FCC CFR47 PART 15 SUBPART C

DTS Wireless LAN

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE and DTS b/g/n

MODEL NUMBER : SM-J400F/DS, SM-J400F

FCC ID: A3LSMJ400F

REPORT NUMBER: 4788404029-E1V2

ISSUE DATE: APR 15, 2018

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

Prepared by
UL Korea, Ltd.
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
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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	04/09/18	Initial issue	Junwhan Lee
V2	04/15/18	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 and DTS b/g/n
MODEL NUMBER:	SM-J400F/DS, SM-J400F
SERIAL NUMBER:	R38K30FQM6A (RADIATED); R38K30FQP2M (CONDUCTED)
DATE TESTED:	MAR 21, 2018 - APR 09, 2018

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:

SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

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2. TEST METHODOLOGY

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

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v04.
4. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro
☒ 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, Below 1GHz	3.86 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE and DTS b/g/n.
This test report addresses the DTS (WLAN) operational mode.

SM-J400F/DS and SM-J400F are same hardware, but for different number of SIM card slot. SM-J400F has one slot and SM-J400F/DS is dual SIM version.
SM-J400F/DS used for the tests.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
2412 - 2472	802.11b	16.84	48.31
	802.11g	11.42	13.87
	802.11n HT20	10.25	10.59

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antennas, with a antenna's maximum gain of -0.59 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 Y 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.

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	ETA0U83EWE	DK1FB06TS/A- E	N/A
Data Cable	SAMSUNG	ECB-DU68WE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	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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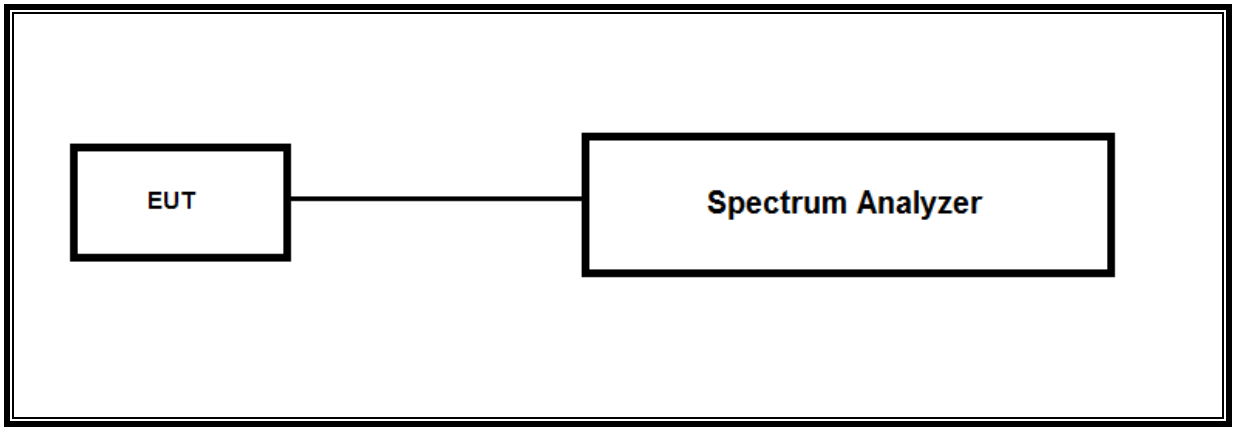
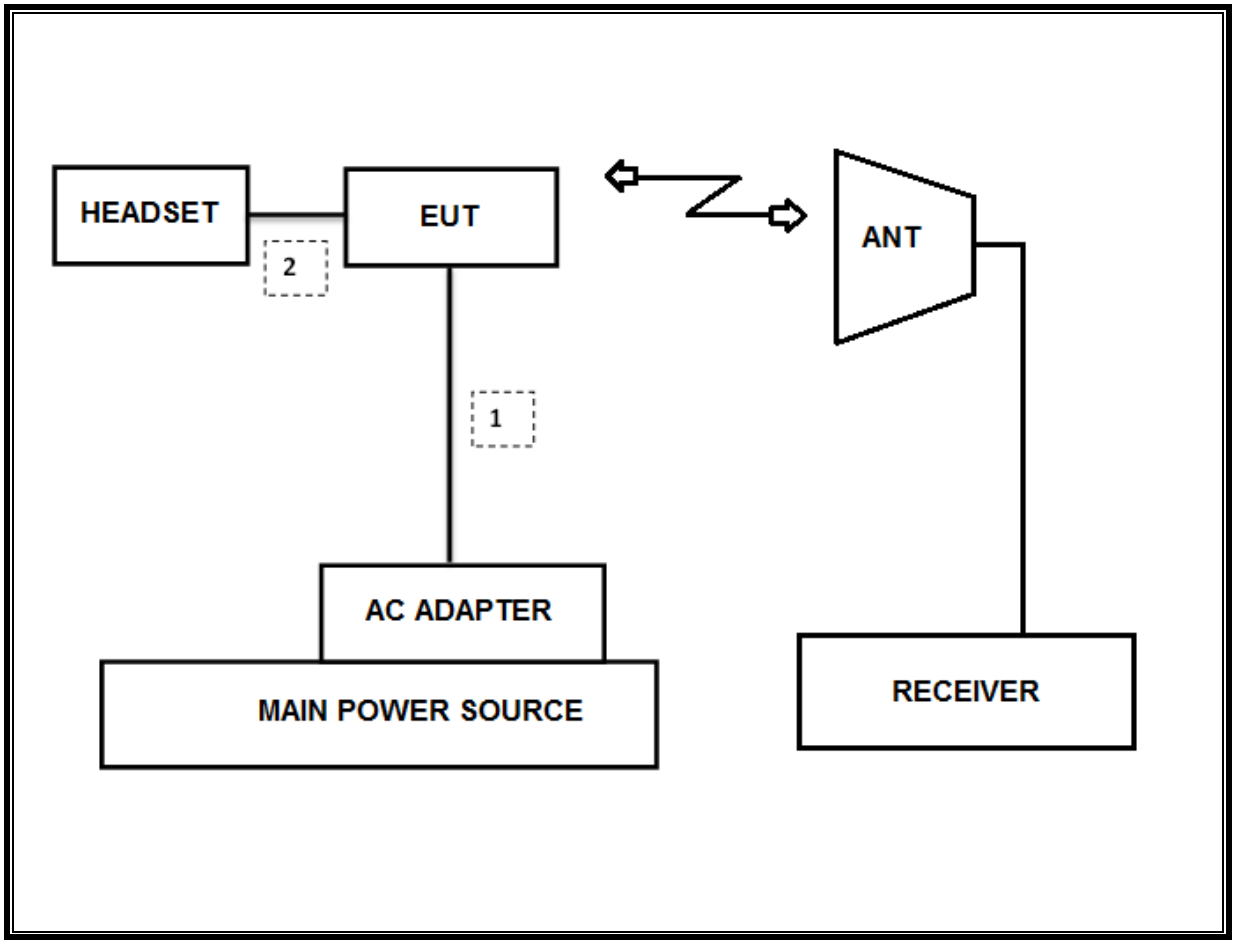
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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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	08-31-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	09-14-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-31-19
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18
Antenna, Horn, 18 GHz	ETS	3115	00161451	03-10-19
Antenna, Horn, 18 GHz	ETS	3117	00168724	05-31-19
Antenna, Horn, 18 GHz	ETS	3117	00168717	05-31-19
Antenna, Horn, 18 GHz	ETS	3117	00205959	11-29-18
Antenna, Horn, 40 GHz	ETS	3116C	00166155	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	11-13-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-09-18
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-18
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-10-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-08-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-08-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-11-18
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-08-18
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-08-18
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-11-18
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-08-18
Attenuator	PASTERNACK	PE7087-10	A001	08-08-18
Attenuator	PASTERNACK	PE7087-10	A008	08-08-18
Attenuator	PASTERNACK	PE7087-10	2	08-10-18
Attenuator	PASTERNACK	PE7087-10	A009	08-08-18
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-08-18
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-08-18
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-09-18
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-07-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-08-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-08-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-11-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-08-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-08-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-11-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-08-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-08-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-11-18
LISN	R&S	ENV-216	101837	08-09-18
UL Software				
Description	**Manufacturer**	**Model**	**Version**	
Radiated software	UL	UL EMC	Ver 9.5	

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7. REFERENCE MEASUREMENT RESULTS

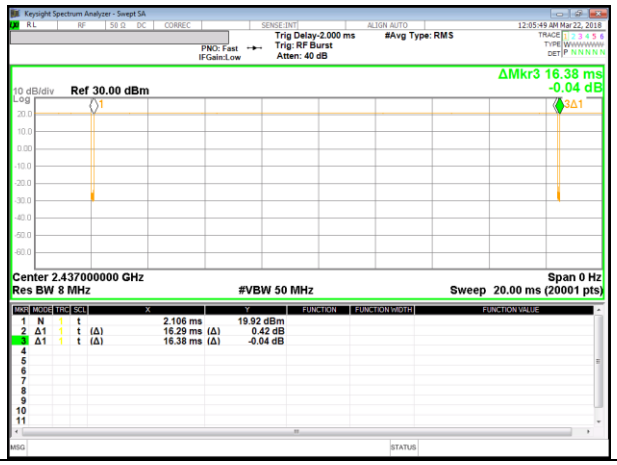
7.1. ON TIME AND DUTY CYCLE RESULTS

LIMITS

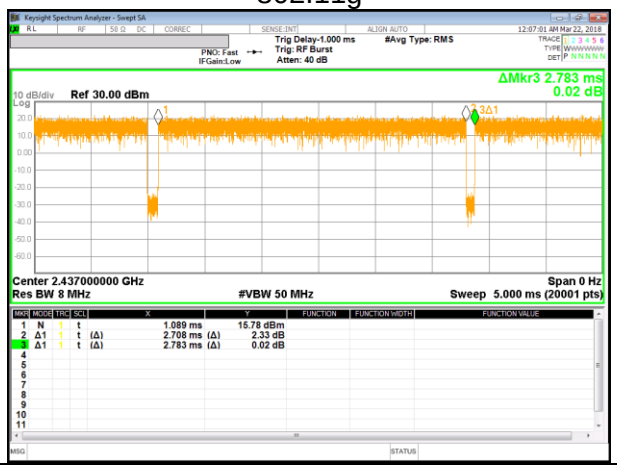
None; for reporting purposes only.

Mode	ON Time B [msec]	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2400MHz Bands						
802.11b	16.29	16.38	0.995	99.5%	0.00	0.010
802.11g	2.708	2.783	0.973	97.3%	0.12	0.369
802.11n HT20	2.516	2.591	0.971	97.1%	0.13	0.397

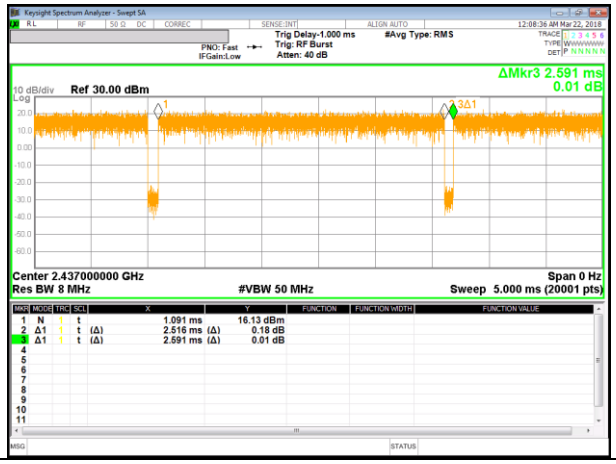
802.11b



802.11g



802.11n



8. MEASUREMENT METHODS

6 dB BW : KDB 558074 D01 v04, Section 8.2.

OUTPUT POWER : KDB 558074 D01 v04, Section 9.2.3.1.

POWER SPECTRAL DENSITY : KDB 558074 D01 v04, Section 10.3./10.5.

Out-of-band EMISSIONS (Conducted) : KDB 558074 D01 v04, Section 11.1, 11.2.

Out-of-band EMISSIONS IN NON-RESTRICTED BANDS: KDB 558074 D01 v04, Section 11.0.

Out-of-band EMISSIONS IN RESTRICTED BANDS : KDB 558074 D01 v04, Section 12.1.

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

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9. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-30dBc		Pass
15.247 (b)(3)	TX conducted output power	<30dBm		Pass
15.247 (e)	PSD	<8dBm		Pass
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass
15.205, 15.209	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)

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

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v04: 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	9.048	0.5
Mid	2437	9.051	0.5
High	2462	9.047	0.5
12	2467	9.041	0.5
13	2472	9.059	0.5
Worst		9.041	0.5

10.1.1.1. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	15.050	0.5
Mid	2437	15.070	0.5
High	2462	15.030	0.5
12	2467	15.070	0.5
13	2472	15.020	0.5
Worst		15.020	0.5

10.1.2.802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	2412	10.040	0.5
Mid	2437	10.030	0.5
High	2462	10.030	0.5
12	2467	11.290	0.5
13	2472	8.761	0.5
Worst		8.761	0.5

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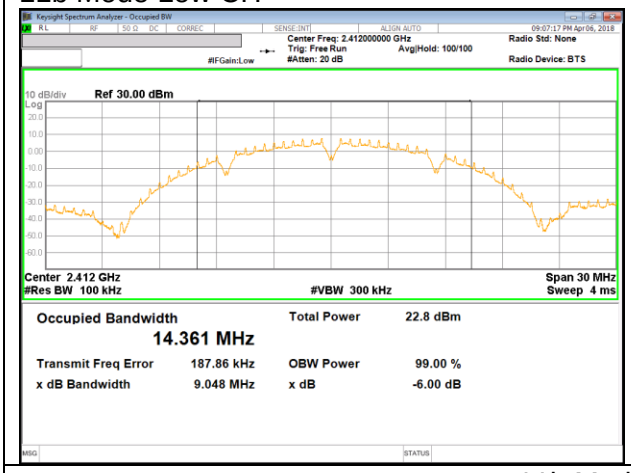
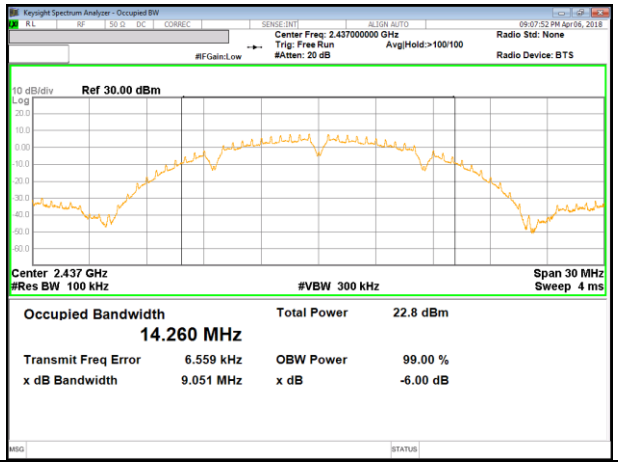
10.1.3.6 dB BANDWIDTH PLOTS

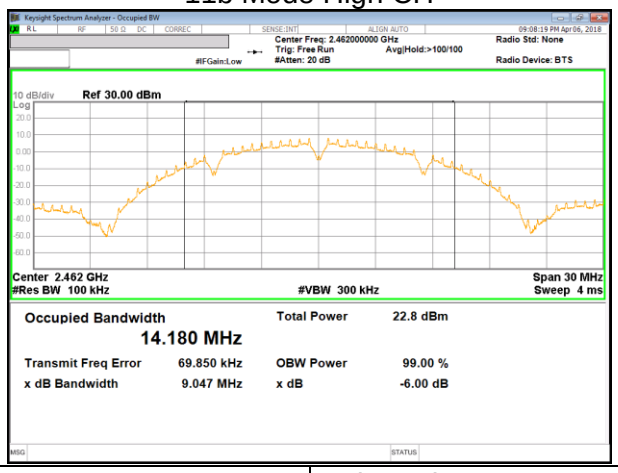
11b Mode Low CH



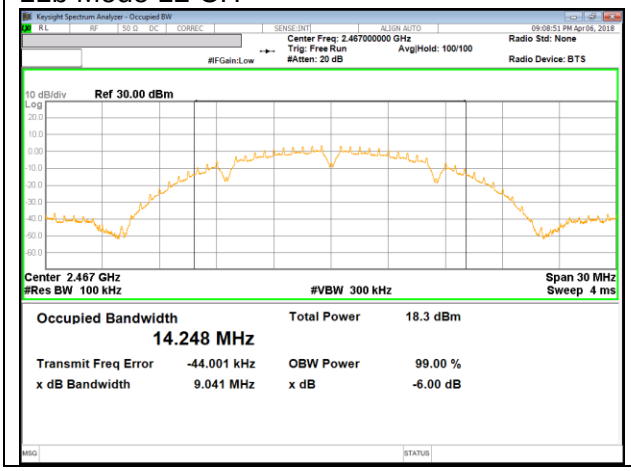
11b Mode Middle CH



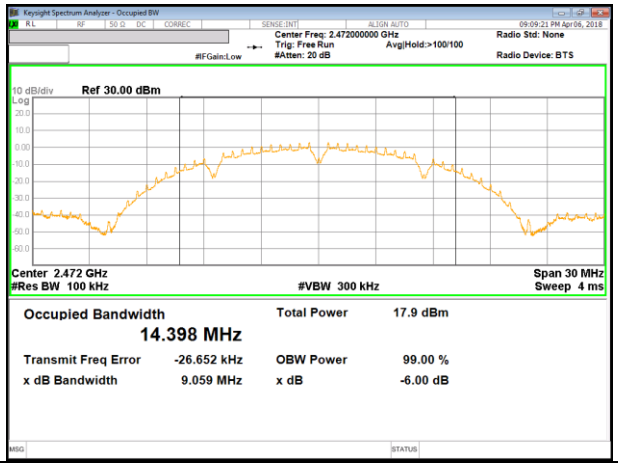
11b Mode High CH



11b Mode 12 CH



11b Mode 13 CH



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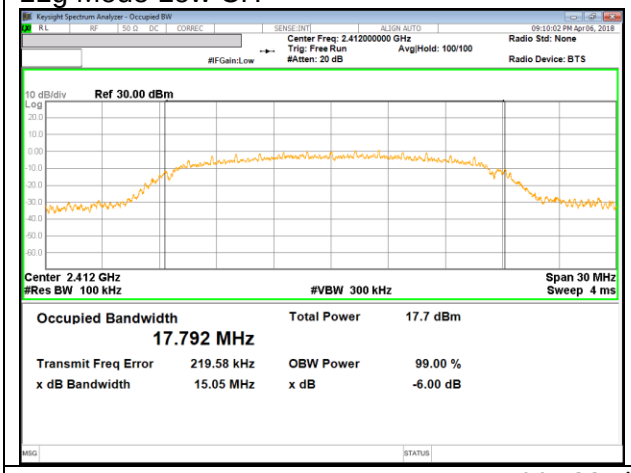
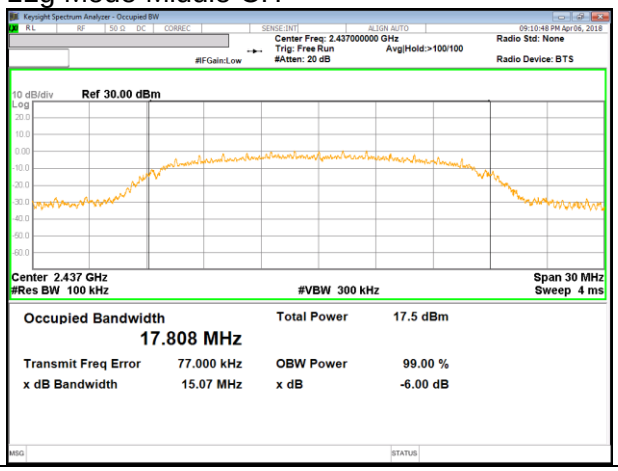
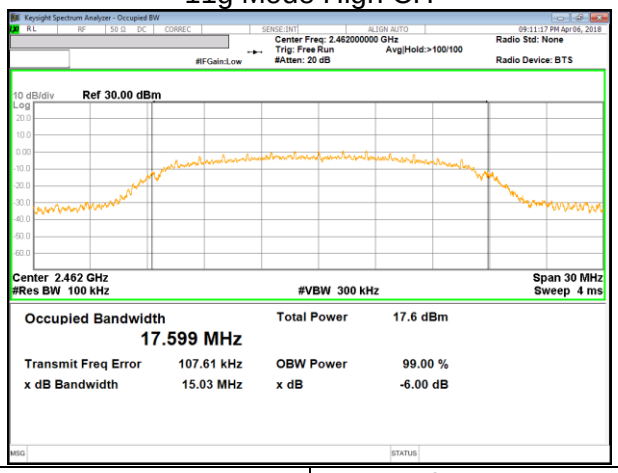
11g Mode Low CH



11g Mode Middle CH



11g Mode High CH



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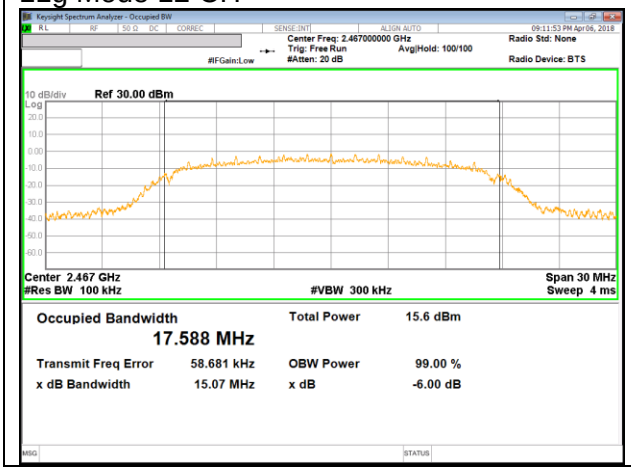
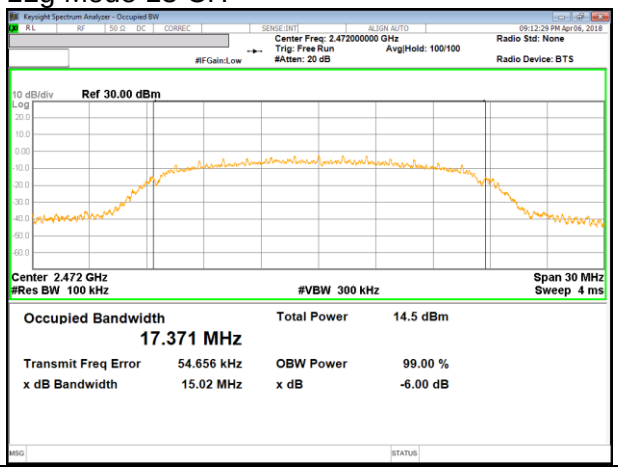
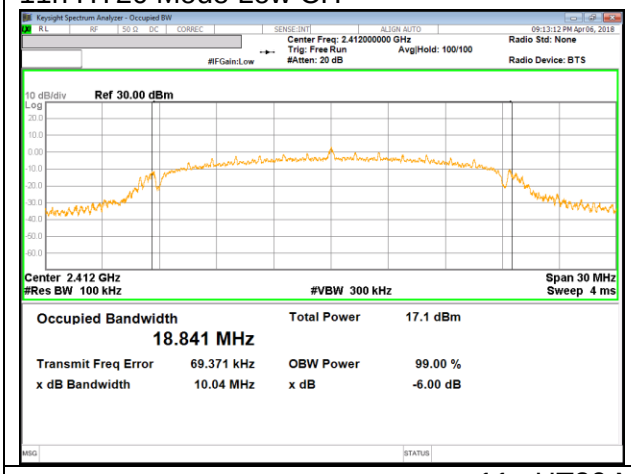


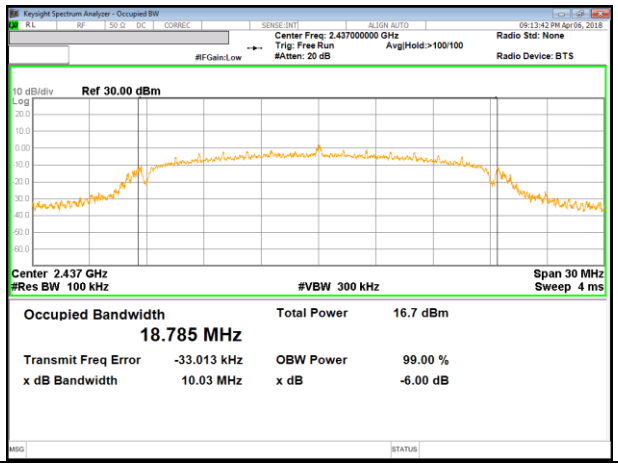
11g Mode 13 CH



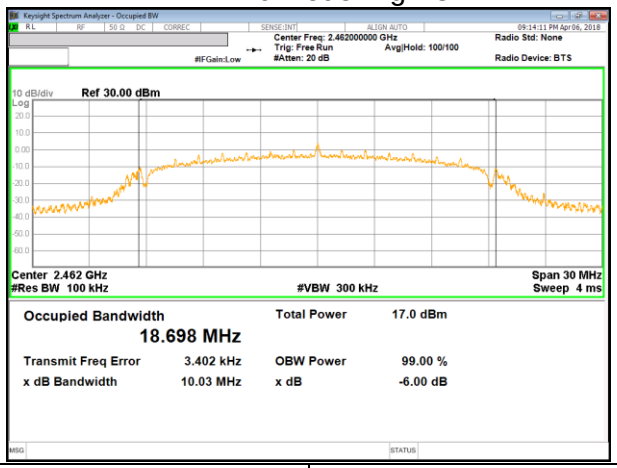
11n HT20 Mode Low CH



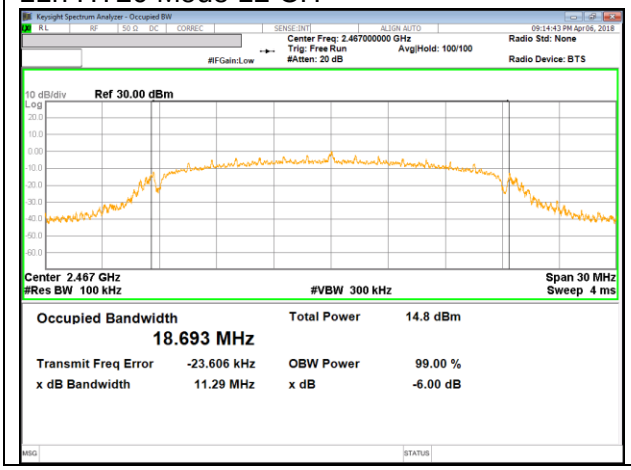
11n HT20 Middle CH



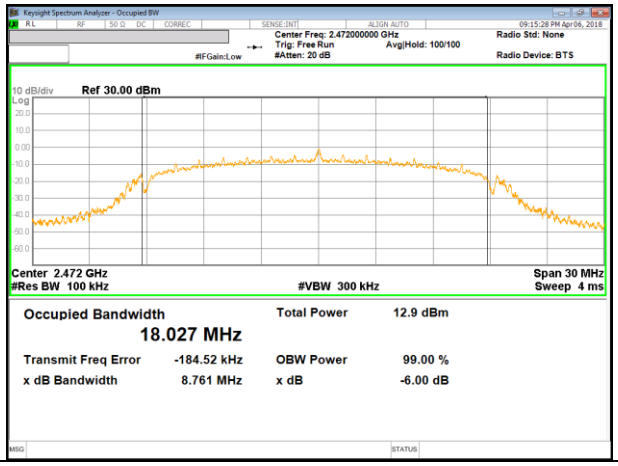
11n HT20 Mode High CH



11n HT20 Mode 12 CH



11n HT20 Mode 13 CH



10.2. OUTPUT POWER

LIMITS

FCC §15.247

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

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

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss was entered as an offset in the power meter to allow for direct reading of power.

Output power measurement was performed utilizing the “§9.2.3.1 AVGPM” under KDB558074 D01 DTS Meas Guidance v04.

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

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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	-0.59	30.00	30.00
Mid	2437	-0.59	30.00	30.00
High	2462	-0.59	30.00	30.00
12	2467	-0.59	30.00	30.00
13	2472	-0.59	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	16.84	16.84	30.00	-13.16
Mid	2437	16.75	16.75	30.00	-13.25
High	2462	16.53	16.53	30.00	-13.47
12	2467	11.84	11.84	30.00	-18.16
13	2472	11.56	11.56	30.00	-18.45
Worst			16.84	30.00	-13.16

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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	-0.59	30.00	30.00
Mid	2437	-0.59	30.00	30.00
High	2462	-0.59	30.00	30.00
12	2467	-0.59	30.00	30.00
13	2472	-0.59	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	11.25	11.25	30.00	-18.75
Mid	2437	11.22	11.22	30.00	-18.78
High	2462	11.42	11.42	30.00	-18.58
12	2467	9.24	9.24	30.00	-20.76
13	2472	8.12	8.12	30.00	-21.88
Worst			11.42	30.00	-18.58

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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	-0.59	30.00	30.00
Mid	2437	-0.59	30.00	30.00
High	2462	-0.59	30.00	30.00
12	2467	-0.59	30.00	30.00
13	2472	-0.59	30.00	30.00

Results

Channel	Frequency [MHz]	Meas Power [dBm]	Total Power [dBm]	Power Limit [dBm]	Margin [dB]
Low	2412	10.18	10.18	30.00	-19.82
Mid	2437	10.15	10.15	30.00	-19.85
High	2462	10.25	10.25	30.00	-19.75
12	2467	8.15	8.15	30.00	-21.85
13	2472	8.05	8.05	30.00	-21.95
Worst			10.25	30.00	-19.75

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10.3. PSD

LIMITS

FCC §15.247

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the “Method §10.3 AVGPSD-1 (802.11 b/g/n mode) under KDB558074 D01 DTS Meas Guidance v04.

