CERTIFICATION TEST REPORT

Report Number. : 4790841154-E5V1

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-X518U
FCC ID	:	A3LSMX518U
EUT Description	:	WCDMA/LTE 5G NR Tablet+ BT/BLE, DTS/UNII a/b/g/n/ac/ax, and Digitizer
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2023-07-19

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

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2023-07-19	Initial issue	Myeongjun Kwon

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION:	WCDMA/LTE 5G NR Tablet + BT/BLE, DTS/UNII a/b/g/n/ac/ax and Digitizer
MODEL NUMBER:	SM-X518U
SERIAL NUMBER:	R32W6007EKK, R32W6007D9W (CONDUCTED); R32W5012DQT, R32W6007DWJ (RADIATED);
DATE TESTED:	2023-06-07 ~ 2023-07-19;

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:

Seokhwan Hong
Suwon Lab Engineer
UL KOREA LTD.

Tested By:

Myeongjun Kwon
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. KDB 662911 D01 Multiple Transmitter Output v02r01
5. 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.

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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

AC Corrected Reading (dBuV) = Measured Voltage (dBuV) + Extension Cord Loss (dB) + Cable Loss (dB)
44.72 dBuV = 34.72 dBuV + 9.9 dB + 0.1 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	2.80 dB
Radiated Disturbance, 9 kHz to 30 MHz	1.69 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.92 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.06 dB
Radiated Disturbance, Above 18 GHz	6.02 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 115:2021.

5. EQUIPMENT UNDER TEST

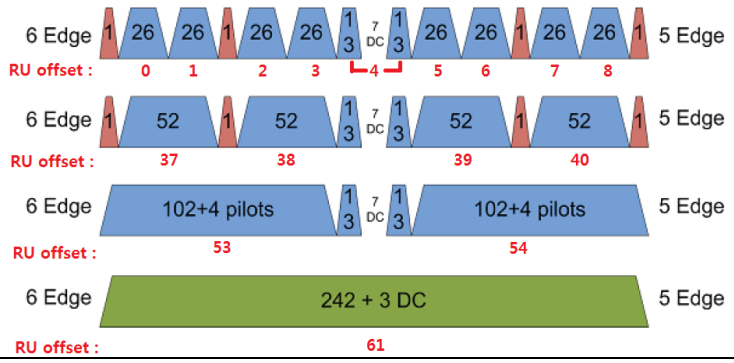
5.1. EUT DESCRIPTION

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

WiFi operating mode

Frequency rage	Mode	ANT 1	ANT 2
2.4GHz (2412 MHz ~ 2462 MHz)	802.11b MIMO	TX/RX	
	802.11g MIMO	TX/RX	
	802.11n(HT20) MIMO	TX/RX	
	802.11ax(HE20) MIMO	TX/RX	

802.11ax RU allocations



HE20

Test RU offset for tones

Mode	Tones number in RU	RU offset
HE20	26T	0
		4
		8
	52T	37
		38
		40
	106T	53
		54
	242T / SU Note 1	61 / -

Note. Full RU(Resource Unit) 242T mode and SU(Single Unit) mode have no difference in physical waveform. This report has been reported the SU mode with highest output power in MIMO.

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	ANT2	ANT1	ANT2
2412 - 2462	802.11b MIMO	22.04		159.96	
	802.11g MIMO	20.24		105.68	
	802.11n(HT20) MIMO	19.05		80.35	
	802.11ax(HE20) MIMO	17.53		56.62	

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.

Bands [MHz]	ANT 1 [dBi]	ANT 2 [dBi]	Correlated Directional Gain [dBi]
2 412 ~ 2 472	-4.80	-5.20	-1.99

Directional gain for the MIMO operations is determined using KDB 662911 D01 Multiple Transmitter Output section F (2)(d)(1) for *Unequal antenna gains, with equal transmit powers*. The gain is calculated using the formula for correlated transmissions across the two transmit antennas. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}$] dBi.

Sample calculation for this device with $N_{ANT} = 2$

Directional gain = 10 log[$(10^{0.40/20} + 10^{0.30/20})^2 / 2$] = 3.36 dBi

“Wifi1” and “Wifi2” as indicated in antenna specification are written as ANT1 and ANT2 in this report.

5.4. TESTED CHANNELS LIST

Ch.	Frequency [MHz]	11b		11g		11n(HT20)		11ax(HE20)	
		SISO	MIMO	SISO	MIMO	SISO	MIMO	SISO	MIMO
1	2 412		O		O		O		O
6	2 437		O		O		O		O
11	2 462		O		O		O		O

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: Y

Based on the baseline scan, the worst-case data rates were:
802.11b mode: 1 Mbps 2TX
802.11g mode: 6 Mbps 2TX
802.11n HT20 mode: MCS0 2TX
802.11ax HE20 mode: MCS0 2TX

Worst-case selection criteria for 802.11ax test items:
For the 6dB Bandwidth, it was tested at the RU allocation with lowest tones number for each bandwidth.

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

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Test case configuration for 802.11b, g, n HT20, ax HE20(SU) modes:

SISO ANT1 Target[dBm]						MIMO Target[dBm]					
Ch.	Freq.	802.11b	802.11g	802.11n HT20	802.11ax HE20	Ch.	Freq.	802.11b	802.11g	802.11n HT20	802.11ax HE20
1	2412	19	17	16	15	1	2412	22	20	19	18
6	2437	19	17	16	14	6	2437	22	20	19	17
11	2462	19	17	16	15	11	2462	22	20	19	18

Radiated Spurious Emission, Conducted Spurious Emission, PSD

Note1. In 802.11ax (RU mode), conducted & radiated spurious test was performed on the lower tone(26T) with high density.

Test case configuration for 802.11ax HE20(RU) modes :

MIMO Worst RU offset[dBm]					
Mode	Ch.	Freq.	Tone	RU offset	Test Case
802.11ax RU mode	1	2412	26 T	0	-
				4	**O**
				8	-
	6	2437		0	-
				4	**O**
				8	-
	11	2462		0	-
				4	**O**
				8	-

Note1. In 802.11ax HE20(RU) mode, the test case according to RU offset was selected from the offset with worst average power.
Note2. Radiated Band-Edge: investigated additional test with other lower RU tones. SU Mode (Worst case) is reported.

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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	R37M9KN2LV2DK3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A	N/A

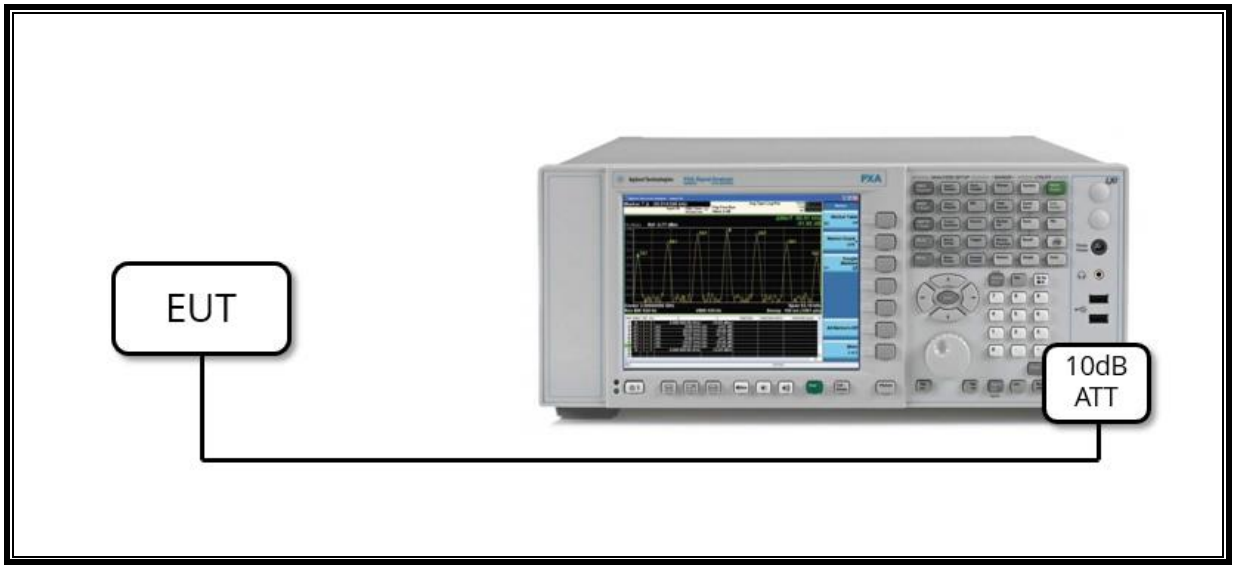
I/O CABLE

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

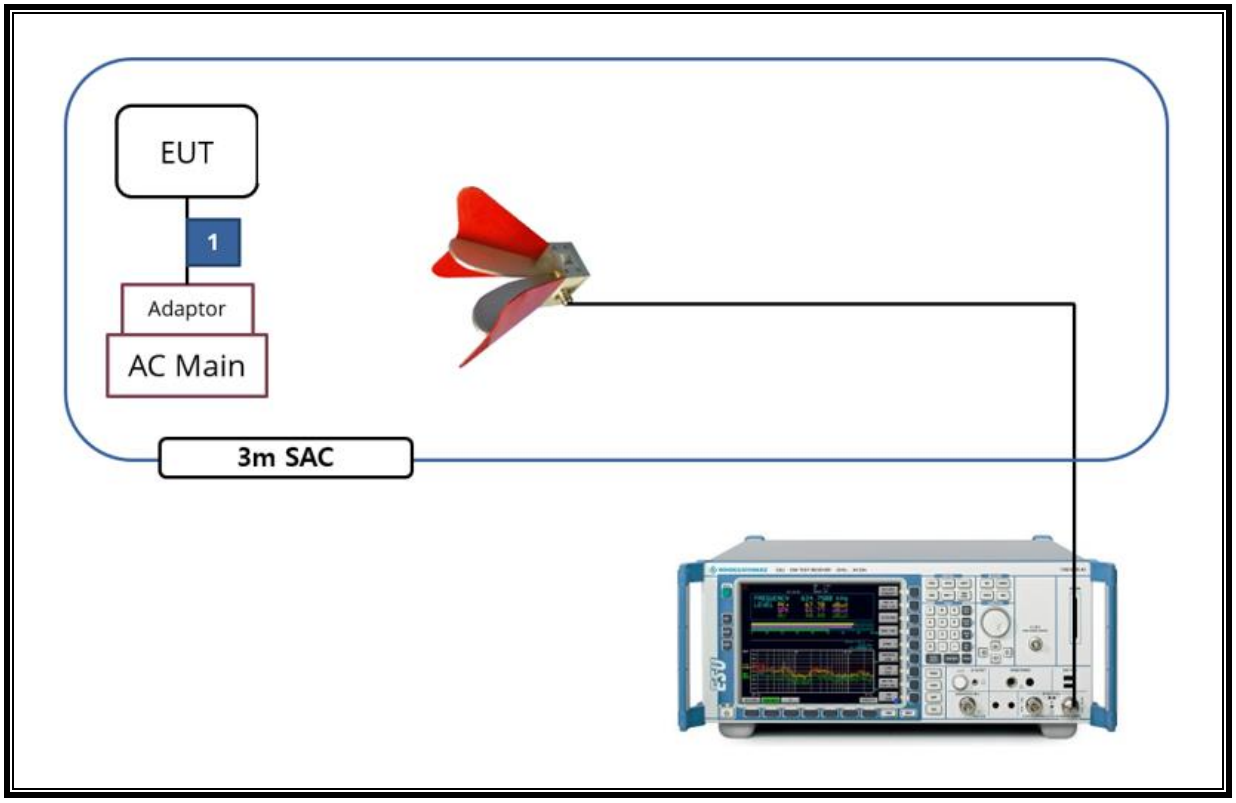
TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable DTS mode.

SETUP DIAGRAM FOR TESTS (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	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2024-08-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	2024-08-04
Antenna, Horn, 18 GHz	ETS	3115	00161451	2024-08-21
Antenna, Horn, 18 GHz	ETS	3117	00168724	2024-08-04
Antenna, Horn, 18 GHz	ETS	3117	00168717	2024-08-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2024-08-02
Preamplifier	ETS	3115-PA	00167475	2023-08-04
Preamplifier	ETS	3116C-PA	00168841	2023-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2023-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2023-08-01
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2023-08-01
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2023-08-03
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2023-08-01
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2024-01-09
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2024-01-09
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2023-08-03
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2023-08-03
Attenuator	PASTERNACK	PE7087-10	A001	2023-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2023-08-03
Attenuator	PASTERNACK	PE7004-10	2	2023-08-01
Attenuator	PASTERNACK	PE7087-10	A009	2023-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2023-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2023-07-29
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2023-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	2023-08-01
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2023-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2023-08-01
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2023-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	2023-08-01
LISN	R&S	ENV-216	101837	2023-08-04
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	Complies
2.1051, 15.247(d)	Band Edge / Conducted Spurious Emission	-30 dBc		Complies
15.247 (b)(3)	TX conducted output power	< 30 dBm		Complies
15.247(e)	PSD	< 8 dBm/3kHz		Complies
15.207(a)	AC Power Line conducted emissions	Section 11	Power Line conducted	Complies
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	Complies

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 MIMO	8.607	8.702	0.989	98.908	-	0.12
802.11g MIMO	3.126	3.227	0.969	96.870	0.14	0.32
802.11n(HT20) MIMO	6.226	6.326	0.984	98.419	-	0.16
802.11ax(HE20) MIMO SU	2.543	2.651	0.959	95.926	0.18	0.39
802.11ax(HE20) MIMO 26T	5.116	5.219	0.980	98.026	-	0.20
802.11ax(HE20) MIMO 52T	5.528	5.663	0.976	97.616	0.10	0.18
802.11ax(HE20) MIMO 106T	5.540	5.676	0.976	97.604	0.11	0.18

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.

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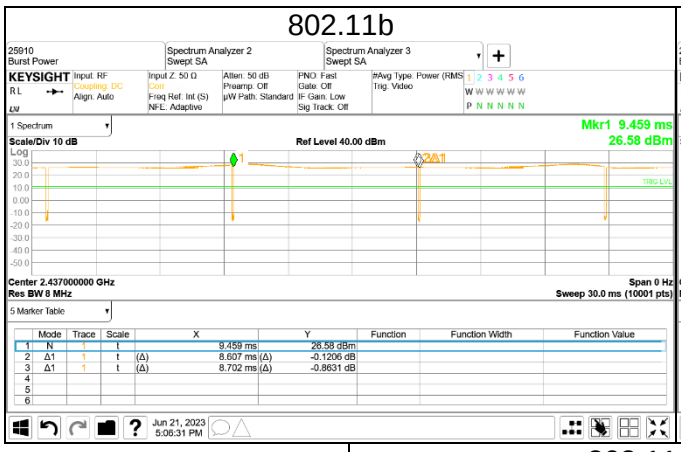
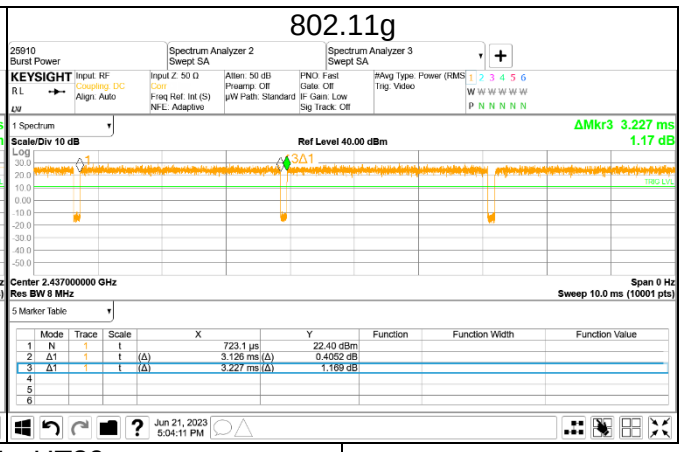
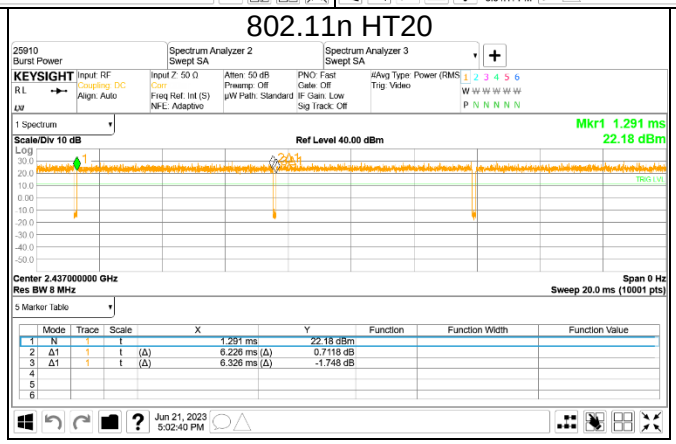
802.11b



802.11g



802.11n HT20



802.11ax(HE20) MIMO SU

802.11ax(HE20) MIMO 26T

802.11ax(HE20) MIMO 52T

802.11ax(HE20) MIMO 106T

9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)
The minimum 6 dB bandwidth shall be at least 500 kHz.

