CERTIFICATION TEST REPORT

Report Number. : 4790406782-E3V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-A236M/DSN, SM-A236M/N
FCC ID	:	A3LSMA236MN
EUT Description	:	GSM/WCDMA/LTE/5G NR 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:
2022-07-11

Prepared by:
UL Korea, Ltd.
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Suwon Test Site: UL Korea, LTD. Suwon Laboratory
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TEL: (031) 337-9902
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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-07-01	Initial issue	Sungeun Lee
V2	2022-07-11	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/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC
MODEL NUMBER:	SM-A236M/DSN, SM-A236M/N
SERIAL NUMBER:	R3CT506PHRL (CONDUCTED, Original); R3CT506PD1T, R3CT506PDCD (RADIATED, Original); 617c80251d347ece, 617c8028f4347ece (RADIATED, Spot-check);
DATE TESTED:	2022-05-12 ~ 2022-06-29(Original); 2022-06-22 ~ 2022-07-01(Spot-check);

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 infor mational 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:

Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Sungeun Lee
Suwon Lab Engineer
UL Korea, Ltd.

1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMA236BN DTS WLAN(FCC CFR 47 Part 15C). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMA236MN shares the same enclosure and circuit board as FCC ID: A3LSMA236BN. The WLAN antennas and surrounding circuitry and layout are identical between these two units.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMA236BN remains representative of FCC ID: A3LSMA236MN. The test data of FCC ID: A3LSMA236BN being submitted for this application to cover WLAN features.

1.3. SPOT CHECK VERIFICATION DATA

(Worst case of the radiated band-edge and radiated spurious emissions)

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-A236B/DSN Results	SM-A236M/DSN Results		
					FCC ID : A3LSMA236BN	FCC ID : A3LSMA236MN		
DTS WLAN (2.4GHz)	BANDEDGE	802.11b	2412 MHz	74 dBuV/m	69.85 dBuV/m	68.21 dBuV/m	-1.64 dB	
	RSE	802.11b	4914 MHz	54 dBuV/m	44.69 dBuV/m	45.36 dBuV/m	0.67 dB	
	BANDEDGE	802.11g	2412 MHz	54 dBuV/m	49.91 dBuV/m	51.06 dBuV/m	1.15 dB	
	RSE	802.11g	4824 MHz	54 dBuV/m	36.16 dBuV/m	35.23 dBuV/m	-0.93 dB	
	BANDEDGE	802.11n HT20	2472 MHz	54 dBuV/m	49.64 dBuV/m	49.45 dBuV/m	-0.19 dB	
	RSE	802.11n HT20	9748 MHz	74 dBuV/m	48.31 dBuV/m	48.22 dBuV/m	-0.09 dB	Noise floor

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

1.4. REFERENCE DETAIL

Reference application that contains the reused reference data in the individual test reports:

Equipment Class	Reference FCC ID (Parent)	Application Type	Reference Test report number	Exhibit Type	Variant Test Report Number	Data Re-used
DTS	A3LSMA236BN	Original Grant	4790406778-E3 (802.11b/g/n)	Test Report	4790406782-E3 (802.11b/g/n)	All
			4790406778-E4 Bluetooth LE	Test Report	4790406782-E4 Bluetooth LE	All
DSS	A3LSMA236BN	Original Grant	4790406778-E5 (Bluetooth)	Test Report	4790406782-E5 (Bluetooth)	All
NII	A3LSMA236BN	Original Grant	4790406778-E6 (802.11a/n/ac)	Test Report	4790406782-E6 (802.11a/n/ac)	All
DXX	A3LSMA236BN	Original Grant	4790406778-E7 (NFC)	Test Report	4790406782-E7 (NFC)	All

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(3m semi-anechoic chamber)
☒ Chamber 2(3m semi-anechoic chamber)
☒ Chamber 3(3m semi-anechoic chamber)
☐ Chamber 4(3m Full-anechoic chamber)
☐ Chamber 5(3m Full-anechoic chamber)

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.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)

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	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 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 2, Clause 4.4.3 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC.
This test report addresses the DTS (WLAN) operational mode.

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

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 SISO	19.23	83.75
	802.11g SISO	17.47	55.85
	802.11n(HT20) SISO	17.54	56.75

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.

Frequency	ANT Gain [dBi]
2 412 ~ 2 472	-4.70

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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	O
11	2 462	O	O	O
12	2 467	O	O	O
13	2 472	O	O	O

Note: Tested channels are applied to all test items.

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.

Worst case of antenna axis: X

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

All radiated and power line conducted tests were performed attached with travel adapter for the worst case condition mode.

Test case configuration for 802.11b, g, n HT20 modes: Conducted, Radiated

SISO Target[dBm]				
Ch.	Freq.	802.11b	802.11g	802.11n HT20
1	2412	17.5	17	16.5
2	2417	18		17
6	2437	19	17	17
10	2457	18	17	17
11	2462	13.5	16	15.5
12	2467	7	5	5
13	2472	7	5	4.5

Radiated Band-Edge, Conducted Band-Edge
Radiated Band-Edge, Radiated Spurious Emission, Conducted Band-Edge, Conducted Spurious Emission, PSD
Radiated Spurious Emission, Conducted Spurious Emission, PSD

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37MANQ1E72SE3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A BWE	N/A
Earphone	SAMSUNG	GH59-15055A	EHS64AVFWE	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	0.7 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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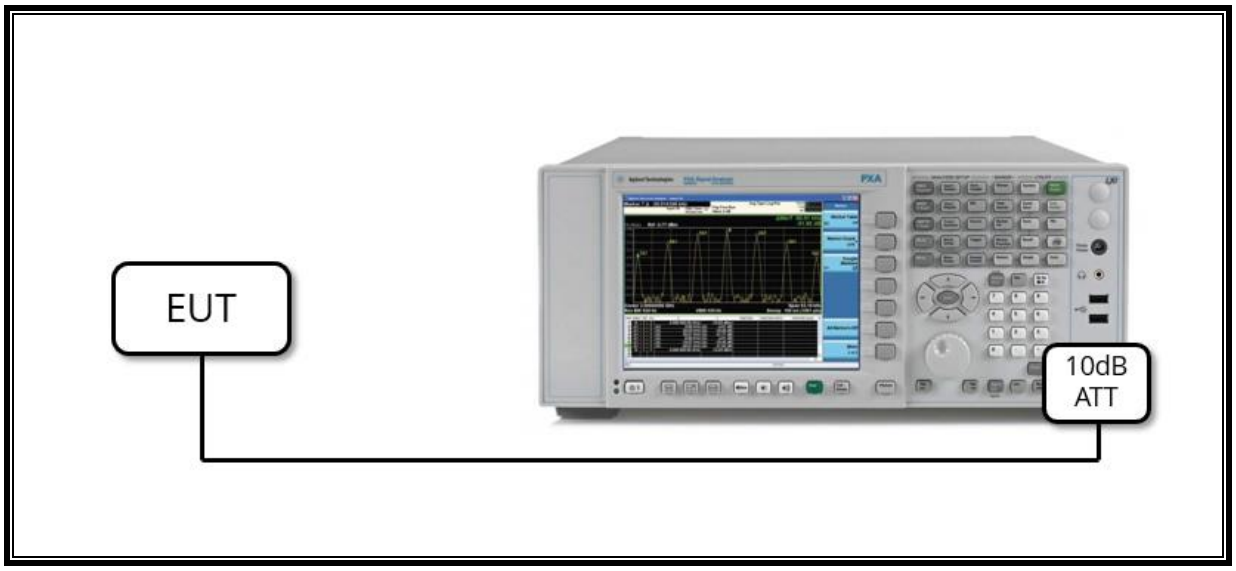
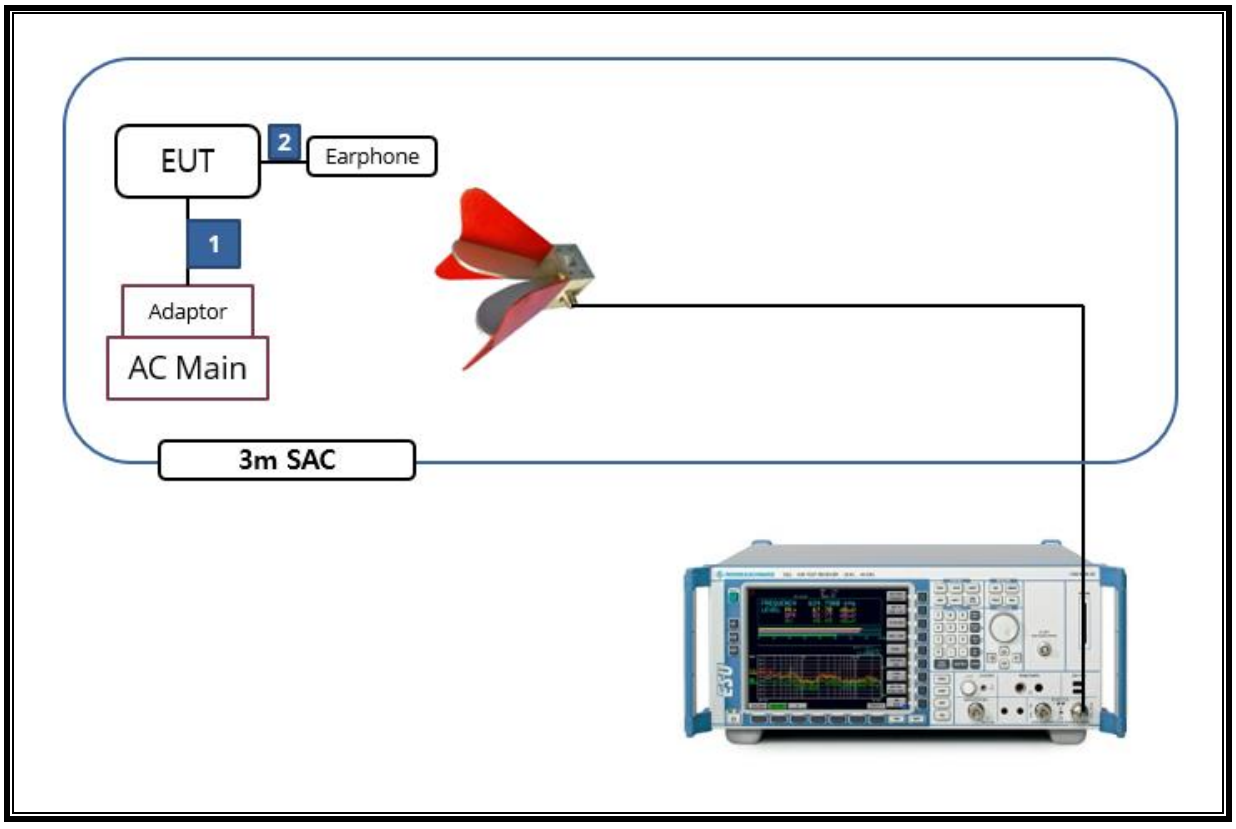
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. MEASUREMENT METHOD

6 dB BW : ANSI C63.10-2013, Section 11.8.2 Option 2

OUTPUT POWER : ANSI C63.10-2013, Section 11.9.2.3.1 Method AVGPM

POWER SPECTRAL DENSITY : ANSI C63.10-2013, Section 11.10.3 & 11.10.5 Method AVGPSD-1 and Method AVGPSD-2

Out-of-band Emissions (Conducted) : ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Non-restricted Bands: ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Restricted Bands : ANSI C63.10-2013, Section 11.12 Emissions in restricted frequency bands

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	2022/08/19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022/08/13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022/08/13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022/07/27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022/08/15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022/07/27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022/08/15
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2022/08/04
Preamplifier	ETS	3116C-PA	00168841	2022/08/04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022/08/02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022/08/02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022/08/02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022/08/02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022/08/02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022/08/02
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2022/08/04
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2022/08/04
Average Power Sensor	Agilent / HP	U2000	MY54270007	2022/08/04
Average Power Sensor	Agilent / HP	U2000	MY54260010	2022/08/04
Attenuator	PASTERNACK	PE7087-10	A001	2022/08/03
Attenuator	PASTERNACK	PE7087-10	A008	2022/08/03
Attenuator	PASTERNACK	PE7004-10	2	2022/08/02
Attenuator	PASTERNACK	PE7087-10	A009	2022/08/03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022/08/02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022/08/02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022/08/02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2022/08/02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2022/08/02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	019	2022/08/02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2022/08/02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	2022/08/02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2022/08/02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2022/08/02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	2022/08/02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	020	2022/08/02
LISN	R&S	ENV-216	101837	2022/08/05
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023/10/06

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

8. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Bandwidth(6dB)	> 500kHz	Conducted	PASS
2.1051, 15.247(d)	Band Edge / Conducted Spurious Emission	-30 dBc		PASS
15.247 (b)(3)	TX conducted output power	< 30 dBm		PASS
15.247(e)	PSD	< 8 dBm/3kHz		PASS
15.207(a)	AC Power Line conducted emissions	Section 11	Power Line conducted	PASS
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	PASS

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

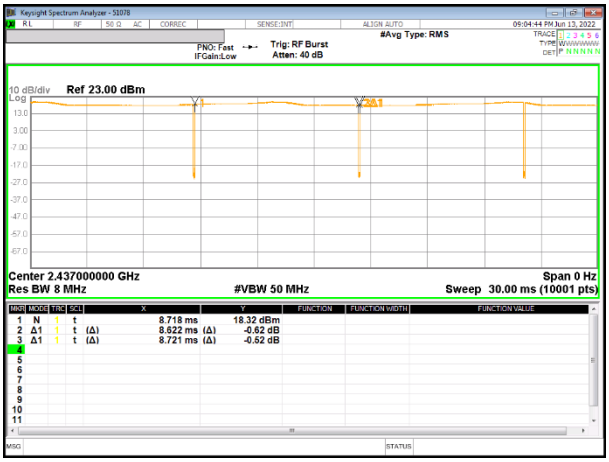
LIMITS

None; for reporting purposes only.

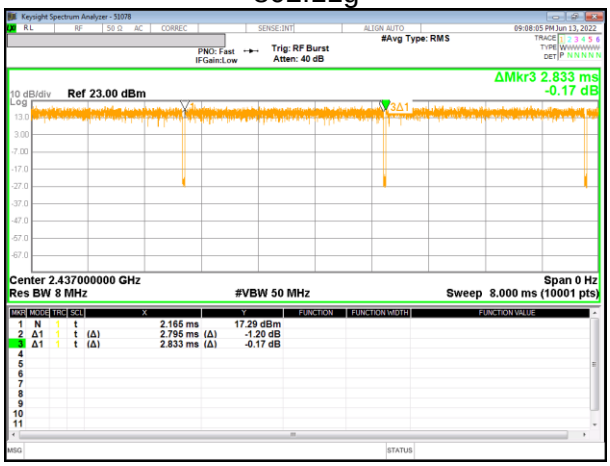
Mode	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]	1/T Minimum VBW[kHz]
802.11b SISO	8.622	8.721	0.989	98.865	-	0.116
802.11g SISO	2.795	2.833	0.987	98.659	-	0.358
802.11n(HT20) SISO	2.599	2.637	0.986	98.559	-	0.385

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.

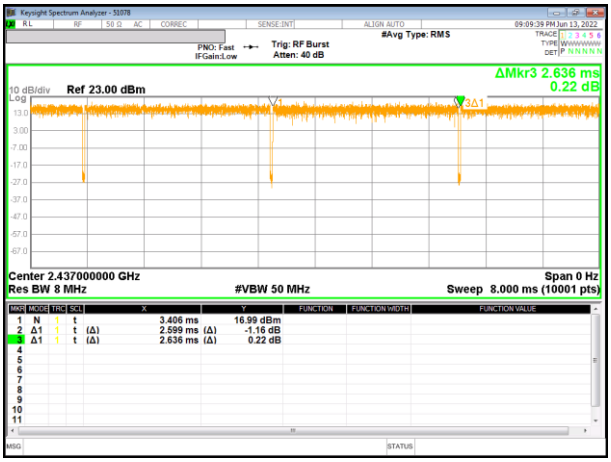
802.11b



802.11g



802.11n HT20



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.