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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	-13.263	0.00	-13.263	8.00	-21.263
Mid	2437	-14.395	0.00	-14.395	8.00	-22.395
High	2462	-14.339	0.00	-14.339	8.00	-22.339
12	2467	-19.156	0.00	-19.156	8.00	-27.156
13	2472	-19.200	0.00	-19.200	8.00	-27.200

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	-20.676	0.12	-20.556	8.00	-28.676
Mid	2437	-20.626	0.12	-20.506	8.00	-28.626
High	2462	-20.587	0.12	-20.467	8.00	-28.587
12	2467	-20.692	0.12	-20.572	8.00	-28.692
13	2472	-22.437	0.12	-22.317	8.00	-30.437

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	-22.373	0.13	-22.243	8.00	-30.373
6	2437	-22.466	0.13	-22.336	8.00	-30.466
11	2462	-20.809	0.13	-20.679	8.00	-28.809
12	2467	-21.146	0.13	-21.016	8.00	-29.146
13	2472	-21.798	0.13	-21.668	8.00	-29.798

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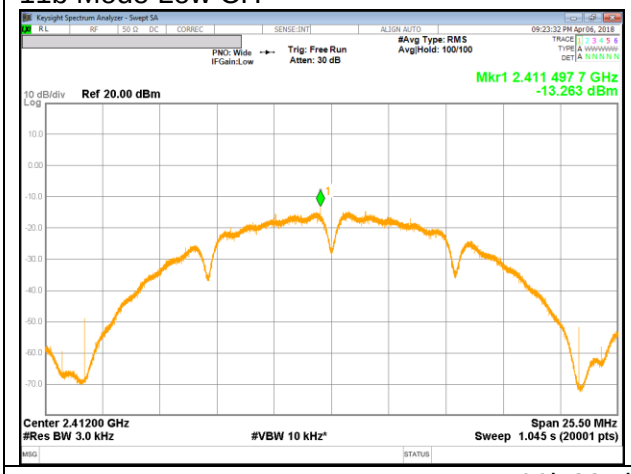
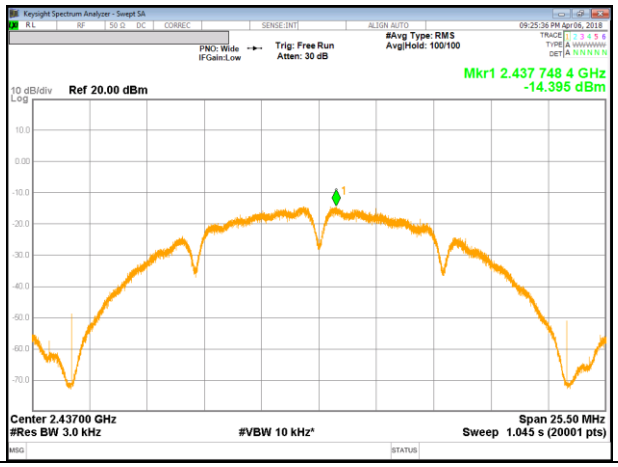
10.3.4.PSD PLOTS

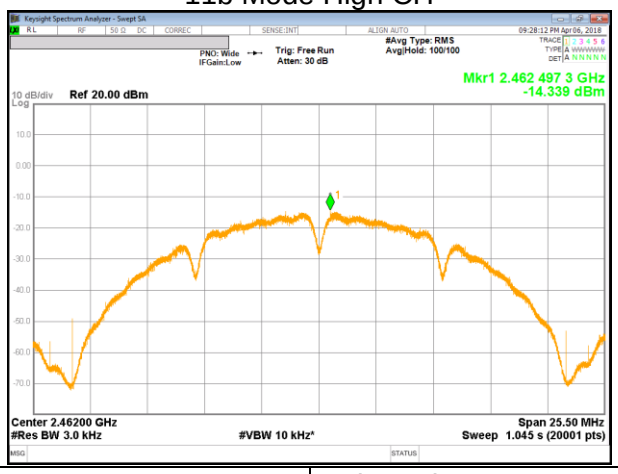
11b Mode Low CH



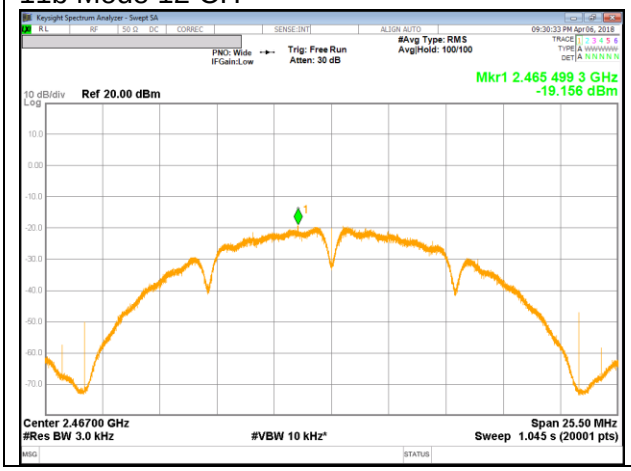
11b Mode Middle CH



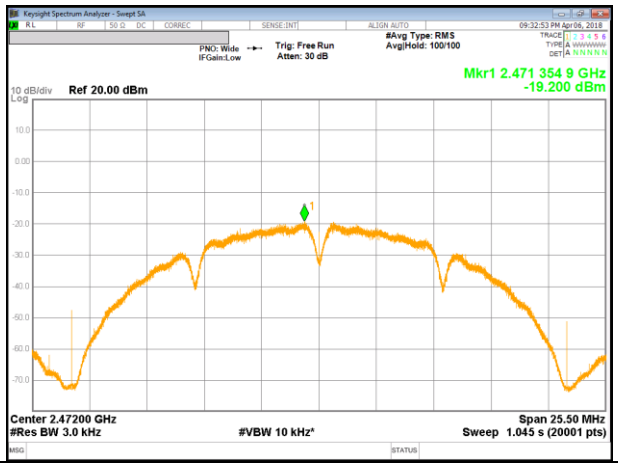
11b Mode High CH



11b Mode 12 CH



11b Mode 13 CH



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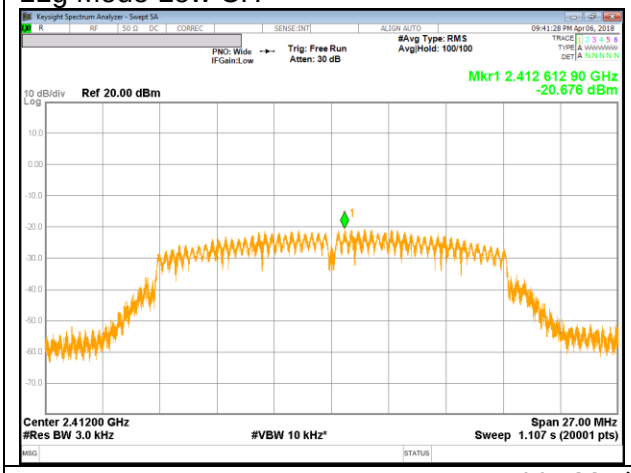
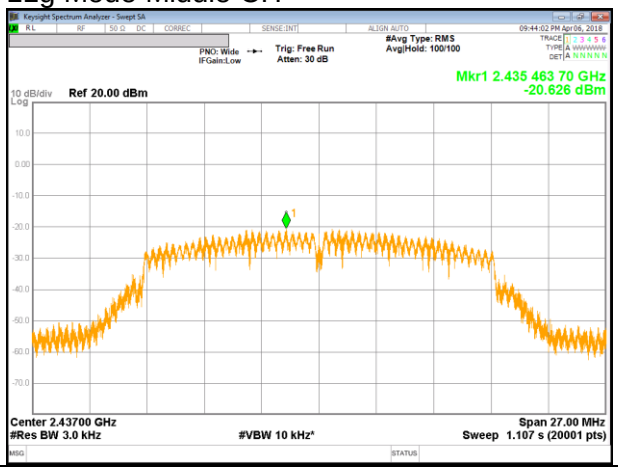
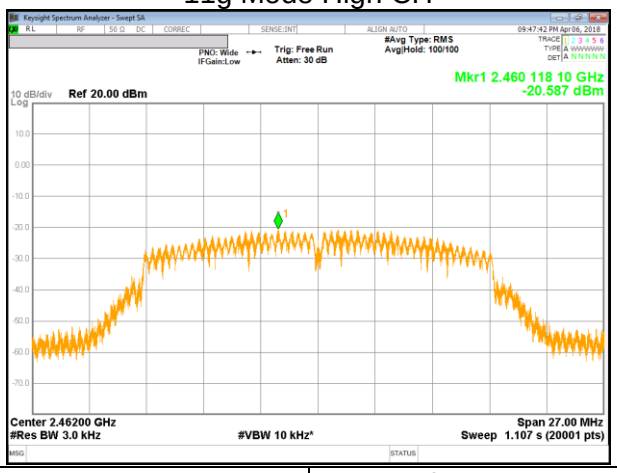
11g Mode Low CH



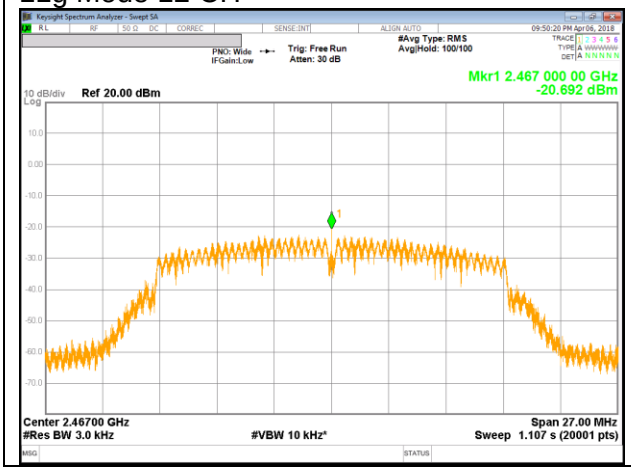
11g Mode Middle CH



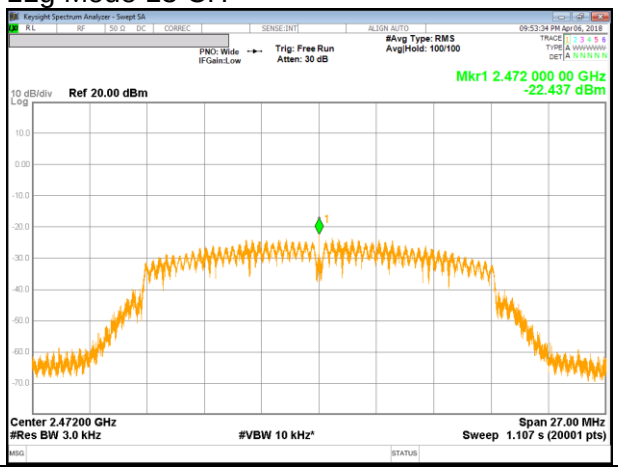
11g Mode High CH



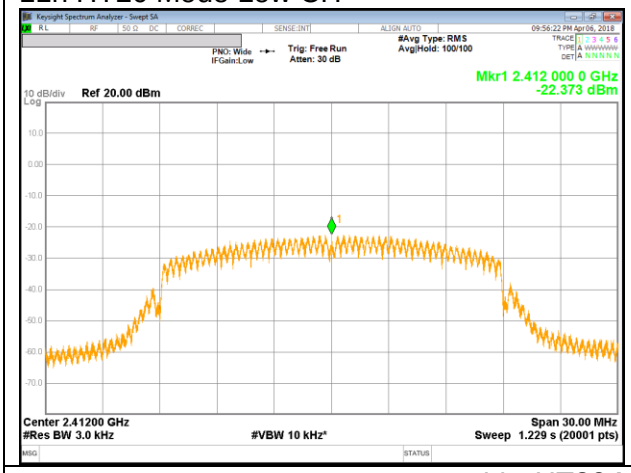
11g Mode 12 CH



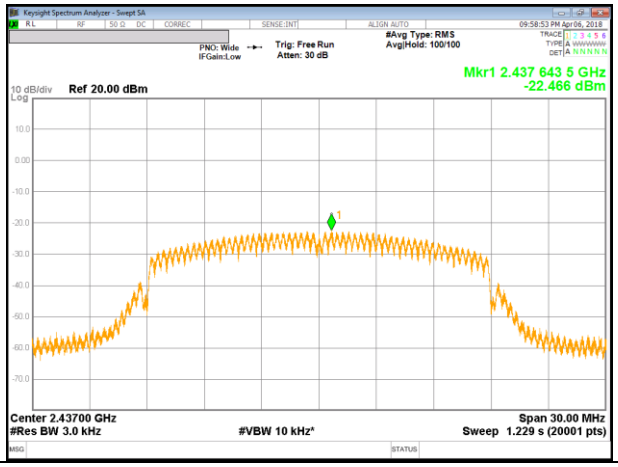
11g Mode 13 CH



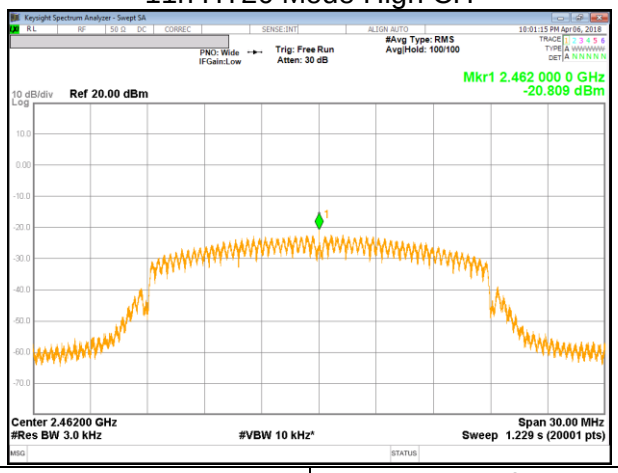
11n HT20 Mode Low CH



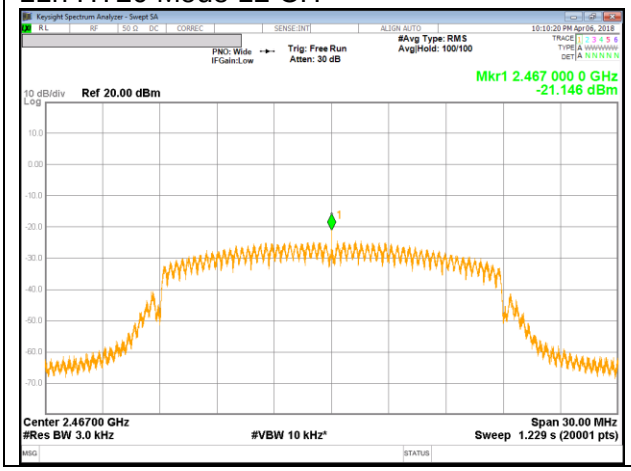
11n HT20 Mode Middle CH



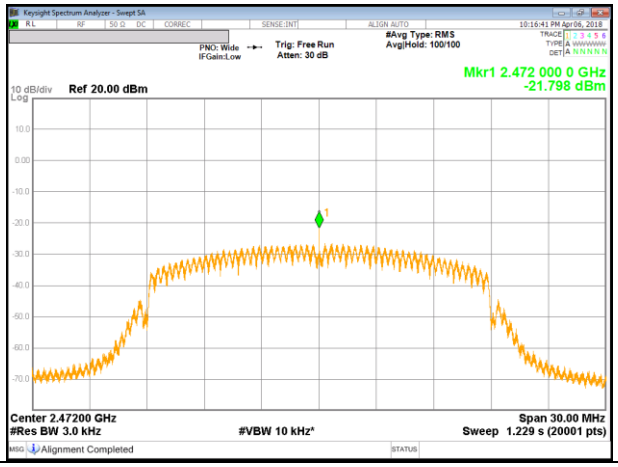
11n HT20 Mode High CH



11n HT20 Mode 12 CH



11n HT20 Mode 13 CH



10.4. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

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

For out-of-band emissions, it was tested with RBW = 1 MHz, VBW = 3 MHz, peak detector, and max hold.

If the emission level with above setting was close to the limit (ie, less than 3 dB margin) then re-test is required using RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold to get accurate emission level within 100 kHz BW

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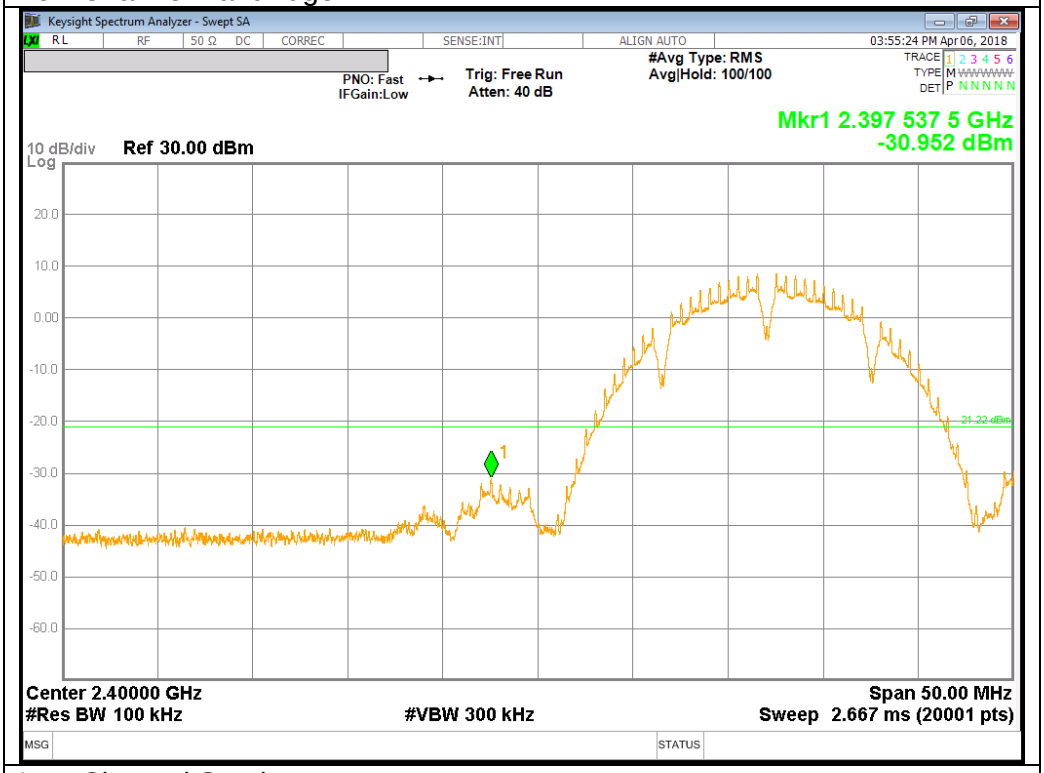
RESULTS