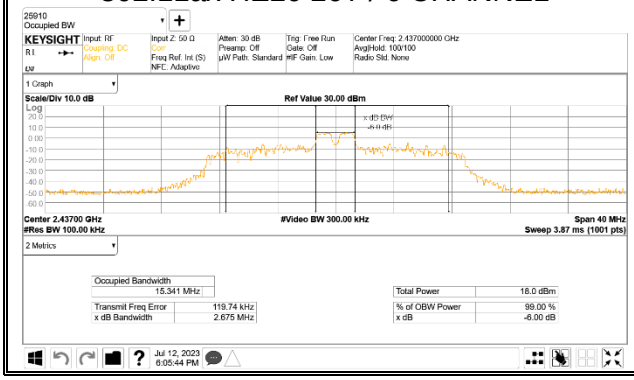
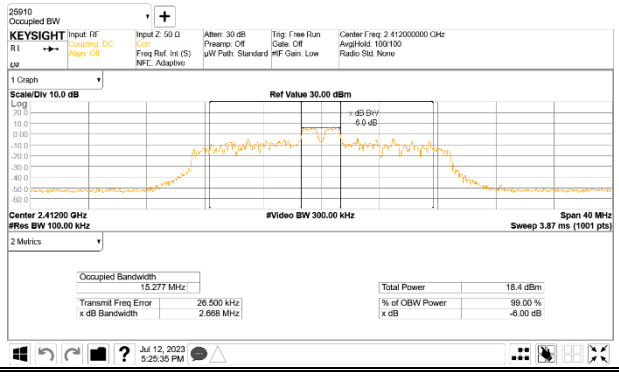
TEST PROCEDURE

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

WORST CASE TEST PLOTS

ANT1	ANT2
802.11ax HE20 26T / 6 CHANNEL	802.11ax HE20 26T / 1 CHANNEL
	

9.2.1. 802.11b SISO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		ANT 1	ANT 2	
1	2 412	**8.543**	8.559	0.5
6	2 437	9.039	8.550	
11	2 462	8.557	9.033	
Worst		**8.543**		

9.2.2. 802.11g MIMO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		ANT 1	ANT 2	
1	2 412	15.310	15.300	0.5
6	2 437	**14.470**	15.290	
11	2 462	15.310	15.300	
Worst		**14.470**		

9.2.3. 802.11n HT20 MIMO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		ANT 1	ANT 2	
1	2 412	15.090	15.670	0.5
6	2 437	15.080	**15.070**	
11	2 462	15.100	15.700	
Worst		**15.070**		

9.2.4. 802.11ax HE20(26T) MIMO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]		Minimum Limit [MHz]
		ANT 1	ANT 2	
1	2 412	2.686	**2.668**	0.5
6	2 437	2.675	2.673	
11	2 462	2.694	2.674	
Worst		**2.668**		

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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.

DIRECTIONAL ANTENNA GAIN

The TX chains are correlated and the antenna gain is unequal among the chains.
The directional gain is:

Bands [MHz]	ANT 1 [dBi]	ANT 2 [dBi]	Correlated Directional Gain [dBi]
2 412 - 2 462	-4.80	-5.20	-1.99

Note. Since the correlated directional gain does not exceed 6dBi, it is not mentioned further below.

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9.3.1. TEST RESULTS

- 802.11b,g,n,ax(SU) mode

Mode	Channel	Frequency [MHz]	SISO Average Power [dBm]		MIMO Average Power [dBm]			Power Limit [dBm]
			ANT1	ANT2	ANT1	ANT2	Total Corr'd Power [dBm]	
802.11b	1	2 412	19.14		19.28	18.76	22.04	30.00
	6	2 437	18.86		19.09	18.50	21.82	
	11	2 462	19.07		19.30	18.54	21.95	
Worst Case			19.14				**22.04**	
802.11g	1	2 412	16.94		17.27	16.89	20.09	
	6	2 437	17.10		17.44	17.01	20.24	
	11	2 462	17.28		17.40	16.79	20.12	
Worst Case			17.28				**20.24**	
802.11n HT20	1	2 412	16.12		16.20	15.88	19.05	
	6	2 437	15.57		15.61	14.94	18.30	
	11	2 462	16.03		16.37	15.44	18.94	
Worst Case			16.12				**19.05**	
802.11ax HE20(SU)	1	2 412	14.99		15.02	13.95	17.53	
	6	2 437	14.26		14.13	13.68	16.92	
	11	2 462	15.03		14.96	13.98	17.51	
Worst Case			15.03				**17.53**	

- Calculation of Output Power result

Average Power = Meas. Power + Duty Cycle CF / Total Corr'd Power = ANT1's Avearage Power + ANT2's Average Power

- 802.11ax (RU) mode

Channel	Frequency [MHz]	Tones	RU Offset	SISO Average Power [dBm]		MIMO Average Power [dBm]			Power Limit [dBm]
				ANT1	ANT2	ANT1	ANT2	Total Corr'd Power [dBm]	
1	2 412	26T	0	4.89		5.31	3.91	7.68	30.00
			4	10.32		10.81	9.53	13.23	
			8	4.99		5.55	4.43	8.04	
		52T	37	6.82		7.26	5.83	9.61	
			38	10.09		10.62	8.99	12.89	
			40	6.85		7.38	6.15	9.82	
		106T	53	9.18		9.16	7.71	11.51	
			54	9.13		9.20	7.91	11.61	
6	2 437	26T	0	3.91		4.33	3.99	7.17	
			4	10.00		10.40	9.61	13.03	
			8	4.93		5.29	4.54	7.94	
		52T	37	6.46		6.25	5.64	8.97	
			38	10.04		9.66	8.90	12.31	
			40	7.32		6.78	6.27	9.54	
		106T	53	8.40		8.19	7.52	10.88	
			54	8.26		8.60	8.05	11.34	
11	2 462	26T	0	5.09		5.62	4.41	8.07	
			4	9.95		10.43	9.45	12.98	
			8	3.93		4.68	3.81	7.28	
		52T	37	6.99		7.60	6.17	9.95	
			38	9.97		10.52	9.47	13.04	
			40	5.85		6.62	5.72	9.20	
		106T	53	9.26		9.29	8.31	11.84	
			54	9.03		8.70	7.91	11.33	
Worst Case				**10.32**				**13.23**	

9.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

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

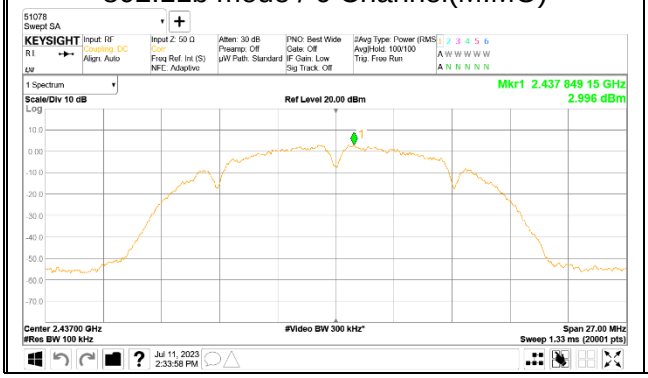
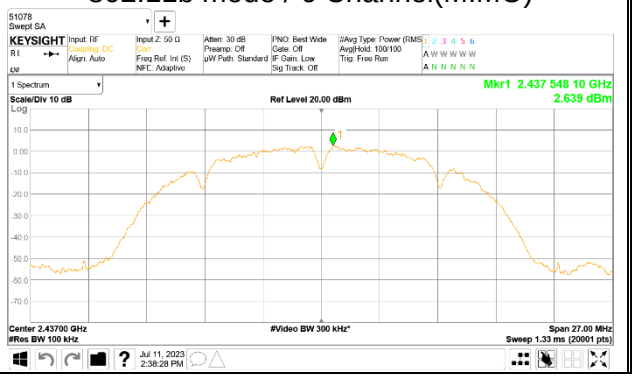
TEST PROCEDURE

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

RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT 1	ANT 2
802.11b mode / 6 Channel(MIMO)	802.11b mode / 6 Channel(MIMO)
	

9.4.1. 802.11b/g/n HT20/ax HE20 MODE TEST RESULTS

- MIMO Mode

Mode	Channel	Frequency [MHz]	Meas PSD [dBm/100kHz]		DCCF	Total Corr'd PSD [dBm/100kHz]	PSD Limit [dBm/3kHz]
			ANT1	ANT2			
802.11b	1	2 412	2.55	2.52	-	5.54	8.00 Note
	6	2 437	**3.00**	**2.64**	**-**	**5.83**	
	11	2 462	2.04	1.70	-	4.88	
	12	2 467	-1.93	-2.90	0.14	0.76	
	13	2 472	-0.77	-1.02	0.14	2.26	
802.11g	1	2 412	-1.77	-2.87	0.14	0.86	
	6	2 437	-3.09	-3.42	-	-0.24	
	11	2 462	-3.78	-3.67	-	-0.71	
	12	2 467	-3.65	-4.36	-	-0.98	
	13	2 472	-5.86	-6.46	0.18	-2.96	
802.11n HT20	1	2 412	-6.95	-7.35	0.18	-3.96	
	6	2 437	-5.67	-6.14	0.18	-2.71	
	11	2 462	2.55	2.52	-	5.54	
	12	2 467	3.00	2.64	-	5.83	
	13	2 472	2.04	1.70	-	4.88	
802.11ax HE20	1	2 412	-1.93	-2.90	0.14	0.76	
	6	2 437	-0.77	-1.02	0.14	2.26	
	11	2 462	-1.77	-2.87	0.14	0.86	
	12	2 467	-3.09	-3.42	-	-0.24	
	13	2 472	-3.78	-3.67	-	-0.71	

- MIMO Mode(802.11ax HE20)

Channel	Frequency [MHz]	Tones	RU Offset	Meas PPSD [dBm/100kHz]		DCCF	Total Corr'd PPSD [dBm/100kHz]	PSD Limit [dBm/3kHz]
				ANT1	ANT2			
1	2 412	26T	0	-6.72	-7.07	-	-3.88	8.00 Note
			4	-2.09	-2.41	-	0.76	
			8	-6.78	-7.01	-	-3.88	
6	2 437	26T	0	-8.10	-8.45	-	-5.26	
			4	-2.83	-3.12	-	0.04	
			8	-7.03	-6.58	-	-3.79	
11	2 462	26T	0	-6.21	-6.68	-	-3.43	
			4	-1.93	-2.57	-	0.78	
			8	-7.25	-7.23	-	-4.23	

Calculation of Output PSD result
- 1TX : Corr'd PSD = Meas PSD + Duty Cycle CF
- 2TX : Total PSD = ANT1 Meas PSD + ANT2 Meas PSD + Duty Cycle CF

Note. RBW 100kHz measurement data is lower than 3kHz limit.

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9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

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

RESULTS

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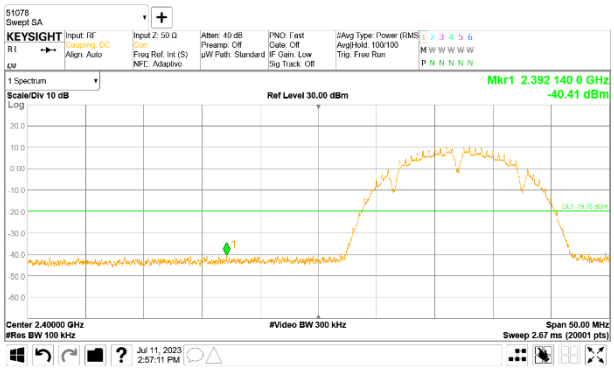
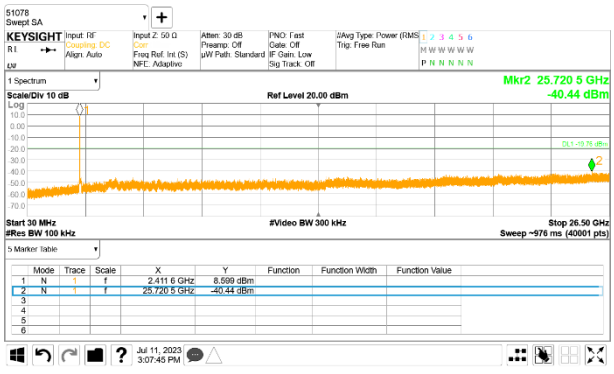
9.5.1. 802.11b MODE

