

CERTIFICATION TEST REPORT

Report Number. : 4791196642-E5V1

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

Model : SC-55E, SCG28

FCC ID : A3LSMF956JPN

EUT Description : GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax,
NFC, WPT and UWB

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

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Revision History

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TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS.....	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION.....	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. MEASURING INSTRUMENT CALIBRATION	7
4.2. SAMPLE CALCULATION	7
4.3. MEASUREMENT UNCERTAINTY	7
4.4. DECISION RULE	7
5. EQUIPMENT UNDER TEST	8
5.1. EUT DESCRIPTION	8
5.2. MAXIMUM OUTPUT POWER.....	9
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	9
5.4. List of test reduction and modes covering other modes:.....	10
5.5. TESTED CHANNELS LIST	10
5.6. WORST-CASE CONFIGURATION AND MODE	11
5.7. DESCRIPTION OF TEST SETUP.....	12
6. MEASUREMENT METHOD.....	14
7. TEST AND MEASUREMENT EQUIPMENT	15
8. SUMMARY TABLE.....	16
9. ANTENNA PORT TEST RESULTS	17
9.1. ON TIME AND DUTY CYCLE	17
9.2. 6 dB BANDWIDTH.....	18
9.2.1. 802.11b MIMO MODE IN THE 2.4 GHz BAND	19
9.2.2. 802.11g MIMO MODE IN THE 2.4 GHz BAND	19
9.2.3. 802.11n HT20 MIMO MODE IN THE 2.4 GHz BAND	19
9.2.4. 802.11ax HE20(26T) MIMO MODE IN THE 2.4 GHz BAND	19
9.3. OUTPUT POWER.....	20
9.3.1. TEST RESULTS	21
9.4. POWER SPECTRAL DENSITY	23
9.4.1. 802.11b/g/n HT20/ax HE20 MODE TEST RESULTS	24
9.5. CONDUCTED SPURIOUS EMISSIONS.....	25
9.5.1. 802.11b MODE	26
9.5.2. 802.11g MODE	30

9.5.3.	802.11n HT20 MODE	34
9.5.4.	802.11ax HE20(SU) MODE	38
9.5.5.	802.11ax HE20(RU) MODE	40
10.	RADIATED TEST RESULTS.....	44
10.1.	TRANSMITTER ABOVE 1 GHz.....	46
10.1.1.	TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND	46
10.1.2.	TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND	50
10.1.3.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND.....	54
10.1.4.	TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 2.4 GHz BAND.....	58
10.2.	WORST CASE BELOW 1 GHz.....	62
11.	AC POWER LINE CONDUCTED EMISSIONS	63
11.1.1.	AC Power Line	64

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/ax, NFC, WPT and UWB

MODEL NUMBER: SC-55E, SCG28

SERIAL NUMBER: R3CX30KWKLR (CONDUCTED);
R3CX30KWSGL, R3CX30KWSPF (RADIATED);

DATE TESTED: 2024-05-09 ~ 2024-05-30;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
47 CFR 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
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Seokhwan Hong
Suwon Lab Engineer
UL KOREA LTD.

Tested By:



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Suwon Lab Engineer
UL KOREA LTD.

2. TEST METHODOLOGY

1. FCC 47 CFR Part 2.
2. FCC 47 CFR 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>.

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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 28.9 \text{ dBuV/m} &= 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} \end{aligned}$$

$$\begin{aligned} \text{AC Corrected Reading (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Extension Cord Loss} \\ &\text{(dB)} + \text{Cable Loss (dB)} \\ 44.72 \text{ dBuV} &= 34.72 \text{ dBuV} + 9.9 \text{ dB} + 0.1 \text{ dB} \end{aligned}$$

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	2.79 dB
Radiated Disturbance, 9 kHz to 30 MHz	1.69 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.07 dB
Radiated Disturbance, 1 GHz to 18 GHz	4.99 dB
Radiated Disturbance, Above 18 GHz	5.96 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 Clause 4.4.3 in IEC Guide 115:2023.

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/ax, NFC, WPT and UWB. This test report addresses the DTS(WLAN) operational mode.

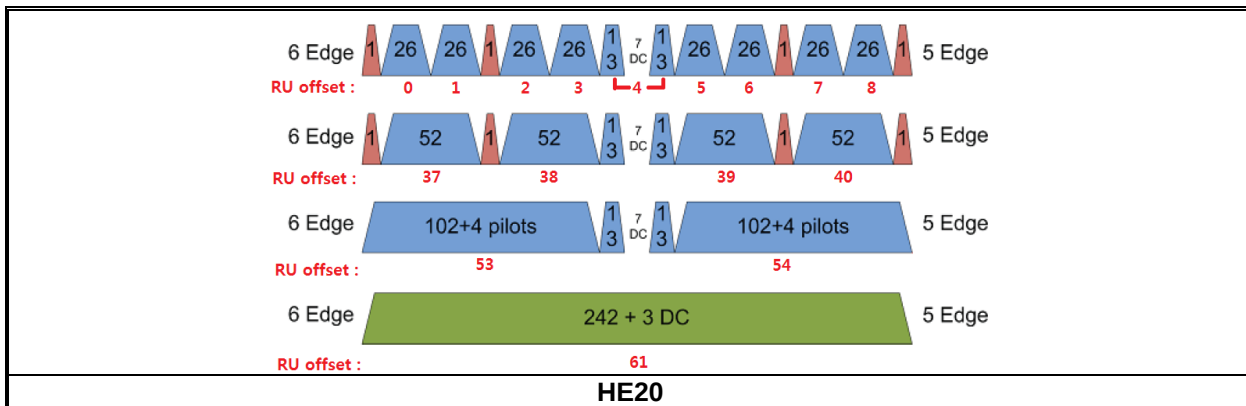
Representative model	Difference	Derivative model
		SCG28
SC-55E	Hardware	Same as SC-55E
	Software	Different UI

The model SC-55E was used for final testing and is representative of the test results in this report.

WiFi operating mode

Frequency rage	Mode	ANT 1	ANT 2
2.4GHz (2412 MHz ~ 2472 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



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 - 2472	802.11b MIMO	22.02		159.22	
	802.11g MIMO	20.18		104.23	
	802.11n(HT20) MIMO	20.01		100.23	
	802.11ax(HE20) MIMO	20.12		102.80	

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	-2.22	-1.78	1.01

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 = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi.

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

Directional gain = $10 \log[(10^{-2.22/20} + 10^{-1.78/20})^2 / 2] = 1.01$ dBi

5.4. List of test reduction and modes covering other modes:

The output power on covered modes is equal to or less than one referenced.

Authorized Frequency Band			
Mode	Antenna Stream	Mode	Covered by
802.11ac VHT20	MIMO	802.11ac VHT20 2TX	802.11n HT20 2TX

5.5. TESTED CHANNELS LIST

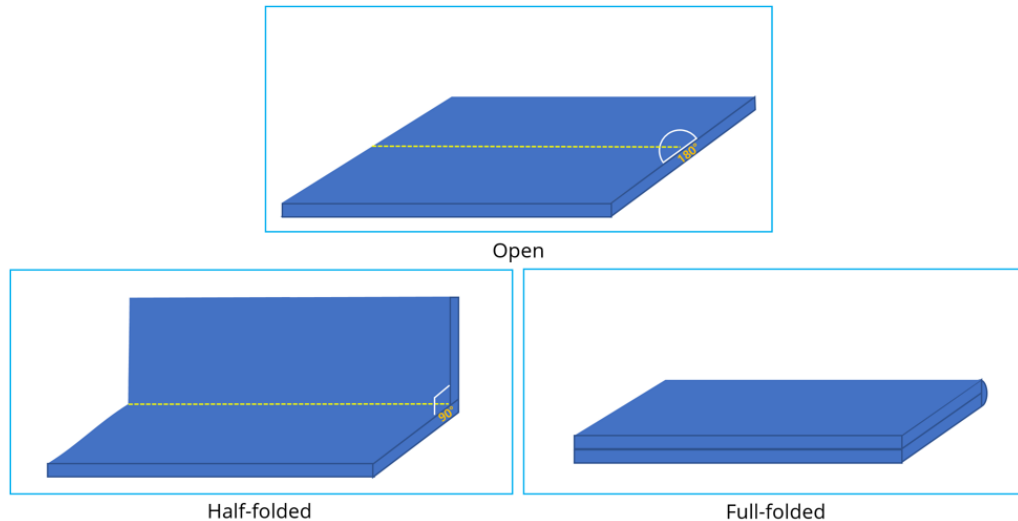
Ch.	Frequency [MHz]	11b		11g		11n(HT20)		11ax(HE20)	
		SISO	MIMO	SISO	MIMO	SISO	MIMO	SISO	MIMO
1	2 412		O		O		O		O
2	2 417		O						O
6	2 437		O		O		O		O
10	2 457				O		O		O
11	2 462		O		O		O		O
12	2 467		O		O		O		O
13	2 472		O		O		O		O

Note. SISO mode test was performed only to check average power. Because MIMO mode target power is 3dB higher than SISO mode.

5.6. WORST-CASE CONFIGURATION AND MODE

Both SISO and MIMO have been investigated and confirmed MIMO was the worst case set for radiated band edge and spurious emission tests.

- i. Worst case of antenna axis: X
- ii. Foldable condition: Open



Radiated and power line conducted tests were performed with EUT connected to AC power adapter as the worst-case configuration. Radiated harmonics spurious 1~18 GHz Low/Mid/High channels, 18-26GHz were performed with the EUT set at the 2TX MIMO 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.

Simultaneous transmission with related transmitters were investigated and no noticeable emission was found.

For 802.11ax mode, output power and PSD tests were investigated between all different tones and found that SU mode had the highest output power and RU 26T has the highest PSD readings which was documented in this report. And after some pre-tests, SU mode was determined as the worst case set for final conducted/radiated band edge tests with some spot-check performed at the lowest RU offset of the lowest frequency and the highest RU offset of the highest frequency.

For conducted/radiated spurious tests, 802.11ax SU mode has lower PSD results than 802.11ax RU 26T and therefore, 802.11ax RU 26T's highest power offset was set for full test.

In case of 6dB Bandwidth, it was tested at the RU allocation with lowest tones number, RU 26Tones as the worst-case scenario.

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

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37N9QP6H09DK3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02111A	N/A