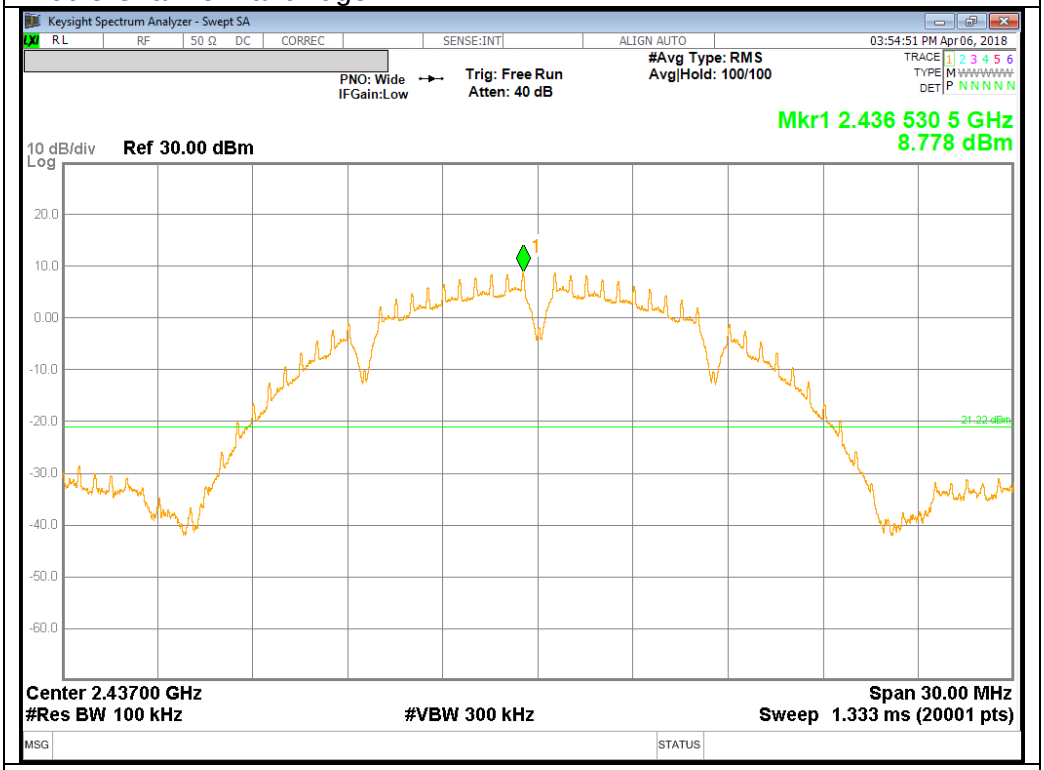
10.4.1.802.11b MODE IN THE 2.4 GHz BAND

Low Channel BandEdge

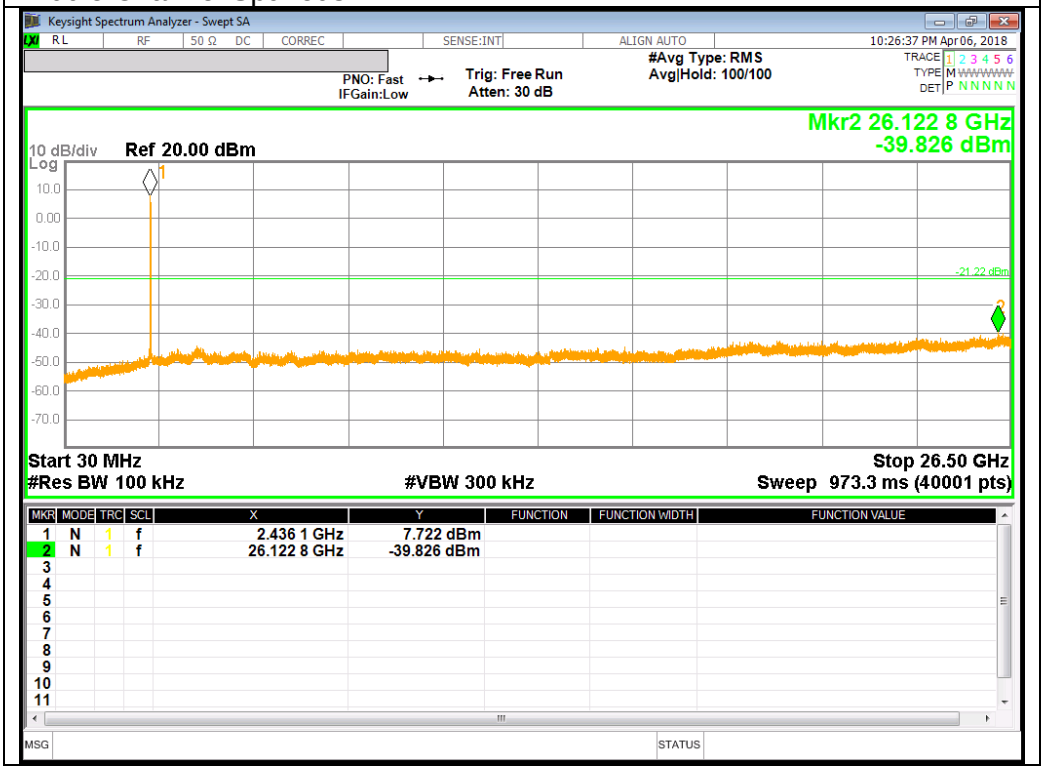


Low Channel Spurious

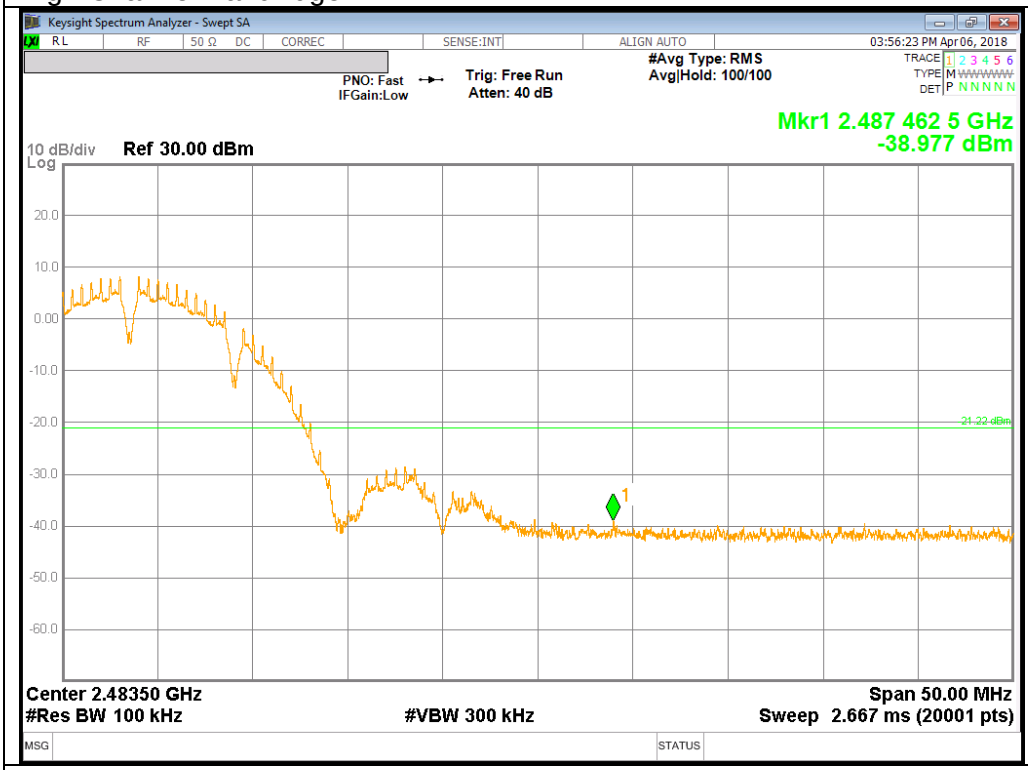
Middle Channel BandEdge



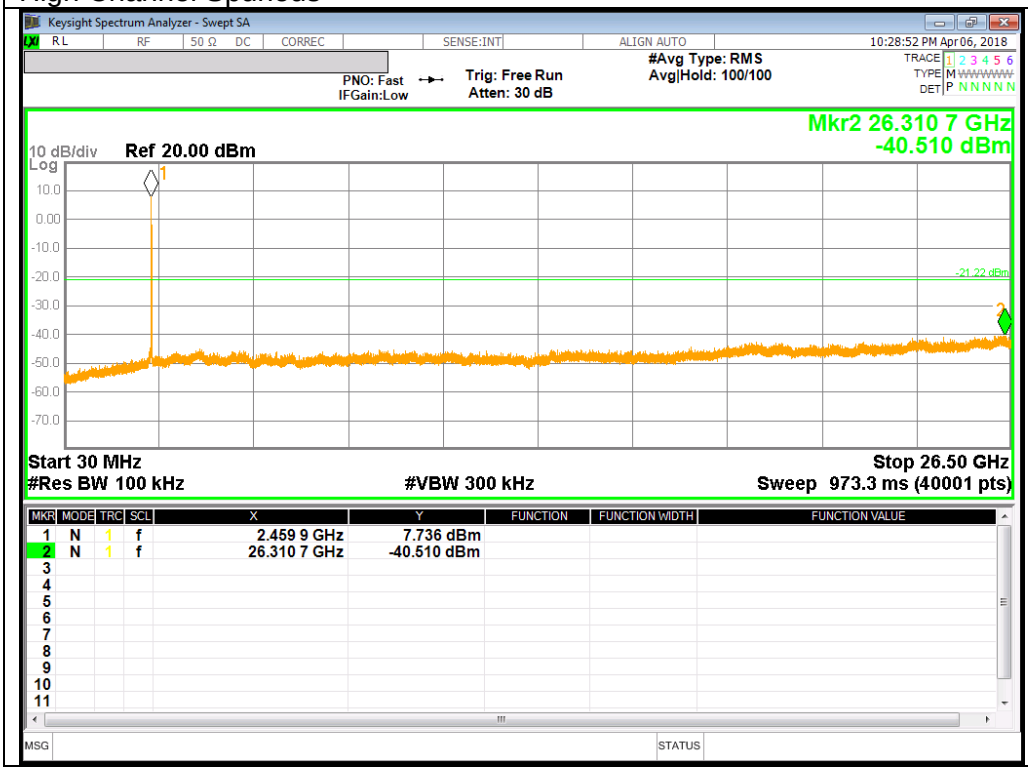
Middle Channel Spurious



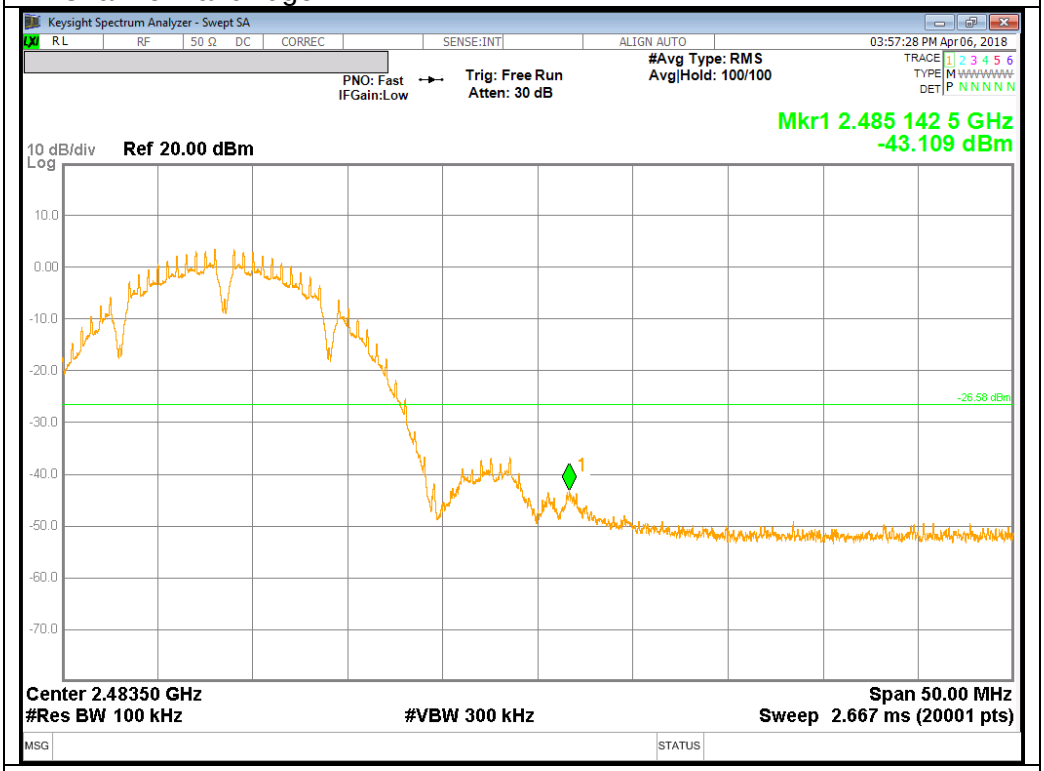
High Channel BandEdge



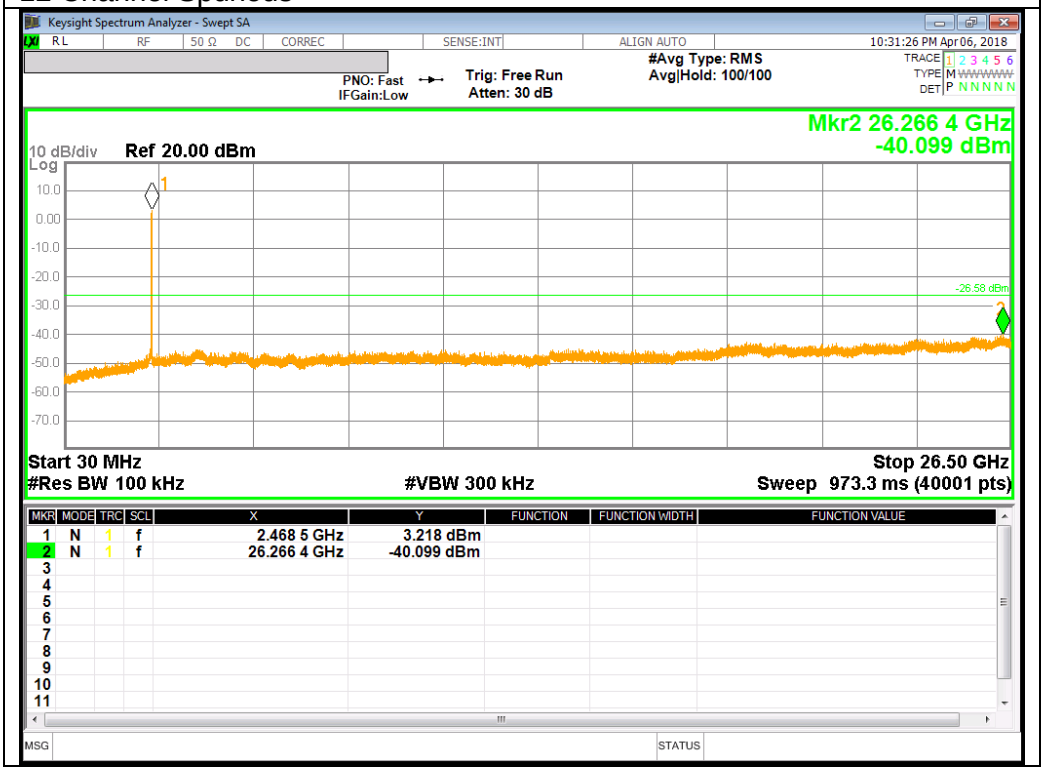
High Channel Spurious



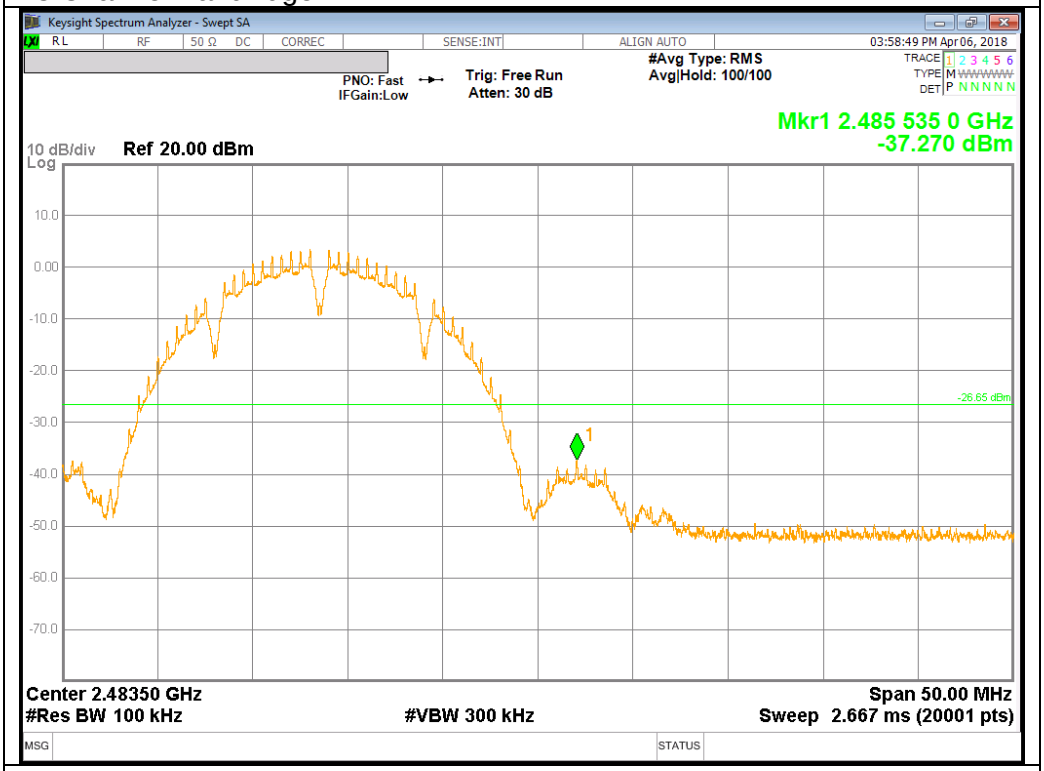
12 Channel BandEdge



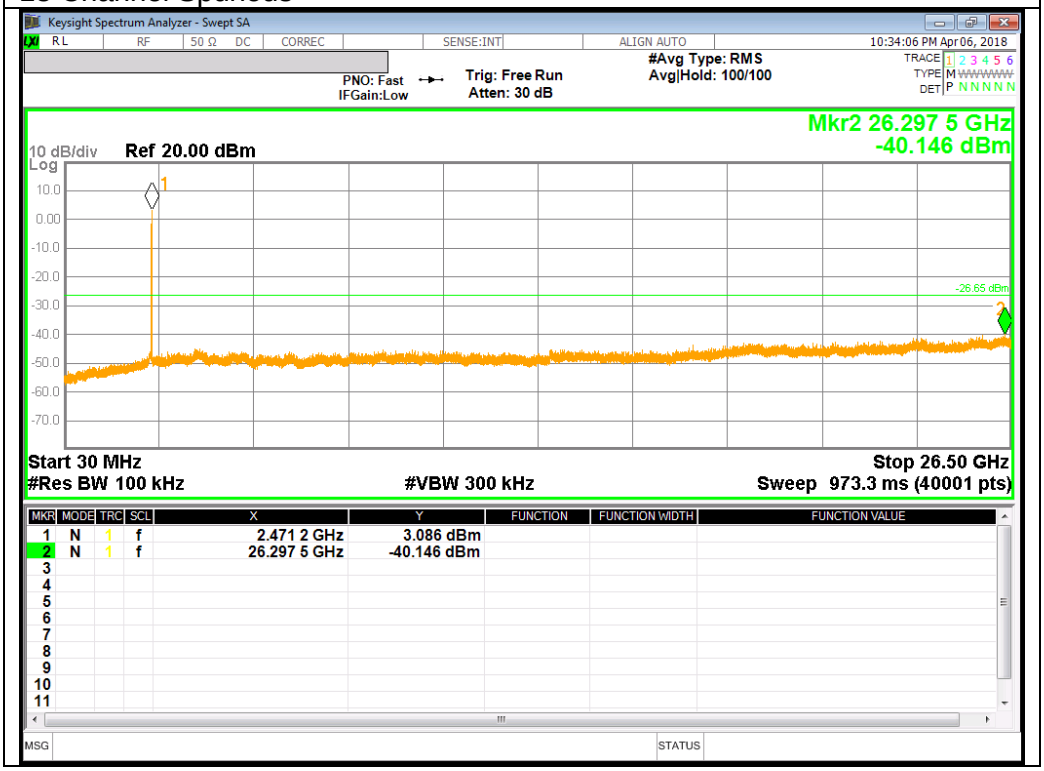
12 Channel Spurious



13 Channel BandEdge

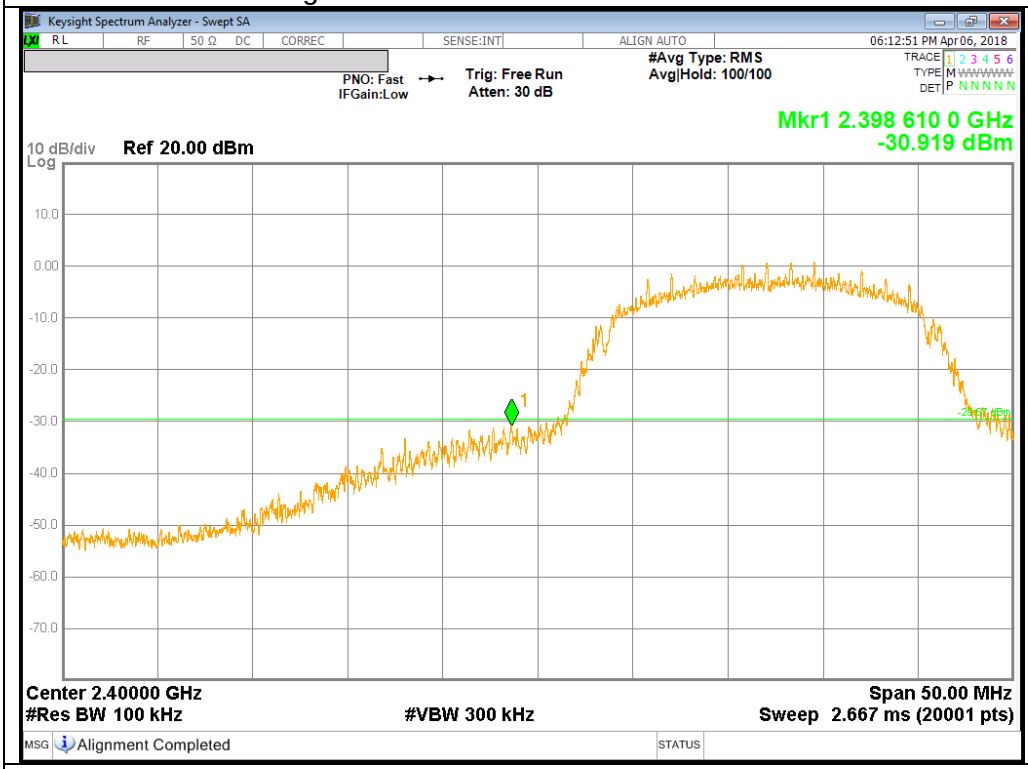


13 Channel Spurious

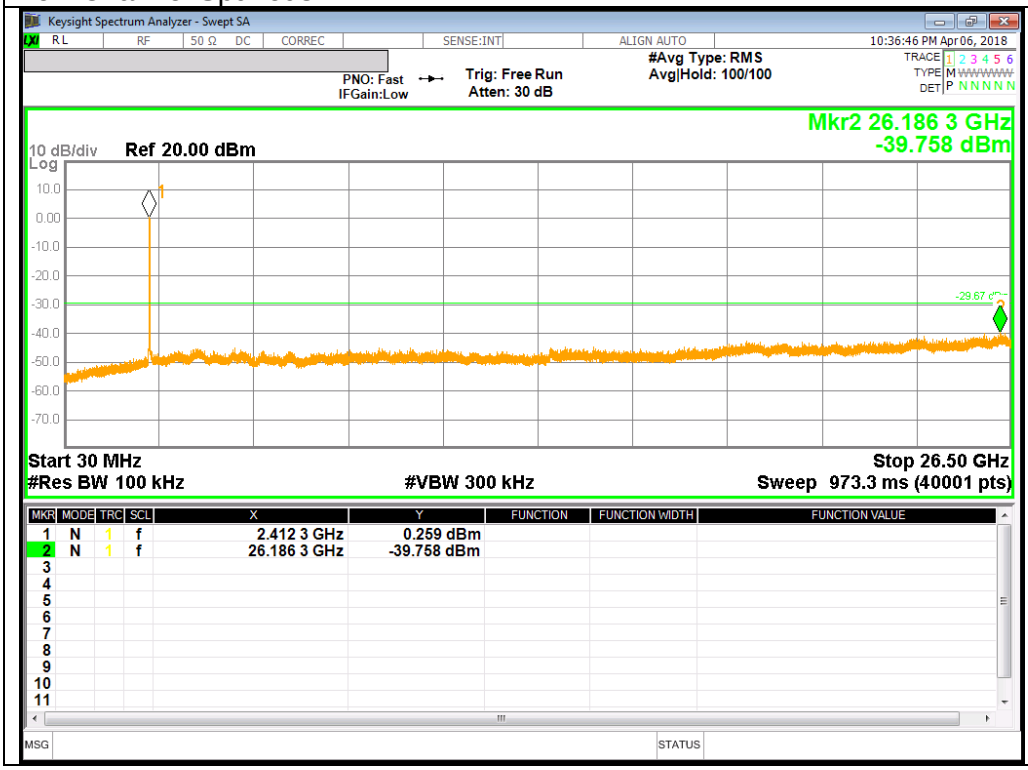


10.4.2.802.11g MODE IN THE 2.4 GHz BAND

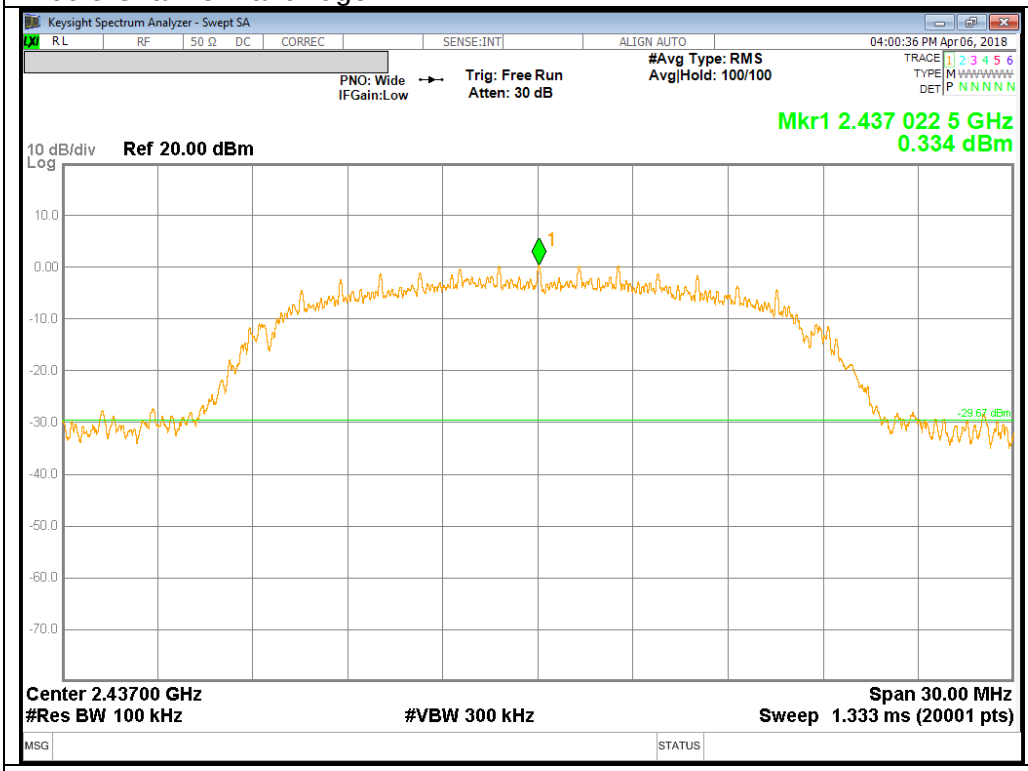
Low Channel BandEdge



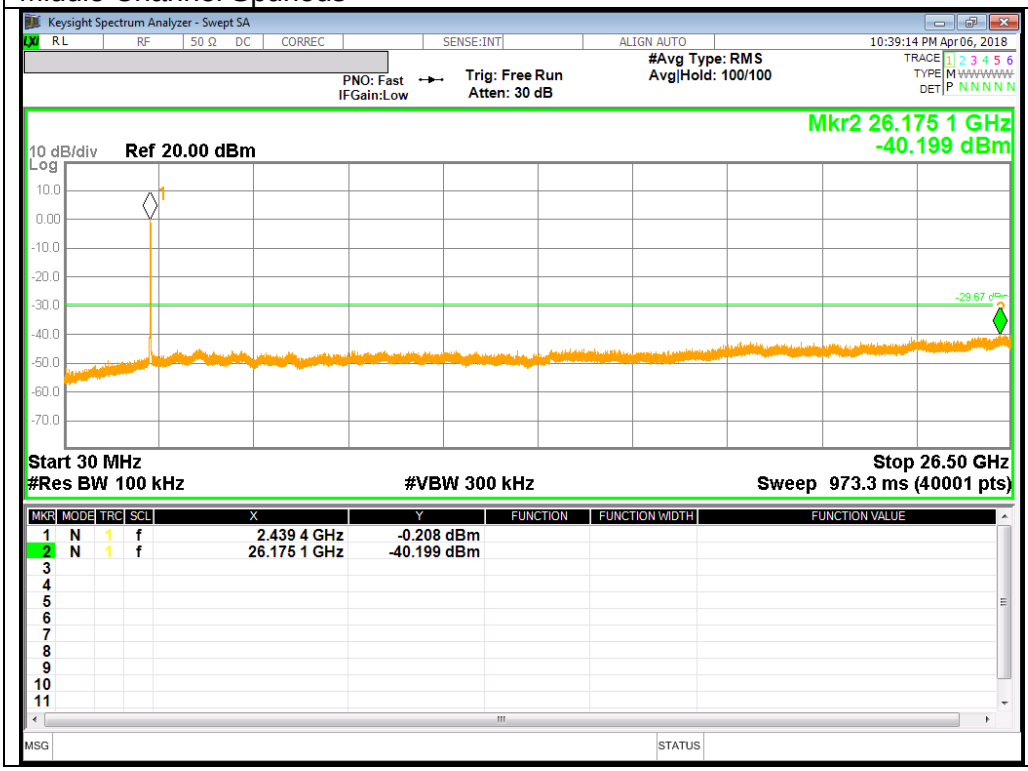
Low Channel Spurious



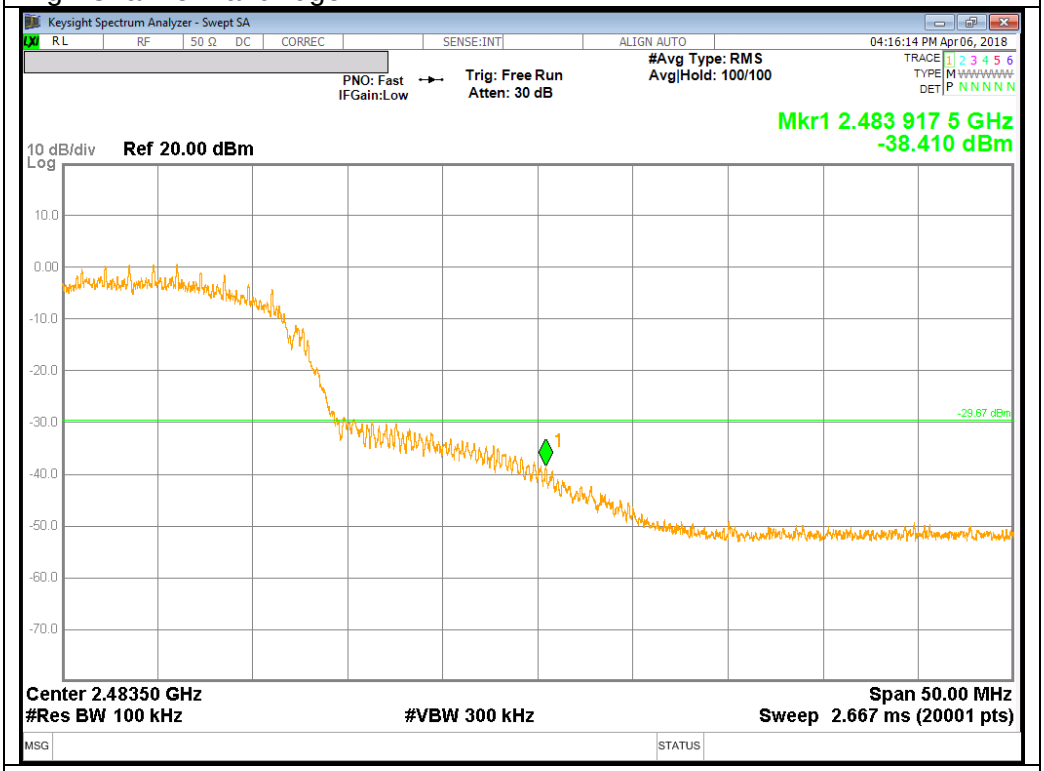
Middle Channel BandEdge



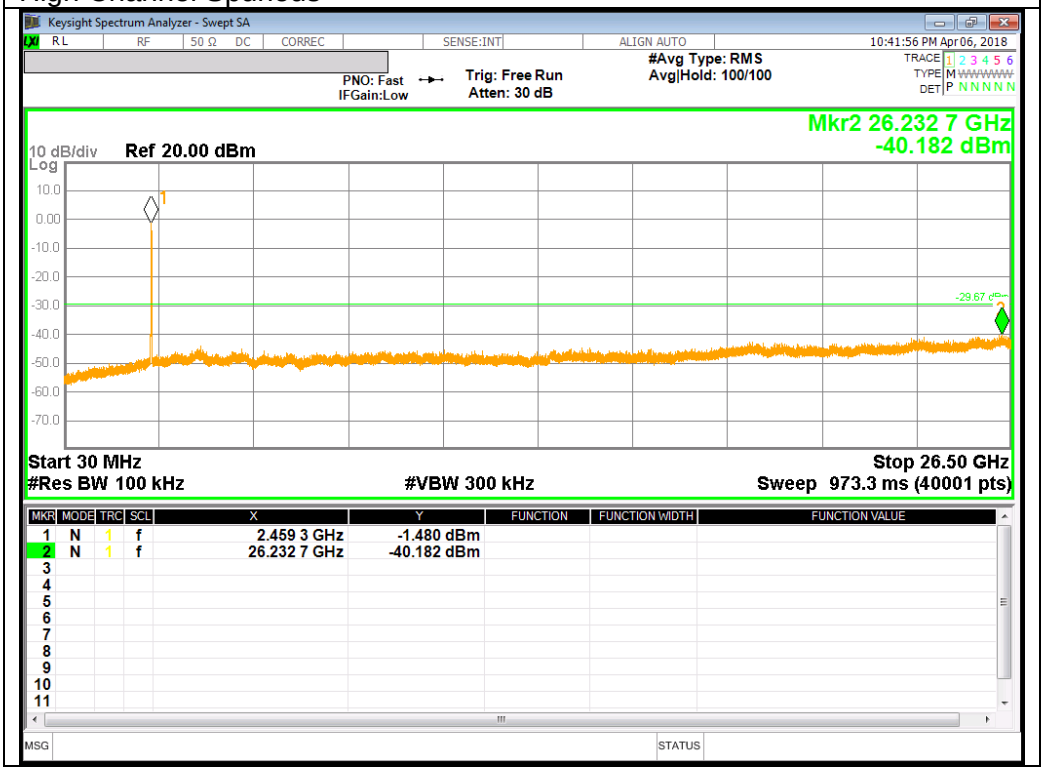
Middle Channel Spurious



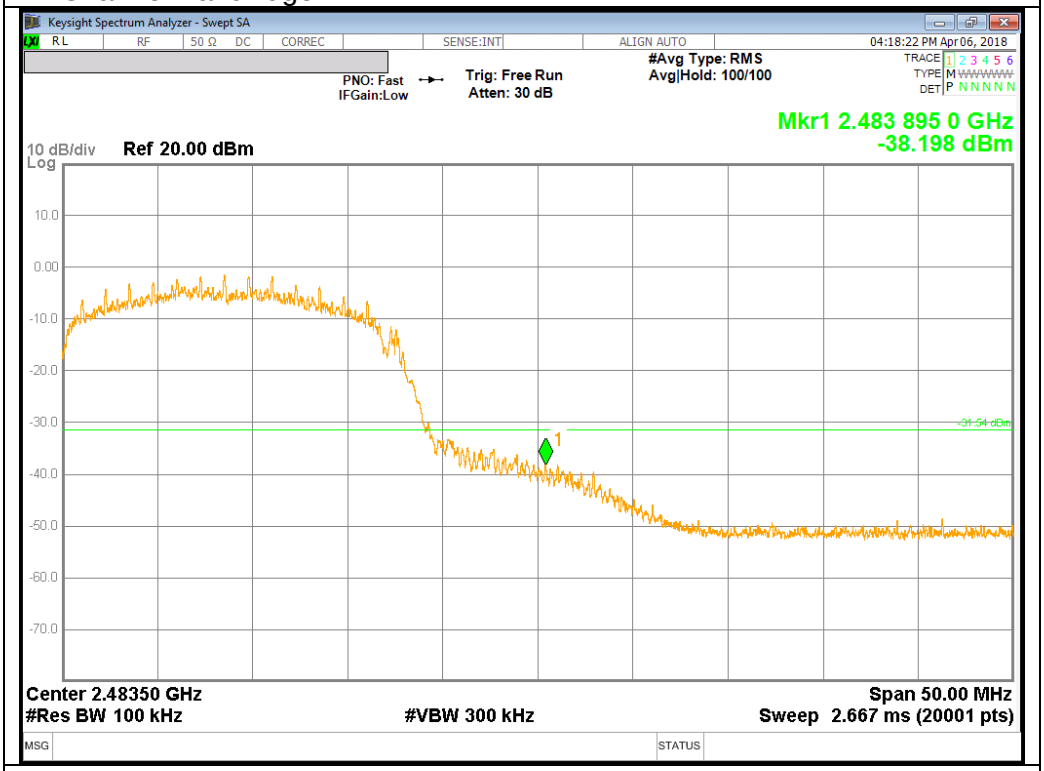
High Channel BandEdge



High Channel Spurious



12 Channel BandEdge



12 Channel Spurious

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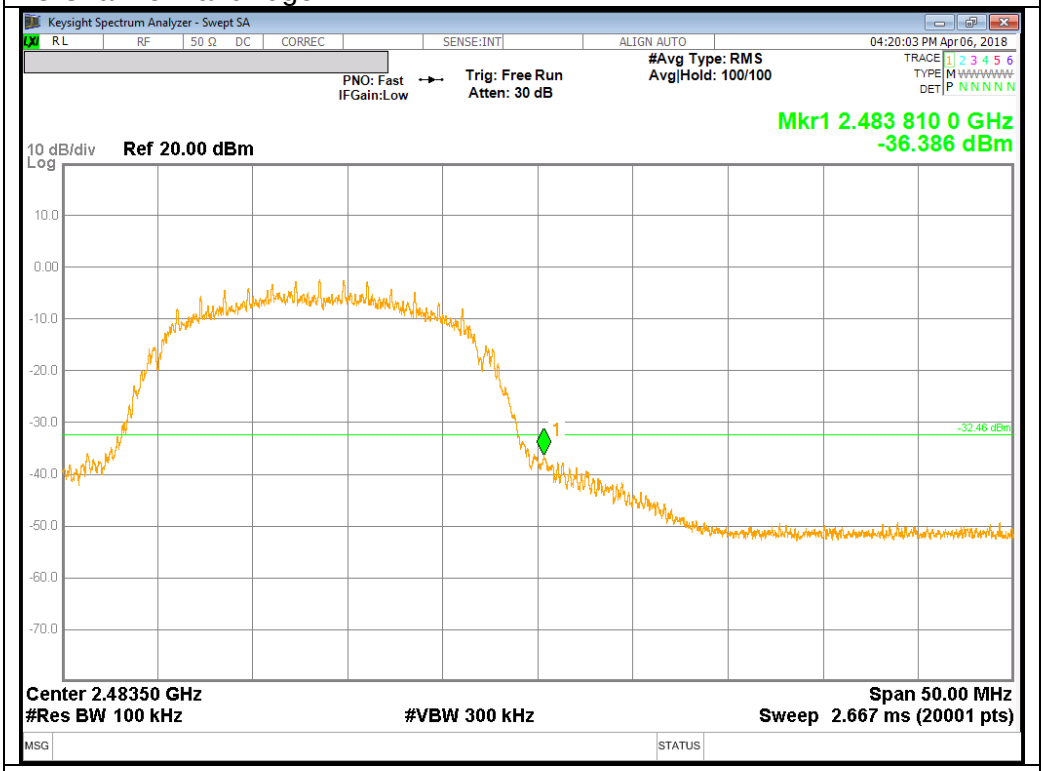
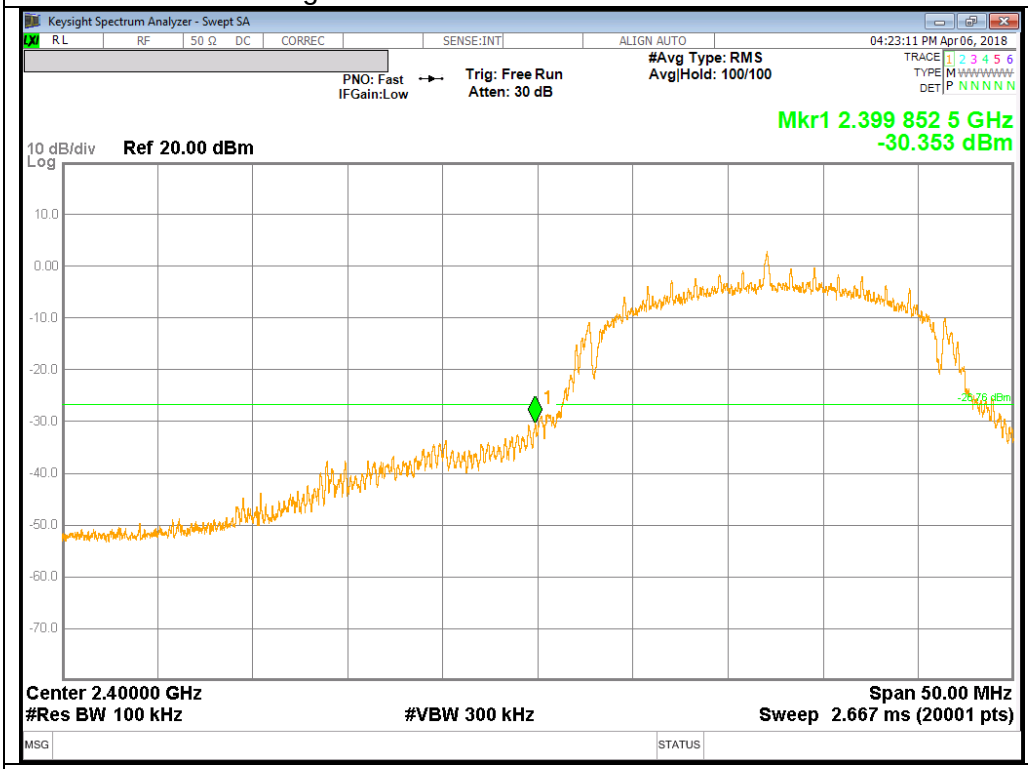
13 Channel BandEdge



13 Channel Spurious

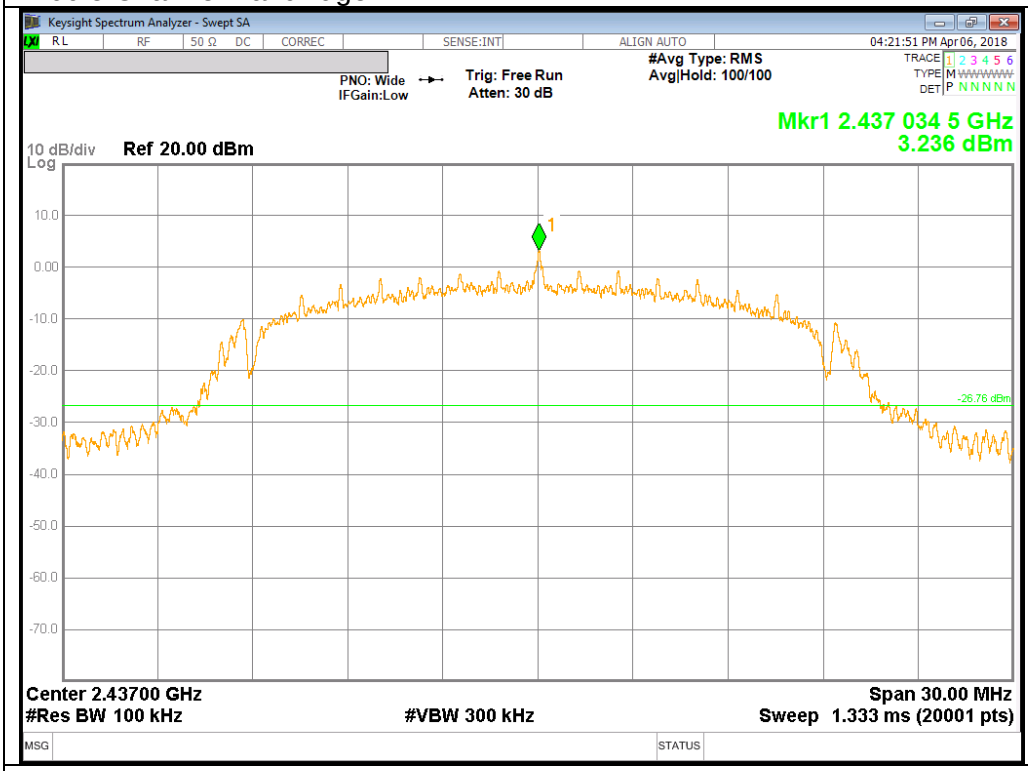
10.4.3.802.11n HT20 MODE IN THE 2.4 GHz BAND