ANSI C63.10-2013, Section 11.8.1

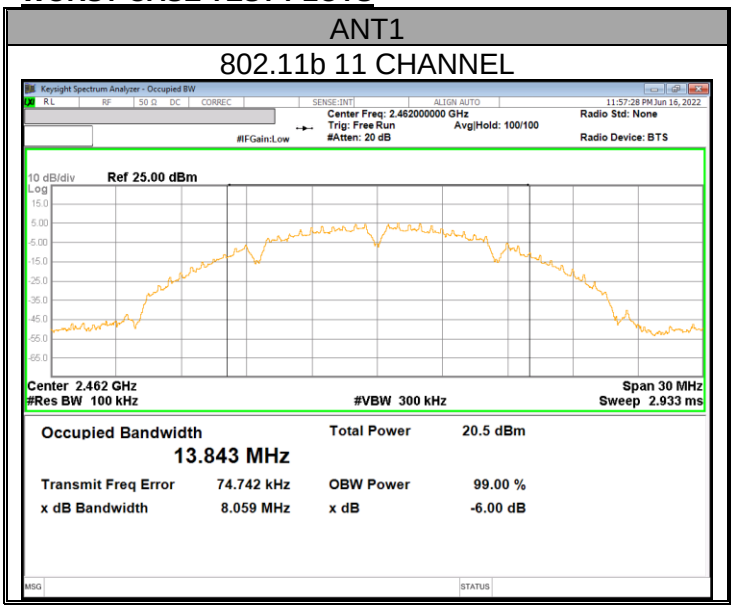
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT1

802.11b 11 CHANNEL



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	9.058	0.5
2	2 417	8.575	
6	2 437	9.058	
10	2 457	9.071	
11	**2 462**	**8.059**	
12	2 467	8.583	
13	2 472	8.076	
Worst		**8.059**	

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	10.990	0.5
6	2 437	13.850	
10	2 457	11.570	
11	2 462	13.810	
12	2 467	12.520	
13	2 472	13.220	
Worst		**10.990**	

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	16.560	0.5
2	2 417	13.860	
6	2 437	15.330	
10	2 457	16.550	
11	2 462	12.790	
12	2 467	14.800	
13	2 472	12.610	
Worst		**12.610**	

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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

Measurements perform using a wideband RF frame average power sensor.
The cable assembly insertion loss and duty cycle correction factor was entered as an offset in the power sensor 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.

ANSI C63.10-2013, Section 11.9.2.3.1 Method AVGPM

9.3.1. TEST RESULTS

- 802.11b,g,n mode

Mode	Channel	Frequency [MHz]	Average Power [dBm]	Power Limit [dBm]
802.11b	1	2 412	17.64	30.00
	2	2 417	18.26	
	6	2 437	19.23	
	10	2 457	18.04	
	11	2 462	13.94	
	12	2 467	7.54	
	13	2 472	7.33	
Worst Case			**19.23**	
802.11g	1	2 412	17.47	
	6	2 437	17.08	
	10	2 457	17.25	
	11	2 462	16.27	
	12	2 467	5.33	
	13	2 472	5.09	
Worst Case			**17.47**	
802.11n HT20	1	2 412	16.86	
	2	2 417	17.52	
	6	2 437	17.25	
	10	2 457	17.54	
	11	2 462	15.67	
	12	2 467	5.17	
	13	2 472	4.47	
Worst Case			**17.54**	

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

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 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the section8.4 under KDB558074 D01 15.247 Meas Guidance.

ANSI C63.10-2013, Section 11.10.3 & 11.10.5

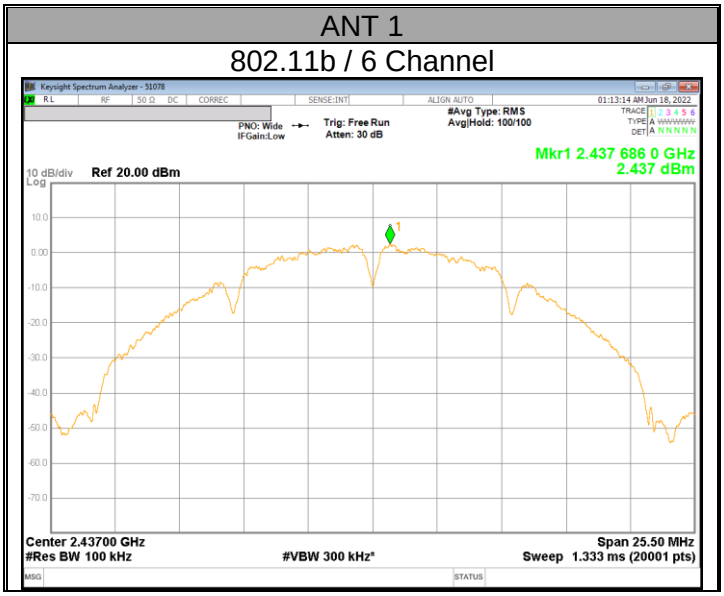
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT 1

802.11b / 6 Channel



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

Mode	Channel	Frequency [MHz]	Meas PSD [dBm/100kHz]	DCCF	Total Corr'd PSD [dBm/100kHz]	PSD Limit [dBm/3kHz]
802.11b	1	2 412	0.516	-	0.516	8.00Note
	2	2 417	1.285		1.285	
	6	2 437	**2.437**	-	**2.437**	
	10	2 457	0.957		0.957	
	11	2 462	-2.689	-	-2.689	
	12	2 467	-8.925	-	-8.925	
	13	2 472	-9.237	-	-9.237	
802.11g	1	2 412	-0.744	-	-0.744	
	6	2 437	-0.498	-	-0.498	
	10	2 457	-0.653		-0.653	
	11	2 462	-0.808	-	-0.808	
	12	2 467	-12.654	-	-12.654	
	13	2 472	-12.779	-	-12.779	
802.11n HT20	1	2 412	-1.241	-	-1.241	
	2	2 417	-0.923		-0.923	
	6	2 437	-0.890	-	-0.890	
	10	2 457	-0.537		-0.537	
	11	2 462	-2.044	-	-2.044	
	12	2 467	-13.141	-	-13.141	
	13	2 472	-13.951	-	-13.951	

- Calculation of Output PSD result
- 1TX : Corr'd PSD = Meas PSD + Duty Cycle CF
Note1. RBW 100kHz measurement data is lower than 3kHz limit.

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9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

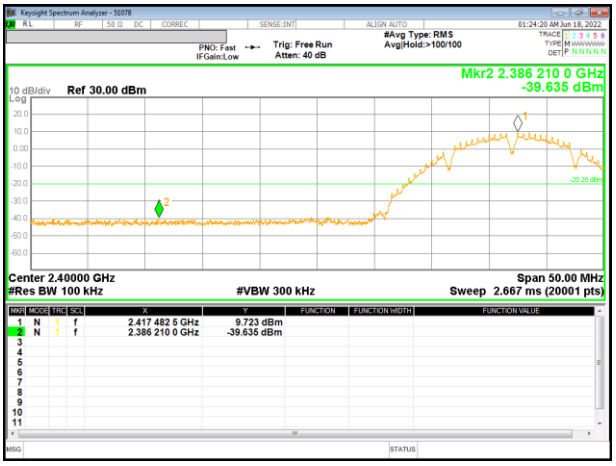
Output power was measured based on the use of average measurement, therefore the required attenuation is 30 dB.

TEST PROCEDURE

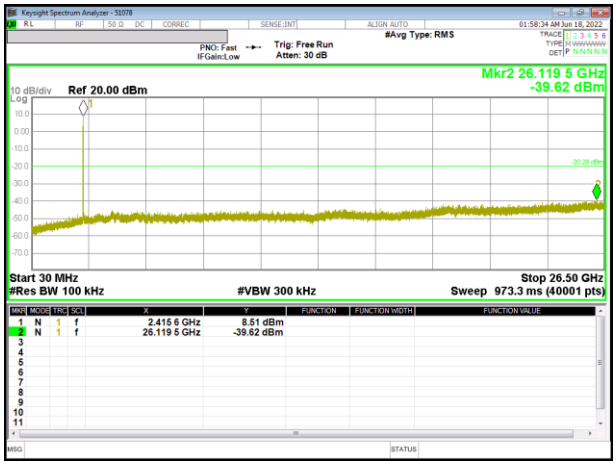
KDB 558074 D01 v05r02, Section 8.5
ANSI C63.10-2013, Section 11.11.3

