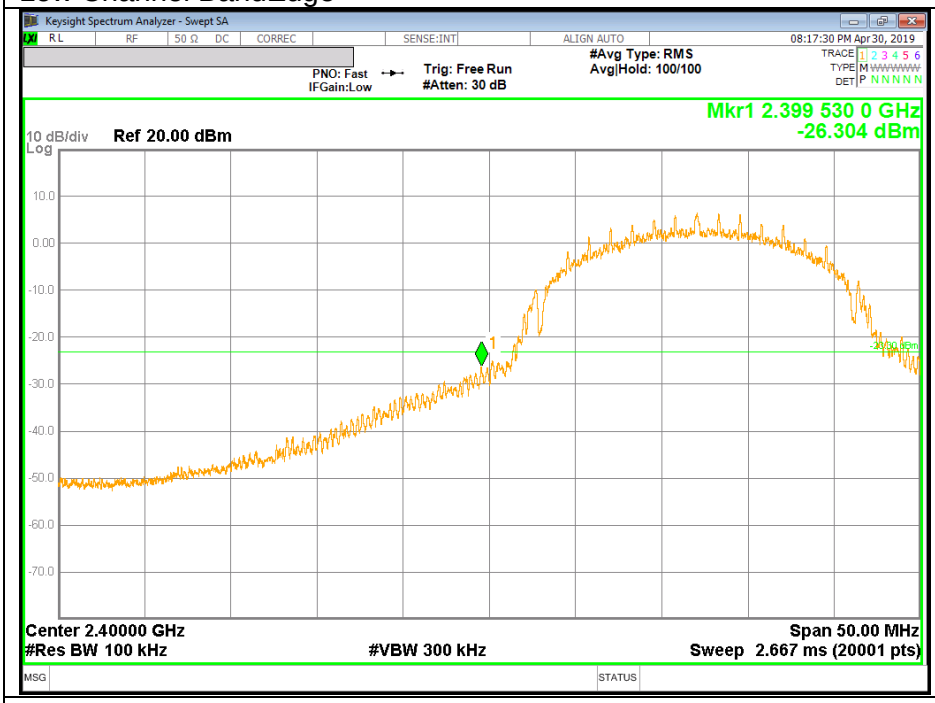


13 Channel BandEdge

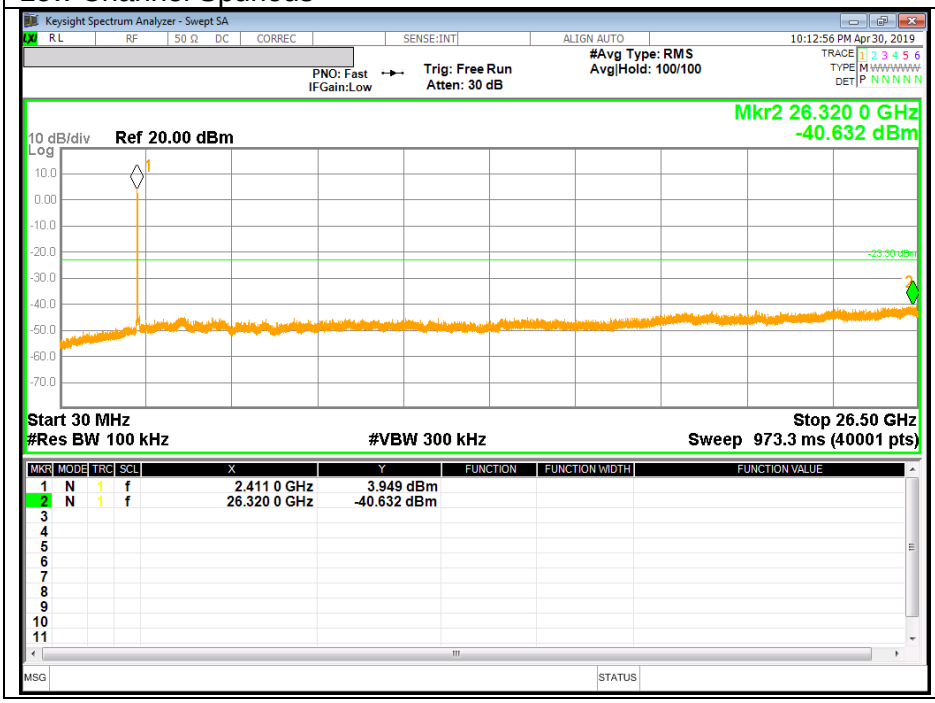


10.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Low Channel BandEdge



Low Channel Spurious



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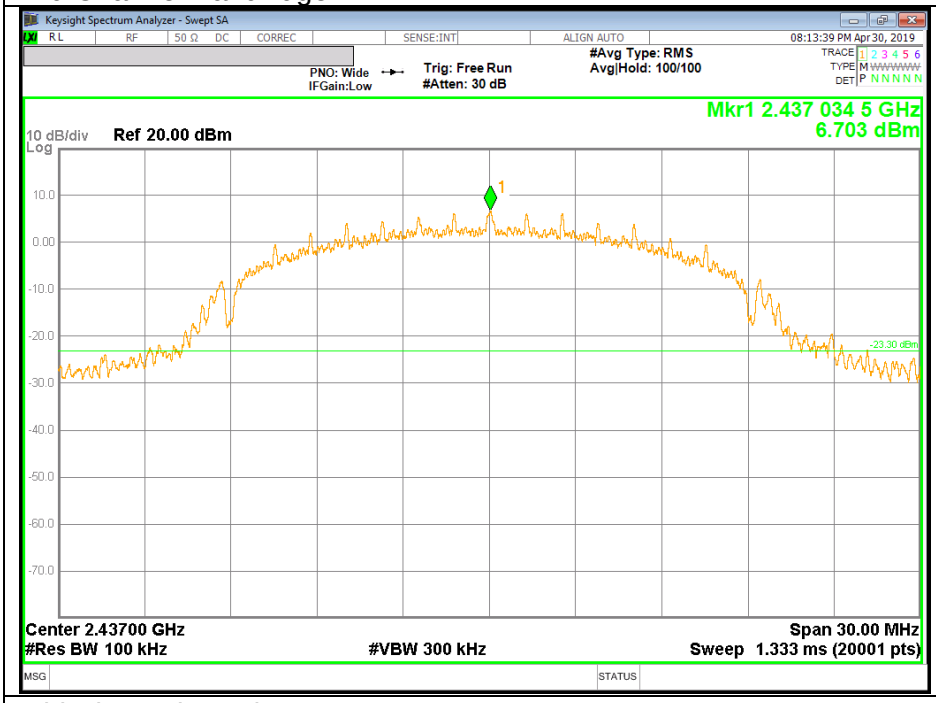
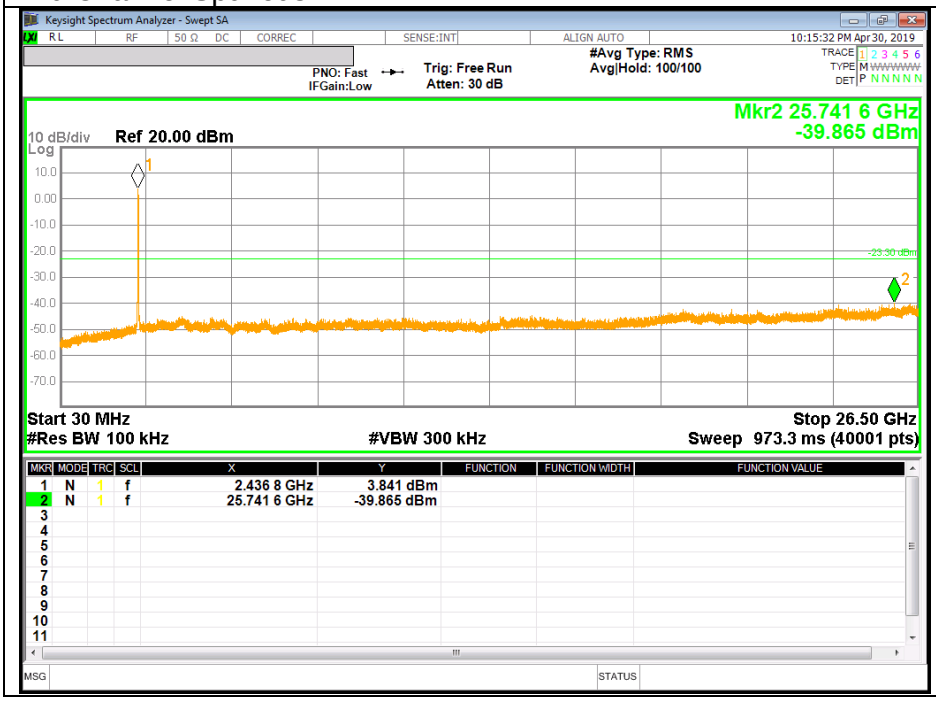
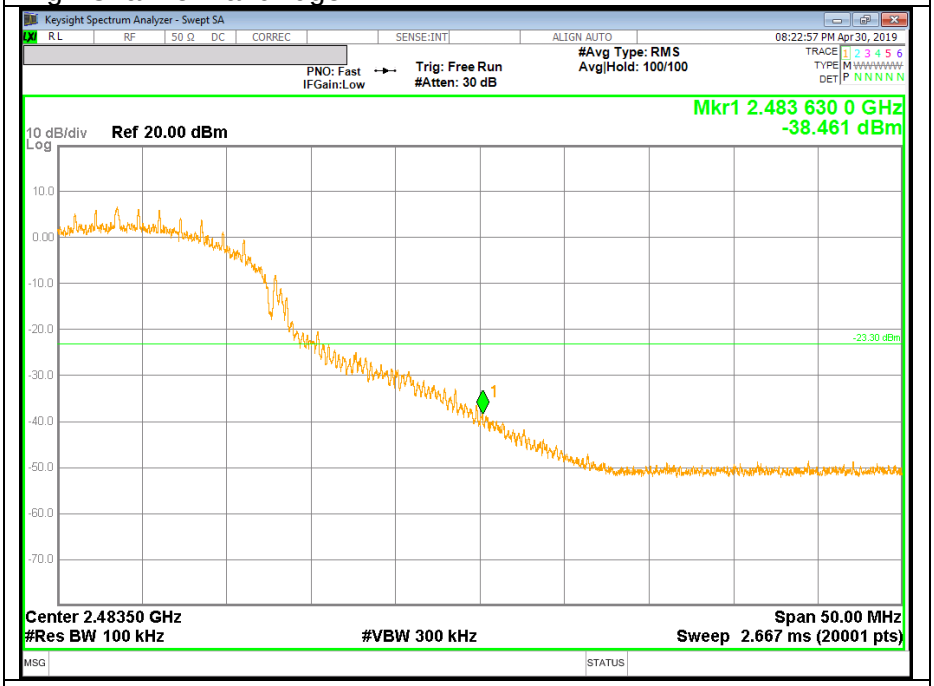
Mid Channel BandEdge



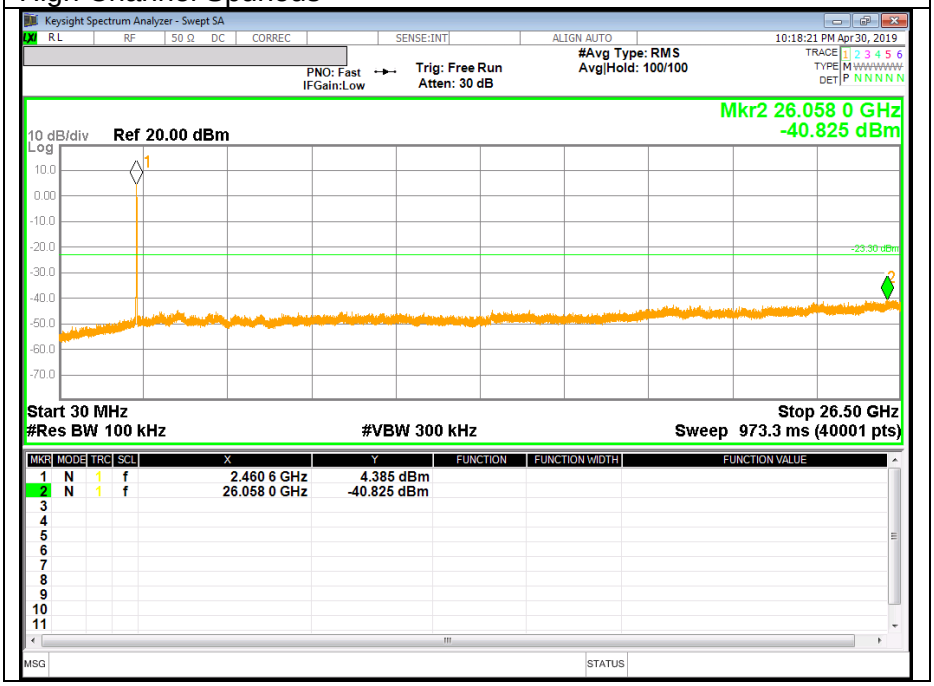
Mid Channel Spurious



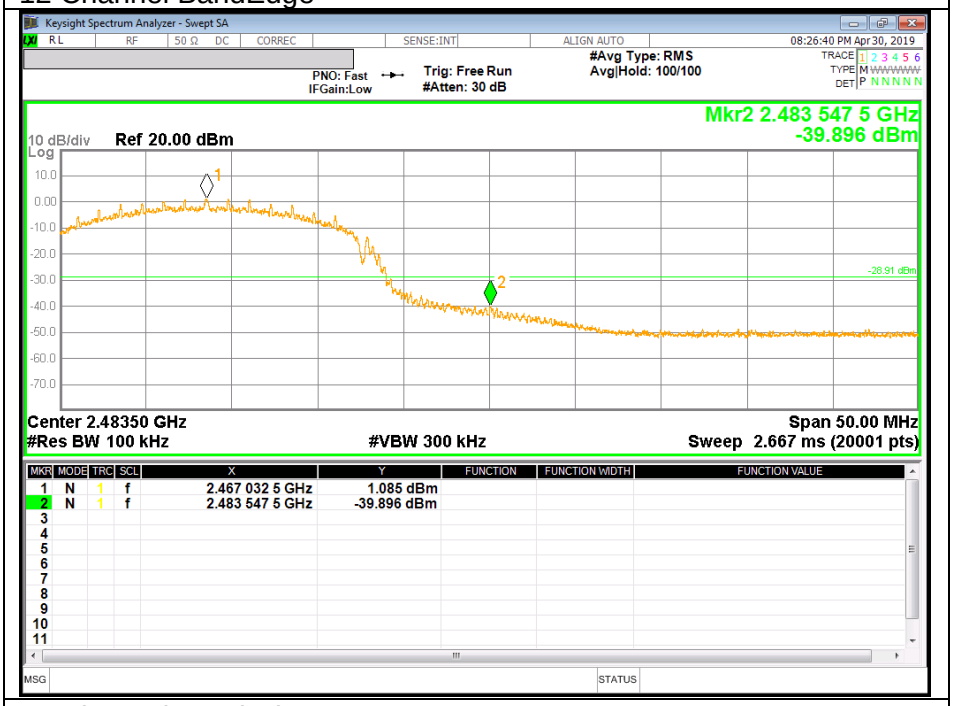
High Channel BandEdge



High Channel Spurious



12 Channel BandEdge



13 Channel BandEdge

11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209
IC RSS-GEN Clause 8.9 (Transmitter)
IC RSS-GEN Clause 7 (Receiver)

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

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.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

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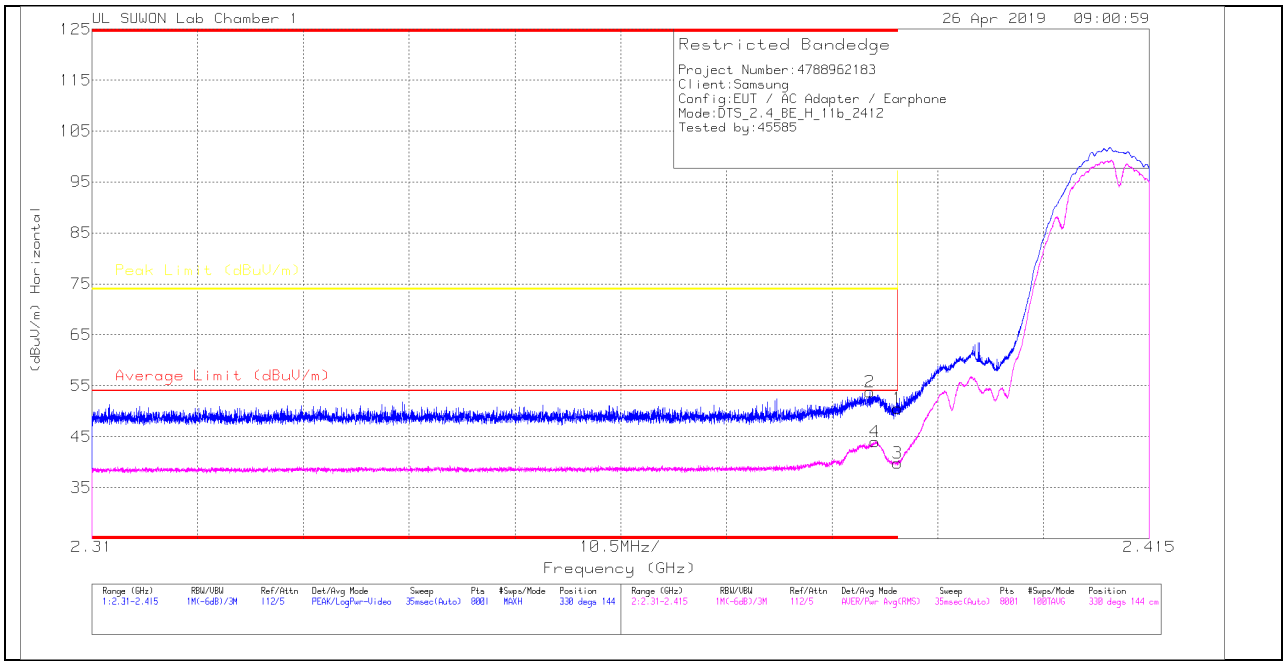
11.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



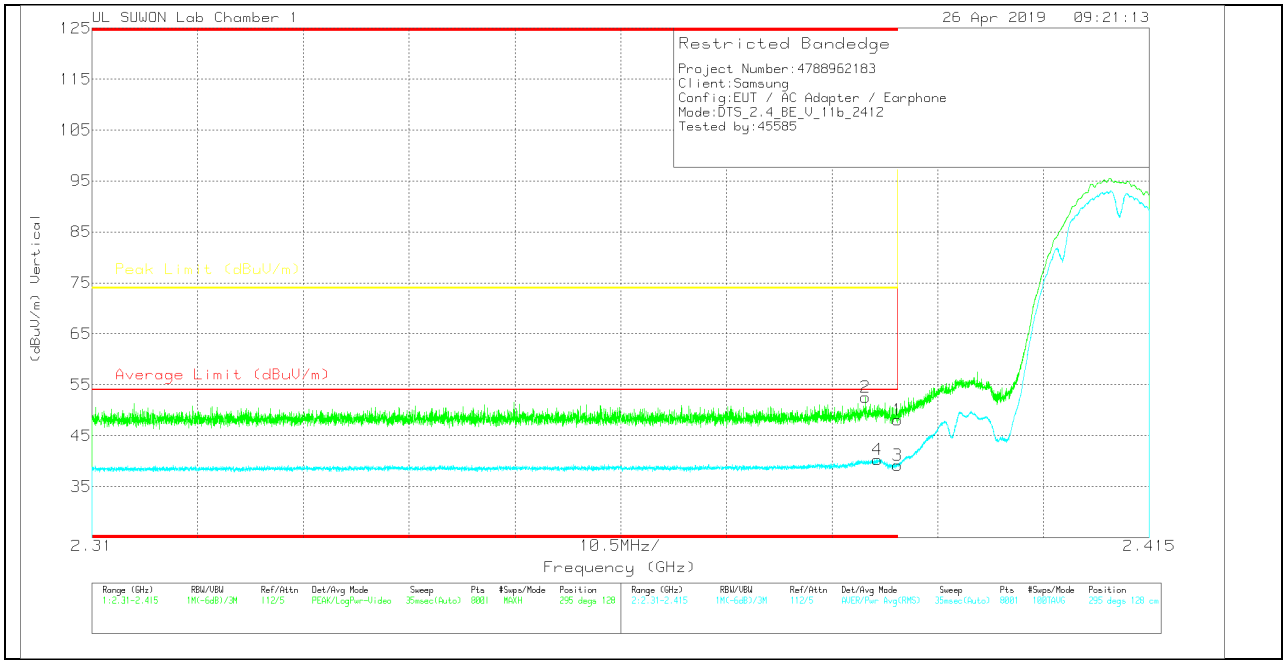
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	44.35	Pk	31.7	-25.5	0	50.55	-	-	74	-23.45	330	144	H
2	* 2.387	47.57	Pk	31.7	-25.5	0	53.77	-	-	74	-20.23	330	144	H
3	* 2.39	33.59	RMS	31.7	-25.5	0	39.79	54	-14.21	-	-	330	144	H
4	* 2.388	37.85	RMS	31.7	-25.5	0	44.05	54	-9.95	-	-	330	144	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