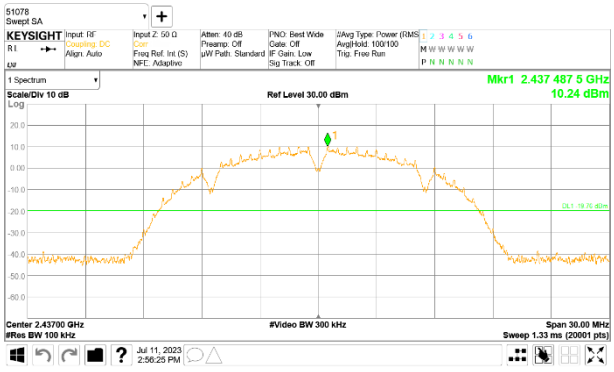
2TX Antenna 1



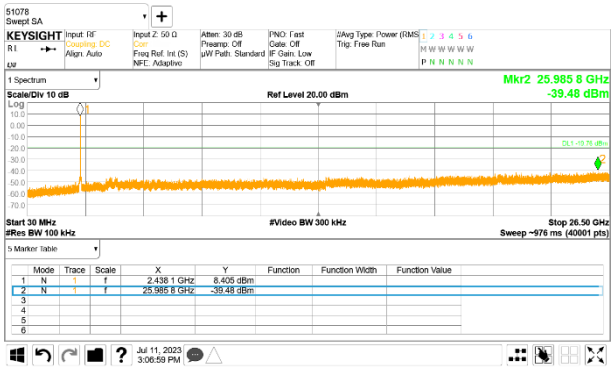
1 Channel Band-edge



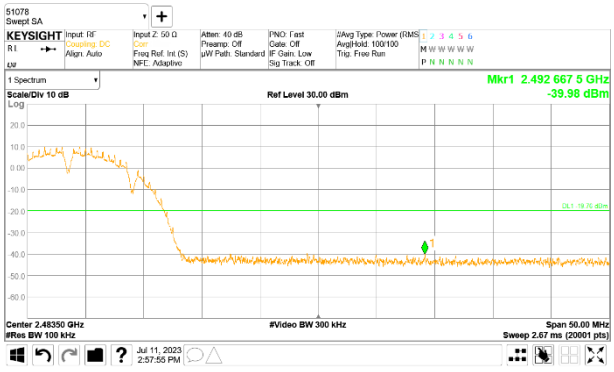
Out-Of-Band 1 Channel



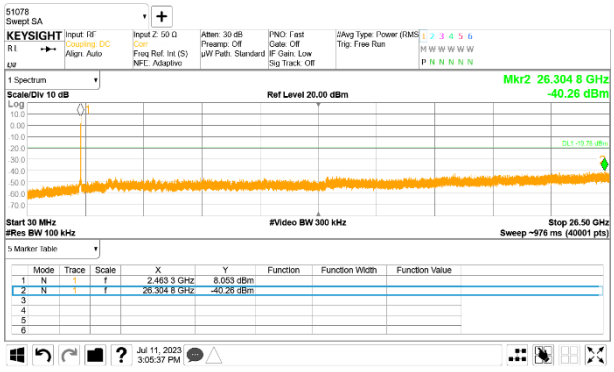
6 Channel Band-edge



Out-Of-Band 6 Channel

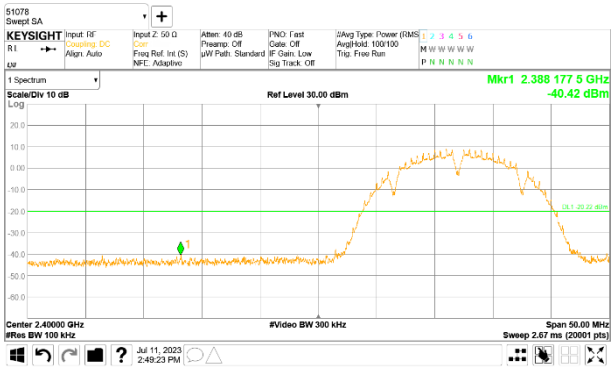


11 Channel Band-edge

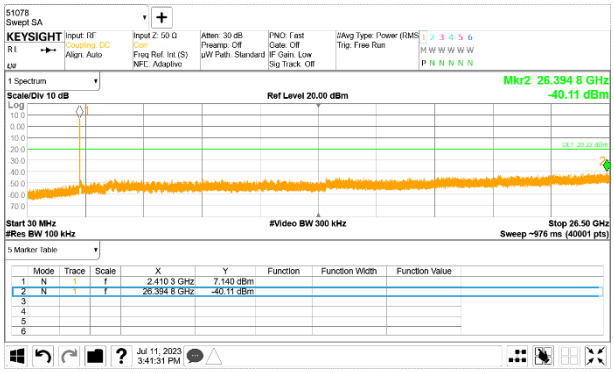


Out-Of-Band 11 Channel

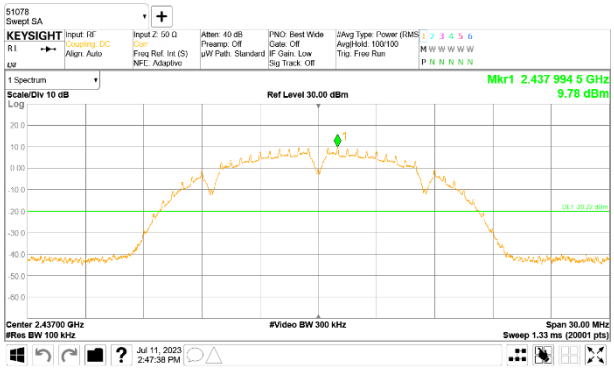
2TX Antenna 2



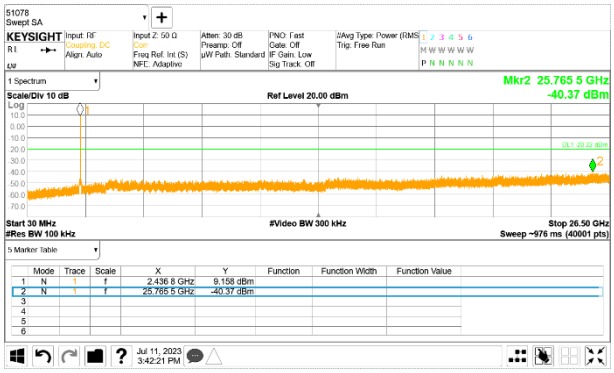
1 Channel Band-edge



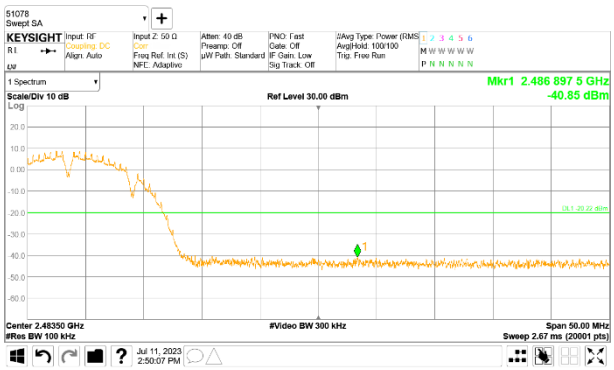
Out-Of-Band 1 Channel



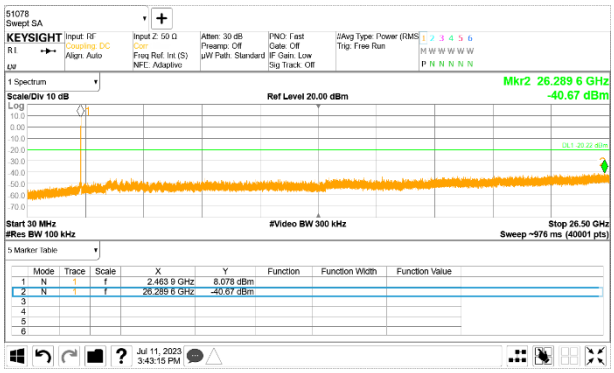
6 Channel Band-edge



Out-Of-Band 6 Channel



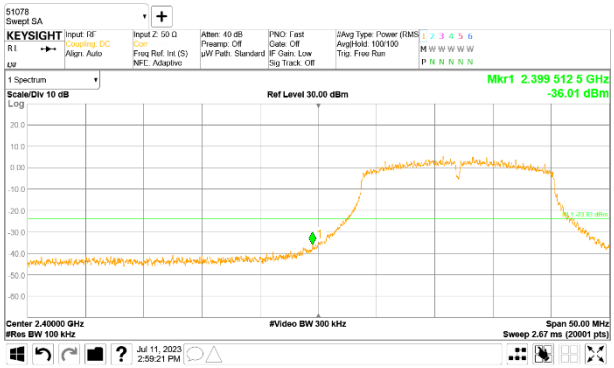
11 Channel Band-edge



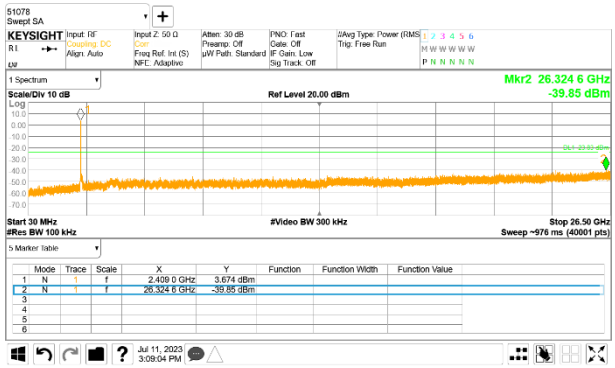
Out-Of-Band 11 Channel

9.5.2. 802.11g MODE

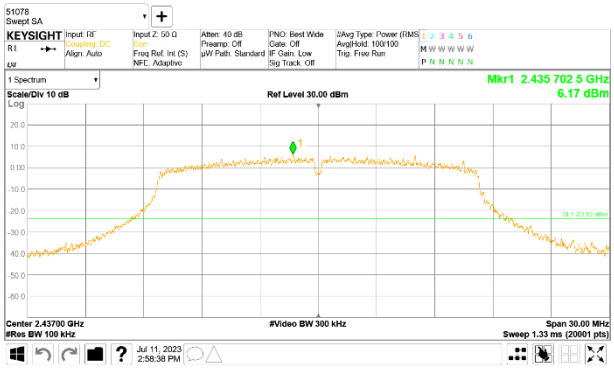
2TX Antenna 1



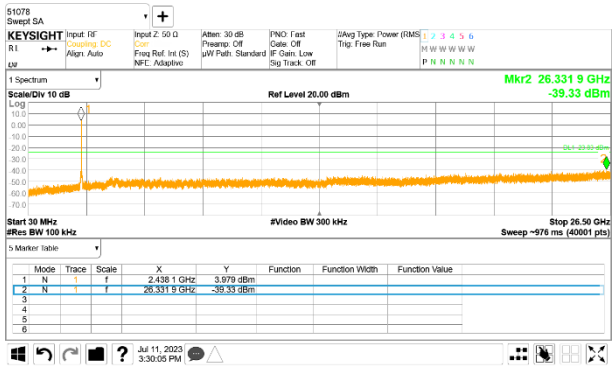
1 Channel Band-edge



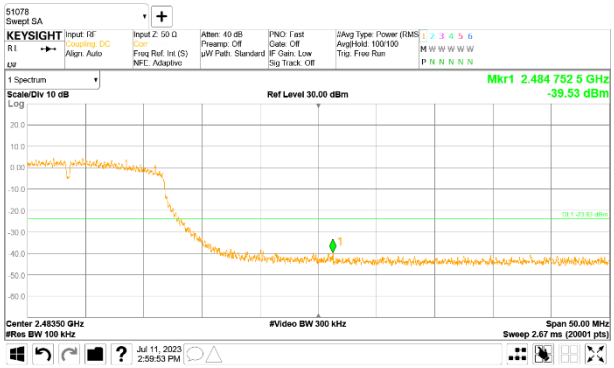
Out-Of-Band 1 Channel



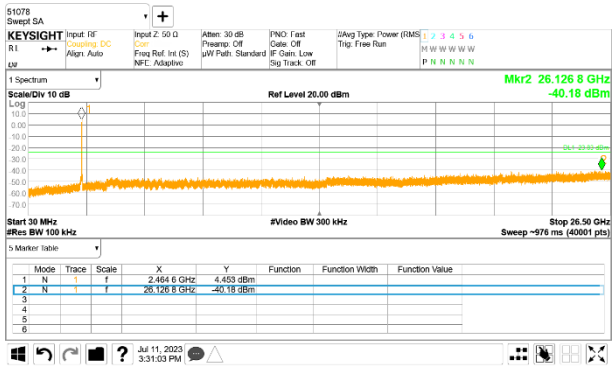
6 Channel Band-edge



Out-Of-Band 6 Channel

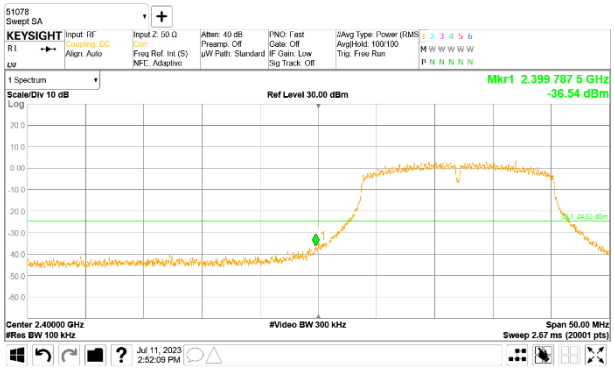


11 Channel Band-edge

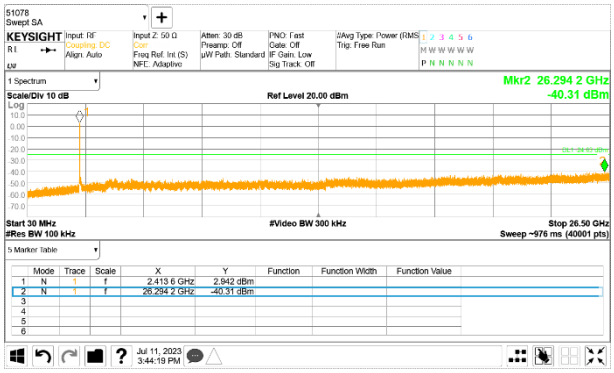


Out-Of-Band 11 Channel

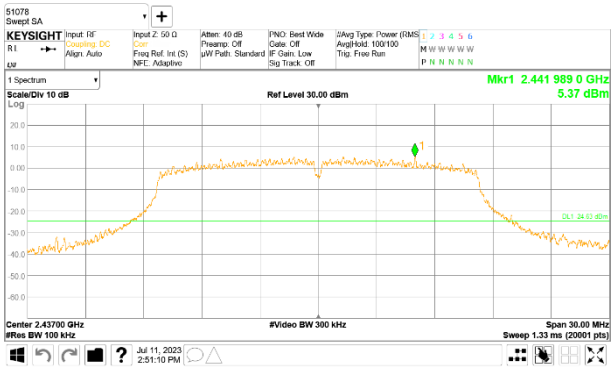
2TX Antenna 2



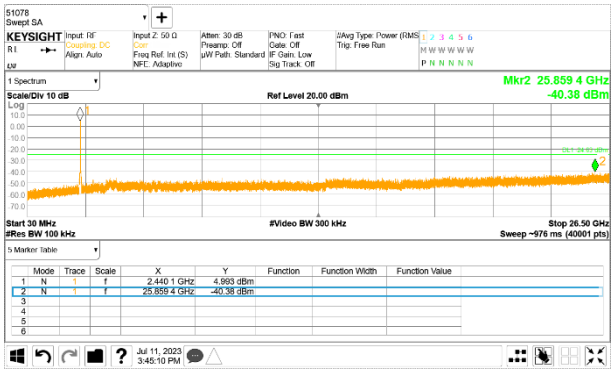
1 Channel Band-edge



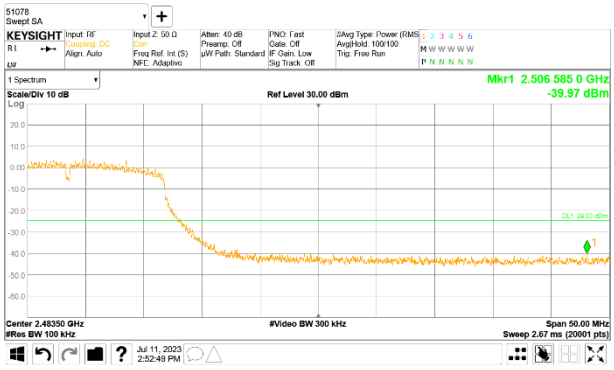
Out-Of-Band 1 Channel



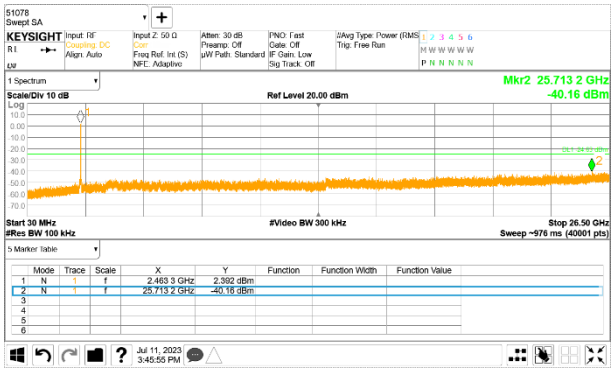
6 Channel Band-edge



Out-Of-Band 6 Channel



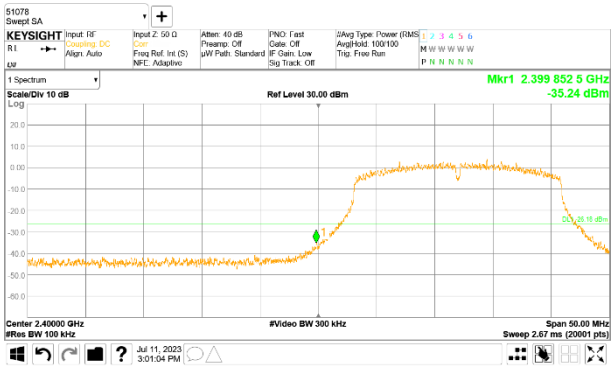
11 Channel Band-edge