RESULTS

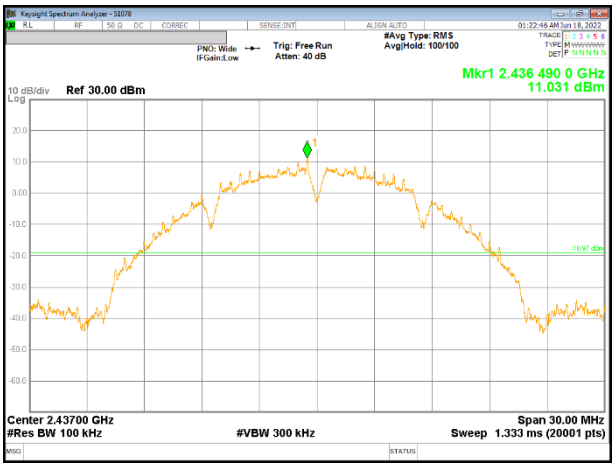
9.5.1. 802.11b MODE



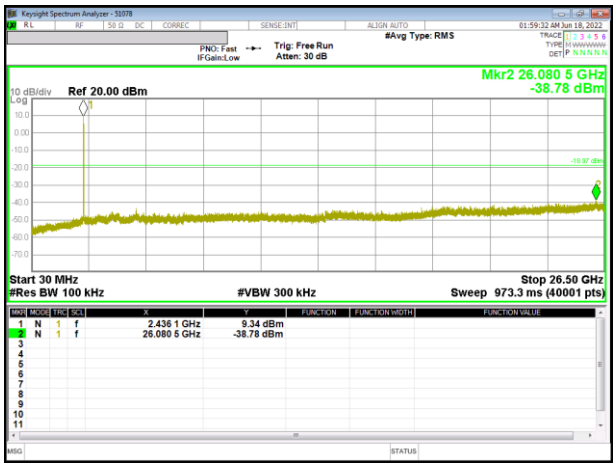
2 Channel Band-edge



Out-Of-Band 2 Channel

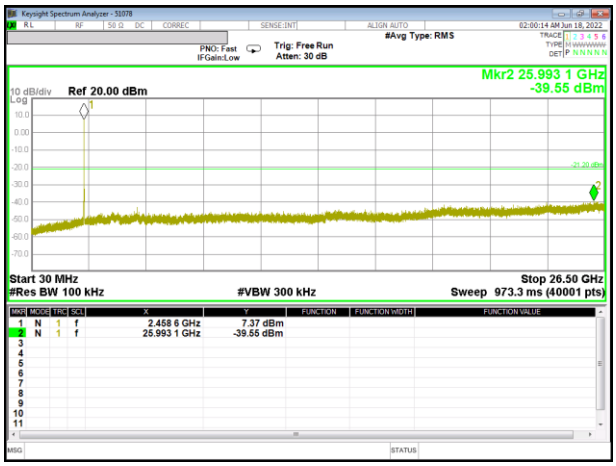


In-Band Reference Level

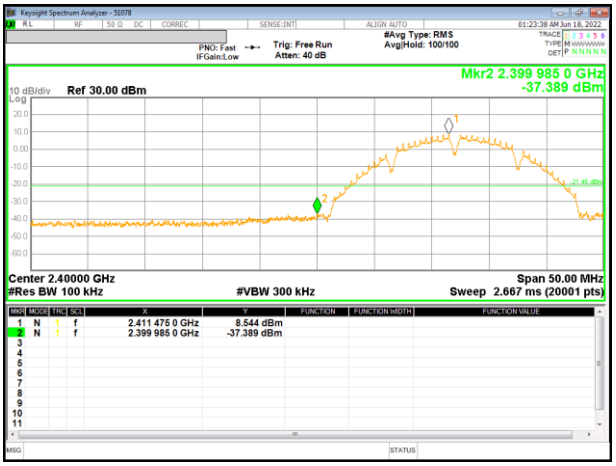


Out-Of-Band 6 Channel

10 Channel Band-edge

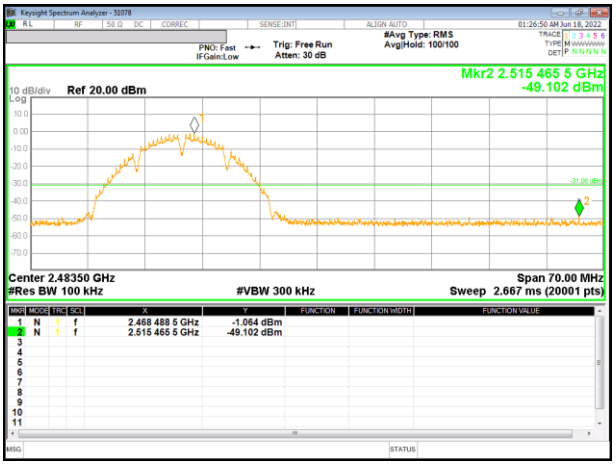


Out-Of-Band 10 Channel



1 Channel Band-edge

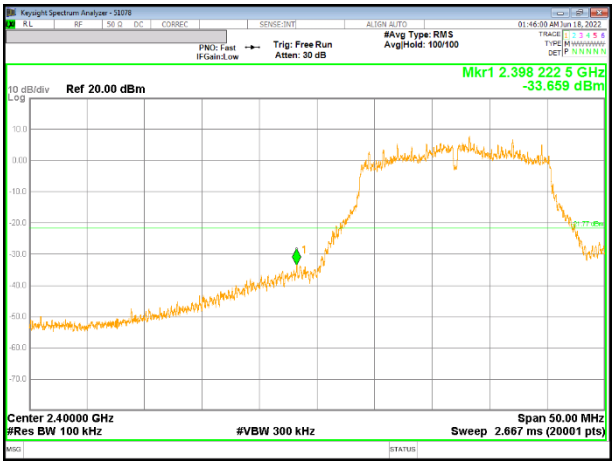
11 Channel Band-edge



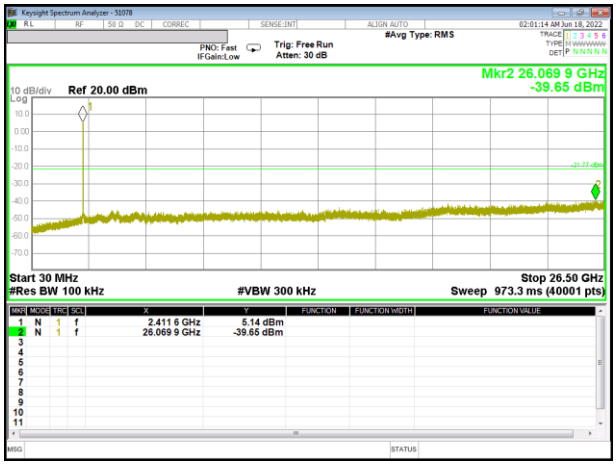
12 Channel Band-edge

13 Channel Band-edge

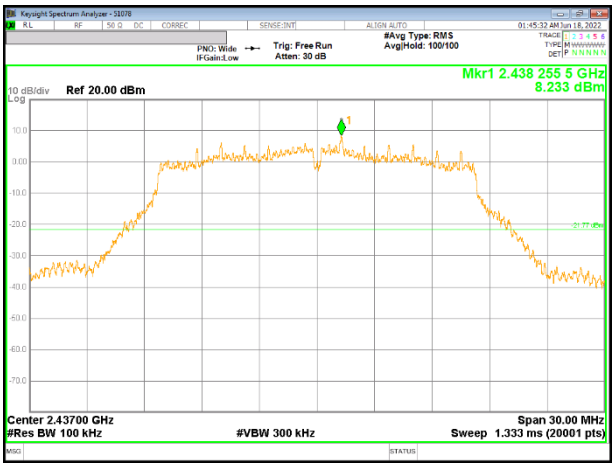
9.5.2. 802.11g MODE



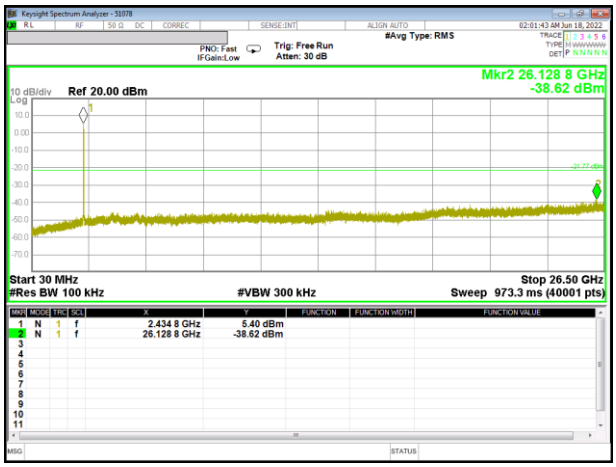
1 Channel Band-edge



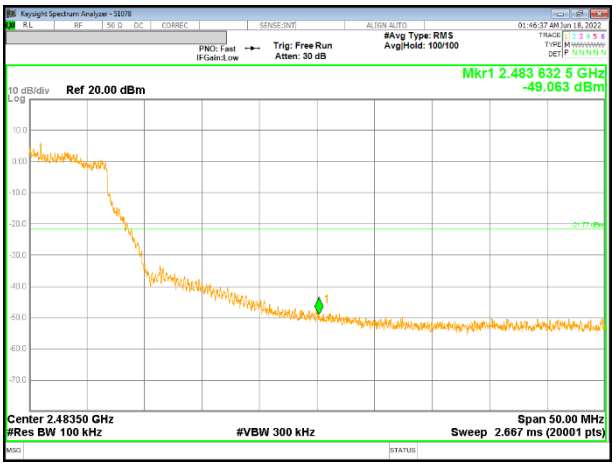
Out-Of-Band 1 Channel



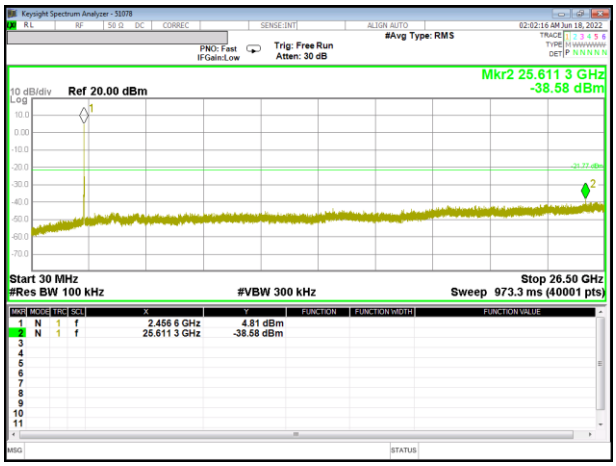
In-Band Reference Level



Out-Of-Band 6 Channel



10 Channel Band-edge



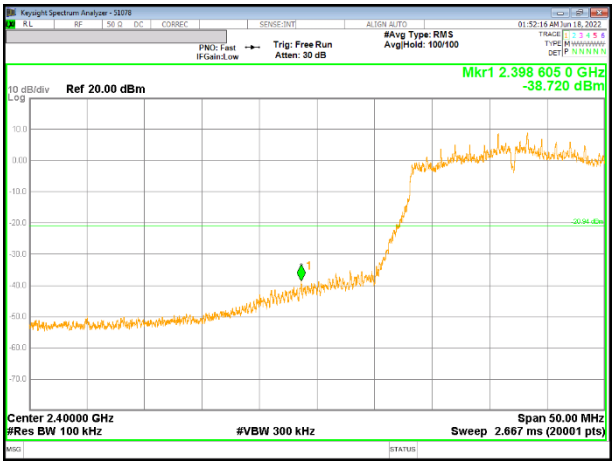
Out-Of-Band 10 Channel

11 Channel Band-edge

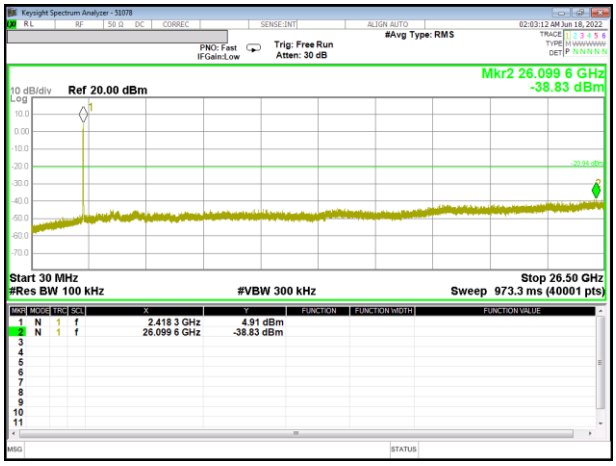
12 Channel Band-edge

13 Channel Band-edge

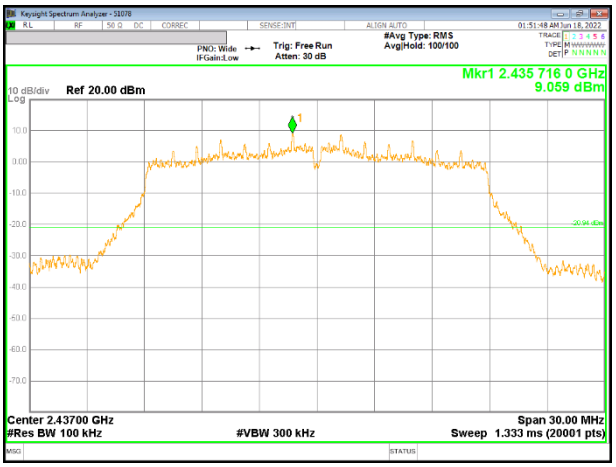
9.5.3. 802.11n HT20 MODE



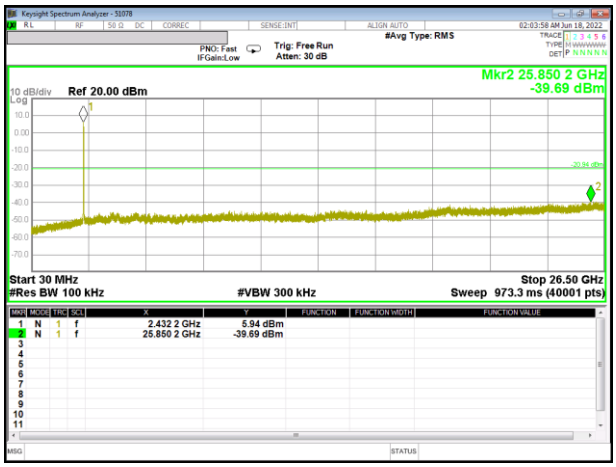
2 Channel Band-edge



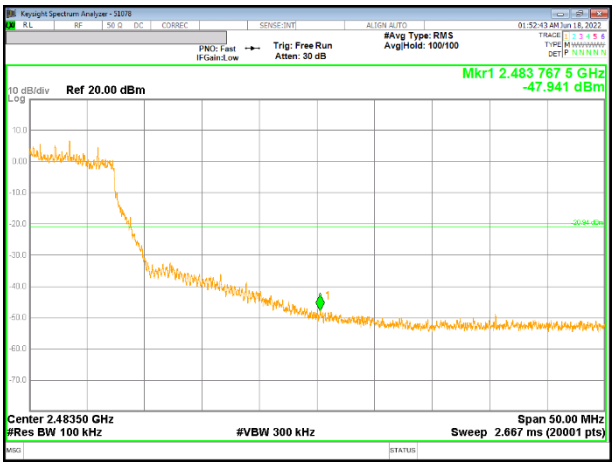
Out-Of-Band 2 Channel



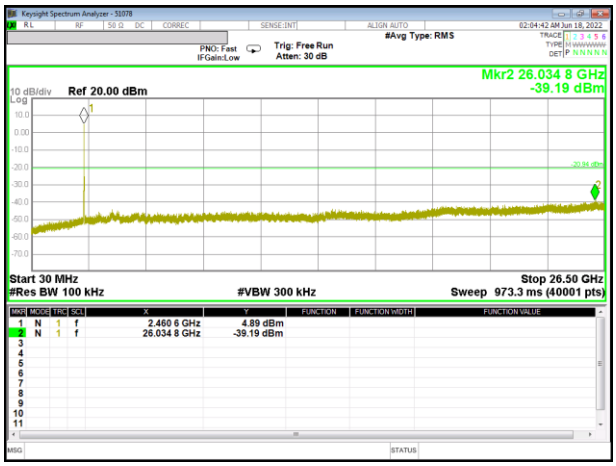
In-Band Reference Level



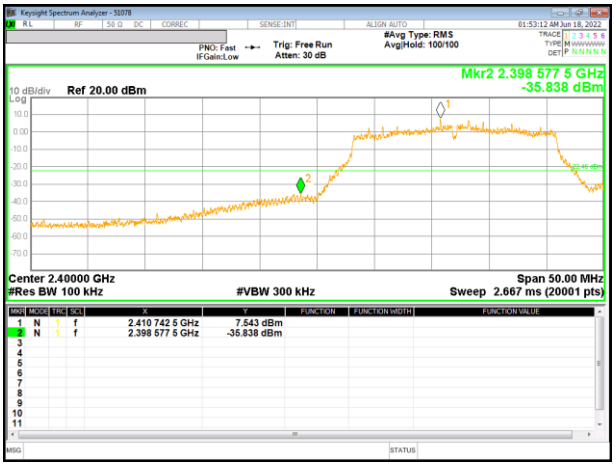
Out-Of-Band 6 Channel



10 Channel Band-edge



Out-Of-Band 10 Channel



1 Channel Band-edge

11 Channel Band-edge

12 Channel Band-edge

13 Channel Band-edge

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.

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 dB (duty cycle > 98%);
802.11n(HT20) SISO mode = 0 dB (duty cycle > 98%);

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

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

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note : Emission was pre-scanned from 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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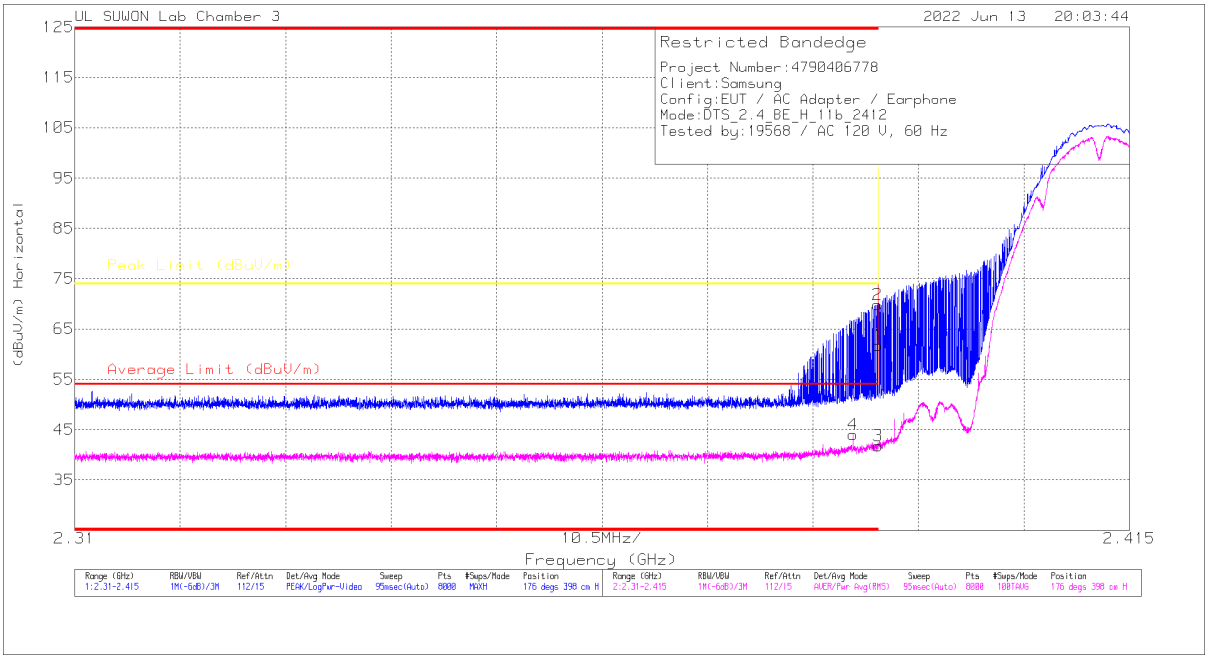
10.1. TRANSMITTER ABOVE 1 GHz

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

BANDEDGE (ANT1 WORST CASE: 1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	53.74	Pk	32.8	-24.8	0	61.74	-	-	74	-12.26	176	398	H
2	* 2.38994	61.85	Pk	32.8	-24.8	0	69.85	-	-	74	-4.15	176	398	H
3	* 2.39	33.77	RMS	32.8	-24.8	0	41.77	54	-12.23	-	-	176	398	H
4	* 2.38748	36.12	RMS	32.7	-24.8	0	44.02	54	-9.98	-	-	176	398	H