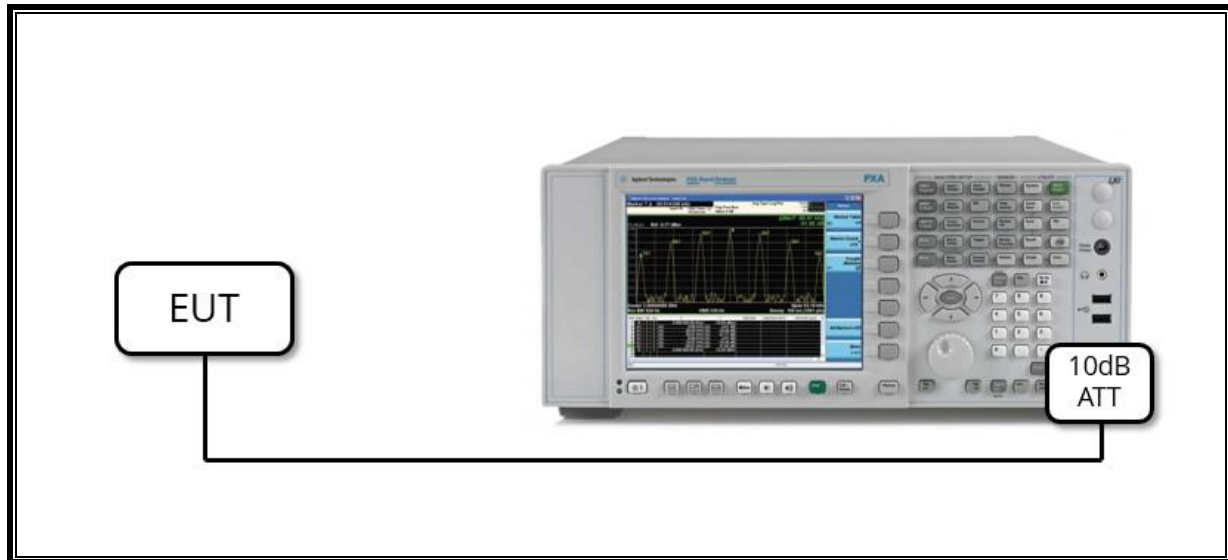
I/O CABLE

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

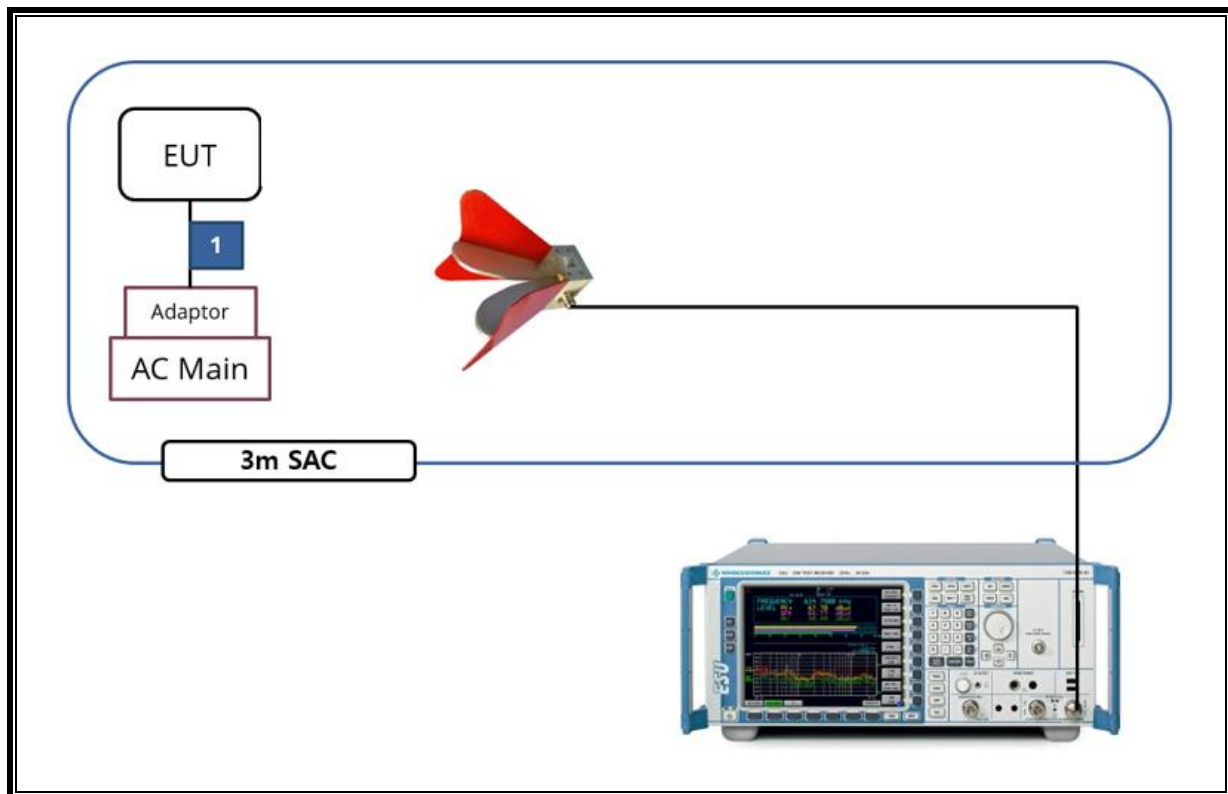
TEST SETUP

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

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, Horn, 18 GHz	ETS	3117	00168717	2024-08-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2024-08-02
Preamplifier	ETS	3116C-PA	00168841	2024-07-25
Preamplifier, 1000 MHz	Sonoma	310N	341282	2024-07-24
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2024-07-24
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2024-07-25
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2024-07-24
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2025-01-03
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2024-07-23
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2024-07-24
Attenuator	PASTERNAK	PE7087-10	A001	2024-07-23
Attenuator	PASTERNAK	PE7087-10	A008	2024-07-27
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2024-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2024-07-24
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2024-07-23
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2024-07-23
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2024-07-23
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	2024-07-24
LISN	R&S	ENV-216	101837	2024-07-23
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2025-09-06
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

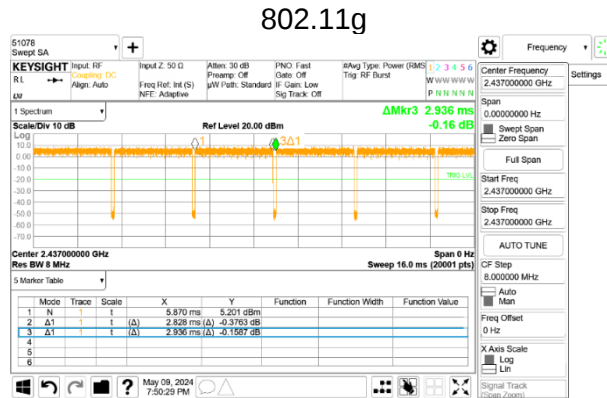
9.1. ON TIME AND DUTY CYCLE

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	8.816	8.917	0.989	98.867	-	0.11
802.11g MIMO	2.828	2.936	0.963	96.322	0.16	0.35
802.11n(HT20) MIMO	5.280	5.386	0.980	98.032	-	0.19
802.11ax(HE20) MIMO SU	5.451	5.470	0.997	99.653	-	0.18
802.11ax(HE20) MIMO 26T	2.596	2.621	0.990	99.046	-	0.39
802.11ax(HE20) MIMO 52T	2.592	2.617	0.990	99.045	-	0.39
802.11ax(HE20) MIMO 106T	1.435	1.460	0.983	98.288	-	0.70

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.



9.2. 6 dB BANDWIDTH

LIMITS

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

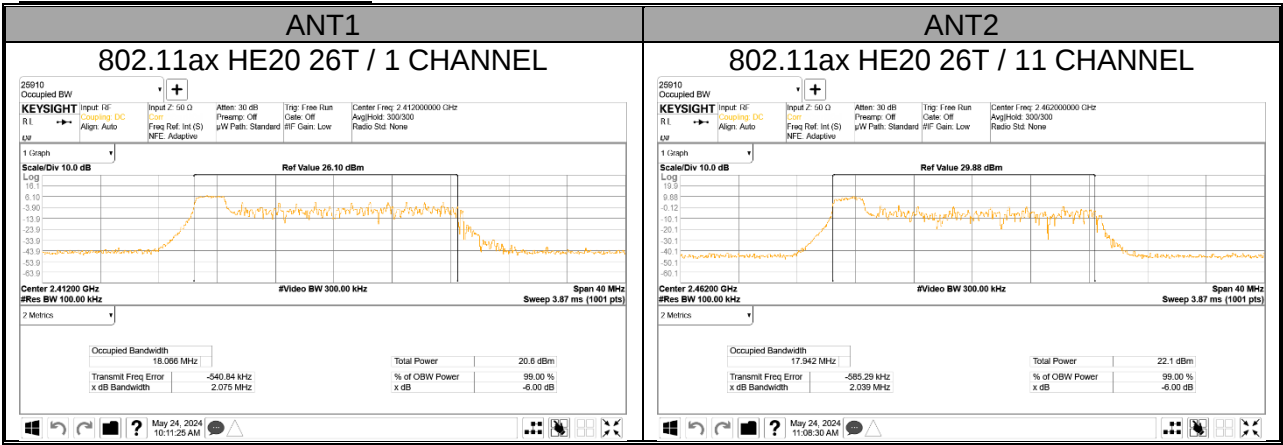
TEST PROCEDURE

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



9.2.1. 802.11b 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	13.13	13.09	0.5
2	2 417	13.13	13.13	
6	2 437	13.15	13.13	
11	2 462	13.13	13.12	
12	2 467	13.08	13.13	
13	2 472	12.63	13.13	
Worst		12.63		

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	16.40	16.36	0.5
6	2 437	16.38	16.47	
10	2 457	16.36	16.37	
11	2 462	16.37	16.39	
12	2 467	16.39	16.40	
13	2 472	15.13	16.36	
Worst		15.13		

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	17.62	17.65	0.5
6	2 437	17.69	17.64	
10	2 457	17.57	17.60	
11	2 462	17.81	17.62	
12	2 467	17.59	17.65	
13	2 472	16.40	17.22	
Worst		16.40		

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	2.08	2.06	0.5
6	2 437	2.11	2.09	
11	2 462	2.08	2.04	
12	2 467	2.09	2.13	
13	2 472	2.09	2.09	
Worst		2.04		

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 - 2 472	-2.22	-1.78	1.01

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

9.3.1. TEST RESULTS

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

Mode	Channel	Frequency [MHz]	Average Power [dBm]			Power Limit [dBm]
			ANT1	ANT2	Total Corr'd Power [dBm]	
802.11b	1	2 412	17.40	18.46	20.97	30.00
	2	2 417	18.51	19.45	22.02	
	6	2 437	18.45	19.39	21.96	
	11	2 462	18.43	19.31	21.90	
	12	2 467	4.48	5.12	7.82	
	13	2 472	-1.52	-0.74	1.90	
Worst Case					22.02	
802.11g	1	2 412	16.73	17.56	20.18	
	6	2 437	16.62	17.56	20.13	
	10	2 457	16.50	17.14	19.84	
	11	2 462	14.60	15.42	18.04	
	12	2 467	4.48	5.14	7.83	
	13	2 472	-1.78	-1.06	1.61	
Worst Case					20.18	
802.11n HT20	1	2 412	16.56	17.39	20.01	
	6	2 437	16.52	17.41	20.00	
	10	2 457	16.38	17.20	19.82	
	11	2 462	14.46	15.39	17.96	
	12	2 467	4.41	5.15	7.81	
	13	2 472	-1.40	-0.60	2.03	
Worst Case					20.01	
802.11ax HE20(SU)	1	2 412	14.43	15.74	18.14	
	2	2 417	16.42	17.70	20.12	
	6	2 437	16.40	17.66	20.09	
	10	2 457	16.30	17.52	19.96	
	11	2 462	14.36	15.68	18.08	
	12	2 467	4.25	5.56	7.96	
	13	2 472	-1.67	-0.35	2.05	
Worst Case					20.12	

- Calculation of Output Power result

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

- 802.11ax (RU) mode

Channel	Frequency [MHz]	Tones	RU Offset	MIMO Average Power [dBm]			Power Limit [dBm]
				ANT1	ANT2	Total Corr'd Power [dBm]	
1	2 412	26T	0	12.45	13.70	16.13	30.00
			4	12.88	13.52	16.22	
			8	13.23	13.99	16.64	
6	2 437	26T	0	12.73	13.79	16.30	
			4	12.30	13.57	15.99	
			8	12.86	13.97	16.46	
11	2 462	26T	0	13.03	13.98	16.54	
			4	12.04	13.48	15.83	
			8	12.31	13.81	16.13	
12	2 467	26T	0	4.12	5.02	7.60	
			4	4.71	5.87	8.34	
			8	4.06	5.98	8.14	
13	2 472	26T	0	-1.61	-0.74	1.86	
			4	-1.45	-0.11	2.28	
			8	-1.78	-0.31	2.03	
Worst Case						16.64	

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.

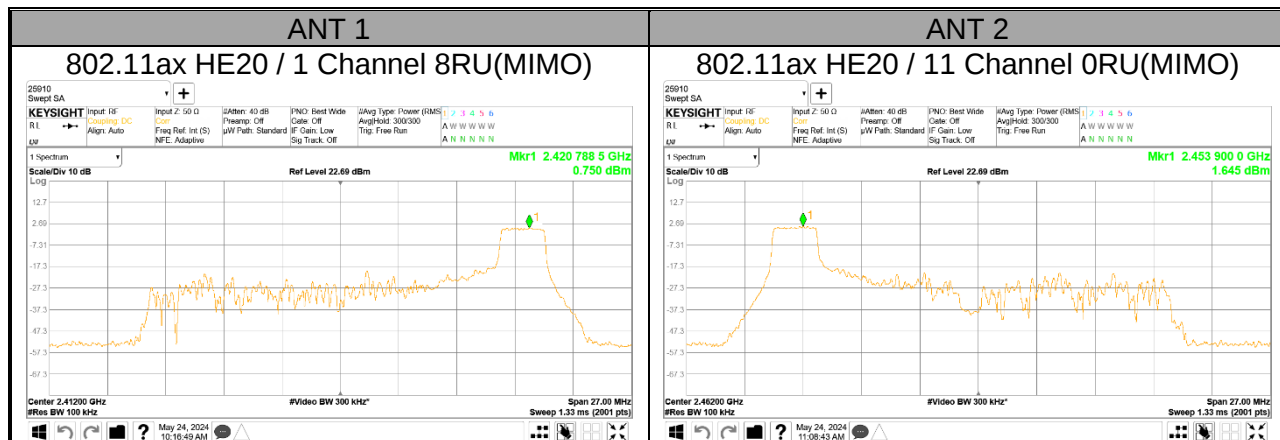
TEST PROCEDURE

Power Spectral Density was performed utilizing the section 8.4 under KDB558074 D01 15.247 Meas Guidance.

RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS



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	-1.48	-0.07	0.00	2.30	8.00 ^{Note}
	2	2 417	-0.21	1.65	0.00	3.83	
	6	2 437	-0.67	1.05	0.00	3.28	
	11	2 462	-0.07	1.34	0.00	3.70	
	12	2 467	-14.21	-13.53	0.00	-10.84	
	13	2 472	-20.24	-19.34	0.00	-16.75	
802.11g	1	2 412	-3.64	-1.99	0.16	0.44	
	6	2 437	-3.87	-1.87	0.16	0.42	
	10	2 457	-3.56	-1.95	0.16	0.49	
	11	2 462	-5.41	-3.85	0.16	-1.39	
	12	2 467	-15.78	-14.05	0.16	-11.66	
	13	2 472	-21.35	-20.45	0.16	-17.71	
802.11n HT20	1	2 412	-3.63	-1.92	0.00	0.32	
	6	2 437	-3.82	-2.29	0.00	0.02	
	10	2 457	-3.76	-2.57	0.00	-0.12	
	11	2 462	-5.74	-4.31	0.00	-1.96	
	12	2 467	-16.21	-14.70	0.00	-12.38	
	13	2 472	-21.42	-20.50	0.00	-17.92	
802.11ax HE20 SU	1	2 412	-7.53	-6.37	0.00	-3.90	
	2	2 417	-5.67	-4.34	0.00	-1.95	
	6	2 437	-5.60	-4.22	0.00	-1.84	
	10	2 457	-5.57	-4.79	0.00	-2.15	
	11	2 462	-7.53	-6.65	0.00	-4.06	
	12	2 467	-18.12	-16.77	0.00	-14.38	
	13	2 472	-23.24	-22.48	0.00	-19.83	

- MIMO Mode(802.11ax HE20 RU mode)

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	-0.10	1.18	0.00	3.59	8.00 ^{Note}
			4	0.26	0.89	0.00	3.60	
			8	0.75	1.50	0.00	4.15	
6	2 437	26T	0	0.20	1.43	0.00	3.87	
			4	-0.48	1.04	0.00	3.36	
			8	0.29	1.60	0.00	4.01	
11	2 462	26T	0	0.37	1.65	0.00	4.06	
			4	-0.98	0.67	0.00	2.93	
			8	-0.68	1.09	0.00	3.31	