Low Channel BandEdge

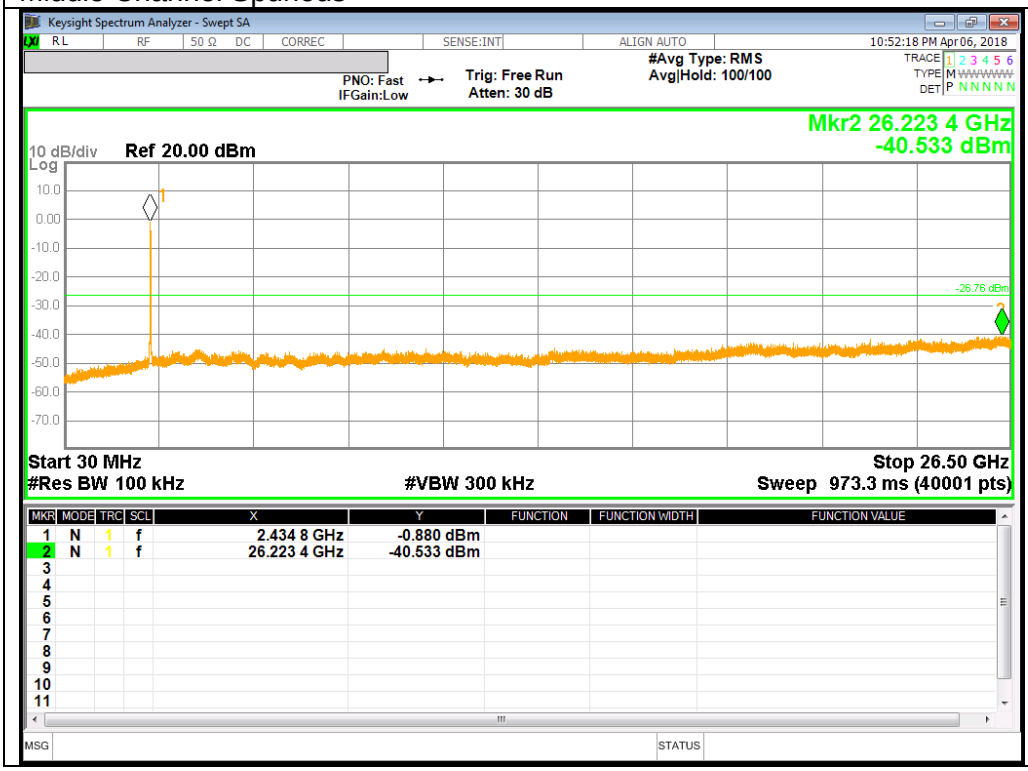


Low Channel Spurious

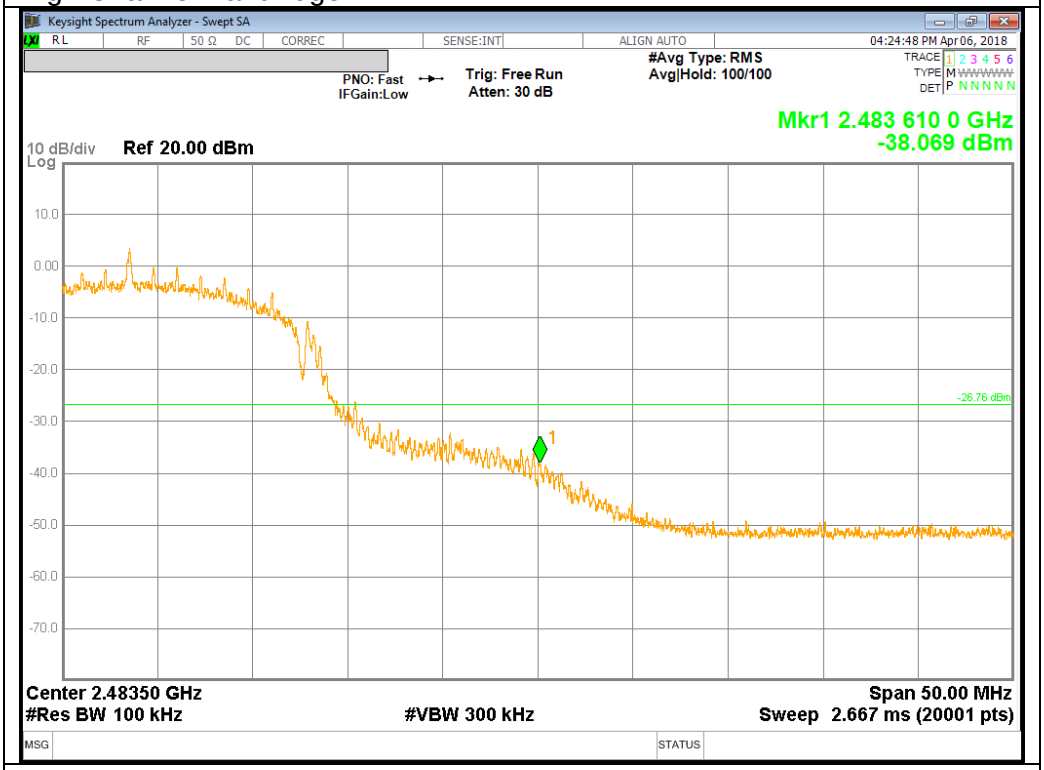
Middle Channel BandEdge



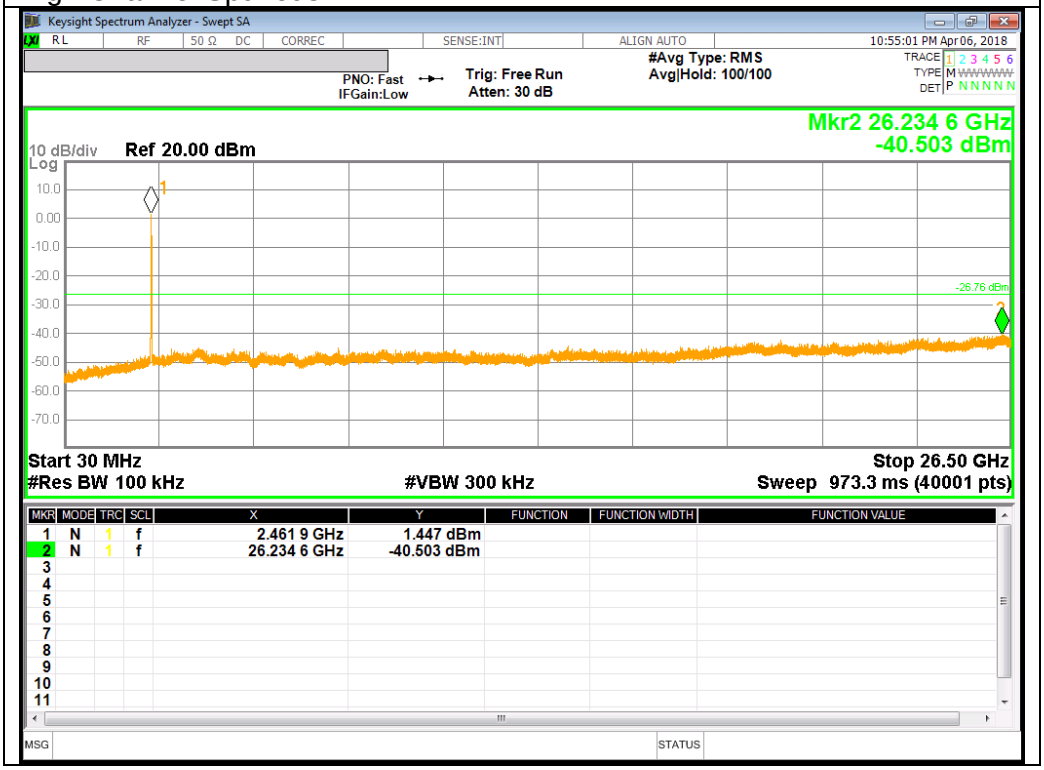
Middle Channel Spurious



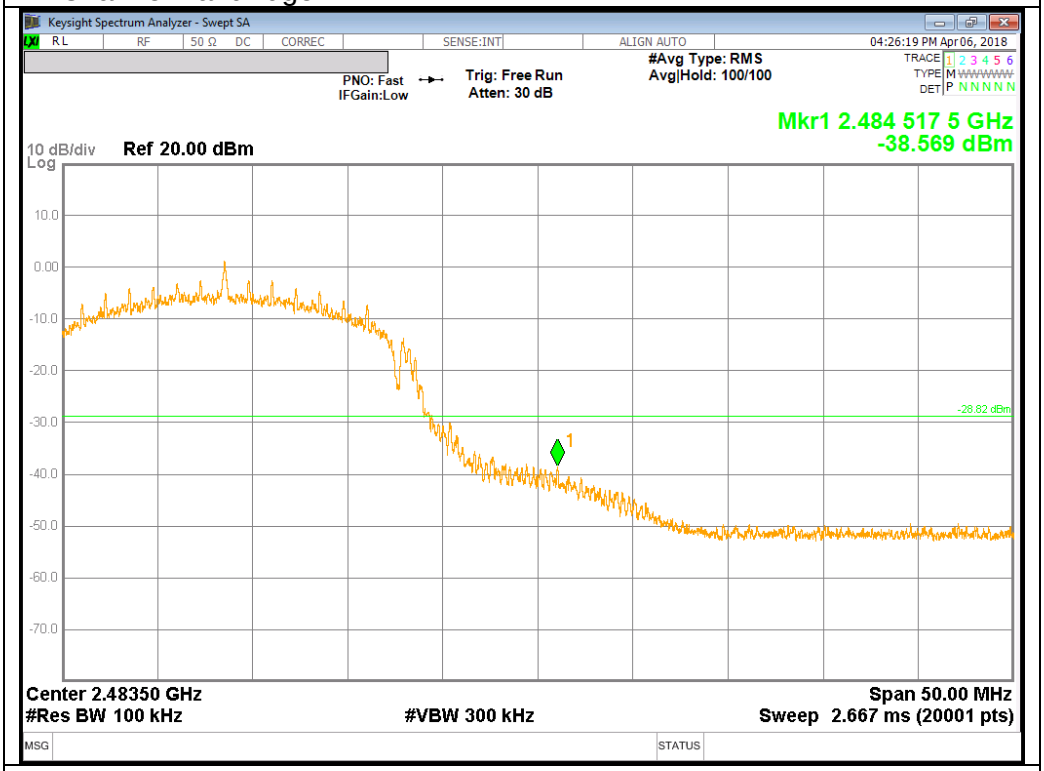
High Channel BandEdge



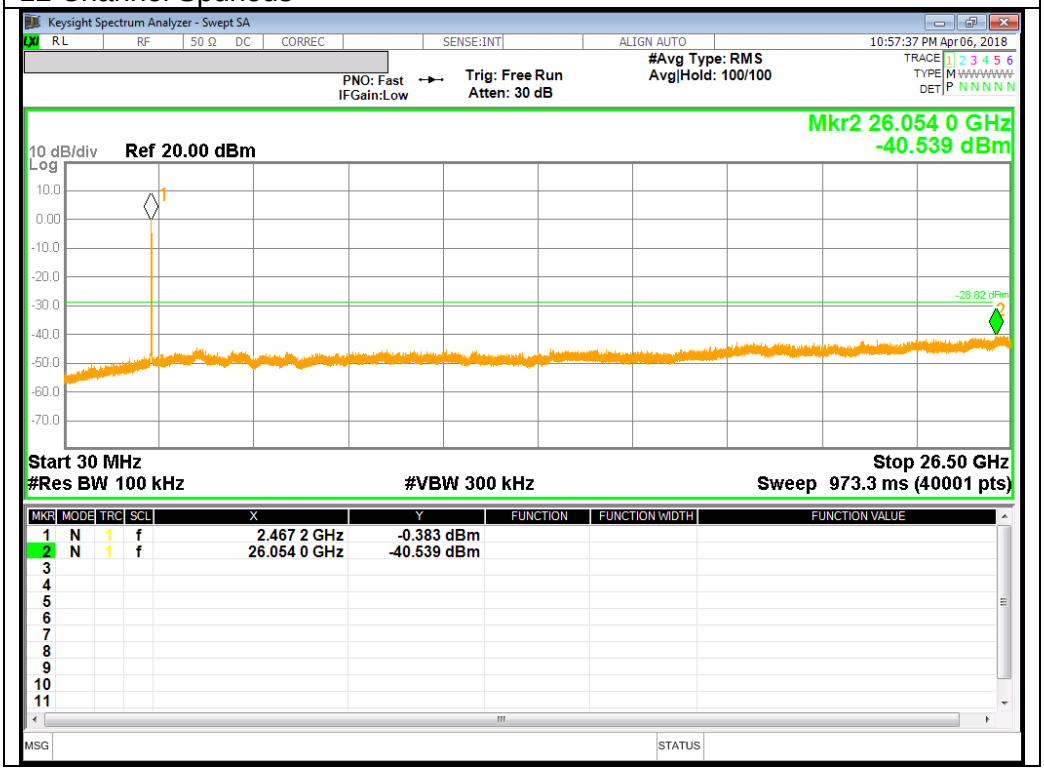
High Channel Spurious



12 Channel BandEdge



12 Channel Spurious



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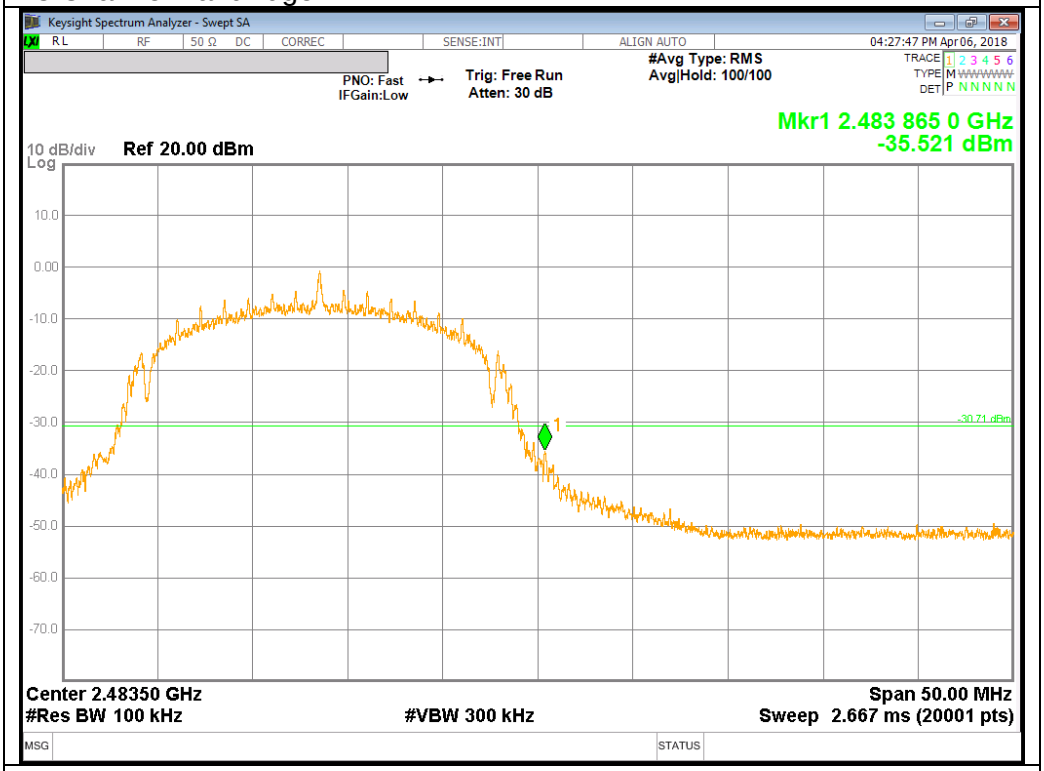
13 Channel BandEdge



13 Channel Spurious

11. RADIATED TEST RESULTS

11.1. 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.

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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 = 0.12dB ; N mode = 0.13dB.

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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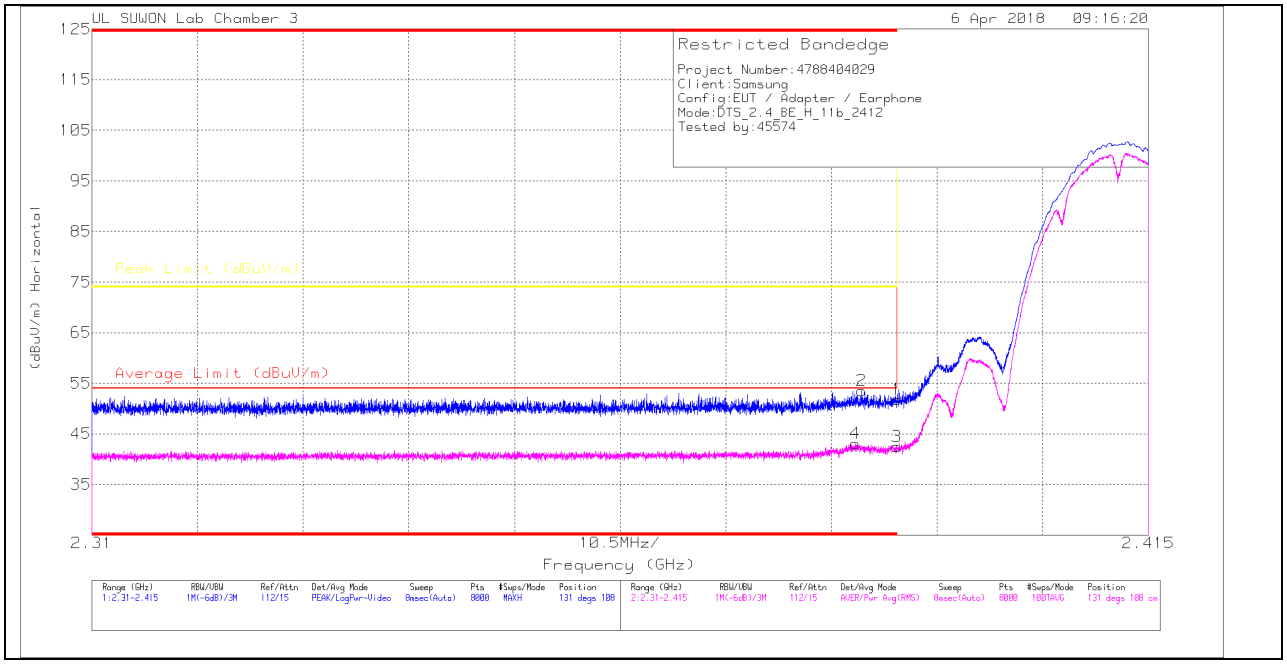
11.2. TRANSMITTER ABOVE 1 GHz

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



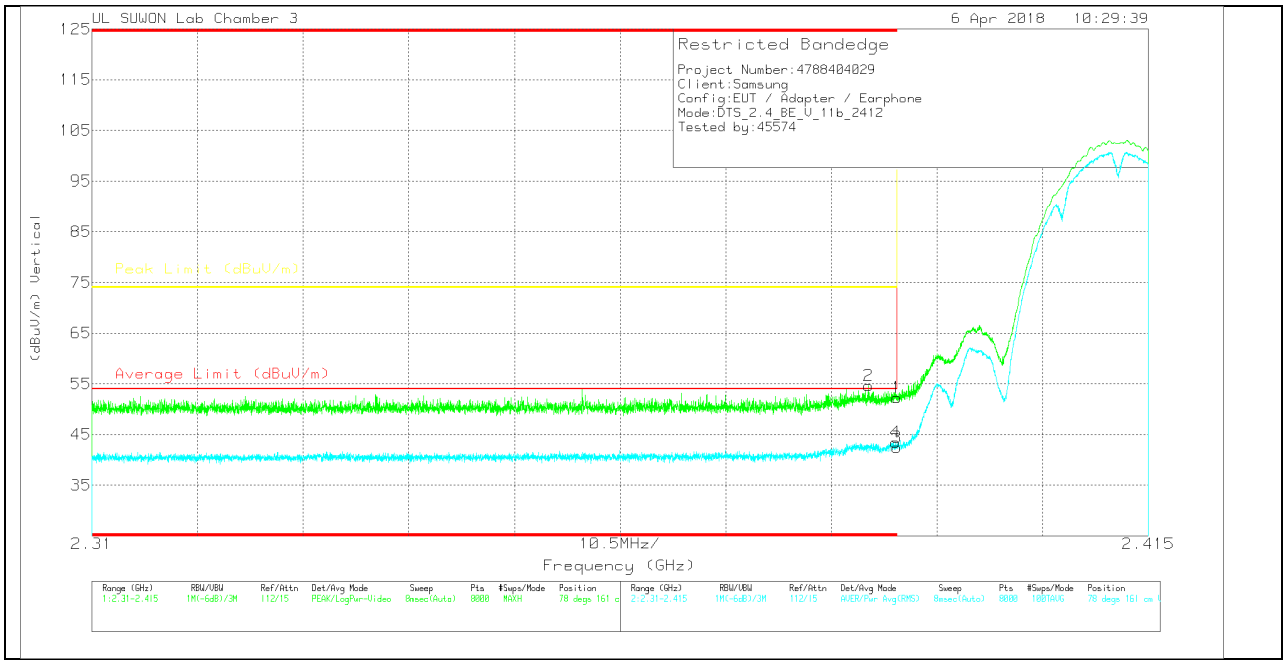
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	43.27	Pk	31.8	-23.3	0	51.77	-	-	74	-22.23	131	108	H
2	* 2.387	44.99	Pk	31.8	-23.3	0	53.49	-	-	74	-20.51	131	108	H
3	* 2.39	33.97	RMS	31.8	-23.3	0	42.47	54	-11.53	-	-	131	108	H
4	* 2.386	34.56	RMS	31.8	-23.3	0	43.06	54	-10.94	-	-	131	108	H

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

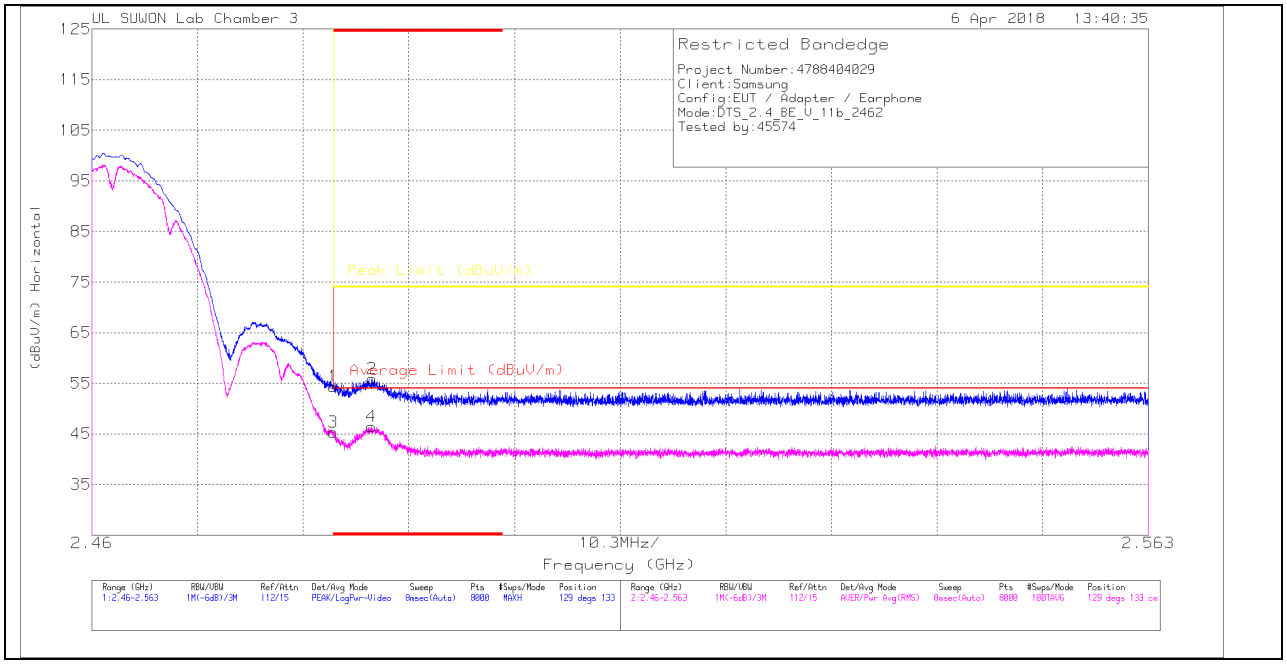
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	43.83	Pk	31.8	-23.3	0	52.33	-	-	74	-21.67	78	161	V
2	* 2.387	46.09	Pk	31.8	-23.3	0	54.59	-	-	74	-19.41	78	161	V
3	* 2.39	33.97	RMS	31.8	-23.3	0	42.47	54	-11.53	-	-	78	161	V
4	* 2.39	34.98	RMS	31.8	-23.3	0	43.48	54	-10.52	-	-	78	161	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[00205959]	10dB_ATT[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	45.28	Pk	32.1	-23	0	54.38	-	-	74	-19.62	129	133	H
2	* 2.487	46.84	Pk	32.1	-23.1	0	55.84	-	-	74	-18.16	129	133	H
3	* 2.484	36.27	RMS	32.1	-23	0	45.37	54	-8.63	-	-	129	133	H
4	* 2.487	37.45	RMS	32.1	-23.1	0	46.45	54	-7.55	-	-	129	133	H

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

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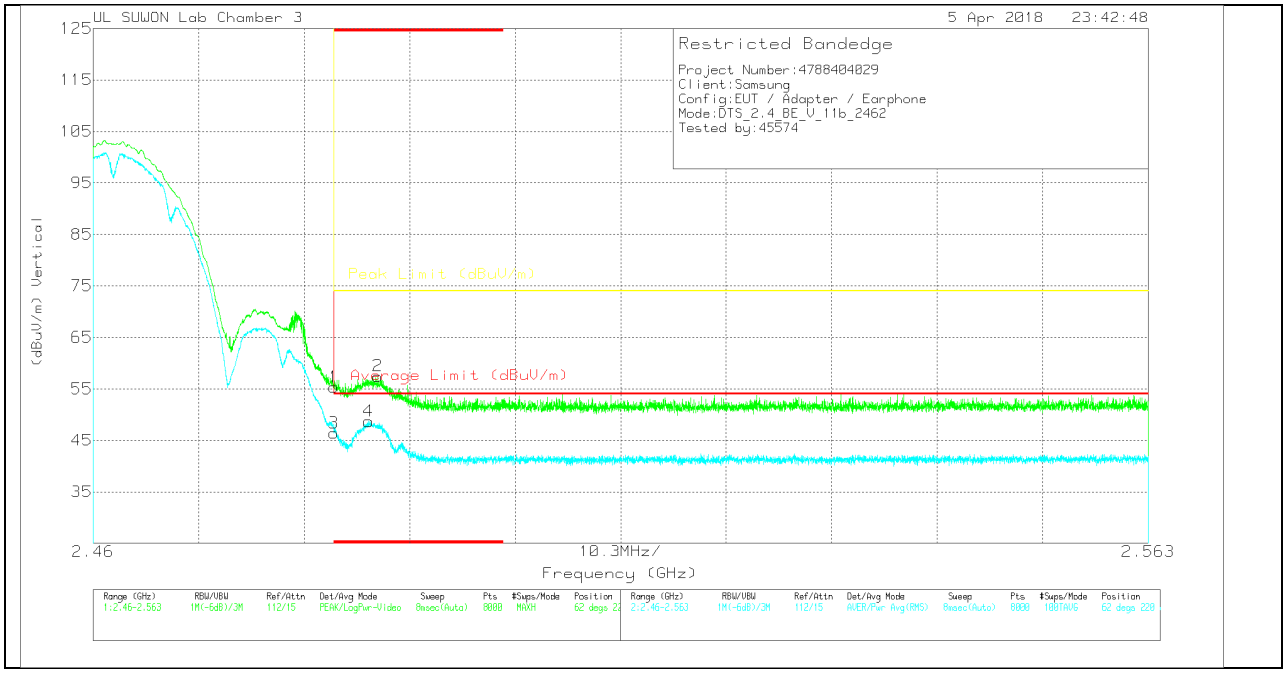
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

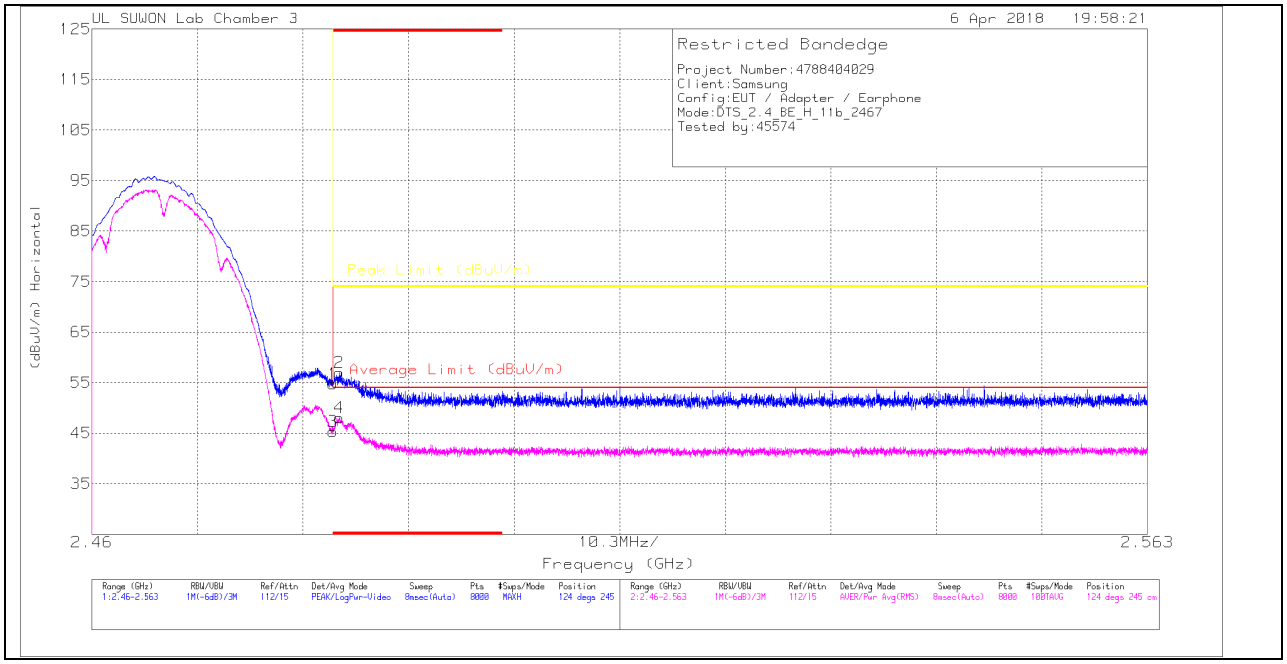
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	46.21	Pk	32.1	-23	0	55.31	-	-	74	-18.69	62	220	V
2	* 2.488	48.47	Pk	32.1	-23.1	0	57.47	-	-	74	-16.53	62	220	V
3	* 2.484	37.32	RMS	32.1	-23	0	46.42	54	-7.58	-	-	62	220	V
4	* 2.487	39.69	RMS	32.1	-23.1	0	48.69	54	-5.31	-	-	62	220	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-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[00205959]	10dB_ATT[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	45.66	Pk	32.1	-23	0	54.76	-	-	74	-19.24	124	245	H
2	* 2.484	48.01	Pk	32.1	-23.1	0	57.01	-	-	74	-16.99	124	245	H
3	* 2.484	36.23	RMS	32.1	-23	0	45.33	54	-8.67	-	-	124	245	H
4	* 2.484	39.02	RMS	32.1	-23.1	0	48.02	54	-5.98	-	-	124	245	H

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

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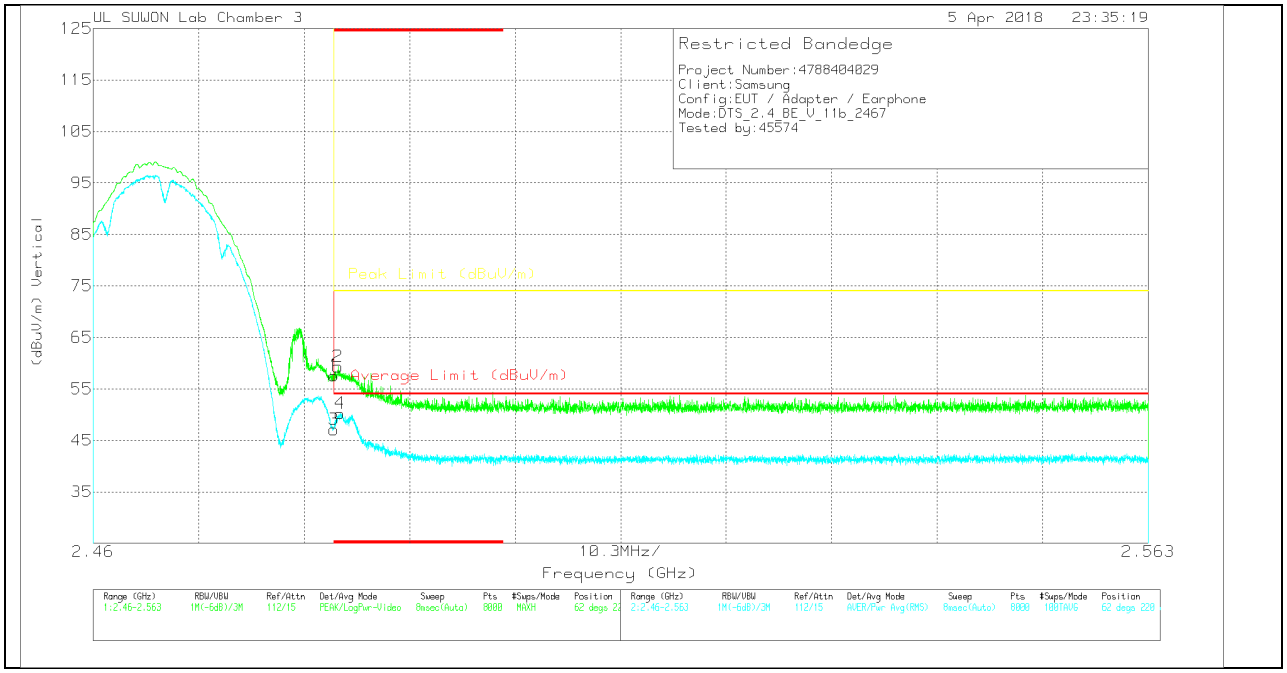
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