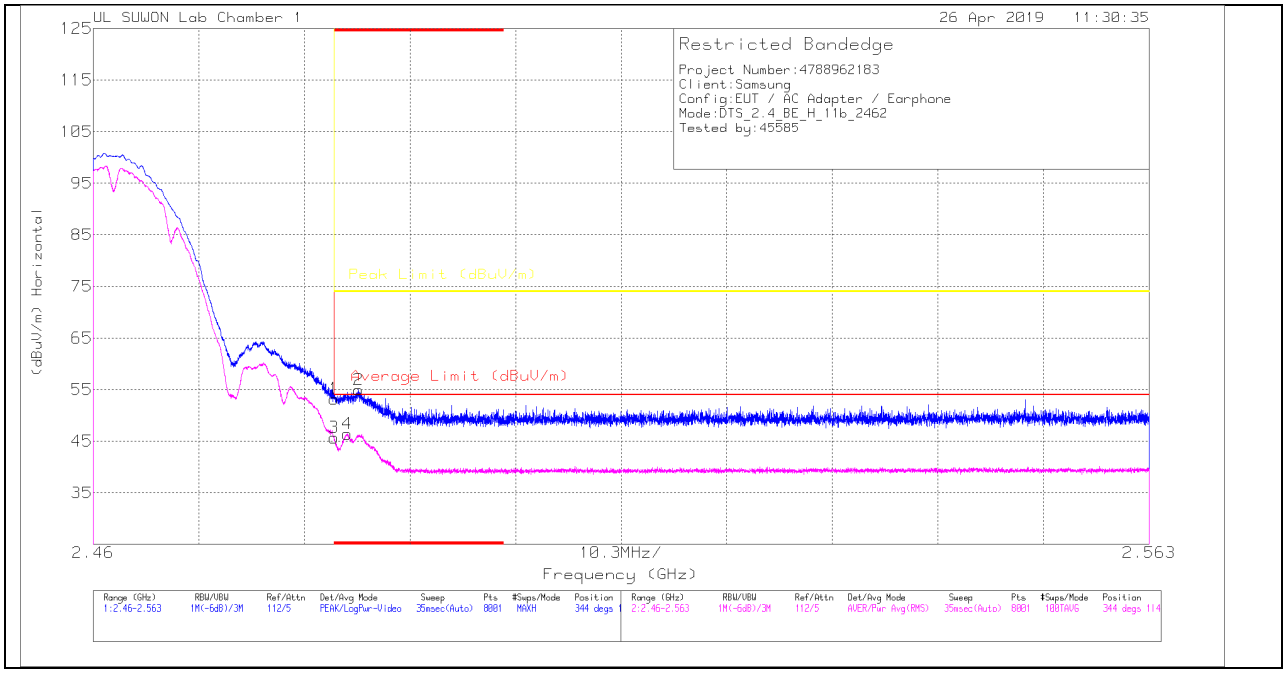
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	41.87	Pk	31.7	-25.5	0	48.07	-	-	74	-25.93	295	128	V
2	* 2.387	46.37	Pk	31.7	-25.5	0	52.57	-	-	74	-21.43	295	128	V
3	* 2.39	33.04	RMS	31.7	-25.5	0	39.24	54	-14.76	-	-	295	128	V
4	* 2.388	34.12	RMS	31.7	-25.5	0	40.32	54	-13.68	-	-	295	128	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



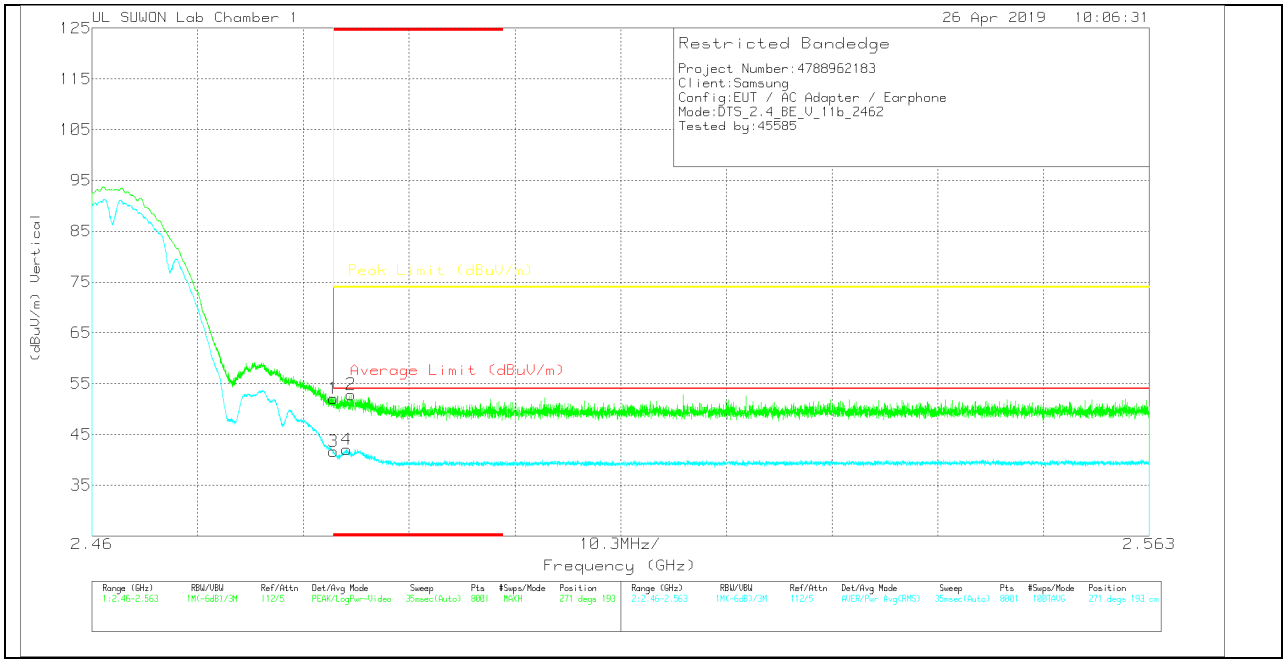
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	46.6	Pk	31.9	-25.3	0	53.2	-	-	74	-20.8	344	114	H
2	* 2.486	48.28	Pk	31.9	-25.2	0	54.98	-	-	74	-19.02	344	114	H
3	* 2.484	39.1	RMS	31.9	-25.3	0	45.7	54	-8.3	-	-	344	114	H
4	* 2.485	39.82	RMS	31.9	-25.3	0	46.42	54	-7.58	-	-	344	114	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	45.49	Pk	31.9	-25.3	0	52.09	-	-	74	-21.91	271	193	V
2	* 2.485	46.26	Pk	31.9	-25.3	0	52.86	-	-	74	-21.14	271	193	V
3	* 2.484	35.03	RMS	31.9	-25.3	0	41.63	54	-12.37	-	-	271	193	V
4	* 2.485	35.47	RMS	31.9	-25.3	0	42.07	54	-11.93	-	-	271	193	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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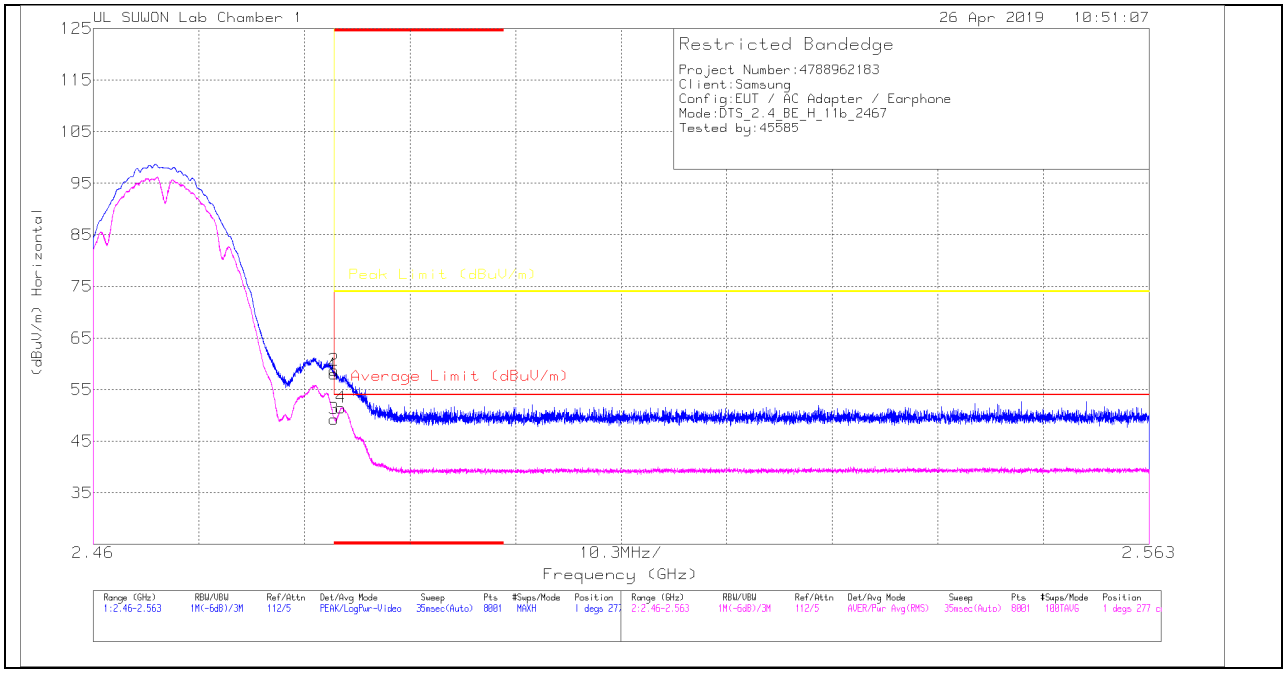
AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



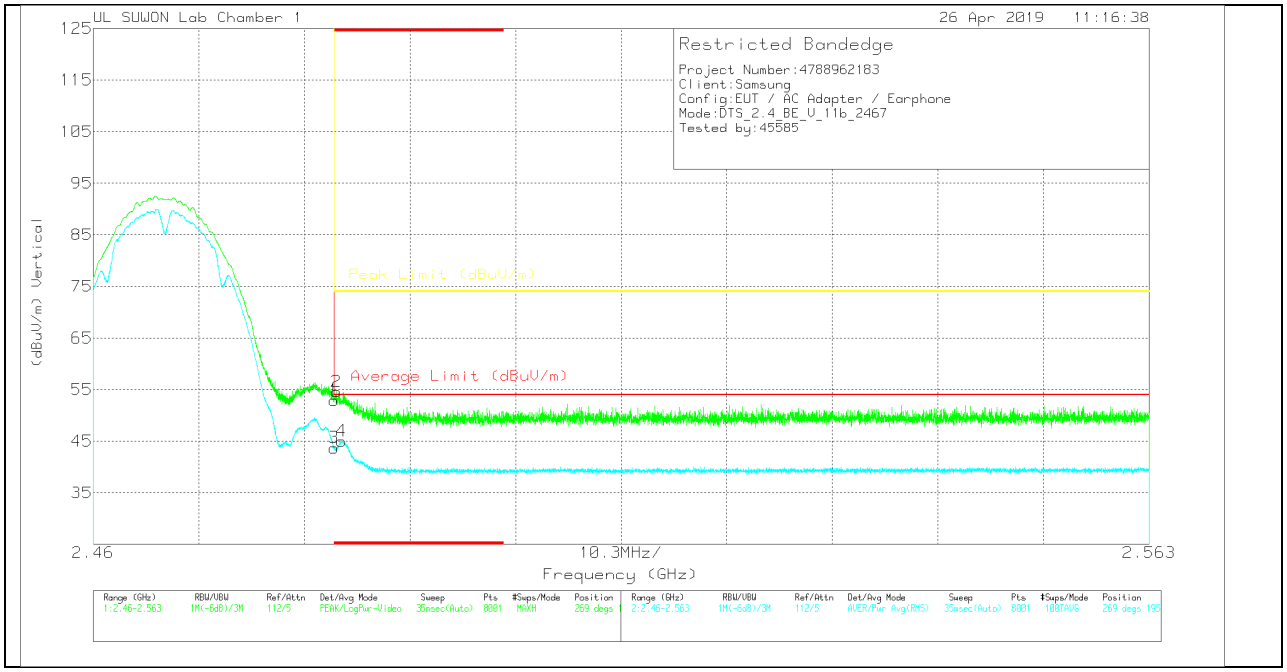
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	51.4	Pk	31.9	-25.3	0	58	-	-	74	-16	1	277	H
2	* 2.484	52.18	Pk	31.9	-25.3	0	58.78	-	-	74	-15.22	1	277	H
3	* 2.484	42.72	RMS	31.9	-25.3	0	49.32	54	-4.68	-	-	1	277	H
4	* 2.484	44.91	RMS	31.9	-25.3	0	51.51	54	-2.49	-	-	1	277	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	46.34	Pk	31.9	-25.3	0	52.94	-	-	74	-21.06	269	195	V
2	* 2.484	48.03	Pk	31.9	-25.3	0	54.63	-	-	74	-19.37	269	195	V
3	* 2.484	37.13	RMS	31.9	-25.3	0	43.73	54	-10.27	-	-	269	195	V
4	* 2.484	38.43	RMS	31.9	-25.3	0	45.03	54	-8.97	-	-	269	195	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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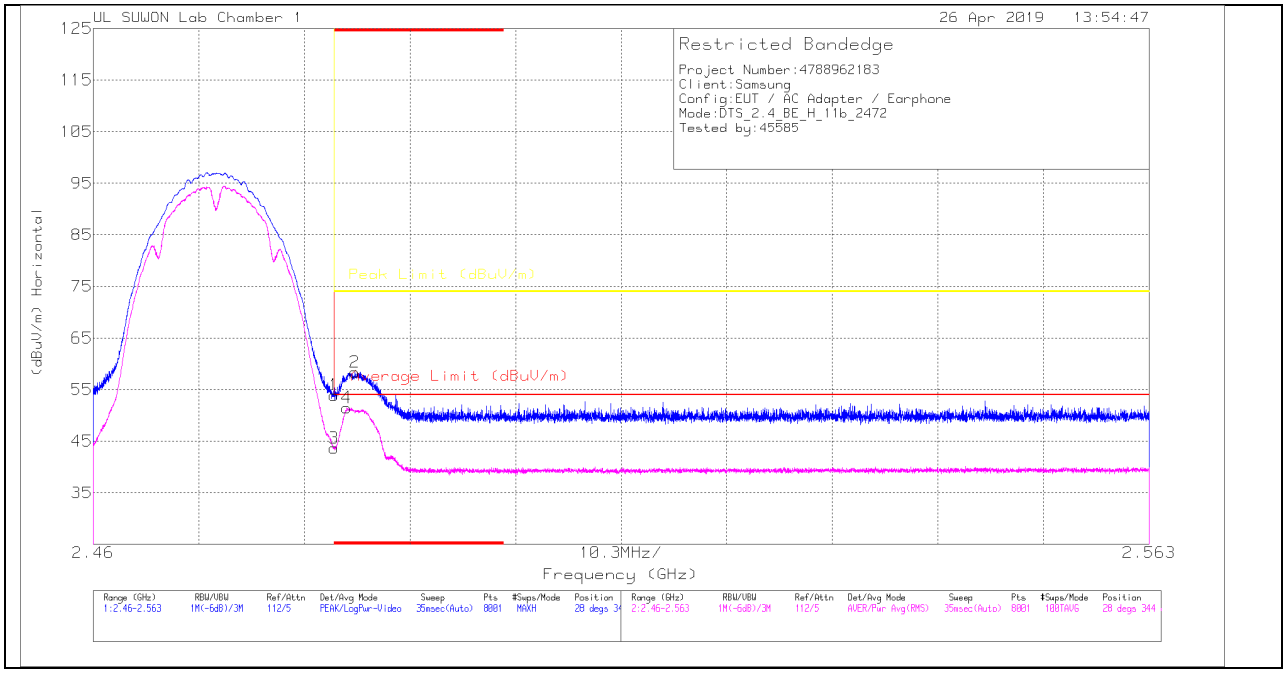
AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