Calculation of Output PSD result

- 2TX : Total PSD = ANT1 Meas PSD + ANT2 Meas PSD + Duty Cycle CF

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

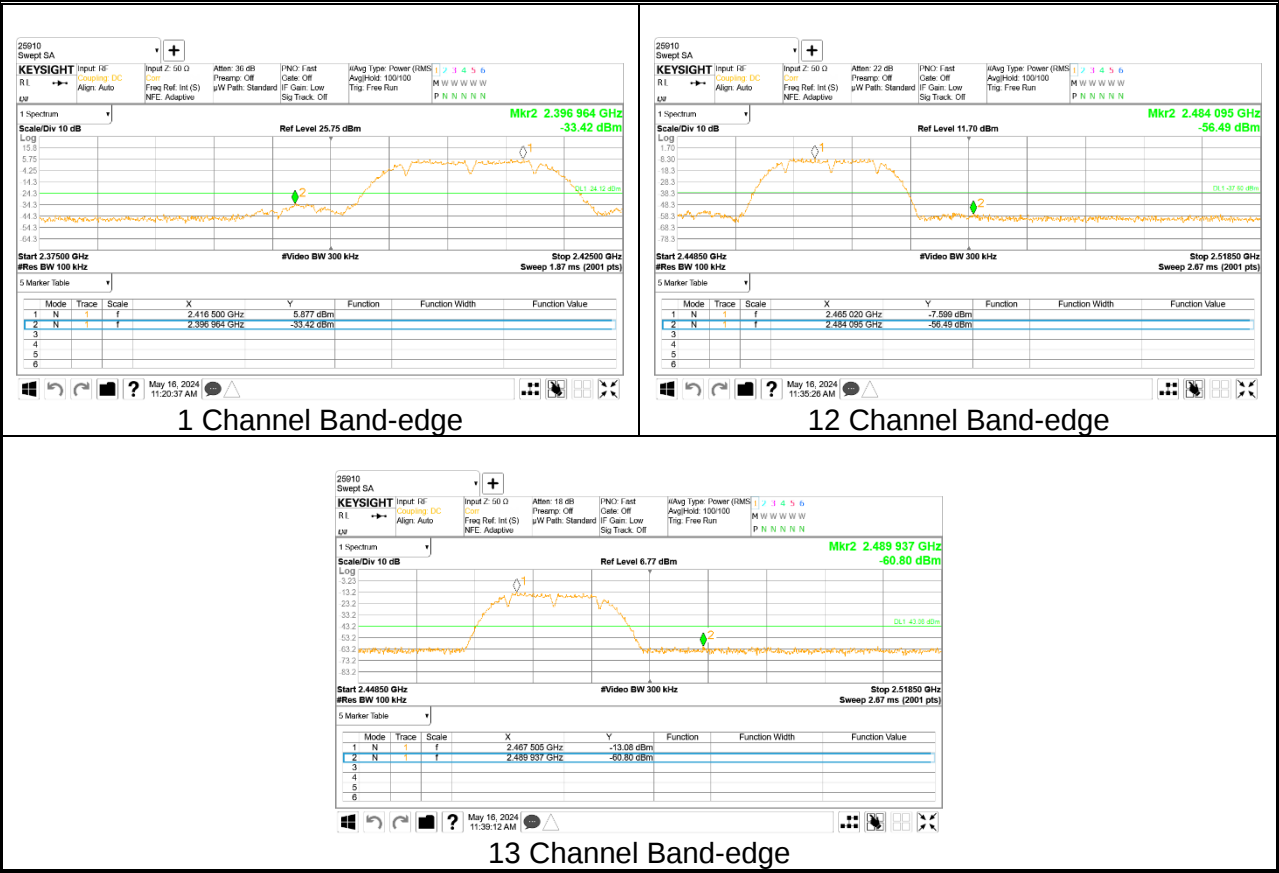
9.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

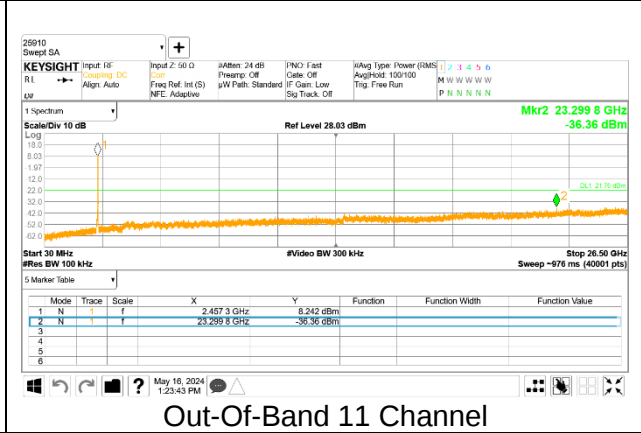
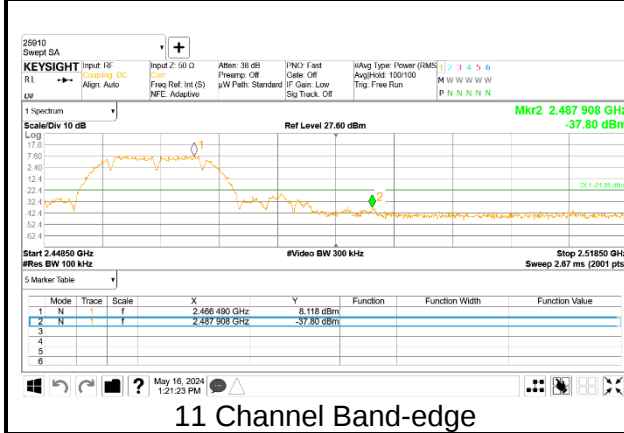
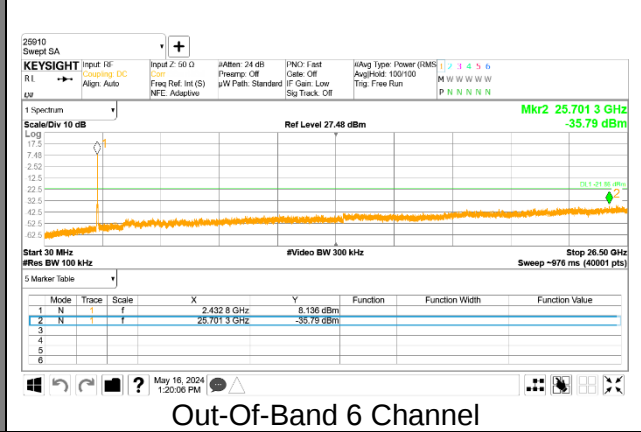
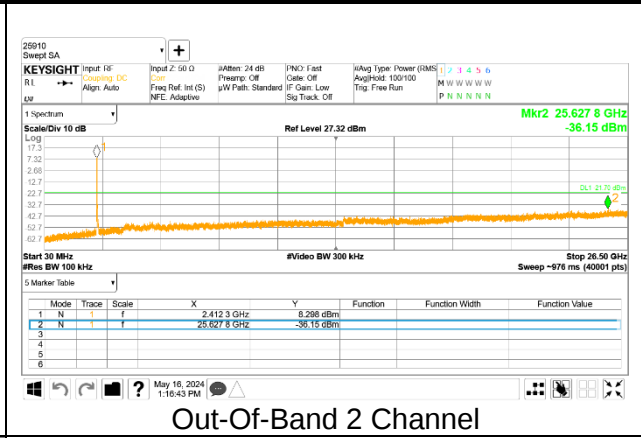
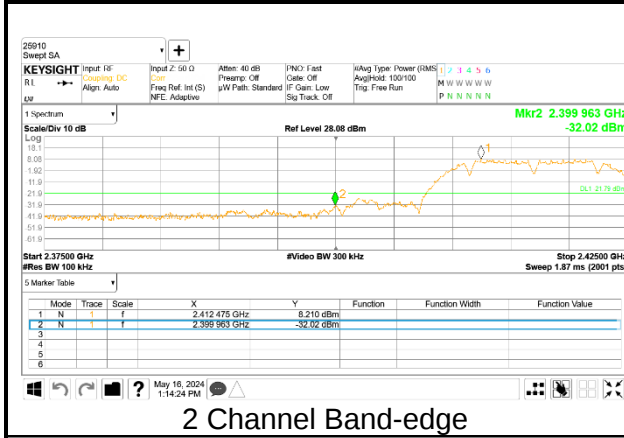
FCC §15.247 (d)

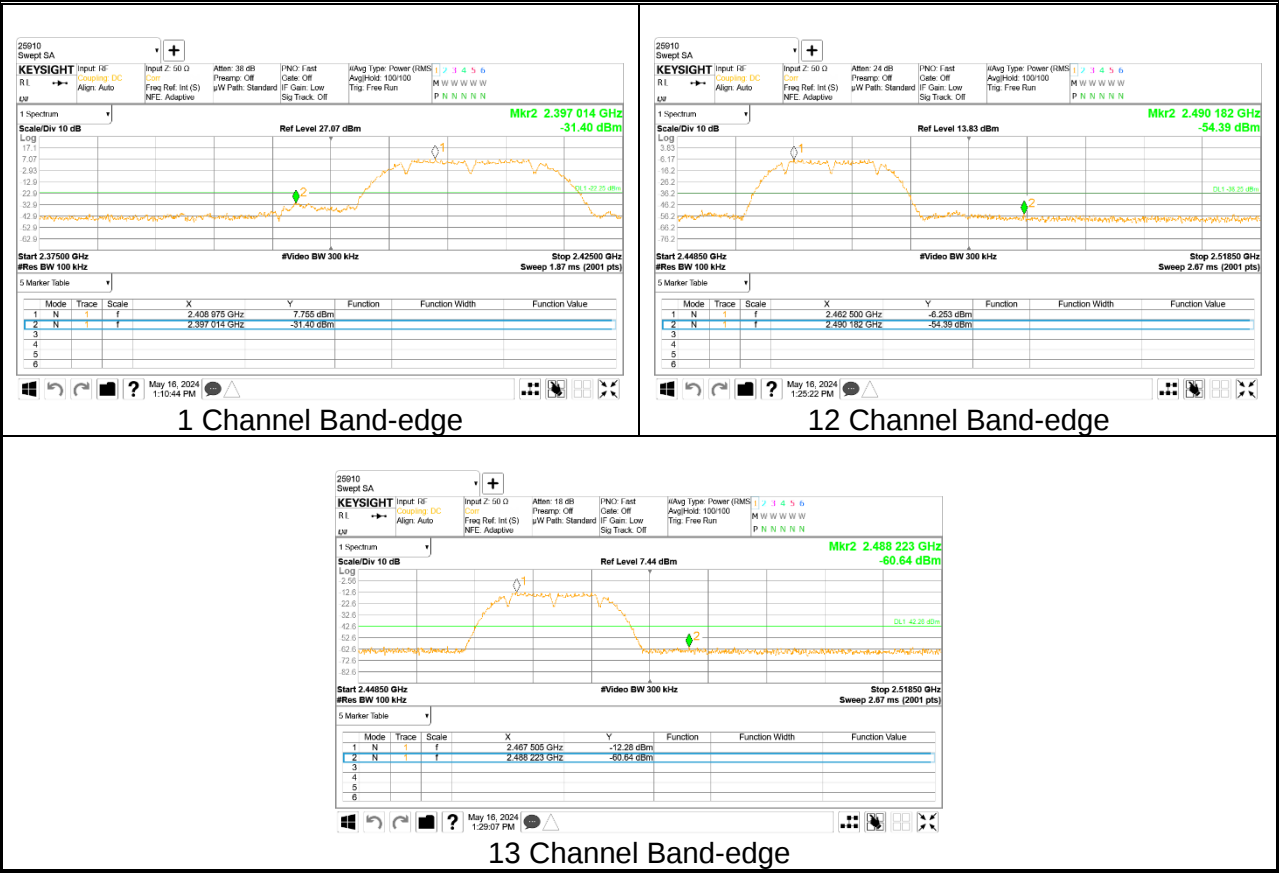
Output power was measured based on the use of average measurement, therefore the required attenuation is 30 dB.