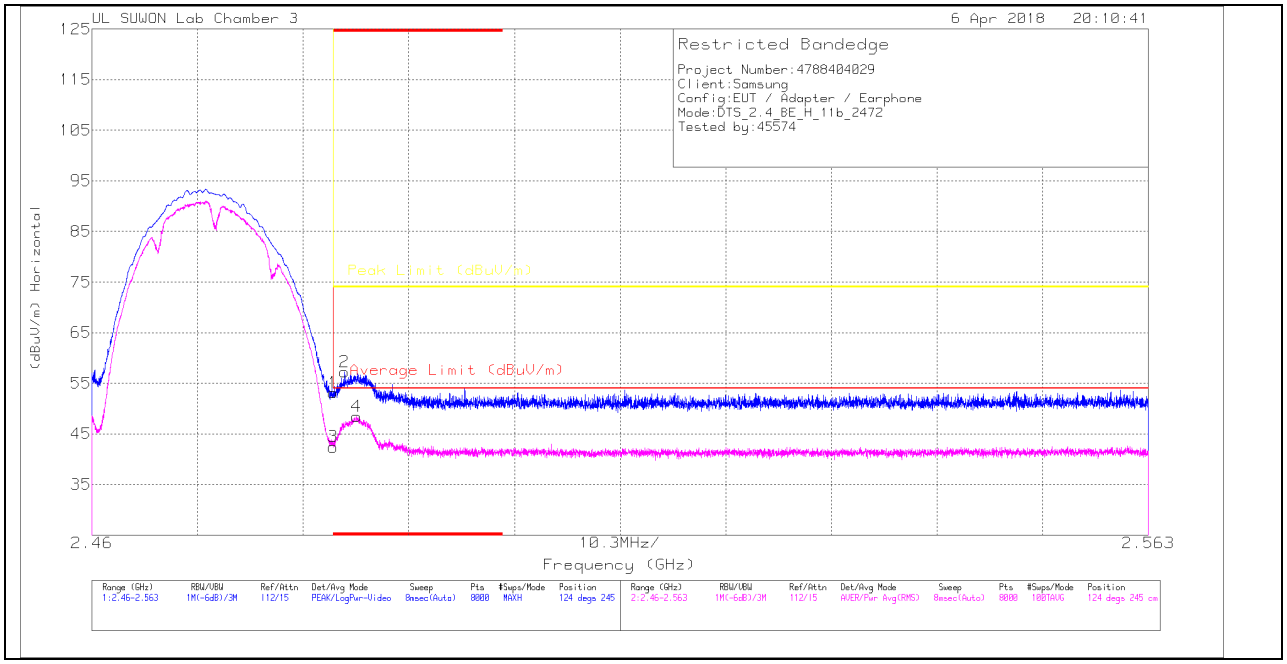
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	48.46	Pk	32.1	-23	0	57.56	-	-	74	-16.44	62	220	V
2	* 2.484	50.32	Pk	32.1	-23.1	0	59.32	-	-	74	-14.68	62	220	V
3	* 2.484	38.01	RMS	32.1	-23	0	47.11	54	-6.89	-	-	62	220	V
4	* 2.484	41.25	RMS	32.1	-23.1	0	50.25	54	-3.75	-	-	62	220	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[00205959]	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	44.07	Pk	32.1	-23	0	53.17	-	-	74	-20.83	124	245	H
2	* 2.485	48.22	Pk	32.1	-23.1	0	57.22	-	-	74	-16.78	124	245	H
3	* 2.484	33.31	RMS	32.1	-23	0	42.41	54	-11.59	-	-	124	245	H
4	* 2.486	39.4	RMS	32.1	-23.1	0	48.4	54	-5.6	-	-	124	245	H

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

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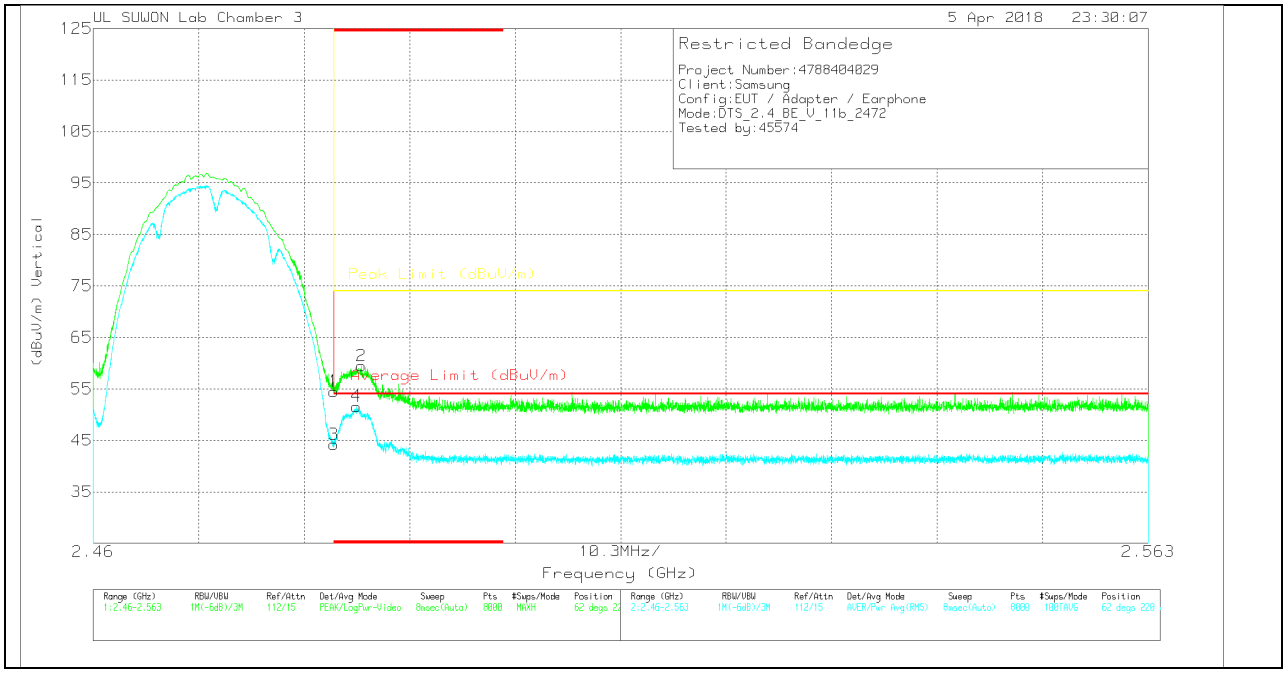
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	45.41	Pk	32.1	-23	0	54.51	-	-	74	-19.49	62	220	V
2	* 2.486	50.49	Pk	32.1	-23.1	0	59.49	-	-	74	-14.51	62	220	V
3	* 2.484	35.1	RMS	32.1	-23	0	44.2	54	-9.8	-	-	62	220	V
4	* 2.486	42.59	RMS	32.1	-23.1	0	51.59	54	-2.41	-	-	62	220	V

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

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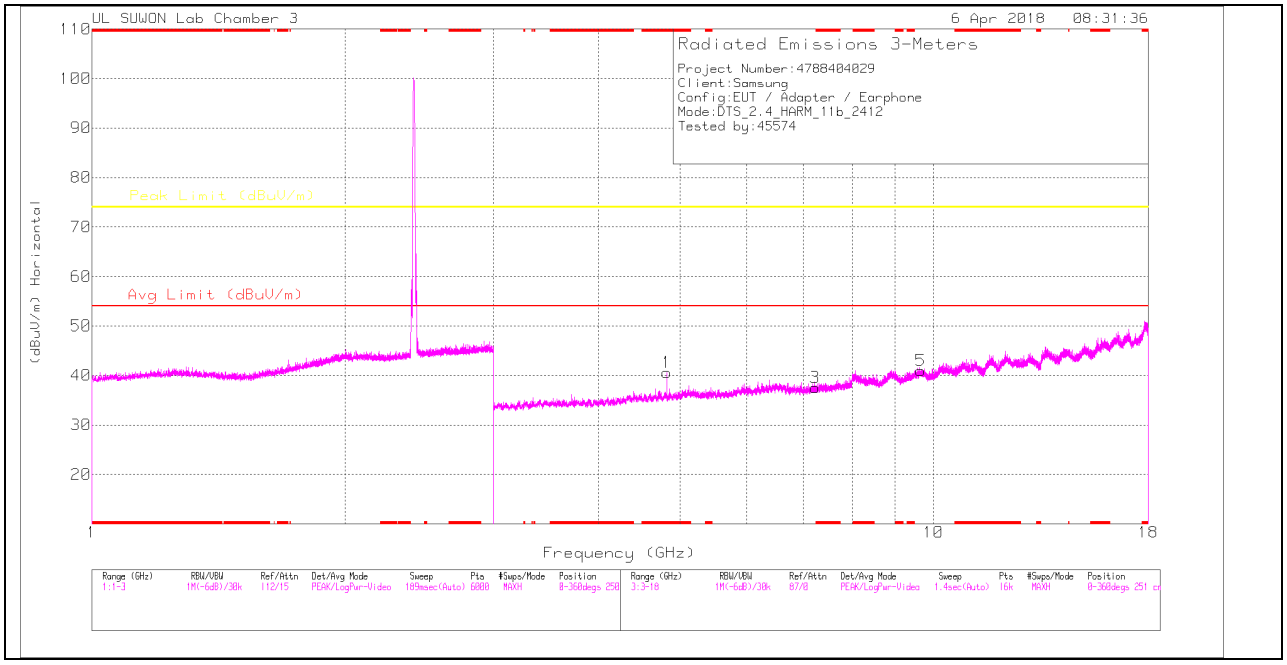
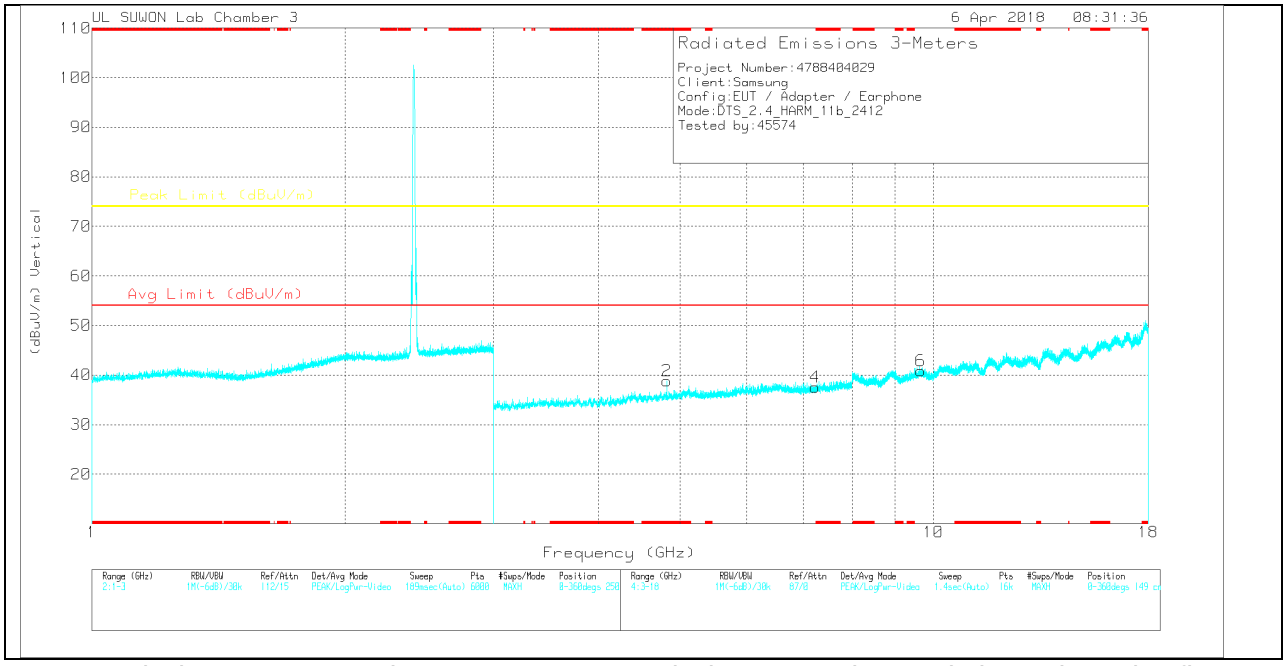
HARMONICS AND SPURIOUS EMISSIONS

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	34.85	PK	34	-28.3	0	40.55	-	-	74	-33.45	0-360	150	H
3	7.237	25.83	PK	35.6	-23.9	0	37.53	-	-	74	-36.47	0-360	251	H
5	9.649	24.03	PK	36.7	-19.7	0	41.03	-	-	74	-32.97	0-360	251	H
2	* 4.824	33.13	PK	34	-28.3	0	38.83	-	-	74	-35.17	0-360	251	V
4	7.238	25.83	PK	35.6	-23.9	0	37.53	-	-	74	-36.47	0-360	149	V
6	9.649	23.85	PK	36.7	-19.7	0	40.85	-	-	74	-33.15	0-360	149	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	42.09	PK2	34	-28.3	0	47.79	-	-	74	-26.21	116	136	H
* 4.824	34.24	MAv1	34	-28.3	0	39.94	54	-14.06	-	-	116	136	H
* 4.824	39.83	PK2	34	-28.3	0	45.53	-	-	74	-28.47	151	277	V
* 4.824	34.08	MAv1	34	-28.3	0	39.78	54	-14.22	-	-	151	277	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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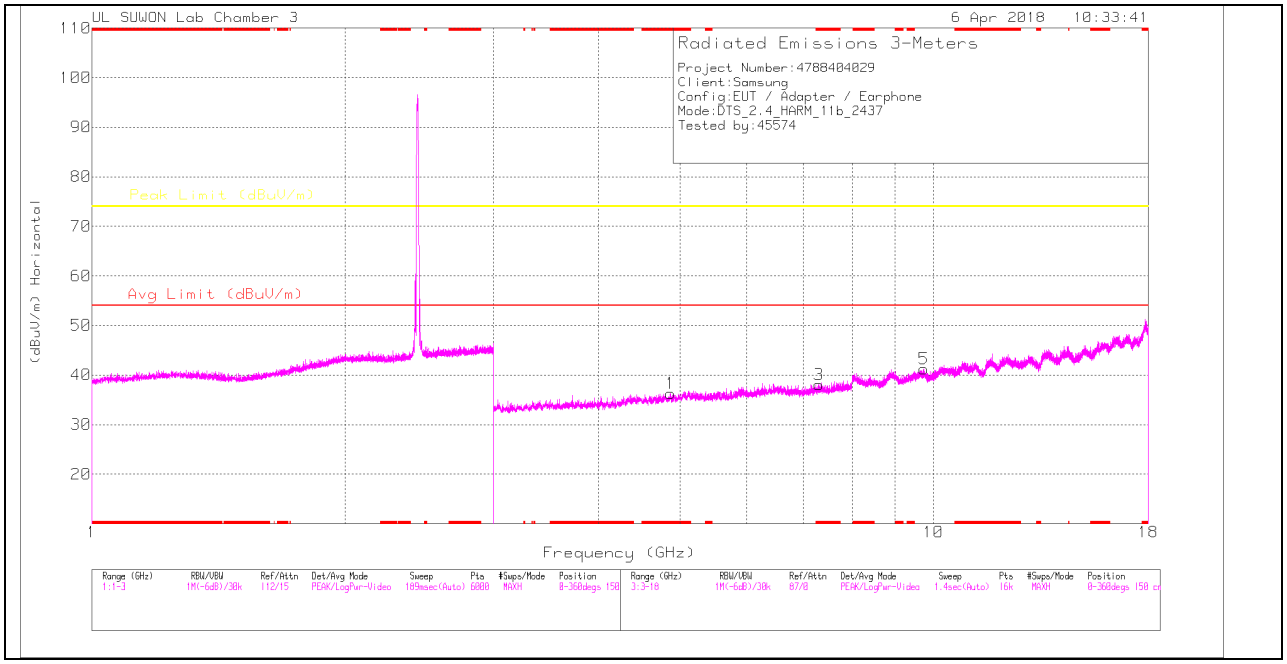
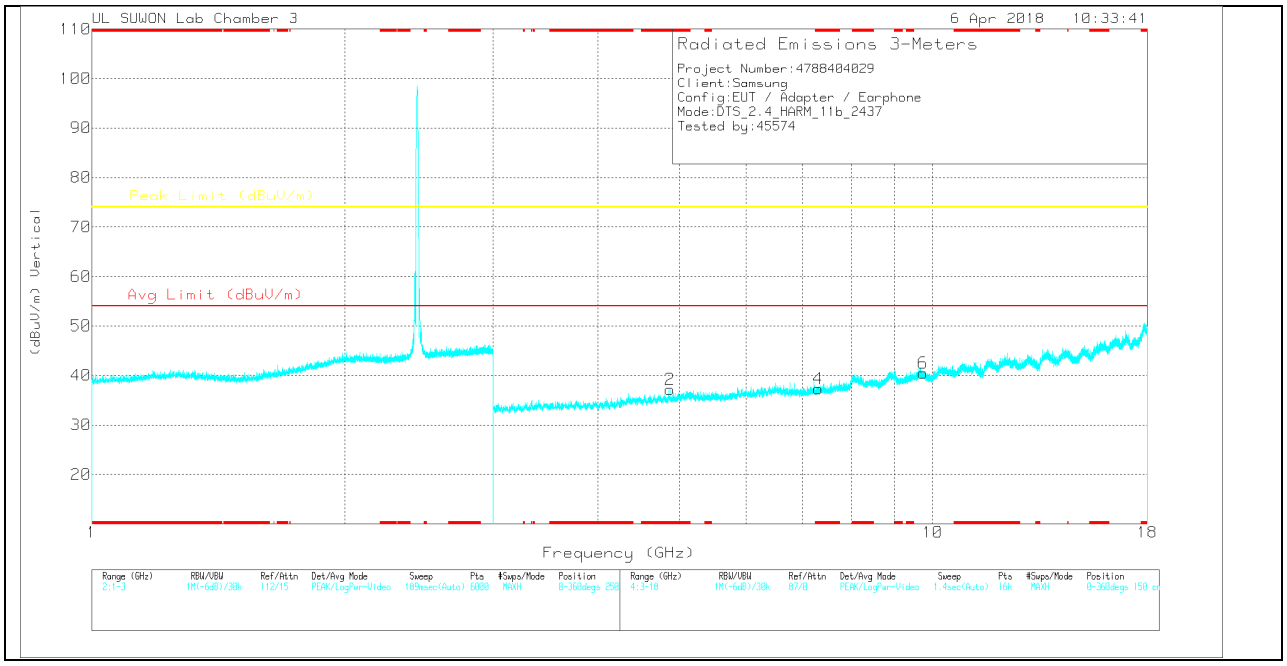
MID CHANNEL HORIZONTAL



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.

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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	* 4.87	31.03	PK	34	-28.8	0	36.23	-	-	74	-37.77	0-360	251	H
3	* 7.311	25.93	PK	35.6	-23.5	0	38.03	-	-	74	-35.97	0-360	150	H
5	9.748	23.85	PK	36.9	-19.5	0	41.25	-	-	74	-32.75	0-360	251	H
2	* 4.873	31.96	PK	34	-28.8	0	37.16	-	-	74	-36.84	0-360	251	V
4	* 7.313	25.15	PK	35.6	-23.5	0	37.25	-	-	74	-36.75	0-360	150	V
6	9.747	23.17	PK	36.9	-19.6	0	40.47	-	-	74	-33.53	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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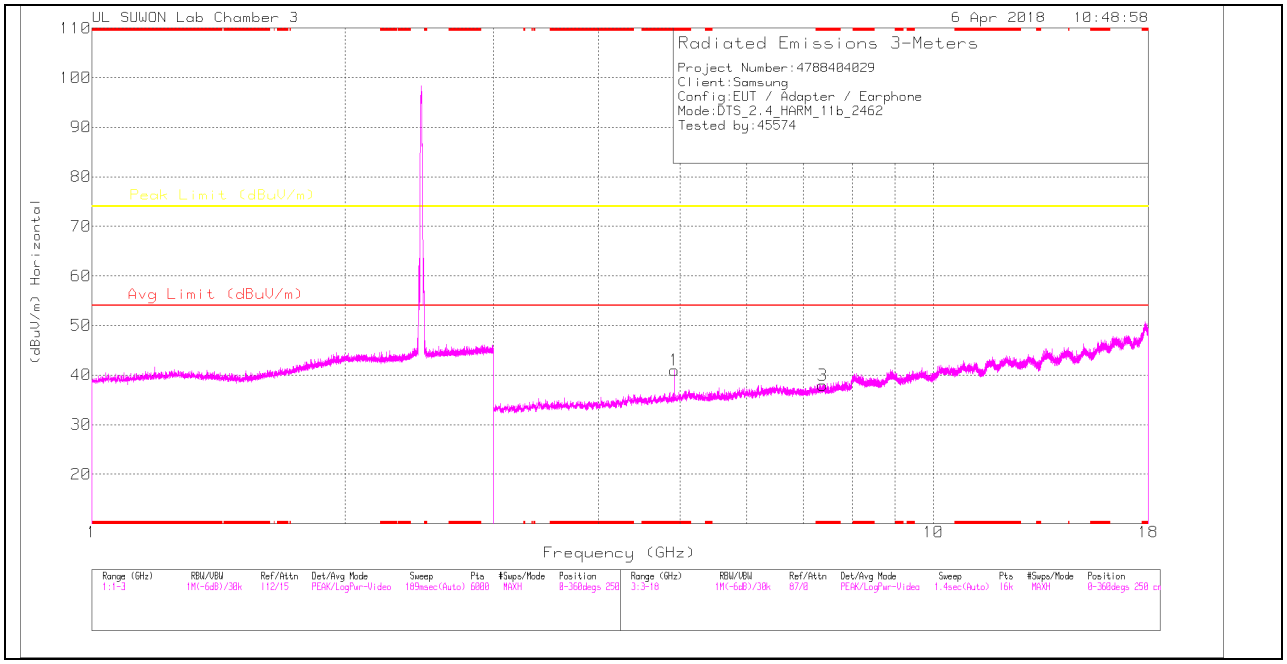
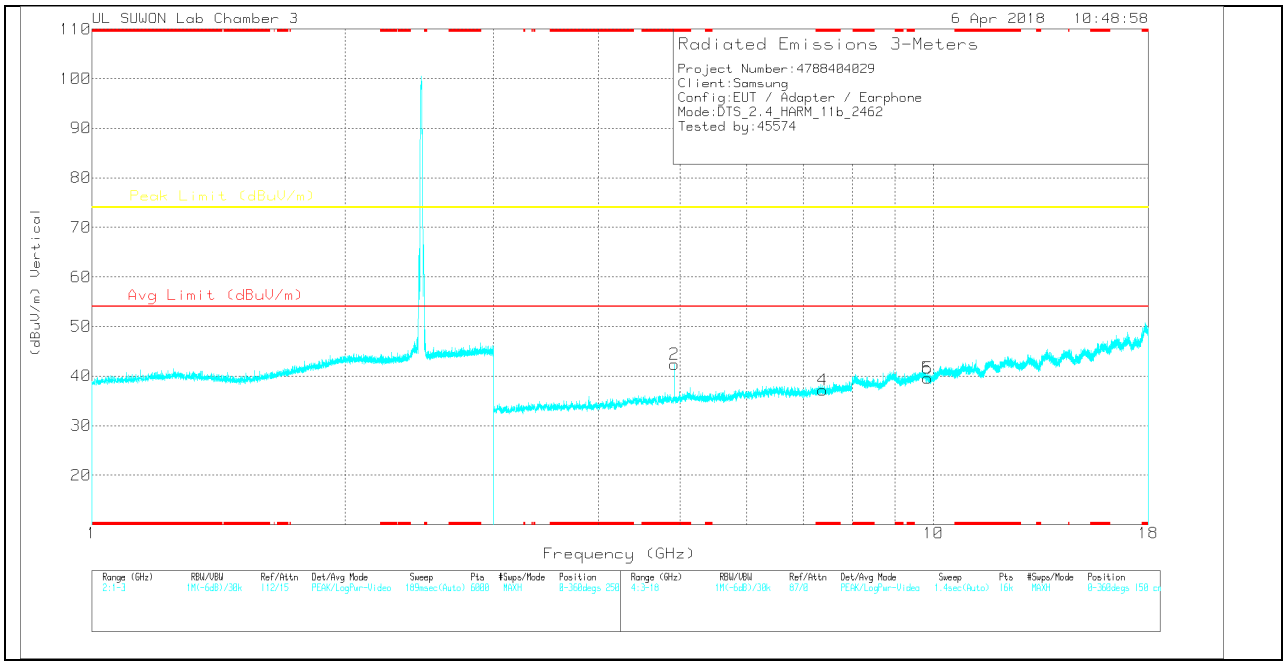
HIGH CHANNEL HORIZONTAL



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	* 4.924	35.94	PK	34	-28.9	0	41.04	-	-	74	-32.96	0-360	150	H
3	* 7.389	25.31	PK	35.6	-23	0	37.91	-	-	74	-36.09	0-360	150	H
2	* 4.924	37.33	PK	34	-28.9	0	42.43	-	-	74	-31.57	0-360	250	V
4	* 7.387	24.57	PK	35.6	-23	0	37.17	-	-	74	-36.83	0-360	150	V
5	9.848	22.31	PK	37	-19.7	0	39.61	-	-	74	-34.39	0-360	150	V
6	9.848	22.31	PK	37	-19.7	0	39.61	-	-	74	-34.39	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	42.6	PK2	34	-28.9	0	47.7	-	-	74	-26.3	59	104	H
* 4.924	35.61	MAv1	34	-28.9	0	40.71	54	-13.29	-	-	59	104	H
* 4.924	44.06	PK2	34	-28.9	0	49.16	-	-	74	-24.84	159	268	V
* 4.924	37.88	MAv1	34	-28.9	0	42.98	54	-11.02	-	-	159	268	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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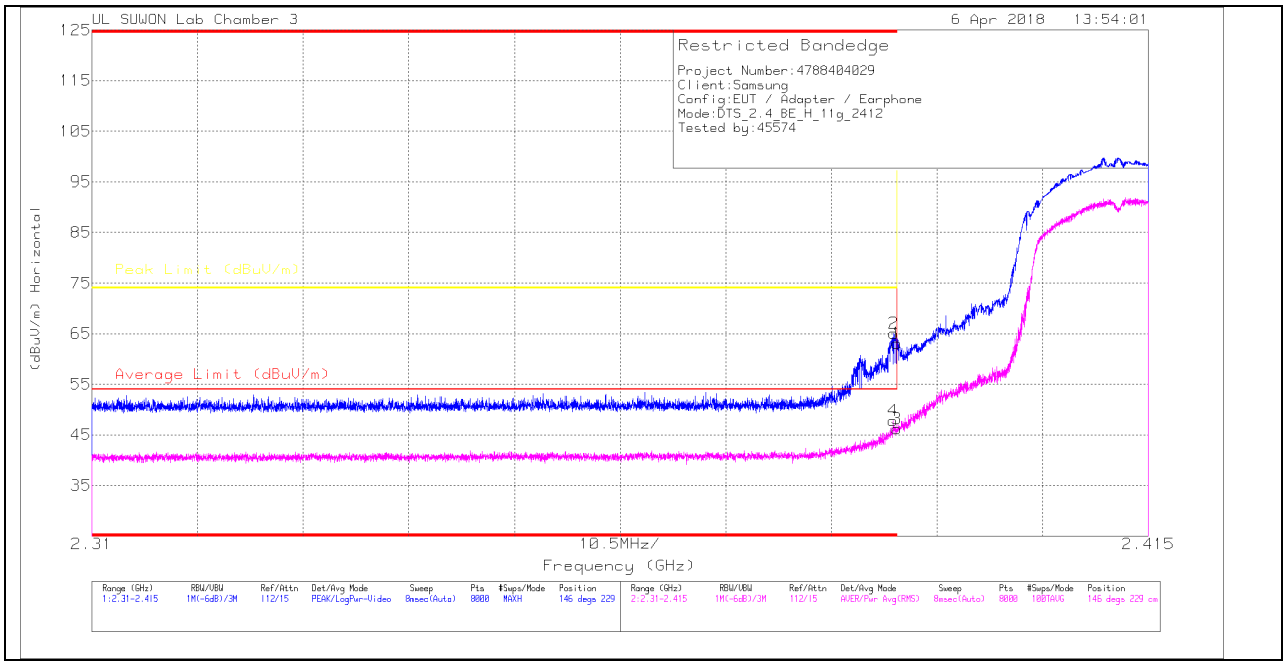
11.2.2.TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



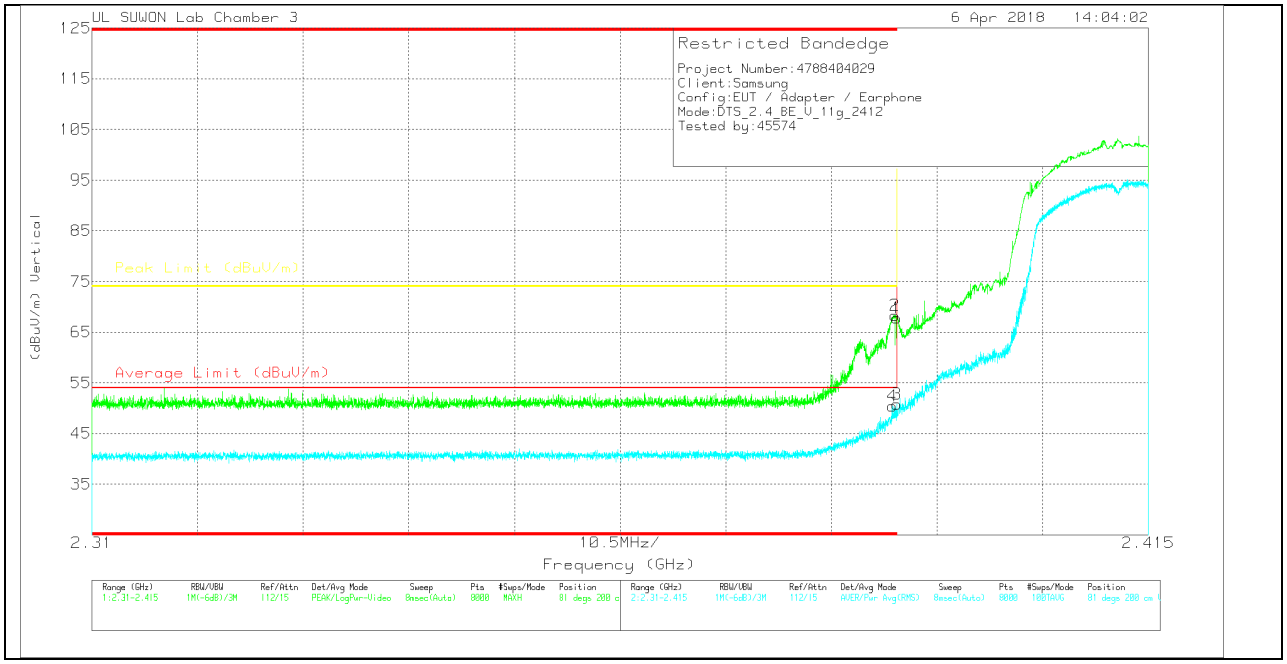
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	54.61	Pk	31.8	-23.3	0	63.11	-	-	74	-10.89	146	229	H
2	* 2.39	56.52	Pk	31.8	-23.3	0	65.02	-	-	74	-8.98	146	229	H
3	* 2.39	37.54	RMS	31.8	-23.3	.12	46.16	54	-7.84	-	-	146	229	H
4	* 2.39	39.16	RMS	31.8	-23.3	.12	47.78	54	-6.22	-	-	146	229	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[00205959]	10dB_ATT[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	59.25	Pk	31.8	-23.3	0	67.75	-	-	74	-6.25	81	200	V
2	* 2.39	59.83	Pk	31.8	-23.3	0	68.33	-	-	74	-5.67	81	200	V
3	* 2.39	42.13	RMS	31.8	-23.3	.12	50.75	54	-3.25	-	-	81	200	V
4	* 2.39	41.77	RMS	31.8	-23.3	.12	50.39	54	-3.61	-	-	81	200	V

