CERTIFICATION TEST REPORT

Report Number. : 4789739083-E3V2

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

Model : SM-M625F/DS, SM-E625F/DS

FCC ID : A3LSMM625F

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

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
January 11, 2021

Prepared by:
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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	01/06/21	Initial issue	Sungeun Lee
V2	01/11/21	Updated to address TCB's question	Sungeun 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-M625F/DS, SM-E625F/DS
SERIAL NUMBER:	R38NB02PGTK, R38NB02PGJW (CONDUCTED); R38NB02PGWB (RADIATED);
DATE TESTED:	NOV 30, 2020 – JAN 05, 2021;

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Complies

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:

Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Sungeun Lee
Suwon Lab Engineer
UL Korea, Ltd.

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2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v05r02.
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

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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)

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

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	3.01 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.26 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.90 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.49 dB

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

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 1, Clause 4.4.2 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

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

This report covers the Samsung models SM-M625F/DS and SM-E625F/DS.
These models are identical in hardware except SM-E625F/DS has other Software name.
With some pre-scan, model SM-M625F/DS was set for final test.

WiFi operating mode

Frequency rage	Mode	ANT 1
2.4GHz (2412 MHz ~ 2472 MHz)	802.11b SISO	TX/RX
	802.11g SISO	TX/RX
	802.11n(HT20) SISO	TX/RX

Simultaneous TX Condition

Simultaneous Tx Condition - RSDB

Mode	# of TX	5GHz WLAN	2.4GHz WLAN	Test Case
		ANT1	ANT1	
2.4GHz + 5GHz RSDB	**2**	**O**	**O**	**O**

Simultaneous Tx Condition - 5 GHz SISO + Bluetooth

Mode	# of TX	5GHz WLAN	2.4GHz Bluetooth	Test Case
		ANT1	ANT1	
5GHz SISO & Bluetooth	**2**	**O**	**O**	**-**

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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]
		ANT1	ANT1
2412 - 2472	802.11b SISO	19.90	97.72
	802.11g SISO	15.66	36.81
	802.11n(HT20) SISO	15.71	37.24

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

The internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.

The radio utilizes an internal antennas, with Antenna 1's maximum gain of -5.50 dBi.

5.4. TESTED CHANNELS LIST

Ch.	Frequency [MHz]	11b [SISO]	11g [SISO]	11n(HT20) [SISO]
1	2 412	O	O	O
2	2 417	-	O	O
6	2 437	O	O	O
10	2 457	-	O	O
11	2 462	O	O	O
12	2 467	O	O	O
13	2 472	O	O	O

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5.5. WORST-CASE CONFIGURATION AND MODE

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

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

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Based on the baseline scan, the worst-case data rates were:
802.11b mode: 1 Mbps 1TX
802.11g mode: 6 Mbps 1TX
802.11n HT20 mode: MCS0 1TX

Note1. 802.11b & g & n (HT20) mode: Only supports SISO mode.
Note2. All radiated and power line conducted tests were performed attached with travel adapter and earphone for the worst case condition mode.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37MAVSOLC7DK3	N/A
Data Cable	SAMSUNG	EP-DA705BBE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFBE	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	1.0 m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.2 m	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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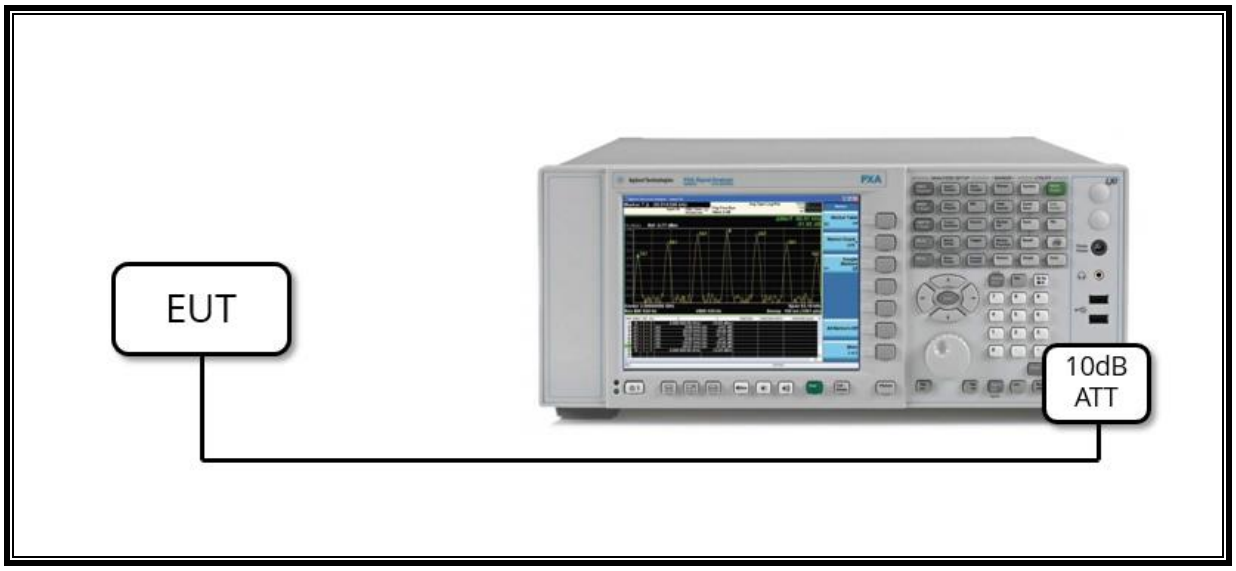
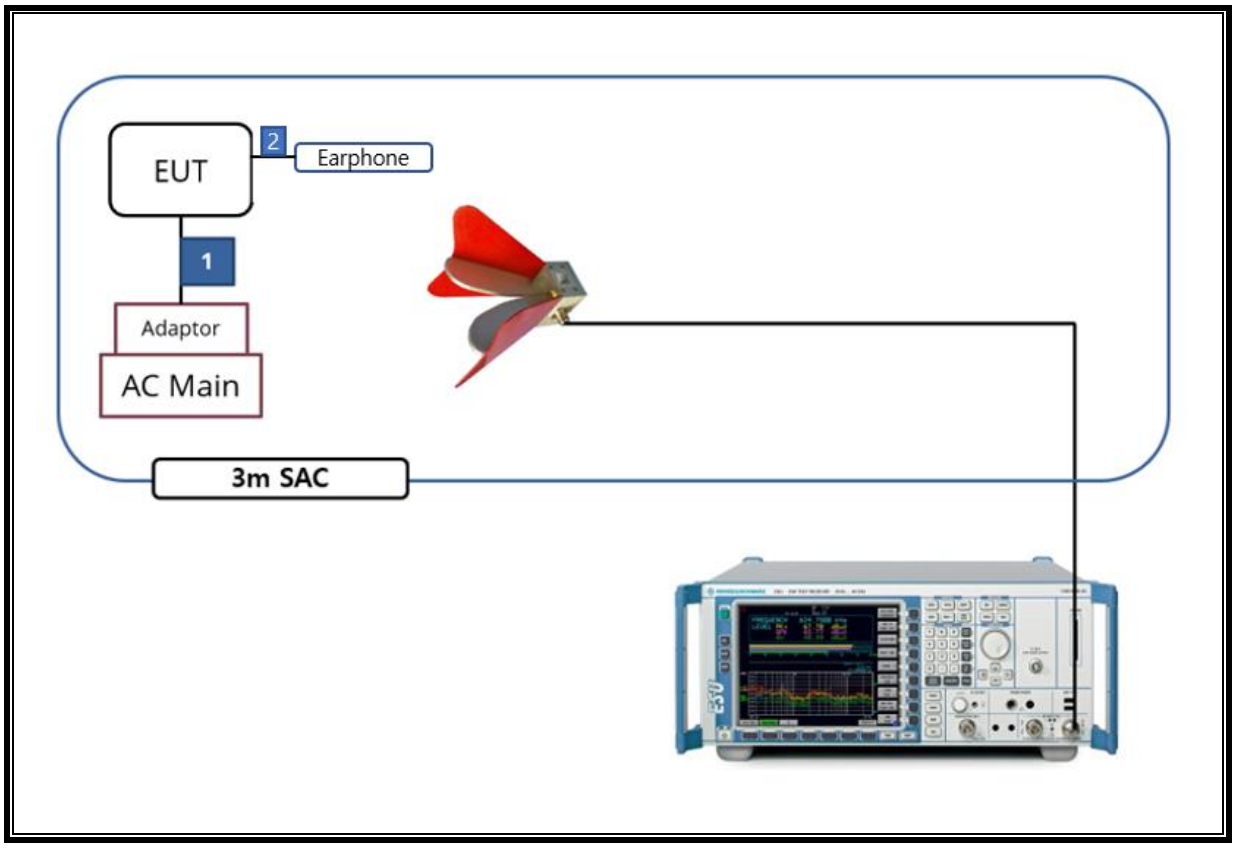
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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6. MEASUREMENT METHOD

6 dB BW: KDB 558074 D01 v05r02, Section 8.2

OUTPUT POWER: KDB 558074 D01 v05r02, Section 8.3.2.3.

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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7. 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	08-19-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	08-13-22
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-13-22
Antenna, Horn, 18 GHz	ETS	3115	00167211	07-27-22
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-15-22
Antenna, Horn, 18 GHz	ETS	3117	00168724	07-27-22
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-15-22
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-04-22
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Preamplifier	ETS	3116C-PA	00168841	08-06-21
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-03-21
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-06-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-03-21
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-04-21
Spectrum Analyzer, 44 GHz	Keysight	N9030B	MY57143717	01-20-21
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-05-21
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-05-21
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-06-21
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-05-21
Attenuator	PASTERNACK	PE7087-10	A001	08-03-21
Attenuator	PASTERNACK	PE7087-10	A008	08-03-21
Attenuator	PASTERNACK	PE7004-10	2	08-04-21
Attenuator	PASTERNACK	PE7087-10	A009	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-03-21
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-03-21
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-03-21
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-04-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-03-21
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-04-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-03-21
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-04-21
LISN	R&S	ENV-216	101837	08-06-21
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-02-21

UL Software			
Description	**Manufacturer**	**Model**	**Version**
Radiated software	UL	UL EMC	Ver 9.5
AC Line Conducted software	UL	UL EMC	Ver 9.5

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8. 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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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

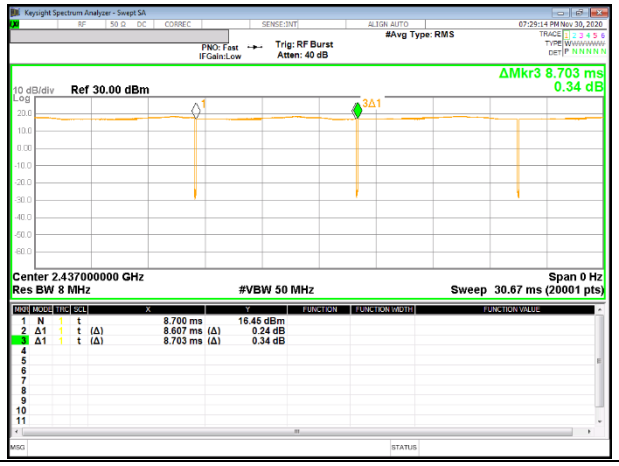
LIMITS

None; for reporting purposes only.

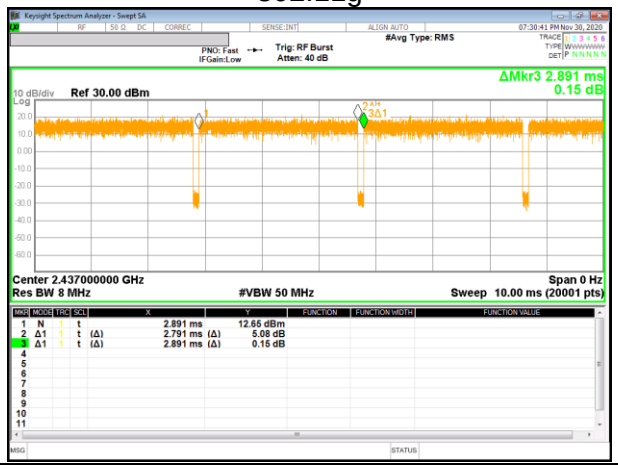
Mode	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]	1/T Minimum VBW[kHz]
802.11b	8.607	8.703	0.99	98.9	0.00	0.12
802.11g	2.791	2.891	0.97	96.5	0.15	0.36
802.11n(HT20)	2.595	2.696	0.96	96.3	0.17	0.39

Note. According to ANSI C63.10 Section 11.6, do not apply the Duty Cycle Correction Factor judging that a duty cycle of greater than or equal to 98% is continuous signal.

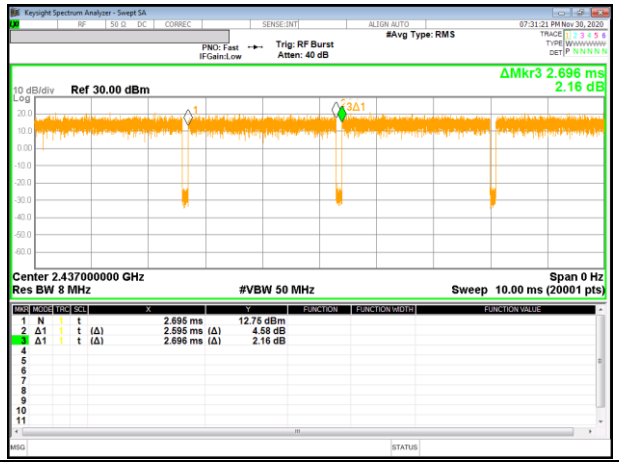
802.11b



802.11g



802.11n HT20



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9.2. 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 15.247 Meas Guidance: The transmitter output is connected to a spectrum analyzer with the RBW set to100 kHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS
- Please refer to the next page

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	9.02	0.5
6	2 437	8.53	
11	2 462	8.54	
12	2 467	8.01	
13	2 472	7.55	
Worst		**7.55**	

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	16.33	0.5
2	2 417	16.31	
6	2 437	16.33	
10	2 457	16.32	
11	2 462	16.34	
12	2 467	16.33	
13	2 472	16.33	
Worst		**16.31**	

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9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	17.56	0.5
2	2 417	17.19	
6	2 437	17.58	
10	2 457	17.56	
11	2 462	17.58	
12	2 467	17.56	
13	2 472	17.56	
Worst		**17.19**	

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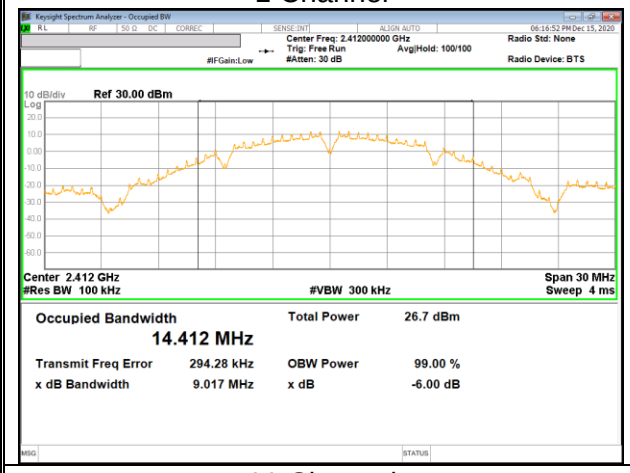
9.2.4. 6 dB BANDWIDTH TEST PLOTS

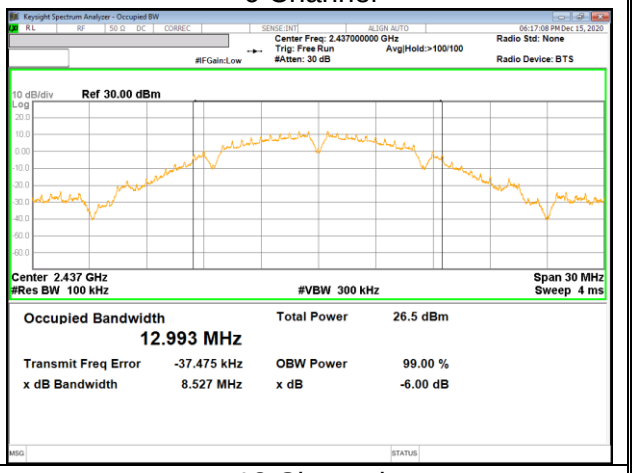
DTS 2.4 GHz IEEE 802.11b mode

ANT 1

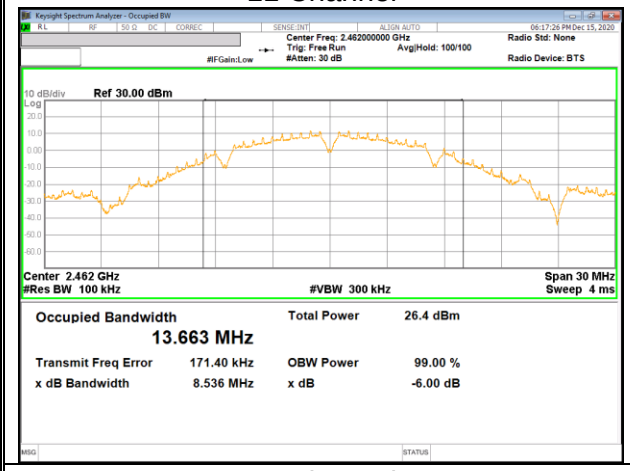
1 Channel



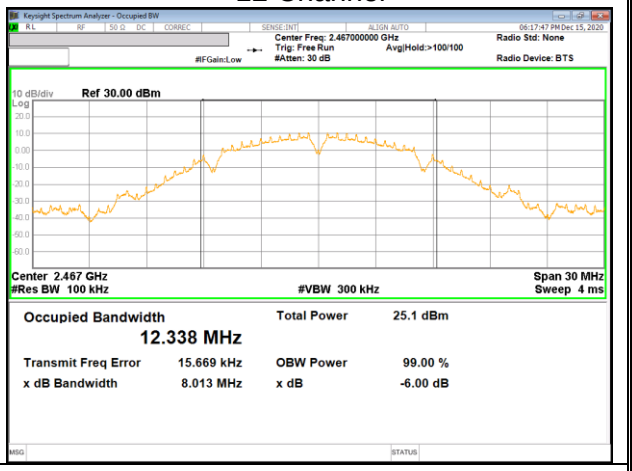
6 Channel



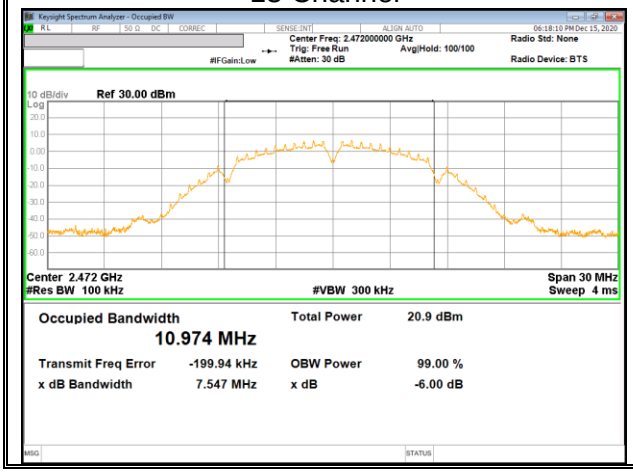
11 Channel



12 Channel



13 Channel



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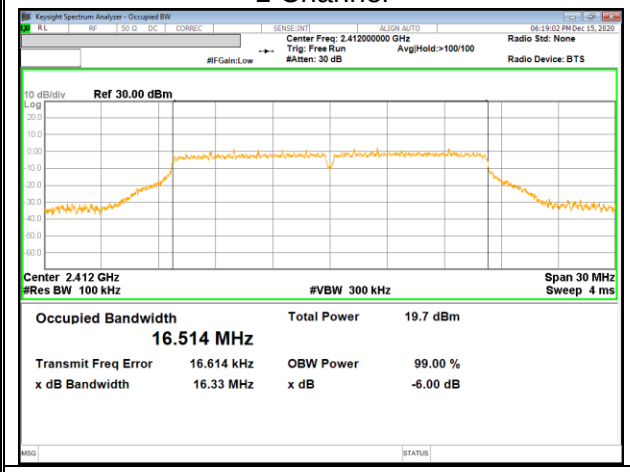
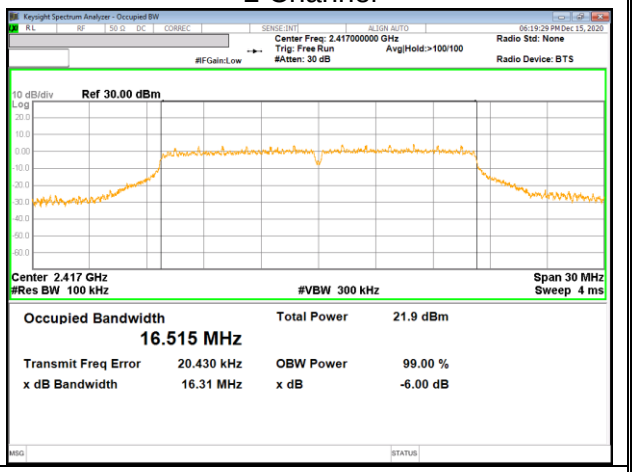
DTS 2.4 GHz IEEE 802.11g mode