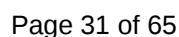
RESULTS



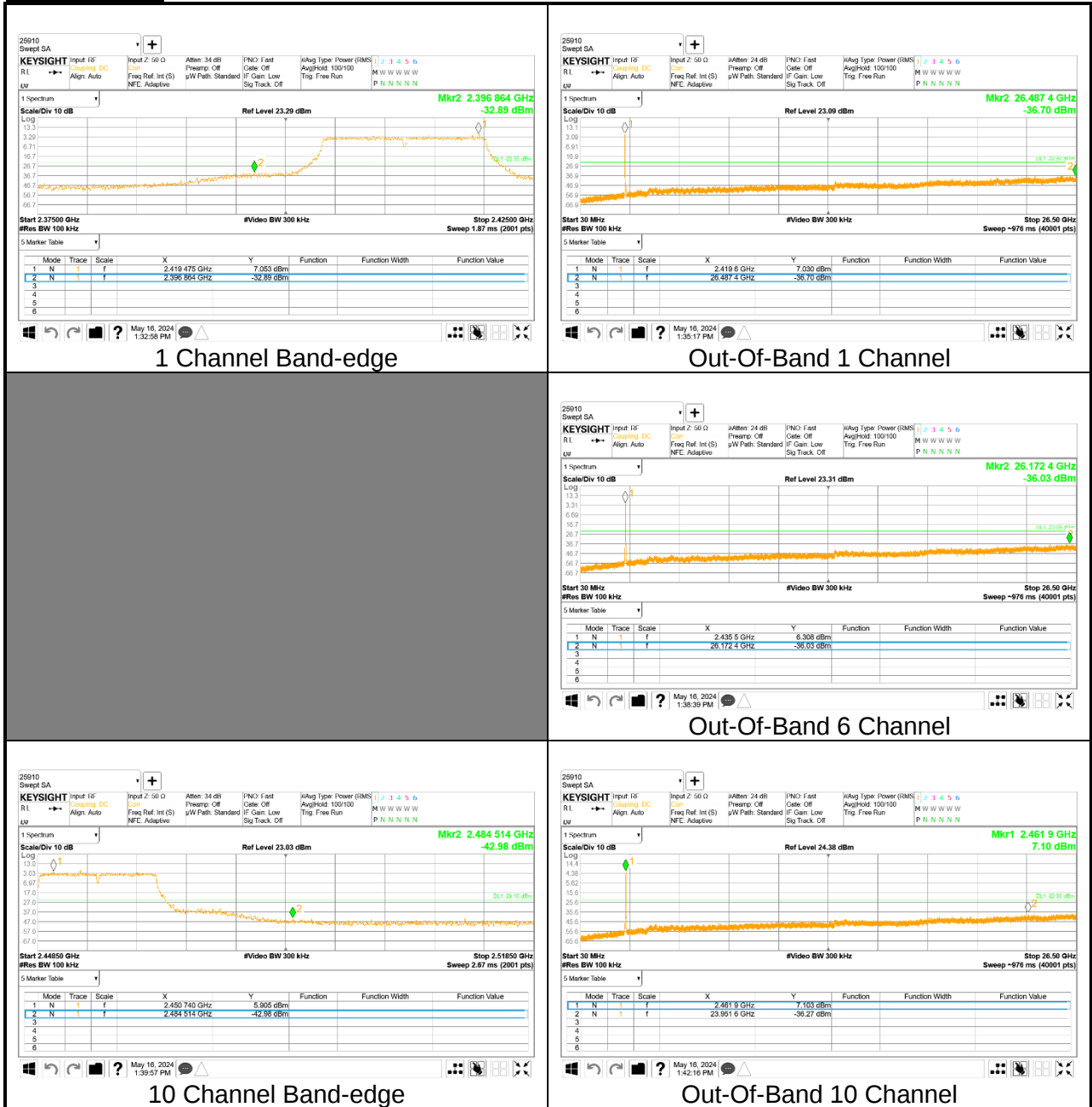
2TX Antenna 2

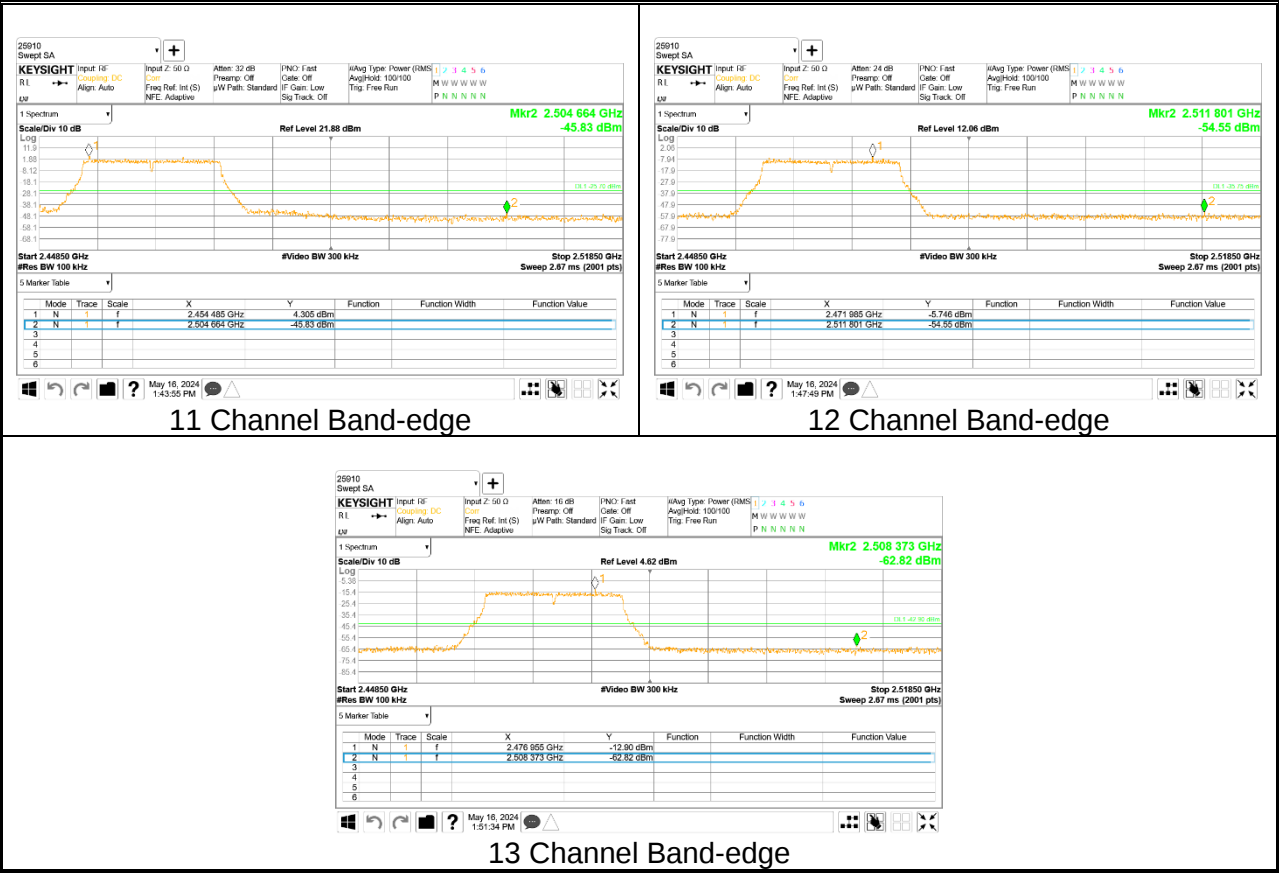






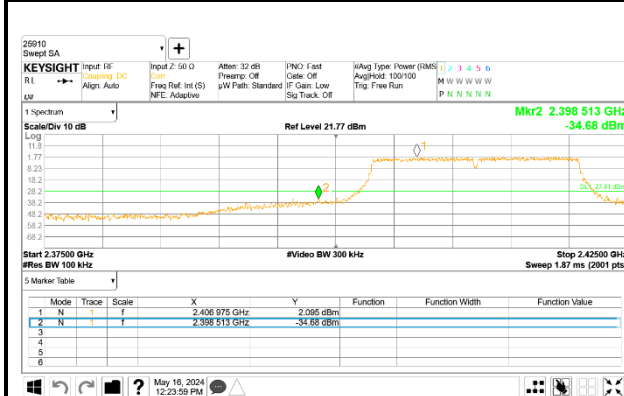
2TX Antenna 2



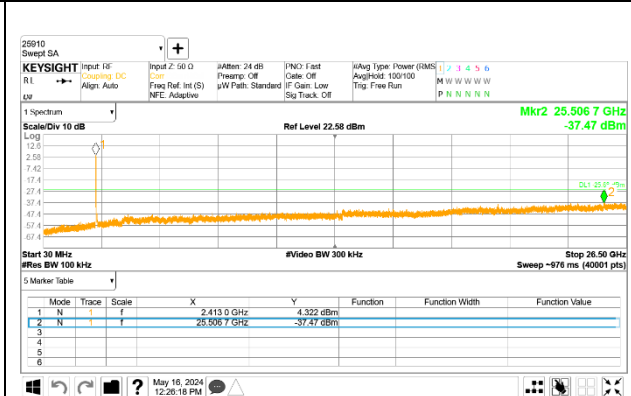


9.5.3. 802.11n HT20 MODE

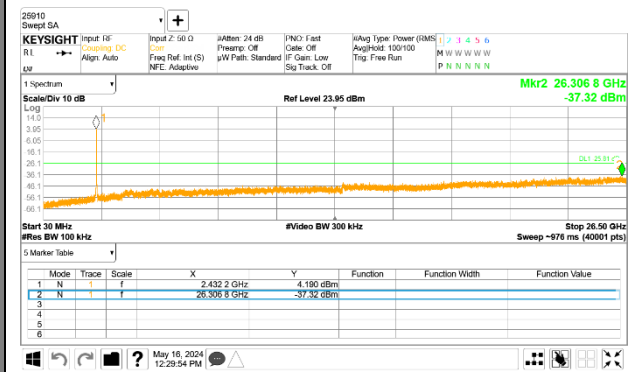
2TX Antenna 1



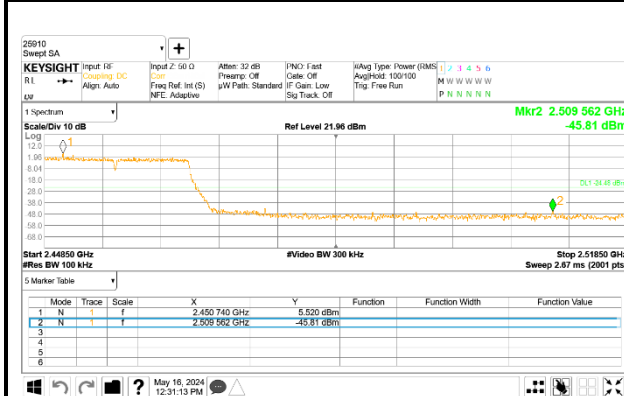
1 Channel Band-edge



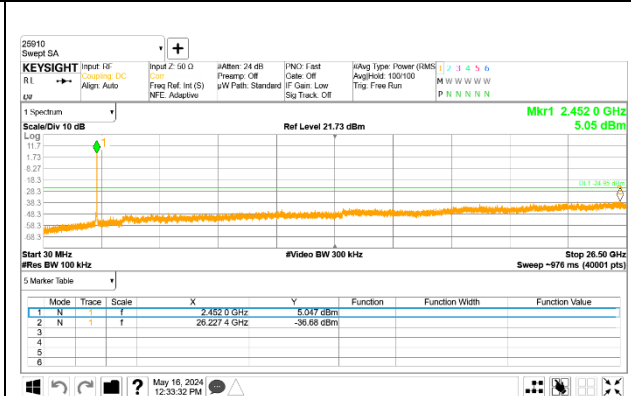
Out-Of-Band 1 Channel



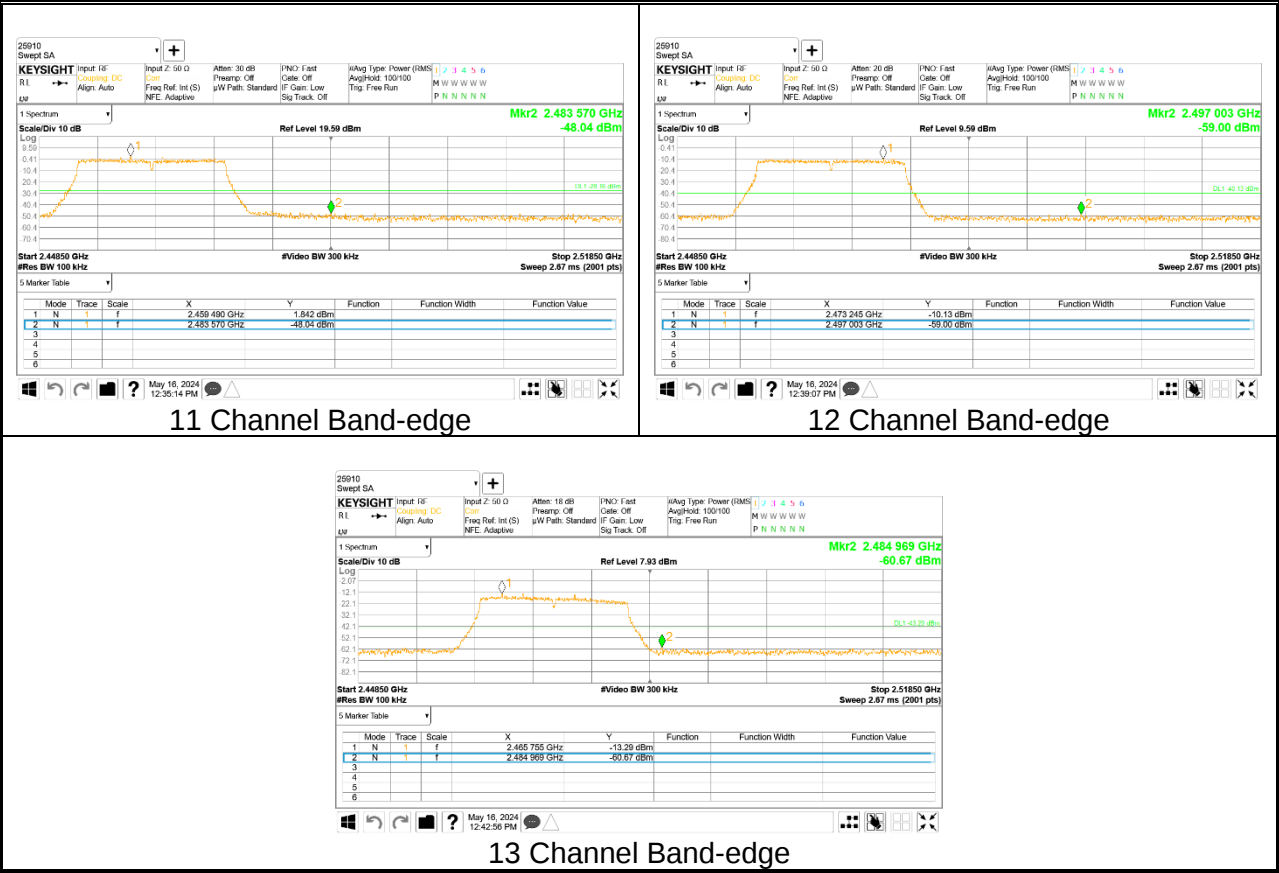
Out-Of-Band 6 Channel



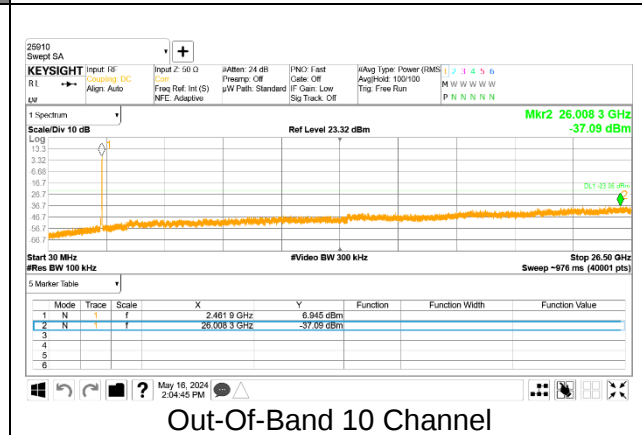