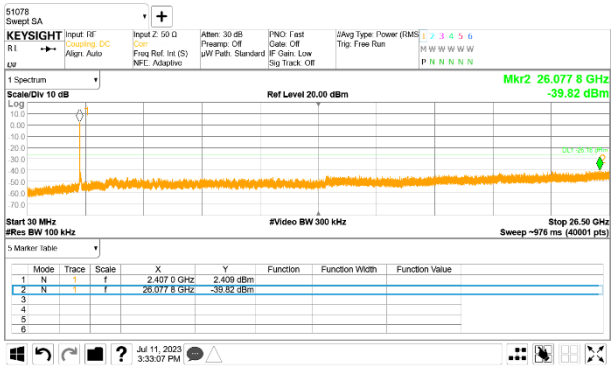
Out-Of-Band 11 Channel

9.5.3. 802.11n HT20 MODE

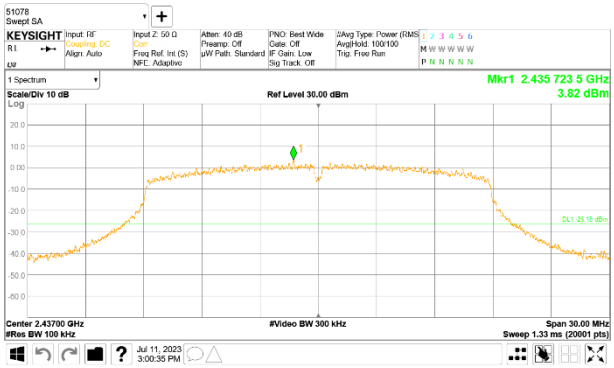
2TX Antenna 1



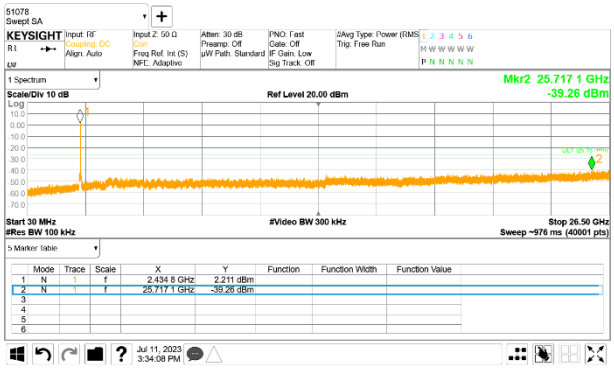
1 Channel Band-edge



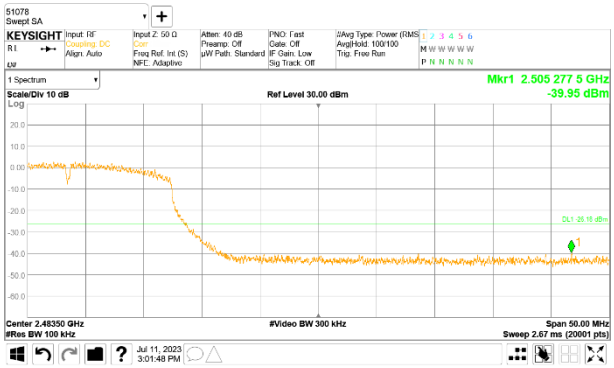
Out-Of-Band 1 Channel



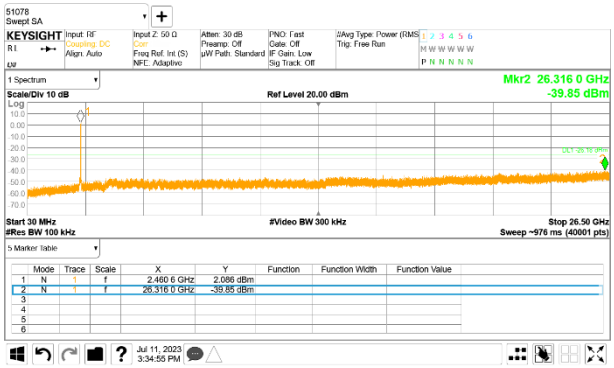
6 Channel Band-edge



Out-Of-Band 6 Channel

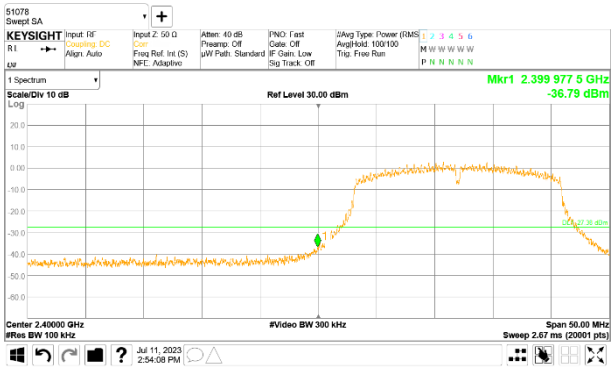


11 Channel Band-edge

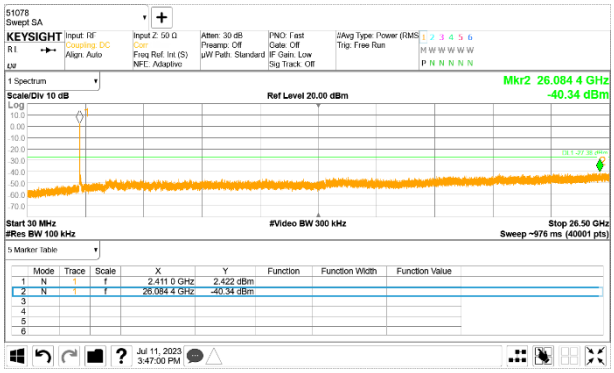


Out-Of-Band 11 Channel

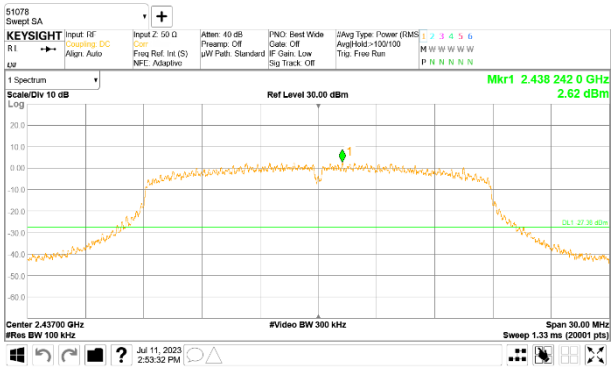
2TX Antenna 2



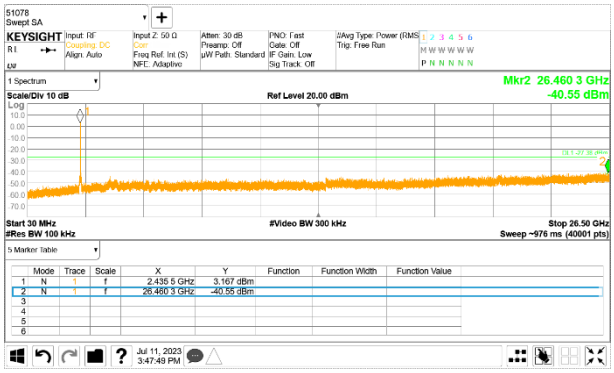
1 Channel Band-edge



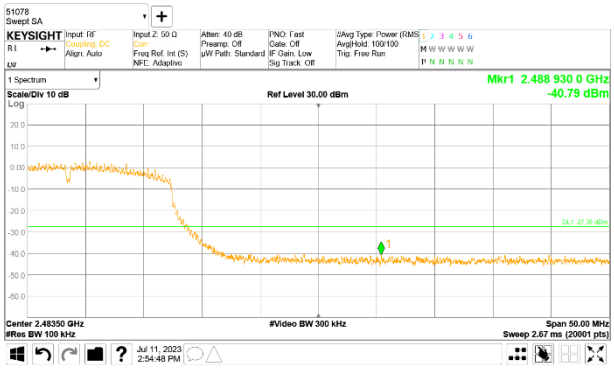
Out-Of-Band 1 Channel



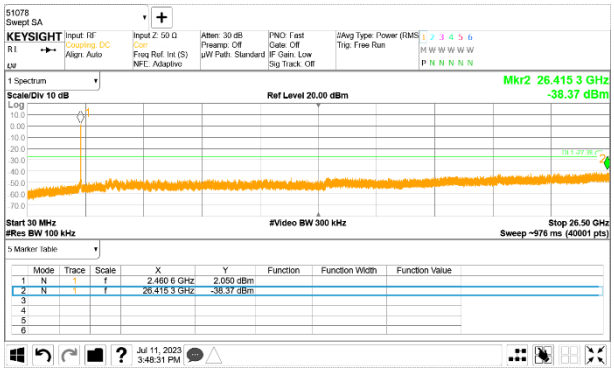
6 Channel Band-edge



Out-Of-Band 6 Channel



11 Channel Band-edge



Out-Of-Band 11 Channel

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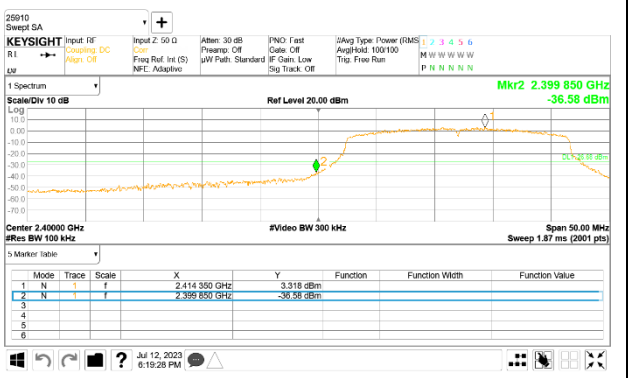
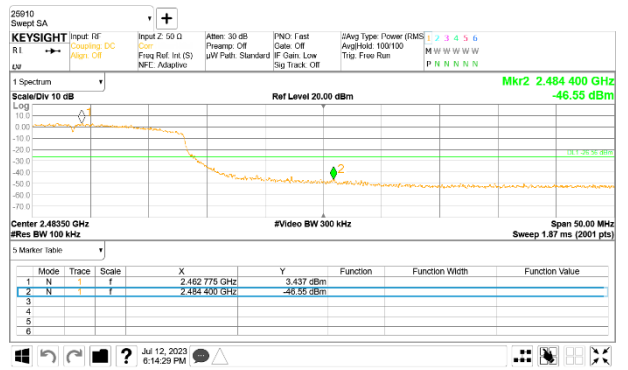
9.5.4. 802.11ax HE20(SU) MODE

2TX Antenna 1

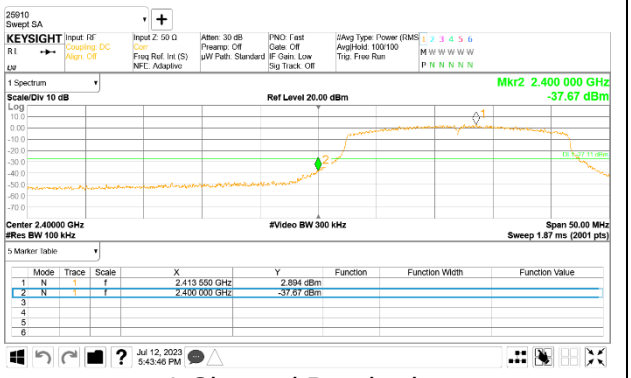


1 Channel Band-edge

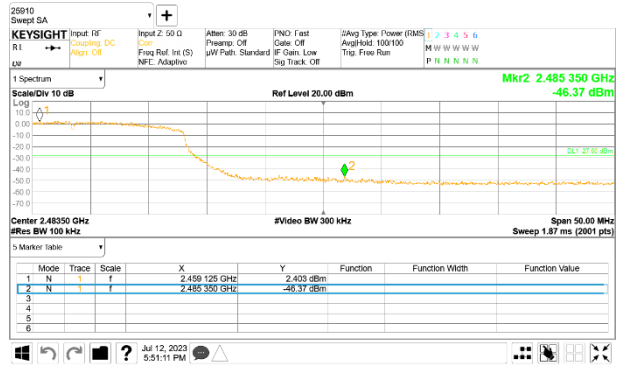


11 Channel Band-edge

2TX Antenna 2



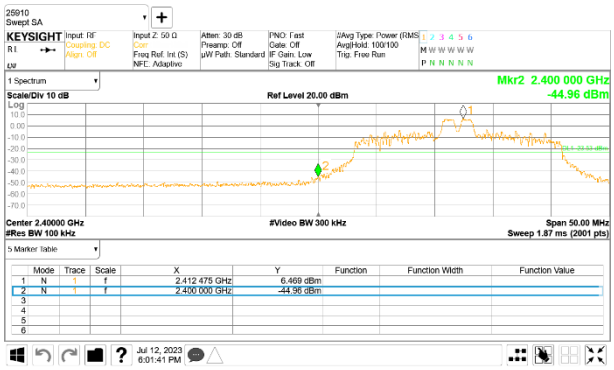
1 Channel Band-edge



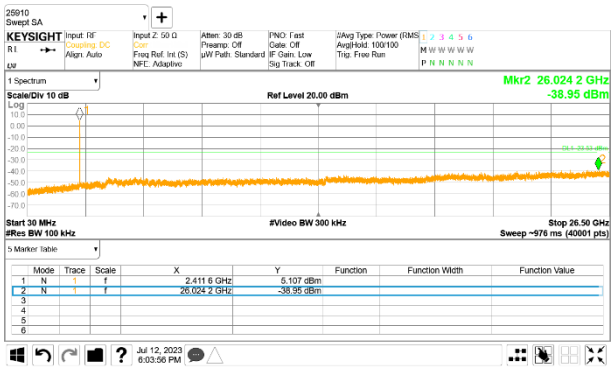
11 Channel Band-edge

9.5.5. 802.11ax HE20(RU) MODE

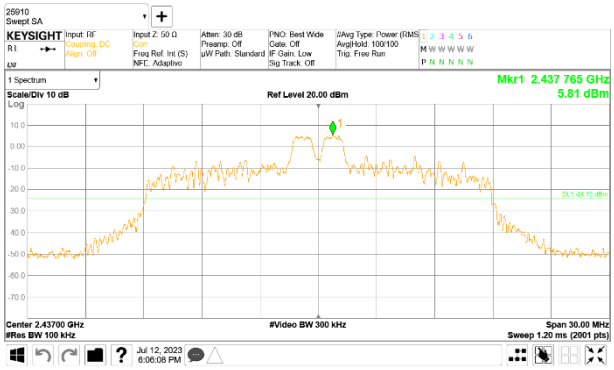
2TX Antenna 1



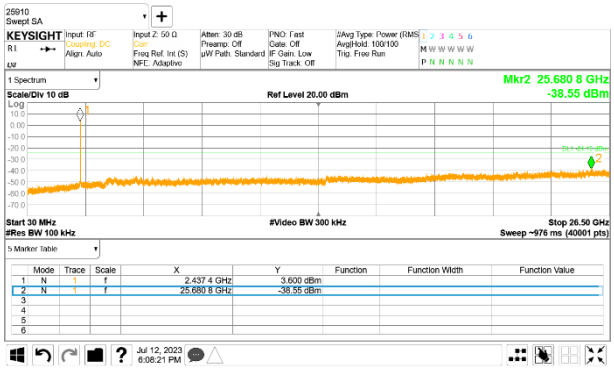
1 Channel Band-edge(4RU)



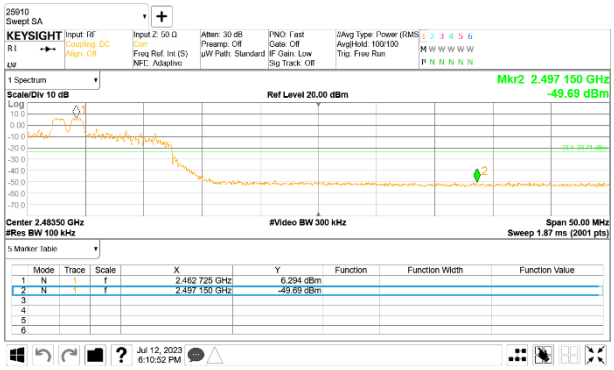
Out-Of-Band 1 Channel(4RU)



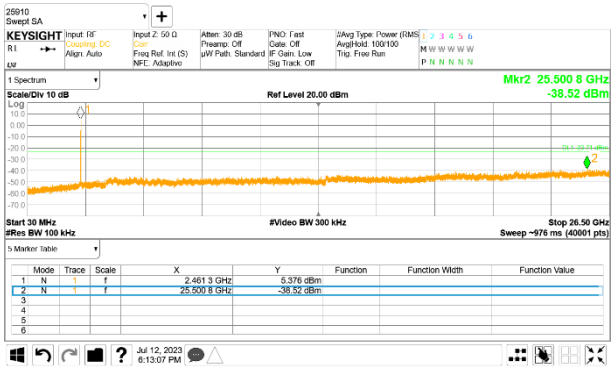
6 Channel Band-edge(4RU)



Out-Of-Band 6 Channel(4RU)