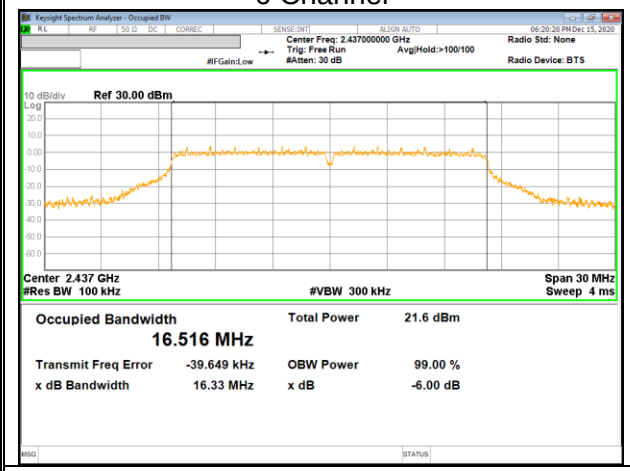
1 Channel



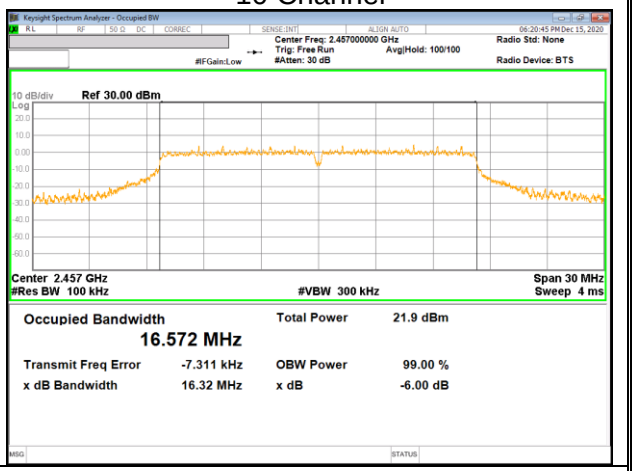
2 Channel



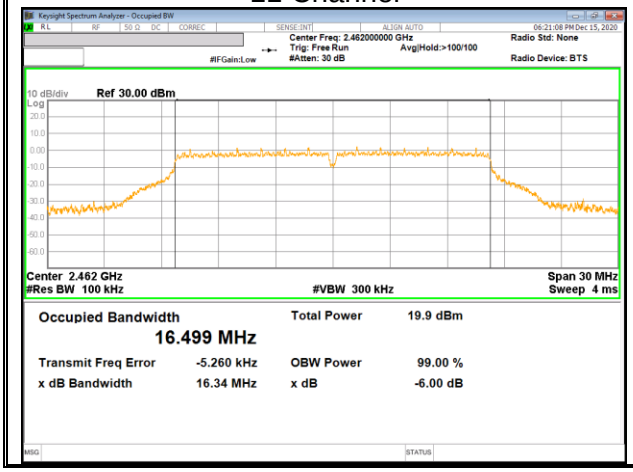
6 Channel



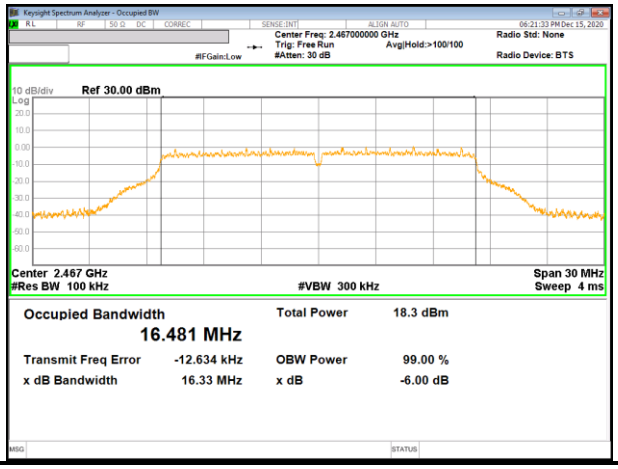
10 Channel



11 Channel



12 Channel



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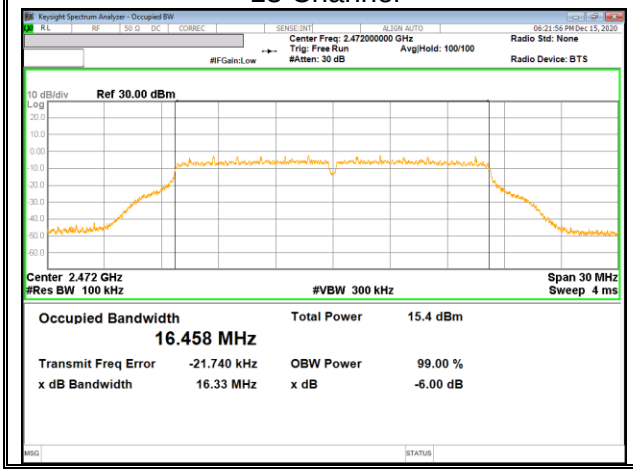
13 Channel



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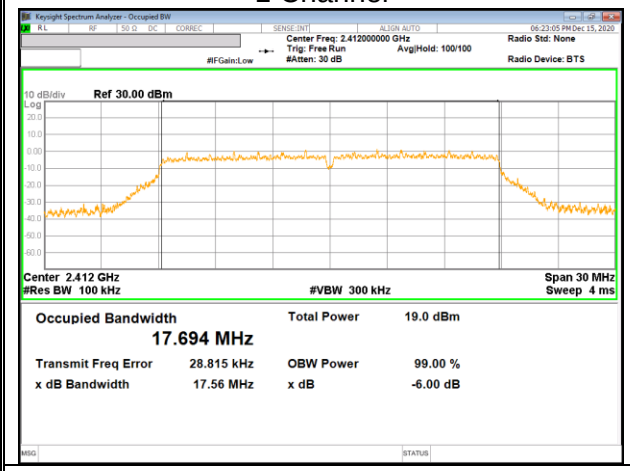
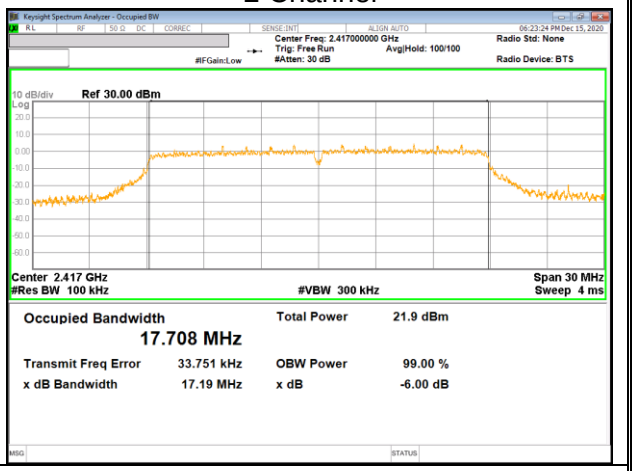
DTS 2.4 GHz IEEE 802.11n HT20 mode

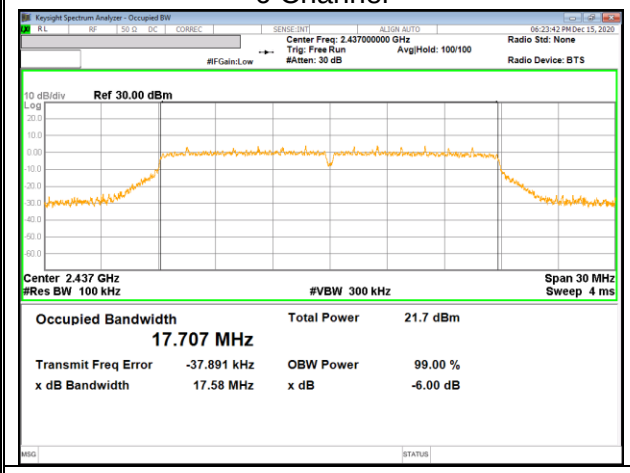
1 Channel



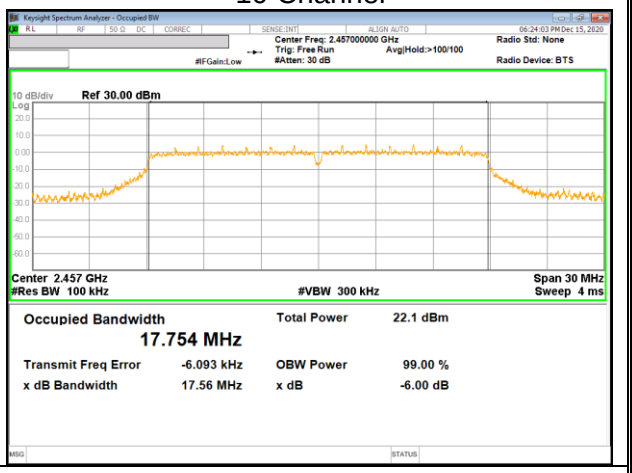
2 Channel



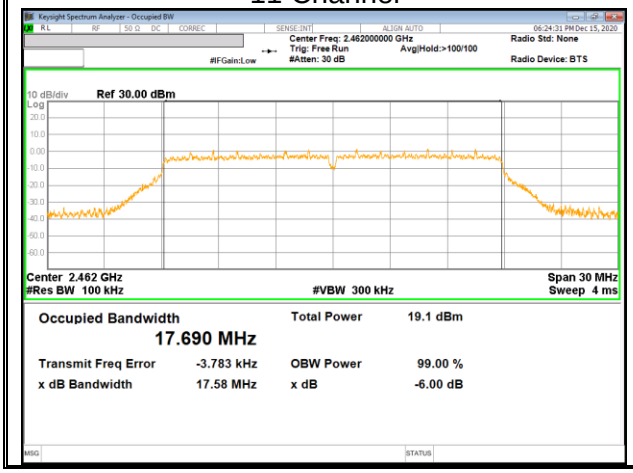
6 Channel



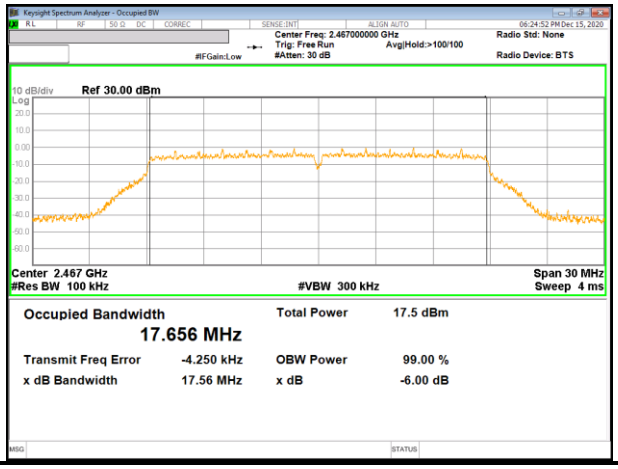
10 Channel



11 Channel



12 Channel



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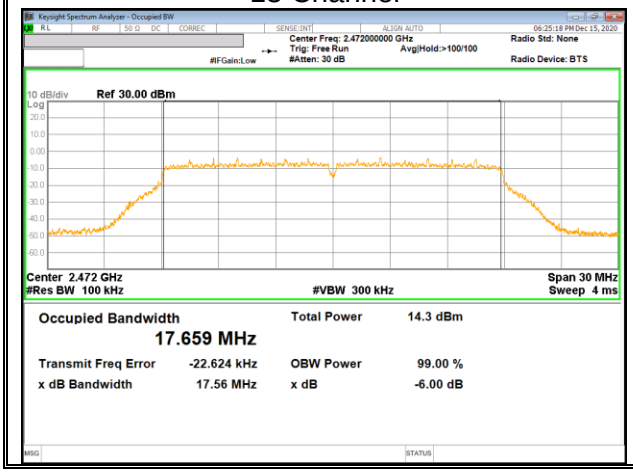
13 Channel



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9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

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.

DIRECTIONAL ANTENNA GAIN

The antenna gain is:

Bands [MHz]	ANT 1 [dBi]
2 412 – 2 472	-5.50

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9.3.1. TEST RESULTS

Included in Calculations of Corr'd Power			
Duty Cycle CF	802.11b SISO	0.00	dB
	802.11g SISO	0.15	dB
	802.11n HT20 SISO	0.17	dB

Calculation of Output Power result
→ Average Power = Meas. Power + Duty Cycle CF

- SISO Mode

Mode	Channel	Frequency [MHz]	Average Power [dBm]	Power Limit [dBm]
			ANT1	
802.11b	1	2 412	19.90	30.00
	6	2 437	19.85	
	11	2 462	19.80	
	12	2 467	18.49	
	13	2 472	14.15	
Worst Case			**19.90**	
802.11g	1	2 412	13.48	30.00
	2	2 417	15.47	
	6	2 437	15.47	
	10	2 457	15.66	
	11	2 462	13.25	
	12	2 467	11.70	
	13	2 472	9.02	
Worst Case			**15.66**	
802.11n(HT20)	1	2 412	12.45	30.00
	2	2 417	15.45	
	6	2 437	15.61	
	10	2 457	15.71	
	11	2 462	12.29	
	12	2 467	10.95	
	13	2 472	8.06	
Worst Case			**15.71**	

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9.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

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 100 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.

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RESULTS

9.4.1. 802.11b/g/n HT20 MODE TEST RESULTS

Included in Calculations of Corr'd Power			
Duty Cycle CF	802.11b SISO	0.00	dB
	802.11g SISO	0.15	dB
	802.11n HT20 SISO	0.17	dB

Calculation of Output PSD result
1. 1TX : Corr'd PSD = Meas PSD + Duty Cycle CF

- SISO Mode

Mode	Channel	Frequency [MHz]	Meas PSD [dBm/3kHz]	Total Corr'd PSD [dBm/3kHz]	PSD Limit [dBm/3kHz]
			ANT1	ANT1	
802.11b	1	2 412	3.789	3.789	8.00
	6	2 437	4.110	4.110	
	11	2 462	3.395	3.395	
	12	2 467	2.747	2.747	
	13	2 472	-1.455	-1.455	
802.11g	1	2 412	-5.576	-5.426	
	2	2 417	-4.284	-4.134	
	6	2 437	-4.089	-3.939	
	10	2 457	-3.793	-3.643	
	11	2 462	-5.921	-5.771	
	12	2 467	-7.936	-7.786	
	13	2 472	-10.182	-10.032	
802.11n HT20	1	2 412	-7.385	-7.215	
	2	2 417	-4.297	-4.127	
	6	2 437	-4.431	-4.261	
	10	2 457	-4.412	-4.242	
	11	2 462	-7.421	-7.251	
	12	2 467	-8.743	-8.573	
	13	2 472	-11.967	-11.797	

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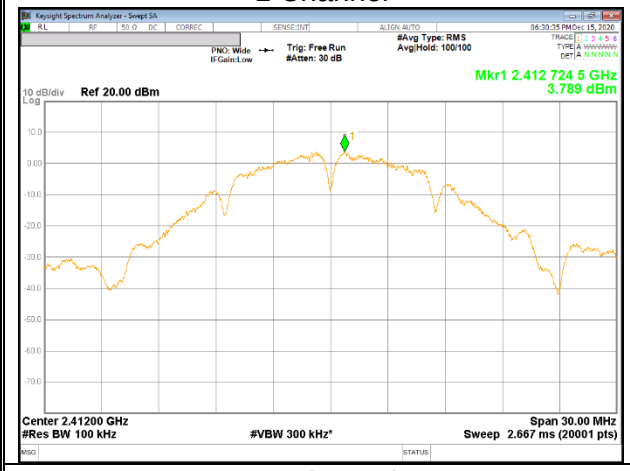
9.4.2. PSD TEST PLOTS

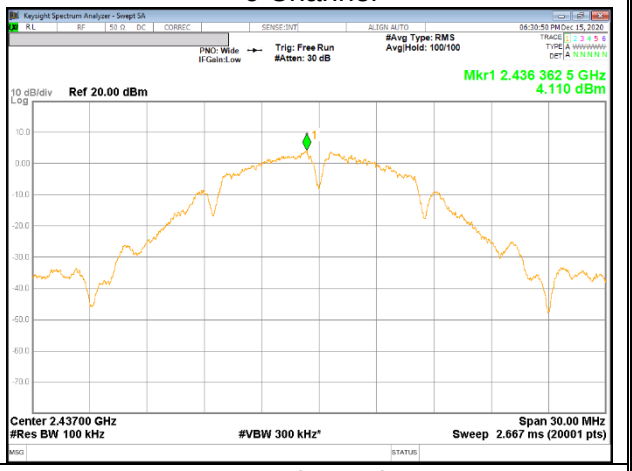
DTS 2.4 GHz IEEE 802.11b mode

ANT 1

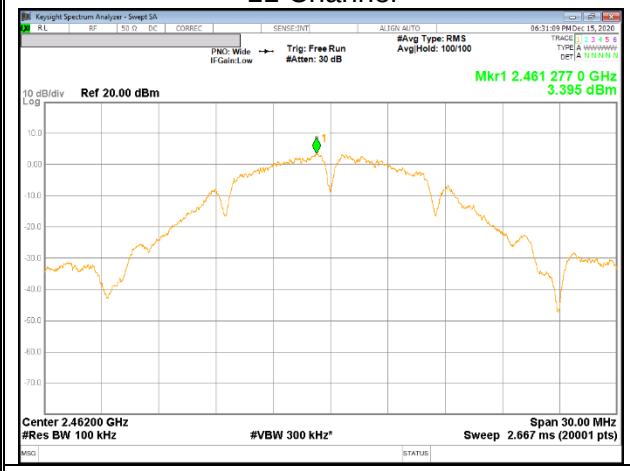
1 Channel



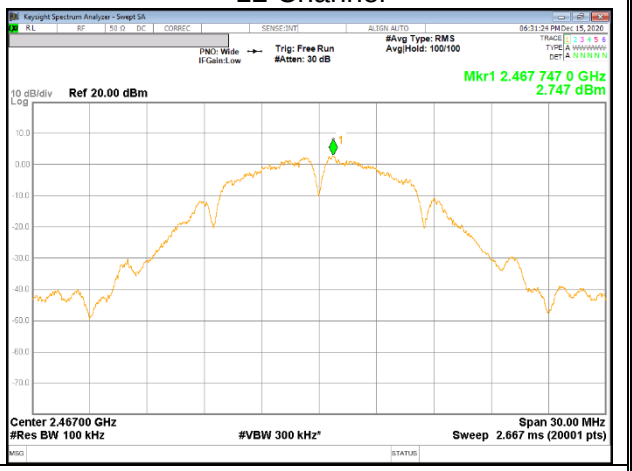
6 Channel



11 Channel



12 Channel



13 Channel

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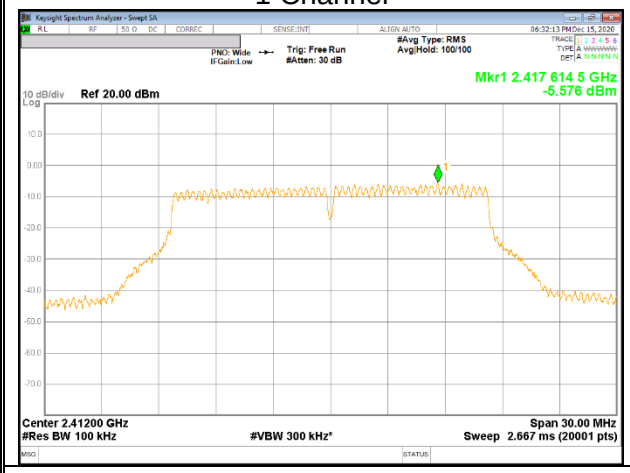
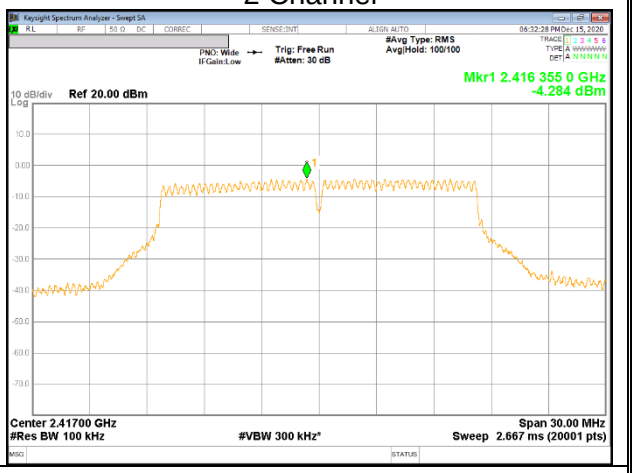
DTS 2.4 GHz IEEE 802.11g mode

ANT 1

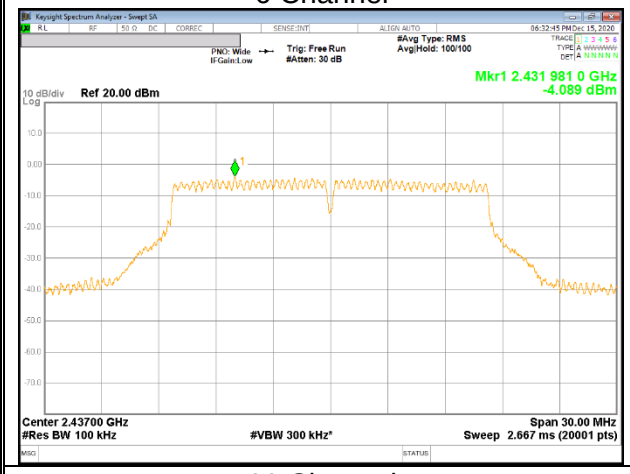
1 Channel



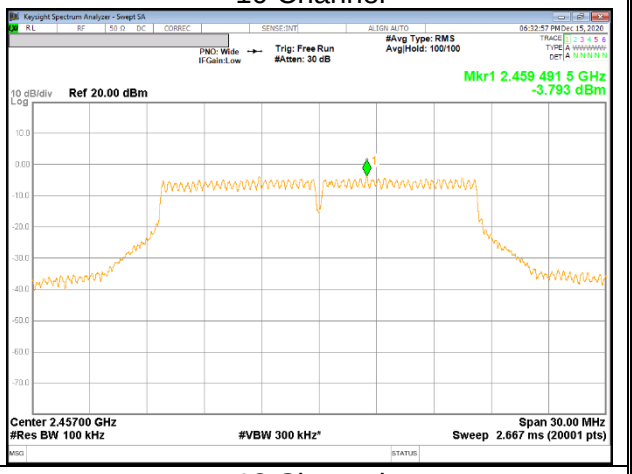
2 Channel



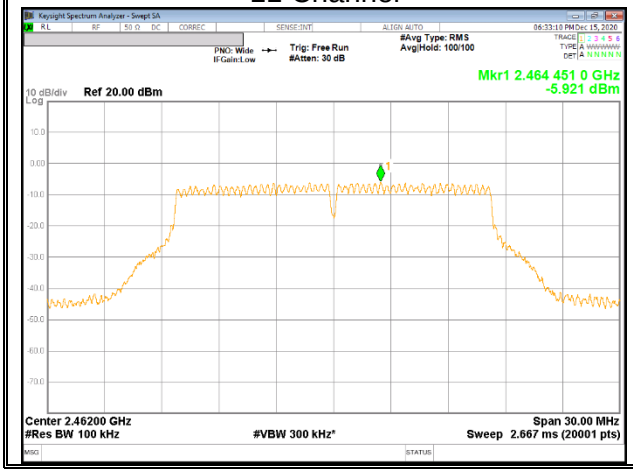
6 Channel



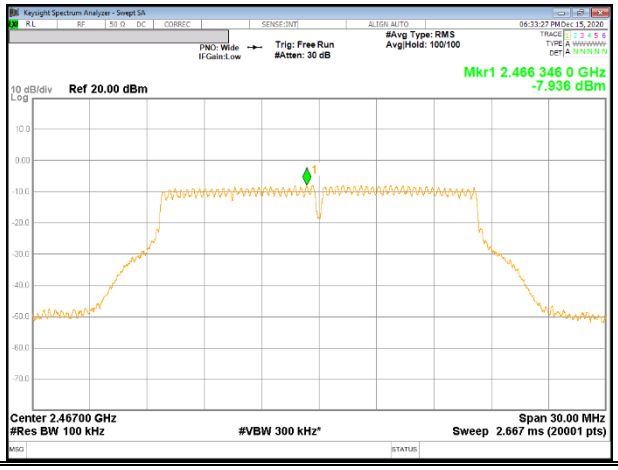
10 Channel



11 Channel



12 Channel



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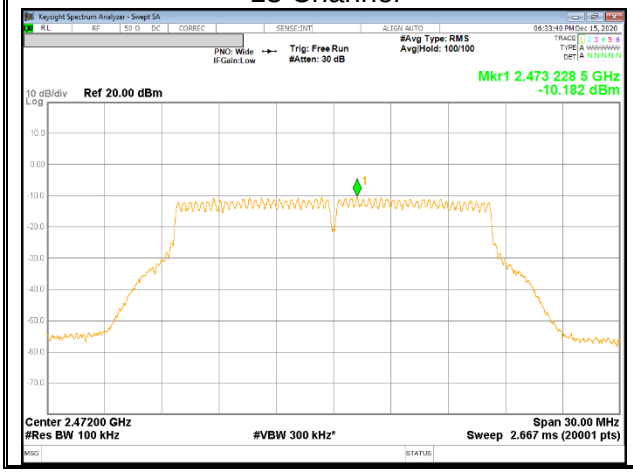
ANT 1	
13 Channel	