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

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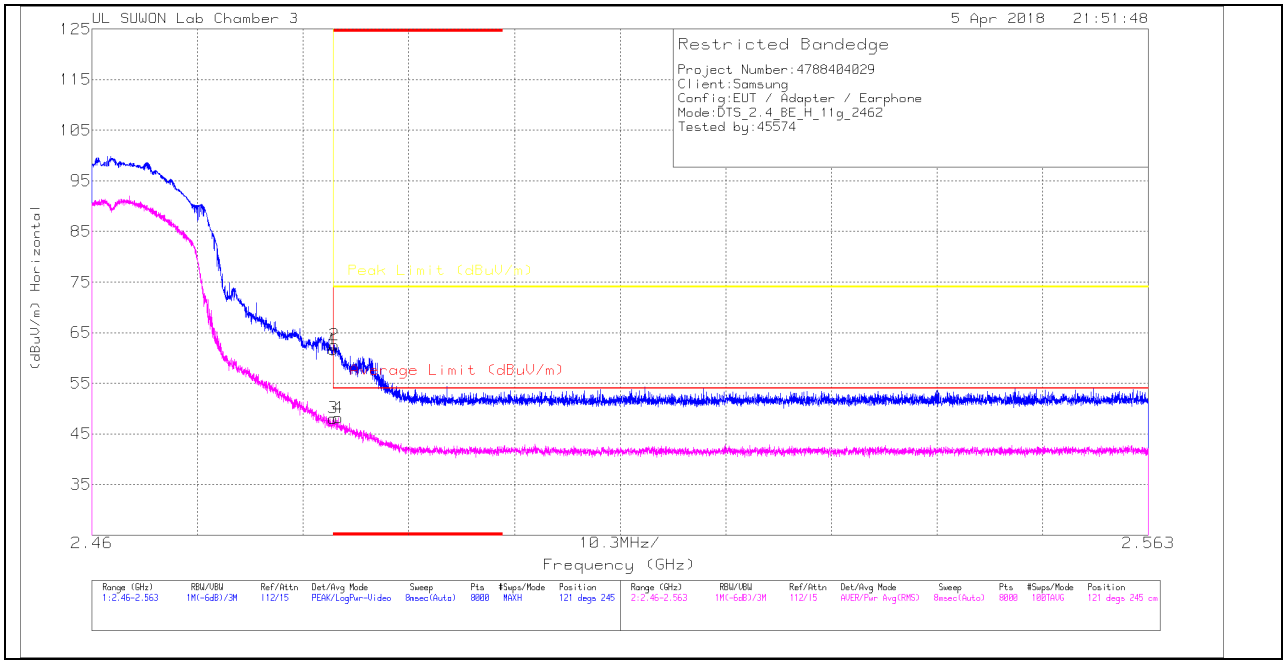
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	52.62	Pk	32.1	-23	0	61.72	-	-	74	-12.28	121	245	H
2	* 2.484	53.47	Pk	32.1	-23	0	62.57	-	-	74	-11.43	121	245	H
3	* 2.484	38.9	RMS	32.1	-23	.12	48.12	54	-5.88	-	-	121	245	H
4	* 2.484	39.06	RMS	32.1	-23.1	.12	48.18	54	-5.82	-	-	121	245	H

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

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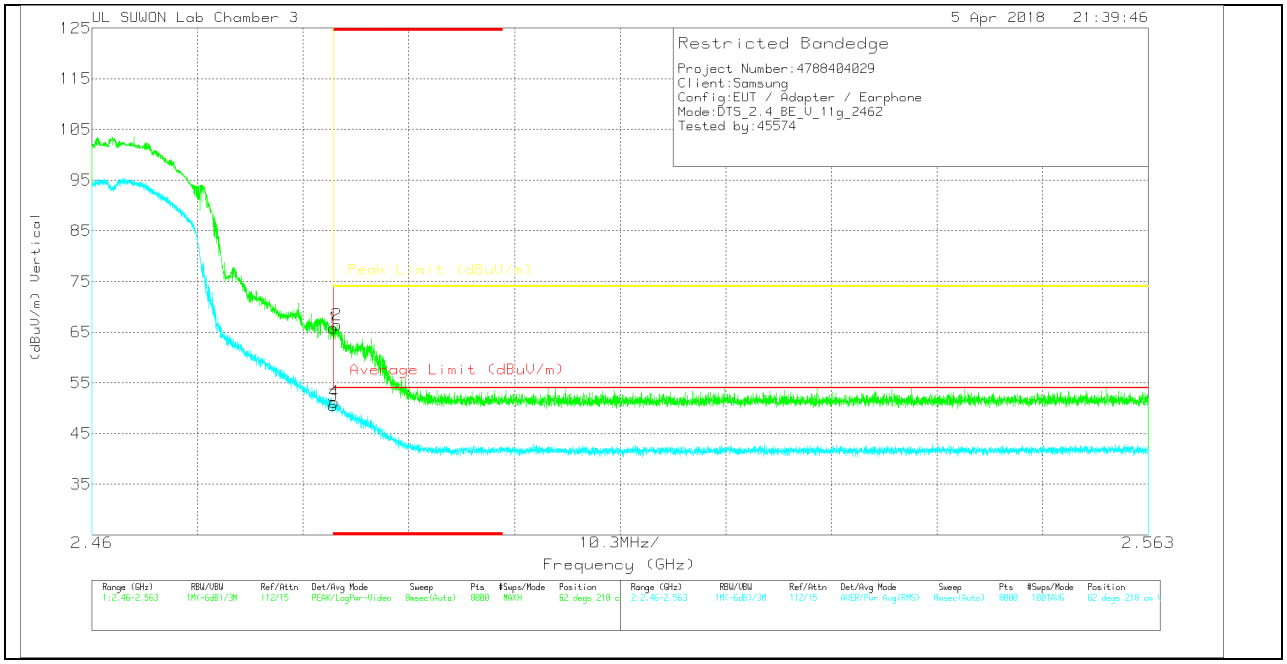
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	56.75	Pk	32.1	-23	0	65.85	-	-	74	-8.15	62	218	V
2	* 2.484	57.41	Pk	32.1	-23.1	0	66.41	-	-	74	-7.59	62	218	V
3	* 2.484	41.36	RMS	32.1	-23	.12	50.58	54	-3.42	-	-	62	218	V
4	* 2.484	42	RMS	32.1	-23	.12	51.22	54	-2.78	-	-	62	218	V

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

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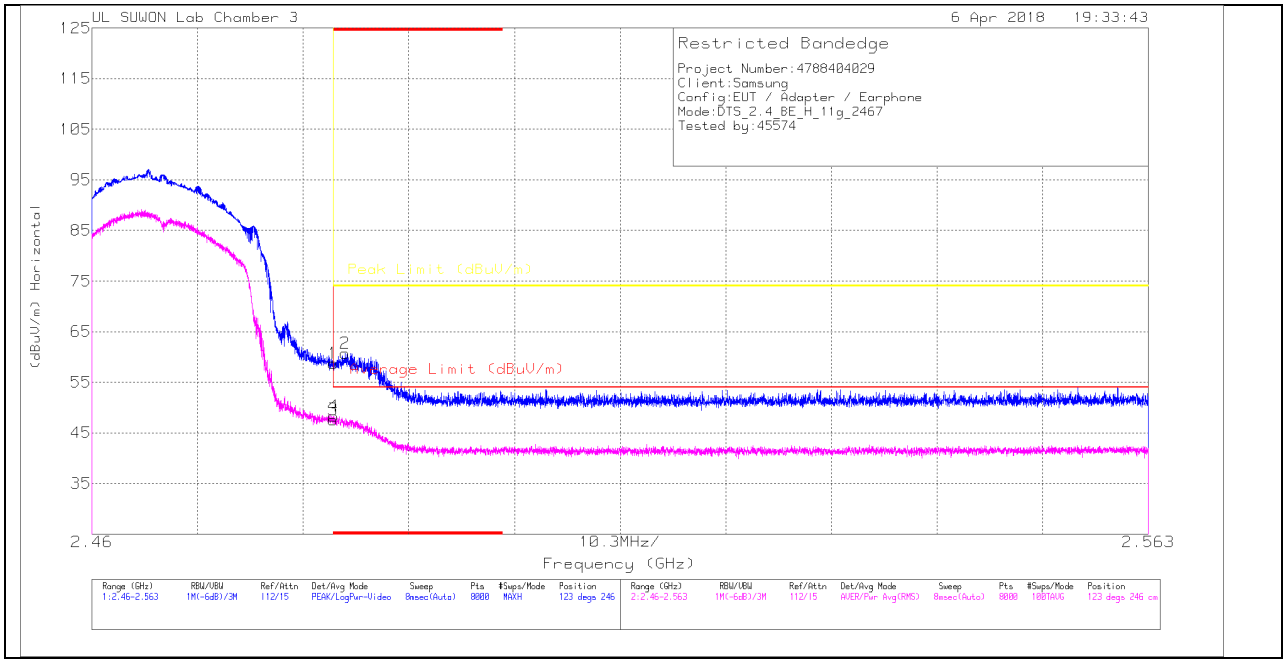
AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



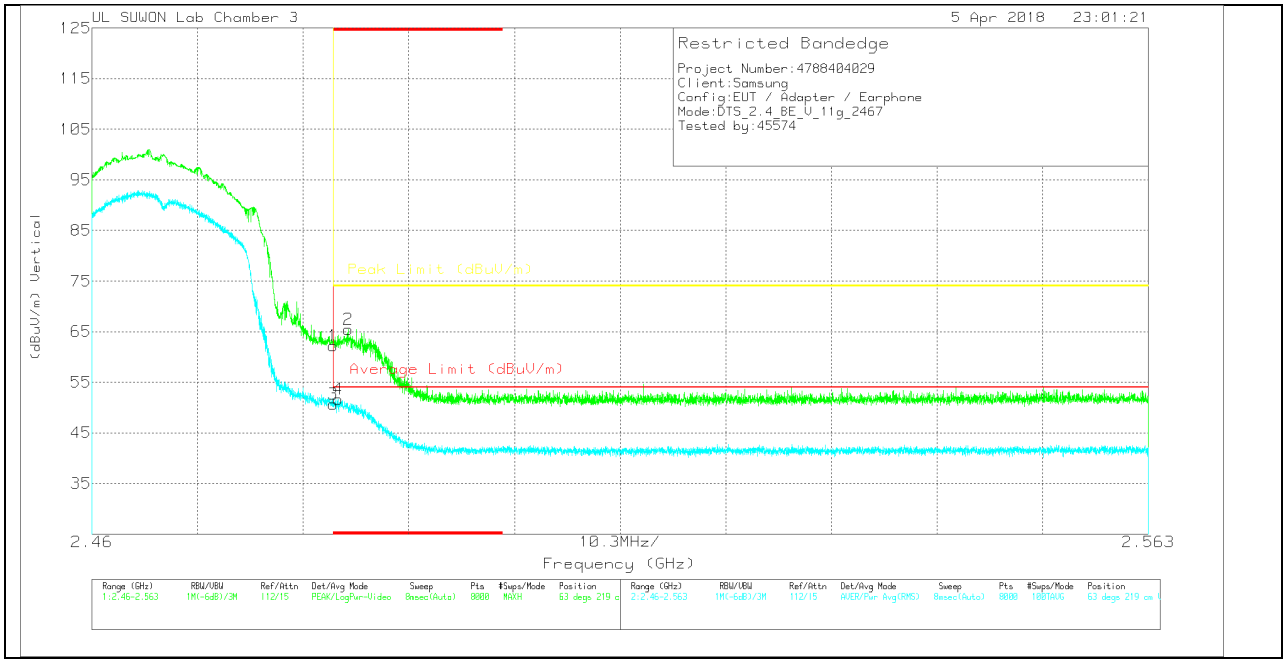
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	49.6	Pk	32.1	-23	0	58.7	-	-	74	-15.3	123	246	H
2	* 2.485	51.74	Pk	32.1	-23.1	0	60.74	-	-	74	-13.26	123	246	H
3	* 2.484	38.4	RMS	32.1	-23	.12	47.62	54	-6.38	-	-	123	246	H
4	* 2.484	39.08	RMS	32.1	-23	.12	48.3	54	-5.7	-	-	123	246	H

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

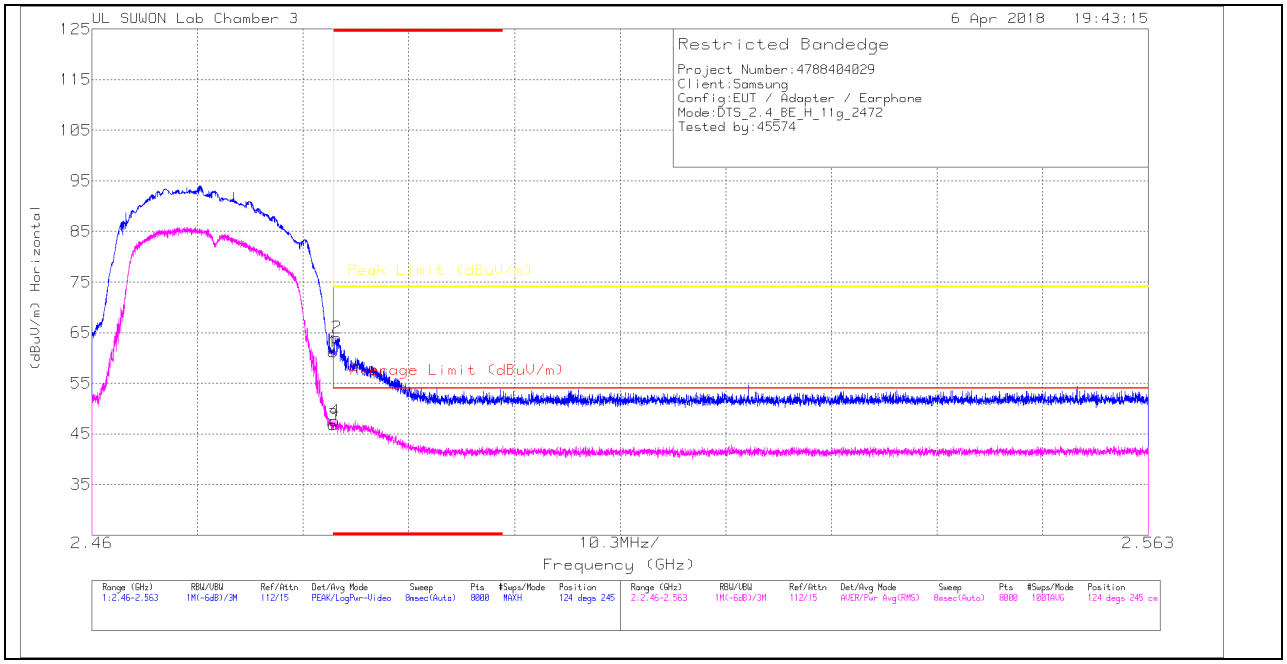
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	53.06	Pk	32.1	-23	0	62.16	-	-	74	-11.84	63	219	V
2	* 2.485	56.45	Pk	32.1	-23.1	0	65.45	-	-	74	-8.55	63	219	V
3	* 2.484	41.46	RMS	32.1	-23	.12	50.68	54	-3.32	-	-	63	219	V
4	* 2.484	42.55	RMS	32.1	-23.1	.12	51.67	54	-2.33	-	-	63	219	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



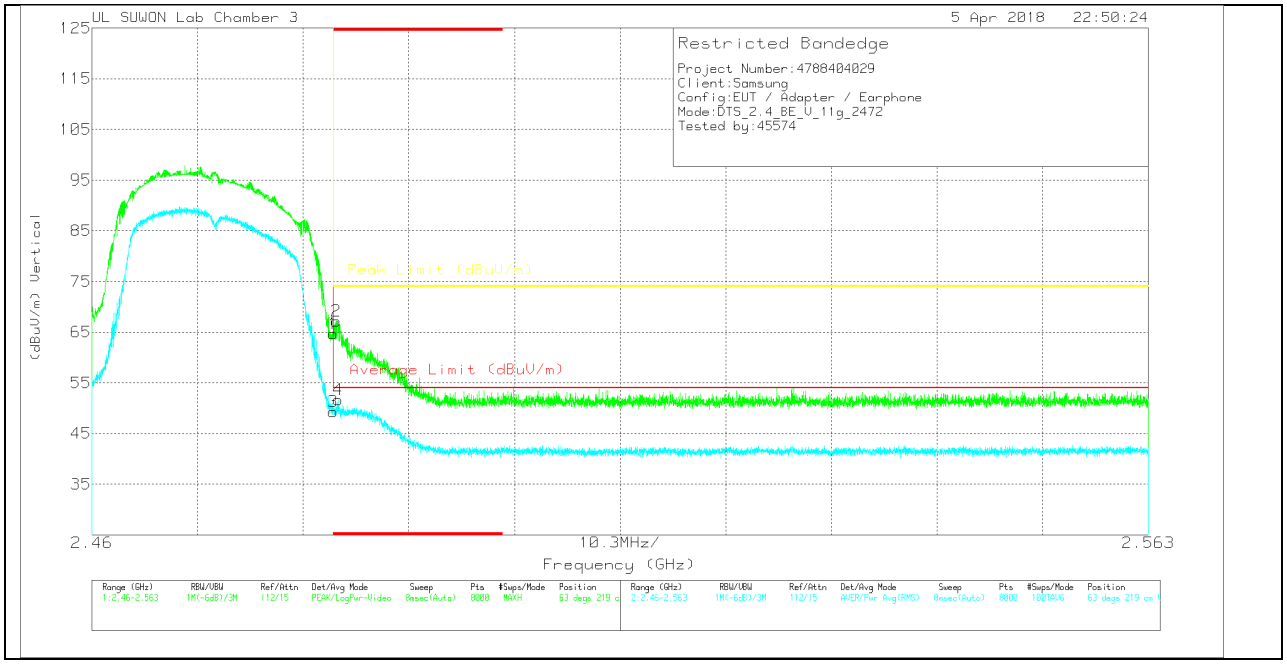
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	52.16	Pk	32.1	-23	0	61.26	-	-	74	-12.74	124	245	H
2	* 2.484	55.01	Pk	32.1	-23.1	0	64.01	-	-	74	-9.99	124	245	H
3	* 2.484	37.58	RMS	32.1	-23	.12	46.8	54	-7.2	-	-	124	245	H
4	* 2.484	38.39	RMS	32.1	-23	.12	47.61	54	-6.39	-	-	124	245	H

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

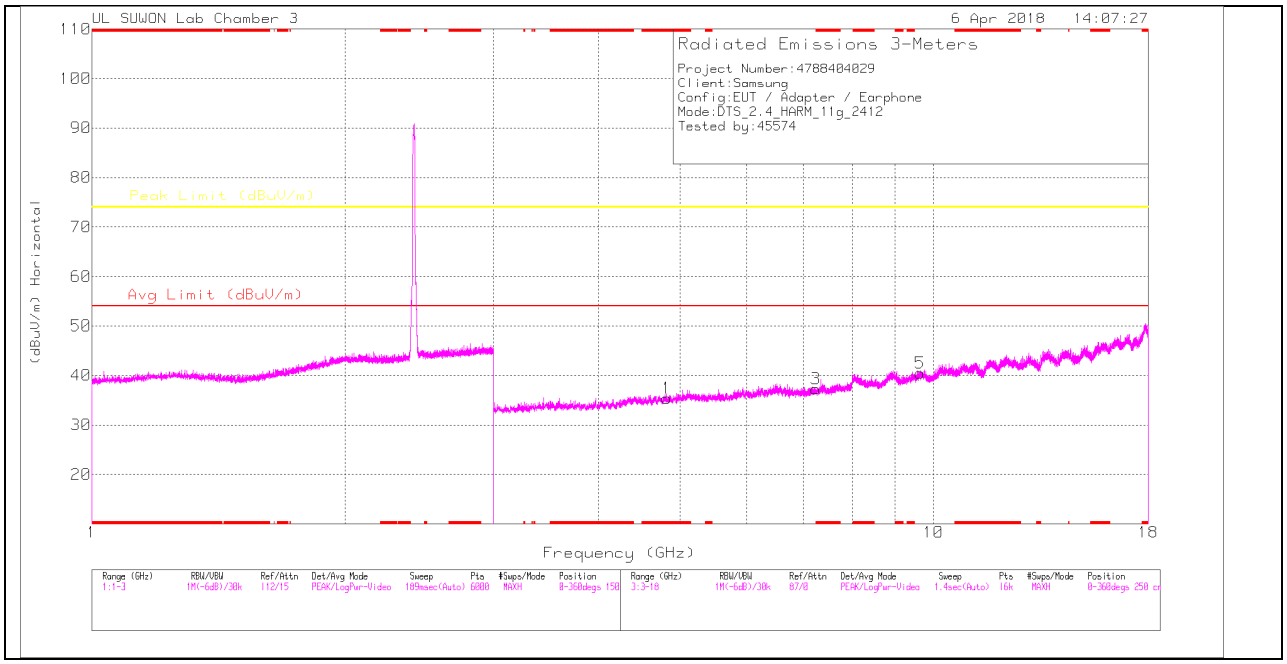
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	55.55	Pk	32.1	-23	0	64.65	-	-	74	-9.35	63	219	V
2	* 2.484	58.23	Pk	32.1	-23.1	0	67.23	-	-	74	-6.77	63	219	V
3	* 2.484	40.13	RMS	32.1	-23	.12	49.35	54	-4.65	-	-	63	219	V
4	* 2.484	42.54	RMS	32.1	-23.1	.12	51.66	54	-2.34	-	-	63	219	V

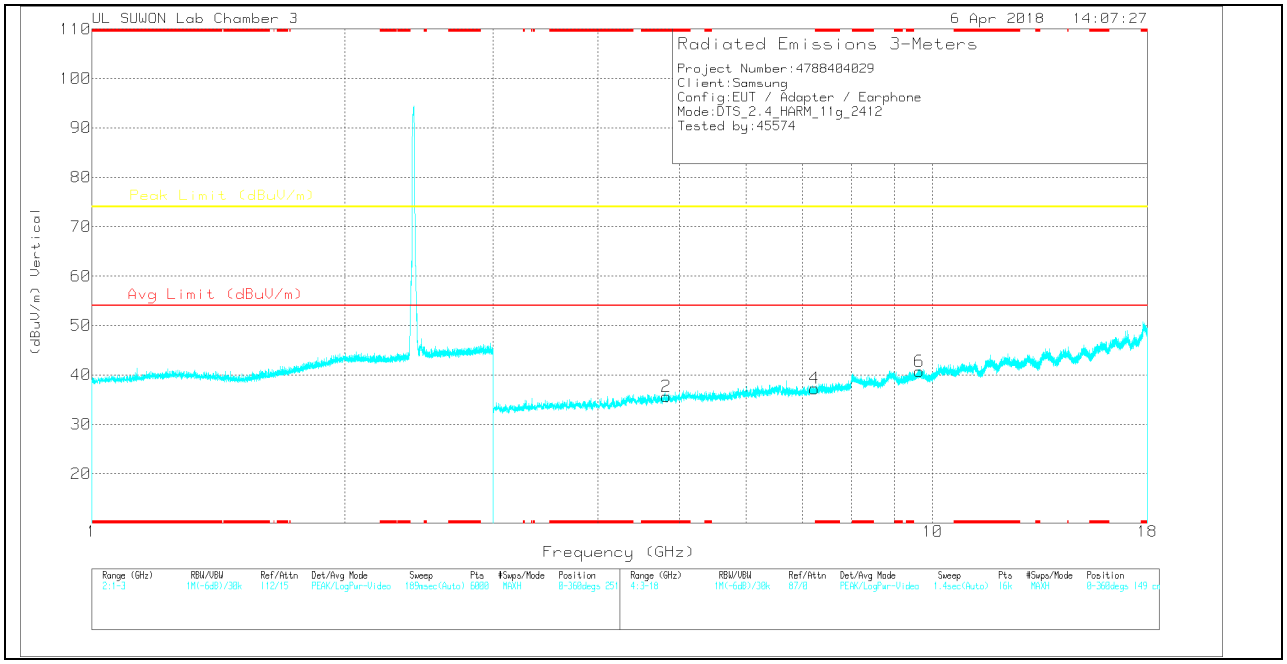
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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.

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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	29.69	PK	34	-28.3	0	35.39	-	-	74	-38.61	0-360	250	H
3	7.242	25.51	PK	35.6	-23.8	0	37.31	-	-	74	-36.69	0-360	250	H
5	9.646	23.54	PK	36.7	-19.8	0	40.44	-	-	74	-33.56	0-360	250	H
2	* 4.824	29.98	PK	34	-28.3	0	35.68	-	-	74	-38.32	0-360	149	V
4	7.24	25.54	PK	35.6	-23.9	0	37.24	-	-	74	-36.76	0-360	149	V
6	9.644	23.77	PK	36.7	-19.7	0	40.77	-	-	74	-33.23	0-360	149	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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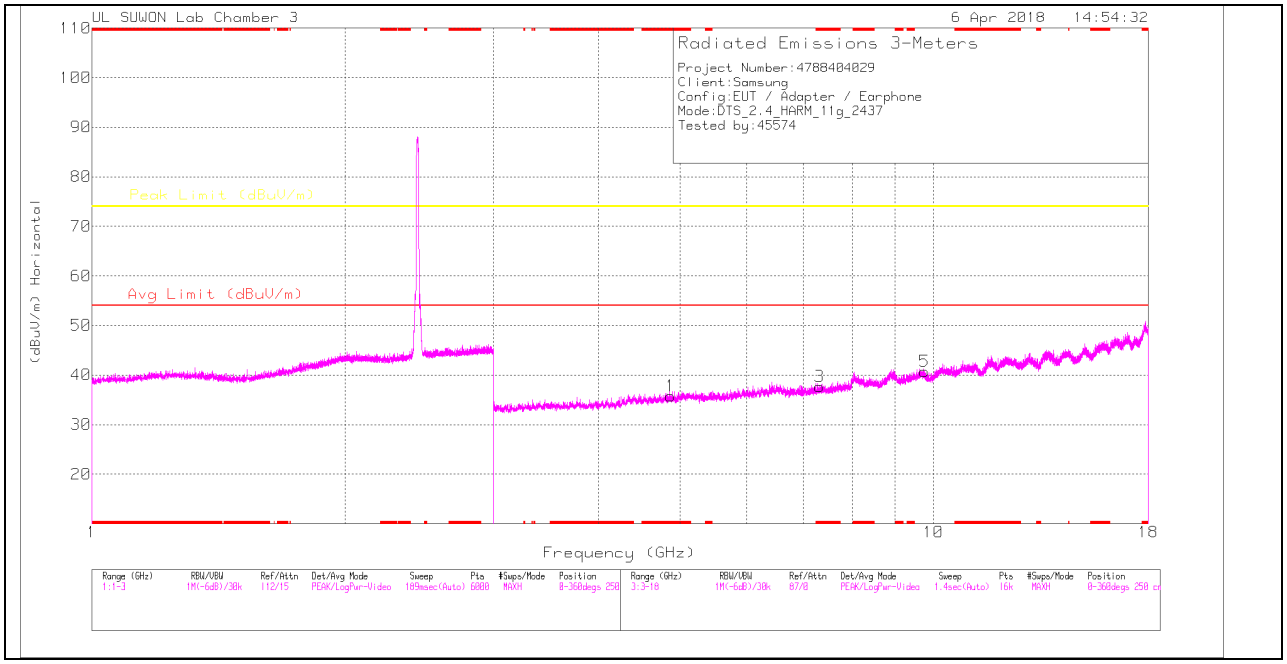
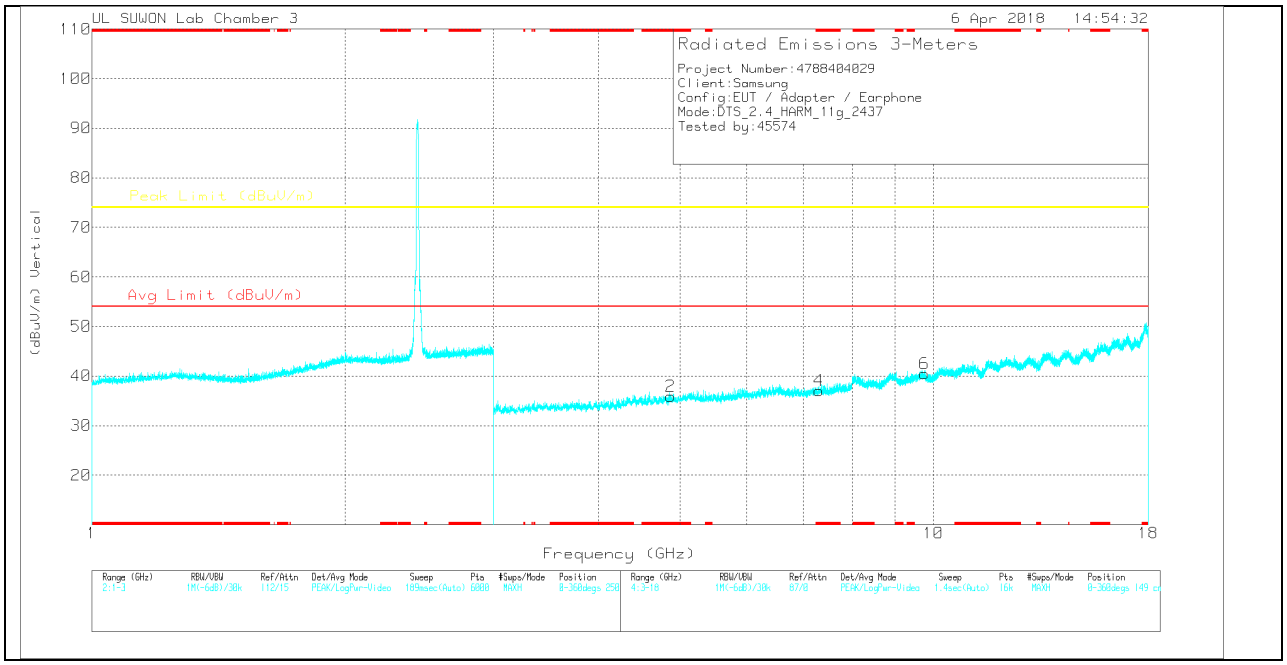
MID CHANNEL HORIZONTAL