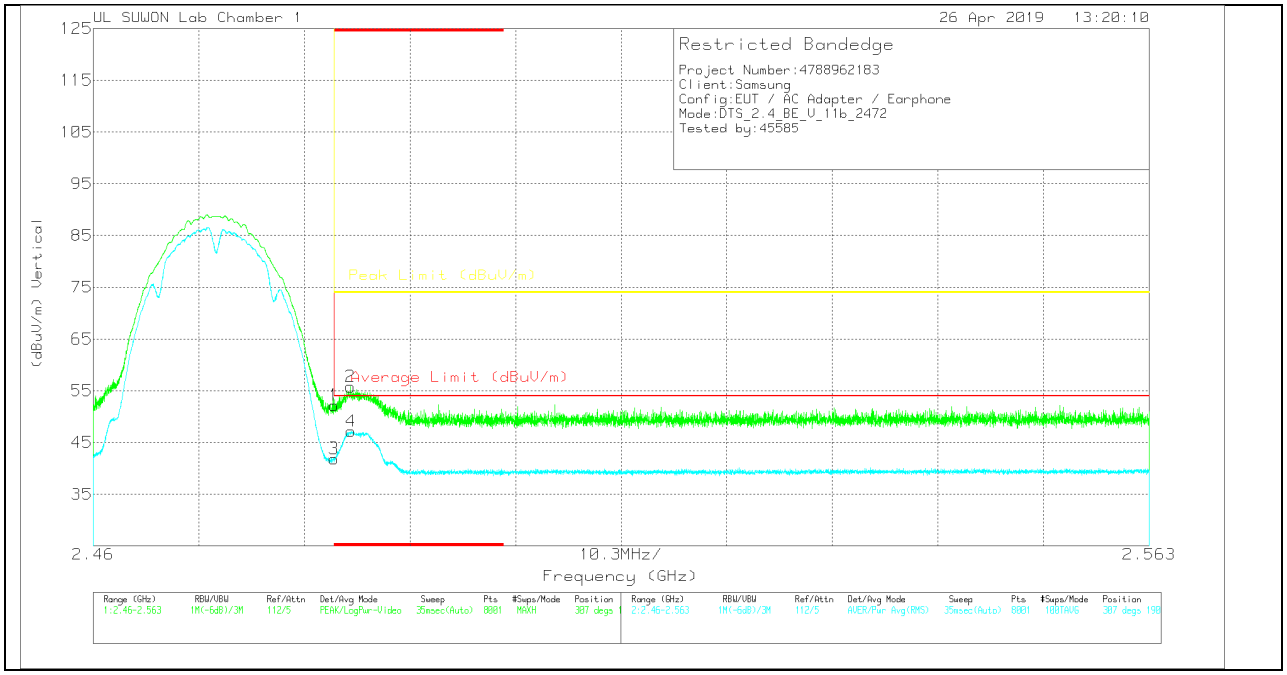
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	47.35	Pk	31.9	-25.3	0	53.95	-	-	74	-20.05	28	344	H
2	* 2.486	51.77	Pk	31.9	-25.3	0	58.37	-	-	74	-15.63	28	344	H
3	* 2.484	37.04	RMS	31.9	-25.3	0	43.64	54	-10.36	-	-	28	344	H
4	* 2.485	44.88	RMS	31.9	-25.3	0	51.48	54	-2.52	-	-	28	344	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	45.6	Pk	31.9	-25.3	0	52.2	-	-	74	-21.8	307	190	V
2	* 2.485	49.2	Pk	31.9	-25.3	0	55.8	-	-	74	-18.2	307	190	V
3	* 2.484	35.26	RMS	31.9	-25.3	0	41.86	54	-12.14	-	-	307	190	V
4	* 2.485	40.57	RMS	31.9	-25.3	0	47.17	54	-6.83	-	-	307	190	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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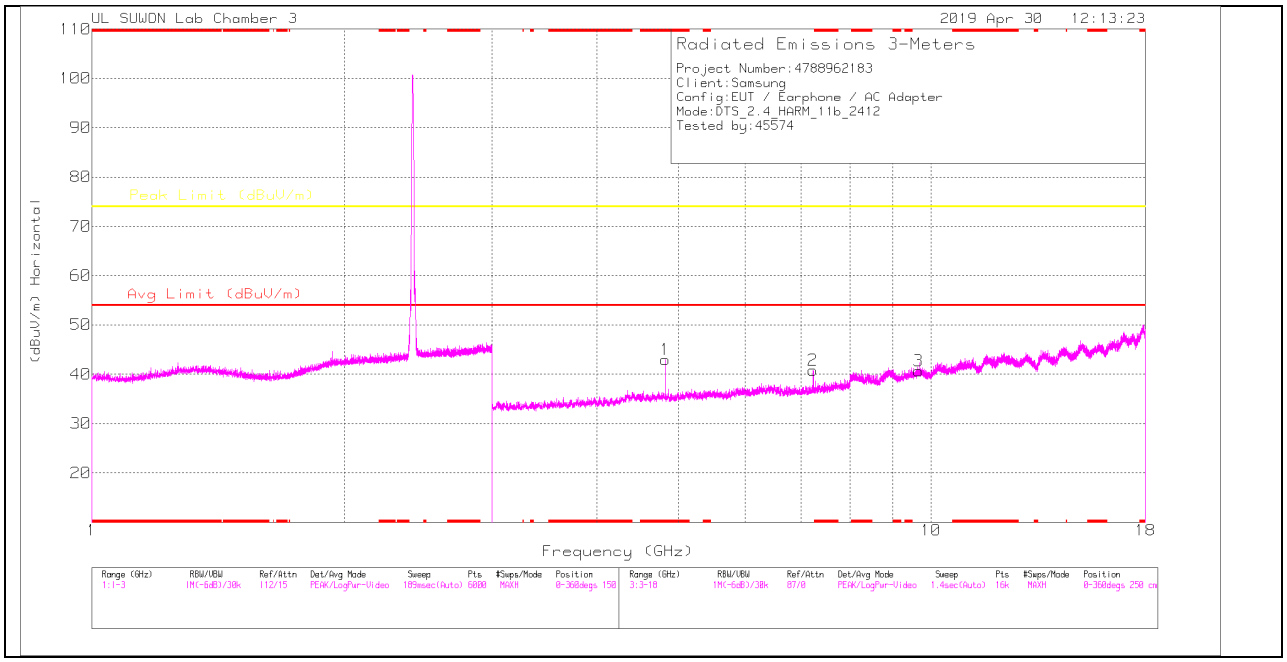
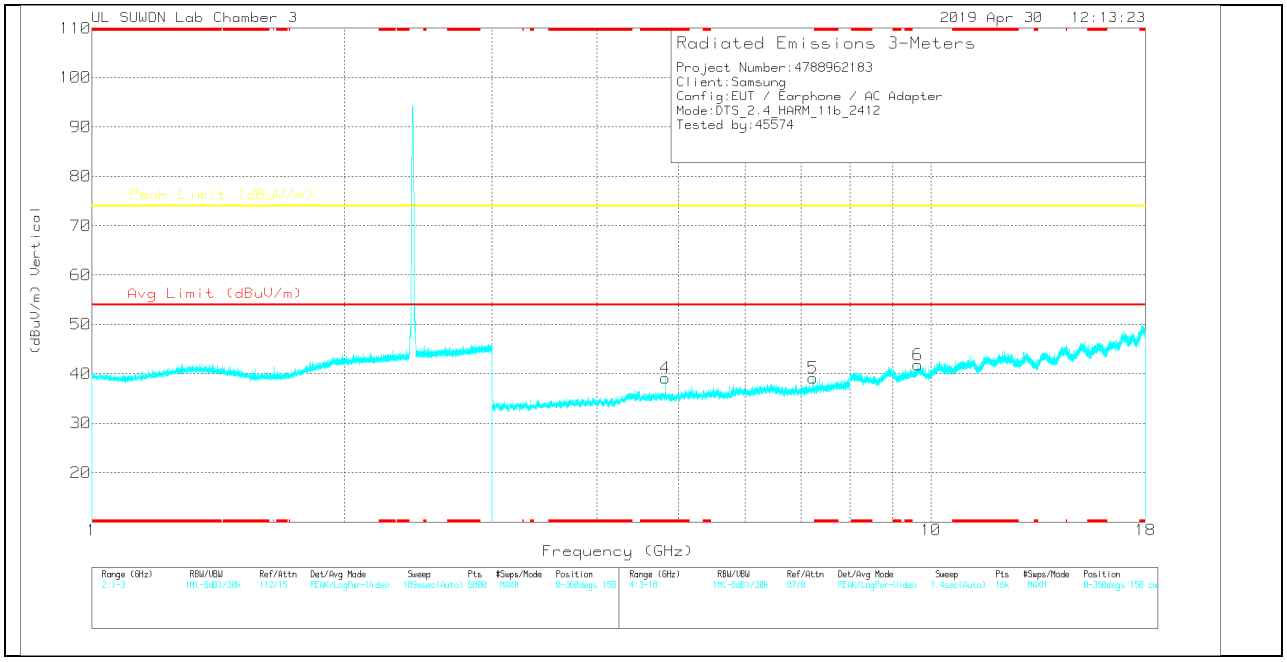
HARMONICS AND SPURIOUS EMISSIONS

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_00205959	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	37.38	PK	34.2	-28.6	0	42.98	-	-	74	-31.02	0-360	150	H
2	7.235	29.24	PK	35.8	-24.2	0	40.84	-	-	74	-33.16	0-360	150	H
3	9.649	23.3	PK	37.1	-19.7	0	40.7	-	-	74	-33.3	0-360	250	H
4	* 4.824	33.56	PK	34.2	-28.6	0	39.16	-	-	74	-34.84	0-360	150	V
5	7.235	27.6	PK	35.8	-24.2	0	39.2	-	-	74	-34.8	0-360	150	V
6	9.648	24.44	PK	37.1	-19.7	0	41.84	-	-	74	-32.16	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	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	40.26	PK2	34.2	-28.6	0	45.86	-	-	74	-28.14	350	111	H
* 4.824	35.48	MAv1	34.2	-28.7	0	40.98	54	-13.02	-	-	350	111	H
* 4.824	38.84	PK2	34.2	-28.7	0	44.34	-	-	74	-29.66	130	105	V
* 4.824	34.63	MAv1	34.2	-28.7	0	40.13	54	-13.87	-	-	130	105	V
7.237	36.57	PK2	35.8	-24.1	0	48.27	-	-	74	-25.73	55	105	H
7.235	36.11	PK2	35.8	-24.1	0	47.81	-	-	74	-26.19	183	105	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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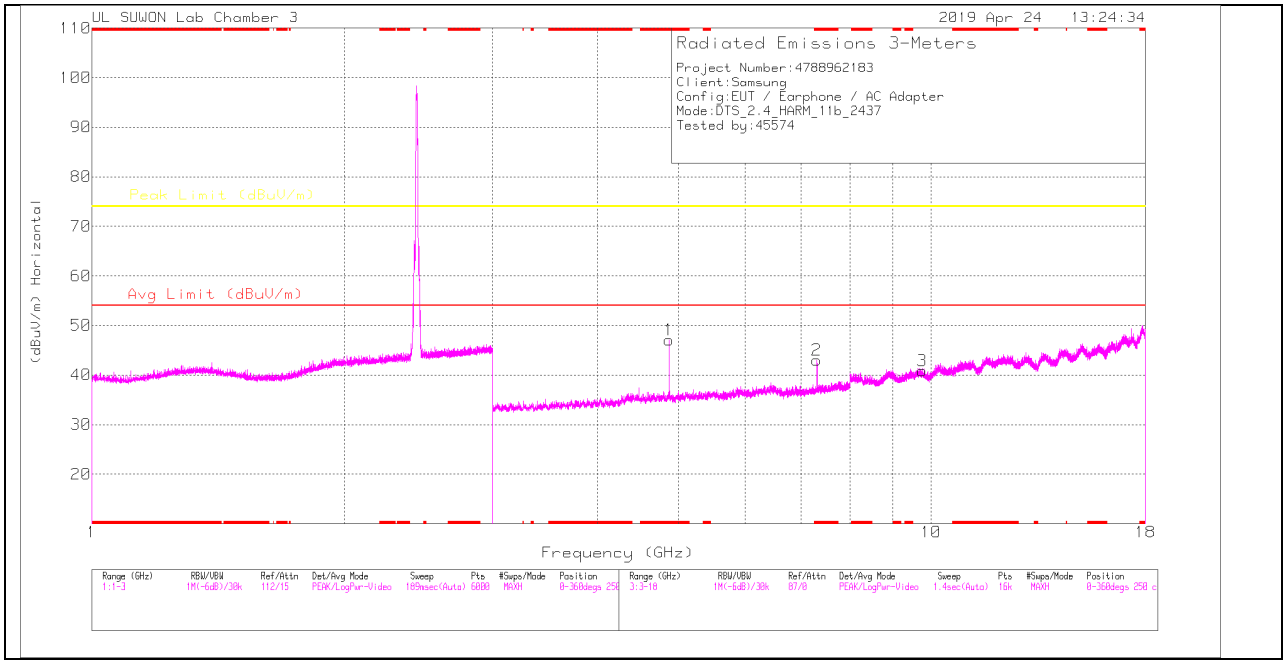
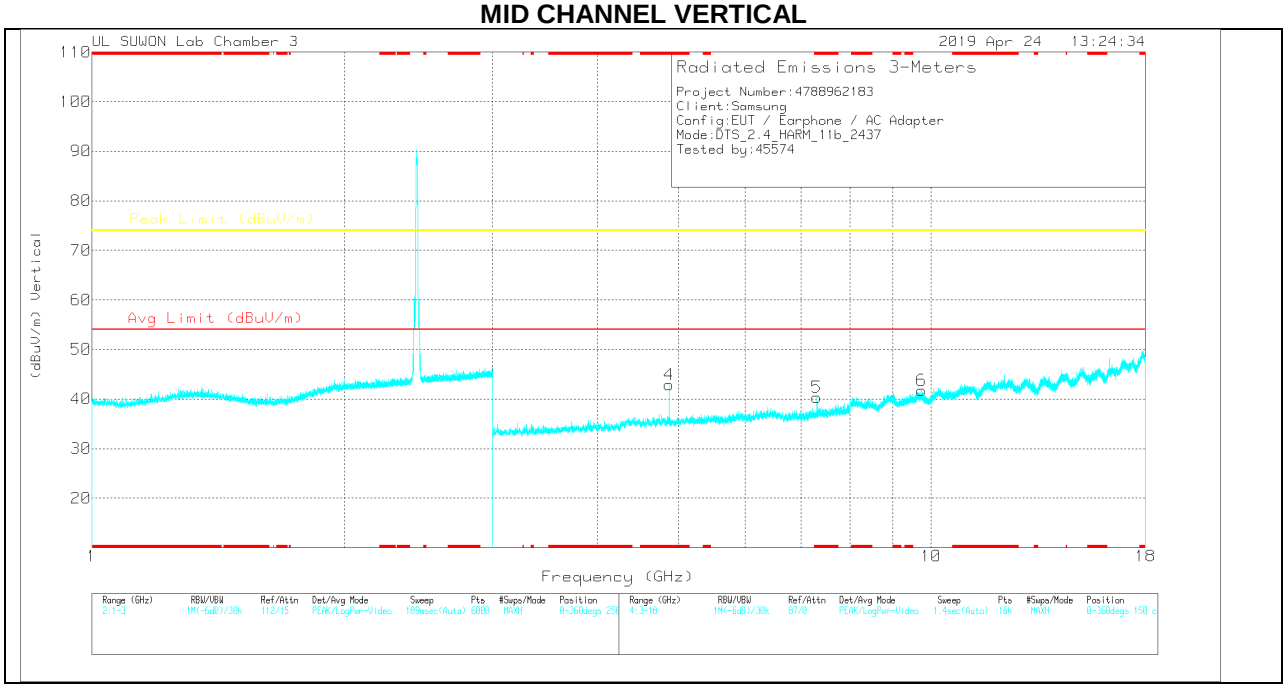
MID CHANNEL HORIZONTAL



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_00205959	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	* 4.873	41.94	PK	34.2	-29.1	0	47.04	-	-	74	-26.96	0-360	150	H
2	* 7.31	31.05	PK	35.8	-23.8	0	43.05	-	-	74	-30.95	0-360	150	H
3	9.75	23.29	PK	37.2	-19.6	0	40.89	-	-	74	-33.11	0-360	250	H
4	* 4.874	37.74	PK	34.2	-29	0	42.94	-	-	74	-31.06	0-360	150	V
5	* 7.31	28.32	PK	35.8	-23.8	0	40.32	-	-	74	-33.68	0-360	150	V
6	9.748	24.14	PK	37.2	-19.6	0	41.74	-	-	74	-32.26	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	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	46.57	PK2	34.2	-29	0	51.77	-	-	74	-22.23	350	111	H
* 4.874	42.07	MAv1	34.2	-29	0	47.27	54	-6.73	-	-	350	111	H
* 4.874	45.4	PK2	34.2	-29	0	50.6	-	-	74	-23.4	130	105	V
* 4.874	39.06	MAv1	34.2	-29	0	44.26	54	-9.74	-	-	130	105	V
* 7.311	39.29	PK2	35.8	-23.9	0	51.19	-	-	74	-22.81	55	104	H
* 7.31	31.86	MAv1	35.8	-23.9	0	43.76	54	-10.24	-	-	55	104	H
* 7.312	38.73	PK2	35.8	-23.8	0	50.73	-	-	74	-23.27	183	105	V
* 7.31	30.89	MAv1	35.8	-23.8	0	42.89	54	-11.11	-	-	183	105	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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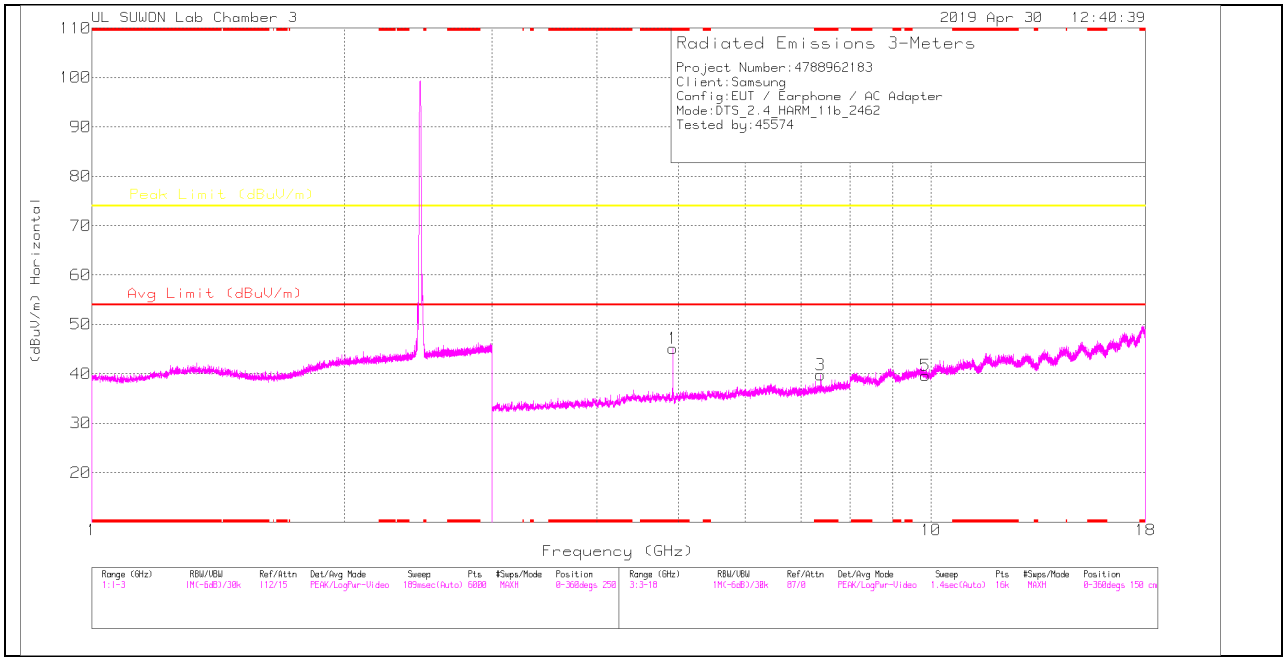
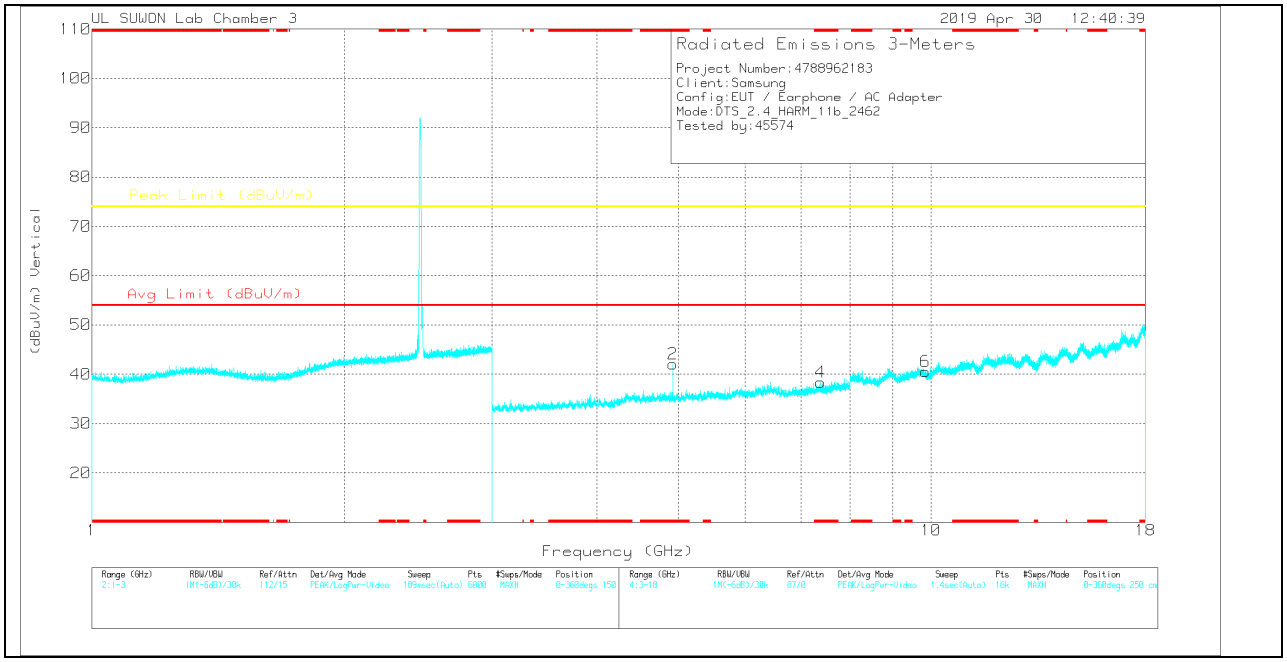
HIGH CHANNEL HORIZONTAL