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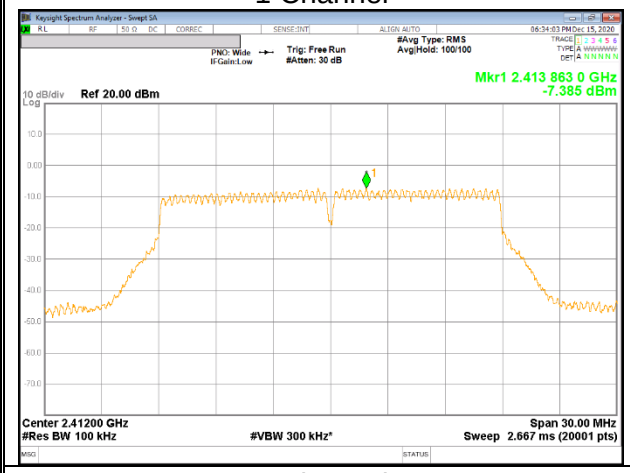
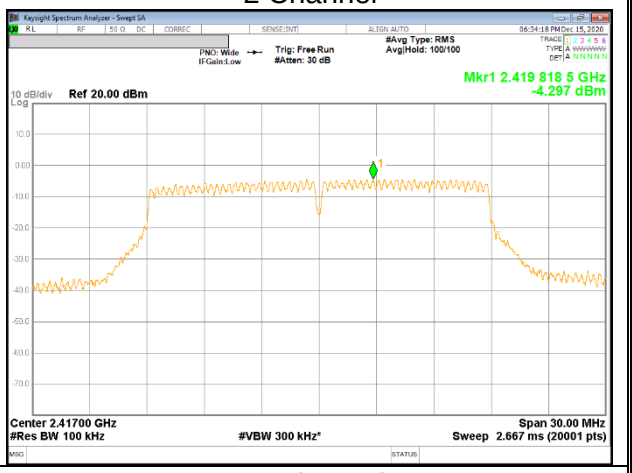
DTS 2.4 GHz IEEE 802.11n HT20 mode

ANT 1

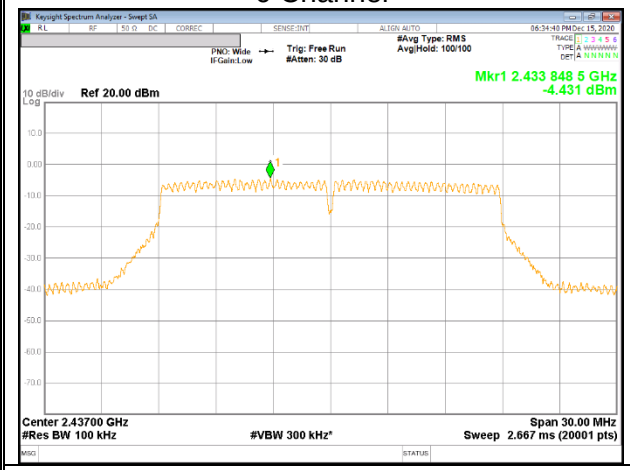
1 Channel



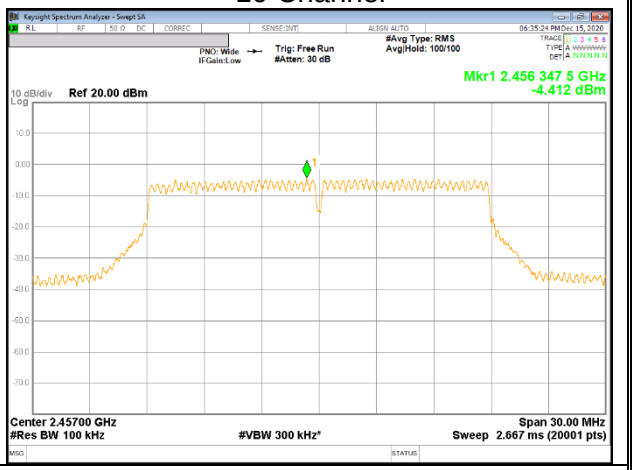
2 Channel



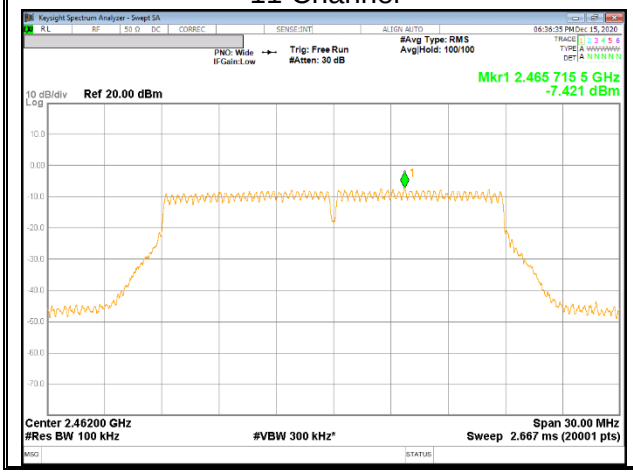
6 Channel



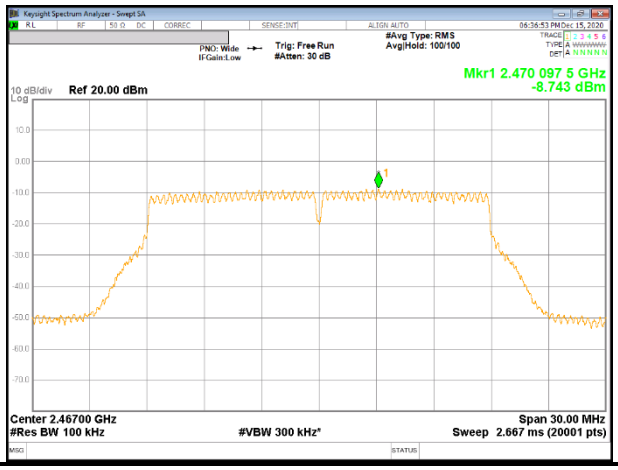
10 Channel



11 Channel



12 Channel



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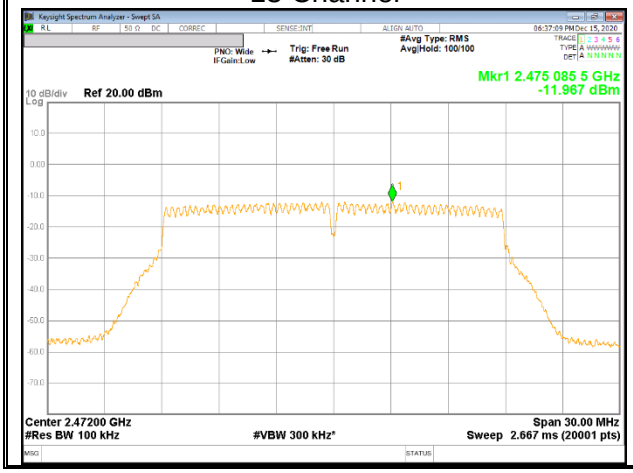
ANT 1	
13 Channel	



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9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of average measurement. Therefore, spurious emissions are required to be 30 dBc.

RESULTS

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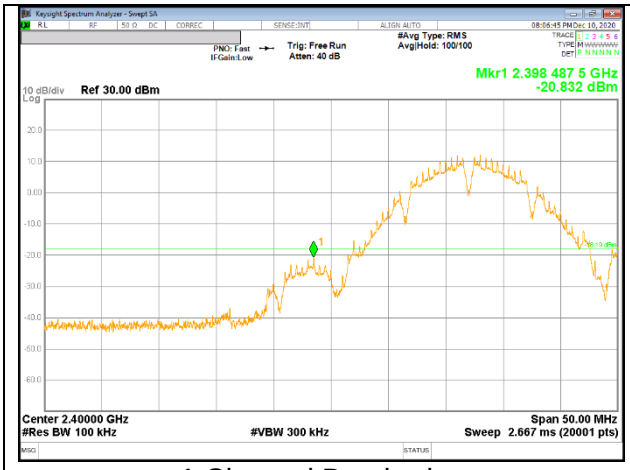
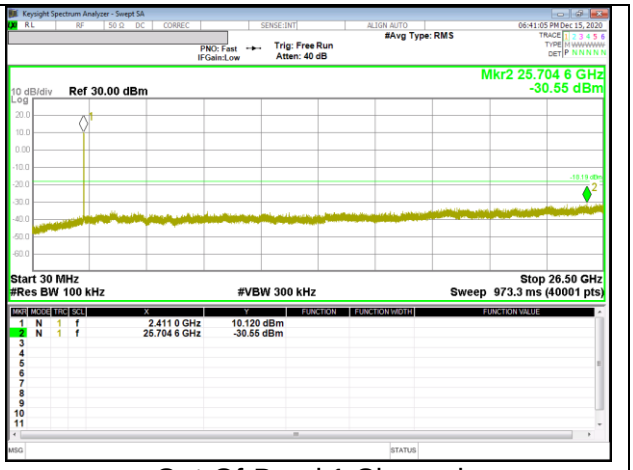
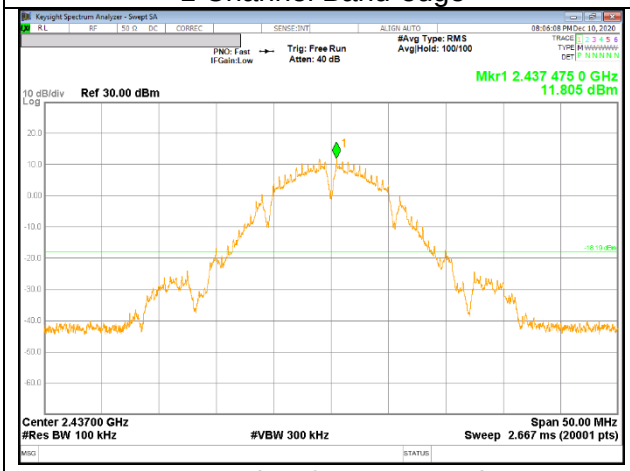
9.5.1. 802.11b MODE



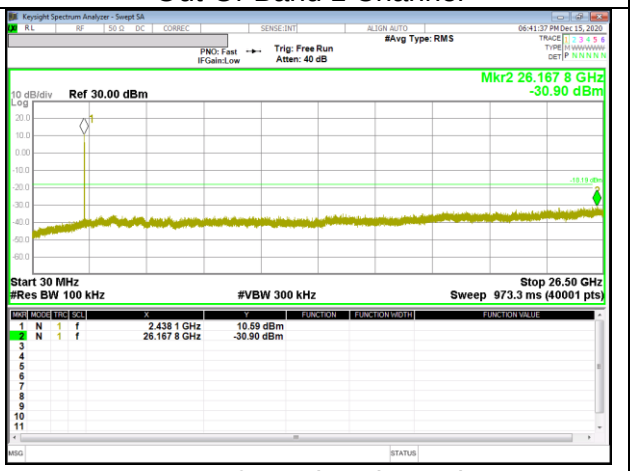
1 Channel Band-edge



Out-Of-Band 1 Channel



In-Band Reference Level



Out-Of-Band 6 Channel

11 Channel Band-edge

Out-Of-Band 11 Channel

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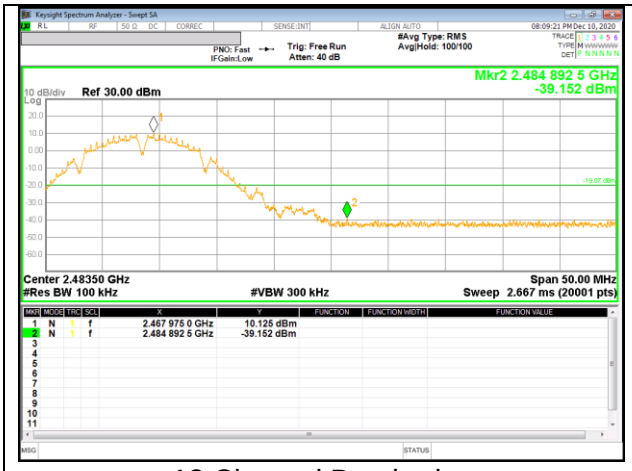

12 Channel Band-edge

13 Channel Band-edge

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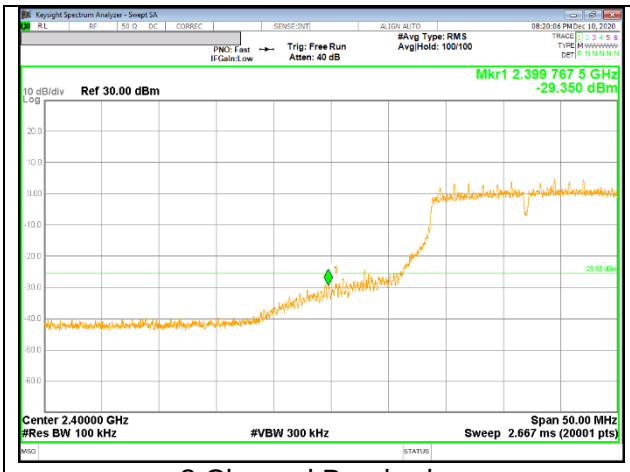
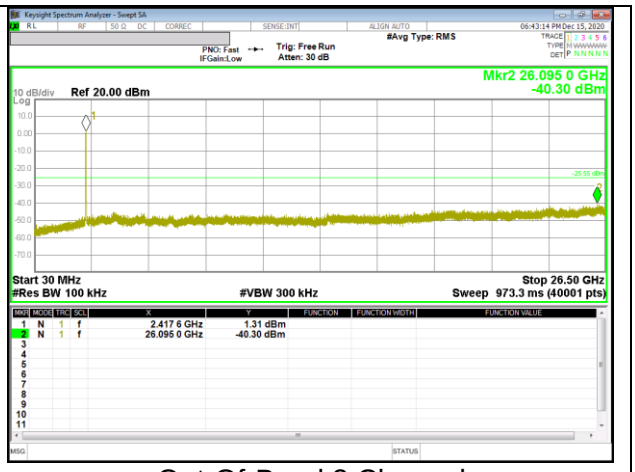
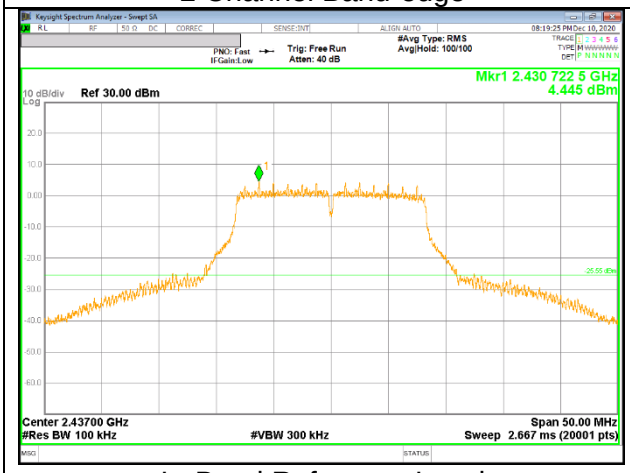
9.5.2. 802.11g MODE



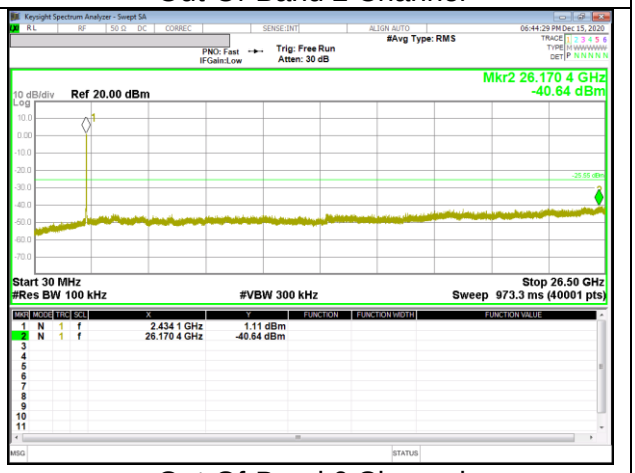
2 Channel Band-edge



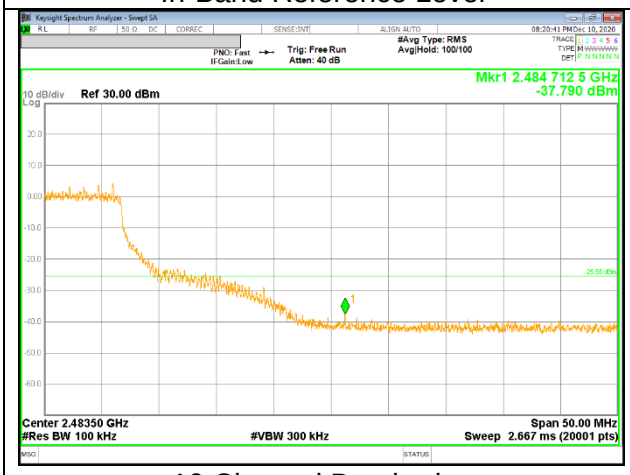
Out-Of-Band 2 Channel



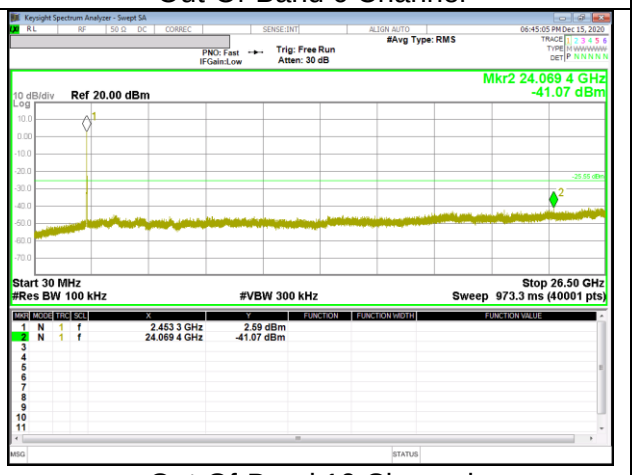
In-Band Reference Level



Out-Of-Band 6 Channel



10 Channel Band-edge



Out-Of-Band 10 Channel

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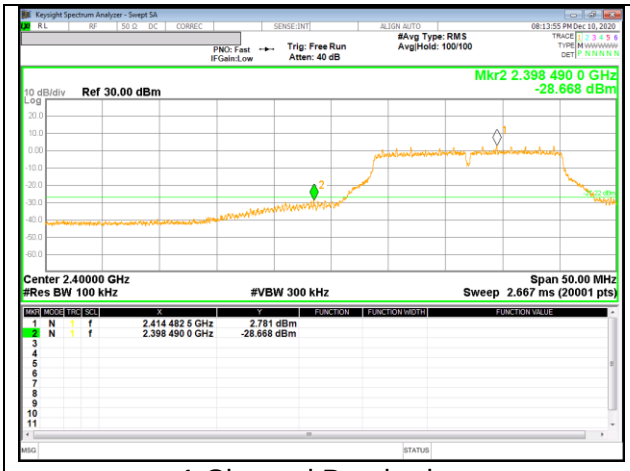
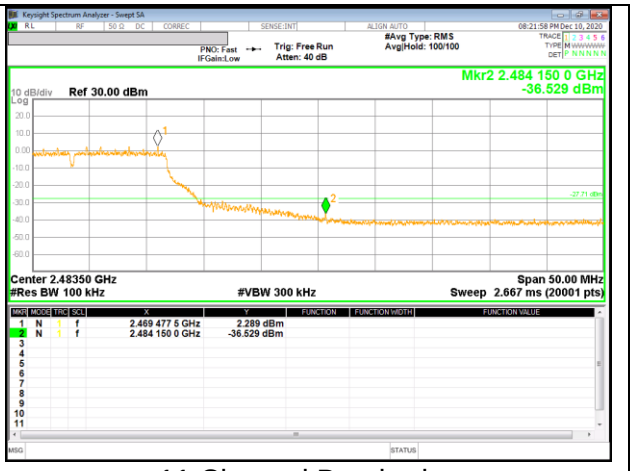
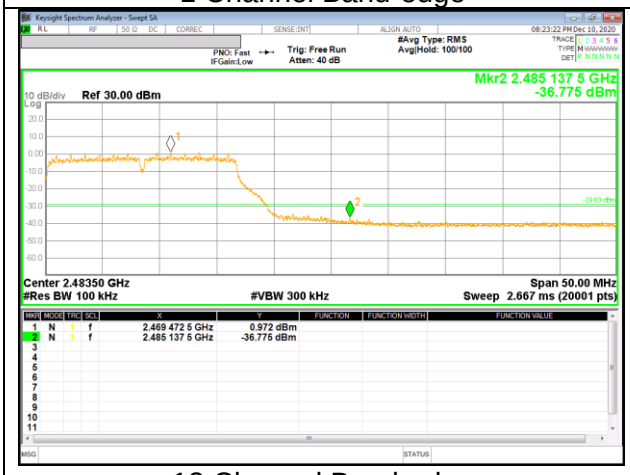