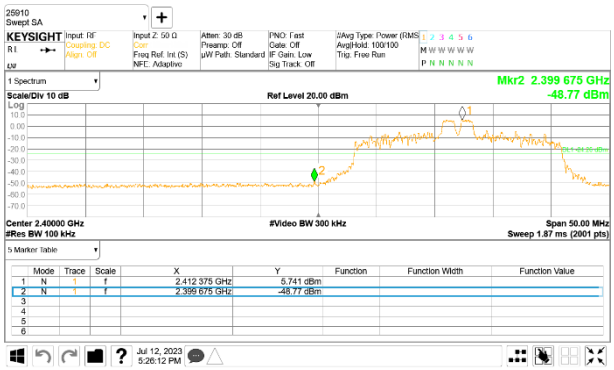


11 Channel Band-edge(4RU)

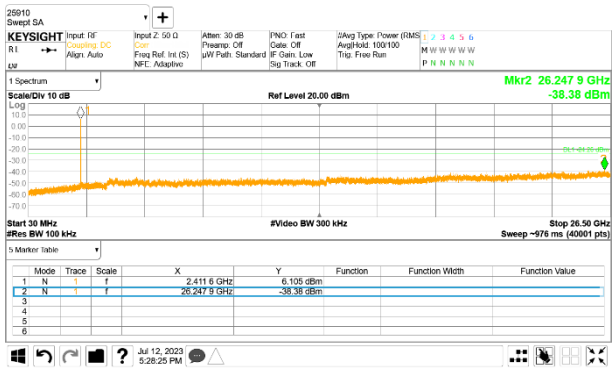


Out-Of-Band 11 Channel(4RU)

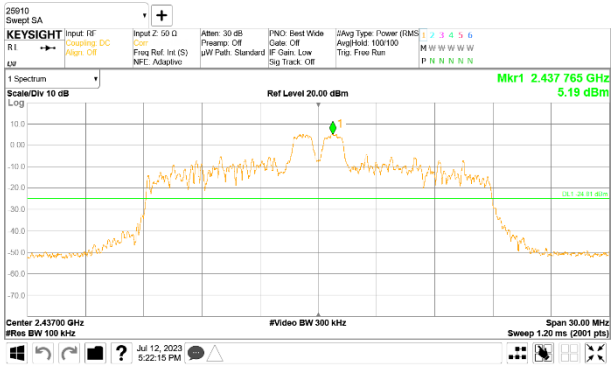
2TX Antenna 2



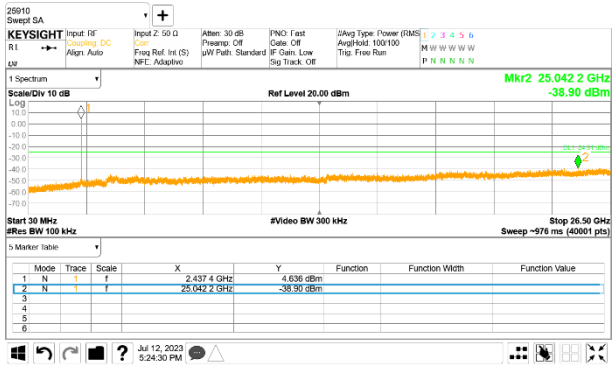
1 Channel Band-edge(4RU)



Out-Of-Band 1 Channel(4RU)

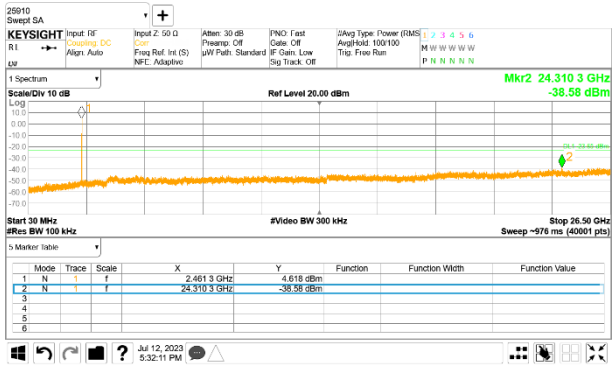


6 Channel Band-edge(4RU)



Out-Of-Band 6 Channel(4RU)

11 Channel Band-edge(4RU)



Out-Of-Band 11 Channel(4RU)

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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 MIMO mode = 0 dB (duty cycle > 98%);
802.11g MIMO mode = 0.14 dB (96.87%);
802.11n(HT20) MIMO mode = 0 dB (duty cycle > 98%);
802.11ax(HE20) MIMO SU mode = 0.18 dB (95.93%);
802.11ax(HE20) MIMO 26 Tone 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.

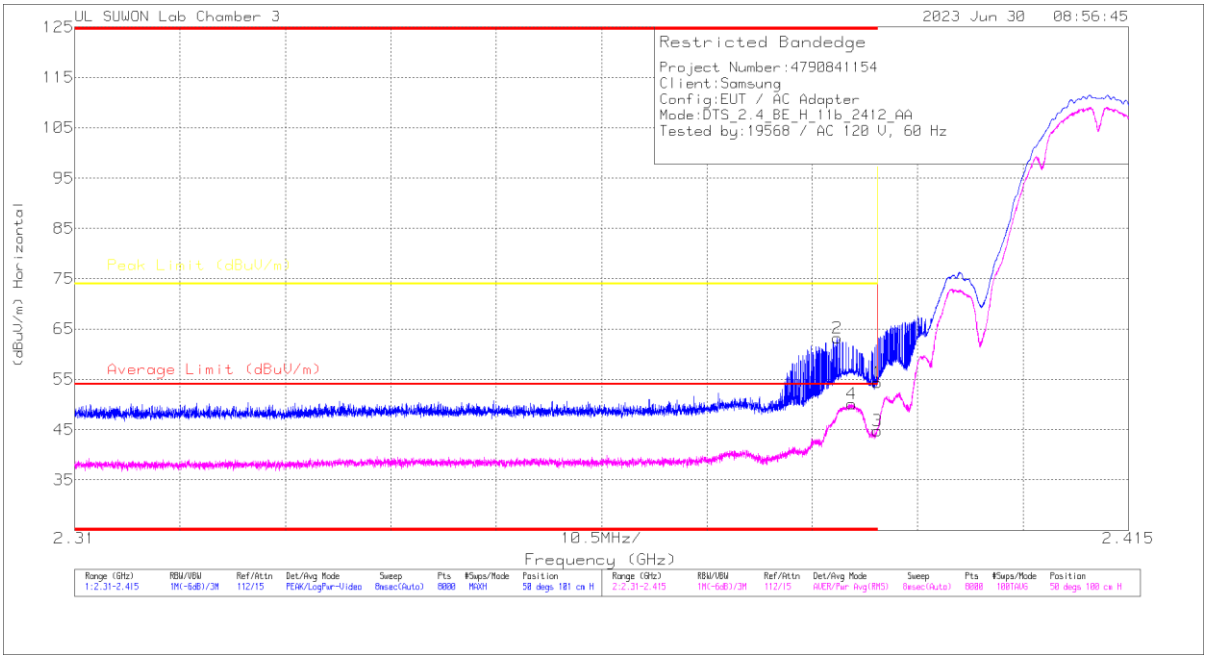
10.1. TRANSMITTER ABOVE 1 GHz

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

2TX Antenna 1 + Antenna 2

BANDEDGE(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	47.34	Pk	32.1	-25.1	0	54.34	-	-	74	-19.66	50	101	H
2	* 2.38597	56.22	Pk	32.1	-25.1	0	63.22	-	-	74	-10.78	50	101	H
3	* 2.39	37.74	RMS	32.1	-25.1	0	44.74	54	-9.26	-	-	50	100	H
4	* 2.38745	43.13	RMS	32.1	-25.1	0	50.13	54	-3.87	-	-	50	100	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	MIMO	* 2.39	47.34	Pk	32.10	-25.10	0.00	54.34	-	-	74.00	-19.66	50	101	H
		* 2.38597	56.22	Pk	32.10	-25.10	0.00	63.22	-	-	74.00	-10.78	50	101	H
		* 2.39	37.74	RMS	32.10	-25.10	0.00	44.74	54.00	-9.26	-	-	50	100	H
		* 2.38745	43.13	RMS	32.10	-25.10	0.00	50.13	54.00	**-3.87**	-	-	50	100	H
		* 2.39	53.22	Pk	32.10	-25.10	0.00	60.22	-	-	74.00	-13.78	68	289	V
		* 2.38977	54.10	Pk	32.10	-25.10	0.00	61.10	-	-	74.00	-12.90	68	289	V
		* 2.39	34.92	RMS	32.10	-25.10	0.00	41.92	54.00	-12.08	-	-	68	289	V
		* 2.38933	35.50	RMS	32.10	-25.10	0.00	42.50	54.00	-11.50	-	-	68	289	V
2462	MIMO	* 2.4835	60.27	Pk	32.40	-25.00	0.00	67.67	-	-	74.00	**-6.33**	50	100	H
		* 2.48404	60.17	Pk	32.40	-25.00	0.00	67.57	-	-	74.00	-6.43	50	100	H
		* 2.4835	41.21	RMS	32.40	-25.00	0.00	48.61	54.00	-5.39	-	-	50	100	H
		* 2.48372	40.79	RMS	32.40	-25.00	0.00	48.19	54.00	-5.81	-	-	50	100	H
		* 2.4835	45.78	Pk	32.40	-25.00	0.00	53.18	-	-	74.00	-20.82	88	205	V
		* 2.48622	55.91	Pk	32.40	-25.00	0.00	63.31	-	-	74.00	-10.69	88	205	V
		* 2.4835	35.42	RMS	32.40	-25.00	0.00	42.82	54.00	-11.18	-	-	88	205	V
		* 2.48537	36.29	RMS	32.40	-25.00	0.00	43.69	54.00	-10.31	-	-	88	205	V

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

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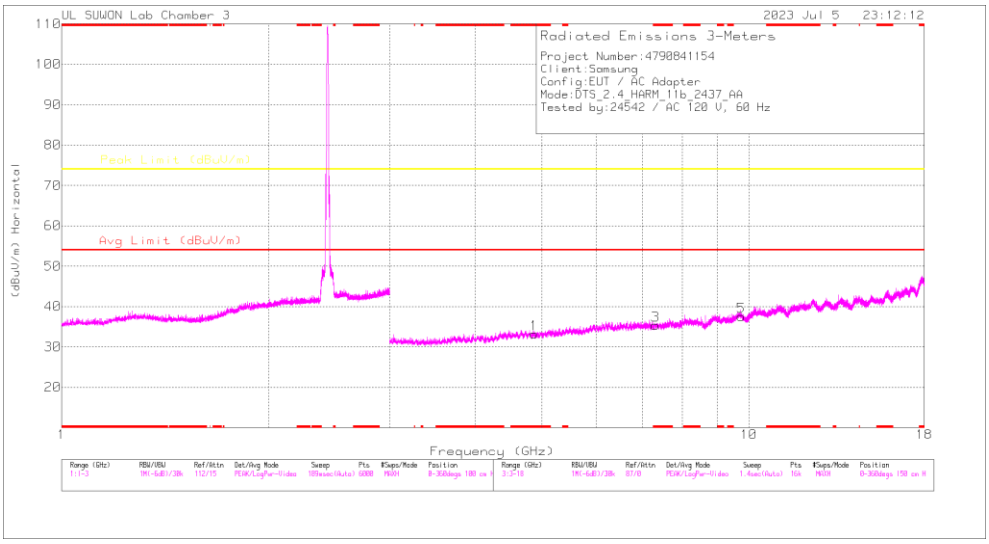
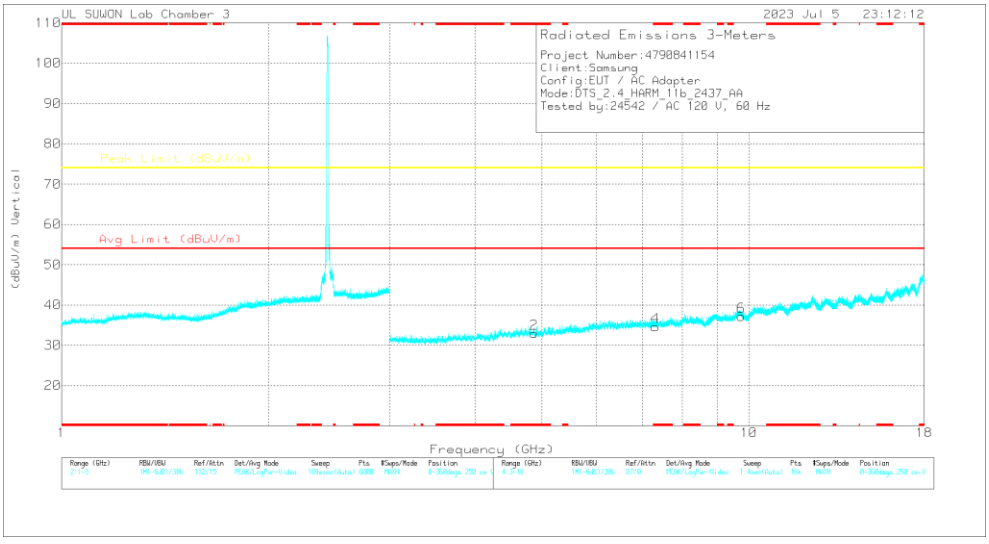
HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 6 CHANNEL)

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_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
* 4.87402	41.1	PK2	34.2	-30.8	0	44.5	-	-	74	-29.5	110	119	H
* 4.87398	30.98	MAv1	34.2	-30.8	0	34.38	54	-19.62	-	-	110	119	H
* 4.8734	40.47	PK2	34.2	-30.8	0	43.87	-	-	74	-30.13	0	100	V
* 7.30686	34.87	PK2	35.8	-25.6	0	45.07	-	-	74	-28.93	0	100	H
* 7.31371	35.16	PK2	35.8	-25.5	0	45.46	-	-	74	-28.54	0	100	V
9.74806	31.96	PK2	36.9	-21.2	0	47.66	-	-	74	-26.34	0	100	H
9.74796	32.4	PK2	36.9	-21.2	0	48.1	-	-	74	-25.9	0	100	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	MIMO	* 4.82794	39.22	PK2	34.20	-30.30	0.00	43.12	-	-	74.00	-30.88	360	100	H
		* 4.82559	39.20	PK2	34.20	-30.30	0.00	43.10	-	-	74.00	-30.90	360	100	V
		7.238	36.02	PK2	35.80	-25.90	0.00	45.92	-	-	74.00	-28.08	360	100	H
		7.234	36.07	PK2	35.80	-25.80	0.00	46.07	-	-	74.00	-27.93	360	100	V
		9.648	32.24	PK2	36.80	-21.40	0.00	47.64	-	-	74.00	-26.36	360	100	H
		9.647	32.34	PK2	36.80	-21.30	0.00	47.84	-	-	74.00	-26.16	360	100	V
2437	MIMO	* 4.87402	41.10	PK2	34.20	-30.80	0.00	44.50	-	-	74.00	-29.50	110	119	H
		* 4.87398	30.98	MAv1	34.20	-30.80	0.00	34.38	54.00	**-19.62**	-	-	110	119	H
		* 4.8734	40.47	PK2	34.20	-30.80	0.00	43.87	-	-	74.00	-30.13	0	100	V
		* 7.30686	34.87	PK2	35.80	-25.60	0.00	45.07	-	-	74.00	-28.93	0	100	H
		* 7.31371	35.16	PK2	35.80	-25.50	0.00	45.46	-	-	74.00	-28.54	0	100	V
		9.748	31.96	PK2	36.90	-21.20	0.00	47.66	-	-	74.00	-26.34	0	100	H
		9.748	32.40	PK2	36.90	-21.20	0.00	48.10	-	-	74.00	**-25.90**	0	100	V
2462	MIMO	* 4.92418	40.68	PK2	34.20	-30.90	0.00	43.98	-	-	74.00	-30.02	110	126	H
		* 4.92394	30.88	MAv1	34.20	-30.90	0.00	34.18	54.00	-19.82	-	-	110	126	H
		* 4.92485	39.79	PK2	34.20	-30.90	0.00	43.09	-	-	74.00	-30.91	0	100	V
		* 7.38439	35.42	PK2	35.70	-24.90	0.00	46.22	-	-	74.00	-27.78	0	100	H
		* 7.38685	34.30	PK2	35.70	-24.80	0.00	45.20	-	-	74.00	-28.80	0	100	V
		9.844	31.27	PK2	37.10	-21.30	0.00	47.07	-	-	74.00	-26.93	1	100	H
		9.845	31.30	PK2	37.10	-21.30	0.00	47.10	-	-	74.00	-26.90	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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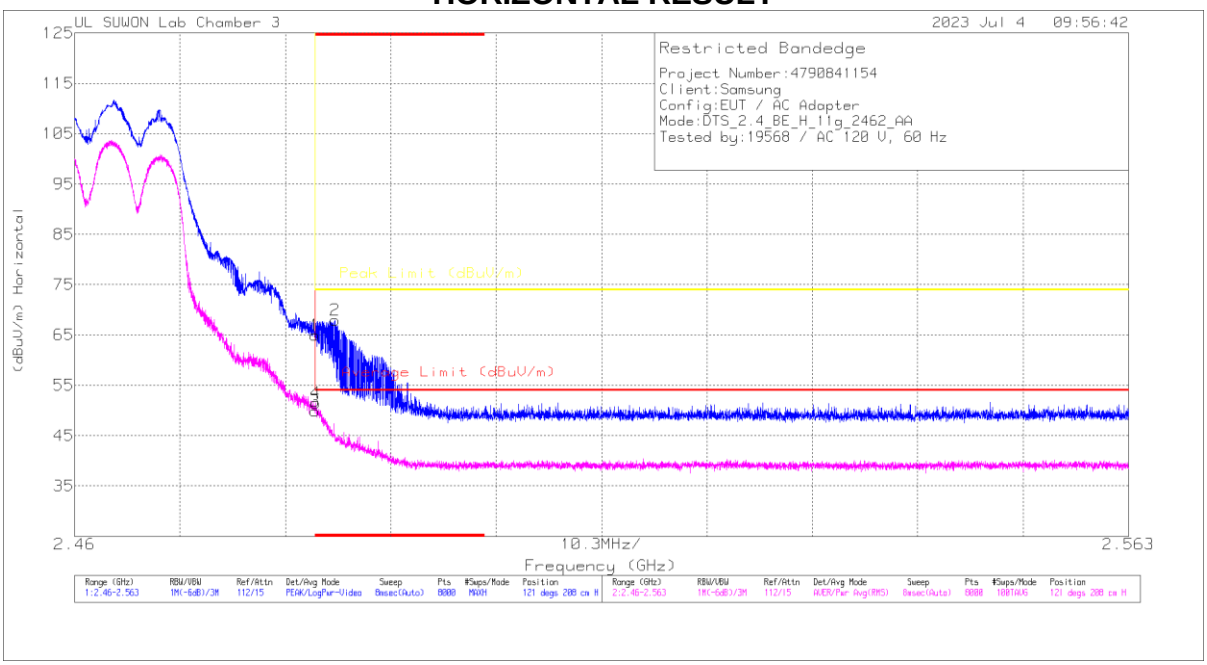
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2