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_00205959	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	40.12	PK	34.2	-29.2	0	45.12	-	-	74	-28.88	0-360	150	H
3	* 7.385	27.32	PK	35.8	-23.3	0	39.82	-	-	74	-34.18	0-360	150	H
5	9.849	22.01	PK	37.4	-19.7	0	39.71	-	-	74	-34.29	0-360	250	H
2	* 4.924	37.13	PK	34.2	-29.2	0	42.13	-	-	74	-31.87	0-360	150	V
4	* 7.384	25.85	PK	35.8	-23.2	0	38.45	-	-	74	-35.55	0-360	250	V
6	9.848	22.9	PK	37.4	-19.7	0	40.6	-	-	74	-33.4	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	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	42.46	PK2	34.2	-29.2	0	47.46	-	-	74	-26.54	350	111	H
* 4.924	39.87	MAv1	34.2	-29.2	0	44.87	54	-9.13	-	-	350	111	H
* 4.924	42.09	PK2	34.2	-29.2	0	47.09	-	-	74	-26.91	130	105	V
* 4.924	37.25	MAv1	34.2	-29.2	0	42.25	54	-11.75	-	-	130	105	V
* 7.387	34.81	PK2	35.8	-23.3	0	47.31	-	-	74	-26.69	55	105	H
* 7.387	28.62	MAv1	35.8	-23.3	0	41.12	54	-12.88	-	-	55	105	H
* 7.385	34.96	PK2	35.8	-23.2	0	47.56	-	-	74	-26.44	183	105	V
* 7.387	28.3	MAv1	35.8	-23.3	0	40.8	54	-13.2	-	-	183	105	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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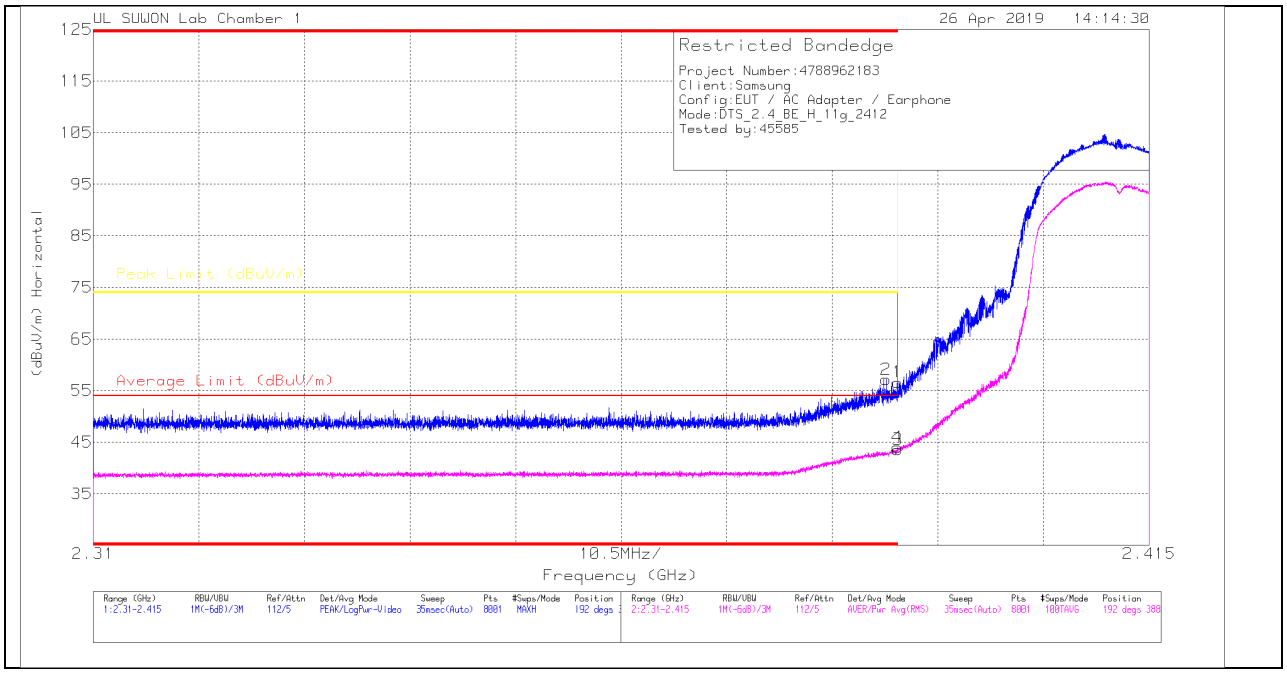
11.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



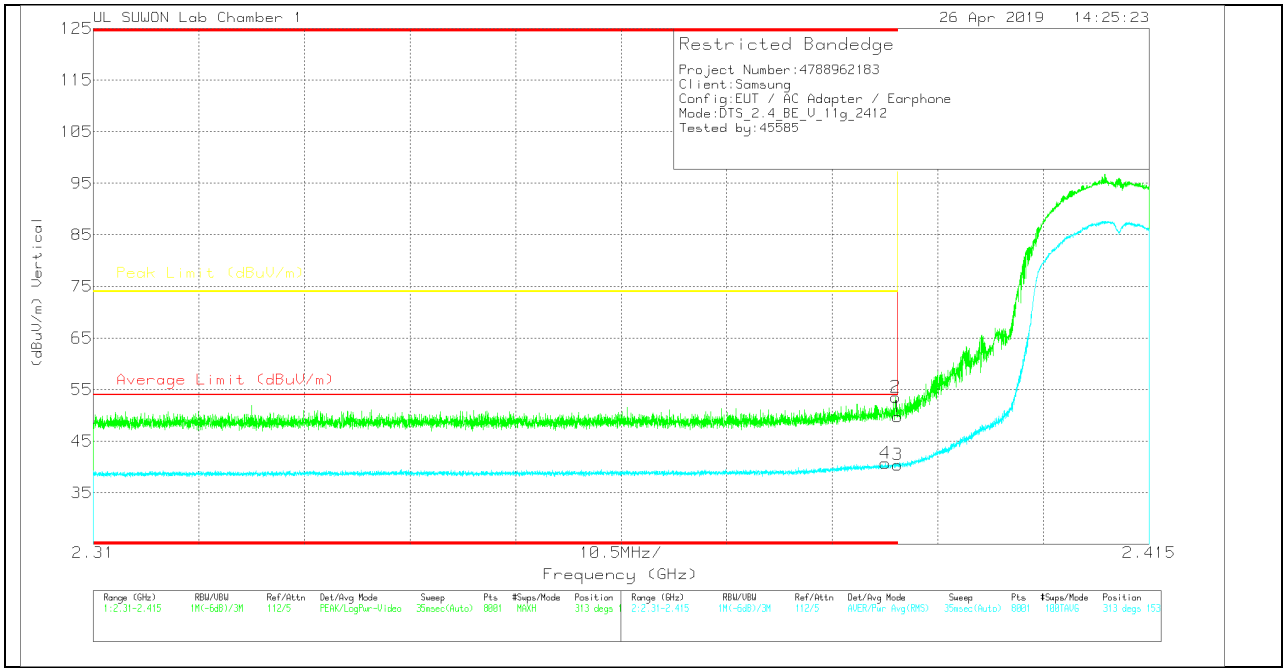
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	50.43	Pk	31.7	-25.5	0	56.63	-	-	74	-17.37	192	388	H
2	* 2.389	50.95	Pk	31.7	-25.5	0	57.15	-	-	74	-16.85	192	388	H
3	* 2.39	37.19	RMS	31.7	-25.5	.18	43.57	54	-10.43	-	-	192	388	H
4	* 2.39	37.64	RMS	31.7	-25.5	.18	44.02	54	-9.98	-	-	192	388	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

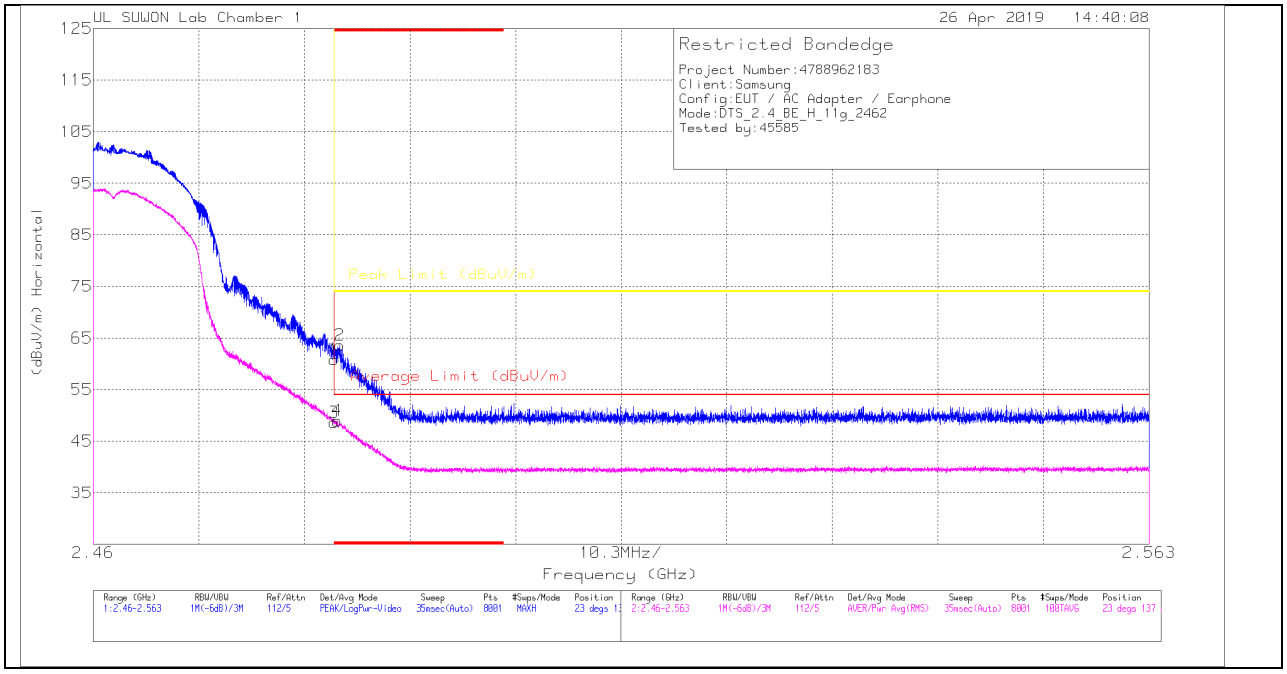
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	43.54	Pk	31.7	-25.5	0	49.74	-	-	74	-24.26	313	153	V
2	* 2.39	47.37	Pk	31.7	-25.5	0	53.57	-	-	74	-20.43	313	153	V
3	* 2.39	34.06	RMS	31.7	-25.5	.18	40.44	54	-13.56	-	-	313	153	V
4	* 2.389	34.38	RMS	31.7	-25.5	.18	40.76	54	-13.24	-	-	313	153	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



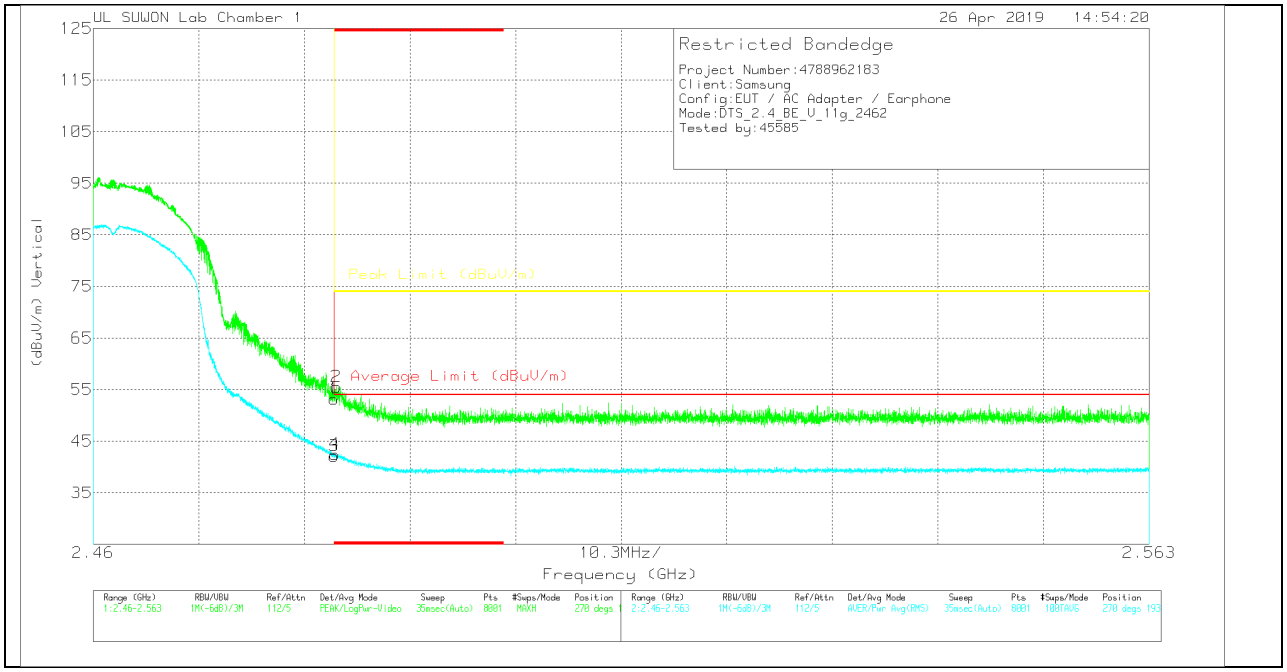
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	54.25	Pk	31.9	-25.3	0	60.85	-	-	74	-13.15	23	137	H
2	* 2.484	57	Pk	31.9	-25.3	0	63.6	-	-	74	-10.4	23	137	H
3	* 2.484	41.88	RMS	31.9	-25.3	.18	48.66	54	-5.34	-	-	23	137	H
4	* 2.484	42.19	RMS	31.9	-25.3	.18	48.97	54	-5.03	-	-	23	137	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	46.59	Pk	31.9	-25.3	0	53.19	-	-	74	-20.81	270	193	V
2	* 2.484	48.96	Pk	31.9	-25.3	0	55.56	-	-	74	-18.44	270	193	V
3	* 2.484	35.55	RMS	31.9	-25.3	0	42.15	54	-11.85	-	-	270	193	V
4	* 2.484	35.89	RMS	31.9	-25.3	0	42.49	54	-11.51	-	-	270	193	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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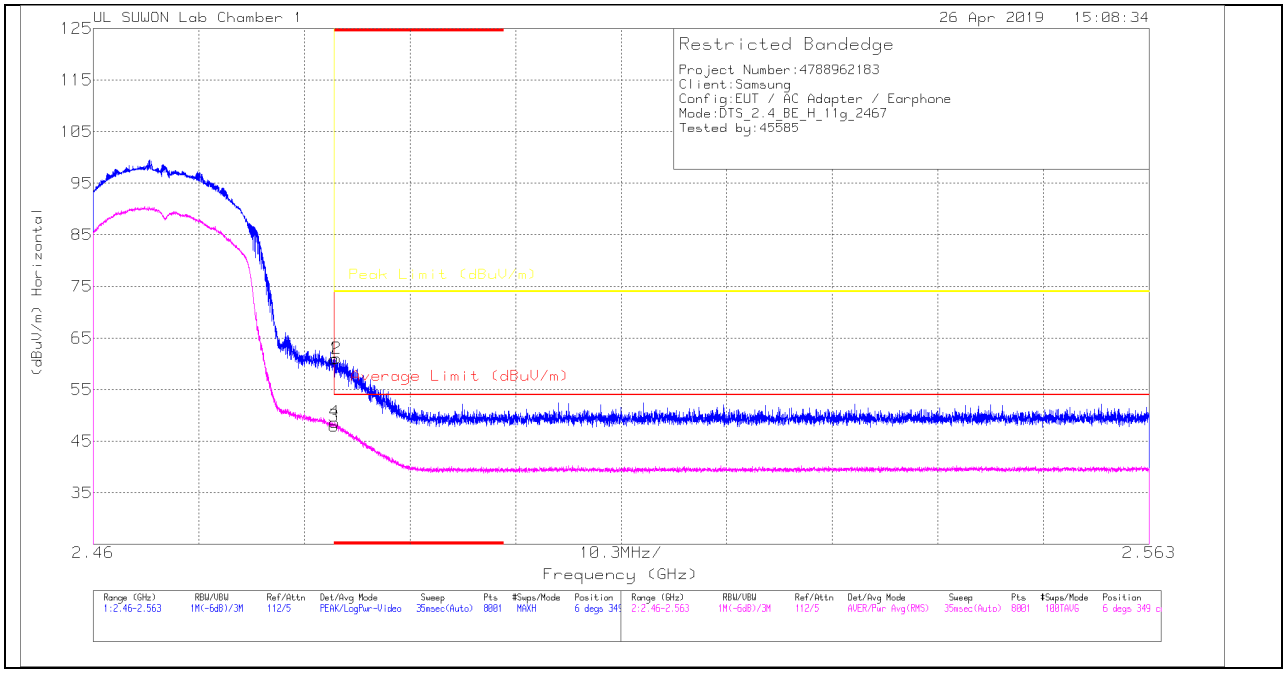
AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	54.37	Pk	31.9	-25.3	0	60.97	-	-	74	-13.03	6	349	H
2	* 2.484	54.44	Pk	31.9	-25.3	0	61.04	-	-	74	-12.96	6	349	H
3	* 2.484	41.18	RMS	31.9	-25.3	.18	47.96	54	-6.04	-	-	6	349	H
4	* 2.484	41.94	RMS	31.9	-25.3	.18	48.72	54	-5.28	-	-	6	349	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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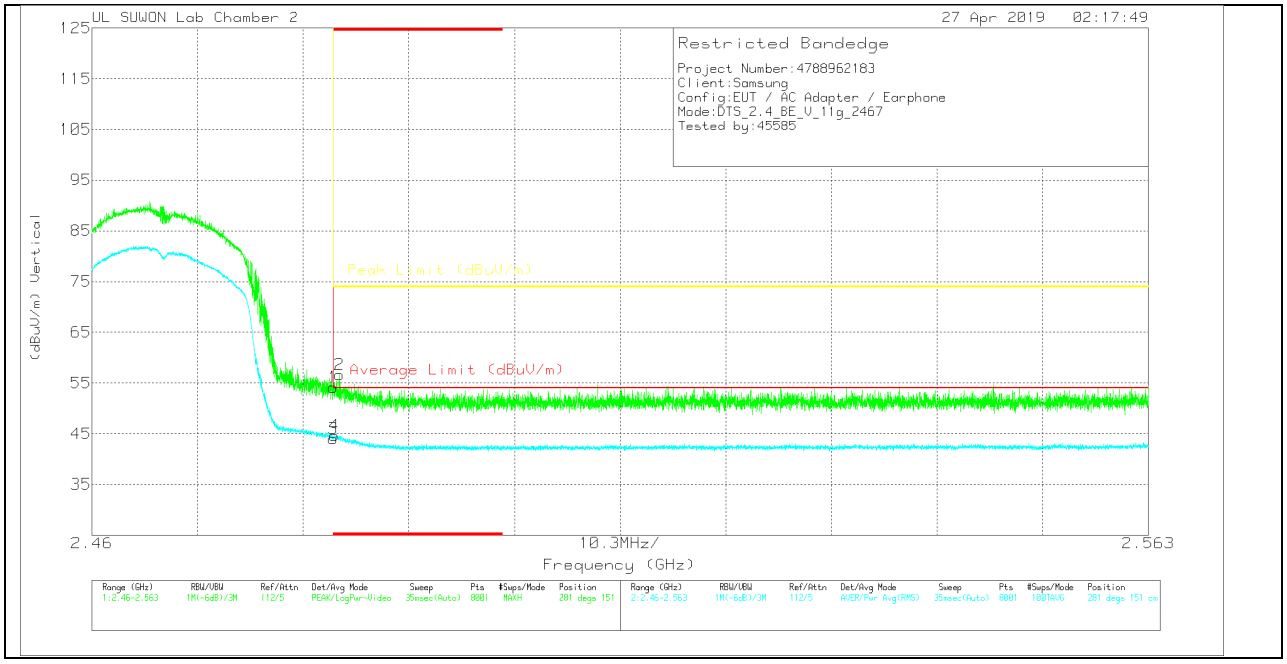
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