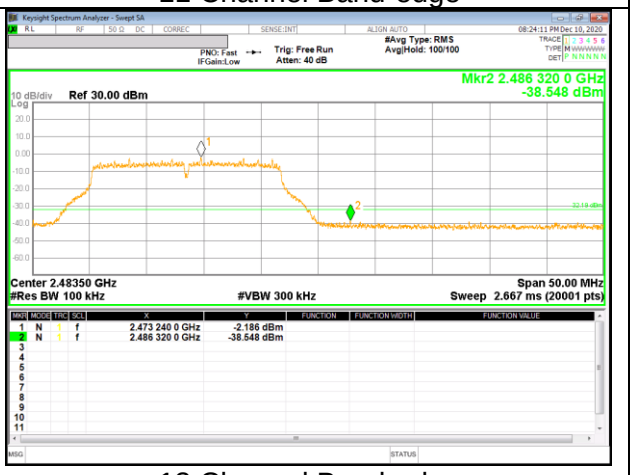
1 Channel Band-edge



11 Channel Band-edge



12 Channel Band-edge



13 Channel Band-edge

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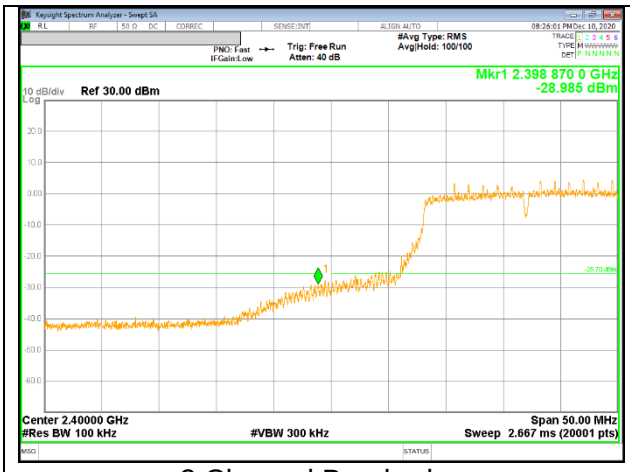
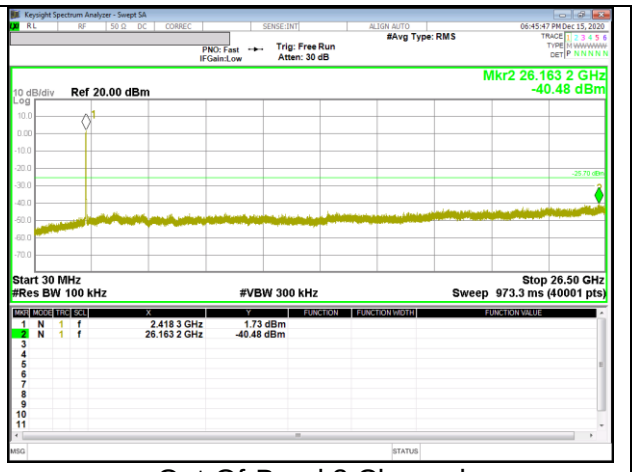
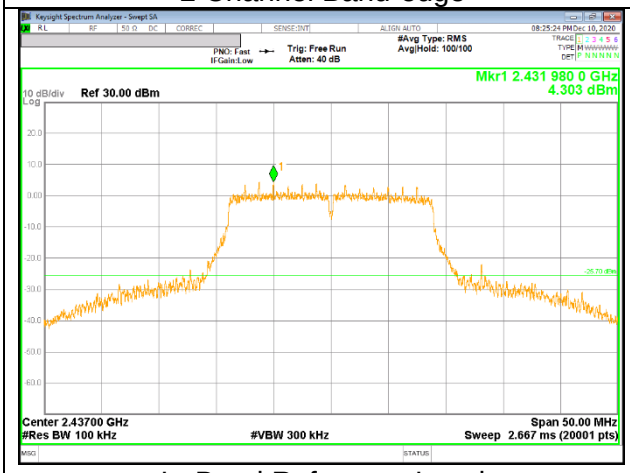
9.5.3. 802.11n HT20 MODE



2 Channel Band-edge

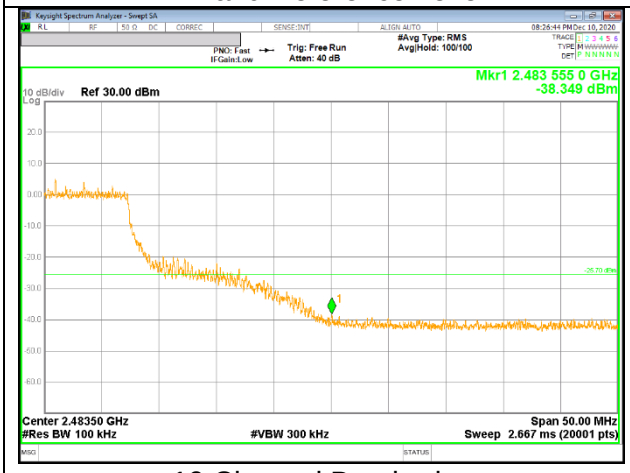


Out-Of-Band 2 Channel

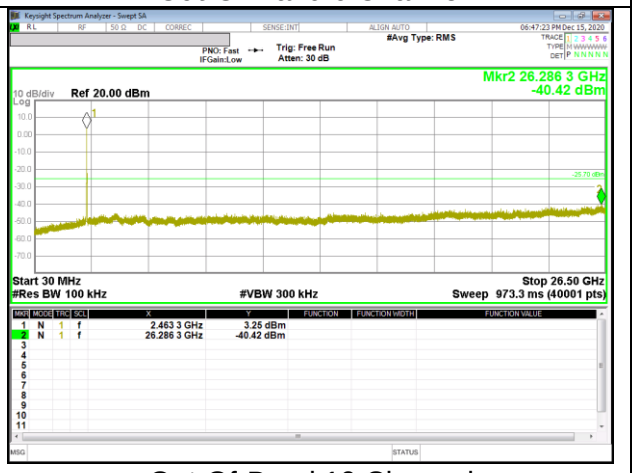


In-Band Reference Level

Out-Of-Band 6 Channel



10 Channel Band-edge



Out-Of-Band 10 Channel

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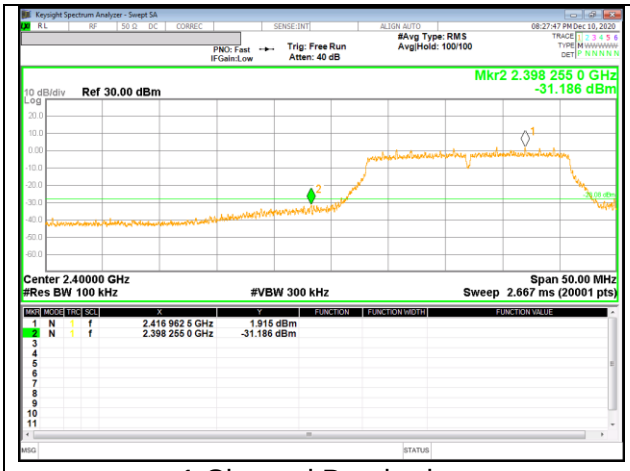
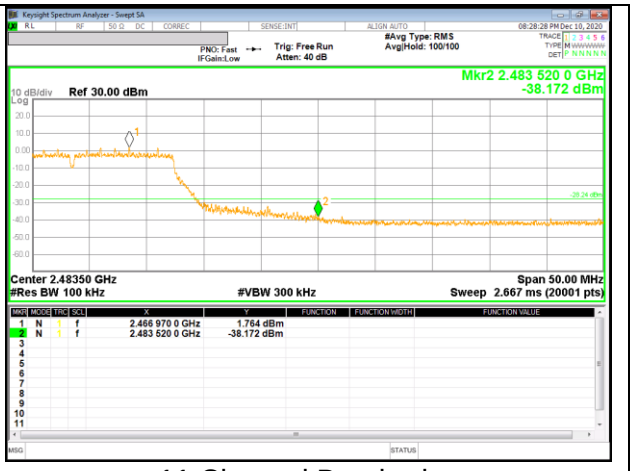
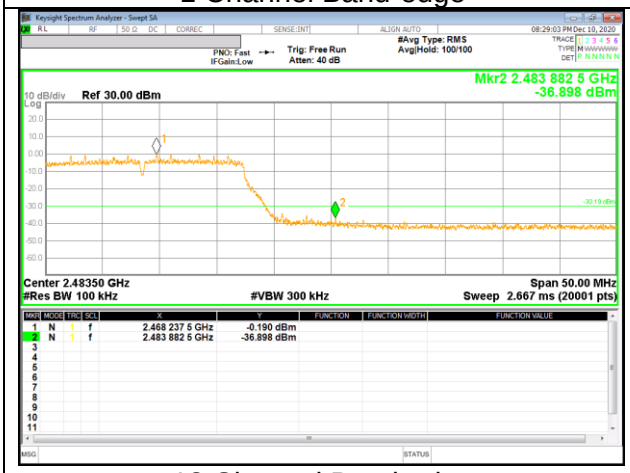


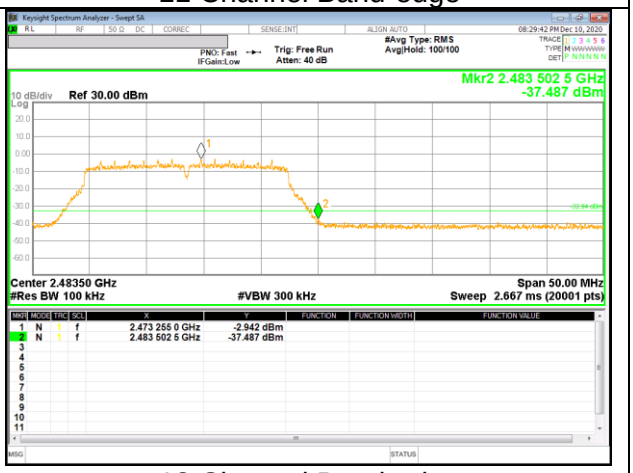
1 Channel Band-edge



11 Channel Band-edge



12 Channel Band-edge



13 Channel Band-edge

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10. RADIATED TEST RESULTS

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.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	156.7 ~ 156.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	162.0125 ~	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	167.17	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	167.72 ~ 173.2	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	240 ~ 285	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	322 ~ 335.4	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	399.90 ~ 410	3345.8 ~ 3358		
		608 ~ 614	3600 ~ 4400		
		960 ~ 1240			

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

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TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1 GHz and 150 cm for above 1 GHz. 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:

802.11b SISO mode = 0 dB (duty cycle > 98%);
802.11g SISO mode = 0.15 dB (96.54 %);
802.11n(HT20) SISO mode = 0.17 dB (96.25%);

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 9 kHz to 30 MHz; 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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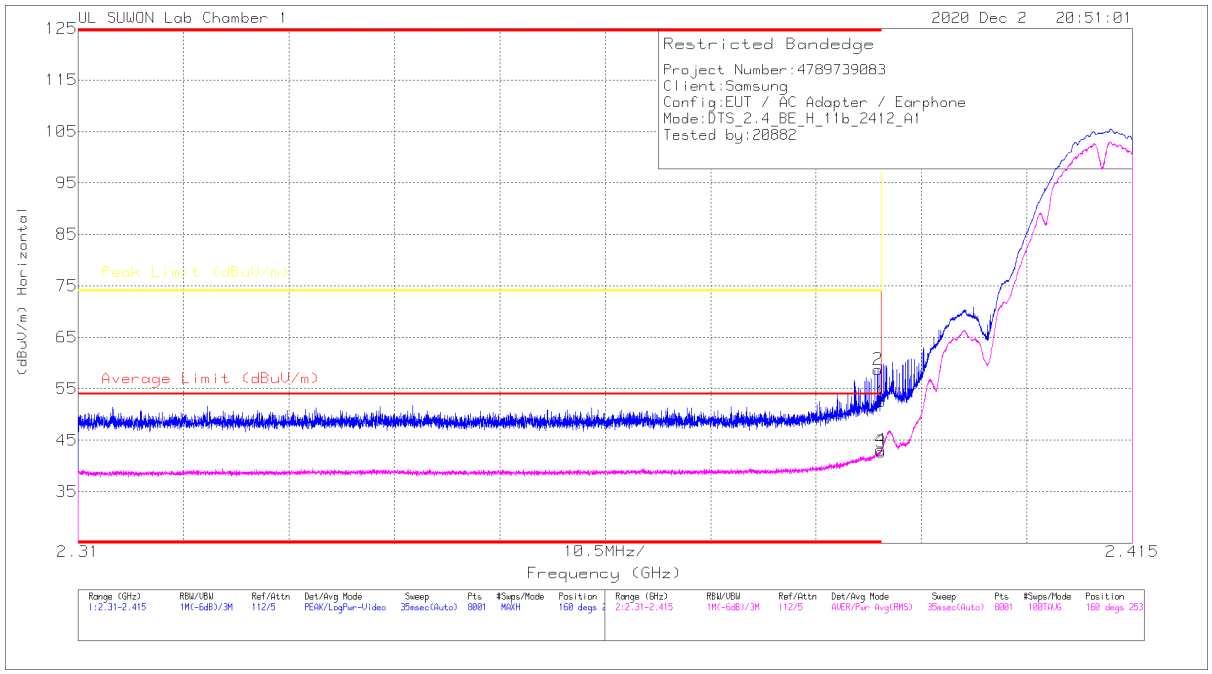
10.1. TRANSMITTER ABOVE 1 GHz

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

1TX Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	46.27	Pk	31.8	-25.6	0	52.47	-	-	74	-21.53	160	253	H
2	* 2.38964	52.54	Pk	31.8	-25.6	0	58.74	-	-	74	-15.26	160	253	H
3	* 2.39	36.55	RMS	31.8	-25.6	0	42.75	54	-11.25	-	-	160	253	H
4	* 2.38994	36.96	RMS	31.8	-25.6	0	43.16	54	-10.84	-	-	160	253	H

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

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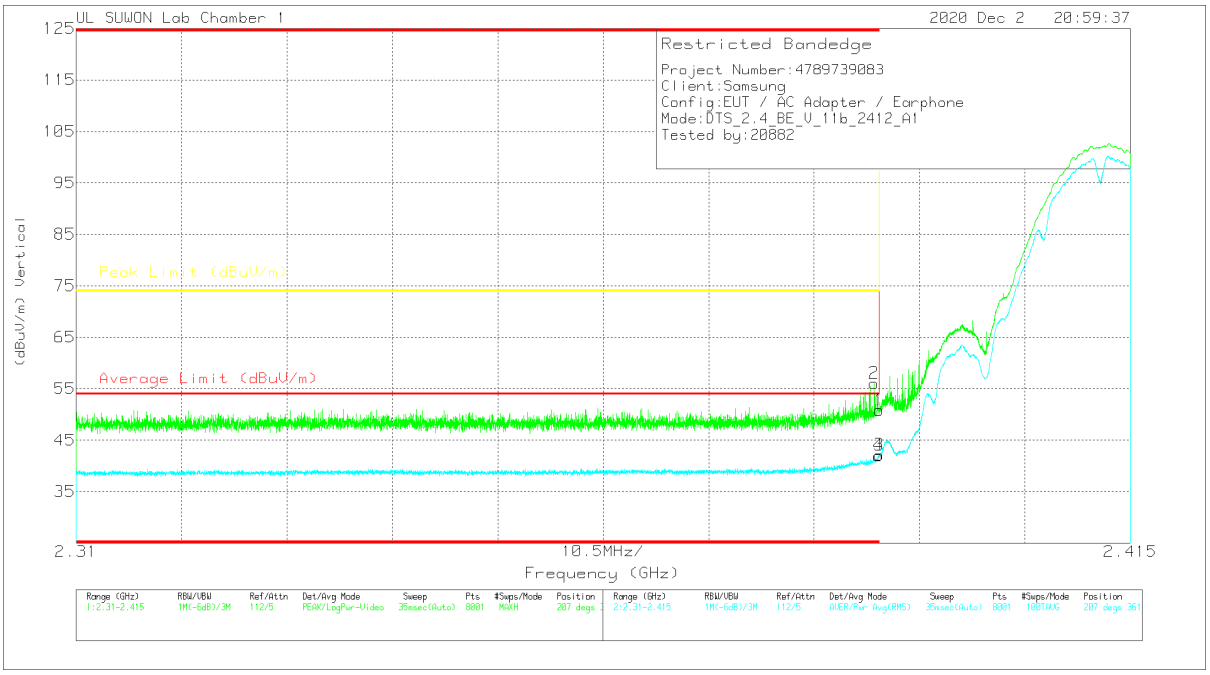
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	44.66	Pk	31.8	-25.6	0	50.86	-	-	74	-23.14	207	361	V
2	* 2.3895	49.77	Pk	31.8	-25.5	0	56.07	-	-	74	-17.93	207	361	V
3	* 2.39	35.93	RMS	31.8	-25.6	0	42.13	54	-11.87	-	-	207	361	V
4	* 2.38992	35.83	RMS	31.8	-25.6	0	42.03	54	-11.97	-	-	207	361	V

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

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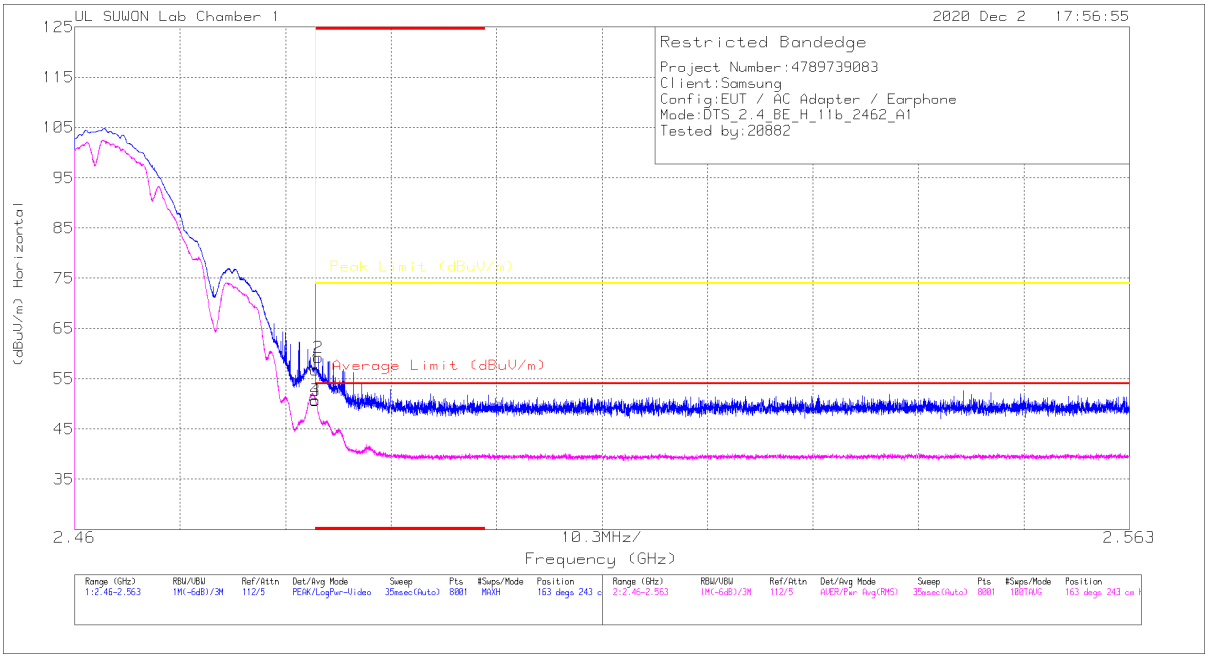
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.48351	50.06	Pk	32	-25.3	0	56.76	-	-	74	-17.24	163	243	H
2	* 2.48379	52.48	Pk	32	-25.3	0	59.18	-	-	74	-14.82	163	243	H
3	* 2.48351	43.99	RMS	32	-25.3	0	50.69	54	-3.31	-	-	163	243	H
4	* 2.48352	44	RMS	32	-25.3	0	50.7	54	-3.3	-	-	163	243	H

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

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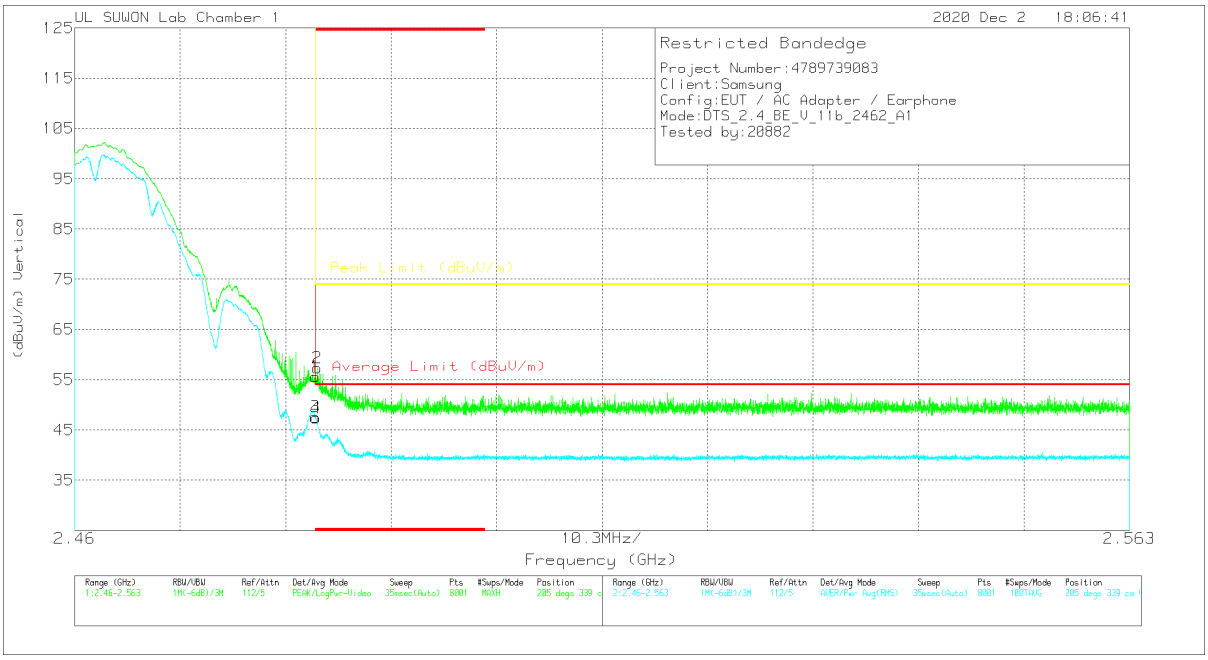
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.48351	48.95	Pk	32	-25.3	0	55.65	-	-	74	-18.35	205	339	V
2	* 2.4837	50.64	Pk	32	-25.3	0	57.34	-	-	74	-16.66	205	339	V
3	* 2.48351	40.88	RMS	32	-25.3	0	47.58	54	-6.42	-	-	205	339	V
4	* 2.48354	40.66	RMS	32	-25.3	0	47.36	54	-6.64	-	-	205	339	V