BANDEDGE (WORST CASE: 11 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	57.53	Pk	32.4	-25	0	64.93	-	-	74	-9.07	121	208	H
2	* 2.48546	60.54	Pk	32.4	-25	0	67.94	-	-	74	-6.06	121	208	H
3	* 2.4835	42.38	RMS	32.4	-25	.14	49.92	54	-4.08	-	-	121	208	H
4	* 2.48354	43.95	RMS	32.4	-25	.14	51.49	54	-2.51	-	-	121	208	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	MIMO	* 2.39	53.34	Pk	32.10	-25.10	0.00	60.34	-	-	74.00	-13.66	122	122	H
		* 2.38607	59.45	Pk	32.10	-25.10	0.00	66.45	-	-	74.00	-7.55	122	122	H
		* 2.39	39.78	RMS	32.10	-25.10	0.14	46.92	54.00	-7.08	-	-	122	122	H
		* 2.38971	40.17	RMS	32.10	-25.10	0.14	47.31	54.00	-6.69	-	-	122	122	H
		* 2.39	53.17	Pk	32.10	-25.10	0.00	60.17	-	-	74.00	-13.83	73	119	V
		* 2.38969	58.96	Pk	32.10	-25.10	0.00	65.96	-	-	74.00	-8.04	73	119	V
		* 2.39	41.10	RMS	32.10	-25.10	0.14	48.24	54.00	-5.76	-	-	73	119	V
		* 2.38988	40.90	RMS	32.10	-25.10	0.14	48.04	54.00	-5.96	-	-	73	119	V
2462	MIMO	* 2.4835	57.53	Pk	32.40	-25.00	0.00	64.93	-	-	74.00	-9.07	121	208	H
		* 2.48546	60.54	Pk	32.40	-25.00	0.00	67.94	-	-	74.00	**-6.06**	121	208	H
		* 2.4835	42.38	RMS	32.40	-25.00	0.14	49.92	54.00	-4.08	-	-	121	208	H
		* 2.48354	43.95	RMS	32.40	-25.00	0.14	51.49	54.00	**-2.51**	-	-	121	208	H
		* 2.4835	55.73	Pk	32.40	-25.00	0.00	63.13	-	-	74.00	-10.87	86	155	V
		* 2.48517	57.74	Pk	32.40	-25.00	0.00	65.14	-	-	74.00	-8.86	86	155	V
		* 2.4835	37.09	RMS	32.40	-25.00	0.14	44.63	54.00	-9.37	-	-	86	155	V
		* 2.48369	38.59	RMS	32.40	-25.00	0.14	46.13	54.00	-7.87	-	-	86	155	V

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

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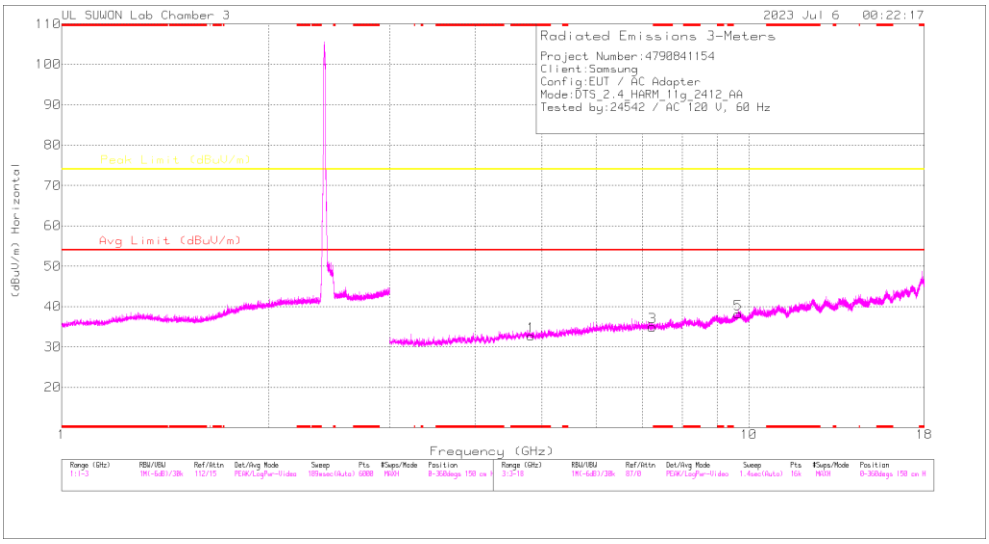
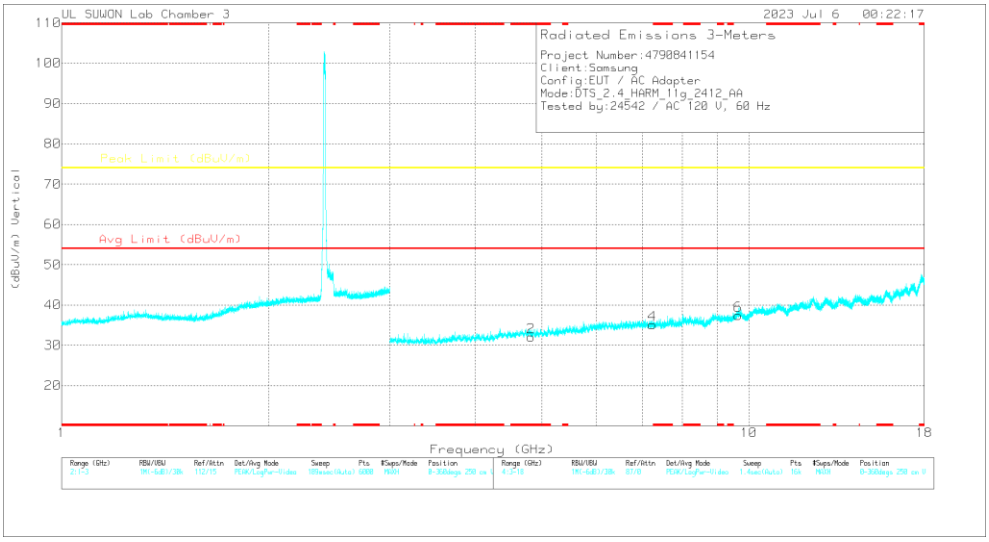
HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 1 CHANNEL)

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_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
* 4.82815	38.62	PK2	34.2	-30.3	0	42.52	-	-	74	-31.48	0	100	H
* 4.82247	39.74	PK2	34.3	-30.2	0	43.84	-	-	74	-30.16	0	100	V
7.24092	35.64	PK2	35.8	-25.8	0	45.64	-	-	74	-28.36	0	100	H
7.23874	35.52	PK2	35.8	-25.9	0	45.42	-	-	74	-28.58	0	100	V
9.65006	32.32	PK2	36.8	-21.3	0	47.82	-	-	74	-26.18	0	100	H
9.64967	32.93	PK2	36.8	-21.3	0	48.43	-	-	74	-25.57	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
2412	MIMO	* 4.82815	38.62	PK2	34.20	-30.30	0.00	42.52	-	-	74.00	-31.48	0	100	H
		* 4.82247	39.74	PK2	34.30	-30.20	0.00	43.84	-	-	74.00	-30.16	0	100	V
		7.241	35.64	PK2	35.80	-25.80	0.00	45.64	-	-	74.00	-28.36	0	100	H
		7.239	35.52	PK2	35.80	-25.90	0.00	45.42	-	-	74.00	-28.58	0	100	V
		9.650	32.32	PK2	36.80	-21.30	0.00	47.82	-	-	74.00	-26.18	0	100	H
		9.650	32.93	PK2	36.80	-21.30	0.00	48.43	-	-	74.00	**-25.57**	0	100	V
2437	MIMO	* 4.87214	39.69	PK2	34.20	-30.80	0.00	43.09	-	-	74.00	-30.91	0	100	H
		* 4.87539	39.81	PK2	34.20	-30.80	0.00	43.21	-	-	74.00	-30.79	0	100	V
		* 7.30923	35.32	PK2	35.80	-25.50	0.00	45.62	-	-	74.00	-28.38	0	100	H
		* 7.30975	35.45	PK2	35.80	-25.50	0.00	45.75	-	-	74.00	-28.25	0	100	V
		9.753	32.13	PK2	36.90	-21.20	0.00	47.83	-	-	74.00	-26.17	0	100	H
		9.753	32.28	PK2	36.90	-21.20	0.00	47.98	-	-	74.00	-26.02	0	100	V
2462	MIMO	* 4.92243	40.90	PK2	34.20	-30.90	0.00	44.20	-	-	74.00	-29.80	0	100	H
		* 4.92327	39.96	PK2	34.20	-30.90	0.00	43.26	-	-	74.00	-30.74	0	100	V
		* 7.3822	34.82	PK2	35.70	-25.00	0.00	45.52	-	-	74.00	-28.48	0	100	H
		* 7.38868	34.70	PK2	35.70	-24.80	0.00	45.60	-	-	74.00	-28.40	0	100	V
		9.852	31.19	PK2	37.10	-21.30	0.00	46.99	-	-	74.00	-27.01	0	100	H
		9.848	31.37	PK2	37.10	-21.30	0.00	47.17	-	-	74.00	-26.83	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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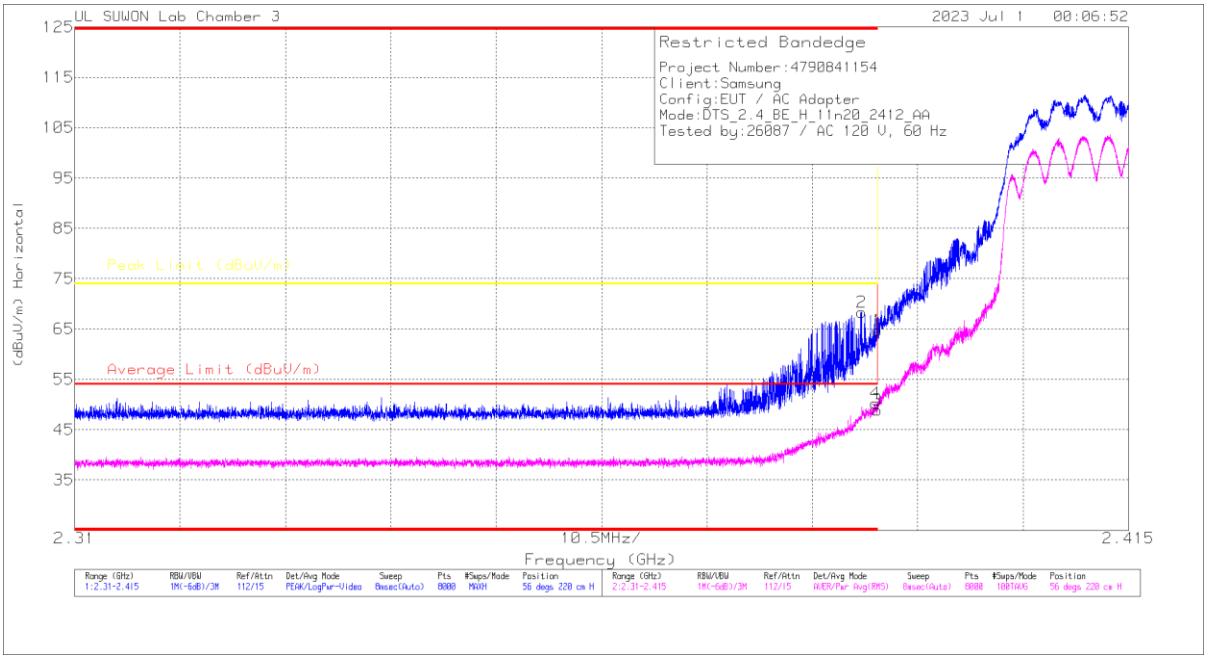
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2

BANDEDGE (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	57.68	Pk	32.1	-25.1	0	64.68	-	-	74	-9.32	56	220	H
2	* 2.38843	61.31	Pk	32.1	-25.1	0	68.31	-	-	74	-5.69	56	220	H
3	* 2.39	41.92	RMS	32.1	-25.1	0	48.92	54	-5.08	-	-	56	220	H
4	* 2.3898	43.31	RMS	32.1	-25.1	0	50.31	54	-3.69	-	-	56	220	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	MIMO	* 2.39	57.68	Pk	32.10	-25.10	0.00	64.68	-	-	74.00	-9.32	56	220	H
		* 2.38843	61.31	Pk	32.10	-25.10	0.00	68.31	-	-	74.00	-5.69	56	220	H
		* 2.39	41.92	RMS	32.10	-25.10	0.00	48.92	54.00	-5.08	-	-	56	220	H
		* 2.3898	43.31	RMS	32.10	-25.10	0.00	50.31	54.00	**-3.69**	-	-	56	220	H
		* 2.39	58.56	Pk	32.10	-25.10	0.00	65.56	-	-	74.00	-8.44	102	115	V
		* 2.38896	59.16	Pk	32.10	-25.10	0.00	66.16	-	-	74.00	-7.84	102	115	V
		* 2.39	38.12	RMS	32.10	-25.10	0.00	45.12	54.00	-8.88	-	-	102	115	V
		* 2.38993	38.55	RMS	32.10	-25.10	0.00	45.55	54.00	-8.45	-	-	102	115	V
2462	MIMO	* 2.4835	55.16	Pk	32.40	-25.00	0.00	62.56	-	-	74.00	-11.44	57	235	H
		* 2.48422	61.04	Pk	32.40	-25.00	0.00	68.44	-	-	74.00	**-5.56**	57	235	H
		* 2.4835	42.54	RMS	32.40	-25.00	0.00	49.94	54.00	-4.06	-	-	57	235	H
		* 2.48351	42.79	RMS	32.40	-25.00	0.00	50.19	54.00	-3.81	-	-	57	235	H
		* 2.4835	48.34	Pk	32.40	-25.00	0.00	55.74	-	-	74.00	-18.26	91	126	V
		* 2.48418	58.90	Pk	32.40	-25.00	0.00	66.30	-	-	74.00	-7.70	91	126	V
		* 2.4835	36.77	RMS	32.40	-25.00	0.00	44.17	54.00	-9.83	-	-	91	126	V
		* 2.4848	38.94	RMS	32.40	-25.00	0.00	46.34	54.00	-7.66	-	-	91	126	V