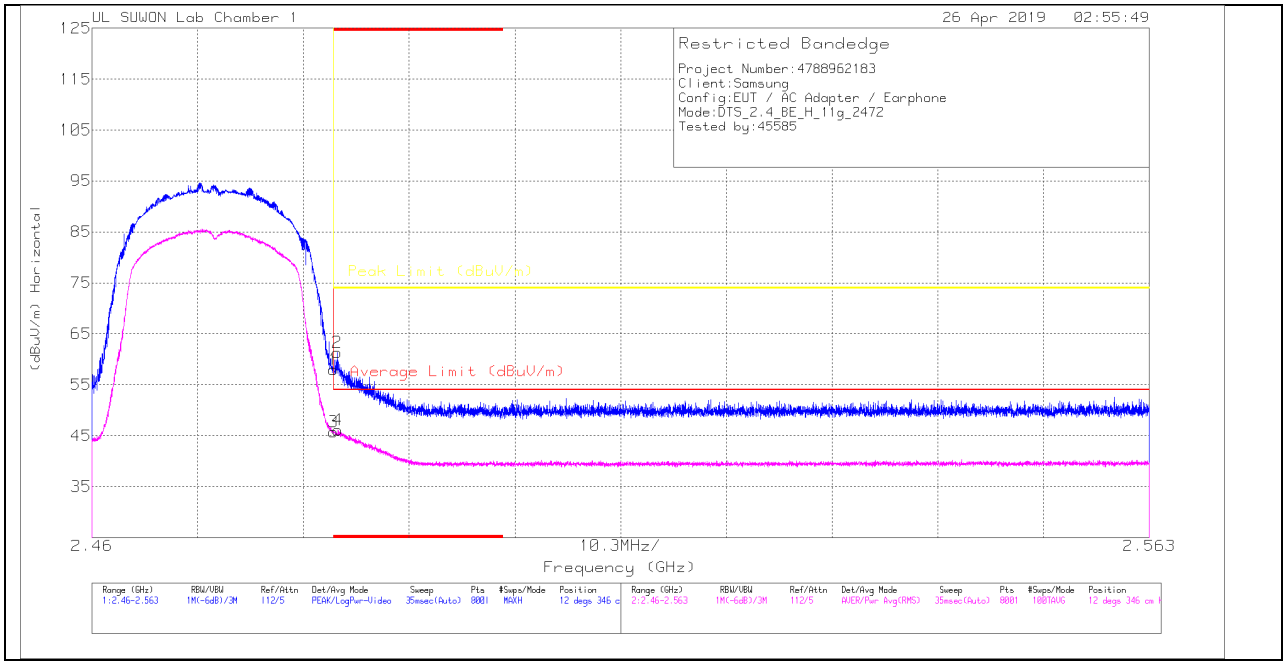
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	42.88	Pk	31.9	-20.6	0	54.18	-	-	74	-19.82	281	151	V
2	* 2.484	45.29	Pk	31.9	-20.6	0	56.59	-	-	74	-17.41	281	151	V
3	* 2.484	32.54	RMS	31.9	-20.6	.18	44.02	54	-9.98	-	-	281	151	V
4	* 2.484	33.2	RMS	31.9	-20.6	.18	44.68	54	-9.32	-	-	281	151	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	51.43	Pk	31.9	-25.3	0	58.03	-	-	74	-15.97	12	346	H
2	* 2.484	54.78	Pk	31.9	-25.3	0	61.38	-	-	74	-12.62	12	346	H
3	* 2.484	38.94	RMS	31.9	-25.3	.18	45.72	54	-8.28	-	-	12	346	H
4	* 2.484	39.33	RMS	31.9	-25.3	.18	46.11	54	-7.89	-	-	12	346	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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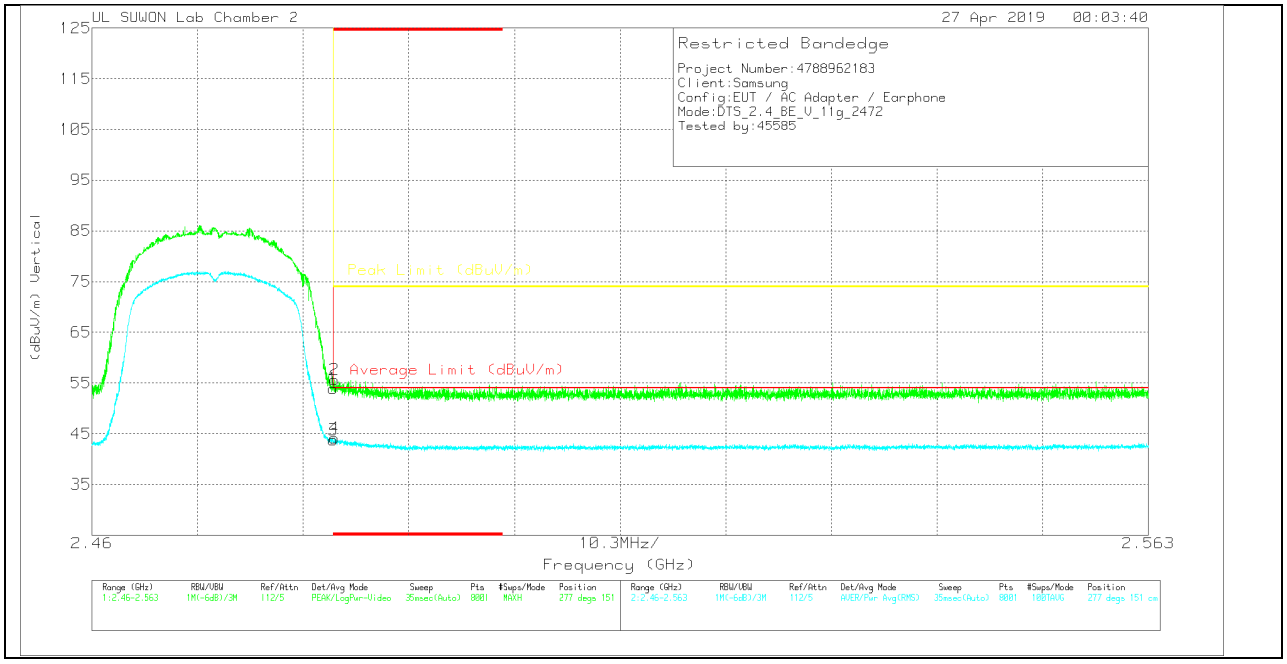
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

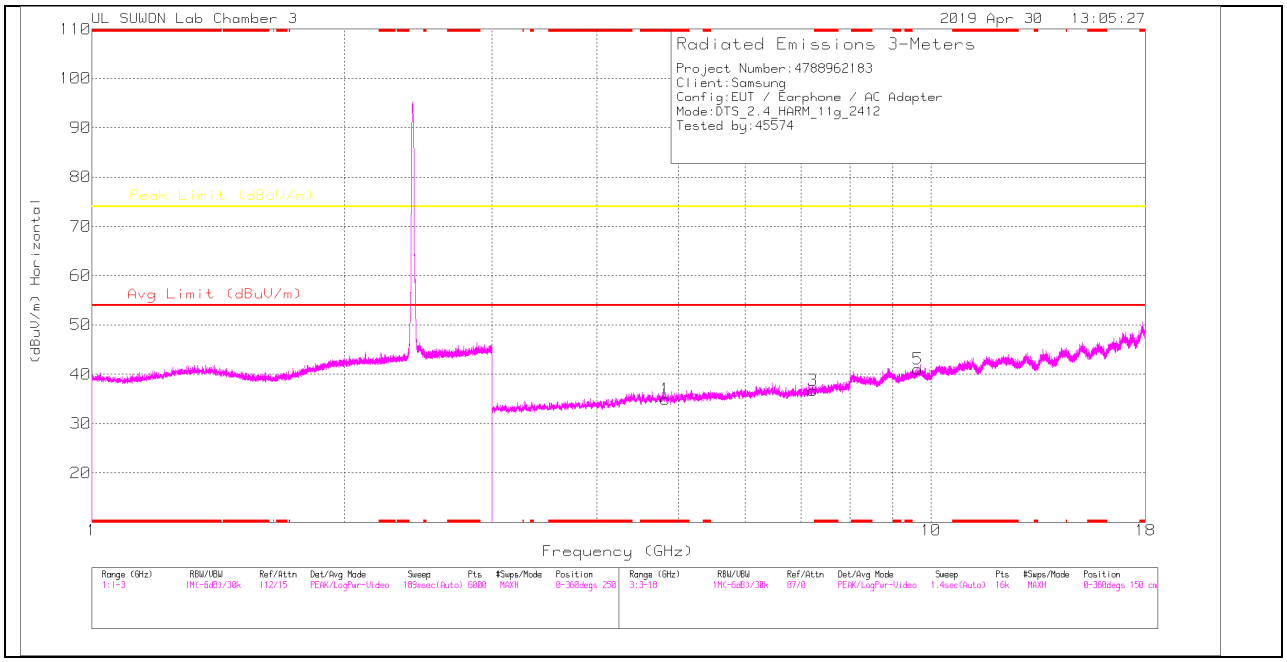
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	42.56	Pk	31.9	-20.6	0	53.86	-	-	74	-20.14	277	151	V
2	* 2.484	44.36	Pk	31.9	-20.6	0	55.66	-	-	74	-18.34	277	151	V
3	* 2.484	32.28	RMS	31.9	-20.6	.18	43.76	54	-10.24	-	-	277	151	V
4	* 2.484	32.64	RMS	31.9	-20.6	.18	44.12	54	-9.88	-	-	277	151	V

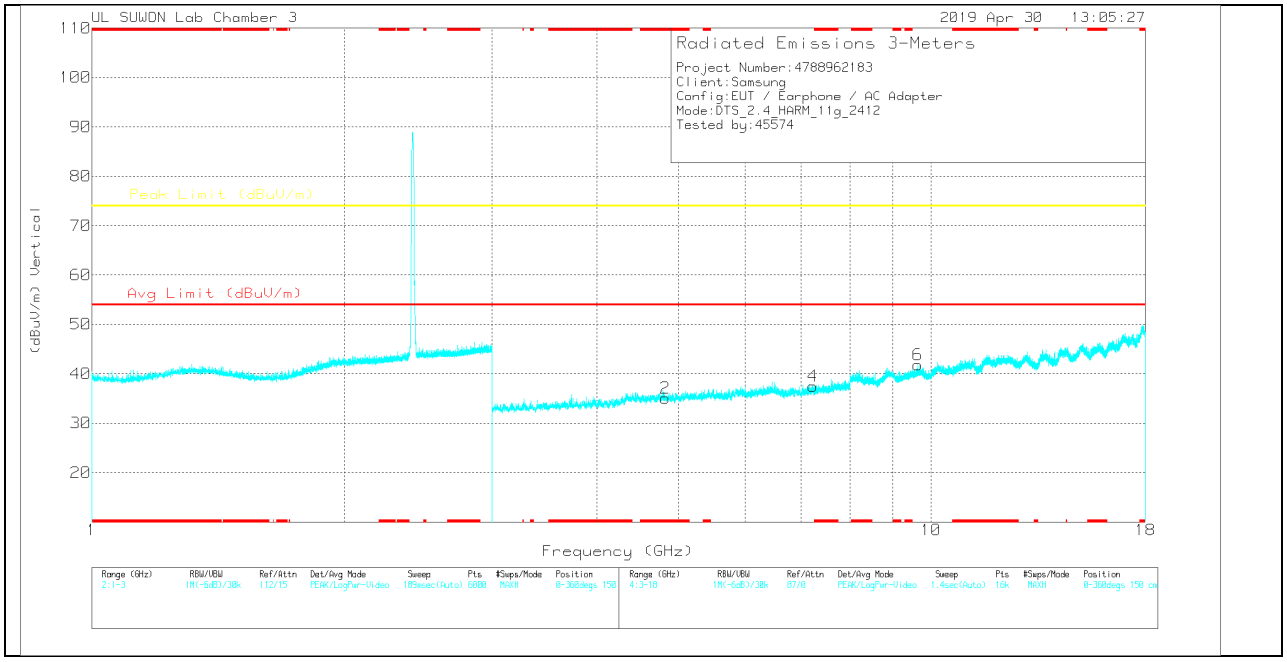
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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_00205959	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	29.45	PK	34.2	-28.7	0	34.95	-	-	74	-39.05	0-360	150	H
3	7.236	24.98	PK	35.8	-24.1	0	36.68	-	-	74	-37.32	0-360	250	H
5	9.648	23.65	PK	37.1	-19.7	0	41.05	-	-	74	-32.95	0-360	150	H
2	* 4.824	29.53	PK	34.2	-28.7	0	35.03	-	-	74	-38.97	0-360	250	V
4	7.236	25.83	PK	35.8	-24.1	0	37.53	-	-	74	-36.47	0-360	250	V
6	9.648	24.45	PK	37.1	-19.7	0	41.85	-	-	74	-32.15	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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).

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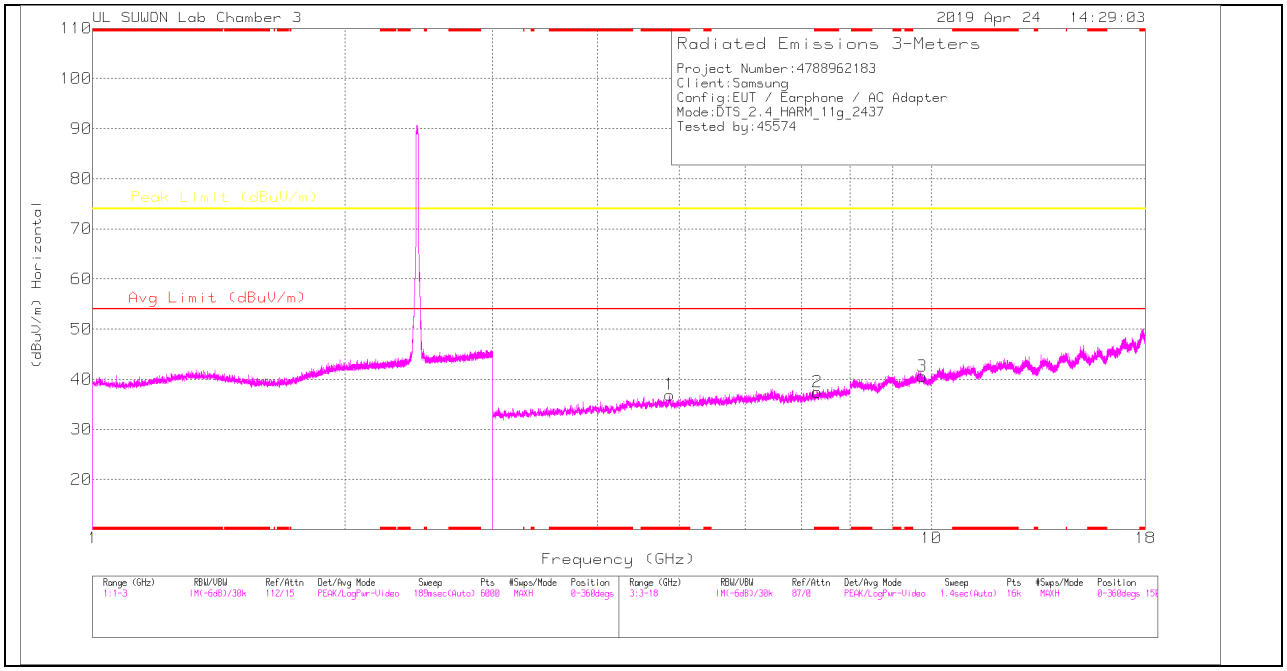
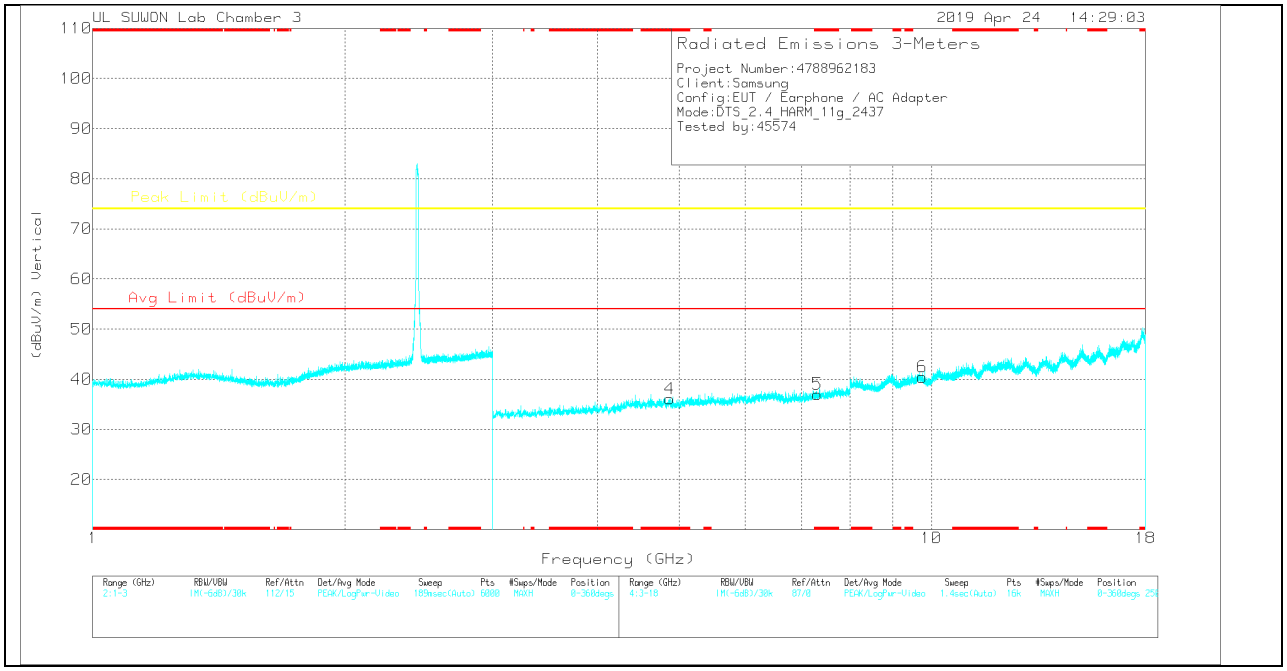
MID CHANNEL HORIZONTAL



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.