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

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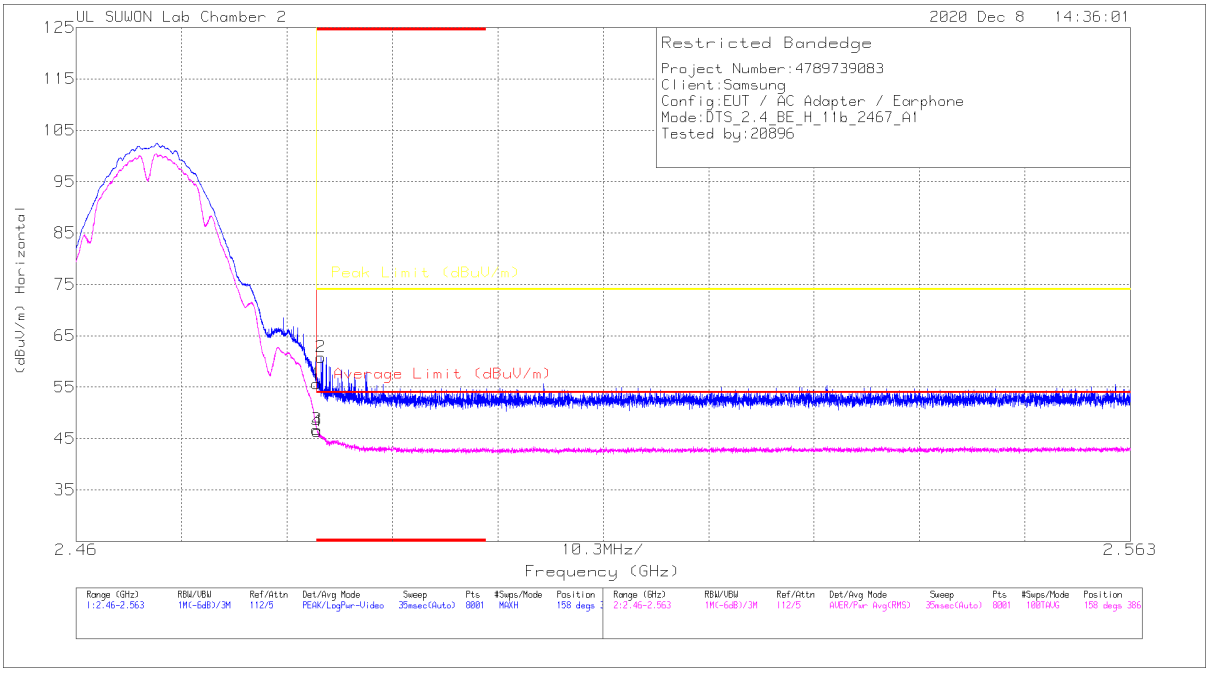
BANDEDGE (HIGH CHANNEL, CH 12)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	43.87	Pk	32	-20.2	0	55.67	-	-	74	-18.33	158	386	H
2	* 2.48393	49.06	Pk	32	-20.2	0	60.86	-	-	74	-13.14	158	386	H
3	* 2.48351	34.98	RMS	32	-20.2	0	46.78	54	-7.22	-	-	158	386	H
4	* 2.48356	34.64	RMS	32	-20.2	0	46.44	54	-7.56	-	-	158	386	H

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

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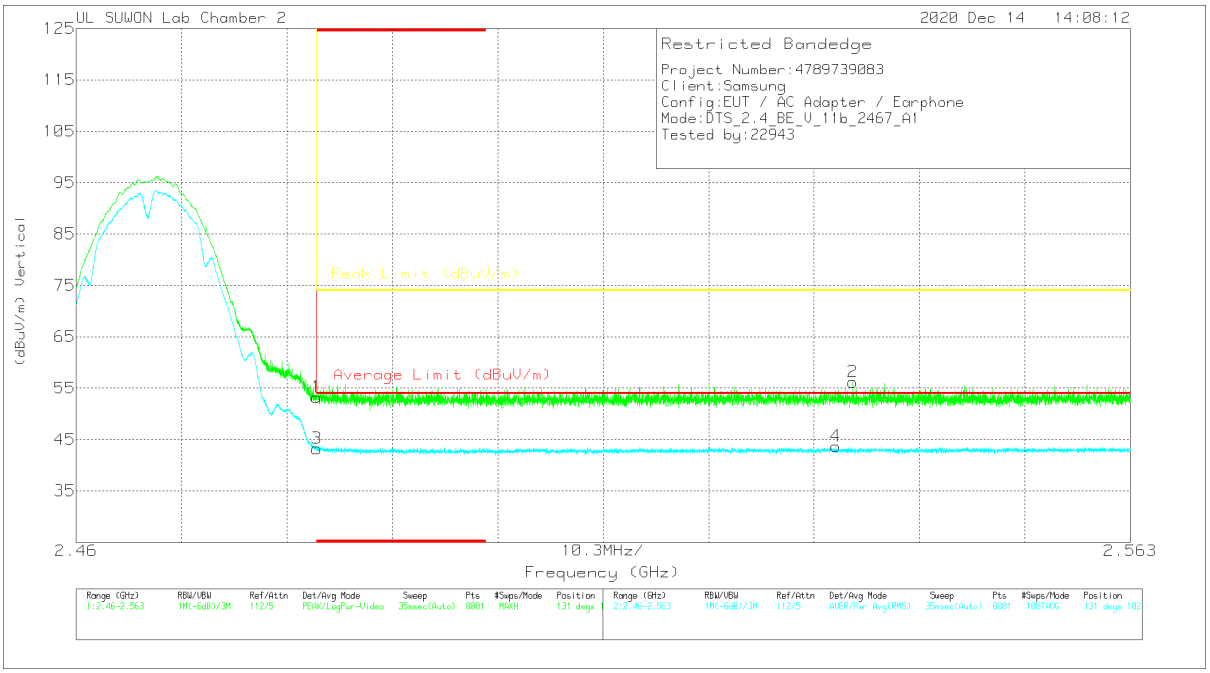
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	41.45	Pk	32	-20.2	0	53.25	-	-	74	-20.75	131	102	V
2	2.53587	44.22	Pk	32.1	-20.1	0	56.22	-	-	74	-17.78	131	102	V
3	* 2.48351	31.46	RMS	32	-20.2	0	43.26	54	-10.74	-	-	131	102	V
4	2.53424	31.7	RMS	32.1	-20.1	0	43.7	54	-10.3	-	-	131	102	V

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

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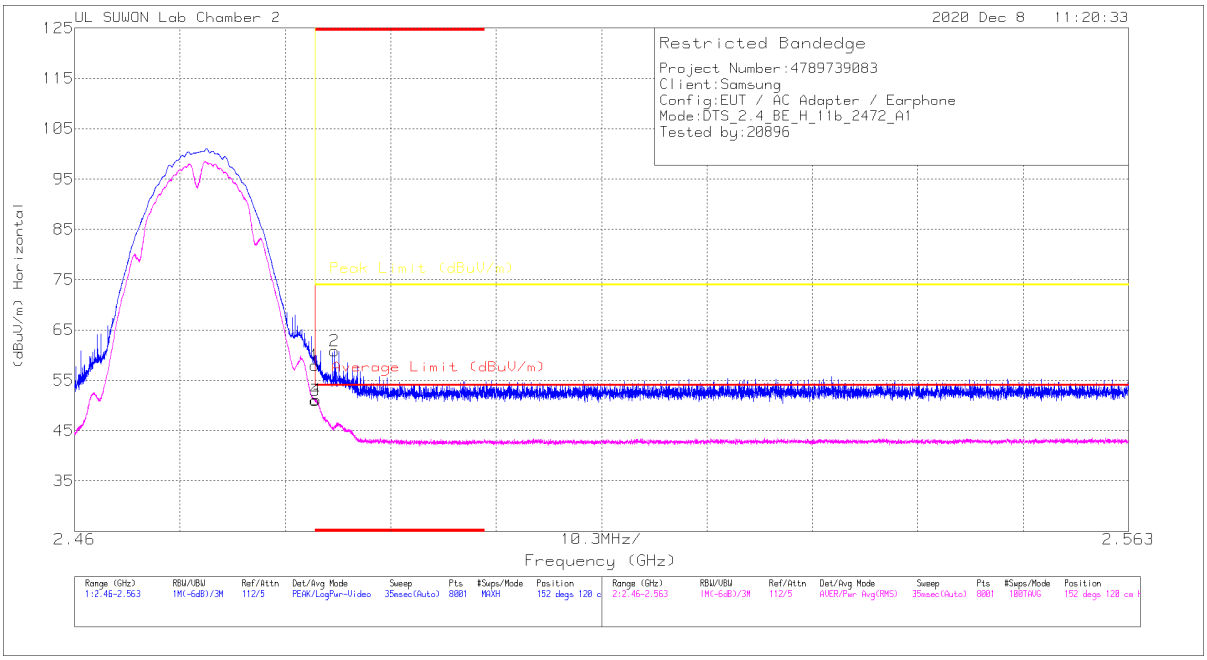
BANDEDGE (HIGH CHANNEL, CH 13)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	46.14	Pk	32	-20.2	0	57.94	-	-	74	-16.06	152	120	H
2	* 2.48542	49.1	Pk	32	-20.2	0	60.9	-	-	74	-13.1	152	120	H
3	* 2.48351	39.21	RMS	32	-20.2	0	51.01	54	-2.99	-	-	152	120	H
4	* 2.48359	39.29	RMS	32	-20.2	0	51.09	54	-2.91	-	-	152	120	H

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

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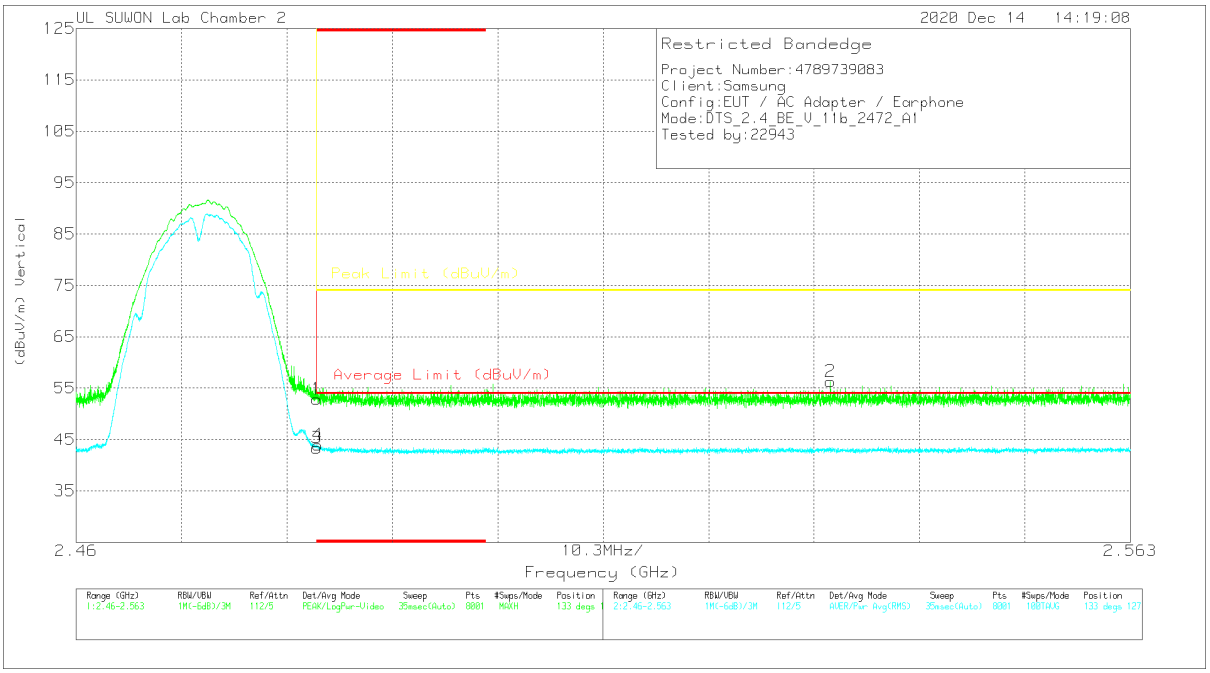
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	41.08	Pk	32	-20.2	0	52.88	-	-	74	-21.12	133	127	V
2	2.5337	44.2	Pk	32.1	-20	0	56.3	-	-	74	-17.7	133	127	V
3	* 2.48351	31.6	RMS	32	-20.2	0	43.4	54	-10.6	-	-	133	127	V
4	* 2.48363	32.15	RMS	32	-20.2	0	43.95	54	-10.05	-	-	133	127	V

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

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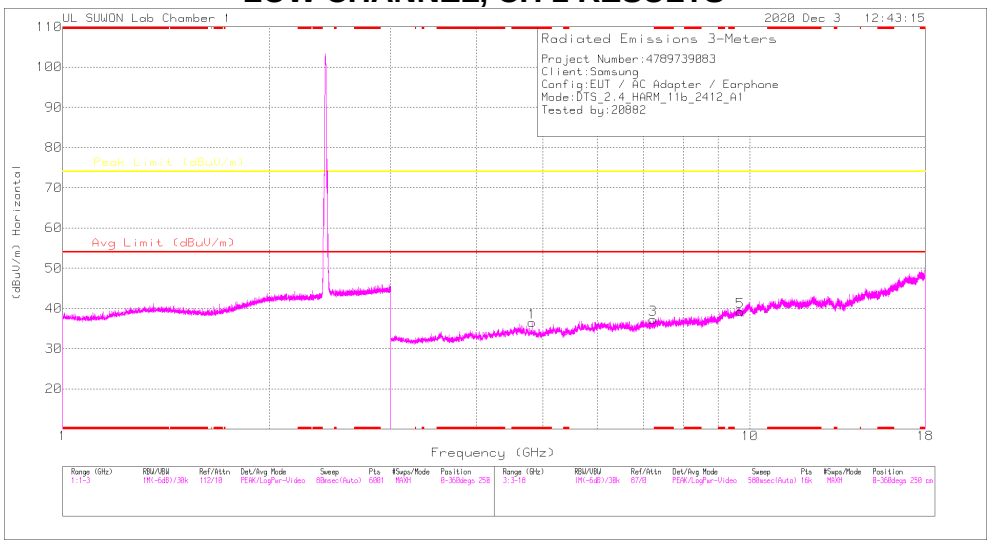
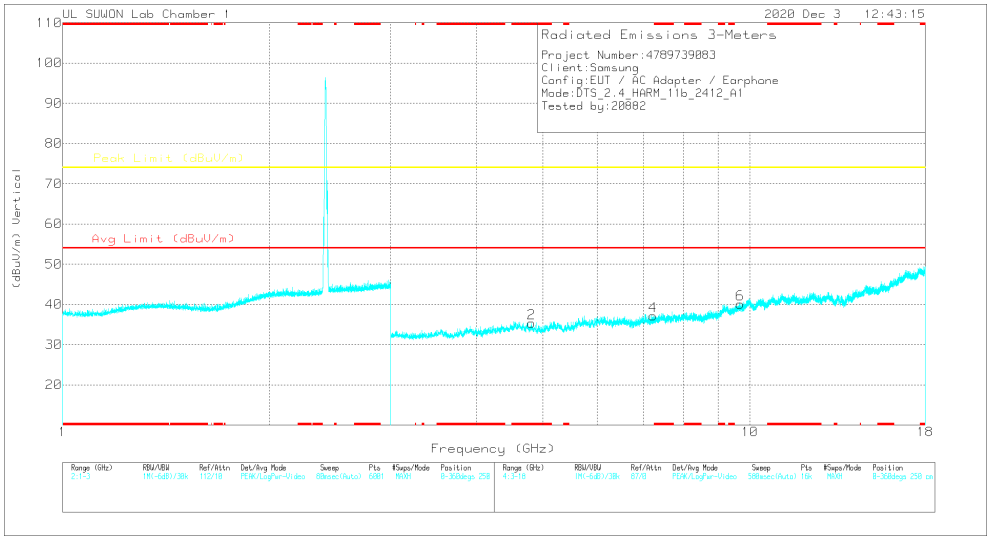
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 1 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
* 4.82417	41.73	PK2	34.1	-31.3	0	44.53	-	-	74	-29.47	0	100	H
* 4.8233	41.71	PK2	34.1	-31.4	0	44.41	-	-	74	-29.59	0	100	V
7.23706	36.61	PK2	35.8	-27.6	0	44.81	-	-	74	-29.19	0	100	H
7.23794	36.21	PK2	35.8	-27.6	0	44.41	-	-	74	-29.59	0	100	V
9.68682	33.48	PK2	37.3	-23.4	0	47.38	-	-	74	-26.62	0	100	H
9.68458	33.62	PK2	37.3	-23.4	0	47.52	-	-	74	-26.48	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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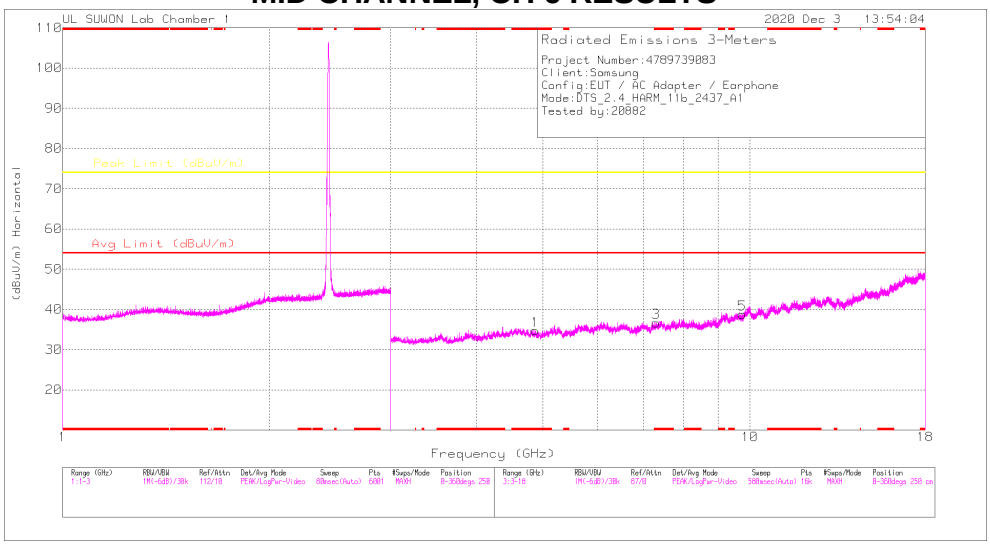
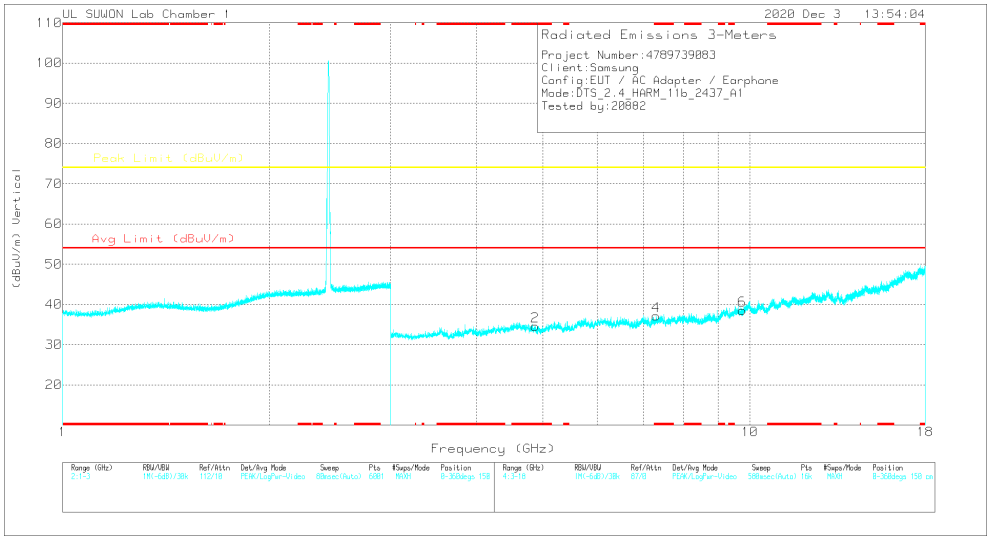
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
* 4.87397	41.5	PK2	34.1	-31.3	0	44.3	-	-	74	-29.7	0	100	H
* 4.8745	41.87	PK2	34.1	-31.3	0	44.67	-	-	74	-29.33	0	100	V
* 7.31198	37.37	PK2	35.8	-27.4	0	45.77	-	-	74	-28.23	0	100	H
* 7.31113	36.3	PK2	35.8	-27.4	0	44.7	-	-	74	-29.3	0	100	V
9.74877	34.35	PK2	37.4	-23.7	0	48.05	-	-	74	-25.95	0	100	H
9.74998	34.79	PK2	37.4	-23.7	0	48.49	-	-	74	-25.51	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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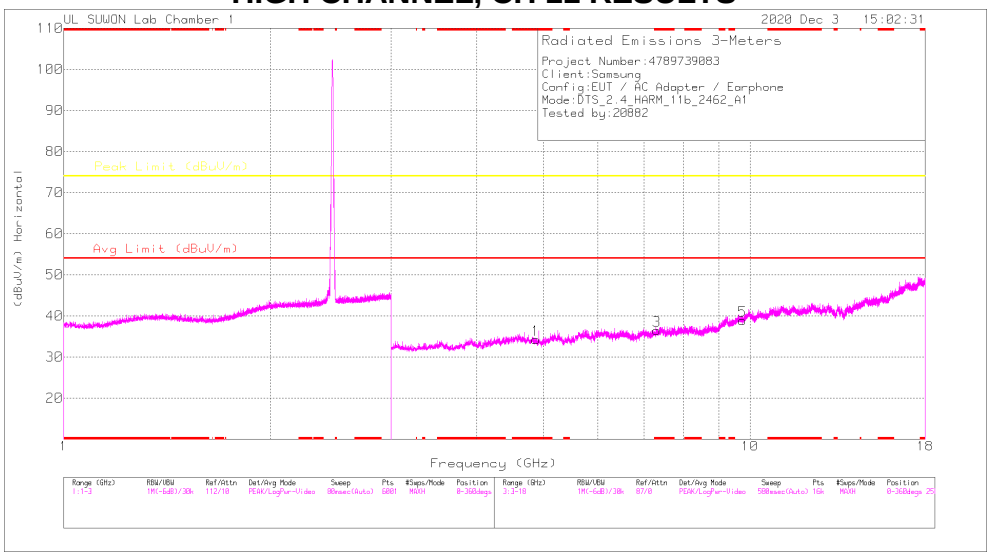
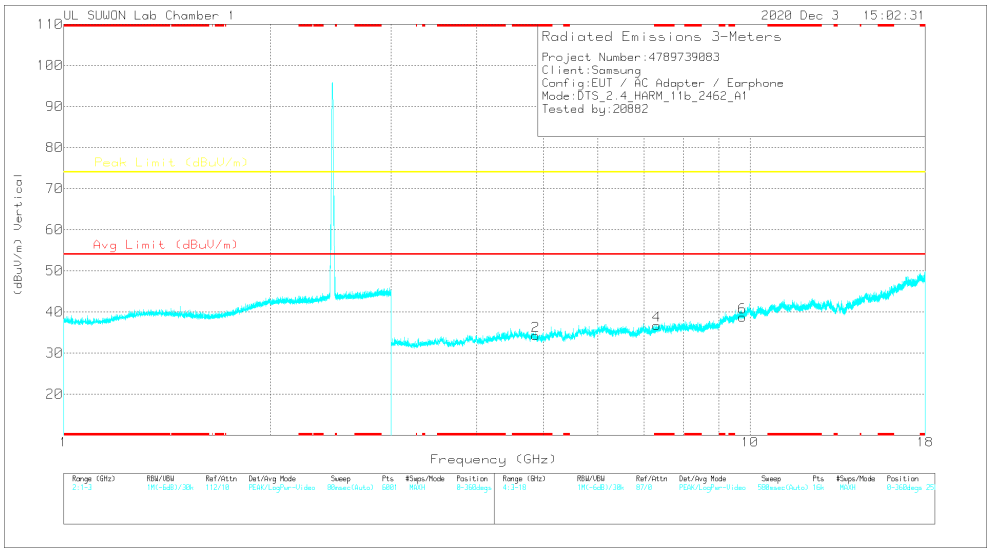
HIGH CHANNEL, CH 11 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
* 4.87549	40.77	PK2	34.1	-31.3	0	43.57	-	-	74	-30.43	0	100	H
* 4.87442	40.35	PK2	34.1	-31.3	0	43.15	-	-	74	-30.85	0	100	V
* 7.31052	36.16	PK2	35.8	-27.4	0	44.56	-	-	74	-29.44	0	100	H
* 7.31259	36.09	PK2	35.8	-27.4	0	44.49	-	-	74	-29.51	0	100	V
9.74721	34.84	PK2	37.4	-23.7	0	48.54	-	-	74	-25.46	0	100	H
9.74774	34.12	PK2	37.4	-23.7	0	47.82	-	-	74	-26.18	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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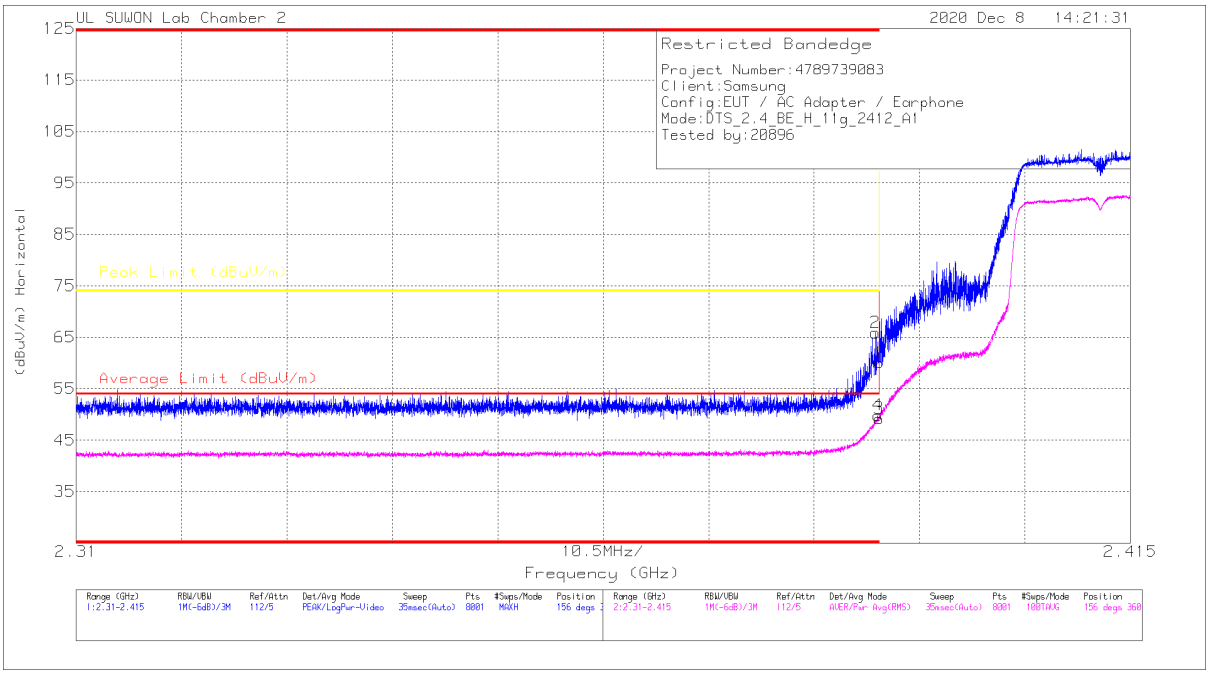
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