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

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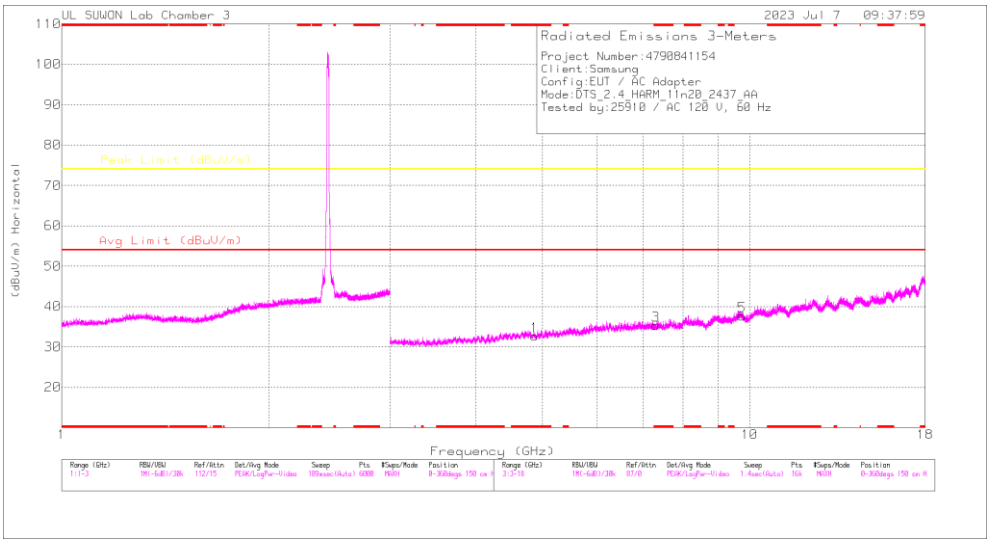
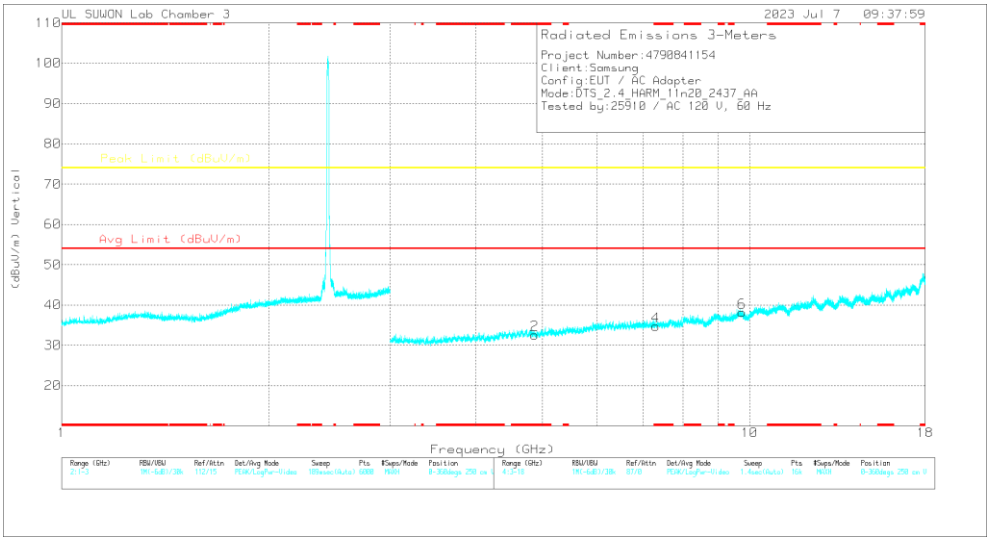
HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 6 CHANNEL)

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_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
* 4.87756	39.72	PK2	34.2	-30.8	0	43.12	-	-	74	-30.88	0	100	H
* 4.8743	39.48	PK2	34.2	-30.8	0	42.88	-	-	74	-31.12	0	100	V
* 7.31596	34.78	PK2	35.8	-25.4	0	45.18	-	-	74	-28.82	0	100	H
* 7.30778	35.06	PK2	35.8	-25.5	0	45.36	-	-	74	-28.64	0	100	V
9.74433	31.78	PK2	36.9	-21.2	0	47.48	-	-	74	-26.52	0	100	H
9.74813	32.5	PK2	36.9	-21.2	0	48.2	-	-	74	-25.8	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
2412	MIMO	* 4.82131	38.72	PK2	34.30	-30.20	0.00	42.82	-	-	74.00	-31.18	0	100	H
		* 4.82556	39.20	PK2	34.20	-30.30	0.00	43.10	-	-	74.00	-30.90	0	100	V
		7.236	35.79	PK2	35.80	-25.80	0.00	45.79	-	-	74.00	-28.21	0	100	H
		7.233	36.37	PK2	35.80	-25.90	0.00	46.27	-	-	74.00	-27.73	0	100	V
		9.643	32.41	PK2	36.80	-21.40	0.00	47.81	-	-	74.00	-26.19	0	100	H
		9.645	32.35	PK2	36.80	-21.30	0.00	47.85	-	-	74.00	-26.15	0	100	V
2437	MIMO	* 4.87756	39.72	PK2	34.20	-30.80	0.00	43.12	-	-	74.00	-30.88	0	100	H
		* 4.8743	39.48	PK2	34.20	-30.80	0.00	42.88	-	-	74.00	-31.12	0	100	V
		* 7.31596	34.78	PK2	35.80	-25.40	0.00	45.18	-	-	74.00	-28.82	0	100	H
		* 7.30778	35.06	PK2	35.80	-25.50	0.00	45.36	-	-	74.00	-28.64	0	100	V
		9.744	31.78	PK2	36.90	-21.20	0.00	47.48	-	-	74.00	-26.52	0	100	H
		9.748	32.50	PK2	36.90	-21.20	0.00	48.20	-	-	74.00	**-25.80**	0	100	V
2462	MIMO	* 4.92459	39.81	PK2	34.20	-30.90	0.00	43.11	-	-	74.00	-30.89	0	100	H
		* 4.921	39.74	PK2	34.20	-30.90	0.00	43.04	-	-	74.00	-30.96	0	100	V
		* 7.38103	34.01	PK2	35.70	-24.90	0.00	44.81	-	-	74.00	-29.19	0	100	H
		* 7.38946	34.53	PK2	35.70	-24.70	0.00	45.53	-	-	74.00	-28.47	0	100	V
		9.848	31.54	PK2	37.10	-21.30	0.00	47.34	-	-	74.00	-26.66	0	100	H
		9.849	31.18	PK2	37.10	-21.30	0.00	46.98	-	-	74.00	-27.02	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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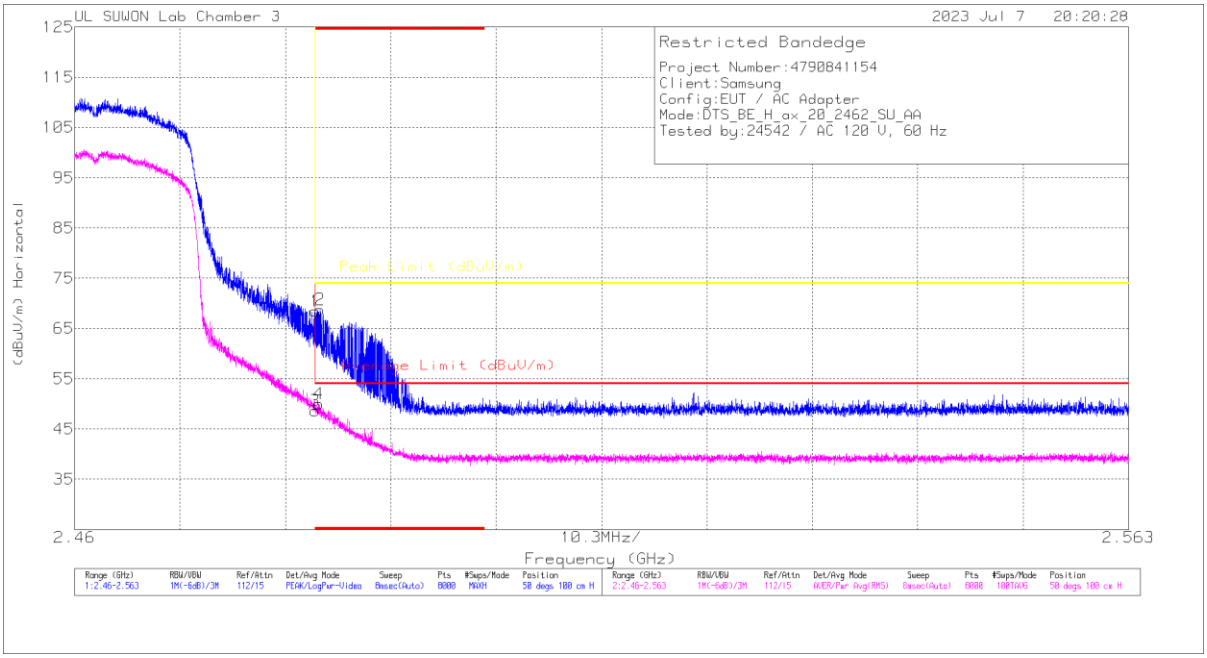
10.1.4. TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2

BANDEDGE (11 CHANNEL, SU)

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	61.09	Pk	32.4	-25	0	68.49	-	-	74	-5.51	50	100	H
2	* 2.48396	61.36	Pk	32.4	-25	0	68.76	-	-	74	-5.24	50	100	H
3	* 2.4835	41.03	RMS	32.4	-25	.18	48.61	54	-5.39	-	-	50	100	H
4	* 2.48386	42.41	RMS	32.4	-25	.18	49.99	54	-4.01	-	-	50	100	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 SU	MIMO	* 2.39	56.53	Pk	32.10	-25.10	0.00	63.53	-	-	74.00	-10.47	48	149	H
		* 2.38946	61.73	Pk	32.10	-25.10	0.00	68.73	-	-	74.00	-5.27	48	149	H
		* 2.39	42.38	RMS	32.10	-25.10	0.18	49.56	54.00	-4.44	-	-	48	149	H
		* 2.38984	42.31	RMS	32.10	-25.10	0.18	49.49	54.00	-4.51	-	-	48	149	H
		* 2.39	55.13	Pk	32.10	-25.10	0.00	62.13	-	-	74.00	-11.87	95	123	V
		* 2.3898	56.18	Pk	32.10	-25.10	0.00	63.18	-	-	74.00	-10.82	95	123	V
		* 2.39	36.49	RMS	32.10	-25.10	0.18	43.67	54.00	-10.33	-	-	95	123	V
		* 2.38964	37.85	RMS	32.10	-25.10	0.18	45.03	54.00	-8.97	-	-	95	123	V
2462 SU	MIMO	* 2.4835	61.09	Pk	32.40	-25.00	0.00	68.49	-	-	74.00	-5.51	50	100	H
		* 2.48396	61.36	Pk	32.40	-25.00	0.00	68.76	-	-	74.00	**-5.24**	50	100	H
		* 2.4835	41.03	RMS	32.40	-25.00	0.18	48.61	54.00	-5.39	-	-	50	100	H
		* 2.48386	42.41	RMS	32.40	-25.00	0.18	49.99	54.00	**-4.01**	-	-	50	100	H
		* 2.4835	48.93	Pk	32.40	-25.00	0.00	56.33	-	-	74.00	-17.67	88	138	V
		* 2.48443	58.87	Pk	32.40	-25.00	0.00	66.27	-	-	74.00	-7.73	88	138	V
		* 2.4835	36.16	RMS	32.40	-25.00	0.18	43.74	54.00	-10.26	-	-	88	138	V
		* 2.48515	38.24	RMS	32.40	-25.00	0.18	45.82	54.00	-8.18	-	-	88	138	V
2462 8RU	MIMO	* 2.4835	43.64	Pk	32.40	-25.00	0.00	51.04	-	-	74.00	-22.96	49	100	H
		* 2.48444	53.07	Pk	32.40	-25.00	0.00	60.47	-	-	74.00	-13.53	49	100	H
		* 2.4835	33.38	RMS	32.40	-25.00	0.00	40.78	54.00	-13.22	-	-	49	100	H
		* 2.48443	35.34	RMS	32.40	-25.00	0.00	42.74	54.00	-11.26	-	-	49	100	H
		* 2.4835	47.50	Pk	32.40	-25.00	0.00	54.90	-	-	74.00	-19.10	86	131	V
		* 2.4843	51.50	Pk	32.40	-25.00	0.00	58.90	-	-	74.00	-15.10	86	131	V
		* 2.4835	32.92	RMS	32.40	-25.00	0.00	40.32	54.00	-13.68	-	-	86	131	V
		* 2.48691	33.82	RMS	32.40	-25.00	0.00	41.22	54.00	-12.78	-	-	86	131	V

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

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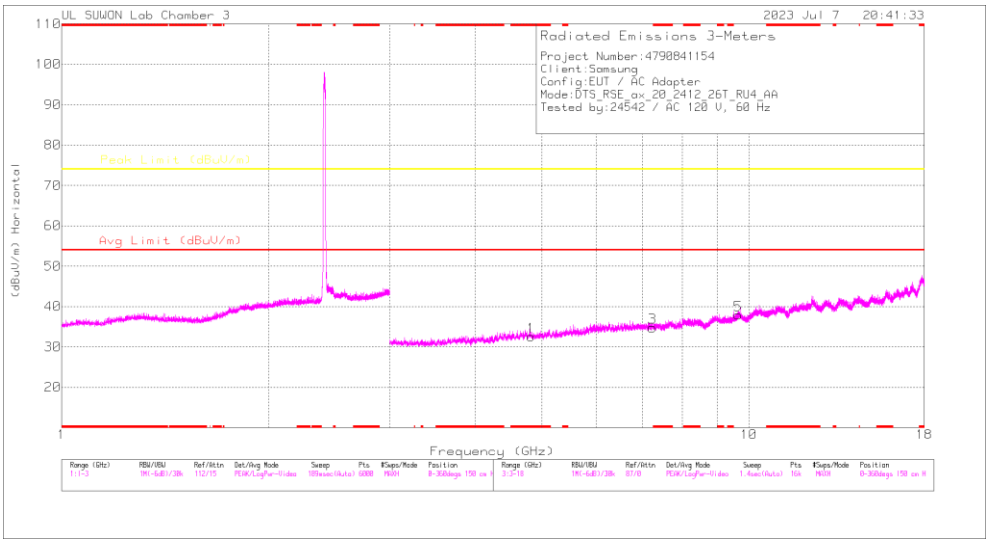
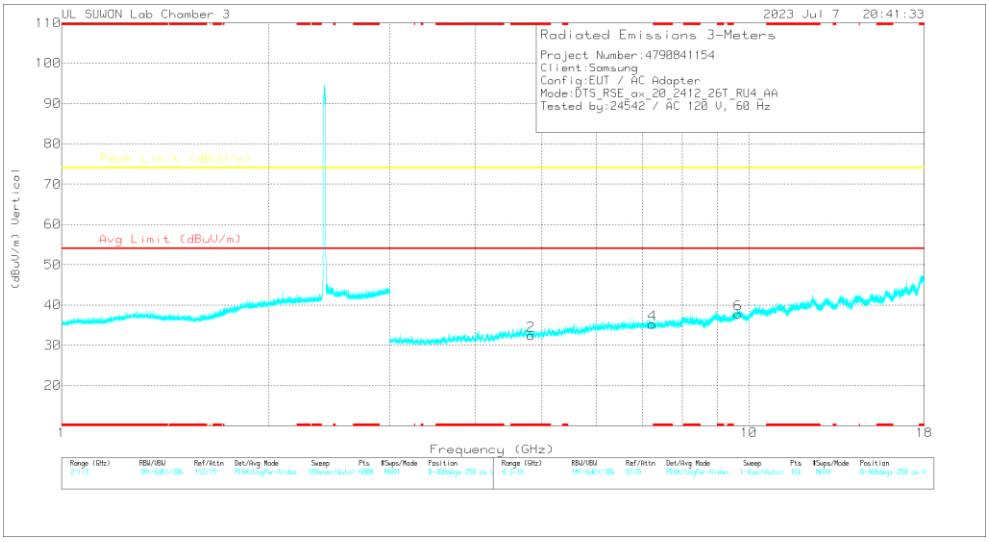
HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 1 CHANNEL, 4RU)