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

BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	53.74	Pk	32.80	-24.80	0.00	61.74	-	-	74.00	-12.26	176	398	H
		* 2.38994	61.85	Pk	32.80	-24.80	0.00	69.85	-	-	74.00	**-4.15**	176	398	H
		* 2.39	33.77	RMS	32.80	-24.80	0.00	41.77	54.00	-12.23	-	-	176	398	H
		* 2.38748	36.12	RMS	32.70	-24.80	0.00	44.02	54.00	-9.98	-	-	176	398	H
		* 2.39	41.92	Pk	32.80	-24.80	0.00	49.92	-	-	74.00	-24.08	195	103	V
		* 2.38965	56.47	Pk	32.80	-24.80	0.00	64.47	-	-	74.00	-9.53	195	103	V
		* 2.39	32.39	RMS	32.80	-24.80	0.00	40.39	54.00	-13.61	-	-	195	103	V
		* 2.38846	34.90	RMS	32.80	-24.80	0.00	42.90	54.00	-11.10	-	-	195	103	V
2417	ANT1	* 2.39	45.10	Pk	32.80	-24.80	0.00	53.10	-	-	74.00	-20.90	171	243	H
		* 2.3899	58.80	Pk	32.80	-24.80	0.00	66.80	-	-	74.00	-7.20	171	243	H
		* 2.39	34.36	RMS	32.80	-24.80	0.00	42.36	54.00	-11.64	-	-	171	243	H
		* 2.38883	36.66	RMS	32.80	-24.80	0.00	44.66	54.00	-9.34	-	-	171	243	H
		* 2.39	43.16	Pk	32.80	-24.80	0.00	51.16	-	-	74.00	-22.84	86	128	V
		* 2.3896	49.17	Pk	32.80	-24.80	0.00	57.17	-	-	74.00	-16.83	86	128	V
		* 2.39	32.56	RMS	32.80	-24.80	0.00	40.56	54.00	-13.44	-	-	86	128	V
		* 2.38776	33.11	RMS	32.80	-24.80	0.00	41.11	54.00	-12.89	-	-	86	128	V
2457	ANT1	* 2.4835	44.79	Pk	32.90	-24.70	0.00	52.99	-	-	74.00	-21.01	167	374	H
		* 2.48362	60.97	Pk	32.90	-24.70	0.00	69.17	-	-	74.00	-4.83	167	374	H
		* 2.4835	34.45	RMS	32.90	-24.70	0.00	42.65	54.00	-11.35	-	-	167	374	H
		* 2.48516	38.14	RMS	32.90	-24.70	0.00	46.34	54.00	-7.66	-	-	167	374	H
		* 2.4835	42.41	Pk	32.90	-24.70	0.00	50.61	-	-	74.00	-23.39	201	372	V
		* 2.48369	57.36	Pk	32.90	-24.70	0.00	65.56	-	-	74.00	-8.44	201	372	V
		* 2.4835	33.50	RMS	32.90	-24.70	0.00	41.70	54.00	-12.30	-	-	201	372	V
		* 2.48702	34.20	RMS	32.90	-24.80	0.00	42.30	54.00	-11.70	-	-	201	372	V
2462	ANT1	* 2.4835	53.60	Pk	32.90	-24.70	0.00	61.80	-	-	74.00	-12.20	172	265	H
		* 2.48385	61.22	Pk	32.90	-24.70	0.00	69.42	-	-	74.00	-4.58	172	265	H
		* 2.4835	32.92	RMS	32.90	-24.70	0.00	41.12	54.00	-12.88	-	-	172	265	H
		* 2.48884	34.30	RMS	32.90	-24.80	0.00	42.40	54.00	-11.60	-	-	172	265	H
		* 2.4835	46.08	Pk	32.90	-24.70	0.00	54.28	-	-	74.00	-19.72	208	375	V
		* 2.48448	57.93	Pk	32.90	-24.70	0.00	66.13	-	-	74.00	-7.87	208	375	V
		* 2.4835	31.74	RMS	32.90	-24.70	0.00	39.94	54.00	-14.06	-	-	208	375	V
		* 2.48367	37.46	RMS	32.90	-24.70	0.00	45.66	54.00	-8.34	-	-	208	375	V
2467	ANT1	* 2.4835	48.30	Pk	32.90	-24.70	0.00	56.50	-	-	74.00	-17.50	181	325	H
		* 2.48372	58.09	Pk	32.90	-24.70	0.00	66.29	-	-	74.00	-7.71	181	325	H
		* 2.4835	32.70	RMS	32.90	-24.70	0.00	40.90	54.00	-13.10	-	-	181	325	H
		* 2.48847	34.95	RMS	32.90	-24.80	0.00	43.05	54.00	-10.95	-	-	181	325	H
		* 2.4835	41.99	Pk	32.90	-24.70	0.00	50.19	-	-	74.00	-23.81	223	361	V
		* 2.48475	52.37	Pk	32.90	-24.70	0.00	60.57	-	-	74.00	-13.43	223	361	V
		* 2.4835	31.84	RMS	32.90	-24.70	0.00	40.04	54.00	-13.96	-	-	223	361	V
		* 2.484	34.21	RMS	32.90	-24.70	0.00	42.41	54.00	-11.59	-	-	223	361	V
2472	ANT1	* 2.4835	60.36	Pk	32.90	-24.70	0.00	68.56	-	-	74.00	-5.44	166	326	H
		* 2.48355	60.92	Pk	32.90	-24.70	0.00	69.12	-	-	74.00	-4.88	166	326	H
		* 2.4835	38.13	RMS	32.90	-24.70	0.00	46.33	54.00	-7.67	-	-	166	326	H
		* 2.48356	38.17	RMS	32.90	-24.70	0.00	46.37	54.00	**-7.63**	-	-	166	326	H
		* 2.4835	50.95	Pk	32.90	-24.70	0.00	59.15	-	-	74.00	-14.85	89	100	V
		* 2.48364	52.30	Pk	32.90	-24.70	0.00	60.50	-	-	74.00	-13.50	89	100	V
		* 2.4835	34.09	RMS	32.90	-24.70	0.00	42.29	54.00	-11.71	-	-	89	100	V
		* 2.48362	33.60	RMS	32.90	-24.70	0.00	41.80	54.00	-12.20	-	-	89	100	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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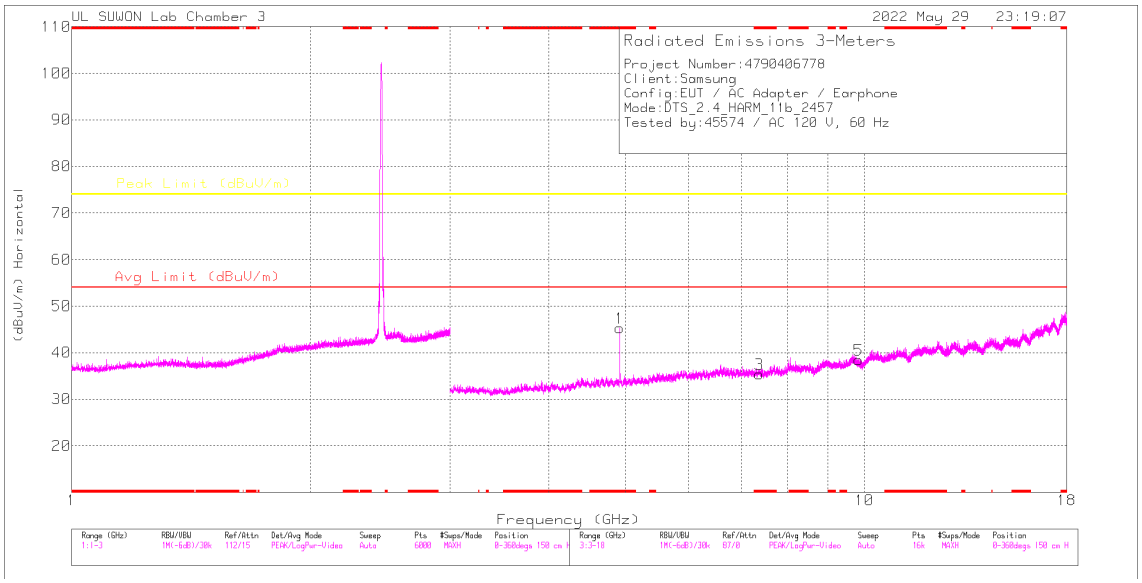
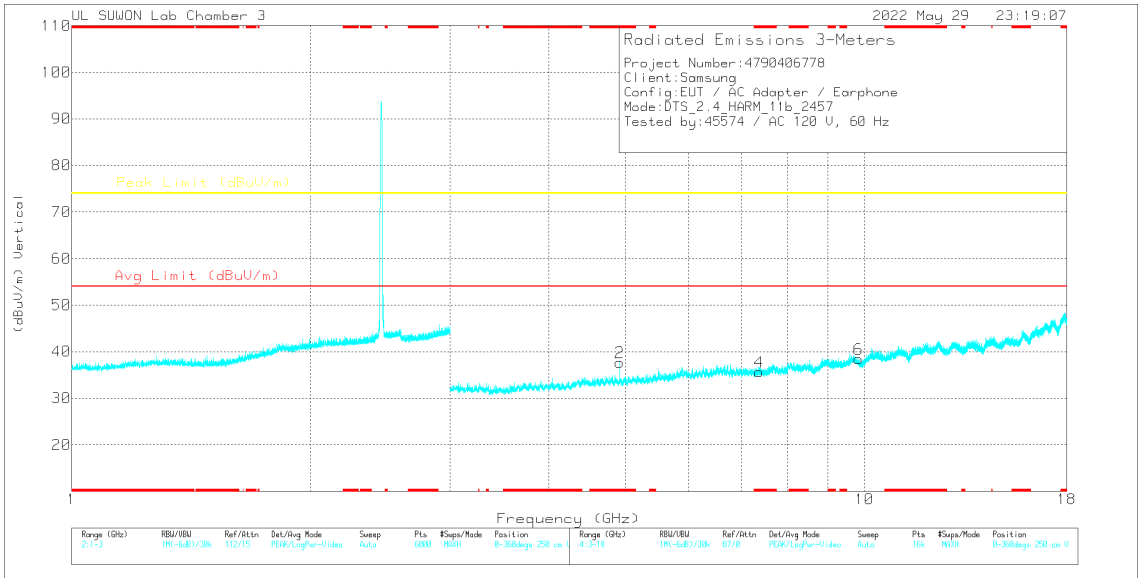
HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 10 CHANNEL)

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_00218957	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
* 4.91394	45.64	PK2	34.7	-30.8	0	49.54	-	-	74	-24.46	8	117	H
* 4.914	40.79	MAv1	34.7	-30.8	0	44.69	54	-9.31	-	-	8	117	H
* 7.37216	34.65	PK2	36	-24.7	0	45.95	-	-	74	-28.05	360	100	H
9.83396	31.41	PK2	37.7	-21.5	0	47.61	-	-	74	-26.39	6	101	H
* 4.91411	42.35	PK2	34.7	-30.8	0	46.25	-	-	74	-27.75	275	390	V
* 4.91397	35.55	MAv1	34.7	-30.8	0	39.45	54	-14.55	-	-	275	390	V
* 7.3735	34.67	PK2	36	-24.7	0	45.97	-	-	74	-28.03	360	100	V
9.82798	31.83	PK2	37.7	-21.5	0	48.03	-	-	74	-25.97	236	105	V

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

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2417	ANT1	* 4.83389	43.89	PK2	34.60	-30.20	0.00	48.29	-	-	74.00	-25.71	16	122	H
		* 4.83393	38.84	MAv1	34.60	-30.20	0.00	43.24	54.00	-10.76	-	-	16	122	H
		* 4.83403	41.13	PK2	34.60	-30.20	0.00	45.53	-	-	74.00	-28.47	155	100	V
		* 4.83403	32.98	MAv1	34.60	-30.20	0.00	37.38	54.00	-16.62	-	-	155	100	V
		* 7.34998	35.19	PK2	36.00	-24.80	0.00	46.39	-	-	74.00	-27.61	0	100	H
		* 7.60812	34.77	PK2	36.20	-24.90	0.00	46.07	-	-	74.00	-27.93	0	100	V
		9.668	32.45	PK2	37.40	-21.40	0.00	48.45	-	-	74.00	-25.55	0	100	H
		9.665	33.22	PK2	37.40	-21.50	0.00	49.12	-	-	74.00	-24.88	0	100	V
2437	ANT1	* 4.87391	43.47	PK2	34.60	-30.60	0.00	47.47	-	-	74.00	-26.53	10	106	H
		* 4.87391	37.08	MAv1	34.60	-30.60	0.00	41.08	54.00	-12.92	-	-	10	106	H
		9.742	32.58	PK2	37.50	-21.40	0.00	48.68	-	-	74.00	-25.32	318	101	H
		* 7.31804	34.64	PK2	36.00	-25.20	0.00	45.44	-	-	74.00	-28.56	0	100	H
		* 4.87389	40.63	PK2	34.60	-30.60	0.00	44.63	-	-	74.00	-29.37	92	108	V
		* 4.87395	31.25	MAv1	34.60	-30.60	0.00	35.25	54.00	-18.75	-	-	92	108	V
		* 7.30228	35.27	PK2	36.00	-25.30	0.00	45.97	-	-	74.00	-28.03	0	100	V
		9.748	32.03	PK2	37.50	-21.40	0.00	48.13	-	-	74.00	-25.87	232	100	V
2457	ANT1	* 4.91394	45.64	PK2	34.70	-30.80	0.00	49.54	-	-	74.00	**-24.46**	8	117	H
		* 4.914	40.79	MAv1	34.70	-30.80	0.00	44.69	54.00	**-9.31**	-	-	8	117	H
		* 7.37216	34.65	PK2	36.00	-24.70	0.00	45.95	-	-	74.00	-28.05	360	100	H
		9.834	31.41	PK2	37.70	-21.50	0.00	47.61	-	-	74.00	-26.39	6	101	H
		* 4.91411	42.35	PK2	34.70	-30.80	0.00	46.25	-	-	74.00	-27.75	275	390	V
		* 4.91397	35.55	MAv1	34.70	-30.80	0.00	39.45	54.00	-14.55	-	-	275	390	V
		* 7.3735	34.67	PK2	36.00	-24.70	0.00	45.97	-	-	74.00	-28.03	360	100	V
		9.828	31.83	PK2	37.70	-21.50	0.00	48.03	-	-	74.00	-25.97	236	105	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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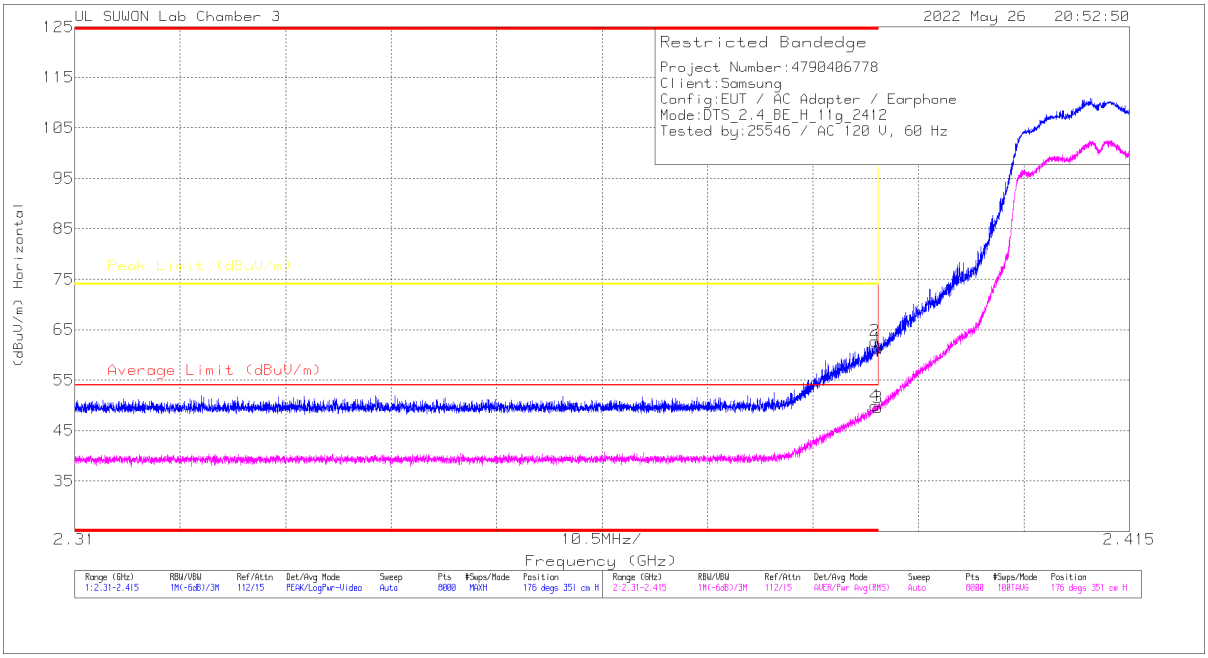
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

BANDEDGE (ANT1 WORST CASE: 1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	53.33	Pk	32.8	-24.8	0	61.33	-	-	74	-12.67	176	351	H
2	* 2.38969	54.77	Pk	32.8	-24.8	0	62.77	-	-	74	-11.23	176	351	H
3	* 2.39	41.55	RMS	32.8	-24.8	0	49.55	54	-4.45	-	-	176	351	H
4	* 2.38969	41.91	RMS	32.8	-24.8	0	49.91	54	-4.09	-	-	176	351	H