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MID CHANNEL DATA

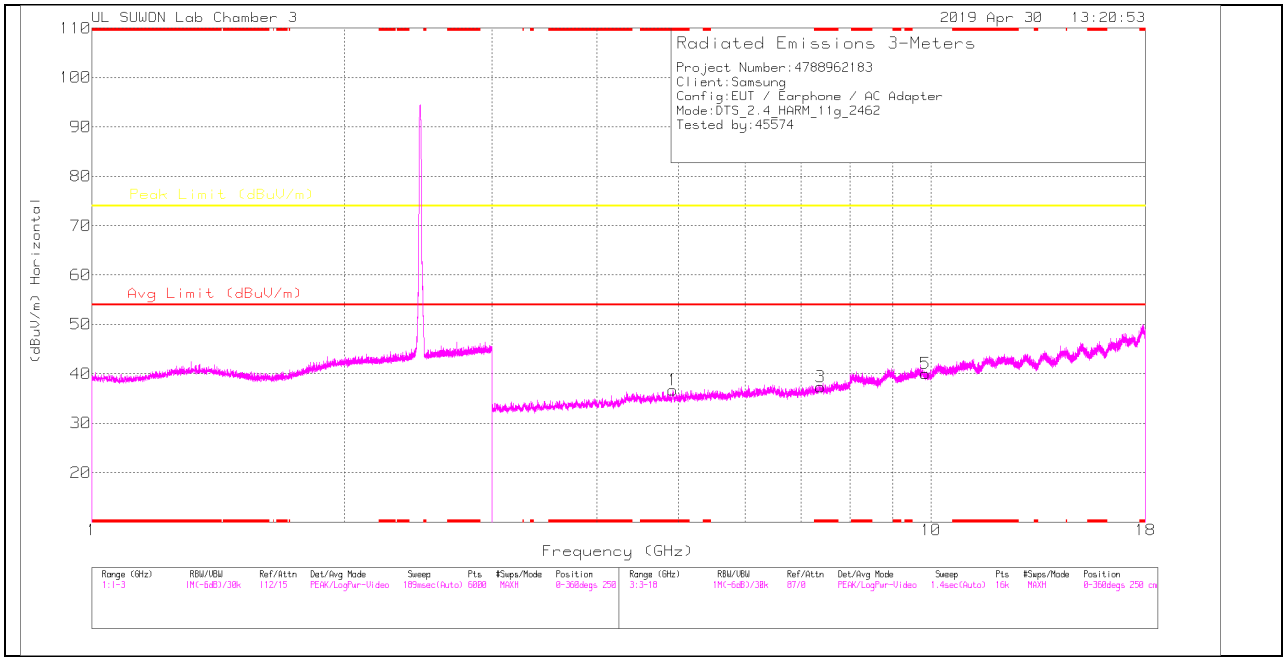
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	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	31.71	PK	34.2	-29	0	36.91	-	-	74	-37.09	0-360	150	H
2	* 7.312	25.43	PK	35.8	-23.8	0	37.43	-	-	74	-36.57	0-360	150	H
3	9.756	22.96	PK	37.2	-19.6	0	40.56	-	-	74	-33.44	0-360	250	H
4	* 4.875	30.98	PK	34.2	-29.1	0	36.08	-	-	74	-37.92	0-360	250	V
5	* 7.316	24.91	PK	35.8	-23.7	0	37.01	-	-	74	-36.99	0-360	250	V
6	9.755	22.73	PK	37.2	-19.5	0	40.43	-	-	74	-33.57	0-360	250	V

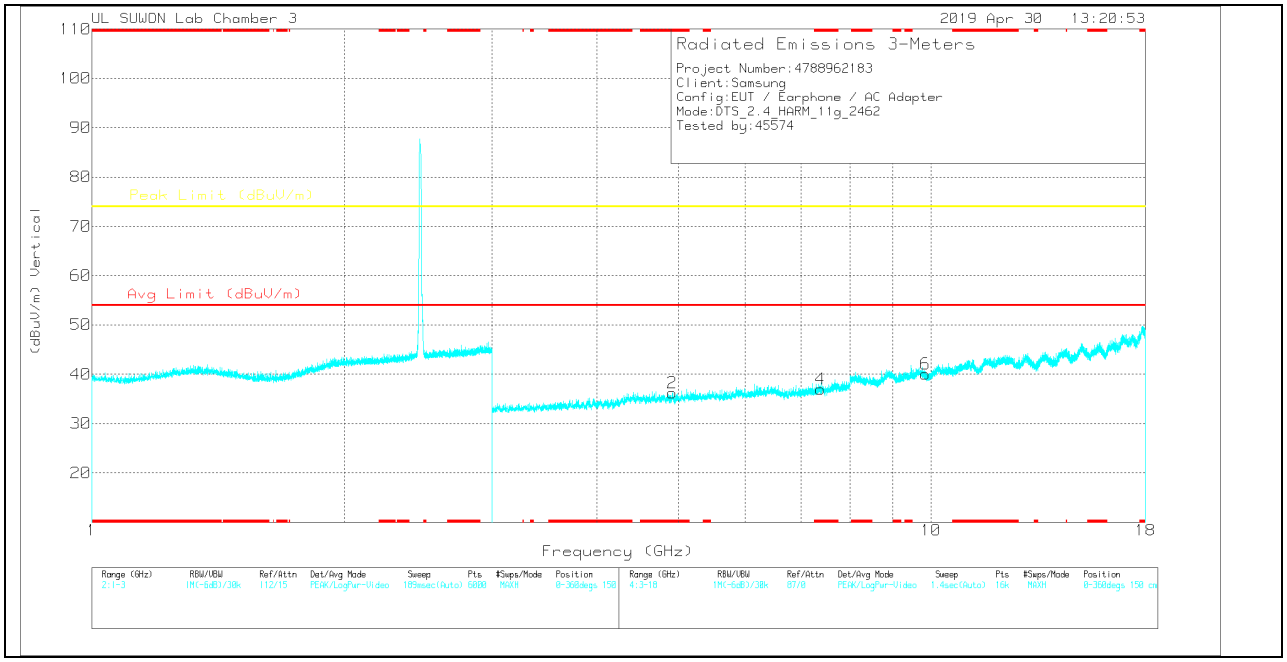
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK – Peak detector

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.

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	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	31.79	PK	34.2	-29.2	0	36.79	-	-	74	-37.21	0-360	150	H
3	* 7.386	24.92	PK	35.8	-23.3	0	37.42	-	-	74	-36.58	0-360	150	H
5	9.847	22.34	PK	37.4	-19.7	0	40.04	-	-	74	-33.96	0-360	250	H
2	* 4.919	31.25	PK	34.2	-29.2	0	36.25	-	-	74	-37.75	0-360	150	V
4	* 7.387	24.48	PK	35.8	-23.3	0	36.98	-	-	74	-37.02	0-360	250	V
6	9.848	22.31	PK	37.4	-19.7	0	40.01	-	-	74	-33.99	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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).

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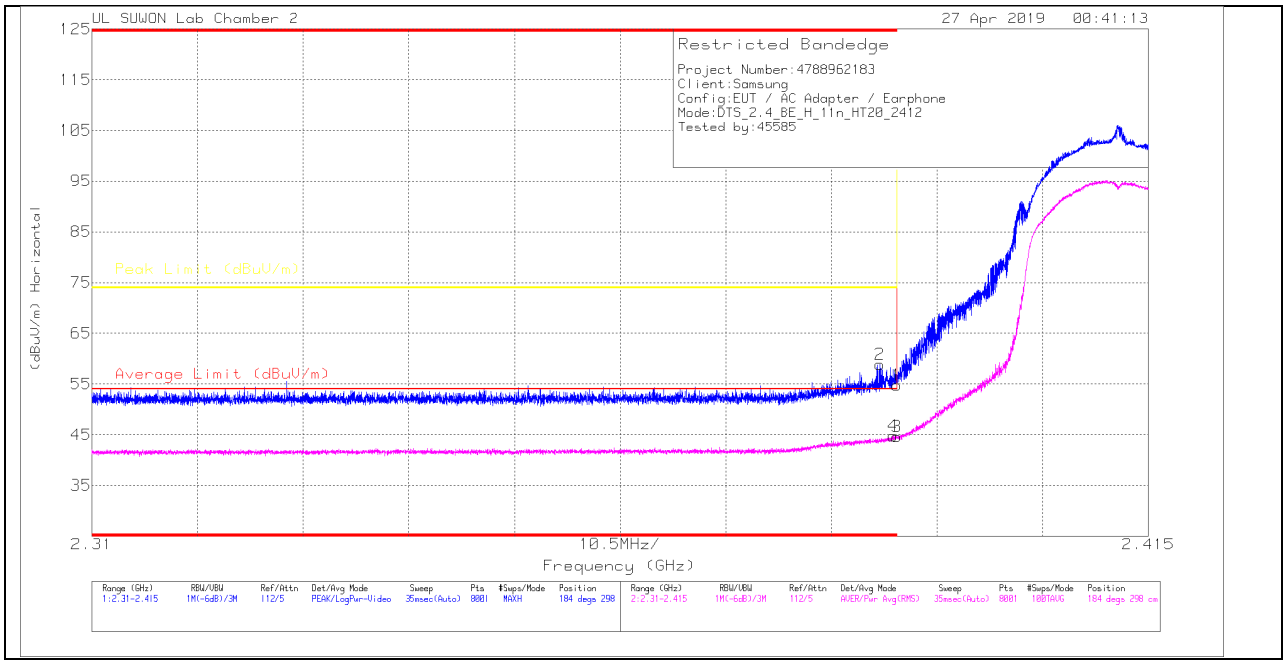
11.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



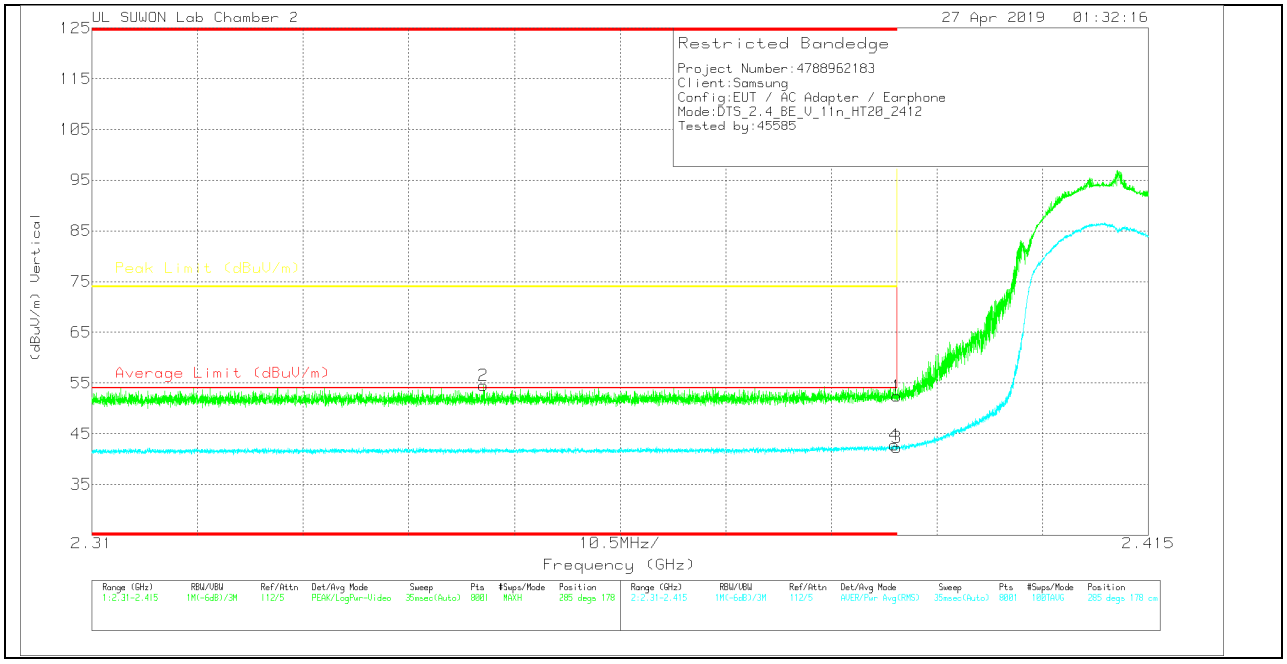
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	43.98	Pk	31.6	-20.8	0	54.78	-	-	74	-19.22	184	298	H
2	* 2.388	48.02	Pk	31.6	-20.8	0	58.82	-	-	74	-15.18	184	298	H
3	* 2.39	33.67	RMS	31.6	-20.8	.19	44.66	54	-9.34	-	-	184	298	H
4	* 2.39	33.78	RMS	31.6	-20.8	.19	44.77	54	-9.23	-	-	184	298	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

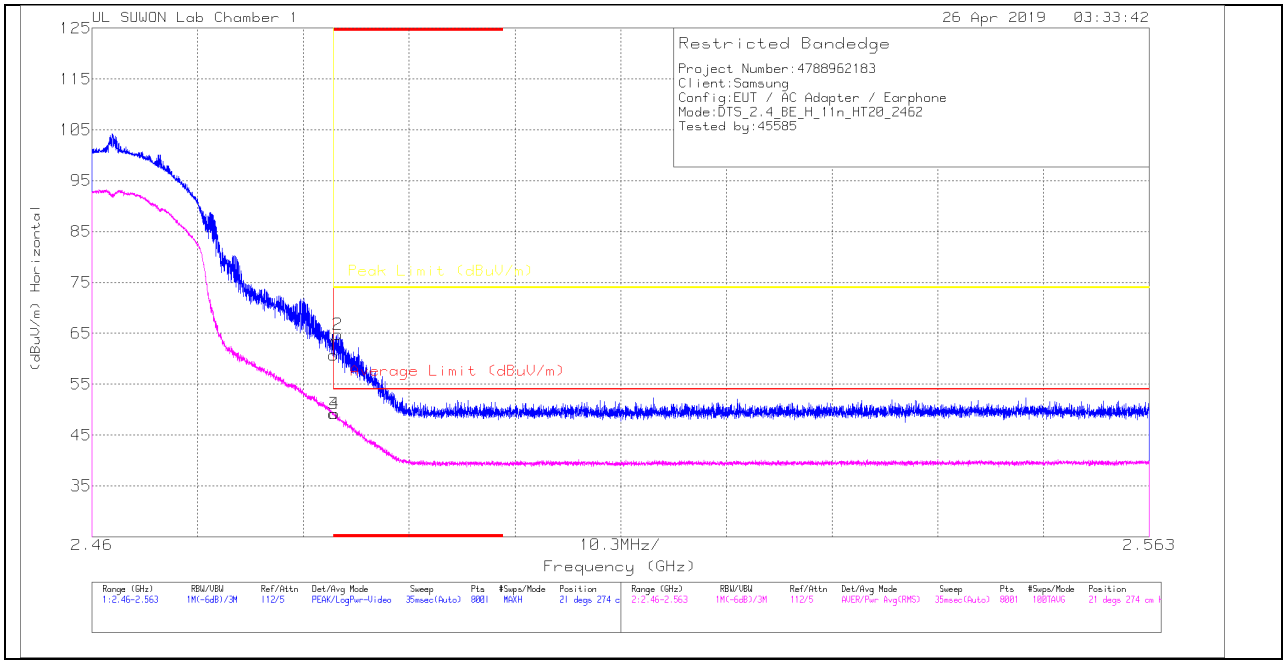
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	41.64	Pk	31.6	-20.8	0	52.44	-	-	74	-21.56	285	178	V
2	* 2.349	43.69	Pk	31.6	-20.8	0	54.49	-	-	74	-19.51	285	178	V
3	* 2.39	31.26	RMS	31.6	-20.8	.19	42.25	54	-11.75	-	-	285	178	V
4	* 2.39	31.74	RMS	31.6	-20.8	.19	42.73	54	-11.27	-	-	285	178	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168717	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	54.09	Pk	31.9	-25.3	0	60.69	-	-	74	-13.31	21	274	H
2	* 2.484	58.16	Pk	31.9	-25.3	0	64.76	-	-	74	-9.24	21	274	H
3	* 2.484	42.38	RMS	31.9	-25.3	.19	49.17	54	-4.83	-	-	21	274	H
4	* 2.484	42.48	RMS	31.9	-25.3	.19	49.27	54	-4.73	-	-	21	274	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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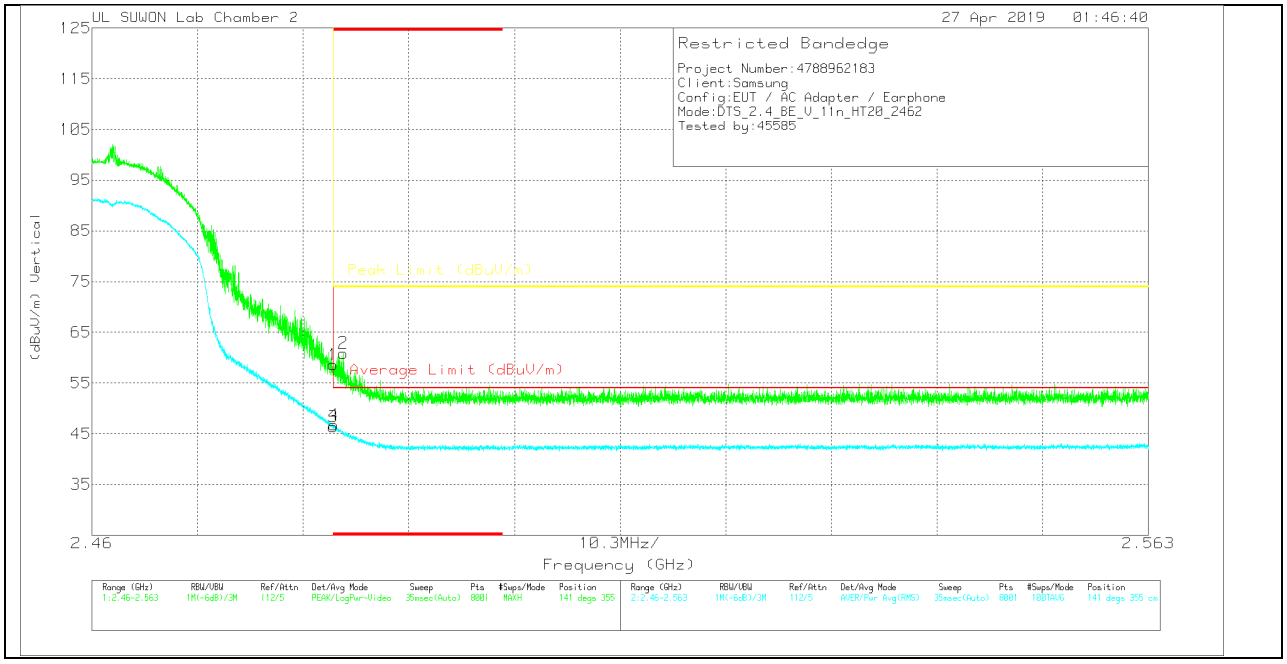
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	47.35	Pk	31.9	-20.6	0	58.65	-	-	74	-15.35	141	355	V
2	* 2.484	49.6	Pk	31.9	-20.6	0	60.9	-	-	74	-13.1	141	355	V
3	* 2.484	34.93	RMS	31.9	-20.6	.19	46.42	54	-7.58	-	-	141	355	V
4	* 2.484	35.27	RMS	31.9	-20.6	.19	46.76	54	-7.24	-	-	141	355	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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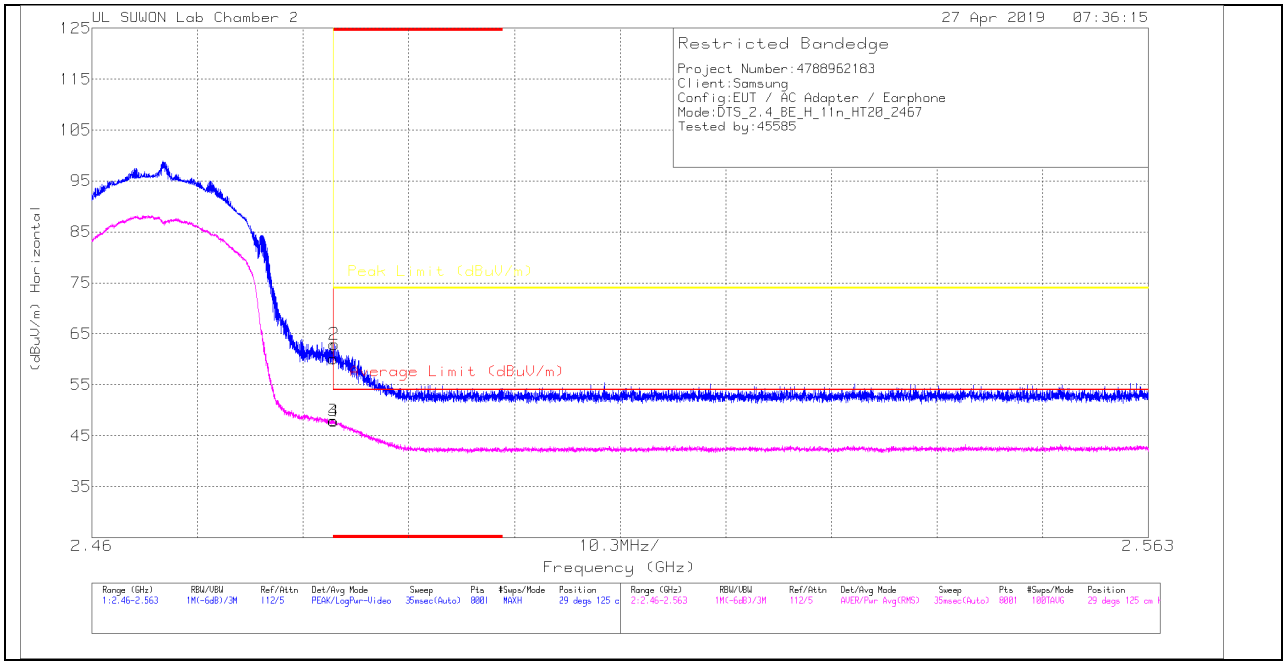
AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