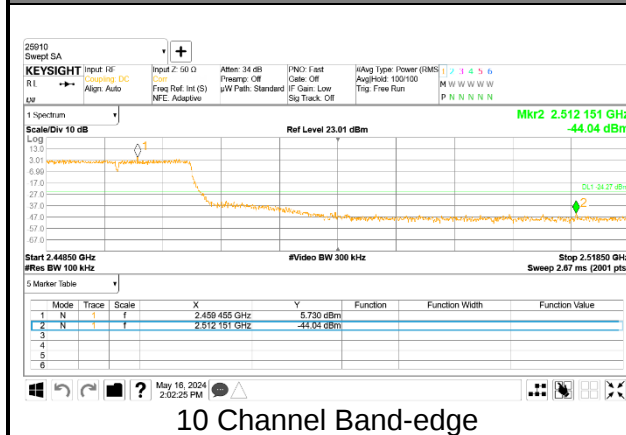
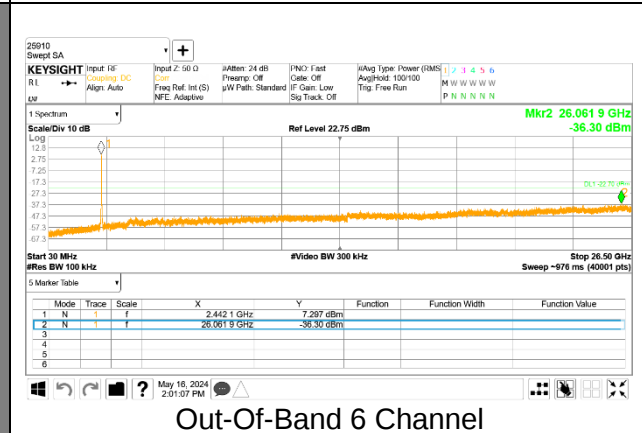
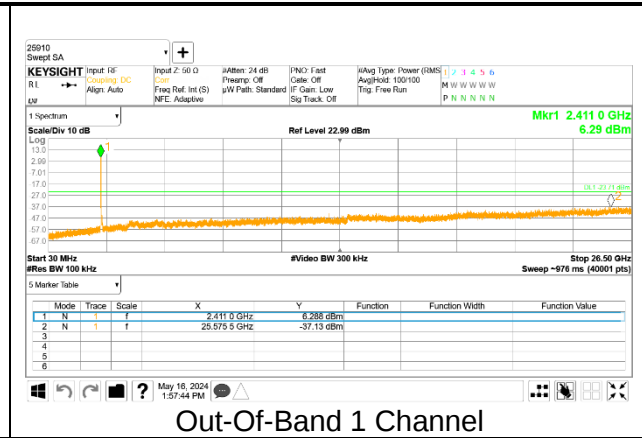
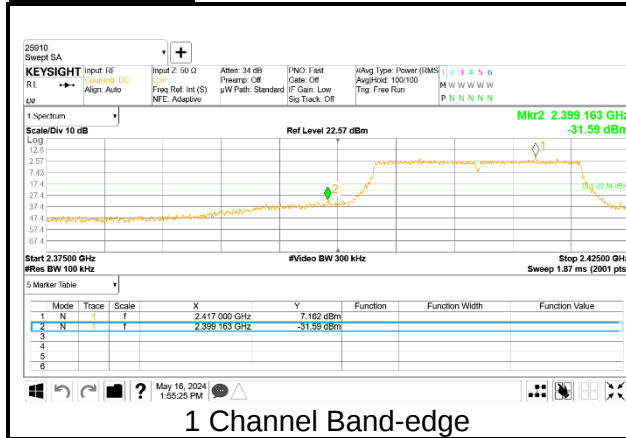
10 Channel Band-edge

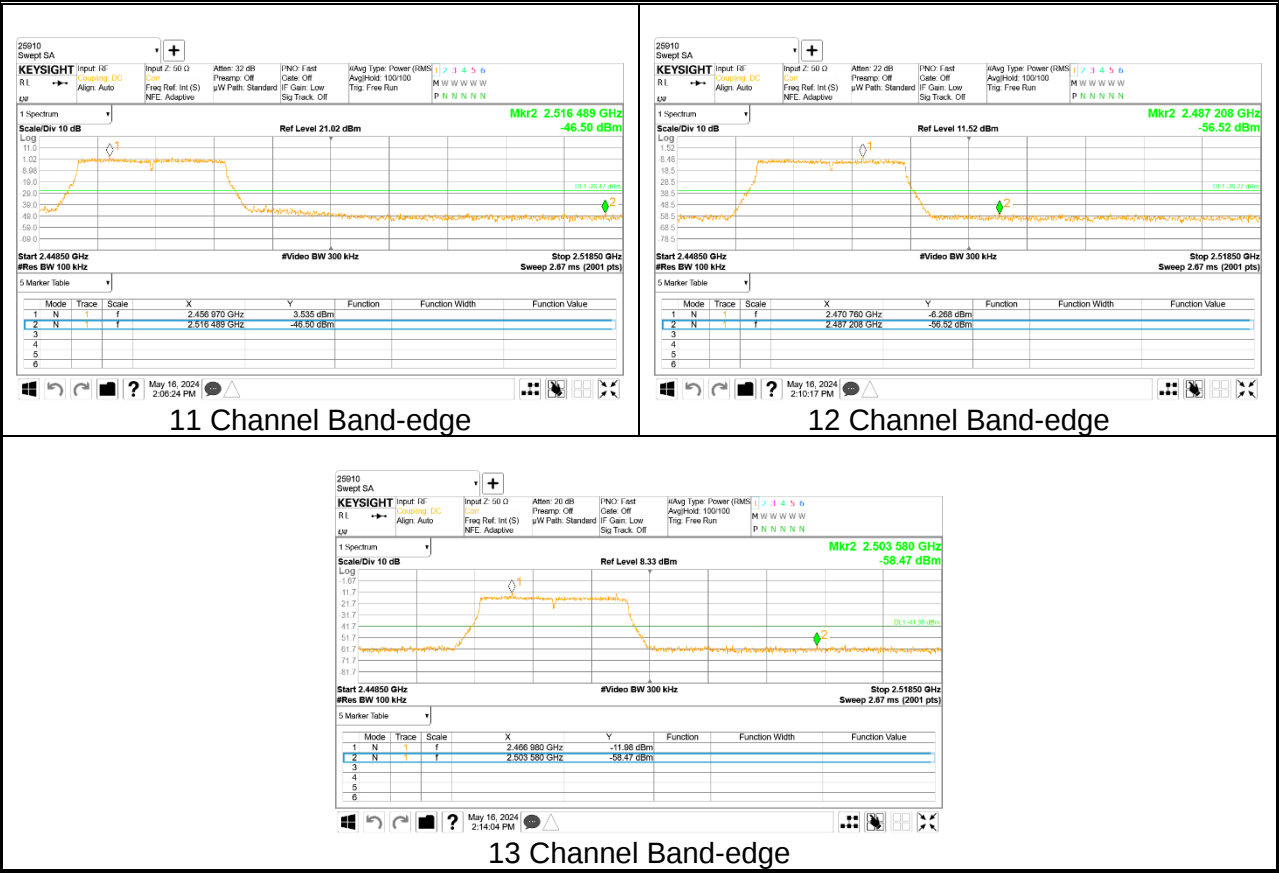


Out-Of-Band 10 Channel



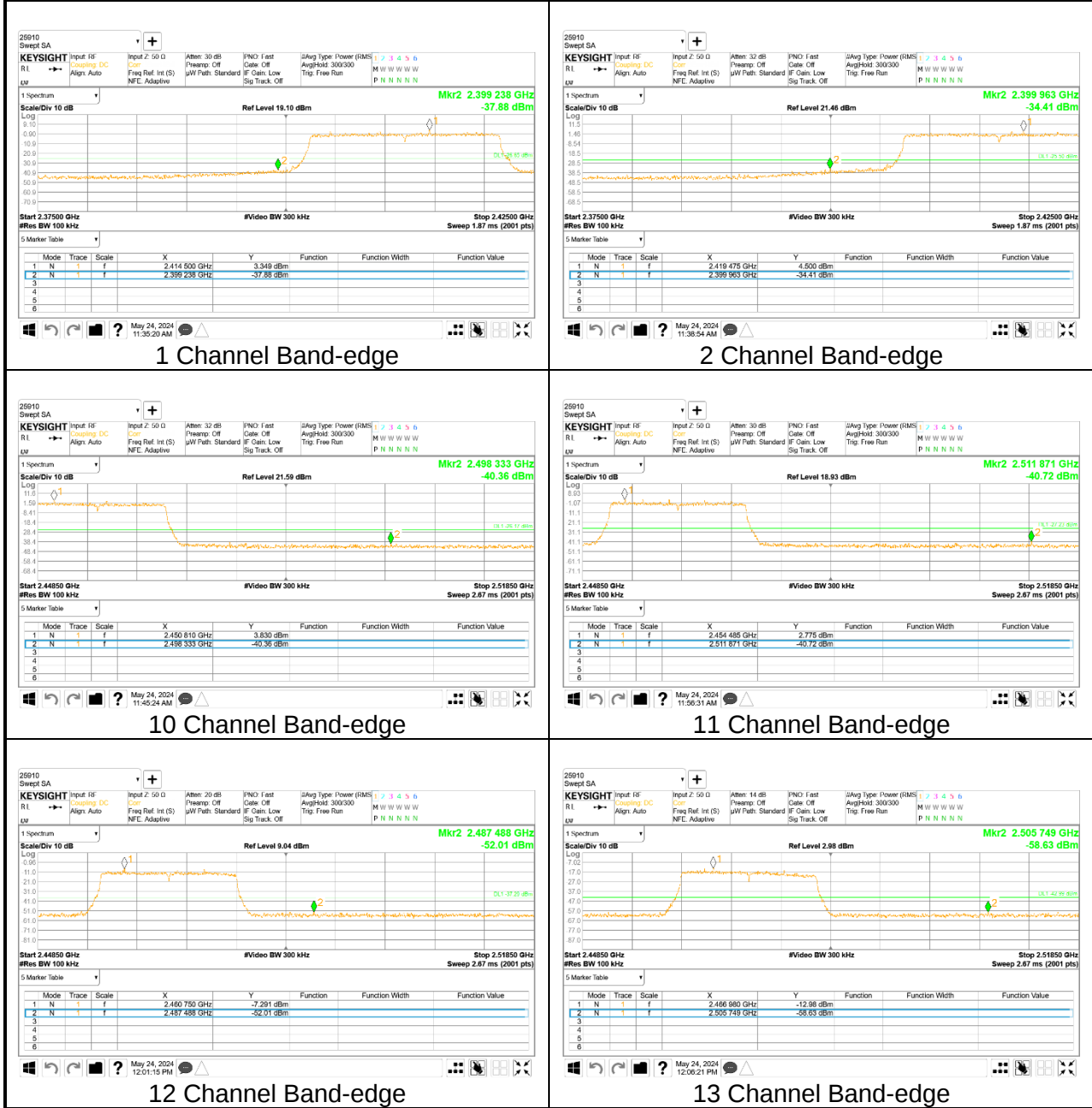
2TX Antenna 2





9.5.4. 802.11ax HE20(SU) MODE

2TX Antenna 1



2TX Antenna 2

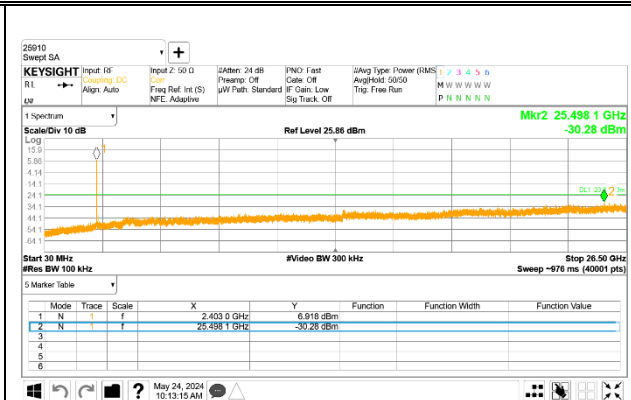


9.5.5. 802.11ax HE20(RU) MODE

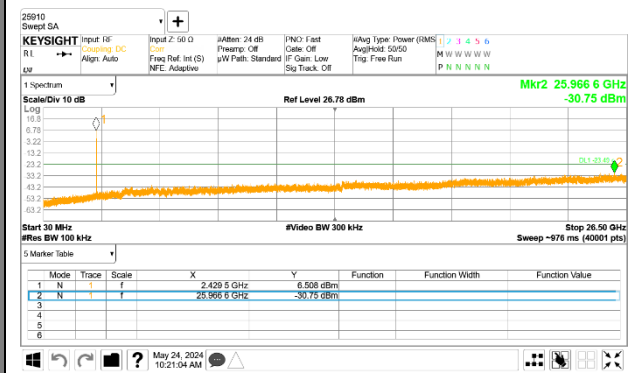
2TX Antenna 1 MODE



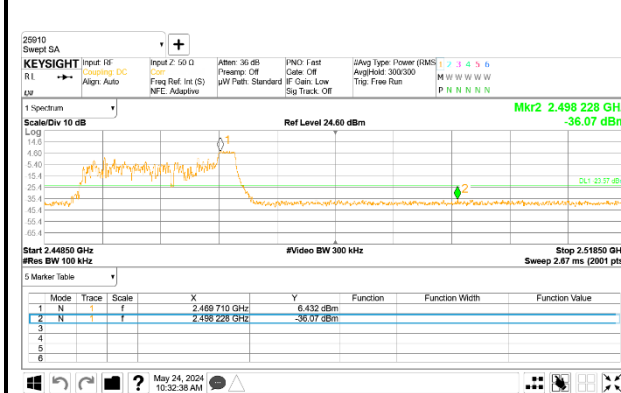
1 Channel Band-edge(0RU)