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	* 4.869	30.55	PK	34	-28.8	0	35.75	-	-	74	-38.25	0-360	250	H
3	* 7.317	25.57	PK	35.6	-23.5	0	37.67	-	-	74	-36.33	0-360	149	H
5	9.75	23.45	PK	36.9	-19.6	0	40.75	-	-	74	-33.25	0-360	250	H
2	* 4.875	30.83	PK	34	-28.9	0	35.93	-	-	74	-38.07	0-360	250	V
4	* 7.314	24.95	PK	35.6	-23.5	0	37.05	-	-	74	-36.95	0-360	149	V
6	9.752	23.08	PK	36.9	-19.5	0	40.48	-	-	74	-33.52	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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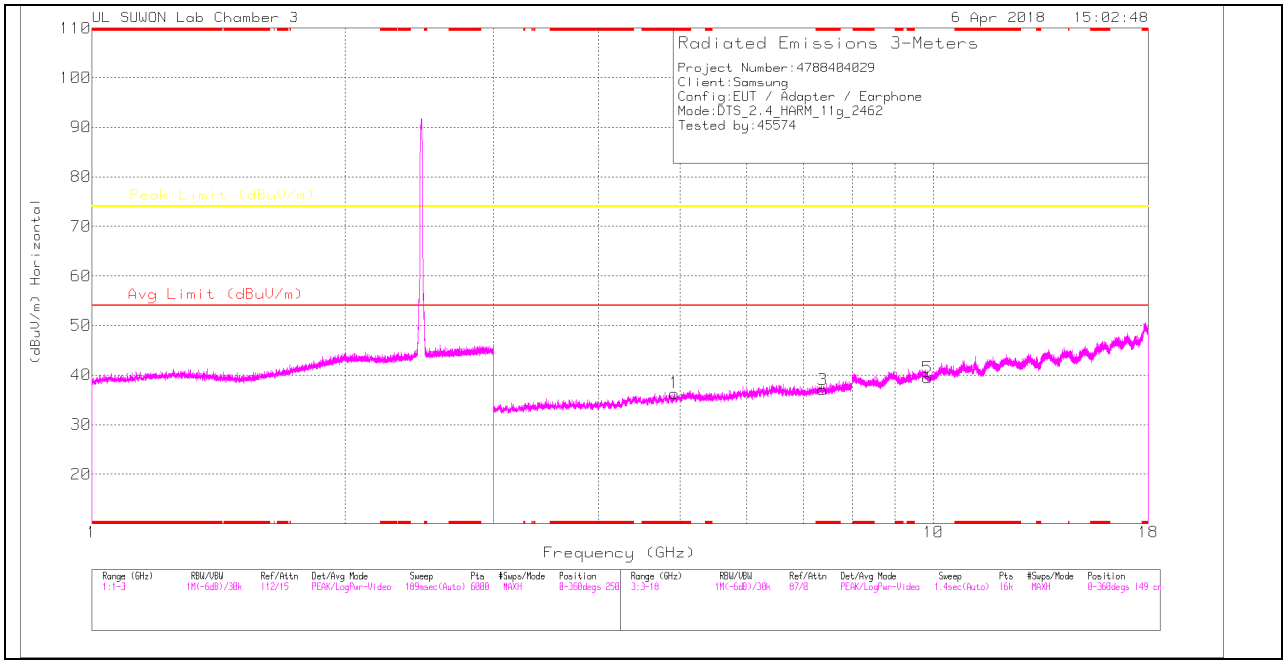
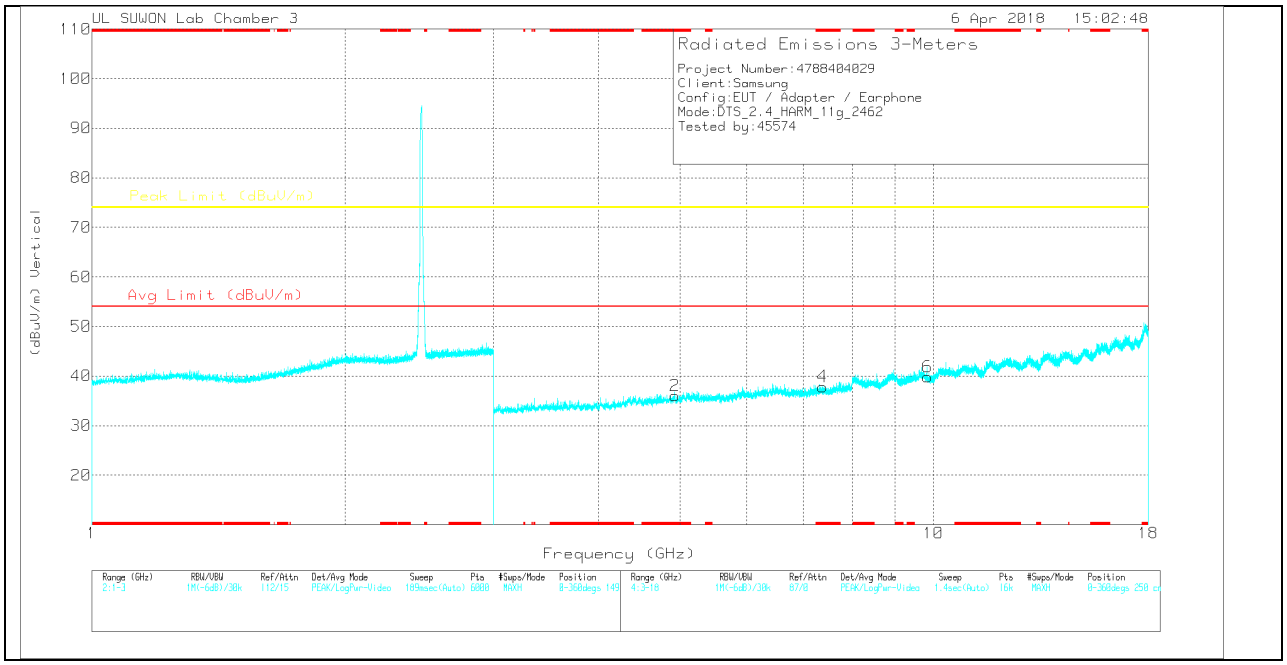
HIGH CHANNEL HORIZONTAL



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	* 4.926	31.25	PK	34	-28.9	0	36.35	-	-	74	-37.65	0-360	149	H
3	* 7.39	24.44	PK	35.6	-23	0	37.04	-	-	74	-36.96	0-360	250	H
5	9.847	22.2	PK	37	-19.7	0	39.5	-	-	74	-34.5	0-360	149	H
2	* 4.927	30.94	PK	34	-28.9	0	36.04	-	-	74	-37.96	0-360	149	V
4	* 7.388	25.27	PK	35.6	-23	0	37.87	-	-	74	-36.13	0-360	149	V
6	9.847	22.54	PK	37	-19.7	0	39.84	-	-	74	-34.16	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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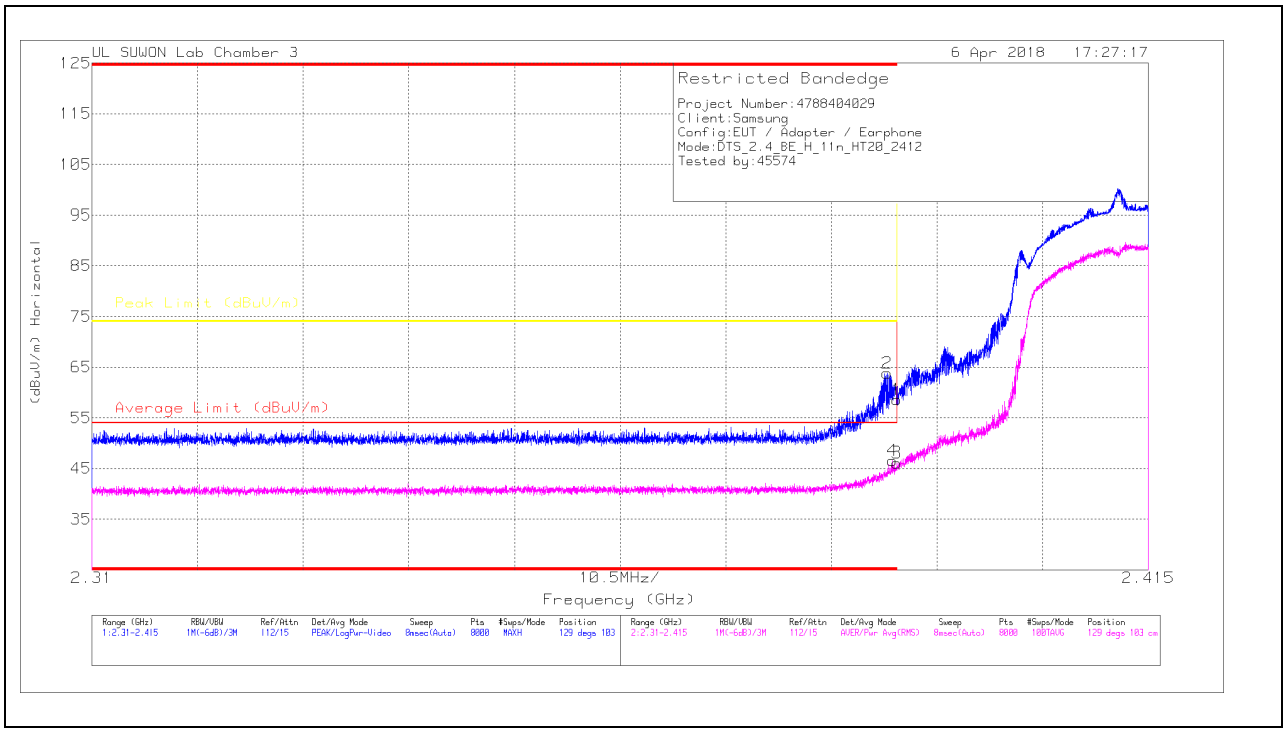
11.2.3.TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	50.08	Pk	31.8	-23.3	0	58.58	-	-	74	-15.42	129	103	H
2	* 2.389	55.27	Pk	31.8	-23.3	0	63.77	-	-	74	-10.23	129	103	H
3	* 2.39	37.5	RMS	31.8	-23.3	.13	46.13	54	-7.87	-	-	129	103	H
4	* 2.39	37.92	RMS	31.8	-23.3	.13	46.55	54	-7.45	-	-	129	103	H

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

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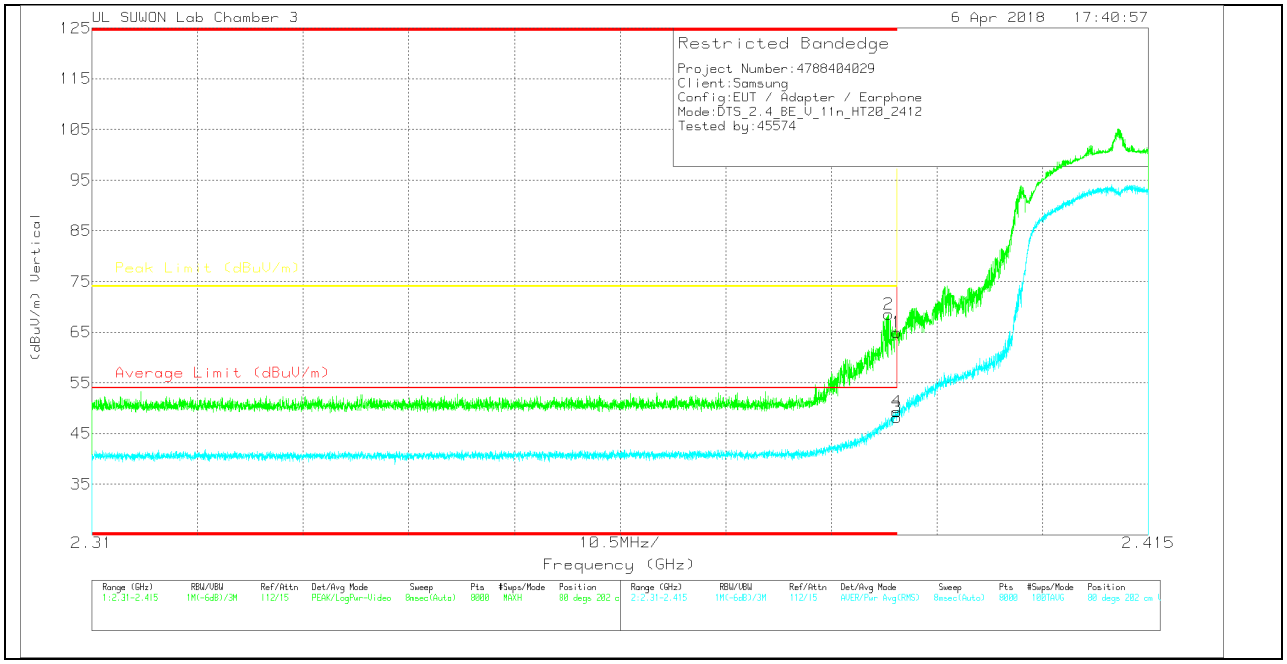
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	56.49	Pk	31.8	-23.3	0	64.99	-	-	74	-9.01	80	202	V
2	* 2.389	60.04	Pk	31.8	-23.3	0	68.54	-	-	74	-5.46	80	202	V
3	* 2.39	39.53	RMS	31.8	-23.3	.13	48.16	54	-5.84	-	-	80	202	V
4	* 2.39	40.72	RMS	31.8	-23.3	.13	49.35	54	-4.65	-	-	80	202	V

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

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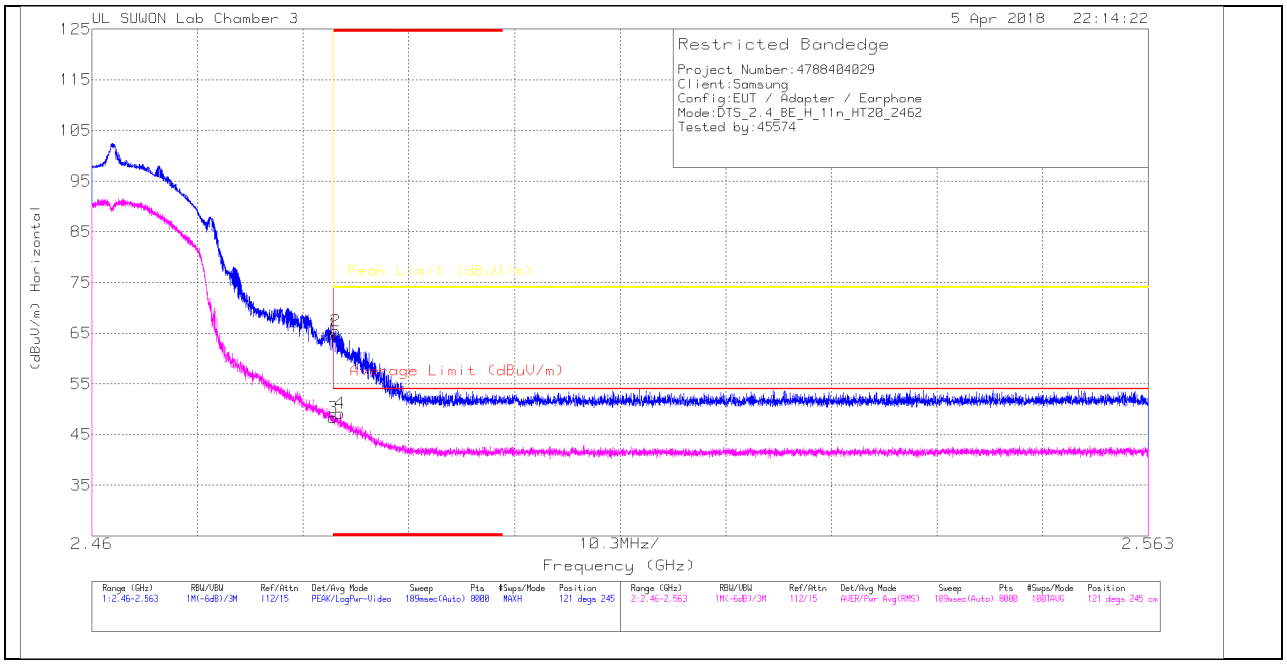
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



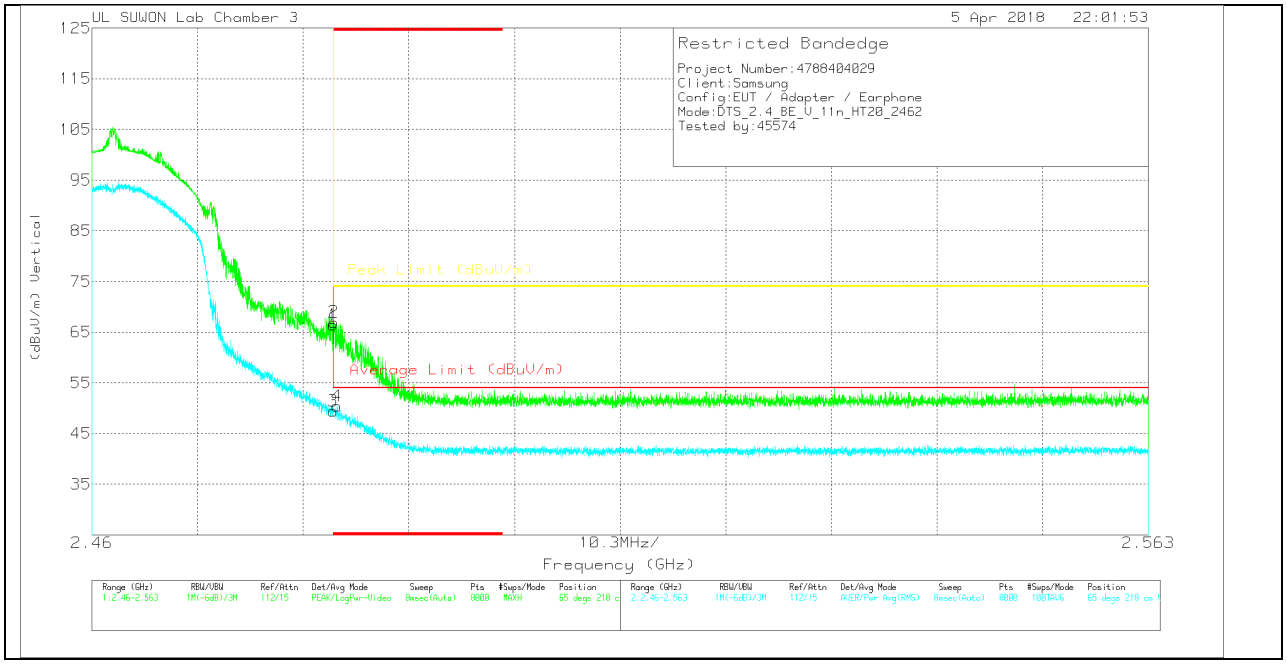
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	55.76	Pk	32.1	-23	0	64.86	-	-	74	-9.14	121	245	H
2	* 2.484	56.47	Pk	32.1	-23.1	0	65.47	-	-	74	-8.53	121	245	H
3	* 2.484	39.09	RMS	32.1	-23	.13	48.32	54	-5.68	-	-	121	245	H
4	* 2.484	40	RMS	32.1	-23.1	.13	49.13	54	-4.87	-	-	121	245	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[00205959]	10dB_ATT[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	57.35	Pk	32.1	-23	0	66.45	-	-	74	-7.55	65	218	V
2	* 2.484	57.89	Pk	32.1	-23	0	66.99	-	-	74	-7.01	65	218	V
3	* 2.484	40.23	RMS	32.1	-23	.13	49.46	54	-4.54	-	-	65	218	V
4	* 2.484	41.3	RMS	32.1	-23.1	.13	50.43	54	-3.57	-	-	65	218	V

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

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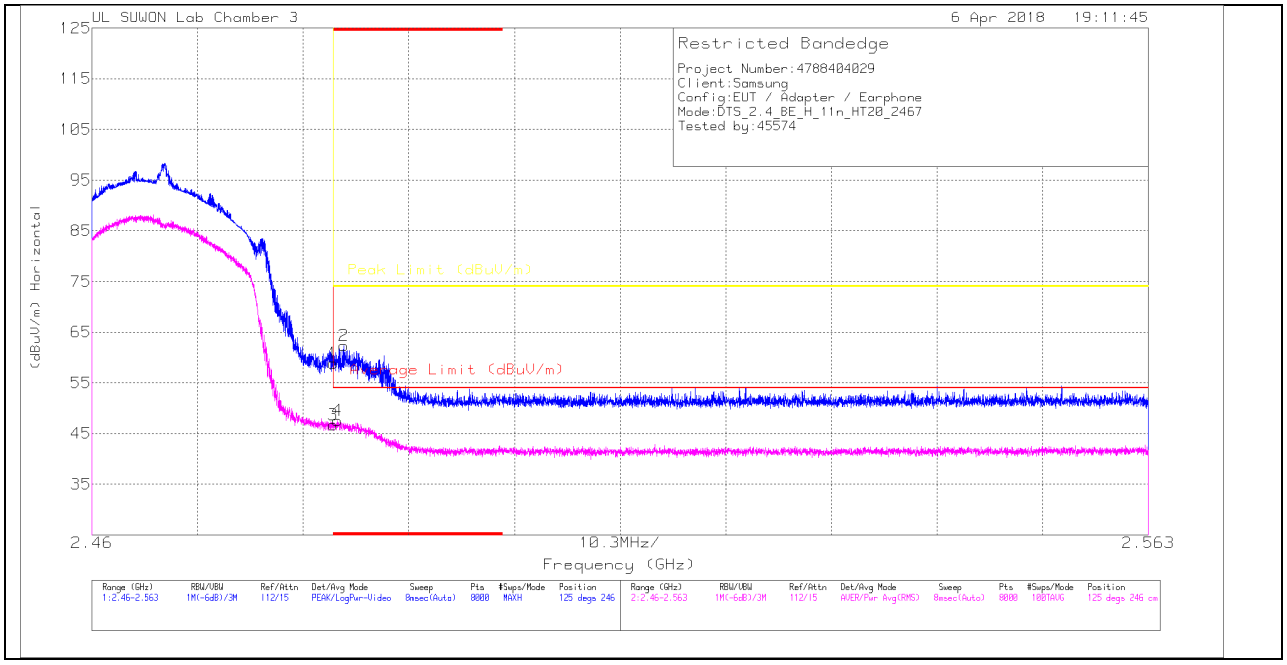
AUTHORIZED BANDEDGE (12 CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



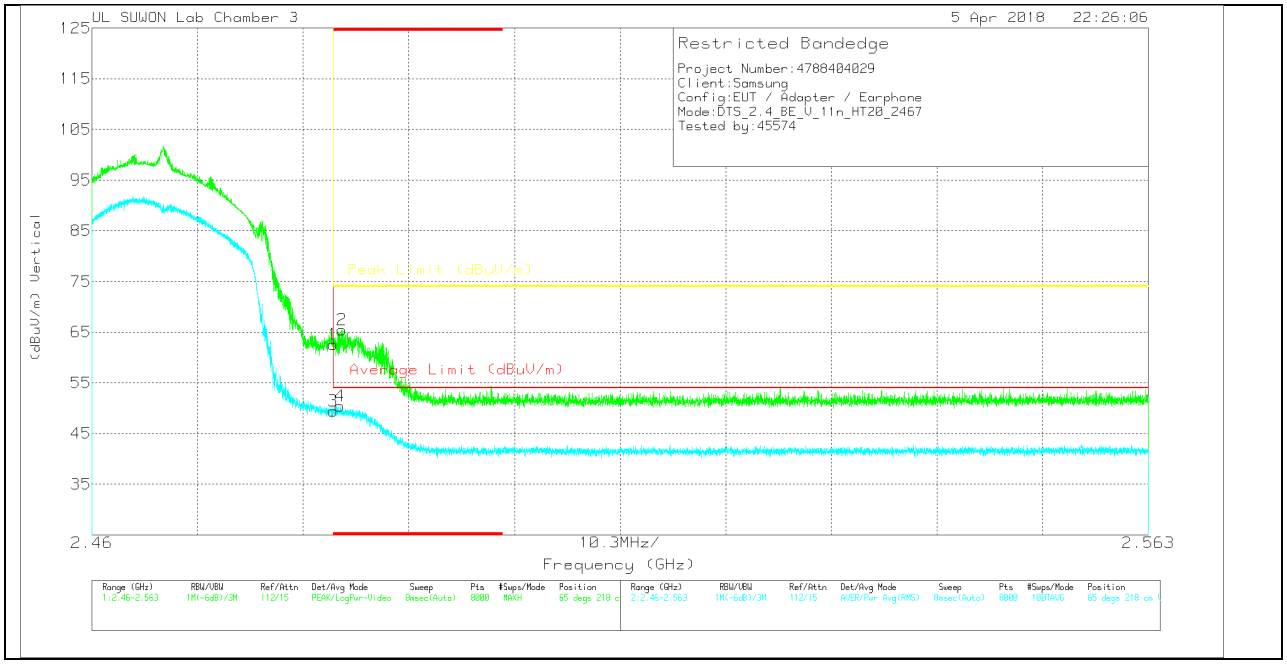
HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	49.8	Pk	32.1	-23	0	58.9	-	-	74	-15.1	125	246	H
2	* 2.485	53.29	Pk	32.1	-23.1	0	62.29	-	-	74	-11.71	125	246	H
3	* 2.484	37.47	RMS	32.1	-23	.13	46.7	54	-7.3	-	-	125	246	H
4	* 2.484	38.38	RMS	32.1	-23.1	.13	47.51	54	-6.49	-	-	125	246	H

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

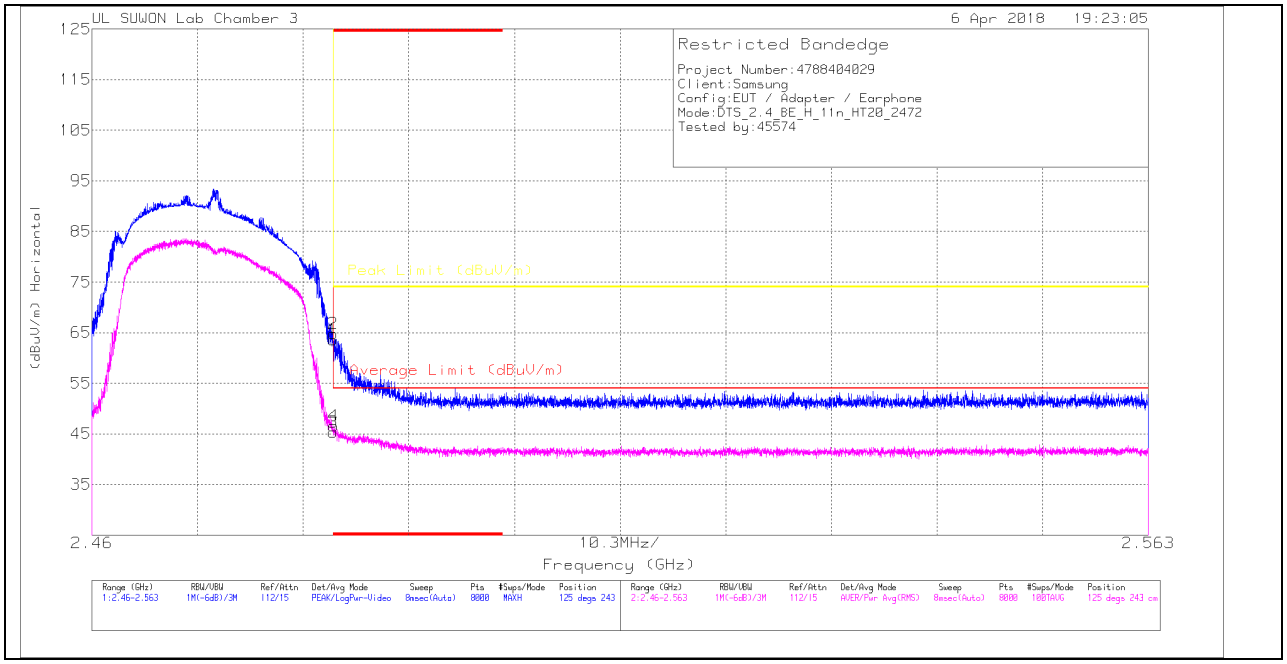
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	53.52	Pk	32.1	-23	0	62.62	-	-	74	-11.38	65	218	V
2	* 2.484	56.45	Pk	32.1	-23.1	0	65.45	-	-	74	-8.55	65	218	V
3	* 2.484	40.15	RMS	32.1	-23	.13	49.38	54	-4.62	-	-	65	218	V
4	* 2.484	41.29	RMS	32.1	-23.1	.13	50.42	54	-3.58	-	-	65	218	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[00205959]	10dB_ATT[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	54.47	Pk	32.1	-23	0	63.57	-	-	74	-10.43	125	243	H
2	* 2.484	55.74	Pk	32.1	-23	0	64.84	-	-	74	-9.16	125	243	H
3	* 2.484	36.14	RMS	32.1	-23	.13	45.37	54	-8.63	-	-	125	243	H
4	* 2.484	37.28	RMS	32.1	-23	.13	46.51	54	-7.49	-	-	125	243	H

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

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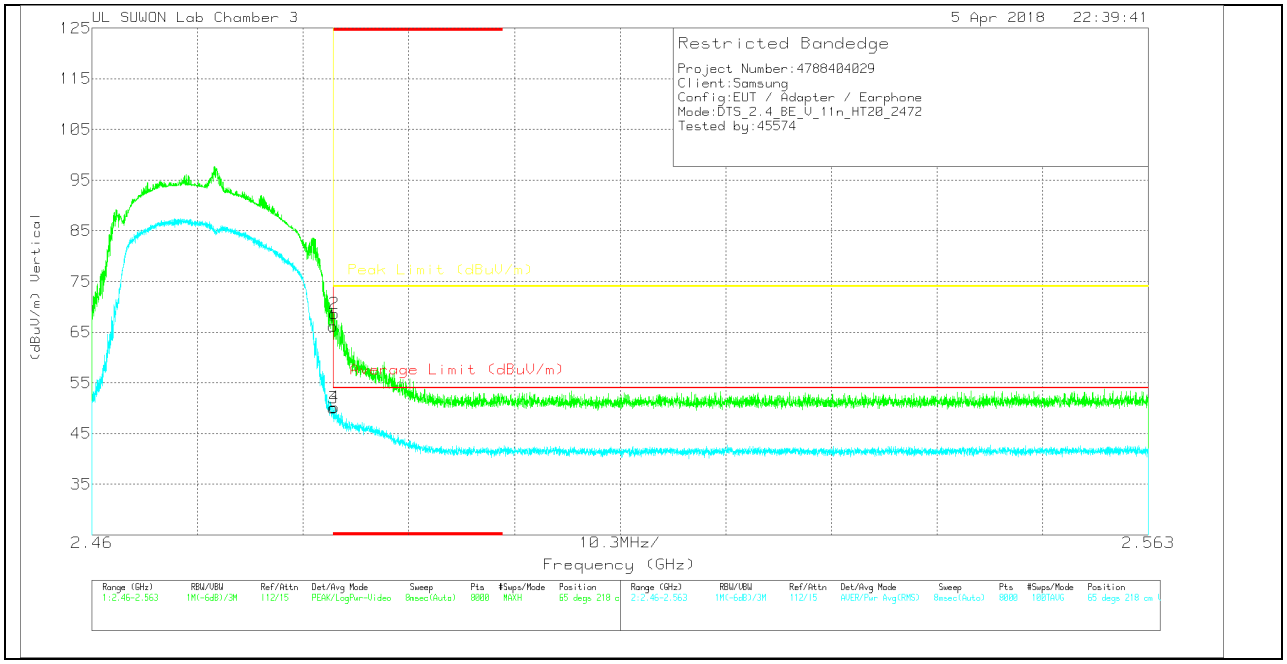
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