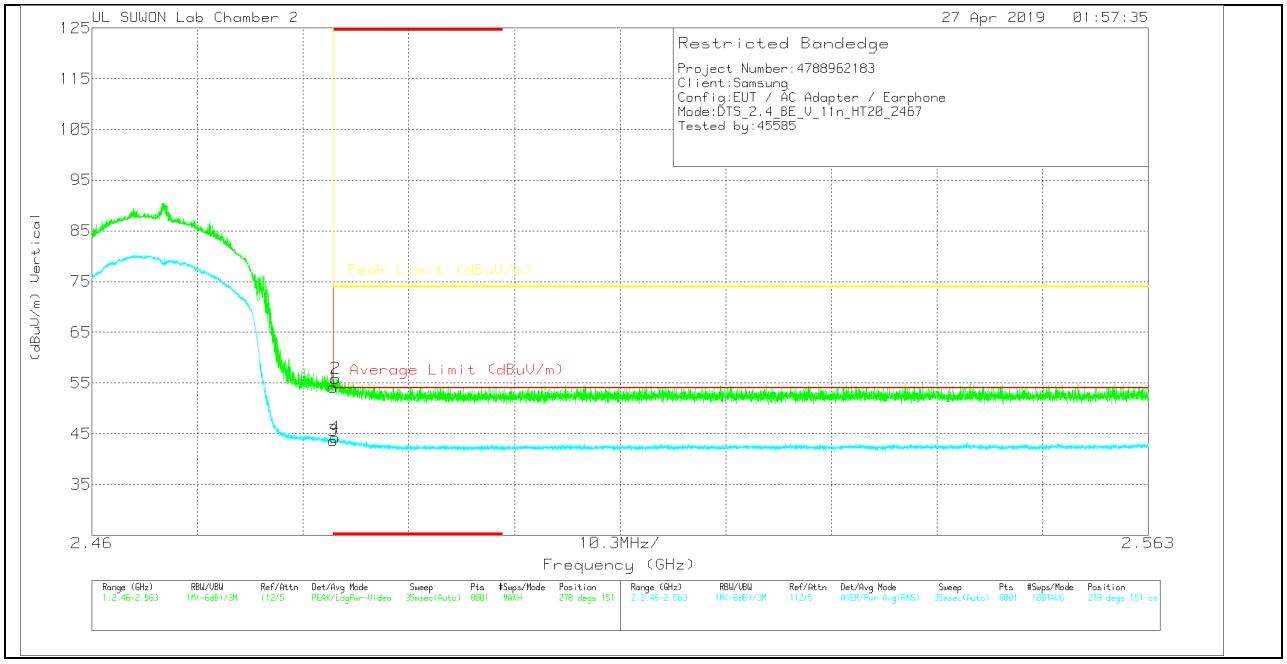
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	48.82	Pk	31.9	-20.6	0	60.12	-	-	74	-13.88	29	125	H
2	* 2.484	51.7	Pk	31.9	-20.6	0	63	-	-	74	-11	29	125	H
3	* 2.484	36.47	RMS	31.9	-20.6	.19	47.96	54	-6.04	-	-	29	125	H
4	* 2.484	36.4	RMS	31.9	-20.6	.19	47.89	54	-6.11	-	-	29	125	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-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_00168724	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	42.87	Pk	31.9	-20.6	0	54.17	-	-	74	-19.83	278	151	V
2	* 2.484	44.6	Pk	31.9	-20.6	0	55.9	-	-	74	-18.1	278	151	V
3	* 2.484	32.19	RMS	31.9	-20.6	.19	43.68	54	-10.32	-	-	278	151	V
4	* 2.484	32.73	RMS	31.9	-20.6	.19	44.22	54	-9.78	-	-	278	151	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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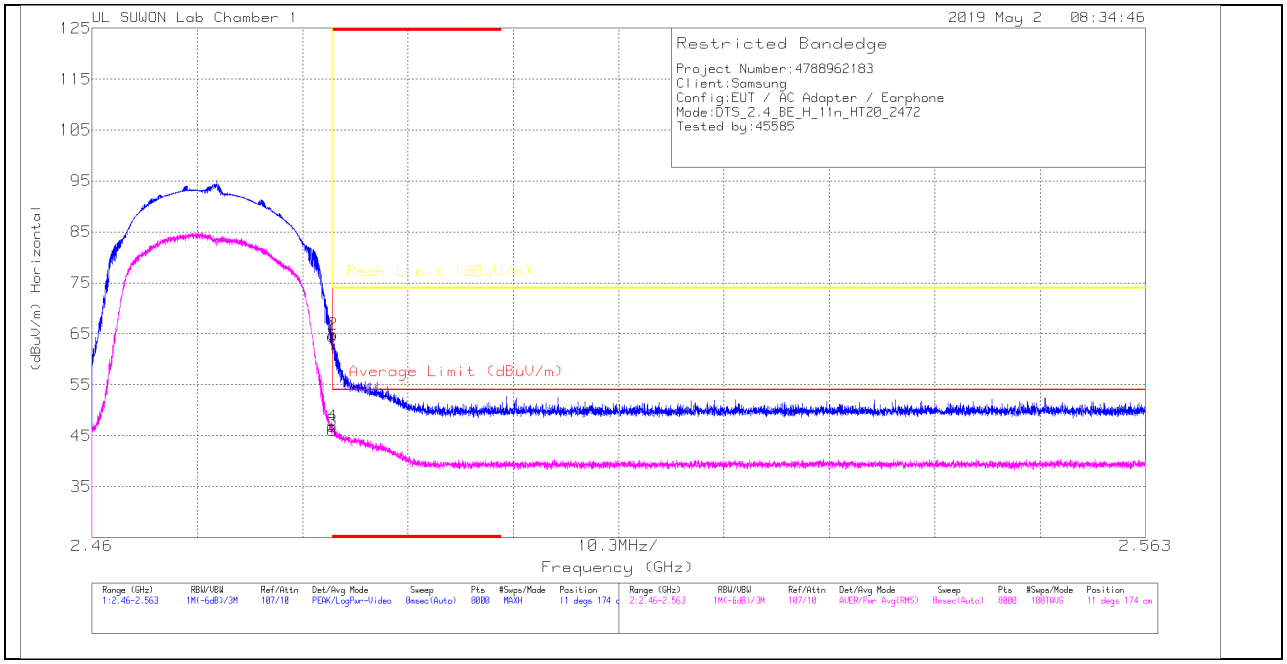
AUTHORIZED BANDEDGE (13 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.4835	58	Pk	31.9	-25.3	0	64.6	-	-	74	-9.4	11	174	H
2	* 2.48355	58.33	Pk	31.9	-25.3	0	64.93	-	-	74	-9.07	11	174	H
3	* 2.4835	39.18	RMS	31.9	-25.3	.19	45.97	54	-8.03	-	-	11	174	H
4	* 2.48354	40.02	RMS	31.9	-25.3	.19	46.81	54	-7.19	-	-	11	174	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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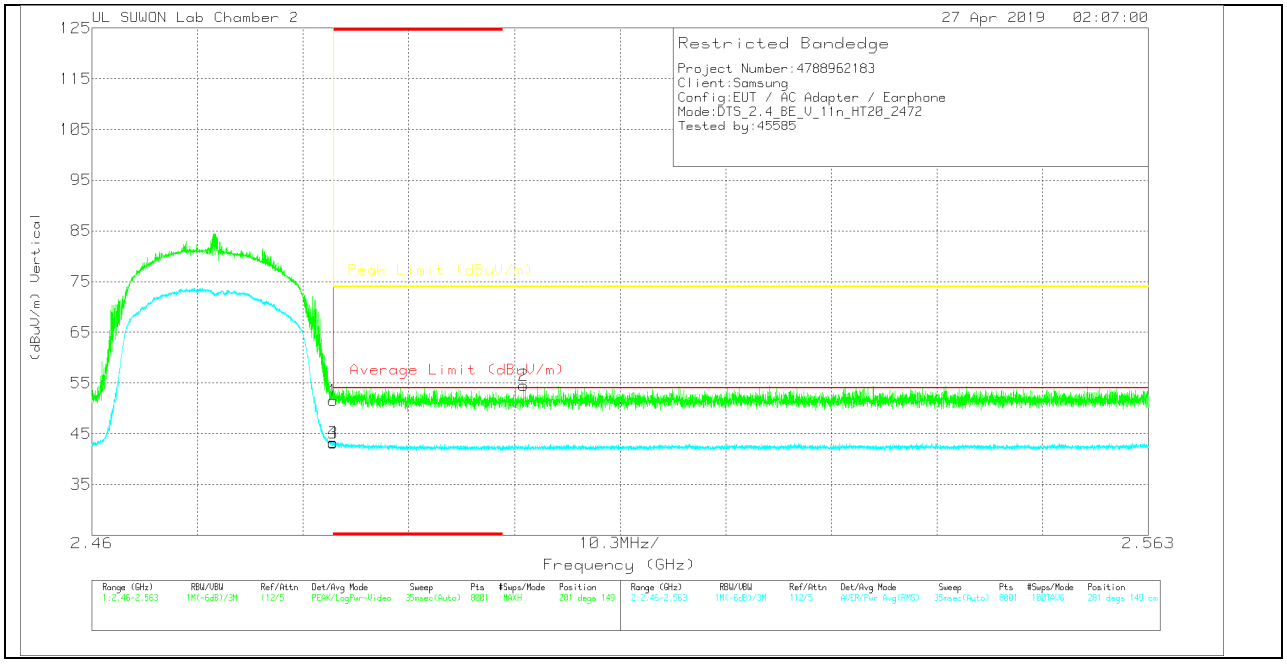
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.24	Pk	31.9	-20.6	0	51.54	-	-	74	-22.46	281	149	V
2	2.502	43.21	Pk	31.9	-20.6	0	54.51	-	-	74	-19.49	281	149	V
3	* 2.484	31.64	RMS	31.9	-20.6	.19	43.13	54	-10.87	-	-	281	149	V
4	* 2.484	31.84	RMS	31.9	-20.6	.19	43.33	54	-10.67	-	-	281	149	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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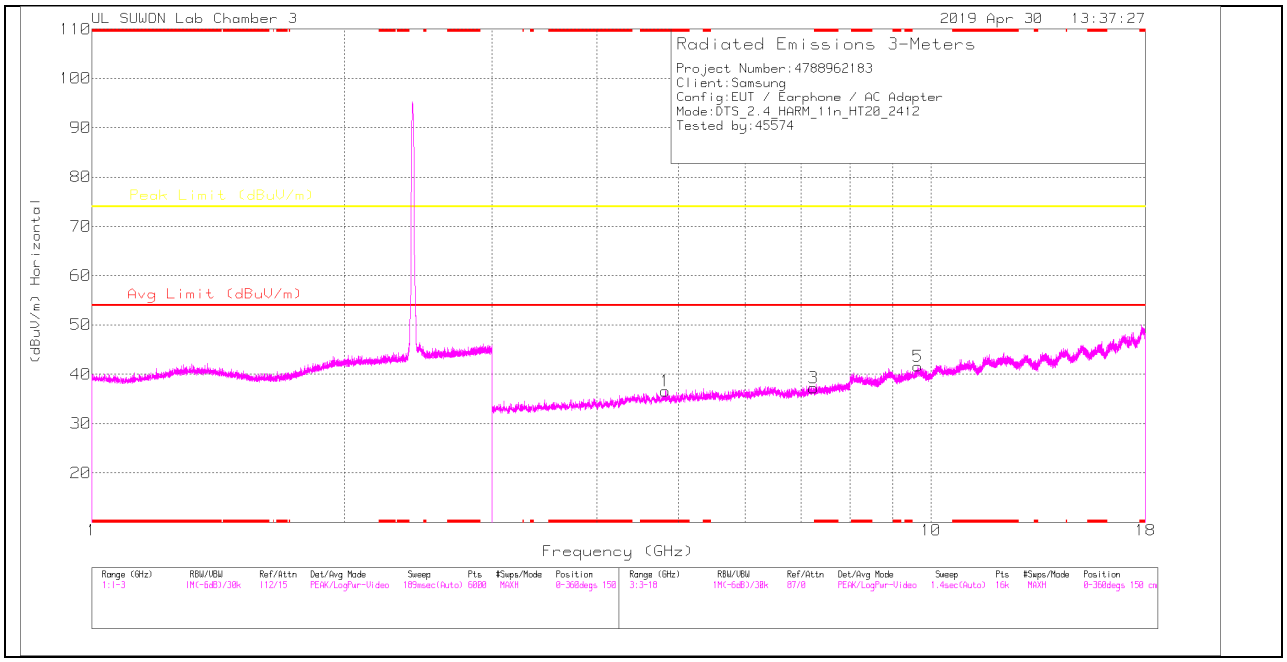
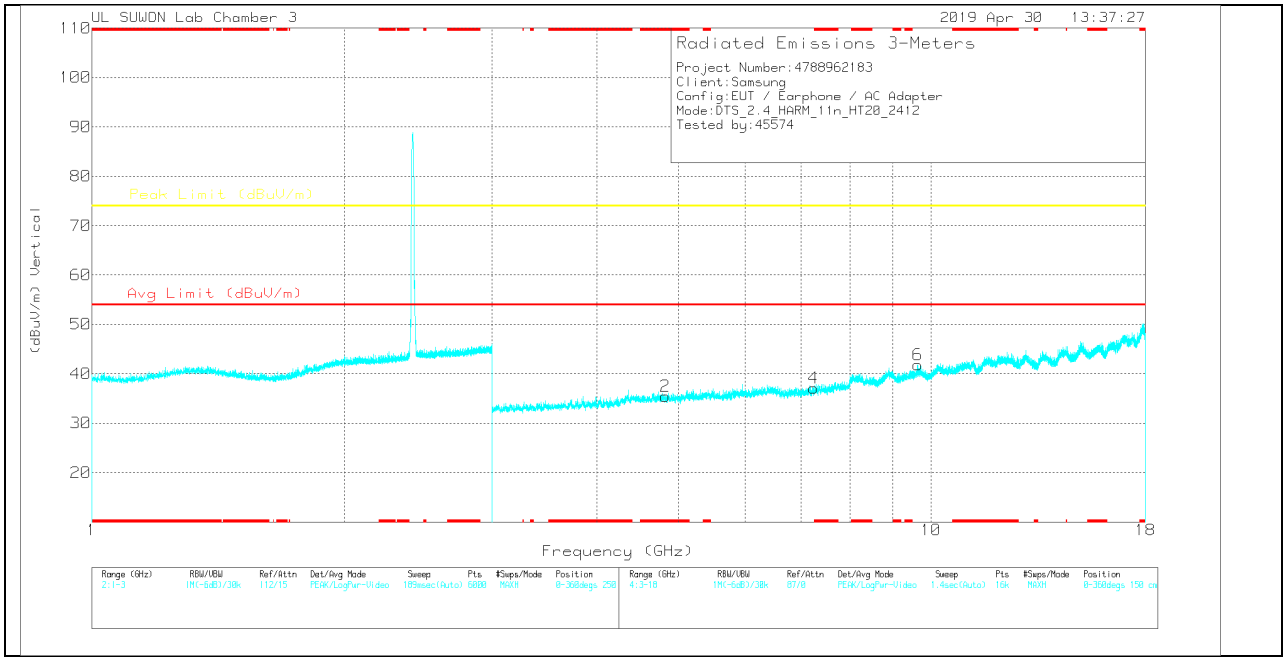
HARMONICS AND SPURIOUS EMISSIONS

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_00205959	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	* 4.825	30.97	PK	34.2	-28.6	0	36.57	-	-	74	-37.43	0-360	250	H
3	7.237	25.52	PK	35.8	-24.1	0	37.22	-	-	74	-36.78	0-360	250	H
5	9.648	24.24	PK	37.1	-19.7	0	41.64	-	-	74	-32.36	0-360	150	H
2	* 4.826	29.92	PK	34.2	-28.6	0	35.52	-	-	74	-38.48	0-360	150	V
4	7.237	25.4	PK	35.8	-24.1	0	37.1	-	-	74	-36.9	0-360	150	V
6	9.648	24.47	PK	37.1	-19.7	0	41.87	-	-	74	-32.13	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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).

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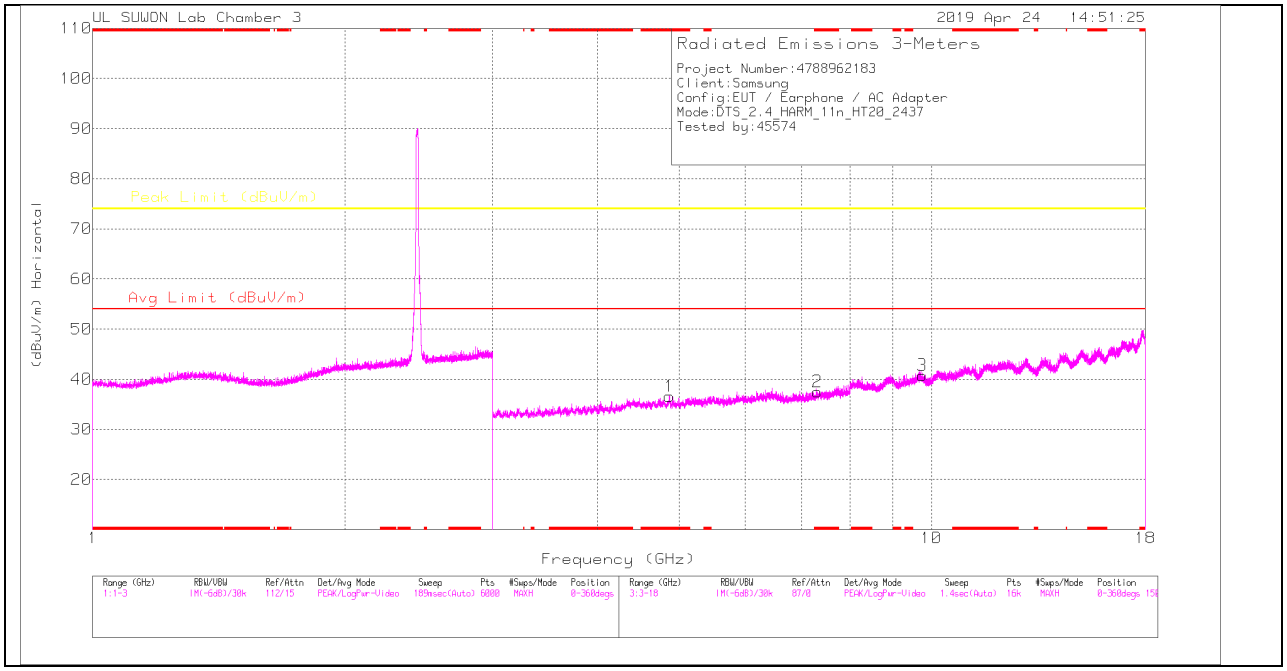
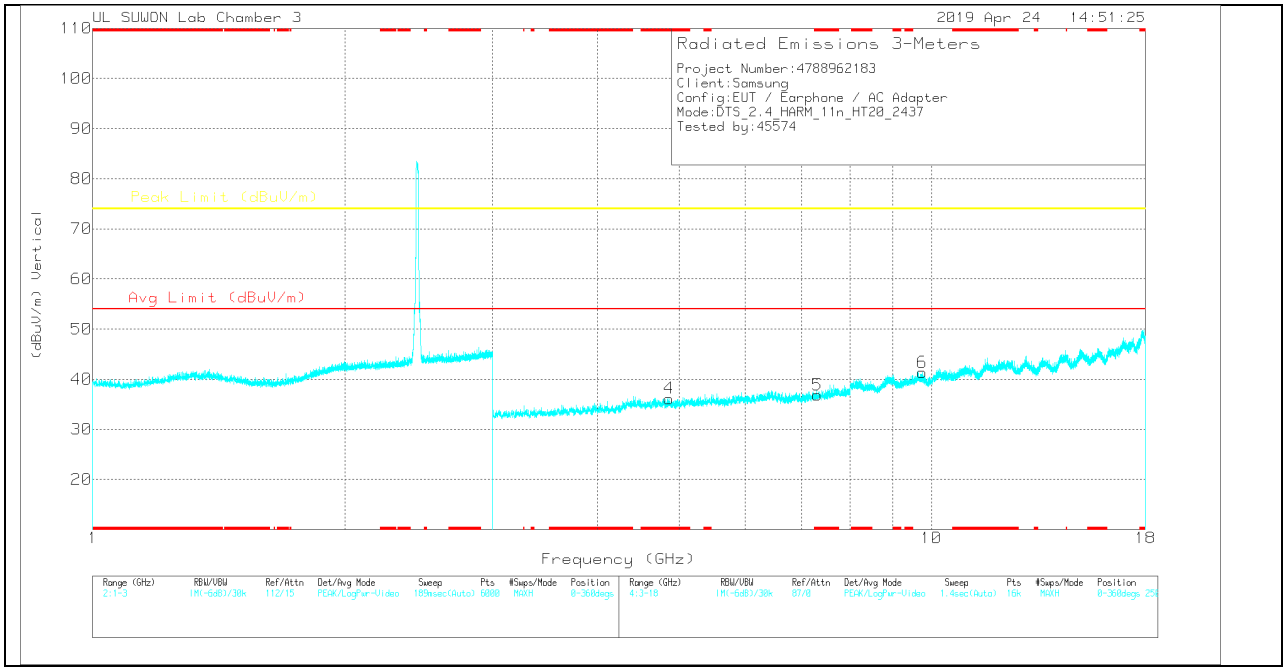
MID CHANNEL HORIZONTAL



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_00205959	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	* 4.871	31.49	PK	34.2	-29.1	0	36.59	-	-	74	-37.41	0-360	150	H
2	* 7.31	25.51	PK	35.8	-23.8	0	37.51	-	-	74	-36.49	0-360	150	H
3	9.748	23.16	PK	37.2	-19.6	0	40.76	-	-	74	-33.24	0-360	250	H
4	* 4.868	31.05	PK	34.2	-29.1	0	36.15	-	-	74	-37.85	0-360	150	V
5	* 7.308	24.92	PK	35.8	-23.9	0	36.82	-	-	74	-37.18	0-360	250	V
6	9.749	23.73	PK	37.2	-19.6	0	41.33	-	-	74	-32.67	0-360	150	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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).