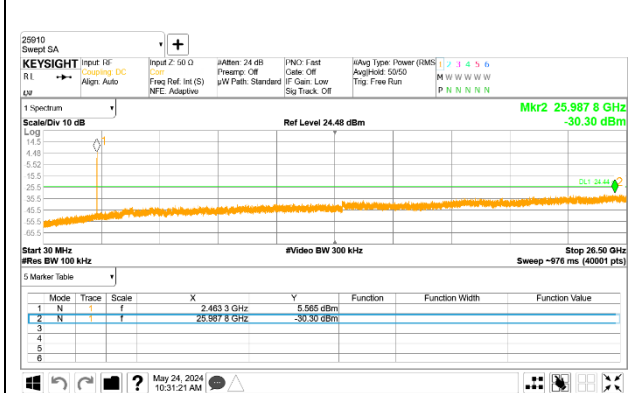
Out-Of-Band 1 Channel(0RU)



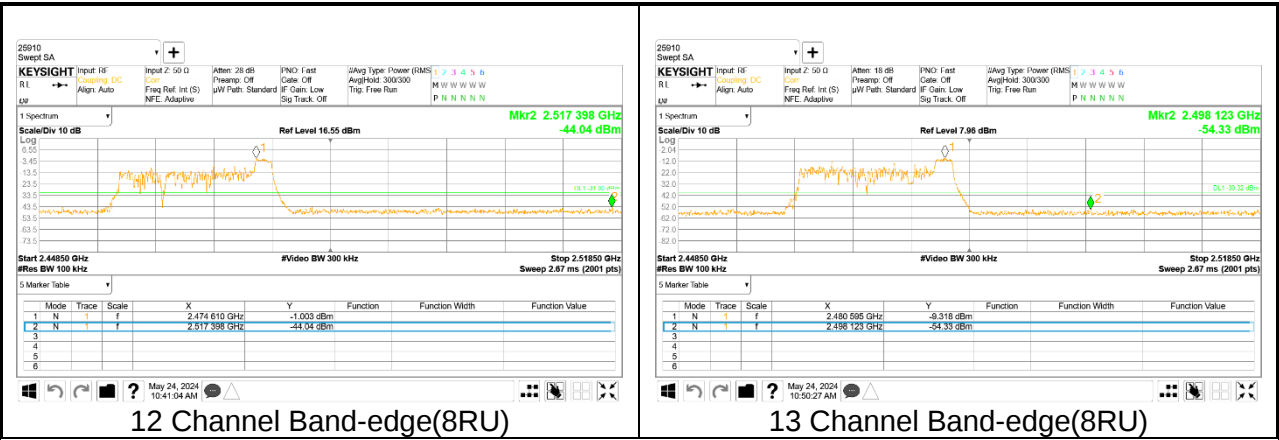
Out-Of-Band 6 Channel(0RU)



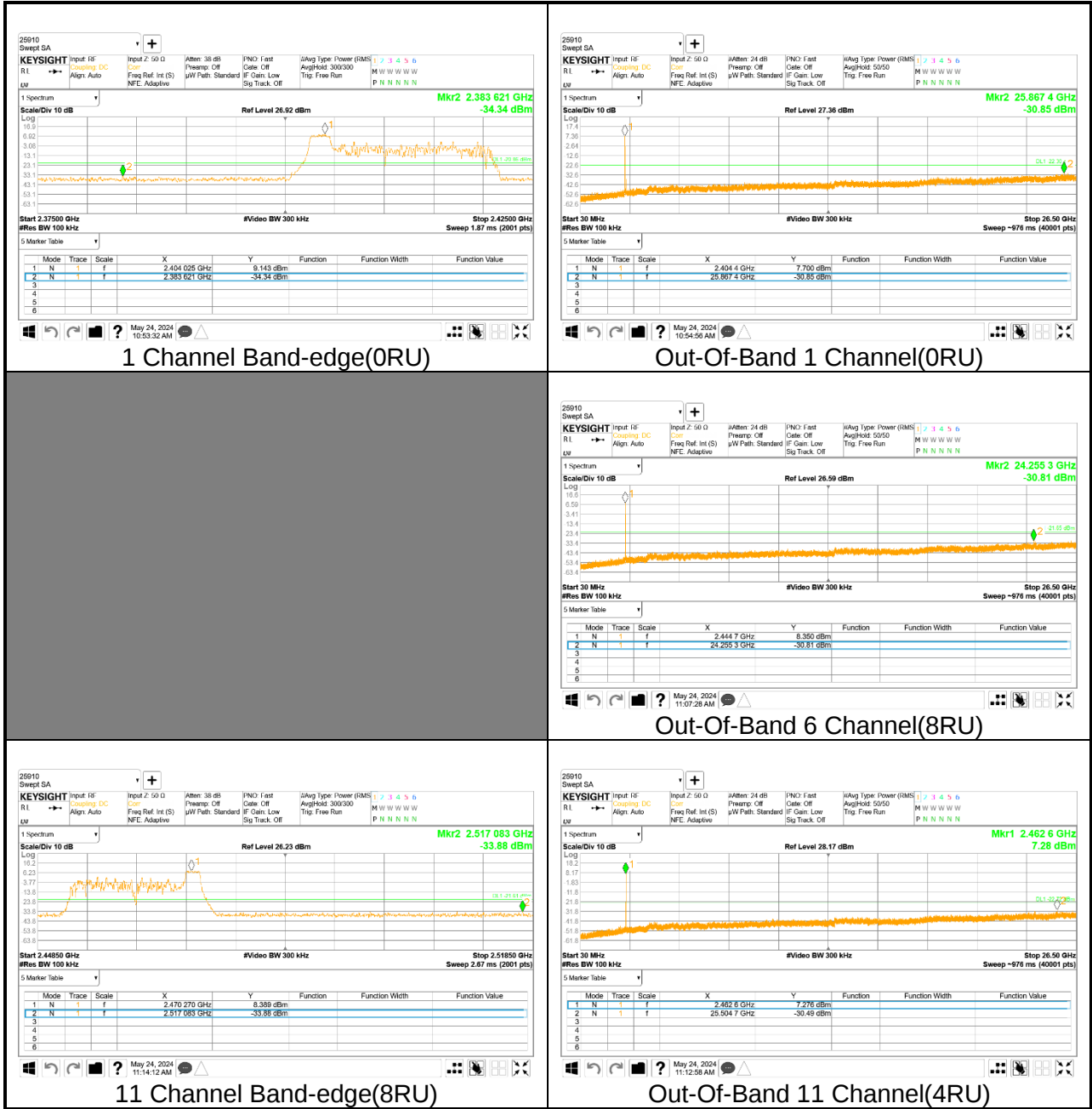
11 Channel Band-edge(8RU)

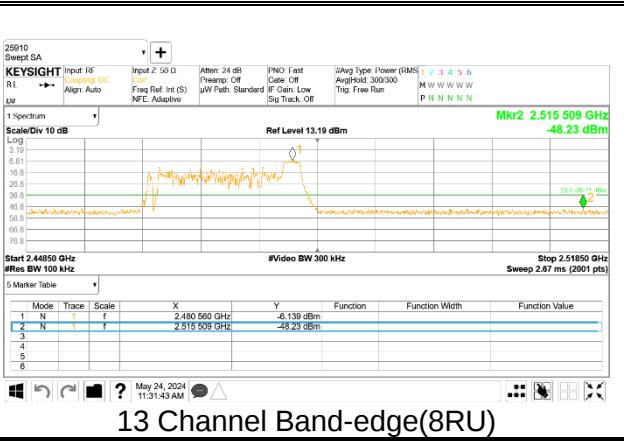
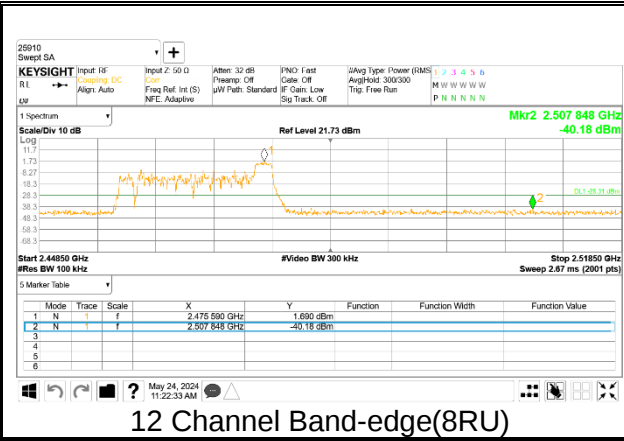


Out-Of-Band 11 Channel(4RU)



2TX Antenna 2 MODE





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.
(Restricted bandedge, Final detection of spurious harmonic emissions)

Duty cycle factor = $10 \log(1/x)$ For this sample:

802.11b MIMO mode = 0 dB (duty cycle > 98%);
802.11g MIMO mode = 0.16 dB (96.32%);
802.11n(HT20) MIMO mode = 0.00 dB (98.03%);
802.11ax(HE20) MIMO SU mode = 0 dB (duty cycle > 98%);
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.

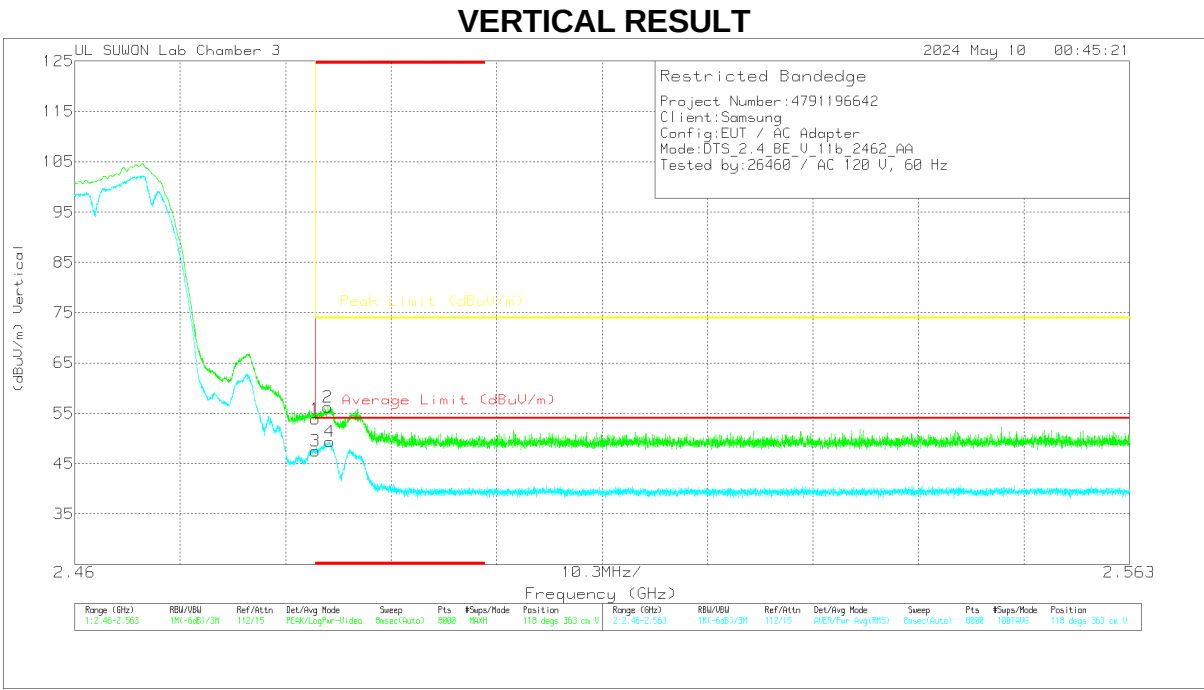
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field 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: 11 CHANNEL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_SST_Factor(dB)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.4835	46.22	PK	32.4	-24.8	0	53.82	-	-	74	-20.18	118	363	V
2	* 2.48474	48.65	PK	32.4	-24.8	0	56.25	-	-	74	-17.75	118	363	V
3	* 2.4835	39.88	RMS	32.4	-24.8	0	47.48	54	-6.52	-	-	118	363	V
4	* 2.48488	41.84	RMS	32.4	-24.8	0	49.44	54	-4.56	-	-	118	363	V