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_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
* 4.8252	38.83	PK2	34.2	-30.3	0	42.73	-	-	74	-31.27	0	100	H
* 4.83368	38.54	PK2	34.2	-30.3	0	42.44	-	-	74	-31.56	0	100	V
7.23675	35.69	PK2	35.8	-25.9	0	45.59	-	-	74	-28.41	0	100	H
7.23865	35.48	PK2	35.8	-25.9	0	45.38	-	-	74	-28.62	0	100	V
9.64082	32.62	PK2	36.8	-21.4	0	48.02	-	-	74	-25.98	0	100	H
9.64394	32.67	PK2	36.8	-21.3	0	48.17	-	-	74	-25.83	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
2412 RU4	MIMO	* 4.8252	38.83	PK2	34.20	-30.30	0.00	42.73	-	-	74.00	-31.27	0	100	H
		* 4.83368	38.54	PK2	34.20	-30.30	0.00	42.44	-	-	74.00	-31.56	0	100	V
		7.237	35.69	PK2	35.80	-25.90	0.00	45.59	-	-	74.00	-28.41	0	100	H
		7.239	35.48	PK2	35.80	-25.90	0.00	45.38	-	-	74.00	-28.62	0	100	V
		9.641	32.62	PK2	36.80	-21.40	0.00	48.02	-	-	74.00	-25.98	0	100	H
		9.644	32.67	PK2	36.80	-21.30	0.00	48.17	-	-	74.00	**-25.83**	0	100	V
2437 RU4	MIMO	* 4.87007	39.28	PK2	34.20	-30.80	0.00	42.68	-	-	74.00	-31.32	0	100	H
		* 4.87641	39.58	PK2	34.20	-30.80	0.00	42.98	-	-	74.00	-31.02	0	100	V
		* 7.30423	35.60	PK2	35.80	-25.60	0.00	45.80	-	-	74.00	-28.20	0	100	H
		* 7.31115	34.82	PK2	35.80	-25.50	0.00	45.12	-	-	74.00	-28.88	0	100	V
		9.748	31.90	PK2	36.90	-21.20	0.00	47.60	-	-	74.00	-26.40	0	100	H
		9.742	31.49	PK2	36.90	-21.20	0.00	47.19	-	-	74.00	-26.81	0	100	V
2462 RU4	MIMO	* 4.92037	39.87	PK2	34.20	-31.00	0.00	43.07	-	-	74.00	-30.93	0	100	H
		* 4.92048	39.57	PK2	34.20	-31.00	0.00	42.77	-	-	74.00	-31.23	0	100	V
		* 7.3936	34.70	PK2	35.70	-24.70	0.00	45.70	-	-	74.00	-28.30	0	100	H
		* 7.39258	34.70	PK2	35.70	-24.70	0.00	45.70	-	-	74.00	-28.30	0	100	V
		9.845	31.26	PK2	37.10	-21.40	0.00	46.96	-	-	74.00	-27.04	0	100	H
		9.845	31.62	PK2	37.10	-21.30	0.00	47.42	-	-	74.00	-26.58	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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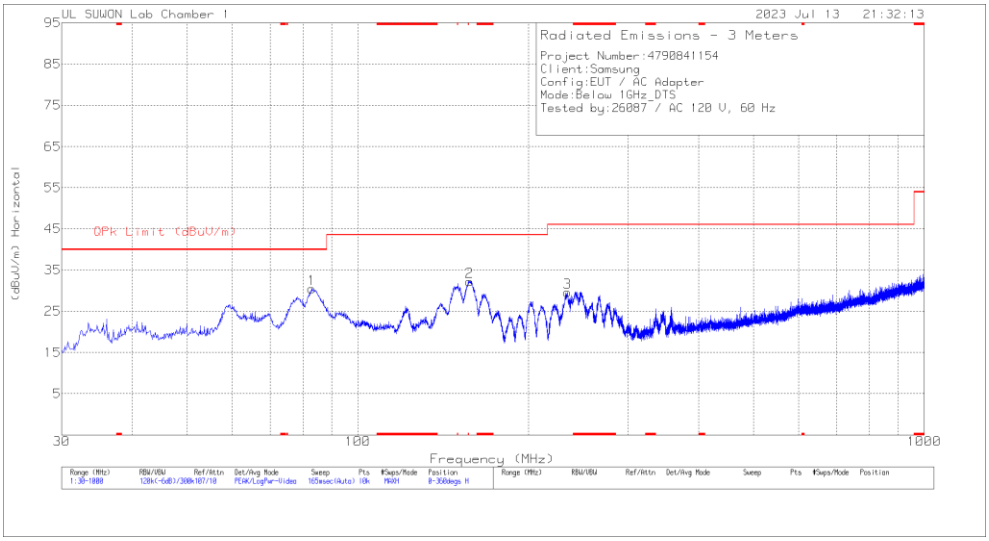
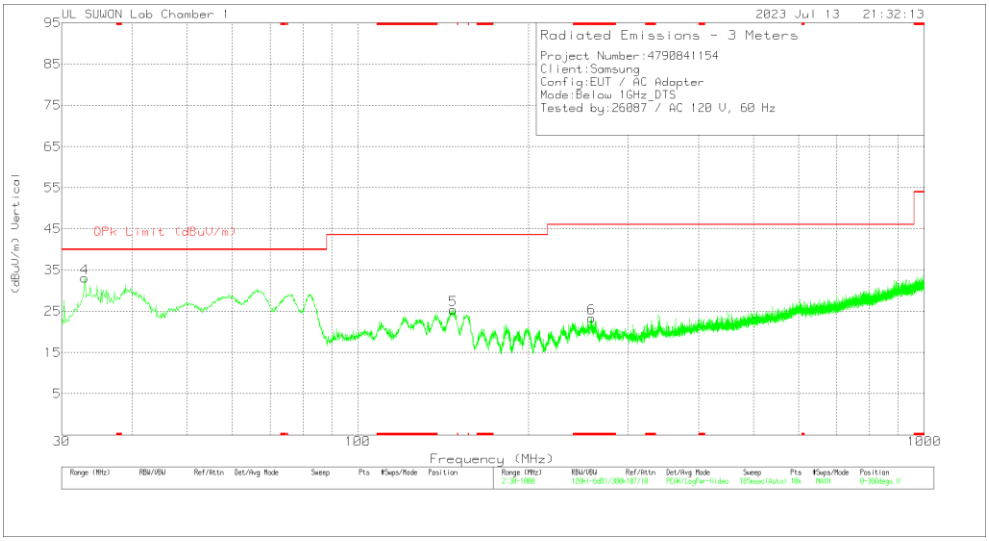
10.2. WORST CASE BELOW 1 GHZ



HORIZONTAL



VERTICAL

Below 1GHz DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	82.962	47.42	Pk	13.5	-30.4	0	30.52	40	-9.48	0-360	100	H
2	157.652	47.87	Pk	14.1	-29.7	0	32.27	43.52	-11.25	0-360	100	H
3	234.67	40.85	Pk	17.8	-29	0	29.65	46.02	-16.37	0-360	100	H
4	32.91	48.25	Pk	15.8	-31	0	33.05	40	-6.95	0-360	200	V
5	147.37	41.44	Pk	13.6	-29.7	0	25.34	43.52	-18.18	0-360	200	V
6	* 258.532	34.07	Pk	18.1	-28.8	0	23.37	46.02	-22.65	0-360	200	V

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

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
32.91	41.22	Qp	15.8	-31	0	26.02	40	-13.98	0	100	V

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

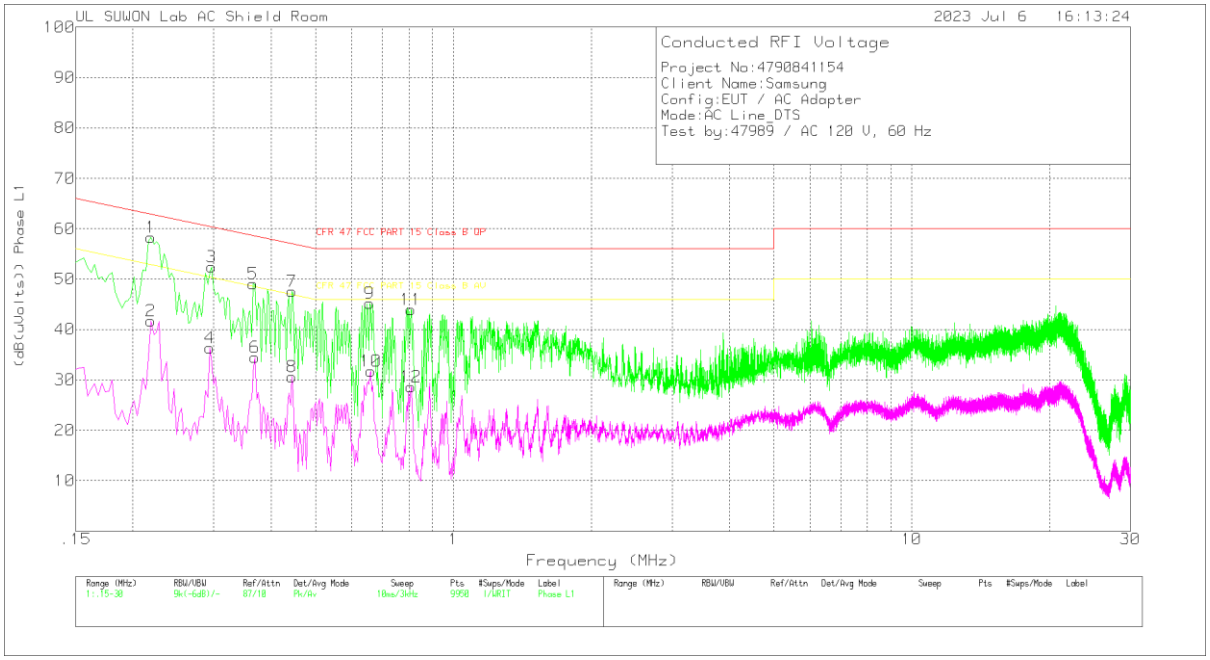
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1.1. AC Power Line

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AUTO_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	.219	48.59	Pk	9.5	.2	58.29	62.86	-4.57	-	-
2	.219	32.05	Av	9.5	.2	41.75	-	-	52.86	-11.11
3	.297	42.76	Pk	9.5	.2	52.46	60.33	-7.87	-	-
4	.294	26.67	Av	9.5	.2	36.37	-	-	50.41	-14.04
5	.366	39.34	Pk	9.5	.2	49.04	58.59	-9.55	-	-
6	.369	24.79	Av	9.5	.2	34.49	-	-	48.52	-14.03
7	.444	37.89	Pk	9.5	.2	47.59	56.99	-9.4	-	-
8	.444	20.97	Av	9.5	.2	30.67	-	-	46.99	-16.32
9	.657	35.36	Pk	9.6	.2	45.16	56	-10.84	-	-
10	.66	21.88	Av	9.6	.2	31.68	-	-	46	-14.32
11	.807	34.1	Pk	9.6	.2	43.9	56	-12.1	-	-
12	.807	18.84	Av	9.6	.2	28.64	-	-	46	-17.36

Pk - Peak detector
Av - Average detection

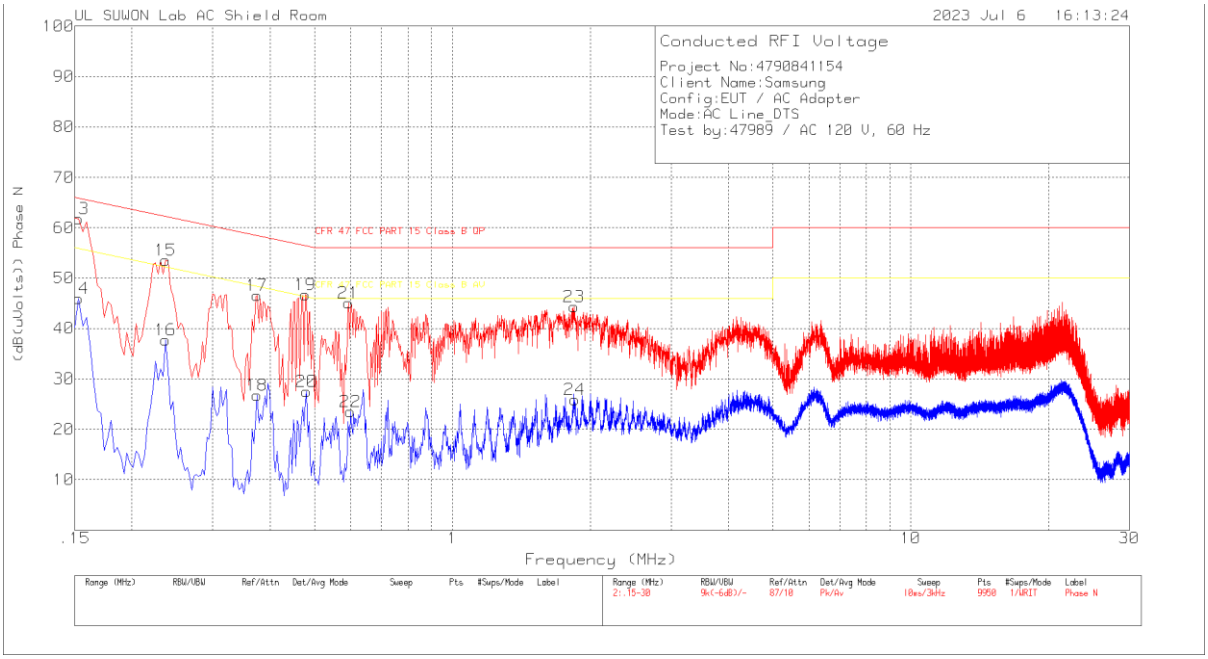
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AUTO_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)
.21975	34.61	Qp	9.5	.2	44.31	62.83	-18.52	-	-
.29475	30.22	Qp	9.5	.2	39.92	60.39	-20.47	-	-
.36675	30.02	Qp	9.5	.2	39.72	58.57	-18.85	-	-
.44325	30.28	Qp	9.5	.2	39.98	57	-17.02	-	-

Qp - Quasi-Peak detector

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AUTO_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	.153	52.17	Pk	9.5	.1	61.77	65.84	-4.07	-	-
14	.153	36.3	Av	9.5	.1	45.9	-	-	55.84	-9.94
15	.237	43.79	Pk	9.5	.2	53.49	62.2	-8.71	-	-
16	.237	28	Av	9.5	.2	37.7	-	-	52.2	-14.5
17	.375	36.87	Pk	9.5	.2	46.57	58.39	-11.82	-	-
18	.375	17.08	Av	9.5	.2	26.78	-	-	48.39	-21.61
19	.477	36.99	Pk	9.5	.2	46.69	56.39	-9.7	-	-
20	.48	17.8	Av	9.5	.2	27.5	-	-	46.34	-18.84
21	.594	35.25	Pk	9.6	.2	45.05	56	-10.95	-	-
22	.6	13.68	Av	9.6	.2	23.48	-	-	46	-22.52
23	1.845	34.46	Pk	9.6	.3	44.36	56	-11.64	-	-
24	1.848	16.03	Av	9.6	.3	25.93	-	-	46	-20.07

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_AUTO_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)
.15225	40.11	Qp	9.5	.1	49.71	65.88	-16.17	-	-
.47715	25.31	Qp	9.5	.2	35.01	56.39	-21.38	-	-

Qp - Quasi-Peak detector

END OF TEST REPORT

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