1TX Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	48.44	Pk	31.9	-20.3	0	60.04	-	-	74	-13.96	156	360	H
2	* 2.38962	54.29	Pk	31.9	-20.3	0	65.89	-	-	74	-8.11	156	360	H
3	* 2.39	37.47	RMS	31.9	-20.3	.15	49.22	54	-4.78	-	-	156	360	H
4	* 2.38985	38.1	RMS	31.9	-20.3	.15	49.85	54	-4.15	-	-	156	360	H

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

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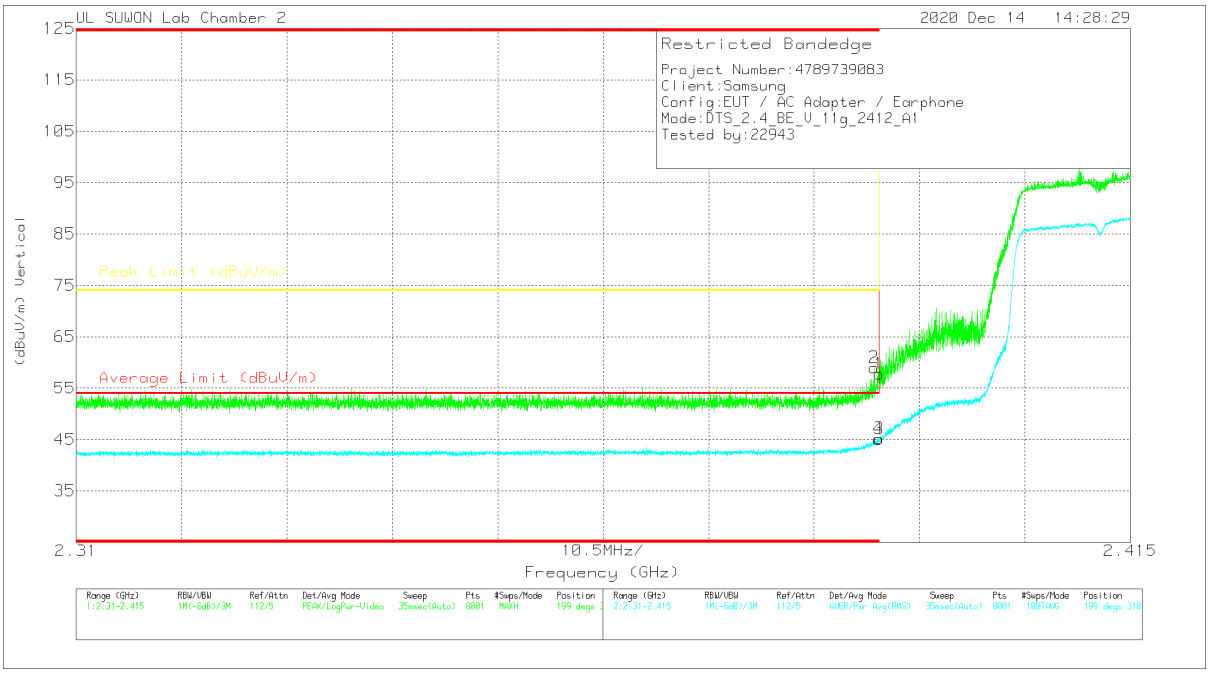
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	46.22	Pk	31.9	-20.3	0	57.82	-	-	74	-16.18	199	318	V
2	* 2.38949	47.38	Pk	31.9	-20.3	0	58.98	-	-	74	-15.02	199	318	V
3	* 2.39	33.42	RMS	31.9	-20.3	.15	45.17	54	-8.83	-	-	199	318	V
4	* 2.38992	33.36	RMS	31.9	-20.3	.15	45.11	54	-8.89	-	-	199	318	V

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

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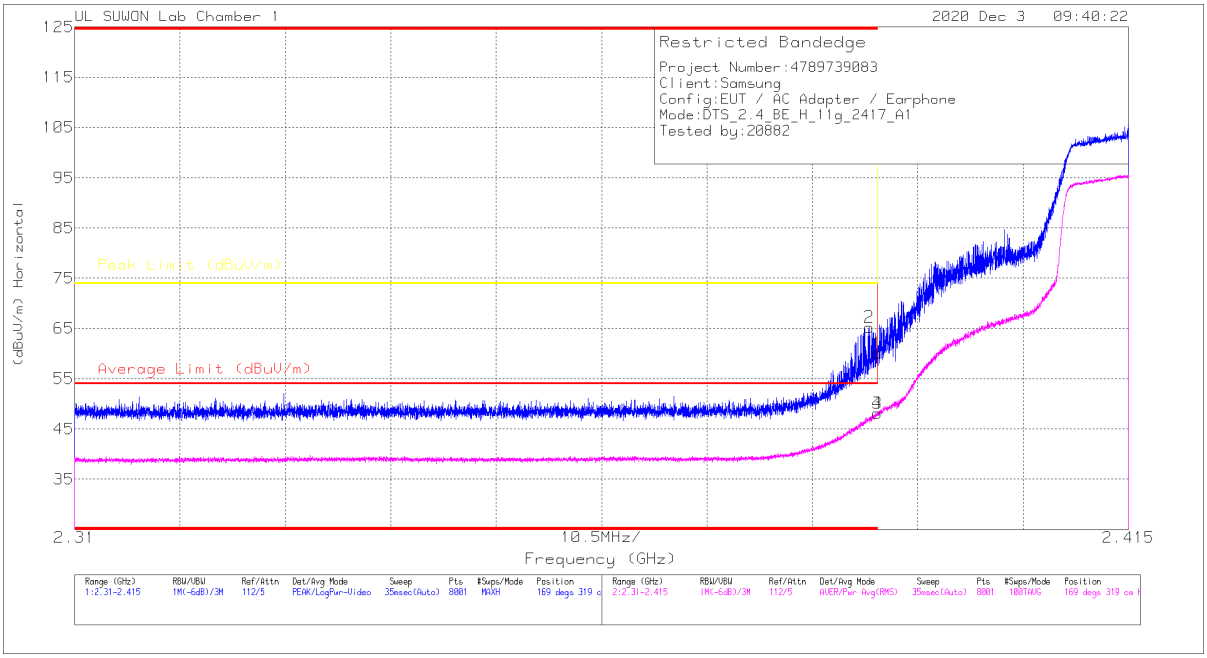
BANDEDGE (LOW CHANNEL, CH 2)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	53.86	Pk	31.8	-25.6	0	60.06	-	-	74	-13.94	169	319	H
2	* 2.3892	58.97	Pk	31.8	-25.5	0	65.27	-	-	74	-8.73	169	319	H
3	* 2.39	41.79	RMS	31.8	-25.6	.15	48.14	54	-5.86	-	-	169	319	H
4	* 2.38996	41.84	RMS	31.8	-25.6	.15	48.19	54	-5.81	-	-	169	319	H

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

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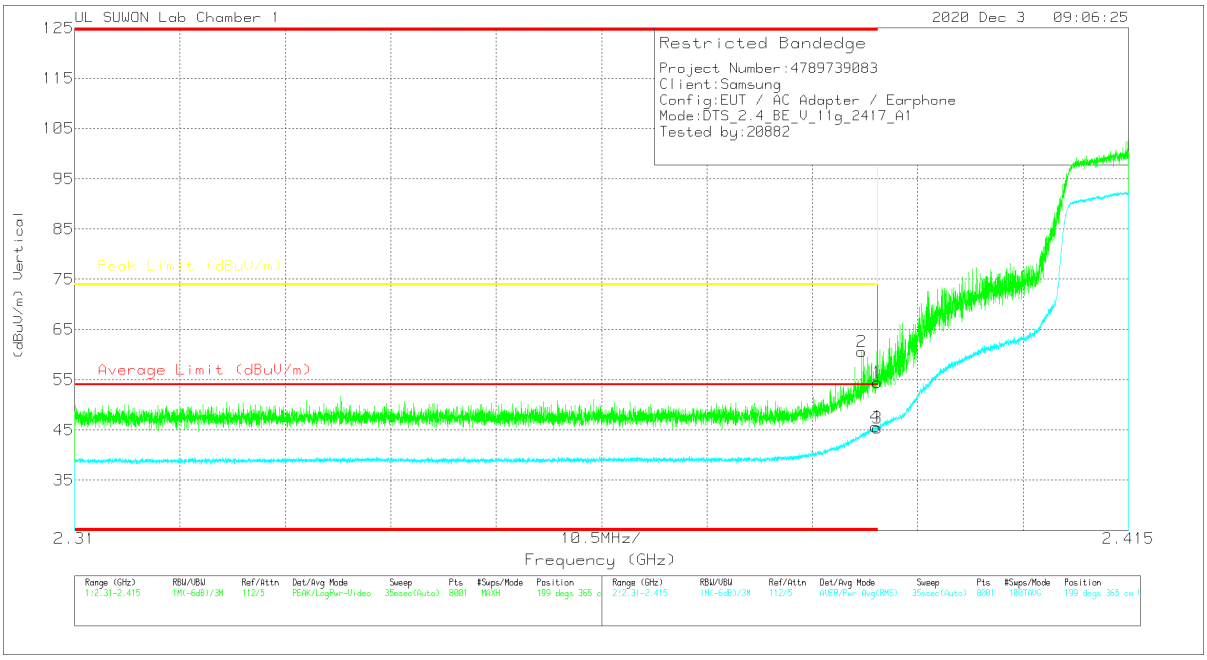
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	48.26	Pk	31.8	-25.6	0	54.46	-	-	74	-19.54	199	365	V
2	* 2.38844	54.34	Pk	31.8	-25.5	0	60.64	-	-	74	-13.36	199	365	V
3	* 2.39	39.08	RMS	31.8	-25.6	.15	45.43	54	-8.57	-	-	199	365	V
4	* 2.38981	39.29	RMS	31.8	-25.6	.15	45.64	54	-8.36	-	-	199	365	V

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

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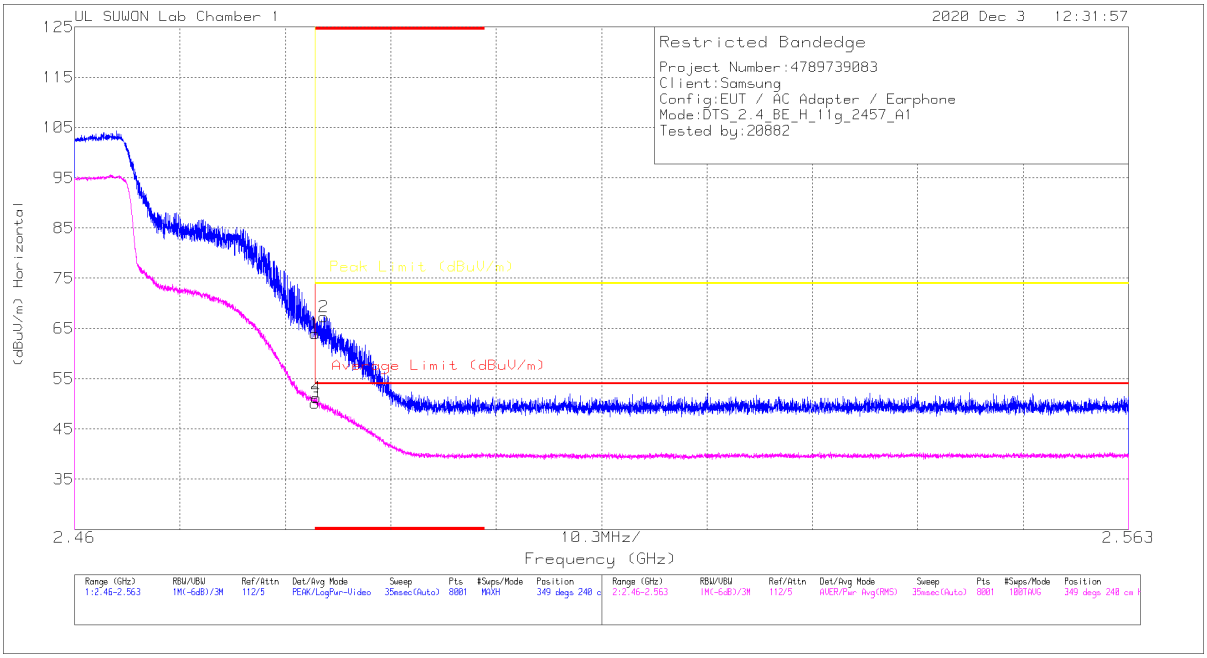
BANDEDGE (HIGH CHANNEL, CH 10)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.48351	57.32	Pk	32	-25.3	0	64.02	-	-	74	-9.98	349	240	H
2	* 2.48436	60.57	Pk	32	-25.2	0	67.37	-	-	74	-6.63	349	240	H
3	* 2.48351	43.28	RMS	32	-25.3	.15	50.13	54	-3.87	-	-	349	240	H
4	* 2.48363	44.45	RMS	32	-25.3	.15	51.3	54	-2.7	-	-	349	240	H

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

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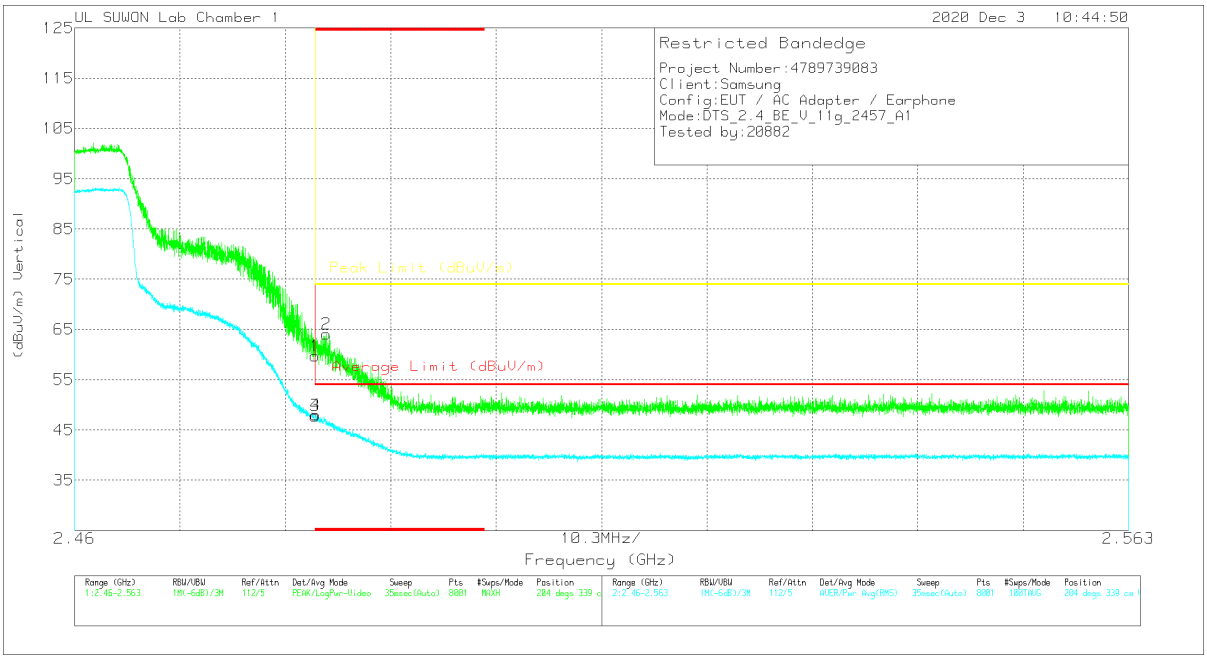
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.48351	52.99	Pk	32	-25.3	0	59.69	-	-	74	-14.31	204	339	V
2	* 2.48459	57.24	Pk	32	-25.2	0	64.04	-	-	74	-9.96	204	339	V
3	* 2.48351	40.98	RMS	32	-25.3	.15	47.83	54	-6.17	-	-	204	339	V
4	* 2.48356	41.16	RMS	32	-25.3	.15	48.01	54	-5.99	-	-	204	339	V

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

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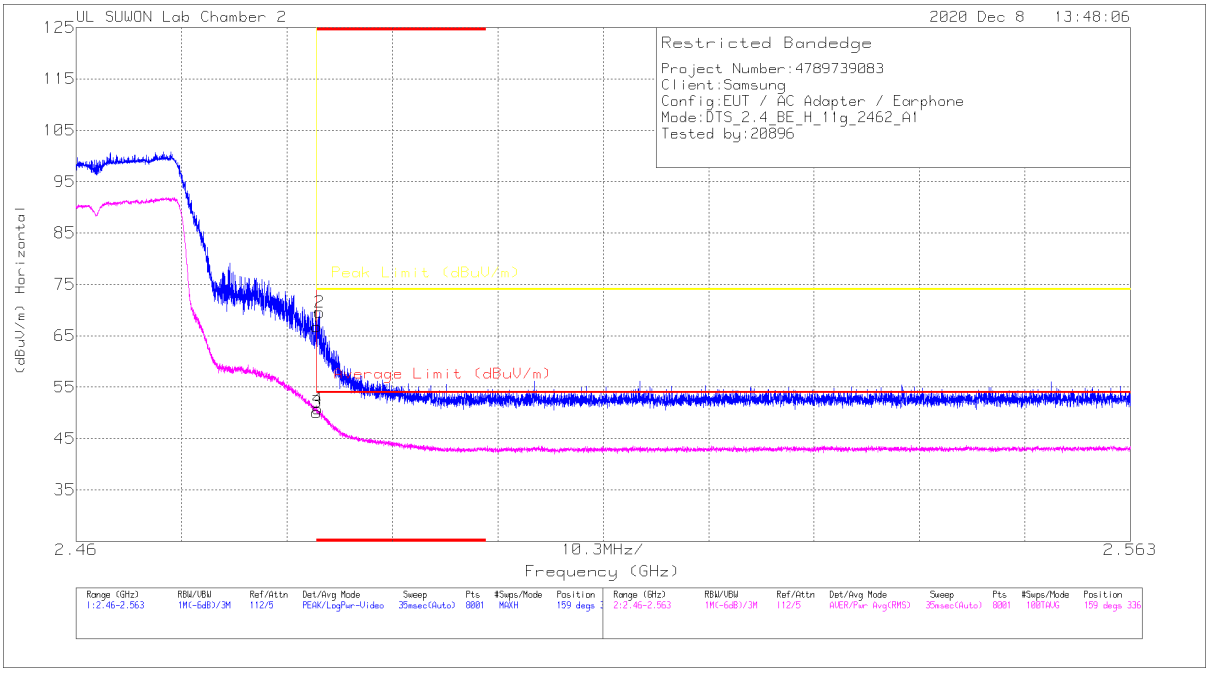
BANDEDGE (HIGH CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	54.99	Pk	32	-20.2	0	66.79	-	-	74	-7.21	159	336	H
2	* 2.48378	57.76	Pk	32	-20.2	0	69.56	-	-	74	-4.44	159	336	H
3	* 2.48351	38.16	RMS	32	-20.2	.15	50.11	54	-3.89	-	-	159	336	H
4	* 2.48361	38.82	RMS	32	-20.2	.15	50.77	54	-3.23	-	-	159	336	H