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

BANDEDGE TEST DATA

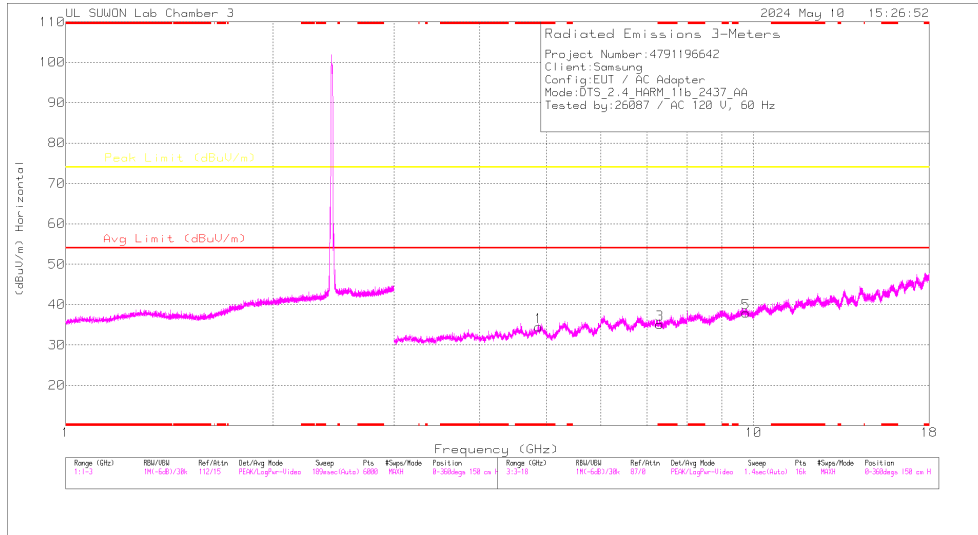
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	MIMO	* 2.39	47.38	Pk	32.10	-24.80	0.00	54.68	-	-	74.00	-19.32	345	186	H
		* 2.38637	48.09	Pk	32.10	-24.80	0.00	55.39	-	-	74.00	-18.61	345	186	H
		* 2.39	40.21	RMS	32.10	-24.80	0.00	47.51	54.00	-6.49	-	-	345	186	H
		* 2.38606	40.57	RMS	32.10	-24.80	0.00	47.87	54.00	-6.13	-	-	345	186	H
		* 2.39	46.73	Pk	32.10	-24.80	0.00	54.03	-	-	74.00	-19.97	106	392	V
		* 2.38614	48.31	Pk	32.10	-24.80	0.00	55.61	-	-	74.00	-18.39	106	392	V
		* 2.39	37.98	RMS	32.10	-24.80	0.00	45.29	54.00	-8.71	-	-	106	392	V
		* 2.38594	40.02	RMS	32.10	-24.80	0.00	47.22	54.00	-6.78	-	-	106	392	V
2417	MIMO	* 2.39	48.08	Pk	32.10	-24.80	0.00	55.38	-	-	74.00	-18.62	345	186	H
		* 2.3883	48.53	Pk	32.10	-24.80	0.00	55.83	-	-	74.00	-18.17	345	186	H
		* 2.39	39.35	RMS	32.10	-24.80	0.00	46.65	54.00	-7.35	-	-	345	186	H
		* 2.38889	40.38	RMS	32.10	-24.80	0.00	47.68	54.00	-6.32	-	-	345	186	H
		* 2.39	46.10	Pk	32.10	-24.80	0.00	53.40	-	-	74.00	-20.60	106	392	V
		* 2.38996	47.67	Pk	32.10	-24.80	0.00	54.97	-	-	74.00	-19.03	106	392	V
		* 2.39	37.46	RMS	32.10	-24.80	0.00	44.76	54.00	-9.24	-	-	106	392	V
		* 2.38998	37.83	RMS	32.10	-24.80	0.00	45.13	54.00	-8.87	-	-	106	392	V
2462	MIMO	* 2.4835	47.47	Pk	32.40	-24.80	0.00	55.07	-	-	74.00	-18.93	240	157	H
		* 2.48399	48.45	Pk	32.40	-24.80	0.00	56.05	-	-	74.00	-17.95	240	157	H
		* 2.4835	40.88	RMS	32.40	-24.80	0.00	48.48	54.00	-5.52	-	-	240	157	H
		* 2.48359	41.29	RMS	32.40	-24.80	0.00	48.89	54.00	-5.11	-	-	240	157	H
		* 2.4835	46.22	Pk	32.40	-24.80	0.00	53.82	-	-	74.00	-20.18	118	363	V
		* 2.48474	48.65	Pk	32.40	-24.80	0.00	56.25	-	-	74.00	-17.75	118	363	V
		* 2.4835	39.88	RMS	32.40	-24.80	0.00	47.48	54.00	-6.52	-	-	118	363	V
		* 2.48488	41.84	RMS	32.40	-24.80	0.00	49.44	54.00	-4.56	-	-	118	363	V
2467	MIMO	* 2.4835	42.97	Pk	32.40	-24.80	0.00	50.57	-	-	74.00	-23.43	246	134	H
		2.524	44.51	Pk	32.40	-24.80	0.00	52.11	-	-	74.00	-21.89	246	134	H
		* 2.4835	33.09	RMS	32.40	-24.80	0.00	40.69	54.00	-13.31	-	-	246	134	H
		* 2.48413	34.81	RMS	32.40	-24.80	0.00	42.41	54.00	-11.59	-	-	246	134	H
		* 2.4835	42.70	Pk	32.40	-24.80	0.00	50.30	-	-	74.00	-23.70	106	364	V
		* 2.48378	45.24	Pk	32.40	-24.80	0.00	52.84	-	-	74.00	-21.16	106	364	V
		* 2.4835	33.25	RMS	32.40	-24.80	0.00	40.85	54.00	-13.15	-	-	106	364	V
		* 2.48404	34.22	RMS	32.40	-24.80	0.00	41.82	54.00	-12.18	-	-	106	364	V
2472	MIMO	* 2.4835	41.40	Pk	32.40	-24.80	0.00	49.00	-	-	74.00	-25.00	246	155	H
		2.547	44.72	Pk	32.40	-24.70	0.00	52.42	-	-	74.00	-21.58	246	155	H
		* 2.4835	31.72	RMS	32.40	-24.80	0.00	39.32	54.00	-14.68	-	-	246	155	H
		* 2.49425	33.24	RMS	32.40	-24.80	0.00	40.84	54.00	-13.16	-	-	246	155	H
		* 2.4835	41.33	Pk	32.40	-24.80	0.00	48.93	-	-	74.00	-25.07	118	361	V
		2.547	45.01	Pk	32.40	-24.70	0.00	52.71	-	-	74.00	-21.29	118	361	V
		* 2.4835	31.83	RMS	32.40	-24.80	0.00	39.43	54.00	-14.57	-	-	118	361	V
		2.551	33.15	RMS	32.40	-24.70	0.00	40.85	54.00	-13.15	-	-	118	361	V

Note1. Pk - Peak detector, RMS - RMS detector

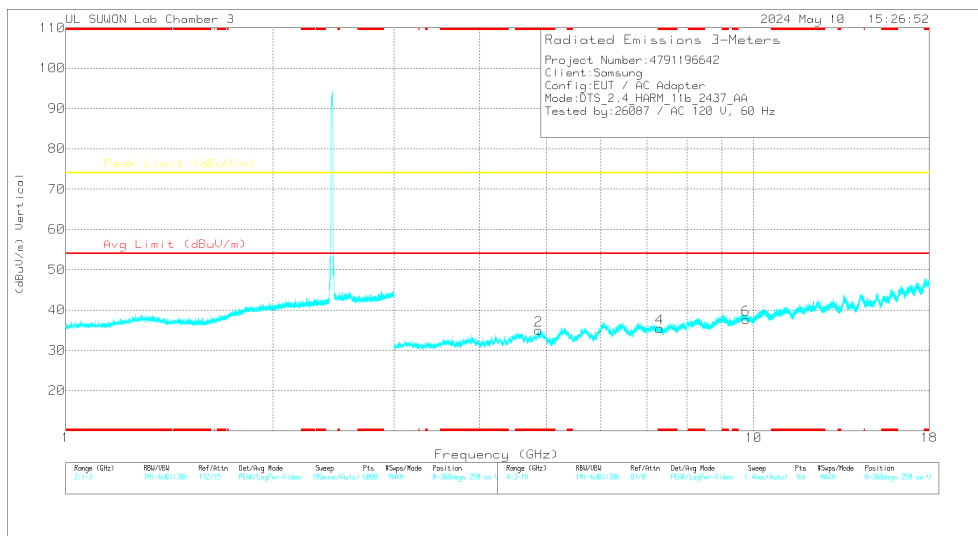
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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	Antenna_957 Factor(dB)	3GHz_HP_Pat h Loss(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
* 4.87383	40.67	PK2	34.2	-29.8	0	45.07	-	-	74	-28.93	317	101	H
* 4.87396	31.41	MAv1	34.2	-29.8	0	35.81	54	-18.19	-	-	317	101	H
* 4.87417	40.98	PK2	34.2	-29.8	0	45.38	-	-	74	-28.62	82	386	V
* 4.87397	31.55	MAv1	34.2	-29.8	0	35.95	54	-18.05	-	-	82	386	V
* 7.3069	35.06	PK2	35.8	-25.5	0	45.36	-	-	74	-28.64	0	100	H
* 7.31527	34.91	PK2	35.8	-25.5	0	45.21	-	-	74	-28.79	0	100	V
9.74804	32.05	PK2	36.9	-21.6	0	47.35	-	-	74	-26.65	0	100	H
9.74374	32.04	PK2	36.9	-21.6	0	47.34	-	-	74	-26.66	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 [dB/m]	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	MIMO	* 4.83386	39.62	PK2	34.20	-30.00	0.00	43.82	-	-	74.00	-30.18	58	263	H
		* 4.83397	28.97	MAv1	34.20	-30.00	0.00	33.17	54.00	-20.83	-	-	58	263	H
		* 4.83395	39.69	PK2	34.20	-30.00	0.00	43.89	-	-	74.00	-30.11	326	100	V
		* 4.83396	29.41	MAv1	34.20	-30.00	0.00	33.61	54.00	-20.39	-	-	326	100	V
		* 7.25357	35.27	PK2	35.80	-25.70	0.00	45.37	-	-	74.00	-28.63	0	100	H
		* 7.25853	35.53	PK2	35.80	-25.70	0.00	45.63	-	-	74.00	-28.37	0	100	V
		9.668	32.79	PK2	36.80	-21.60	0.00	47.99	-	-	74.00	-26.01	0	100	H
		9.669	33.34	PK2	36.80	-21.70	0.00	48.44	-	-	74.00	-25.56	0	100	V
2437	MIMO	* 4.87383	40.67	PK2	34.20	-29.80	0.00	45.07	-	-	74.00	-28.93	317	101	H
		* 4.87396	31.41	MAv1	34.20	-29.80	0.00	35.81	54.00	-18.19	-	-	317	101	H
		* 4.87417	40.98	PK2	34.20	-29.80	0.00	45.38	-	-	74.00	-28.62	82	386	V
		* 4.87397	31.55	MAv1	34.20	-29.80	0.00	35.95	54.00	-18.05	-	-	82	386	V
		* 7.3069	35.06	PK2	35.80	-25.50	0.00	45.36	-	-	74.00	-28.64	0	100	H
		* 7.31527	34.91	PK2	35.80	-25.50	0.00	45.21	-	-	74.00	-28.79	0	100	V
		9.748	32.05	PK2	36.90	-21.60	0.00	47.35	-	-	74.00	-26.65	0	100	H
		9.744	32.04	PK2	36.90	-21.60	0.00	47.34	-	-	74.00	-26.66	0	100	V
2462	MIMO	* 4.92424	40.48	PK2	34.20	-30.00	0.00	44.68	-	-	74.00	-29.32	58	269	H
		* 4.92401	30.04	MAv1	34.20	-30.00	0.00	34.24	54.00	-19.76	-	-	58	269	H
		* 4.9241	40.63	PK2	34.20	-30.00	0.00	44.83	-	-	74.00	-29.17	328	100	V
		* 4.92397	30.45	MAv1	34.20	-30.00	0.00	34.65	54.00	-19.35	-	-	328	100	V
		* 7.38696	34.69	PK2	35.70	-25.30	0.00	45.09	-	-	74.00	-28.91	0	100	H
		* 7.38669	34.28	PK2	35.70	-25.40	0.00	44.58	-	-	74.00	-29.42	0	100	V
		9.849	31.94	PK2	37.10	-21.40	0.00	47.64	-	-	74.00	-26.36	0	100	H
		9.848	32.30	PK2	37.10	-21.40	0.00	48.00	-	-	74.00	-26.00	0	100	V