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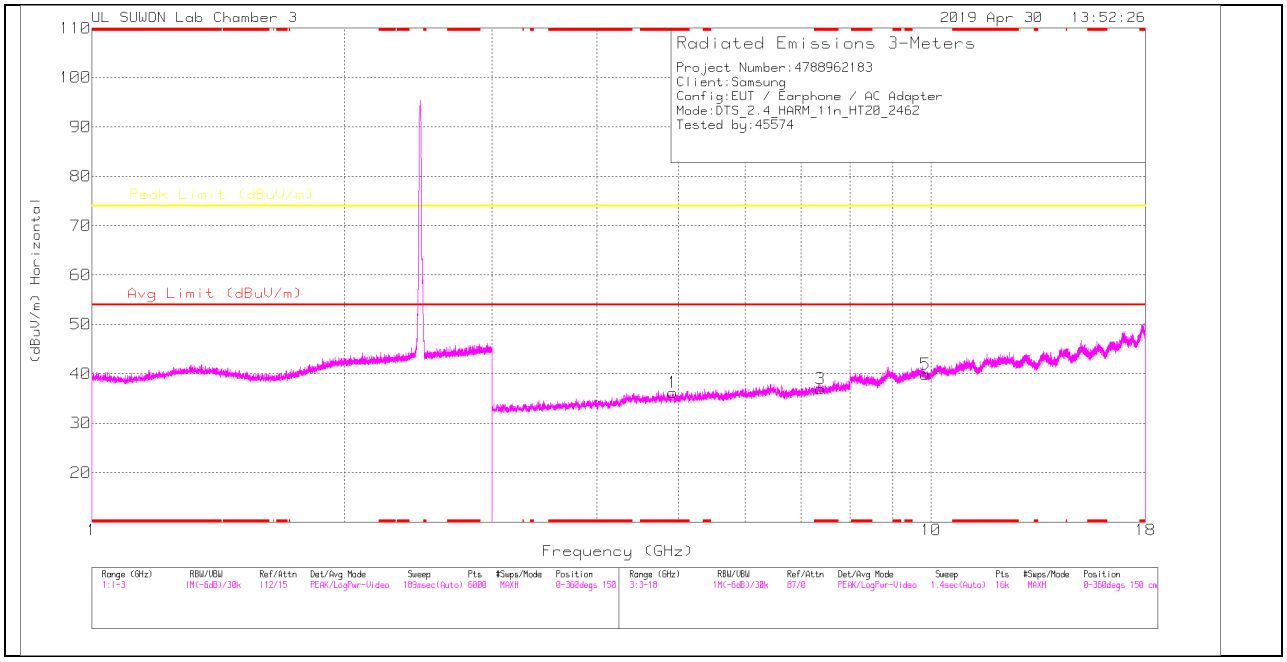
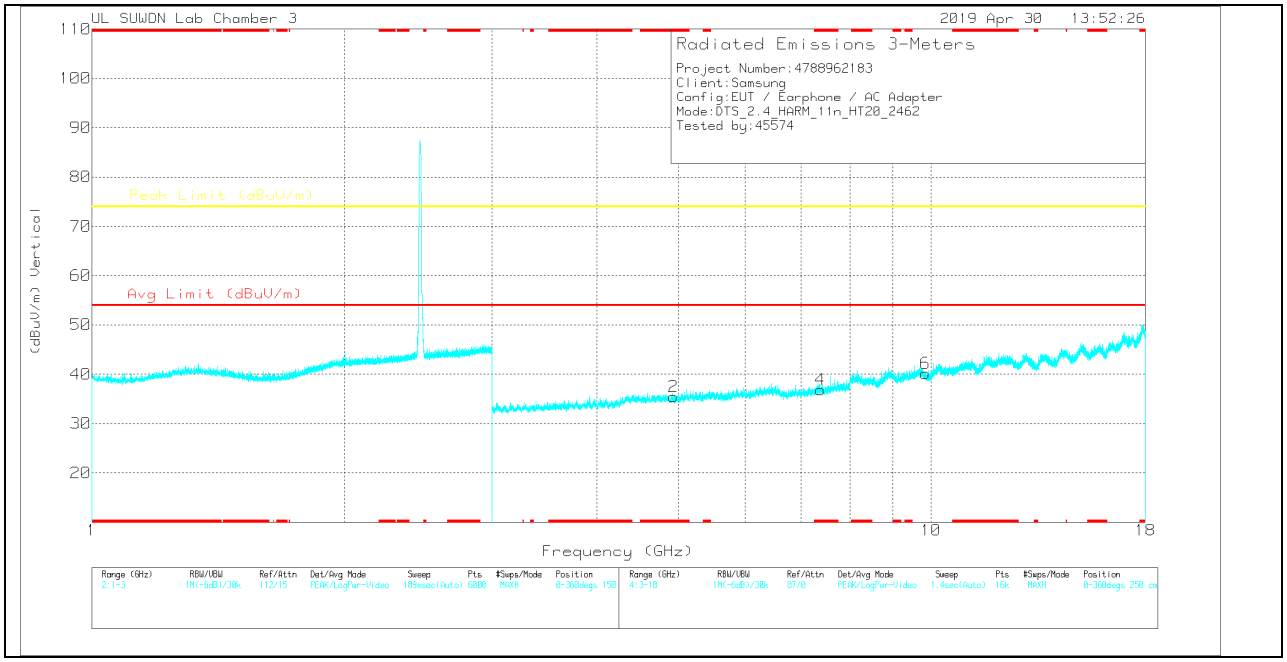
HIGH CHANNEL HORIZONTAL



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_00205959	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	* 4.925	31.23	PK	34.2	-29.2	0	36.23	-	-	74	-37.77	0-360	150	H
3	* 7.387	24.47	PK	35.8	-23.3	0	36.97	-	-	74	-37.03	0-360	150	H
5	9.848	22.23	PK	37.4	-19.7	0	39.93	-	-	74	-34.07	0-360	150	H
2	* 4.929	30.32	PK	34.2	-29.1	0	35.42	-	-	74	-38.58	0-360	150	V
4	* 7.386	24.38	PK	35.8	-23.3	0	36.88	-	-	74	-37.12	0-360	150	V
6	9.848	22.46	PK	37.4	-19.7	0	40.16	-	-	74	-33.84	0-360	250	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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).

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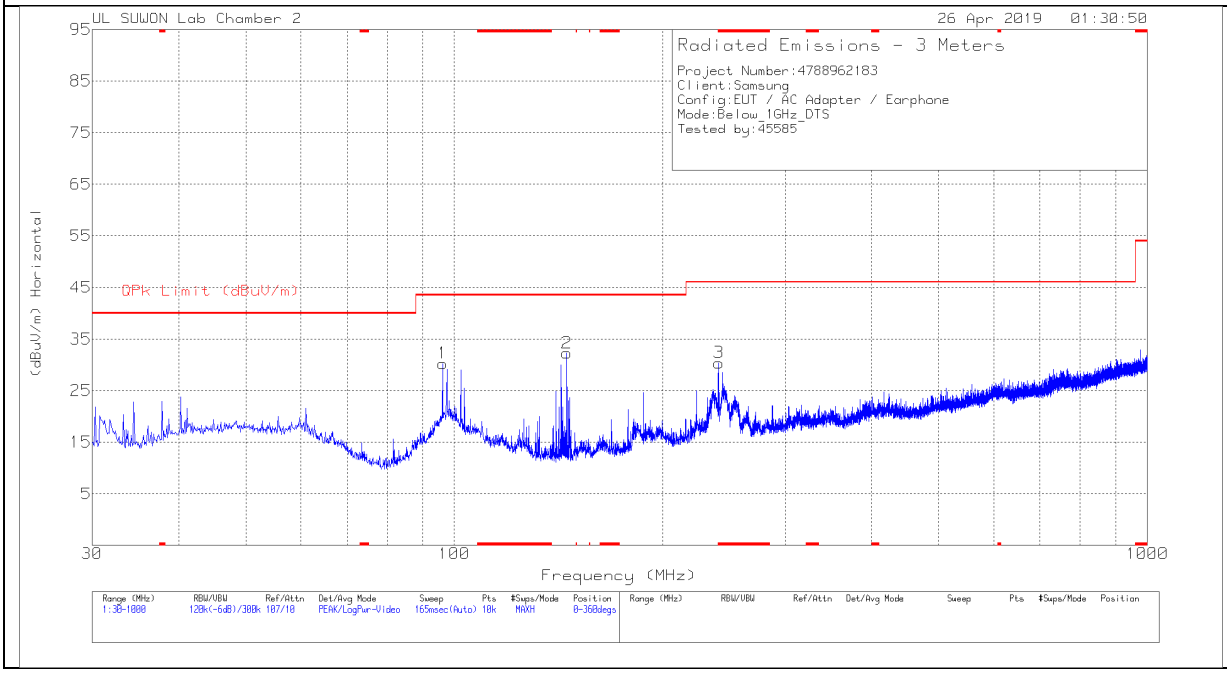
11.3. WORST-CASE BELOW 1 GHz

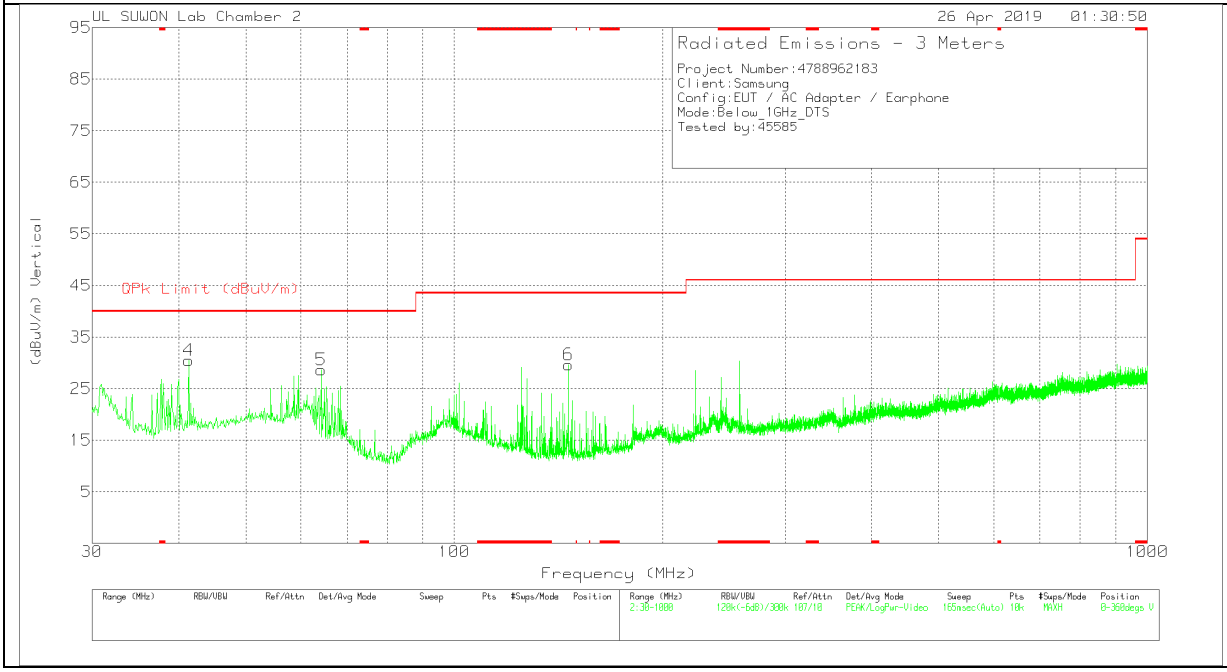
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



Below 1G Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	96.154	44.38	Pk	17.4	-31.5	30.28	43.52	-13.24	0-360	400	H
2	145.333	49.39	Pk	14.1	-31.2	32.29	43.52	-11.23	0-360	200	H
3	* 240.878	42.5	Pk	18.6	-30.7	30.4	46.02	-15.62	0-360	200	H
4	41.349	43.29	Pk	19.1	-31.9	30.49	40	-9.51	0-360	100	V
5	64.241	42.86	Pk	17.5	-31.7	28.66	40	-11.34	0-360	200	V
6	146.109	46.75	Pk	14.1	-31.2	29.65	43.52	-13.87	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

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12. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
IC RSS-GEN Clause §8.8

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.

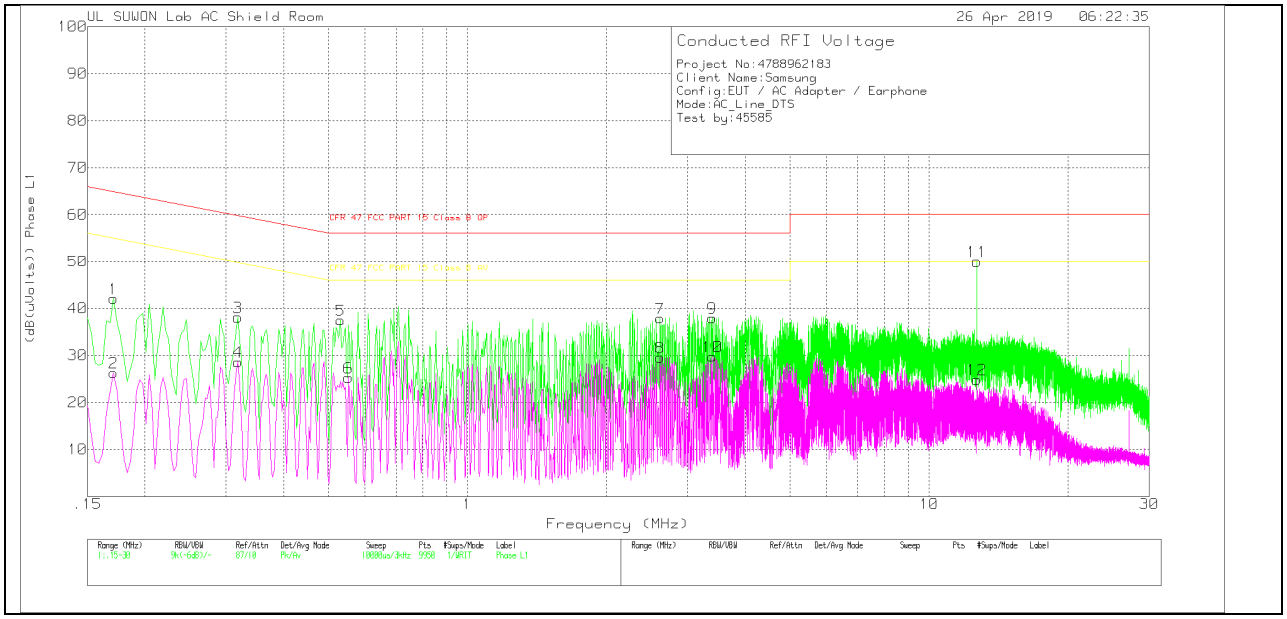
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

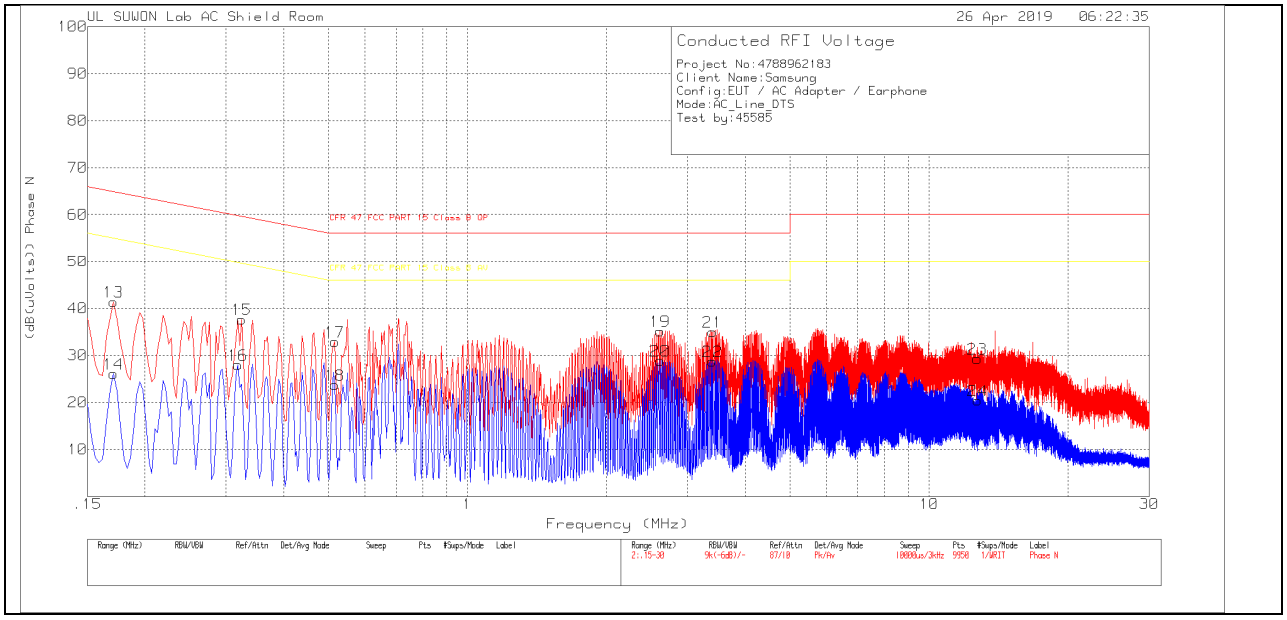
Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_L1	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.171	31.82	Pk	10.1	.2	42.12	64.91	-22.79	-	-
2	.171	16.01	Av	10.1	.2	26.31	-	-	54.91	-28.6
3	.318	28.14	Pk	9.8	.2	38.14	59.76	-21.62	-	-
4	.318	18.63	Av	9.8	.2	28.63	-	-	49.76	-21.13
5	.531	27.41	Pk	9.9	.2	37.51	56	-18.49	-	-
6	.552	15.19	Av	9.9	.2	25.29	-	-	46	-20.71
7	2.613	27.62	Pk	10	.3	37.92	56	-18.08	-	-
8	2.613	19.29	Av	10	.3	29.59	-	-	46	-16.41
9	3.393	27.77	Pk	9.9	.3	37.97	56	-18.03	-	-
10	3.393	19.57	Av	9.9	.3	29.77	-	-	46	-16.23
11	12.69	39.62	Pk	10.1	.3	50.02	60	-9.98	-	-
12	12.69	14.5	Av	10.1	.3	24.9	-	-	50	-25.1

Pk - Peak detector
Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	ENV216_101836_With ex-cord_N	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.171	31.2	Pk	10	.2	41.4	64.91	-23.51	-	-
14	.171	15.91	Av	10	.2	26.11	-	-	54.91	-28.8
15	.324	27.69	Pk	9.8	.2	37.69	59.6	-21.91	-	-
16	.318	18.02	Av	9.8	.2	28.02	-	-	49.76	-21.74
17	.516	22.83	Pk	9.9	.2	32.93	56	-23.07	-	-
18	.516	13.65	Av	9.9	.2	23.75	-	-	46	-22.25
19	2.613	25.17	Pk	9.7	.3	35.17	56	-20.83	-	-
20	2.613	18.91	Av	9.7	.3	28.91	-	-	46	-17.09
21	3.396	24.91	Pk	9.8	.3	35.01	56	-20.99	-	-
22	3.393	18.66	Av	9.8	.3	28.76	-	-	46	-17.24
23	12.723	18.93	Pk	10.1	.3	29.33	60	-30.67	-	-
24	12.744	10.03	Av	10.1	.3	20.43	-	-	50	-29.57

Pk - Peak detector
Av - Average detection

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