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

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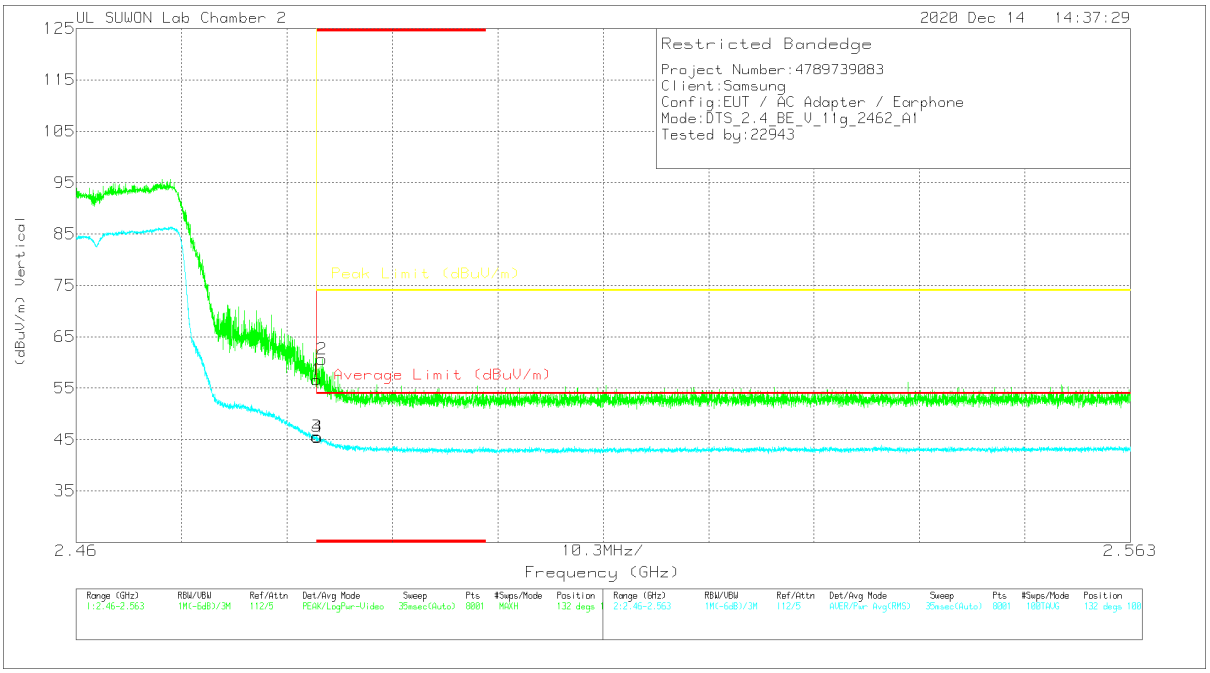
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	44.82	Pk	32	-20.2	0	56.62	-	-	74	-17.38	132	100	V
2	* 2.48401	48.84	Pk	32	-20.2	0	60.64	-	-	74	-13.36	132	100	V
3	* 2.48351	33.65	RMS	32	-20.2	.15	45.6	54	-8.4	-	-	132	100	V
4	* 2.48357	33.52	RMS	32	-20.2	.15	45.47	54	-8.53	-	-	132	100	V

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

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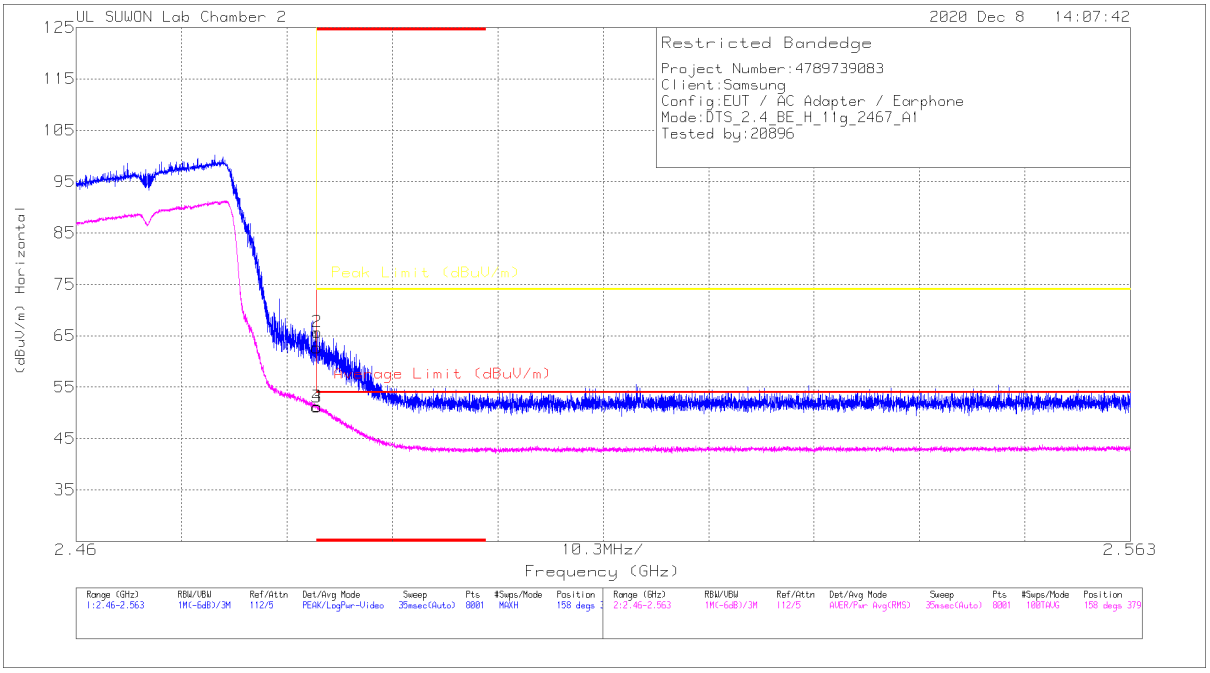
BANDEDGE (HIGH CHANNEL, CH 12)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	50.9	Pk	32	-20.2	0	62.7	-	-	74	-11.3	158	379	H
2	* 2.48354	53.95	Pk	32	-20.2	0	65.75	-	-	74	-8.25	158	379	H
3	* 2.48351	39.2	RMS	32	-20.2	.15	51.15	54	-2.85	-	-	158	379	H
4	* 2.48355	39.29	RMS	32	-20.2	.15	51.24	54	-2.76	-	-	158	379	H

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

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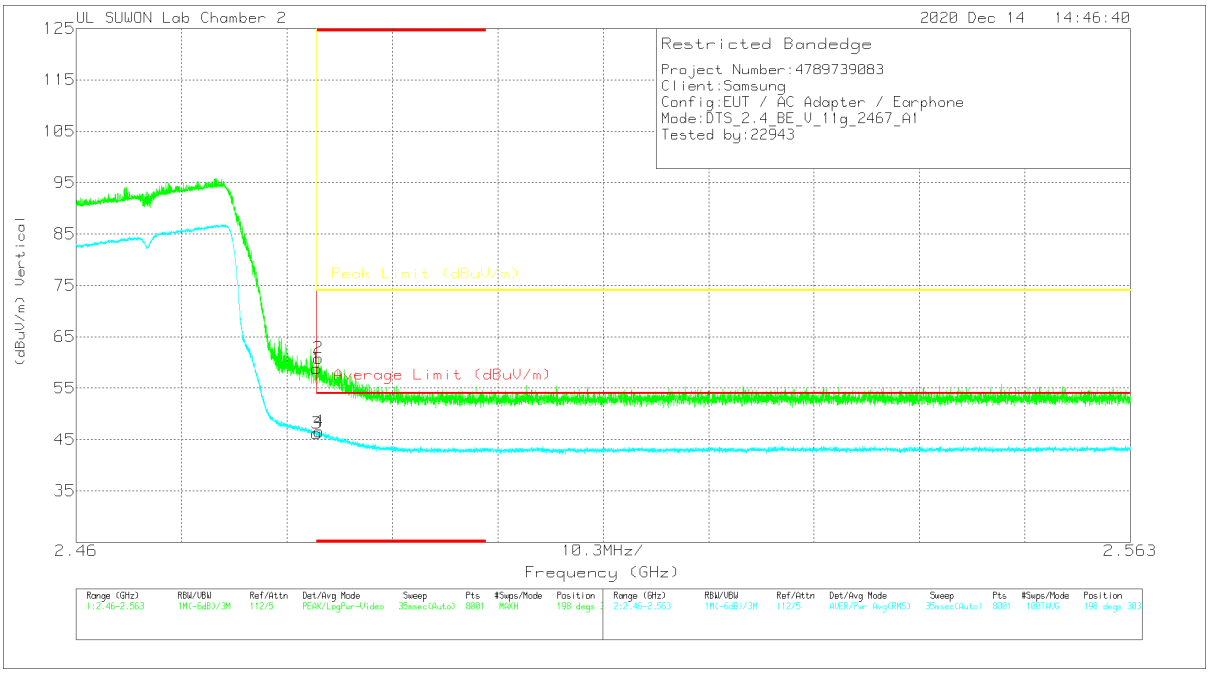
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	47.02	Pk	32	-20.2	0	58.82	-	-	74	-15.18	198	303	V
2	* 2.48365	49.05	Pk	32	-20.2	0	60.85	-	-	74	-13.15	198	303	V
3	* 2.48351	34.25	RMS	32	-20.2	.15	46.2	54	-7.8	-	-	198	303	V
4	* 2.48374	34.63	RMS	32	-20.2	.15	46.58	54	-7.42	-	-	198	303	V

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

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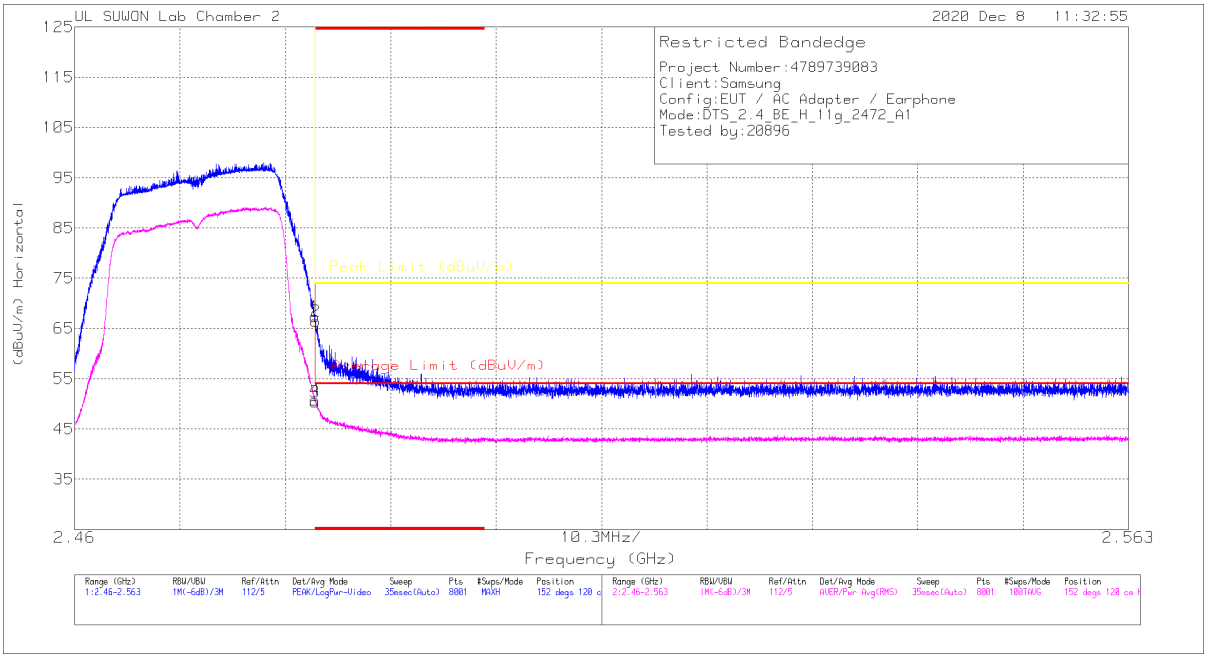
BANDEDGE (HIGH CHANNEL, CH 13)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	55.48	Pk	32	-20.2	0	67.28	-	-	74	-6.72	152	120	H
2	* 2.48356	54.63	Pk	32	-20.2	0	66.43	-	-	74	-7.57	152	120	H
3	* 2.48351	38.39	RMS	32	-20.2	.15	50.34	54	-3.66	-	-	152	120	H
4	* 2.48352	38.76	RMS	32	-20.2	.15	50.71	54	-3.29	-	-	152	120	H

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

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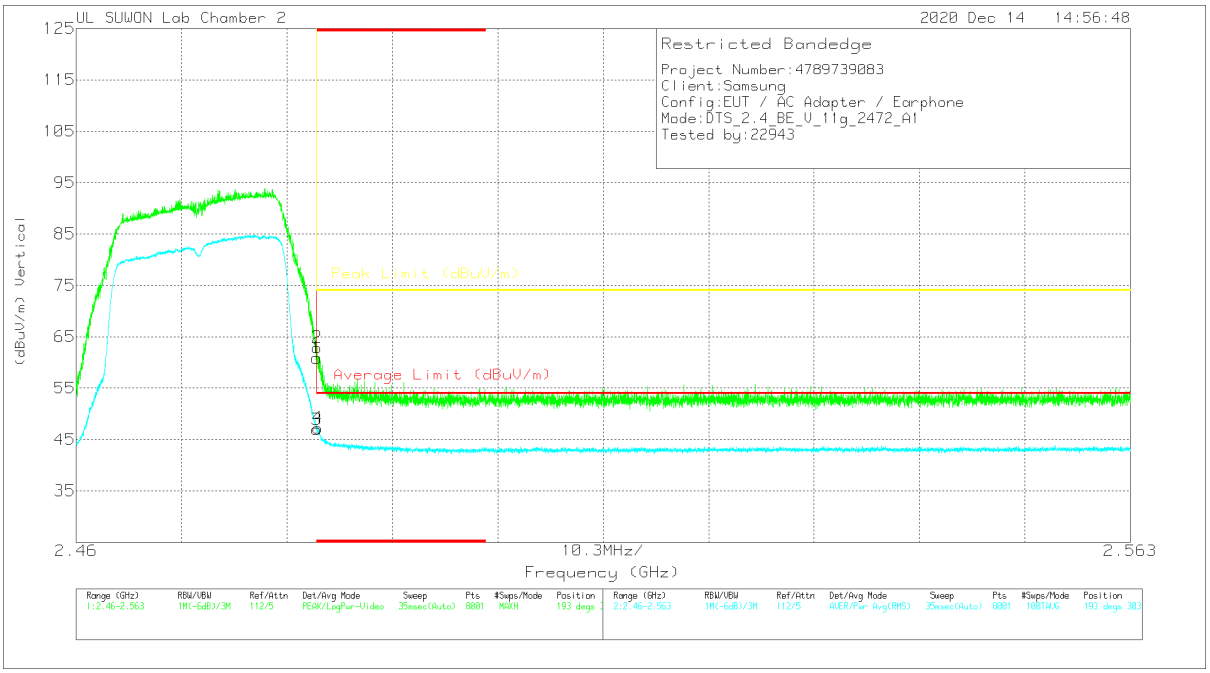
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	* 2.48351	49.08	Pk	32	-20.2	0	60.88	-	-	74	-13.12	193	303	V
2	* 2.48354	51.09	Pk	32	-20.2	0	62.89	-	-	74	-11.11	193	303	V
3	* 2.48351	35.02	RMS	32	-20.2	.15	46.97	54	-7.03	-	-	193	303	V
4	* 2.48359	35.34	RMS	32	-20.2	.15	47.29	54	-6.71	-	-	193	303	V