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

BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	53.33	Pk	32.80	-24.80	0.00	61.33	-	-	74.00	-12.67	176	351	H
		* 2.38969	54.77	Pk	32.80	-24.80	0.00	62.77	-	-	74.00	-11.23	176	351	H
		* 2.39	41.55	RMS	32.80	-24.80	0.00	49.55	54.00	-4.45	-	-	176	351	H
		* 2.38969	41.91	RMS	32.80	-24.80	0.00	49.91	54.00	**-4.09**	-	-	176	351	H
		* 2.39	50.37	Pk	32.80	-24.80	0.00	58.37	-	-	74.00	-15.63	203	315	V
		* 2.38963	51.04	Pk	32.80	-24.80	0.00	59.04	-	-	74.00	-14.96	203	315	V
		* 2.39	38.50	RMS	32.80	-24.80	0.00	46.50	54.00	-7.50	-	-	203	315	V
		* 2.38996	38.37	RMS	32.80	-24.80	0.00	46.37	54.00	-7.63	-	-	203	315	V
2457	ANT1	* 2.4835	46.42	Pk	32.90	-24.70	0.00	54.62	-	-	74.00	-19.38	164	374	H
		* 2.4842	46.61	Pk	32.90	-24.70	0.00	54.81	-	-	74.00	-19.19	164	374	H
		* 2.4835	34.18	RMS	32.90	-24.70	0.00	42.38	54.00	-11.62	-	-	164	374	H
		* 2.48363	35.31	RMS	32.90	-24.70	0.00	43.51	54.00	-10.49	-	-	164	374	H
		* 2.4835	44.18	Pk	32.90	-24.70	0.00	52.38	-	-	74.00	-21.62	140	378	V
		* 2.48492	45.12	Pk	32.90	-24.70	0.00	53.32	-	-	74.00	-20.68	140	378	V
		* 2.4835	32.84	RMS	32.90	-24.70	0.00	41.04	54.00	-12.96	-	-	140	378	V
		* 2.48362	34.27	RMS	32.90	-24.70	0.00	42.47	54.00	-11.53	-	-	140	378	V
2462	ANT1	* 2.4835	53.49	Pk	32.90	-24.70	0.00	61.69	-	-	74.00	-12.31	168	330	H
		* 2.48356	54.89	Pk	32.90	-24.70	0.00	63.09	-	-	74.00	-10.91	168	330	H
		* 2.4835	39.91	RMS	32.90	-24.70	0.00	48.11	54.00	-5.89	-	-	168	330	H
		* 2.48354	40.79	RMS	32.90	-24.70	0.00	48.99	54.00	-5.01	-	-	168	330	H
		* 2.4835	52.89	Pk	32.90	-24.70	0.00	61.09	-	-	74.00	-12.91	234	369	V
		* 2.48394	54.00	Pk	32.90	-24.70	0.00	62.20	-	-	74.00	-11.80	234	369	V
		* 2.4835	39.47	RMS	32.90	-24.70	0.00	47.67	54.00	-6.33	-	-	234	369	V
		* 2.48369	39.83	RMS	32.90	-24.70	0.00	48.03	54.00	-5.97	-	-	234	369	V
2467	ANT1	* 2.4835	43.23	Pk	32.90	-24.70	0.00	51.43	-	-	74.00	-22.57	170	326	H
		* 2.48548	45.11	Pk	32.90	-24.70	0.00	53.31	-	-	74.00	-20.69	170	326	H
		* 2.4835	32.47	RMS	32.90	-24.70	0.00	40.67	54.00	-13.33	-	-	170	326	H
		* 2.48407	33.71	RMS	32.90	-24.70	0.00	41.91	54.00	-12.09	-	-	170	326	H
		* 2.4835	41.53	Pk	32.90	-24.70	0.00	49.73	-	-	74.00	-24.27	207	326	V
		* 2.49846	44.80	Pk	32.90	-24.70	0.00	53.00	-	-	74.00	-21.00	207	326	V
		* 2.4835	31.96	RMS	32.90	-24.70	0.00	40.16	54.00	-13.84	-	-	207	326	V
		2.562	33.39	RMS	32.90	-24.60	0.00	41.69	54.00	-12.31	-	-	207	326	V
2472	ANT1	* 2.4835	55.01	Pk	32.90	-24.70	0.00	63.21	-	-	74.00	**-10.79**	165	325	H
		* 2.48371	53.89	Pk	32.90	-24.70	0.00	62.09	-	-	74.00	-11.91	165	325	H
		* 2.4835	41.49	RMS	32.90	-24.70	0.00	49.69	54.00	-4.31	-	-	165	325	H
		* 2.48355	41.60	RMS	32.90	-24.70	0.00	49.80	54.00	-4.20	-	-	165	325	H
		* 2.4835	47.04	Pk	32.90	-24.70	0.00	55.24	-	-	74.00	-18.76	93	100	V
		* 2.48355	46.43	Pk	32.90	-24.70	0.00	54.63	-	-	74.00	-19.37	93	100	V
		* 2.4835	34.79	RMS	32.90	-24.70	0.00	42.99	54.00	-11.01	-	-	93	100	V
		* 2.48358	34.79	RMS	32.90	-24.70	0.00	42.99	54.00	-11.01	-	-	93	100	V

Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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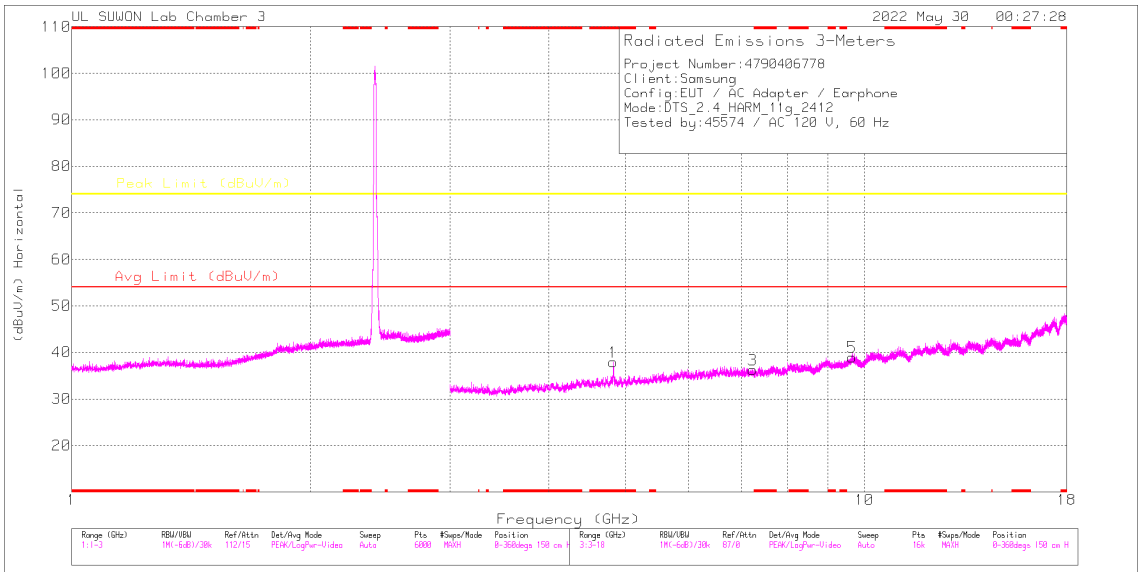
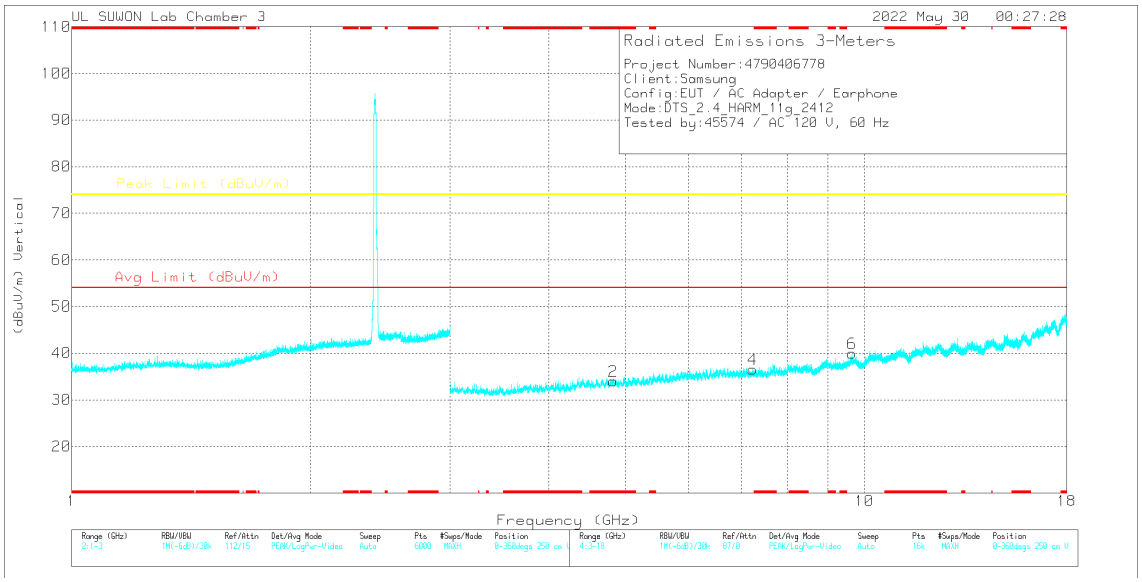
HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 1 CHANNEL)

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_00218957	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
* 4.82493	43.44	PK2	34.6	-30.1	0	47.94	-	-	74	-26.06	339	101	H
* 4.82264	31.56	MAv1	34.6	-30	0	36.16	54	-17.84	-	-	339	101	H
7.22839	35.5	PK2	36	-25.6	0	45.9	-	-	74	-28.1	360	100	H
9.64801	32.56	PK2	37.4	-21.5	0	48.46	-	-	74	-25.54	7	100	H
* 4.8245	39.36	PK2	34.6	-30.1	0	43.86	-	-	74	-30.14	68	100	V
* 4.8264	28.53	MAv1	34.6	-30.1	0	33.03	54	-20.97	-	-	68	100	V
7.2361	35.52	PK2	36	-25.6	0	45.92	-	-	74	-28.08	0	100	V
9.64781	33.75	PK2	37.4	-21.5	0	49.65	-	-	74	-24.35	360	105	V

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

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 4.82493	43.44	PK2	34.60	-30.10	0.00	47.94	-	-	74.00	-26.06	339	101	H
		* 4.82264	31.56	MAv1	34.60	-30.00	0.00	36.16	54.00	**-17.84**	-	-	339	101	H
		7.228	35.50	PK2	36.00	-25.60	0.00	45.90	-	-	74.00	-28.10	360	100	H
		9.648	32.56	PK2	37.40	-21.50	0.00	48.46	-	-	74.00	-25.54	7	100	H
		* 4.8245	39.36	PK2	34.60	-30.10	0.00	43.86	-	-	74.00	-30.14	68	100	V
		* 4.8264	28.53	MAv1	34.60	-30.10	0.00	33.03	54.00	-20.97	-	-	68	100	V
		7.236	35.52	PK2	36.00	-25.60	0.00	45.92	-	-	74.00	-28.08	0	100	V
		9.648	33.75	PK2	37.40	-21.50	0.00	49.65	-	-	74.00	**-24.35**	360	105	V
2437	ANT1	* 4.87515	40.90	PK2	34.70	-30.60	0.00	45.00	-	-	74.00	-29.00	7	117	H
		* 4.87585	29.60	MAv1	34.70	-30.60	0.00	33.70	54.00	-20.30	-	-	7	117	H
		* 7.30648	35.13	PK2	36.00	-25.30	0.00	45.83	-	-	74.00	-28.17	0	100	H
		9.748	31.97	PK2	37.50	-21.40	0.00	48.07	-	-	74.00	-25.93	3	100	H
		* 7.31065	35.26	PK2	36.00	-25.30	0.00	45.96	-	-	74.00	-28.04	0	100	V
		* 4.8725	39.70	PK2	34.60	-30.60	0.00	43.70	-	-	74.00	-30.30	92	108	V
		* 4.86835	28.57	MAv1	34.60	-30.50	0.00	32.67	54.00	-21.33	-	-	92	108	V
		9.748	32.57	PK2	37.50	-21.40	0.00	48.67	-	-	74.00	-25.33	233	100	V
2457	ANT1	* 4.91733	42.88	PK2	34.70	-30.80	0.00	46.78	-	-	74.00	-27.22	16	117	H
		* 4.91173	31.46	MAv1	34.70	-30.70	0.00	35.46	54.00	-18.54	-	-	16	117	H
		* 7.37159	34.96	PK2	36.00	-24.70	0.00	46.26	-	-	74.00	-27.74	0	100	H
		9.829	31.43	PK2	37.70	-21.50	0.00	47.63	-	-	74.00	-26.37	0	100	H
		* 7.36389	35.21	Pk	36.00	-24.80	0.00	46.41	-	-	74.00	-27.59	0	100	V
		9.824	31.77	Pk	37.60	-21.50	0.00	47.87	-	-	74.00	-26.13	0	100	V
		* 4.91398	39.90	PK2	34.70	-30.80	0.00	43.80	-	-	74.00	-30.20	0	100	V
		* 4.91412	28.71	MAv1	34.70	-30.80	0.00	32.61	54.00	-21.39	-	-	0	100	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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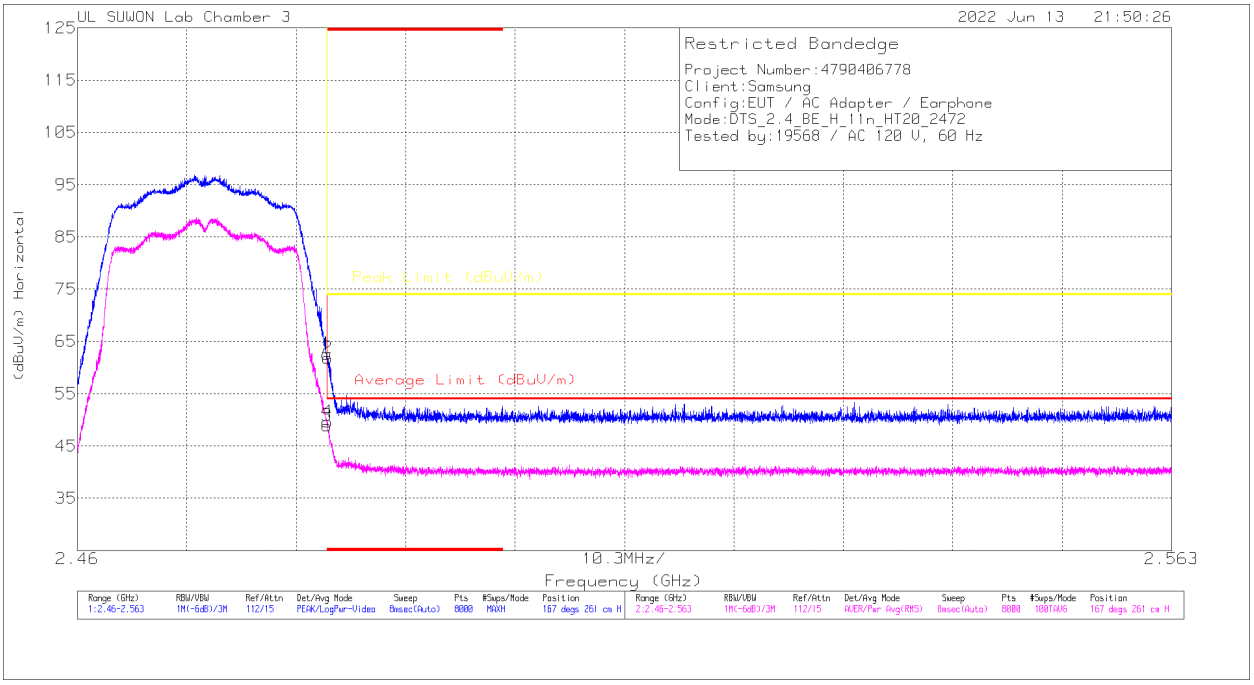
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