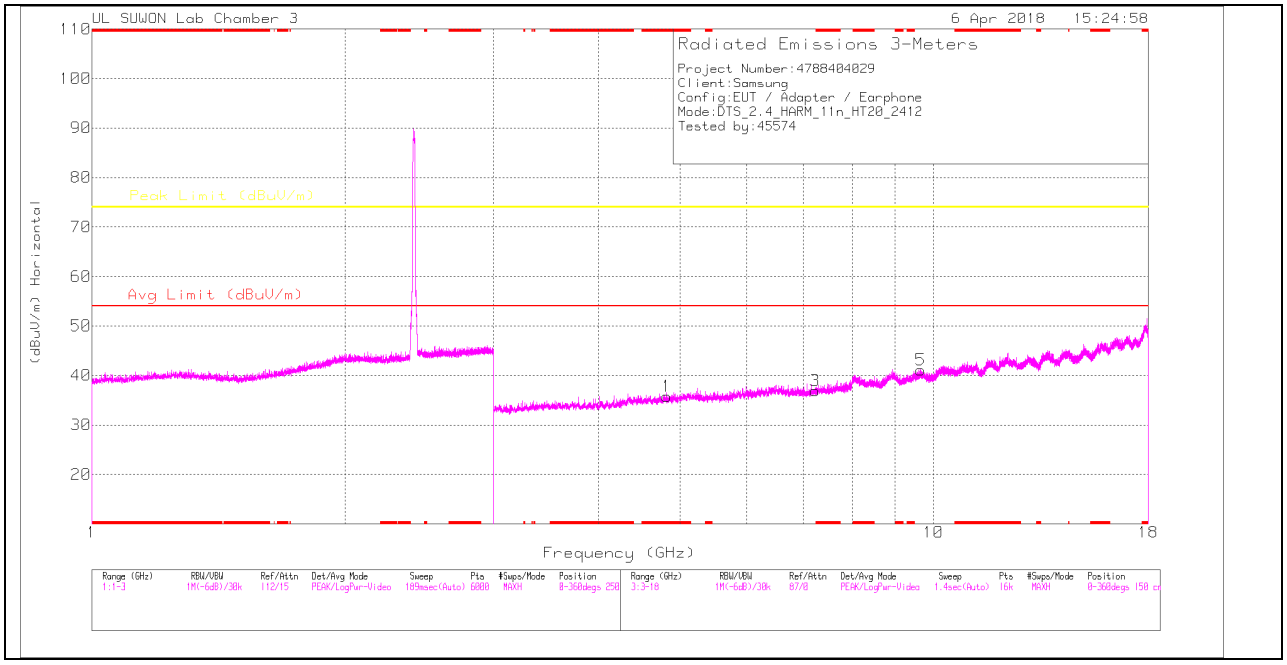
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	10dB_ATT[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	57.07	Pk	32.1	-23	0	66.17	-	-	74	-7.83	65	218	V
2	* 2.484	59.56	Pk	32.1	-23	0	68.66	-	-	74	-5.34	65	218	V
3	* 2.484	40.81	RMS	32.1	-23	.13	50.04	54	-3.96	-	-	65	218	V
4	* 2.484	40.98	RMS	32.1	-23	.13	50.21	54	-3.79	-	-	65	218	V

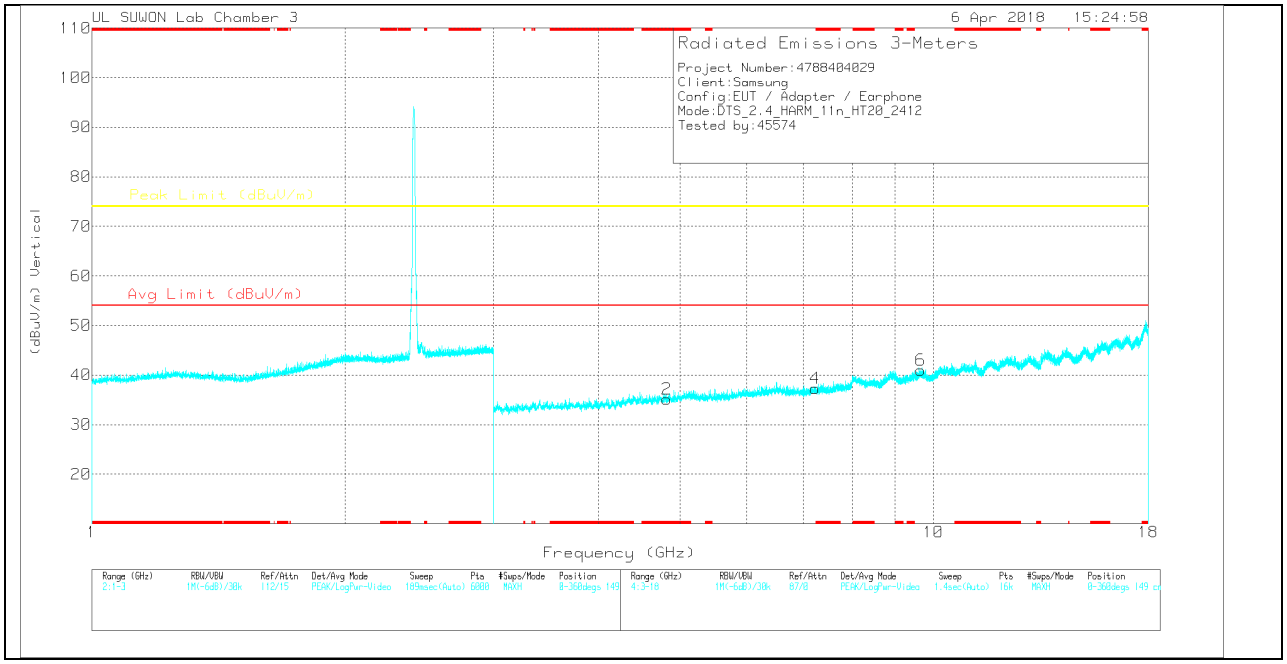
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

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	30.11	PK	34	-28.3	0	35.81	-	-	74	-38.19	0-360	150	H
3	7.238	25.23	PK	35.6	-23.9	0	36.93	-	-	74	-37.07	0-360	150	H
5	9.649	24.14	PK	36.7	-19.7	0	41.14	-	-	74	-32.86	0-360	150	H
2	* 4.823	29.45	PK	34	-28.3	0	35.15	-	-	74	-38.85	0-360	149	V
4	7.236	25.57	PK	35.6	-23.9	0	37.27	-	-	74	-36.73	0-360	149	V
6	9.65	23.99	PK	36.7	-19.7	0	40.99	-	-	74	-33.01	0-360	149	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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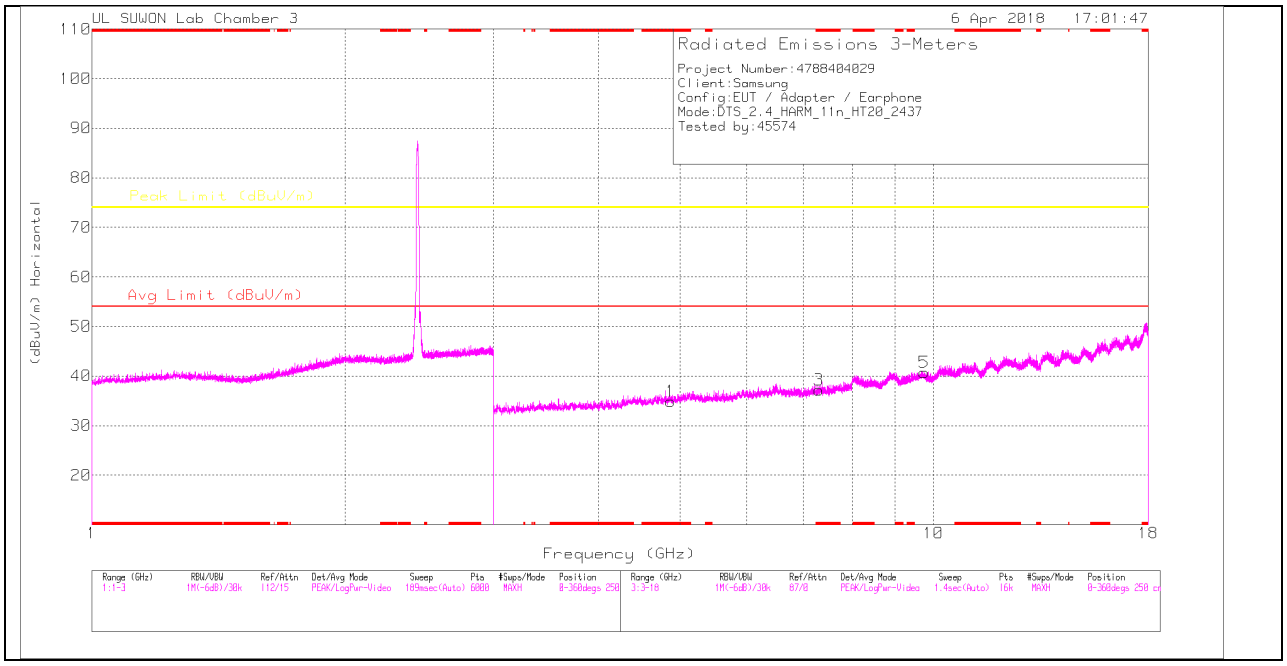
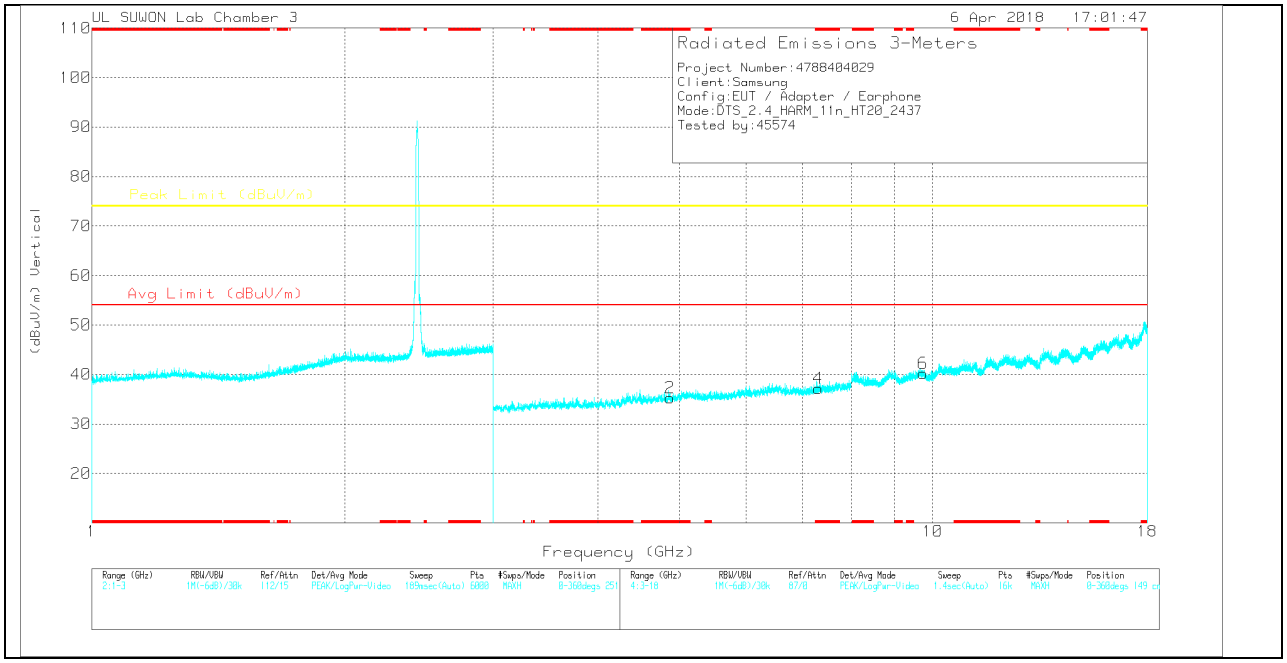
MID CHANNEL HORIZONTAL



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	* 4.875	29.79	PK	34	-28.9	0	34.89	-	-	74	-39.11	0-360	250	H
3	* 7.312	25.1	PK	35.6	-23.5	0	37.2	-	-	74	-36.8	0-360	150	H
5	9.749	23.39	PK	36.9	-19.6	0	40.69	-	-	74	-33.31	0-360	250	H
2	* 4.875	30.18	PK	34	-28.9	0	35.28	-	-	74	-38.72	0-360	250	V
4	* 7.31	25.05	PK	35.6	-23.5	0	37.15	-	-	74	-36.85	0-360	149	V
6	9.748	22.79	PK	36.9	-19.5	0	40.19	-	-	74	-33.81	0-360	149	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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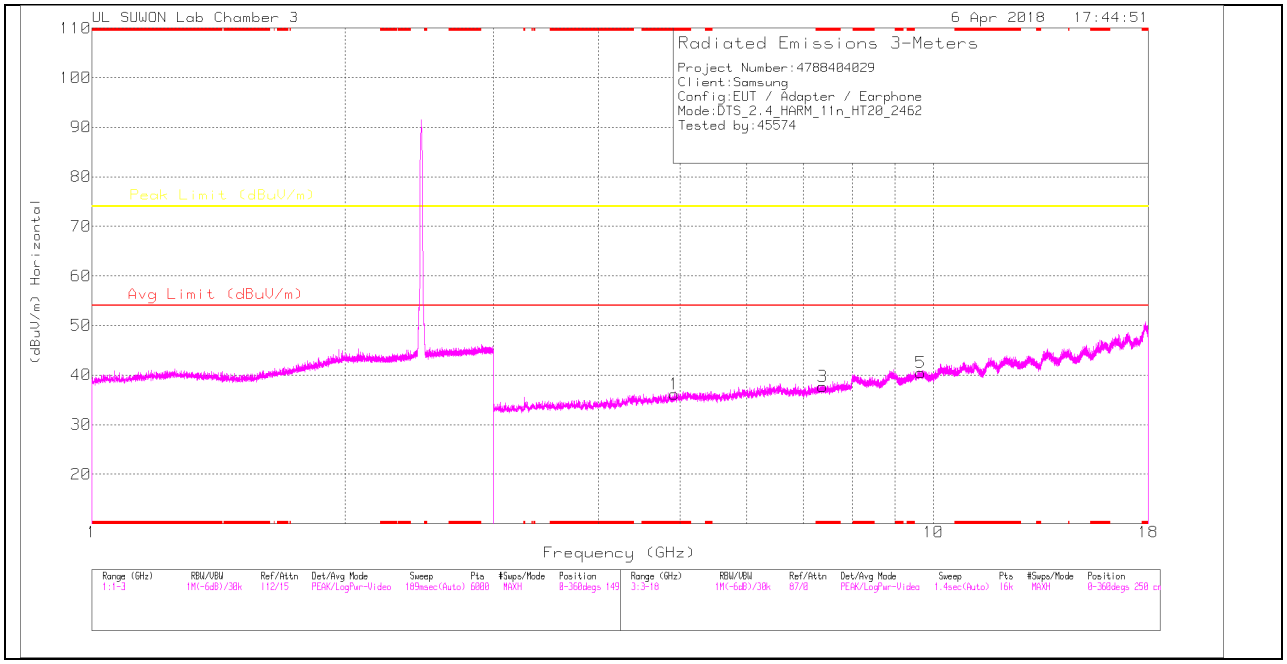
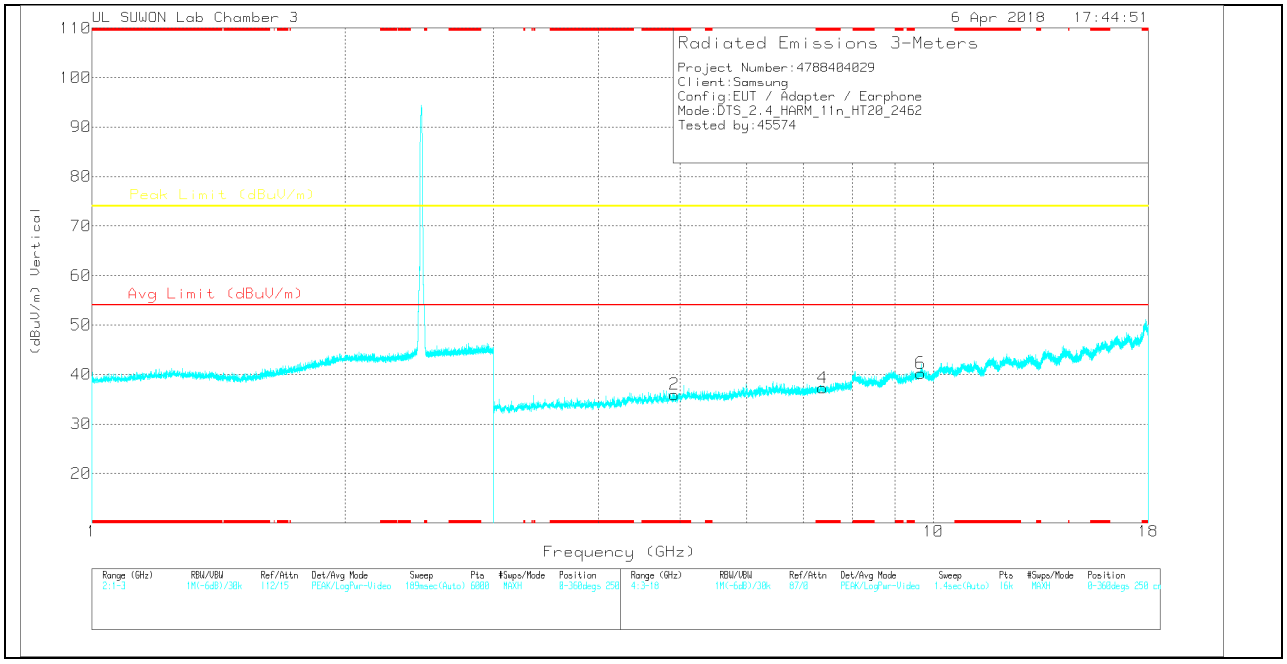
HIGH CHANNEL HORIZONTAL



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	* 4.922	30.98	PK	34	-28.8	0	36.18	-	-	74	-37.82	0-360	149	H
3	* 7.387	25.09	PK	35.6	-23	0	37.69	-	-	74	-36.31	0-360	149	H
5	9.653	23.42	PK	36.7	-19.7	0	40.42	-	-	74	-33.58	0-360	149	H
2	* 4.922	30.77	PK	34	-28.8	0	35.97	-	-	74	-38.03	0-360	149	V
4	* 7.385	24.71	PK	35.6	-23	0	37.31	-	-	74	-36.69	0-360	250	V
6	9.651	23.28	PK	36.7	-19.7	0	40.28	-	-	74	-33.72	0-360	149	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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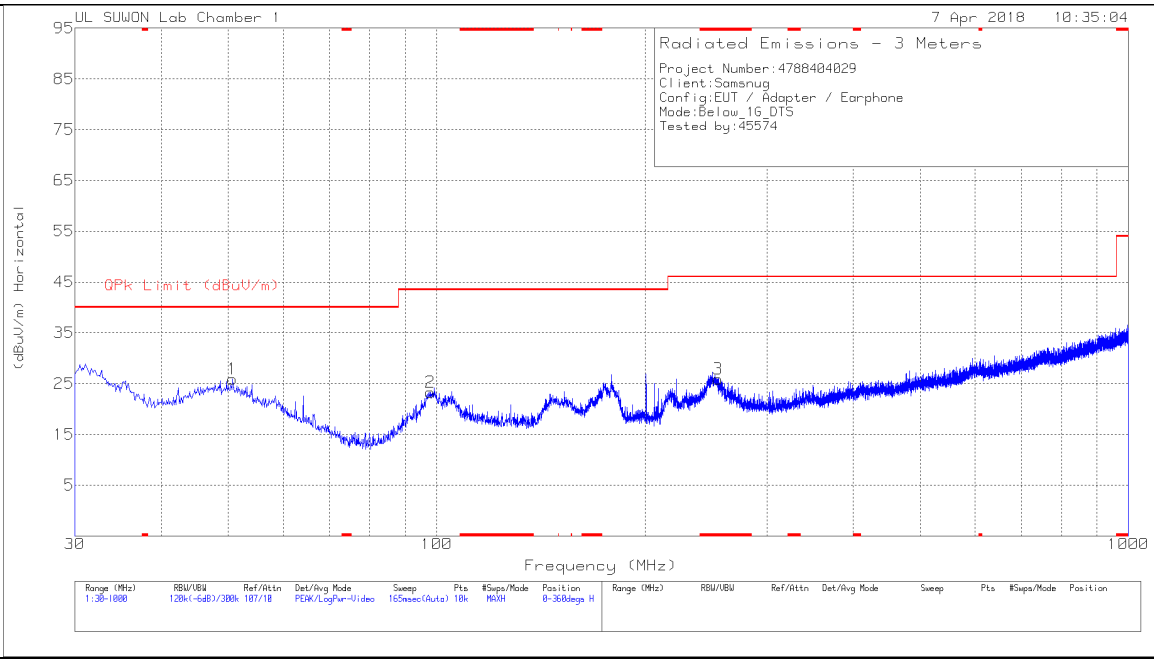
11.3. WORST-CASE BELOW 1 GHz

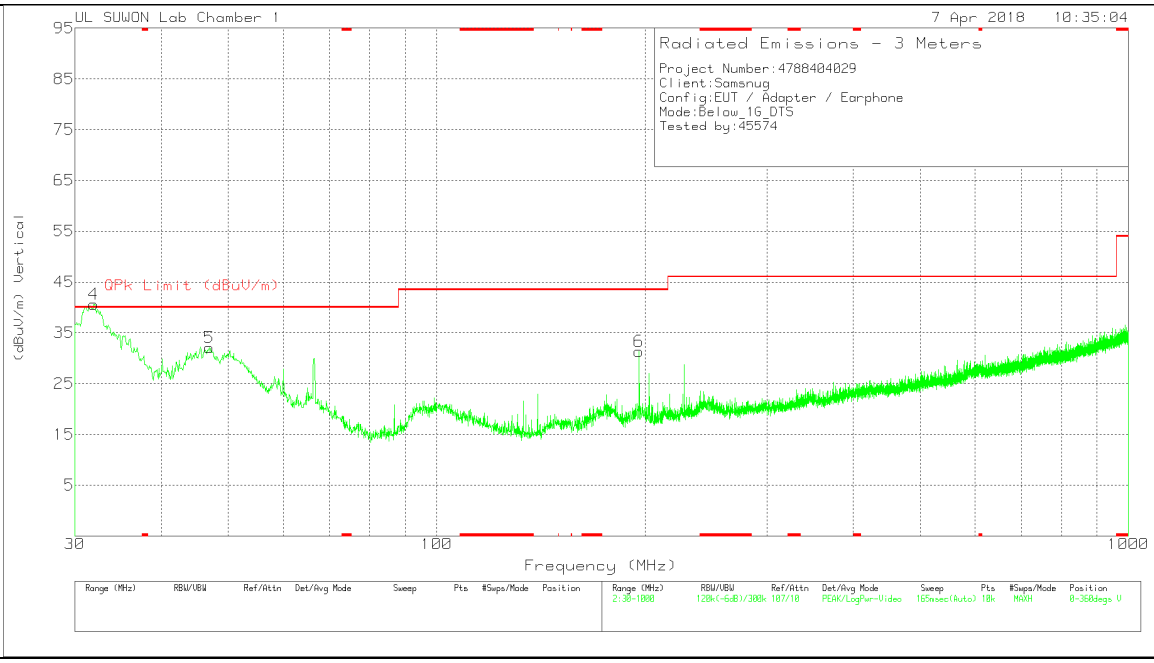
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

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	750_20170831	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	50.661	35.3	Pk	19.8	-29.2	25.9	40	-14.1	0-360	400	H
2	97.997	34.71	Pk	17.1	-28.5	23.31	43.52	-20.21	0-360	200	H
3	* 255.331	34.7	Pk	18.4	-27.2	25.9	46.02	-20.12	0-360	100	H
4	31.94	54.05	Pk	16.2	-29.6	40.65	40	.65	0-360	100	V
5	46.878	41.72	Pk	19.8	-29.4	32.12	40	-7.88	0-360	100	V
6	196.161	41.8	Pk	17	-27.5	31.3	43.52	-12.22	0-360	200	V

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

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	750_20170831	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
31.94	49.3	Qp	16.2	-29.6	35.9	40	-4.1	267	100	V

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

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12. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

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.

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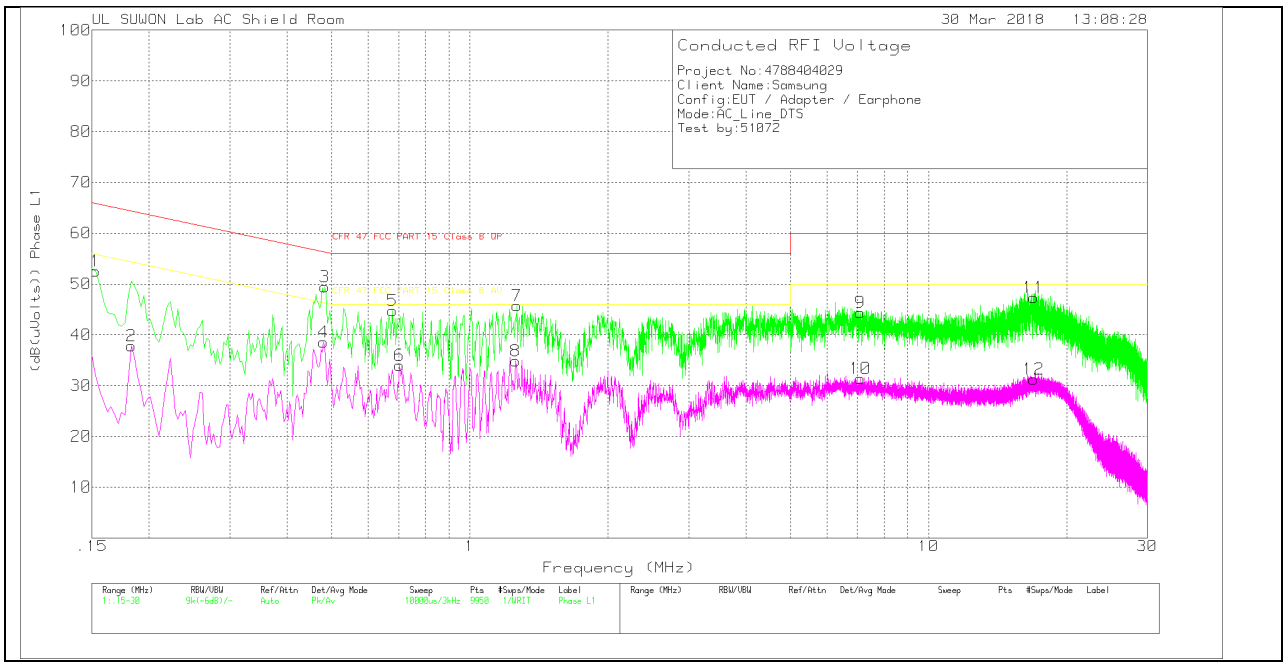
RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	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	.153	42.44	Pk	10	.1	52.54	65.84	-13.3	-	-
2	.183	27.75	Av	9.9	.2	37.85	-	-	54.35	-16.5
3	.483	39.59	Pk	9.7	.2	49.49	56.29	-6.8	-	-
4	.48	28.7	Av	9.7	.2	38.6	-	-	46.34	-7.74
5	.678	34.76	Pk	9.8	.2	44.76	56	-11.24	-	-
6	.702	24.11	Av	9.7	.2	34.01	-	-	46	-11.99
7	1.266	35.58	Pk	9.9	.3	45.78	56	-10.22	-	-
8	1.257	24.68	Av	9.9	.3	34.88	-	-	46	-11.12
9	7.101	34.4	Pk	9.7	.3	44.4	60	-15.6	-	-
10	7.11	21.41	Av	9.7	.3	31.41	-	-	50	-18.59
11	16.974	37.05	Pk	9.9	.4	47.35	60	-12.65	-	-
12	16.953	20.93	Av	9.9	.4	31.23	-	-	50	-18.77

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	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)
.15225	32.26	Qp	10	.1	42.36	65.88	-23.52	-	-
.18375	25.37	Qp	9.9	.2	35.47	64.31	-28.84	-	-
.48375	31.04	Qp	9.7	.2	40.94	56.27	-15.33	-	-
.47925	34.53	Qp	9.7	.2	44.43	56.35	-11.92	-	-
.67725	29.65	Qp	9.8	.2	39.65	56	-16.35	-	-
.70125	29.62	Qp	9.7	.2	39.52	56	-16.48	-	-
1.26675	27.62	Qp	9.9	.3	37.82	56	-18.18	-	-
1.25775	29.9	Qp	9.9	.3	40.1	56	-15.9	-	-
7.10115	28.14	Qp	9.7	.3	38.14	60	-21.86	-	-
7.10925	28.07	Qp	9.7	.3	38.07	60	-21.93	-	-
16.9748	30.58	Qp	9.9	.4	40.88	60	-19.12	-	-
16.9532	30.06	Qp	9.9	.4	40.36	60	-19.64	-	-

Qp - Quasi-Peak detector

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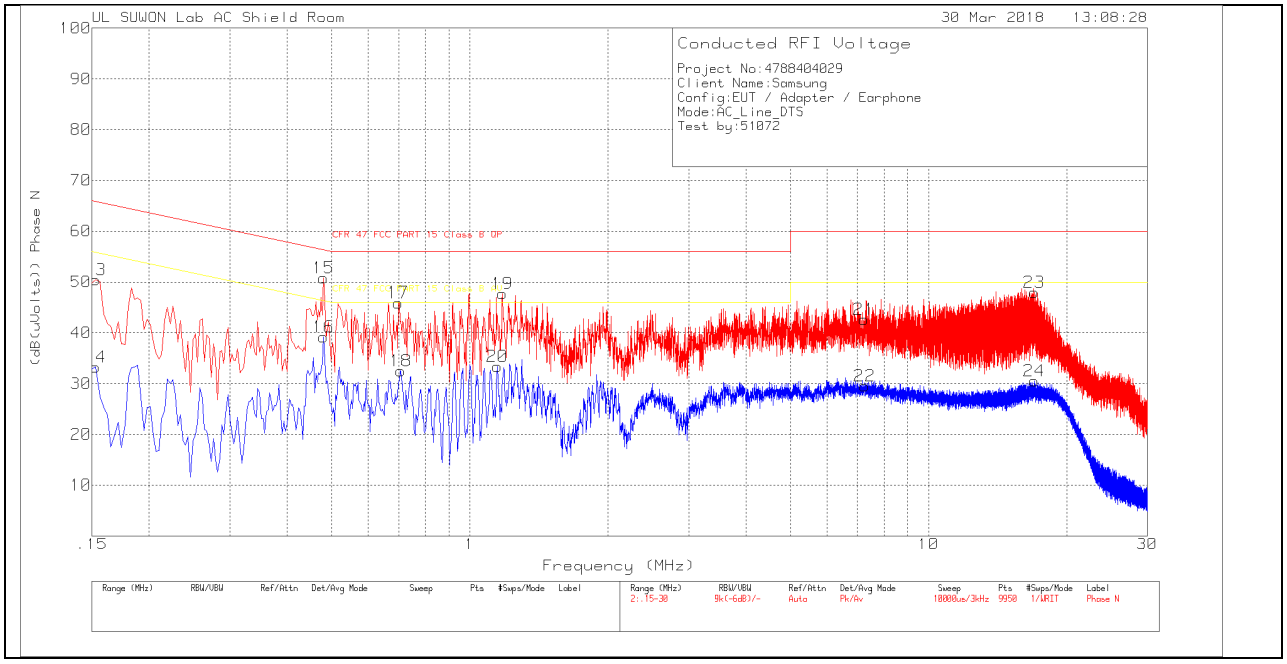
LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N_with extension	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	.153	40.29	Pk	10	.1	50.39	65.84	-15.45	-	-
14	.153	23.14	Av	10	.1	33.24	-	-	55.84	-22.6
15	.48	40.78	Pk	9.8	.2	50.78	56.34	-5.56	-	-
16	.48	29.19	Av	9.8	.2	39.19	-	-	46.34	-7.15
17	.699	35.92	Pk	9.8	.2	45.92	56	-10.08	-	-
18	.708	22.55	Av	9.8	.2	32.55	-	-	46	-13.45
19	1.179	37.47	Pk	9.9	.3	47.67	56	-8.33	-	-
20	1.149	23.12	Av	9.9	.3	33.32	-	-	46	-12.68
21	7.227	32.57	Pk	9.8	.3	42.67	60	-17.33	-	-
22	7.251	19.46	Av	9.8	.3	29.56	-	-	50	-20.44
23	17.01	37.67	Pk	9.9	.4	47.97	60	-12.03	-	-
24	17.01	20.24	Av	9.9	.4	30.54	-	-	50	-19.46

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N_with extension	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)
.15375	29.75	Qp	10	.1	39.85	65.79	-25.94	-	-
.47925	32.83	Qp	9.8	.2	42.83	56.35	-13.52	-	-
.69975	29.77	Qp	9.8	.2	39.77	56	-16.23	-	-
.70725	28.38	Qp	9.8	.2	38.38	56	-17.62	-	-
1.17825	29.08	Qp	9.9	.3	39.28	56	-16.72	-	-
1.14825	27.41	Qp	9.9	.3	37.61	56	-18.39	-	-
7.22625	26.92	Qp	9.8	.3	37.02	60	-22.98	-	-
7.25175	27.02	Qp	9.8	.3	37.12	60	-22.88	-	-
17.0108	28.92	Qp	9.9	.4	39.22	60	-20.78	-	-

Qp - Quasi-Peak detector

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