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

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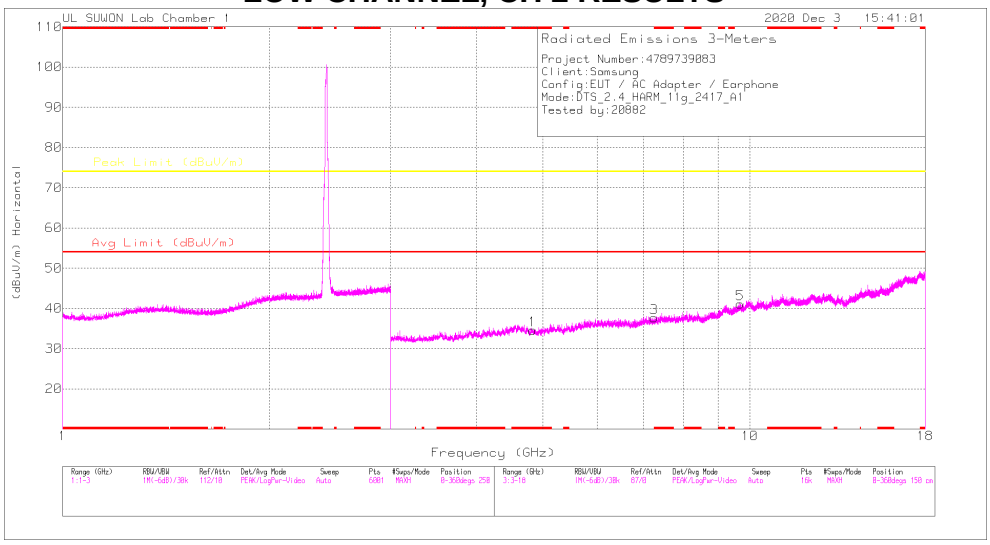
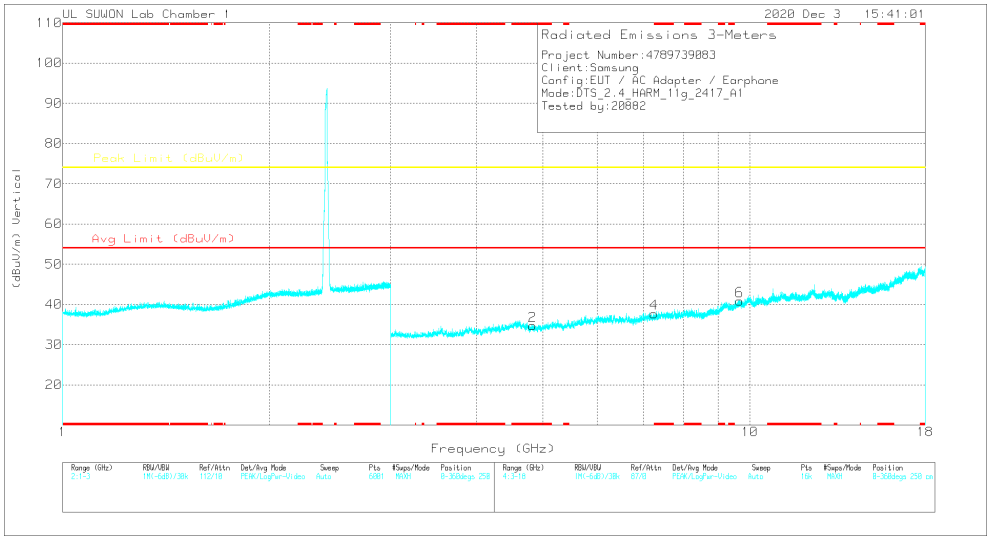
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 2 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
* 4.82716	41.55	PK2	34.1	-31.3	0	44.35	-	-	74	-29.65	0	100	H
* 4.83327	41.08	PK2	34.1	-31.3	0	43.88	-	-	74	-30.12	0	100	V
7.24908	37.81	PK2	35.8	-27.5	0	46.11	-	-	74	-27.89	0	100	H
7.24973	37.82	PK2	35.8	-27.5	0	46.12	-	-	74	-27.88	0	100	V
9.66795	35.01	PK2	37.3	-23.3	0	49.01	-	-	74	-24.99	0	100	H
9.66989	35.46	PK2	37.3	-23.3	0	49.46	-	-	74	-24.54	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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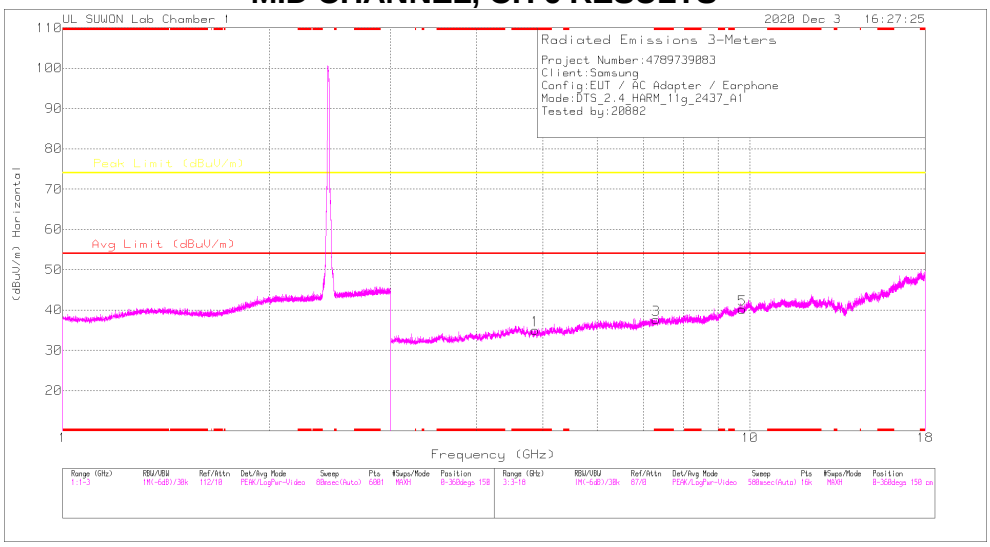
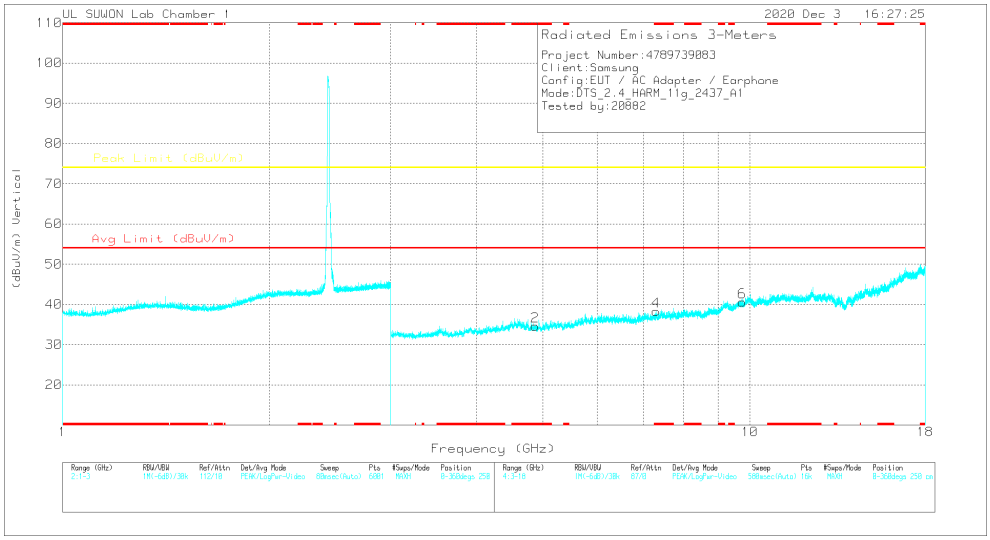
MID CHANNEL, CH 6 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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
* 4.87221	42.42	PK2	34.1	-31.3	0	45.22	-	-	74	-28.78	0	100	H
* 4.87503	41.54	PK2	34.1	-31.3	0	44.34	-	-	74	-29.66	0	100	V
* 7.30986	38.77	PK2	35.8	-27.4	0	47.17	-	-	74	-26.83	0	100	H
* 7.30914	37.8	PK2	35.8	-27.4	0	46.2	-	-	74	-27.8	0	100	V
9.74707	35.08	PK2	37.4	-23.7	0	48.78	-	-	74	-25.22	0	100	H
9.74661	34.87	PK2	37.4	-23.7	0	48.57	-	-	74	-25.43	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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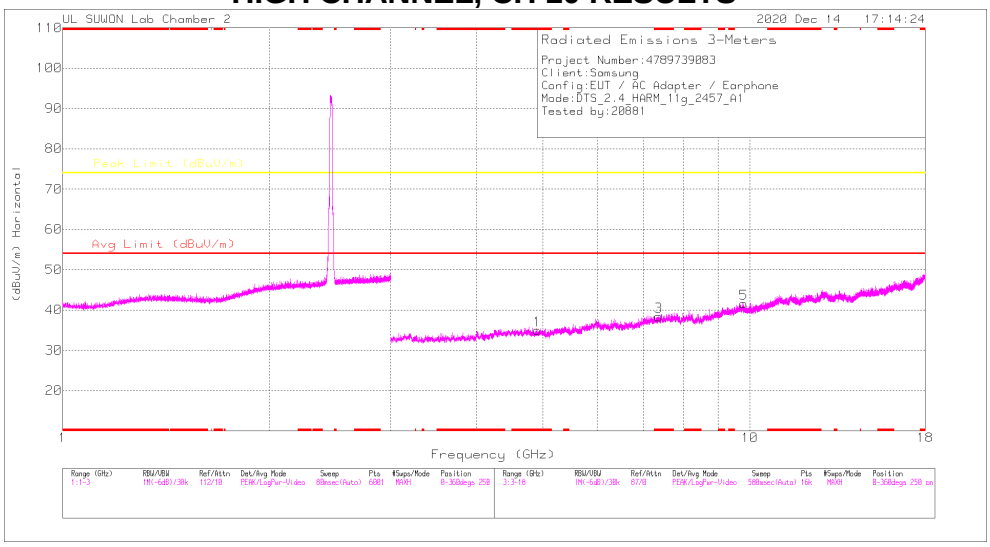
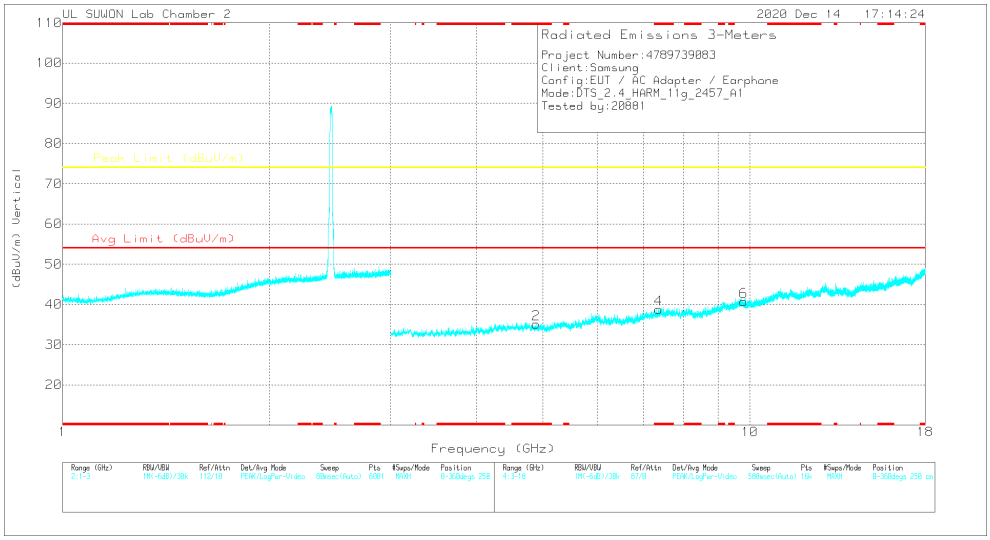
HIGH CHANNEL, CH 10 RESULTS



HORIZONTAL



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.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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
* 4.90226	37.04	PK2	34.1	-27.1	0	44.04	-	-	74	-29.96	360	100	H
* 4.89983	36.54	PK2	34.1	-27.3	0	43.34	-	-	74	-30.66	360	100	V
* 7.36514	35.29	PK2	36.1	-24.1	0	47.29	-	-	74	-26.71	360	100	H
* 7.36264	34.89	PK2	36.1	-24	0	46.99	-	-	74	-27.01	360	100	V
9.80618	33.26	PK2	37.2	-21	0	49.46	-	-	74	-24.54	360	100	H
9.80697	32.74	PK2	37.2	-20.9	0	49.04	-	-	74	-24.96	360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

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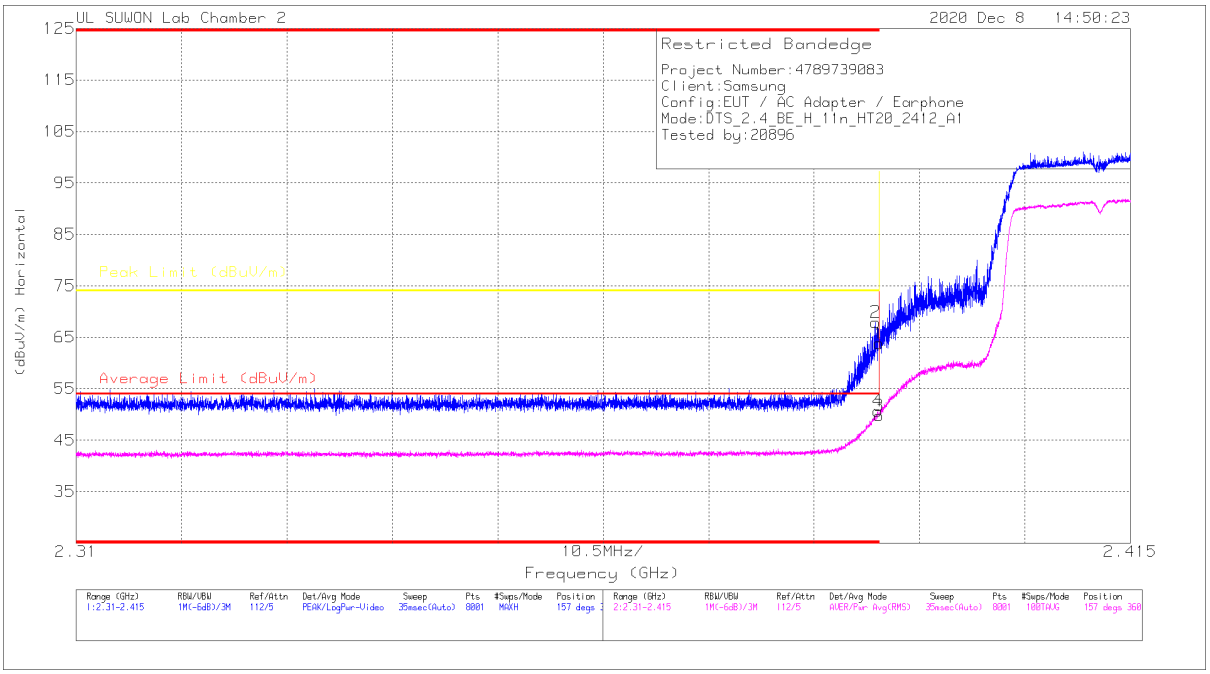
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

1TX Antenna 1

BANDEDGE (LOW CHANNEL, CH 1)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	52.22	Pk	31.9	-20.3	0	63.82	-	-	74	-10.18	157	360	H
2	* 2.38963	56.32	Pk	31.9	-20.3	0	67.92	-	-	74	-6.08	157	360	H
3	* 2.39	38.02	RMS	31.9	-20.3	.17	49.79	54	-4.21	-	-	157	360	H
4	* 2.38984	38.91	RMS	31.9	-20.3	.17	50.68	54	-3.32	-	-	157	360	H

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

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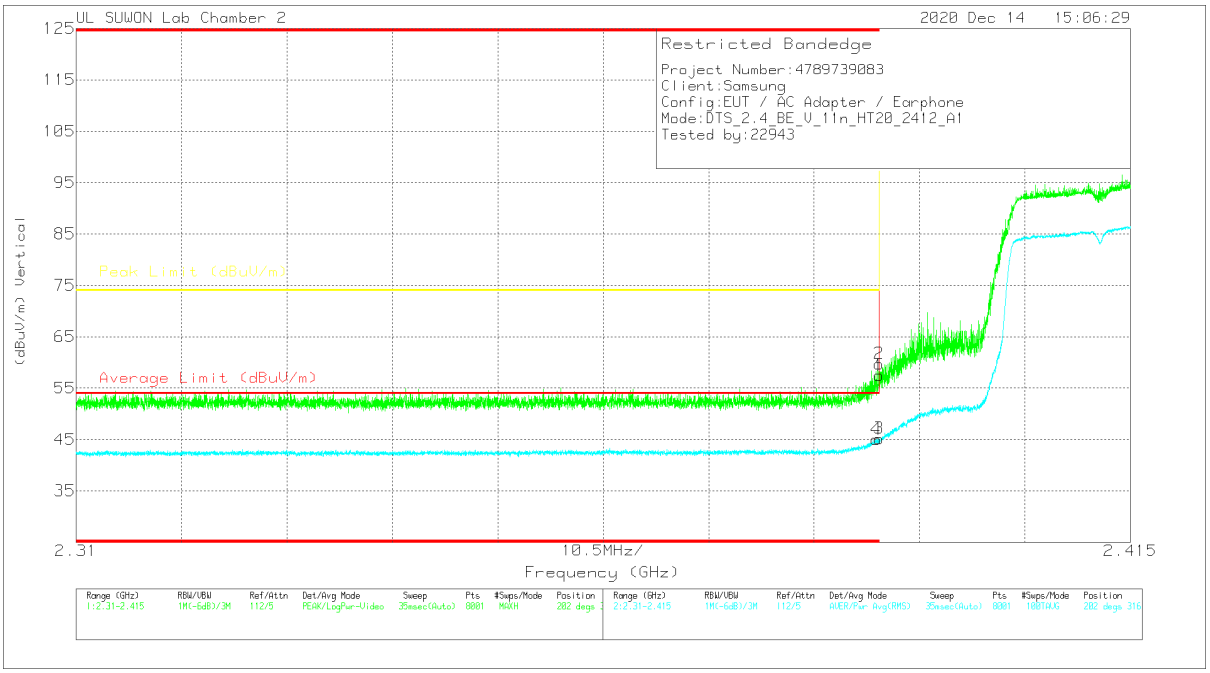
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	45.87	Pk	31.9	-20.3	0	57.47	-	-	74	-16.53	202	316	V
2	* 2.38997	48.15	Pk	31.9	-20.3	0	59.75	-	-	74	-14.25	202	316	V
3	* 2.39	33.44	RMS	31.9	-20.3	.17	45.21	54	-8.79	-	-	202	316	V
4	* 2.3897	33.27	RMS	31.9	-20.3	.17	45.04	54	-8.96	-	-	202	316	V

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

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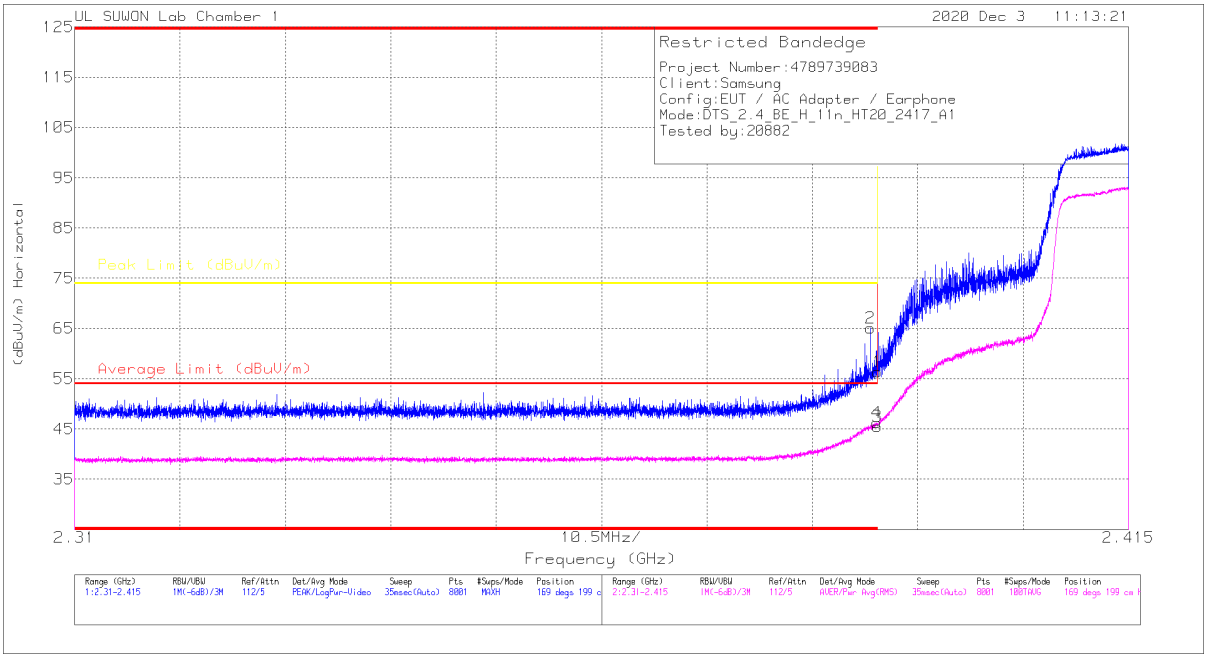
BANDEDGE (LOW CHANNEL, CH 2)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	50.2	Pk	31.8	-25.6	0	56.4	-	-	74	-17.6	169	199	H
2	* 2.3893	58.81	Pk	31.8	-25.5	0	65.11	-	-	74	-8.89	169	199	H
3	* 2.39	39.19	RMS	31.8	-25.6	.17	45.56	54	-8.44	-	-	169	199	H
4	* 2.38992	39.95	RMS	31.8	-25.6	.17	46.32	54	-7.68	-	-	169	199	H

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

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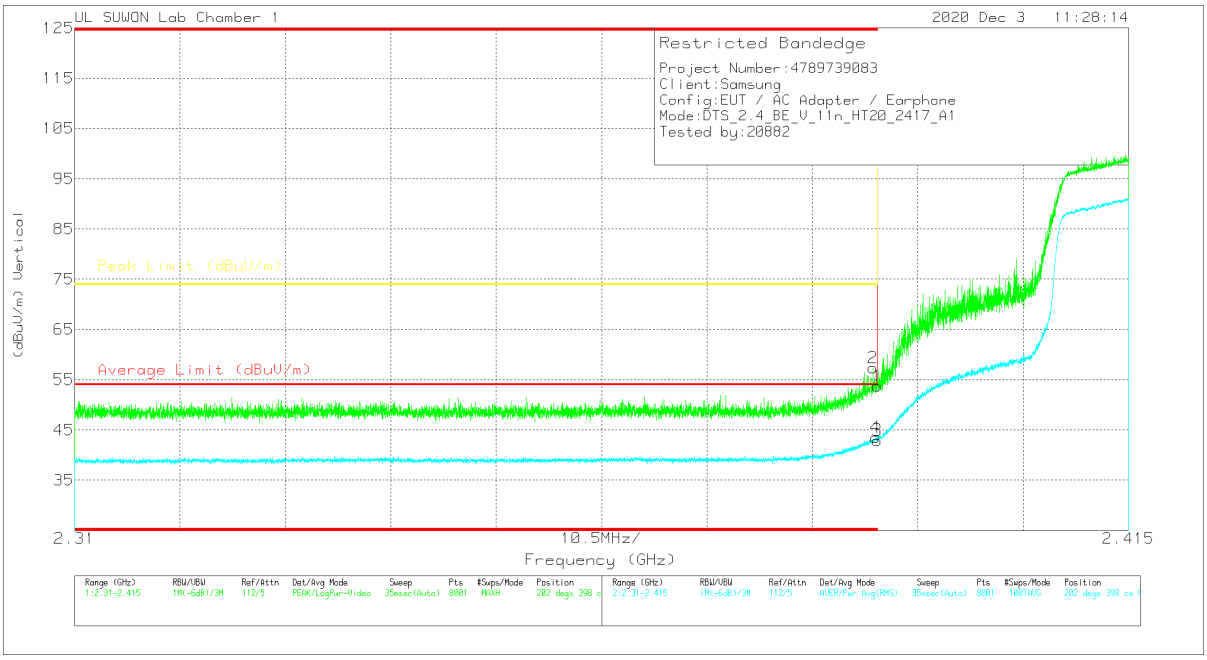
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	47.53	Pk	31.8	-25.6	0	53.73	-	-	74	-20.27	202	398	V
2	* 2.38954	51.02	Pk	31.8	-25.5	0	57.32	-	-	74	-16.68	202	398	V
3	* 2.39	36.59	RMS	31.8	-25.6	.17	42.96	54	-11.04	-	-	202	398	V
4	* 2.3898	37.15	RMS	31.8	-25.6	.17	43.52	54	-10.48	-	-	202	398	V

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

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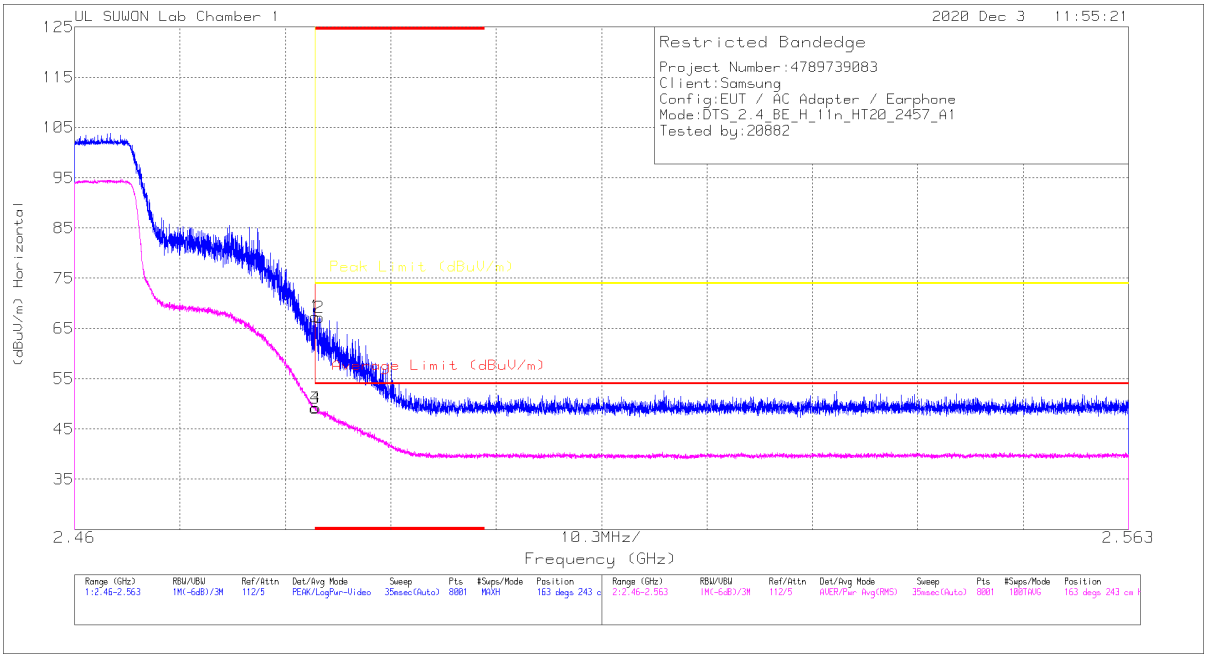
BANDEDGE (HIGH CHANNEL, CH 10)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	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	* 2.48351	60.69	Pk	32	-25.3	0	67.39	-	-	74	-6.61	163	243	H
2	* 2.48392	60.46	Pk	32	-25.3	0	67.16	-	-	74	-6.84	163	243	H
3	* 2.48351	42.25	RMS	32	-25.3	.17	49.12	54	-4.88	-	-	163	243	H
4	* 2.48356	42.38	RMS	32	-25.3	.17	49.25	54	-4.75	-	-	163	243	H

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

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