BANDEDGE (ANT1 WORST CASE: 13 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	* 2.4835	54.39	Pk	32.9	-24.7	0	62.59	-	-	74	-11.41	167	261	H
2	* 2.48354	53.7	Pk	32.9	-24.7	0	61.9	-	-	74	-12.1	167	261	H
3	* 2.4835	40.68	RMS	32.9	-24.7	0	48.88	54	-5.12	-	-	167	261	H
4	* 2.48353	41.44	RMS	32.9	-24.7	0	49.64	54	-4.36	-	-	167	261	H

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

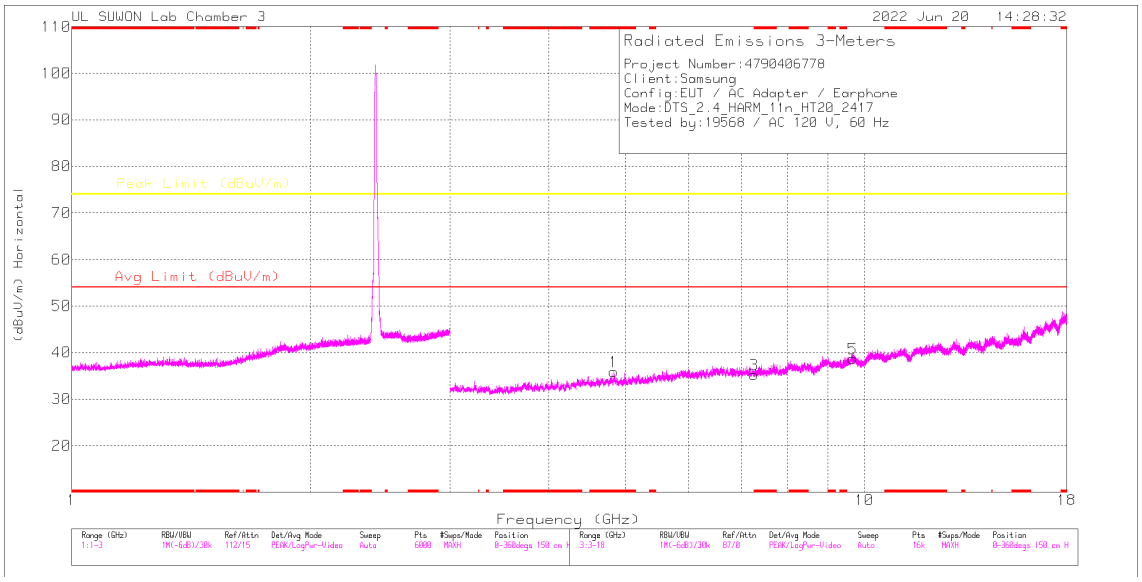
BANDEDGE TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	51.49	Pk	32.80	-24.80	0.00	59.49	-	-	74.00	-14.51	165	400	H
		* 2.38994	52.73	Pk	32.80	-24.80	0.00	60.73	-	-	74.00	-13.27	165	400	H
		* 2.39	40.51	RMS	32.80	-24.80	0.00	48.51	54.00	-5.49	-	-	165	400	H
		* 2.38986	40.50	RMS	32.80	-24.80	0.00	48.50	54.00	-5.50	-	-	165	400	H
		* 2.39	48.86	Pk	32.80	-24.80	0.00	56.86	-	-	74.00	-17.14	208	352	V
		* 2.38985	50.83	Pk	32.80	-24.80	0.00	58.83	-	-	74.00	-15.17	208	352	V
		* 2.39	37.83	RMS	32.80	-24.80	0.00	45.83	54.00	-8.17	-	-	208	352	V
		* 2.38998	37.75	RMS	32.80	-24.80	0.00	45.75	54.00	-8.25	-	-	208	352	V
2417	ANT1	* 2.39	47.29	Pk	32.80	-24.80	0.00	55.29	-	-	74.00	-18.71	166	242	H
		* 2.38942	48.76	Pk	32.80	-24.80	0.00	56.76	-	-	74.00	-17.24	166	242	H
		* 2.39	36.66	RMS	32.80	-24.80	0.00	44.66	54.00	-9.34	-	-	166	242	H
		* 2.38992	37.90	RMS	32.80	-24.80	0.00	45.90	54.00	-8.10	-	-	166	242	H
		* 2.39	44.88	Pk	32.80	-24.80	0.00	52.88	-	-	74.00	-21.12	228	308	V
		* 2.38896	47.14	Pk	32.80	-24.80	0.00	55.14	-	-	74.00	-18.86	228	308	V
		* 2.39	33.99	RMS	32.80	-24.80	0.00	41.99	54.00	-12.01	-	-	228	308	V
		* 2.38947	35.01	RMS	32.80	-24.80	0.00	43.01	54.00	-10.99	-	-	228	308	V
2457	ANT1	* 2.4835	46.32	Pk	32.90	-24.70	0.00	54.52	-	-	74.00	-19.48	168	263	H
		* 2.48363	47.84	Pk	32.90	-24.70	0.00	56.04	-	-	74.00	-17.96	168	263	H
		* 2.4835	35.37	RMS	32.90	-24.70	0.00	43.57	54.00	-10.43	-	-	168	263	H
		* 2.48384	36.12	RMS	32.90	-24.70	0.00	44.32	54.00	-9.68	-	-	168	263	H
		* 2.4835	42.56	Pk	32.90	-24.70	0.00	50.76	-	-	74.00	-23.24	221	378	V
		2.560	45.21	Pk	32.90	-24.70	0.00	53.41	-	-	74.00	-20.59	221	378	V
		* 2.4835	33.10	RMS	32.90	-24.70	0.00	41.30	54.00	-12.70	-	-	221	378	V
		* 2.48367	33.94	RMS	32.90	-24.70	0.00	42.14	54.00	-11.86	-	-	221	378	V
2462	ANT1	* 2.4835	53.96	Pk	32.90	-24.70	0.00	62.16	-	-	74.00	-11.84	167	372	H
		* 2.48351	54.04	Pk	32.90	-24.70	0.00	62.24	-	-	74.00	-11.76	167	372	H
		* 2.4835	40.43	RMS	32.90	-24.70	0.00	48.63	54.00	-5.37	-	-	167	372	H
		* 2.48355	40.74	RMS	32.90	-24.70	0.00	48.94	54.00	-5.06	-	-	167	372	H
		* 2.4835	48.09	Pk	32.90	-24.70	0.00	56.29	-	-	74.00	-17.71	215	369	V
		* 2.48359	50.70	Pk	32.90	-24.70	0.00	58.90	-	-	74.00	-15.10	215	369	V
		* 2.4835	37.10	RMS	32.90	-24.70	0.00	45.30	54.00	-8.70	-	-	215	369	V
		* 2.48369	37.63	RMS	32.90	-24.70	0.00	45.83	54.00	-8.17	-	-	215	369	V
2467	ANT1	* 2.4835	41.97	Pk	32.90	-24.70	0.00	50.17	-	-	74.00	-23.83	167	325	H
		2.520	44.58	Pk	32.90	-24.70	0.00	52.78	-	-	74.00	-21.22	167	325	H
		* 2.4835	33.12	RMS	32.90	-24.70	0.00	41.32	54.00	-12.68	-	-	167	325	H
		* 2.48507	33.43	RMS	32.90	-24.70	0.00	41.63	54.00	-12.37	-	-	167	325	H
		* 2.4835	42.05	Pk	32.90	-24.70	0.00	50.25	-	-	74.00	-23.75	86	101	V
		* 2.48676	44.90	Pk	32.90	-24.80	0.00	53.00	-	-	74.00	-21.00	86	101	V
		* 2.4835	32.50	RMS	32.90	-24.70	0.00	40.70	54.00	-13.30	-	-	86	101	V
		2.521	33.09	RMS	32.90	-24.70	0.00	41.29	54.00	-12.71	-	-	86	101	V
2472	ANT1	* 2.4835	54.39	Pk	32.90	-24.70	0.00	62.59	-	-	74.00	**-11.41**	167	261	H
		* 2.48354	53.70	Pk	32.90	-24.70	0.00	61.90	-	-	74.00	-12.10	167	261	H
		* 2.4835	40.68	RMS	32.90	-24.70	0.00	48.88	54.00	-5.12	-	-	167	261	H
		* 2.48353	41.44	RMS	32.90	-24.70	0.00	49.64	54.00	**-4.36**	-	-	167	261	H
		* 2.4835	47.66	Pk	32.90	-24.70	0.00	55.86	-	-	74.00	-18.14	86	100	V
		* 2.48355	47.60	Pk	32.90	-24.70	0.00	55.80	-	-	74.00	-18.20	86	100	V
		* 2.4835	35.46	RMS	32.90	-24.70	0.00	43.66	54.00	-10.34	-	-	86	100	V
		* 2.48351	36.55	RMS	32.90	-24.70	0.00	44.75	54.00	-9.25	-	-	86	100	V

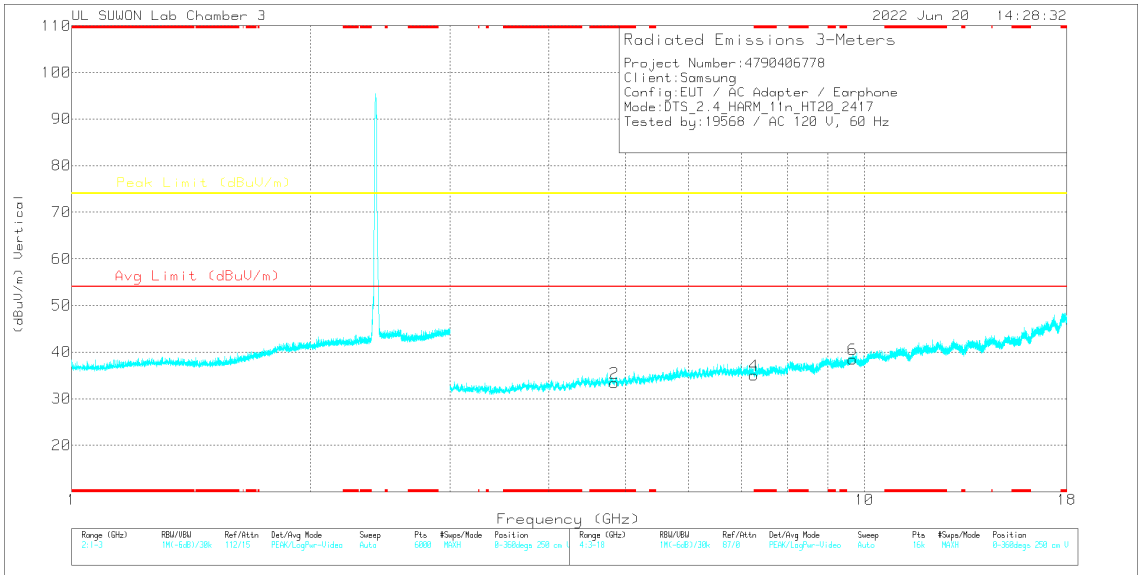
Note1. Pk - Peak detector, RMS - RMS detectior
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS (ANT1 WORST CASE: 2 CHANNEL)

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_00218957	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
* 4.83416	42.01	PK2	34.6	-30.2	0	46.41	-	-	74	-27.59	0	100	H
* 7.55159	35.02	PK2	36.1	-25.3	0	45.82	-	-	74	-28.18	0	100	H
9.67353	32.6	PK2	37.4	-21.4	0	48.6	-	-	74	-25.4	0	100	H
* 4.83475	39.11	PK2	34.6	-30.2	0	43.51	-	-	74	-30.49	0	100	V
* 7.48859	35.22	PK2	36.1	-25.1	0	46.22	-	-	74	-27.78	0	100	V
9.66778	32.73	PK2	37.4	-21.4	0	48.73	-	-	74	-25.27	0	100	V

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

HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2417	ANT1	* 4.83416	42.01	PK2	34.60	-30.20	0.00	46.41	-	-	74.00	-27.59	0	100	H
		* 7.55159	35.02	PK2	36.10	-25.30	0.00	45.82	-	-	74.00	-28.18	0	100	H
		9.674	32.60	PK2	37.40	-21.40	0.00	48.60	-	-	74.00	-25.40	0	100	H
		* 4.83475	39.11	PK2	34.60	-30.20	0.00	43.51	-	-	74.00	-30.49	0	100	V
		* 7.48859	35.22	PK2	36.10	-25.10	0.00	46.22	-	-	74.00	-27.78	0	100	V
		9.668	32.73	PK2	37.40	-21.40	0.00	48.73	-	-	74.00	**-25.27**	0	100	V
2437	ANT1	* 4.8745	41.17	PK2	34.60	-30.60	0.00	45.17	-	-	74.00	-28.83	360	100	H
		* 7.30497	34.99	PK2	36.00	-25.30	0.00	45.69	-	-	74.00	-28.31	360	100	H
		9.757	32.11	PK2	37.50	-21.30	0.00	48.31	-	-	74.00	-25.69	360	100	H
		* 4.87131	40.24	PK2	34.60	-30.60	0.00	44.24	-	-	74.00	-29.76	360	100	V
		* 7.30528	35.85	PK2	36.00	-25.30	0.00	46.55	-	-	74.00	-27.45	360	100	V
		9.748	32.15	PK2	37.50	-21.40	0.00	48.25	-	-	74.00	-25.75	360	100	V
2457	ANT1	* 4.91729	42.65	PK2	34.70	-30.80	0.00	46.55	-	-	74.00	-27.45	360	100	H
		* 7.3695	34.46	PK2	36.00	-24.70	0.00	45.76	-	-	74.00	-28.24	360	100	H
		9.832	31.50	PK2	37.70	-21.50	0.00	47.70	-	-	74.00	-26.30	360	100	H
		* 4.91247	40.22	PK2	34.70	-30.70	0.00	44.22	-	-	74.00	-29.78	360	100	V
		* 7.36703	34.54	PK2	36.00	-24.70	0.00	45.84	-	-	74.00	-28.16	360	100	V
		9.828	32.03	PK2	37.70	-21.50	0.00	48.23	-	-	74.00	-25.77	360	100	V

Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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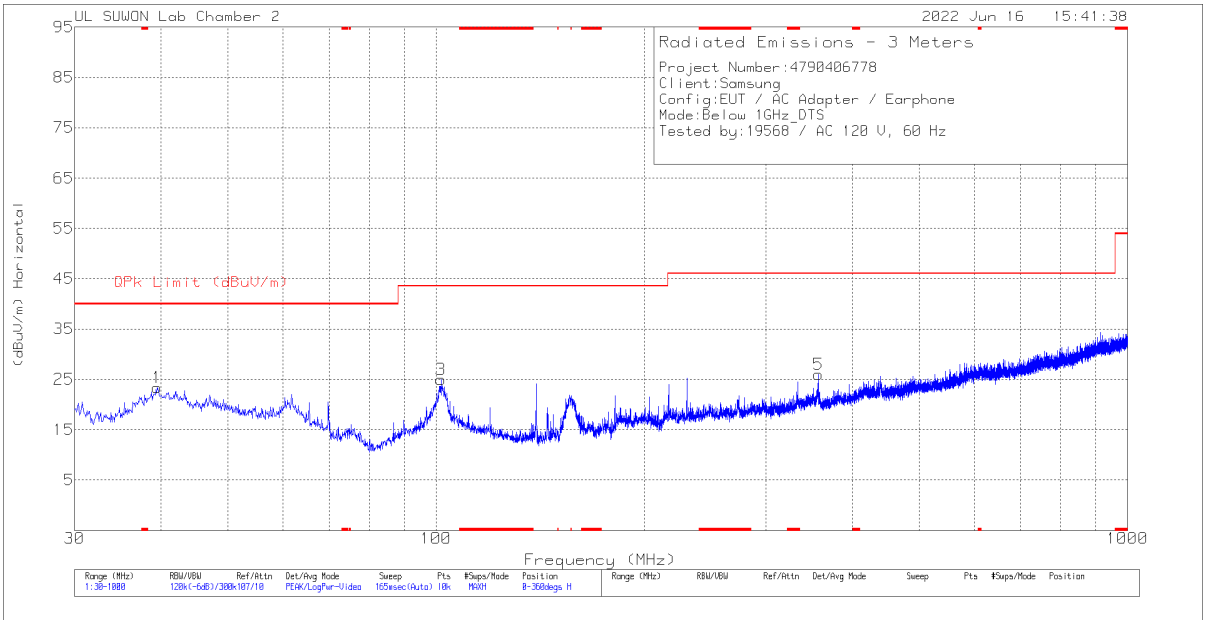
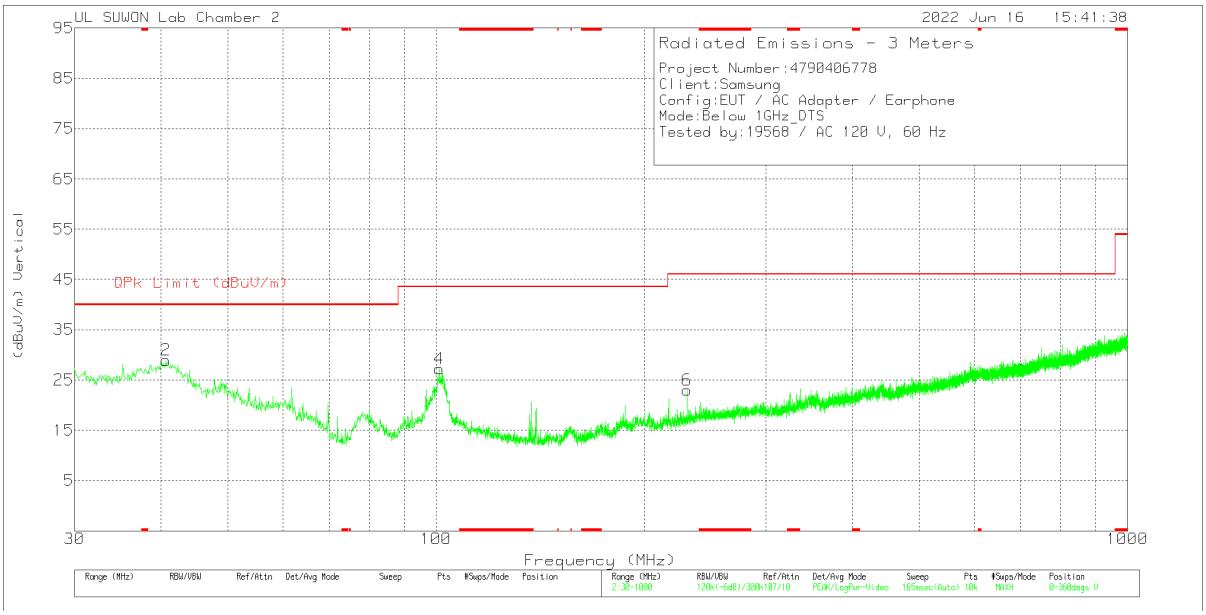
10.2. WORST CASE BELOW 1 GHz



HORIZONTAL



VERTICAL

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	39.506	36.16	Pk	18.5	-31.3	0	23.36	40	-16.64	0-360	200	H
3	101.586	38.06	Pk	17.5	-30.6	0	24.96	43.52	-18.56	0-360	200	H
5	357.084	34.18	Pk	20.6	-28.8	0	25.98	46.02	-20.04	0-360	100	H
2	40.67	41.52	Pk	18.8	-31.4	0	28.92	40	-11.08	0-360	100	V
4	101.004	40.27	Pk	17.5	-30.5	0	27.27	43.52	-16.25	0-360	100	V
6	230.499	34.87	Pk	17.6	-29.5	0	22.97	46.02	-23.05	0-360	100	V

Pk - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

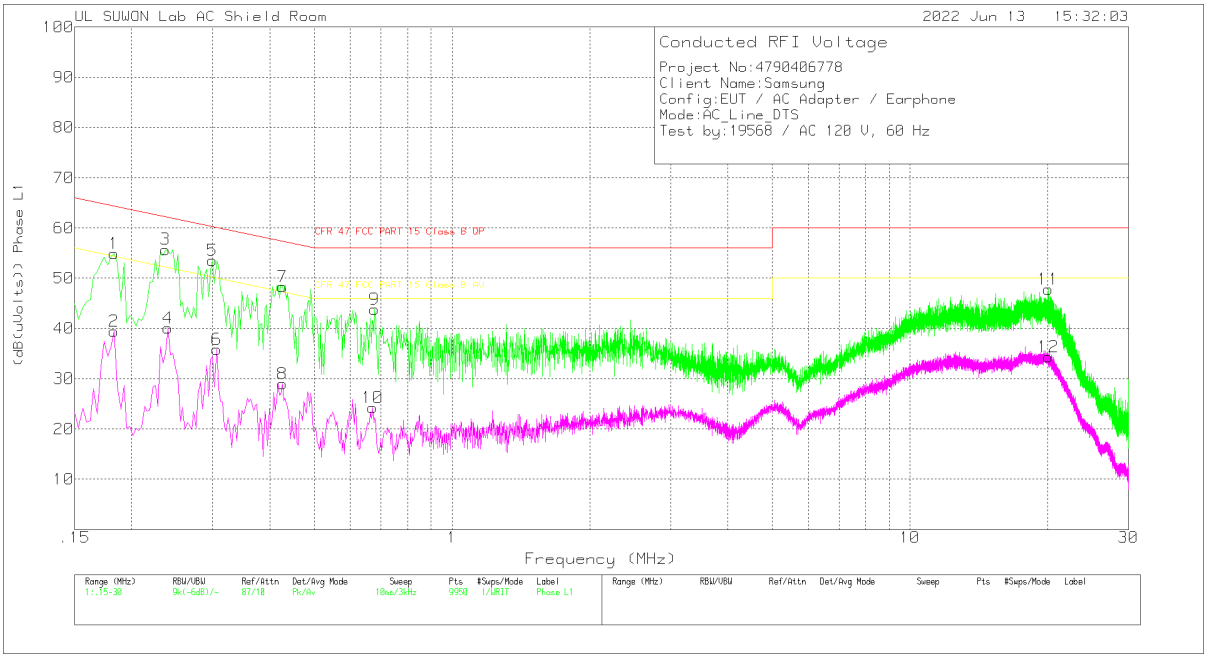
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1. AC Power Line

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	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	.183	44.82	Pk	9.9	.2	54.92	64.35	-9.43	-	-
2	.183	29.35	Av	9.9	.2	39.45	-	-	54.35	-14.9
3	.237	45.83	Pk	9.7	.2	55.73	62.2	-6.47	-	-
4	.24	30.15	Av	9.7	.2	40.05	-	-	52.1	-12.05
5	.3	43.63	Pk	9.7	.2	53.53	60.24	-6.71	-	-
6	.306	25.93	Av	9.7	.2	35.83	-	-	50.08	-14.25
7	.426	38.33	Pk	9.8	.2	48.33	57.33	-9	-	-
8	.426	18.95	Av	9.8	.2	28.95	-	-	47.33	-18.38
9	.678	33.83	Pk	9.8	.2	43.83	56	-12.17	-	-
10	.672	14.28	Av	9.8	.2	24.28	-	-	46	-21.72
11	20.046	37.24	Pk	10.2	.4	47.84	60	-12.16	-	-
12	20.046	23.71	Av	10.2	.4	34.31	-	-	50	-15.69

Pk - Peak detector
Av - Average detection

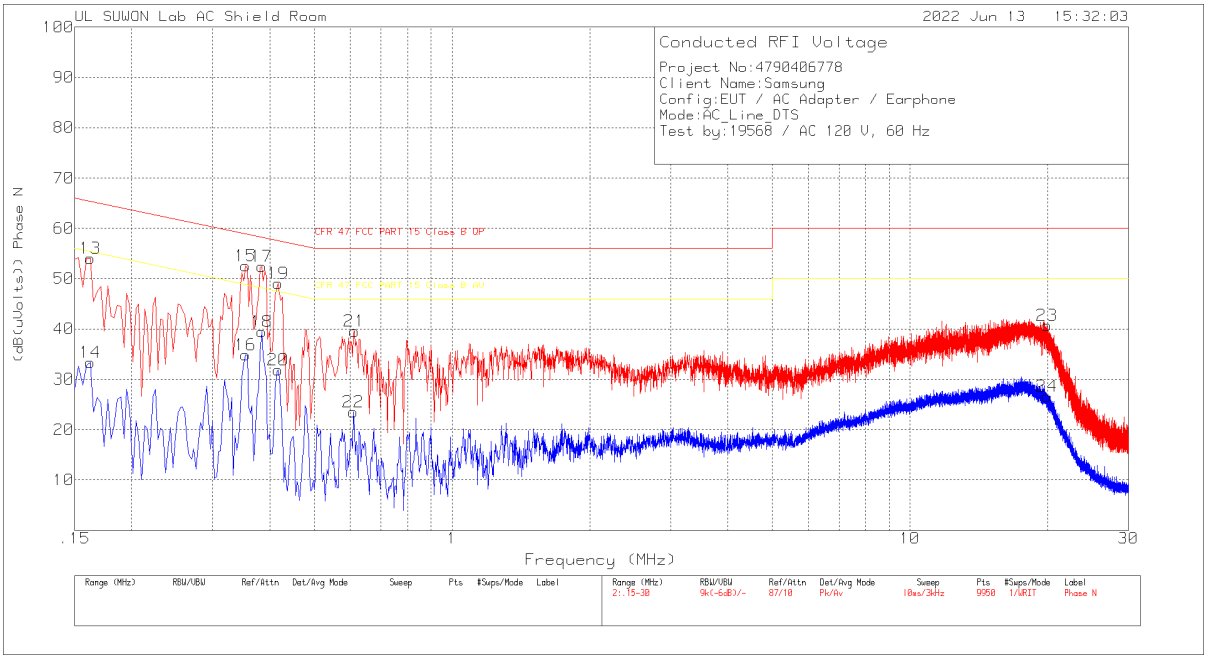
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	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)
.18225	35.64	Qp	9.9	.2	45.74	64.38	-18.64	-	-
.23715	28.96	Qp	9.7	.2	38.86	62.2	-23.34	-	-
.29925	27.9	Qp	9.7	.2	37.8	60.26	-22.46	-	-
.42525	27	Qp	9.8	.2	37	57.34	-20.34	-	-

Qp - Quasi-Peak detector

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	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	.162	44.04	Pk	9.9	.1	54.04	65.36	-11.32	-	-
14	.162	23.4	Av	9.9	.1	33.4	-	-	55.36	-21.96
15	.354	42.6	Pk	9.8	.2	52.6	58.87	-6.27	-	-
16	.354	24.89	Av	9.8	.2	34.89	-	-	48.87	-13.98
17	.384	42.38	Pk	9.8	.2	52.38	58.19	-5.81	-	-
18	.384	29.52	Av	9.8	.2	39.52	-	-	48.19	-8.67
19	.417	39.06	Pk	9.8	.2	49.06	57.51	-8.45	-	-
20	.417	21.84	Av	9.8	.2	31.84	-	-	47.51	-15.67
21	.612	29.53	Pk	9.8	.2	39.53	56	-16.47	-	-
22	.609	13.47	Av	9.8	.2	23.47	-	-	46	-22.53
23	19.932	30.06	Pk	10.2	.4	40.66	60	-19.34	-	-
24	19.947	16.04	Av	10.2	.4	26.64	-	-	50	-23.36

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

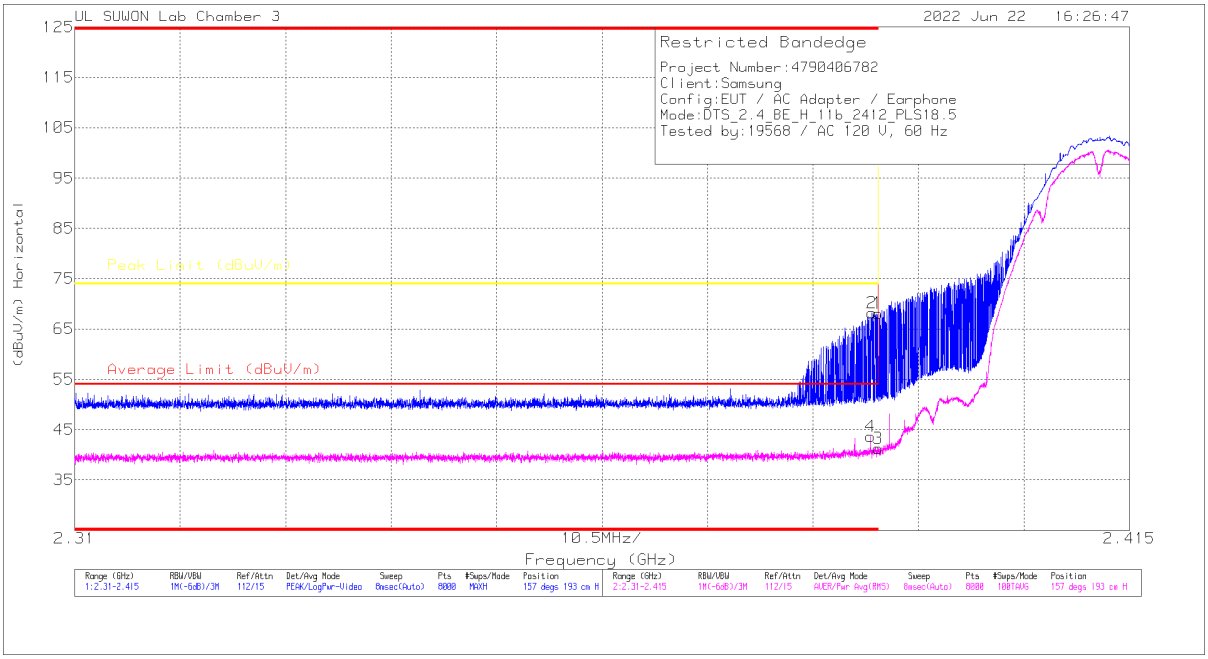
Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.35325	40.48	Qp	9.8	.2	50.48	58.89	-8.41	-	-
.38415	41.05	Qp	9.8	.2	51.05	58.19	-7.14	-	-
.41625	37.39	Qp	9.8	.2	47.39	57.52	-10.13	-	-

Qp - Quasi-Peak detector

12. SPOT-CHECK TEST RESULT

BANDEDGE (WORST CASE: 802.11b / 2412 MHz)

HORIZONTAL PEAK AND AVERAGE DATA



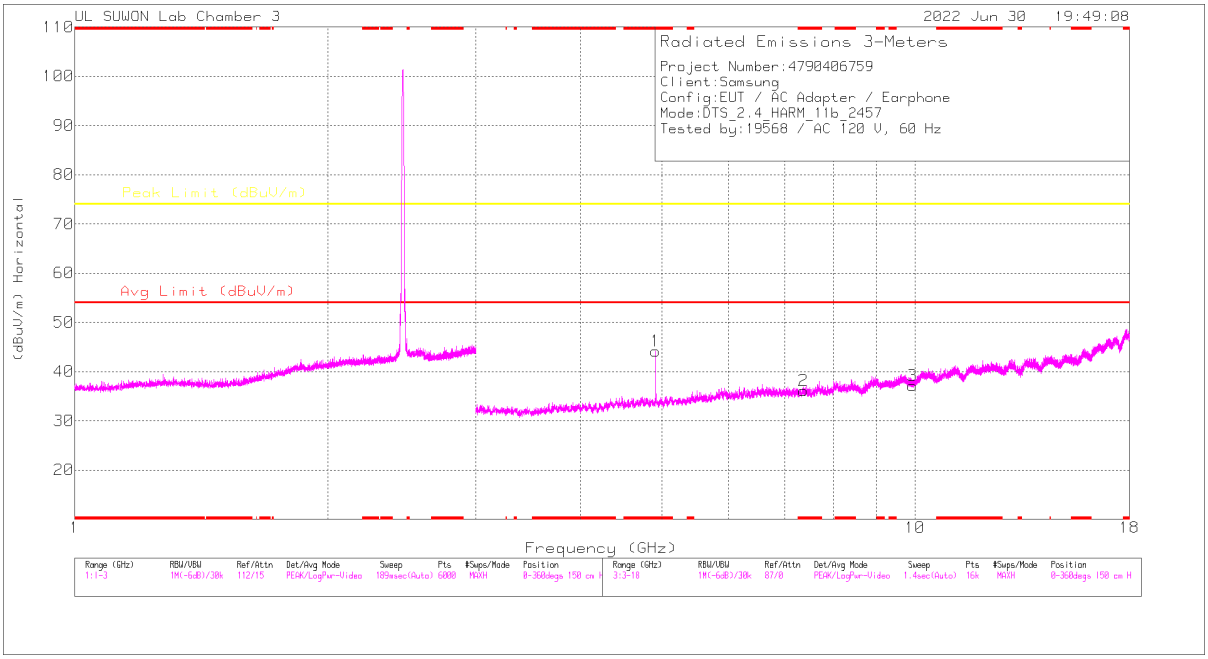
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	60.14	Pk	32.8	-24.8	0	68.14	-	-	74	-5.86	157	193	H
2	* 2.38937	60.21	Pk	32.8	-24.8	0	68.21	-	-	74	-5.79	157	193	H
3	* 2.39	33.23	RMS	32.8	-24.8	0	41.23	54	-12.77	-	-	157	193	H
4	* 2.38923	35.64	RMS	32.8	-24.8	0	43.64	54	-10.36	-	-	157	193	H

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11b / 2457 MHz)

2457 MHz HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

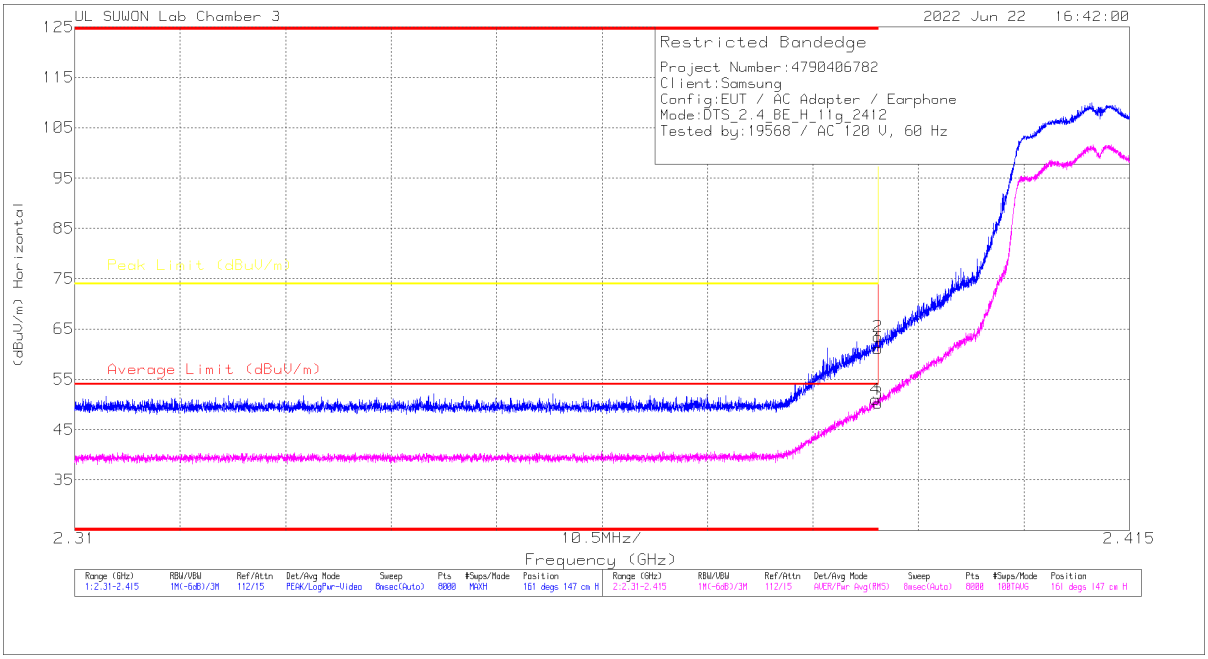
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0021895_7	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
* 4.91389	46.11	PK2	34.7	-30.8	0	50.01	-	-	74	-23.99	19	101	H
* 4.91392	41.46	MAv1	34.7	-30.8	0	45.36	54	-8.64	-	-	19	101	H
* 7.37363	35.36	PK2	36	-24.7	0	46.66	-	-	74	-27.34	0	100	H
9.9367	31.91	PK2	37.8	-21.5	0	48.21	-	-	74	-25.79	0	100	H

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

BANDEDGE (WORST CASE: 802.11g / 2412 MHz)

HORIZONTAL PEAK AND AVERAGE DATA



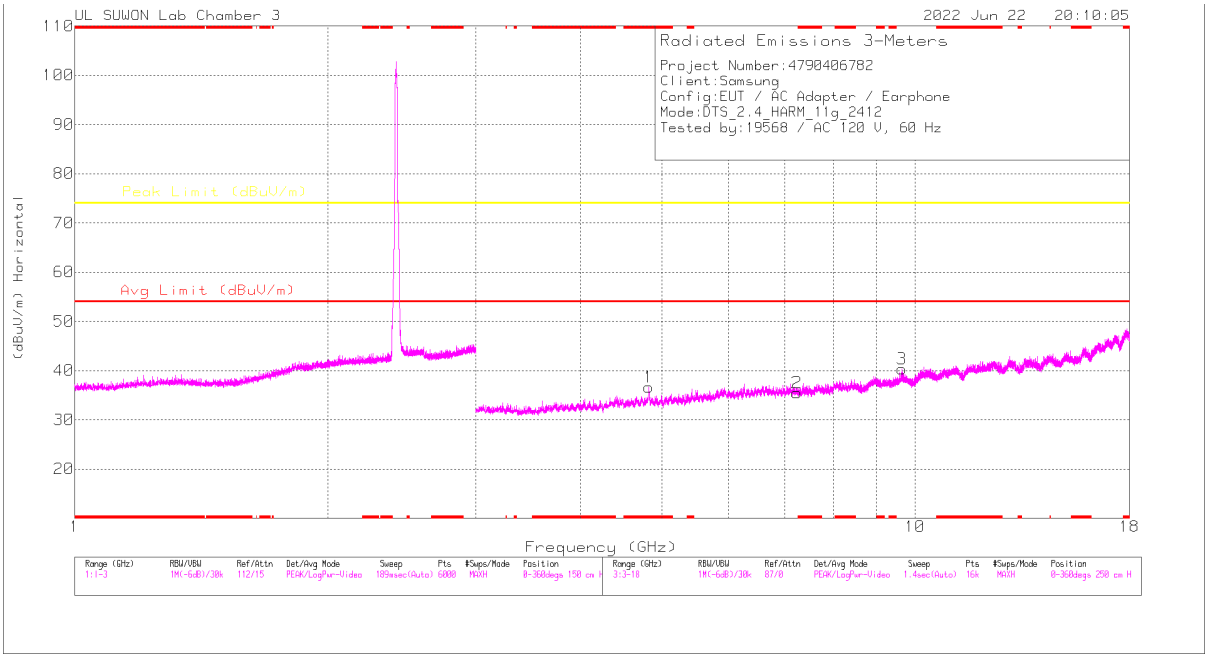
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	53.11	Pk	32.8	-24.8	0	61.11	-	-	74	-12.89	161	147	H
2	* 2.38998	55.44	Pk	32.8	-24.8	0	63.44	-	-	74	-10.56	161	147	H
3	* 2.39	42.2	RMS	32.8	-24.8	0	50.2	54	-3.8	-	-	161	147	H
4	* 2.38971	43.06	RMS	32.8	-24.8	0	51.06	54	-2.94	-	-	161	147	H

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11g / 2412 MHz)

2412 MHz HORIZONTAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

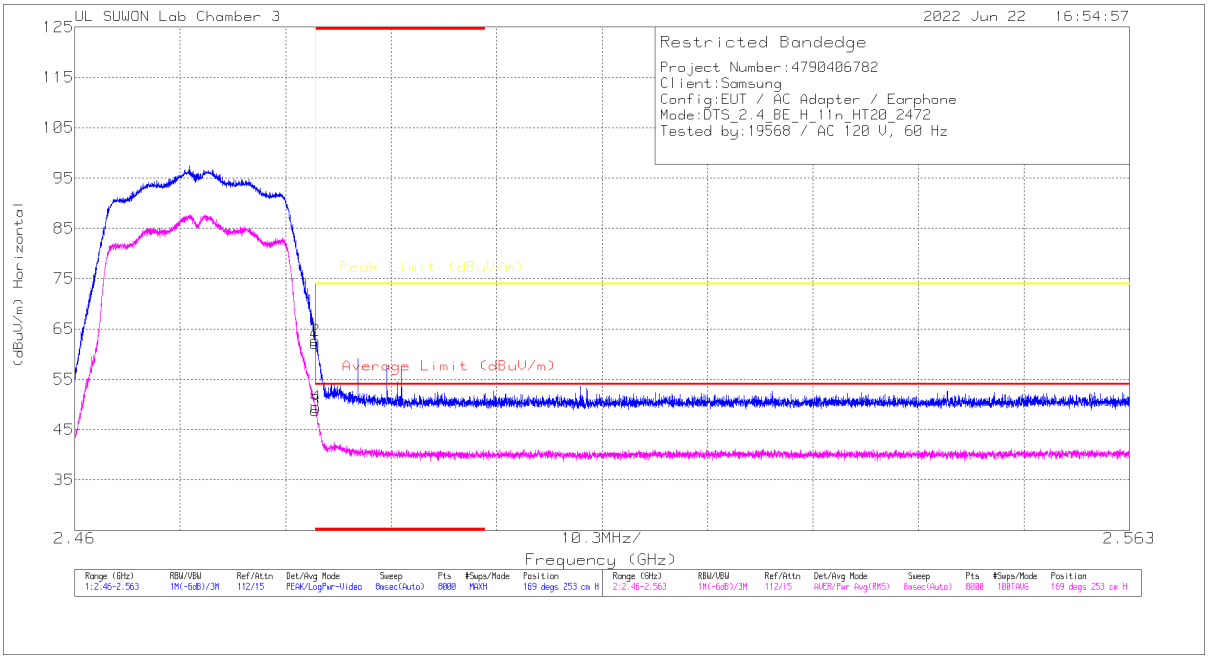
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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
7.24367	35.27	PK2	36	-25.6	0	45.67	-	-	74	-28.33	0	100	H
9.64637	33.25	PK2	37.4	-21.5	0	49.15	-	-	74	-24.85	0	100	H
* 4.82411	41.81	PK2	34.6	-30.1	0	46.31	-	-	74	-27.69	8	126	H
* 4.82426	30.73	MAv1	34.6	-30.1	0	35.23	54	-18.77	-	-	8	126	H

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

BANDEDGE (WORST CASE: 802.11n HT20 / 2472 MHz)

HORIZONTAL PEAK AND AVERAGE DATA



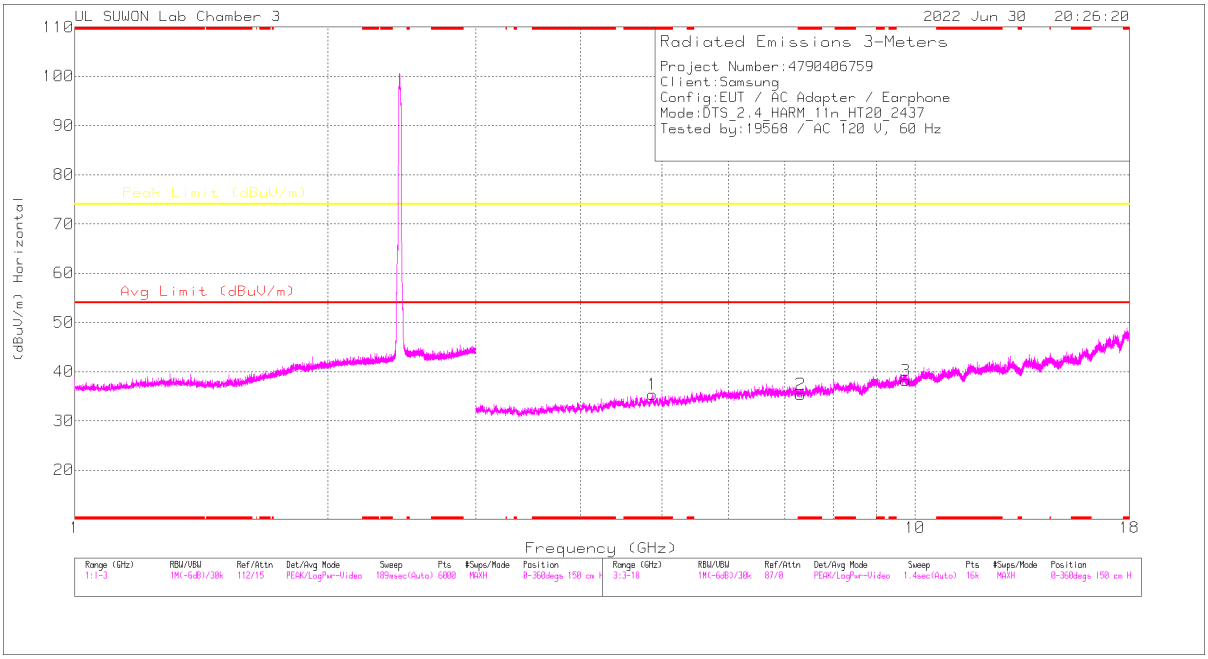
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	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	* 2.4835	53.92	Pk	32.9	-24.7	0	62.12	-	-	74	-11.88	169	253	H
2	* 2.48351	54.5	Pk	32.9	-24.7	0	62.7	-	-	74	-11.3	169	253	H
3	* 2.4835	40.54	RMS	32.9	-24.7	0	48.74	54	-5.26	-	-	169	253	H
4	* 2.48355	41.25	RMS	32.9	-24.7	0	49.45	54	-4.55	-	-	169	253	H

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 802.11n HT20 / 2437 MHz)

2437 MHz HORIZONTAL



Note: Emission was scanned up to 40GHz; 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_00218957	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
* 4.87423	41.07	PK2	34.6	-30.6	0	45.07	-	-	74	-28.93	0	100	H
* 7.31673	35.58	PK2	36	-25.2	0	46.38	-	-	74	-27.62	0	100	H
9.74483	32.12	PK2	37.5	-21.4	0	48.22	-	-	74	-25.78	0	100	H

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

END OF TEST REPORT