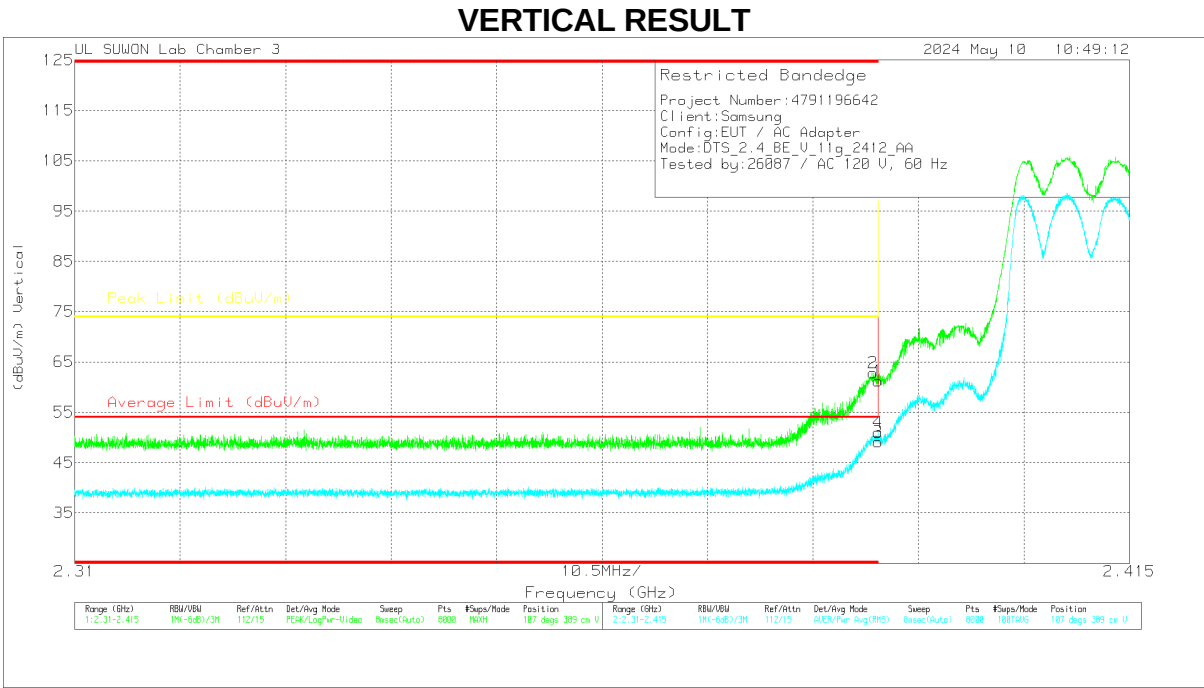
Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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

2TX Antenna 1 + Antenna 2

BANDEDGE (WORST CASE: 1 CHANNEL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna 957 Factor(dB)	10dB_Path Loss(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	53.93	Pk	32.1	-24.8	0	61.23	-	-	74	-12.77	107	389	V
2	* 2.3895	55.54	Pk	32.1	-24.8	0	62.54	-	-	74	-11.16	107	389	V
3	* 2.39	41.73	RMS	32.1	-24.8	16	49.19	54	-4.81	-	-	107	389	V
4	* 2.3897	43.56	RMS	32.1	-24.8	16	51.02	54	-2.98	-	-	107	389	V

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

BANDEDGE TEST DATA

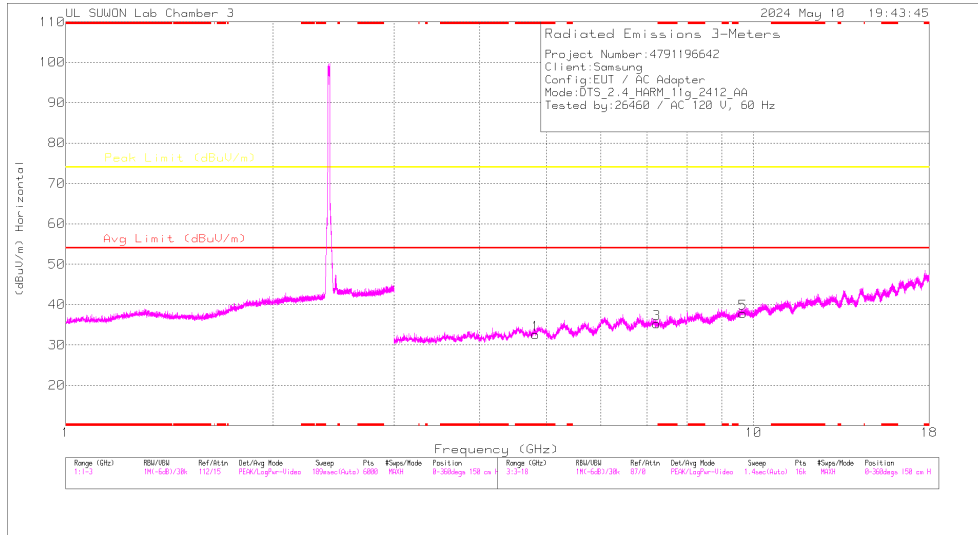
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	MIMO	* 2.39	53.47	Pk	32.10	-24.80	0.00	60.77	-	-	74.00	-13.23	336	186	H
		* 2.38998	56.20	Pk	32.10	-24.80	0.00	63.50	-	-	74.00	-10.50	336	186	H
		* 2.39	41.13	RMS	32.10	-24.80	0.16	48.59	54.00	-5.41	-	-	336	186	H
		* 2.38997	43.34	RMS	32.10	-24.80	0.16	50.90	54.00	-3.20	-	-	336	186	H
		* 2.39	53.93	Pk	32.10	-24.80	0.00	61.23	-	-	74.00	-12.77	107	389	V
		* 2.3895	55.54	Pk	32.10	-24.80	0.00	62.84	-	-	74.00	-11.16	107	389	V
		* 2.39	41.73	RMS	32.10	-24.80	0.16	49.19	54.00	-4.81	-	-	107	389	V
		* 2.38997	43.56	RMS	32.10	-24.80	0.16	51.02	54.00	-2.98	-	-	107	389	V
2457	MIMO	* 2.4835	50.97	Pk	32.40	-24.80	0.00	58.57	-	-	74.00	-15.43	348	132	H
		* 2.48449	54.18	Pk	32.40	-24.80	0.00	61.78	-	-	74.00	-12.22	348	132	H
		* 2.4835	38.09	RMS	32.40	-24.80	0.16	45.85	54.00	-8.15	-	-	348	132	H
		* 2.48413	39.38	RMS	32.40	-24.80	0.16	47.14	54.00	-6.86	-	-	348	132	H
		* 2.4835	47.83	Pk	32.40	-24.80	0.00	55.43	-	-	74.00	-18.57	120	366	V
		* 2.48481	51.98	Pk	32.40	-24.80	0.00	59.58	-	-	74.00	-14.42	120	366	V
		* 2.4835	36.41	RMS	32.40	-24.80	0.16	44.17	54.00	-9.83	-	-	120	366	V
		* 2.48545	36.88	RMS	32.40	-24.80	0.16	44.64	54.00	-9.36	-	-	120	366	V
2462	MIMO	* 2.4835	48.19	Pk	32.40	-24.80	0.00	55.79	-	-	74.00	-18.21	231	132	H
		* 2.48385	49.48	Pk	32.40	-24.80	0.00	57.08	-	-	74.00	-16.92	231	132	H
		* 2.4835	36.65	RMS	32.40	-24.80	0.16	44.41	54.00	-9.59	-	-	231	132	H
		* 2.4836	37.34	RMS	32.40	-24.80	0.16	45.10	54.00	-8.90	-	-	231	132	H
		* 2.4835	45.51	Pk	32.40	-24.80	0.00	53.11	-	-	74.00	-20.89	122	364	V
		* 2.48364	46.92	Pk	32.40	-24.80	0.00	54.52	-	-	74.00	-19.48	122	364	V
		* 2.4835	34.41	RMS	32.40	-24.80	0.16	42.17	54.00	-11.83	-	-	122	364	V
		* 2.48356	34.92	RMS	32.40	-24.80	0.16	42.68	54.00	-11.32	-	-	122	364	V
2467	MIMO	* 2.4835	41.72	Pk	32.40	-24.80	0.00	49.32	-	-	74.00	-24.68	349	225	H
		2.552	44.41	Pk	32.40	-24.70	0.00	52.11	-	-	74.00	-21.89	349	225	H
		* 2.4835	32.18	RMS	32.40	-24.80	0.16	39.94	54.00	-14.06	-	-	349	225	H
		2.514	33.02	RMS	32.40	-24.60	0.16	40.98	54.00	-13.02	-	-	349	225	H
		* 2.4835	41.56	Pk	32.40	-24.80	0.00	49.16	-	-	74.00	-24.84	95	361	V
		* 2.48528	45.18	Pk	32.40	-24.80	0.00	52.78	-	-	74.00	-21.22	95	361	V
		* 2.4835	31.72	RMS	32.40	-24.80	0.16	39.48	54.00	-14.52	-	-	95	361	V
		* 2.48463	33.42	RMS	32.40	-24.80	0.16	41.18	54.00	-12.82	-	-	95	361	V
2472	MIMO	* 2.4835	42.87	Pk	32.40	-24.80	0.00	50.47	-	-	74.00	-23.53	230	107	H
		2.540	44.38	Pk	32.40	-24.70	0.00	52.08	-	-	74.00	-21.92	230	107	H
		* 2.4835	31.68	RMS	32.40	-24.80	0.16	39.44	54.00	-14.56	-	-	230	107	H
		2.553	33.06	RMS	32.40	-24.70	0.16	40.92	54.00	-13.08	-	-	230	107	H
		* 2.4835	42.48	Pk	32.40	-24.80	0.00	50.08	-	-	74.00	-23.92	73	350	V
		2.539	44.20	Pk	32.40	-24.70	0.00	51.90	-	-	74.00	-22.10	73	350	V
		* 2.4835	32.42	RMS	32.40	-24.80	0.16	40.18	54.00	-13.82	-	-	73	350	V
		2.530	33.47	RMS	32.40	-24.70	0.16	41.33	54.00	-12.67	-	-	73	350	V

Note1. Pk - Peak detector, RMS - RMS detector

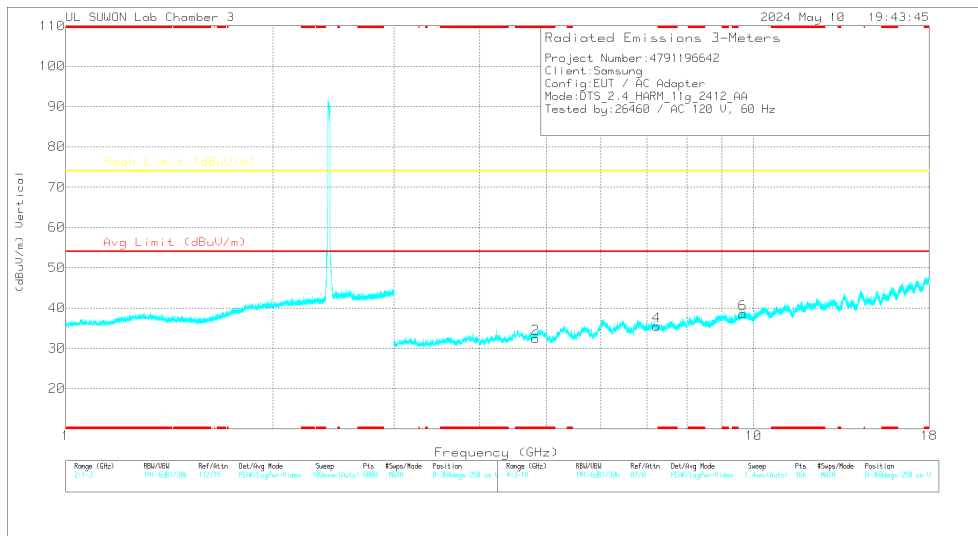
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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	Antenna_957_F actor(dB)	3GHz_HP_Path Loss(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
* 4.82356	39.82	PK2	34.3	-30.1	0	44.02	-	-	74	-29.98	0	100	H
* 4.82464	38.81	PK2	34.3	-30.1	0	43.01	-	-	74	-30.99	0	100	V
7.23576	35.52	PK2	35.8	-25.8	0	45.52	-	-	74	-28.48	0	100	H
7.23591	35.44	PK2	35.8	-25.8	0	45.44	-	-	74	-28.56	0	100	V
9.64784	33.59	PK2	36.8	-21.8	0	48.59	-	-	74	-25.41	0	100	H
9.64781	33.17	PK2	36.8	-21.8	0	48.17	-	-	74	-25.83	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 [dB/m]	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	* 4.82356	39.82	PK2	34.30	-30.10	0.00	44.02	-	-	74.00	-29.98	0	100	H
		* 4.82464	38.81	PK2	34.30	-30.10	0.00	43.01	-	-	74.00	-30.99	0	100	V
		7.236	35.52	PK2	35.80	-25.80	0.00	45.52	-	-	74.00	-28.48	0	100	H
		7.236	35.44	PK2	35.80	-25.80	0.00	45.44	-	-	74.00	-28.56	0	100	V
		9.648	33.59	PK2	36.80	-21.80	0.00	48.59	-	-	74.00	-25.41	0	100	H
		9.648	33.17	PK2	36.80	-21.80	0.00	48.17	-	-	74.00	-25.83	0	100	V
2437	MIMO	* 4.87495	39.88	PK2	34.20	-29.80	0.00	44.28	-	-	74.00	-29.72	0	100	H
		* 4.87377	40.01	PK2	34.20	-29.80	0.00	44.41	-	-	74.00	-29.59	0	100	V
		* 7.31143	34.93	PK2	35.80	-25.50	0.00	45.23	-	-	74.00	-28.77	0	100	H
		* 7.31039	35.98	PK2	35.80	-25.50	0.00	46.28	-	-	74.00	-27.72	0	100	V
		9.749	32.09	PK2	36.90	-21.50	0.00	47.49	-	-	74.00	-26.51	0	100	H
		9.749	32.98	PK2	36.90	-21.50	0.00	48.38	-	-	74.00	-25.62	0	100	V
2457	MIMO	* 4.91456	40.15	PK2	34.20	-29.90	0.00	44.45	-	-	74.00	-29.55	0	100	H
		* 4.91455	40.15	PK2	34.20	-29.90	0.00	44.45	-	-	74.00	-29.55	0	100	V
		* 7.37155	34.86	PK2	35.80	-25.50	0.00	45.16	-	-	74.00	-28.84	0	100	H
		* 7.37083	35.15	PK2	35.80	-25.40	0.00	45.55	-	-	74.00	-28.45	0	100	V
		9.829	32.58	PK2	37.10	-21.50	0.00	48.18	-	-	74.00	-25.82	0	100	H
		9.827	32.98	PK2	37.10	-21.50	0.00	48.58	-	-	74.00	-25.42	0	100	V

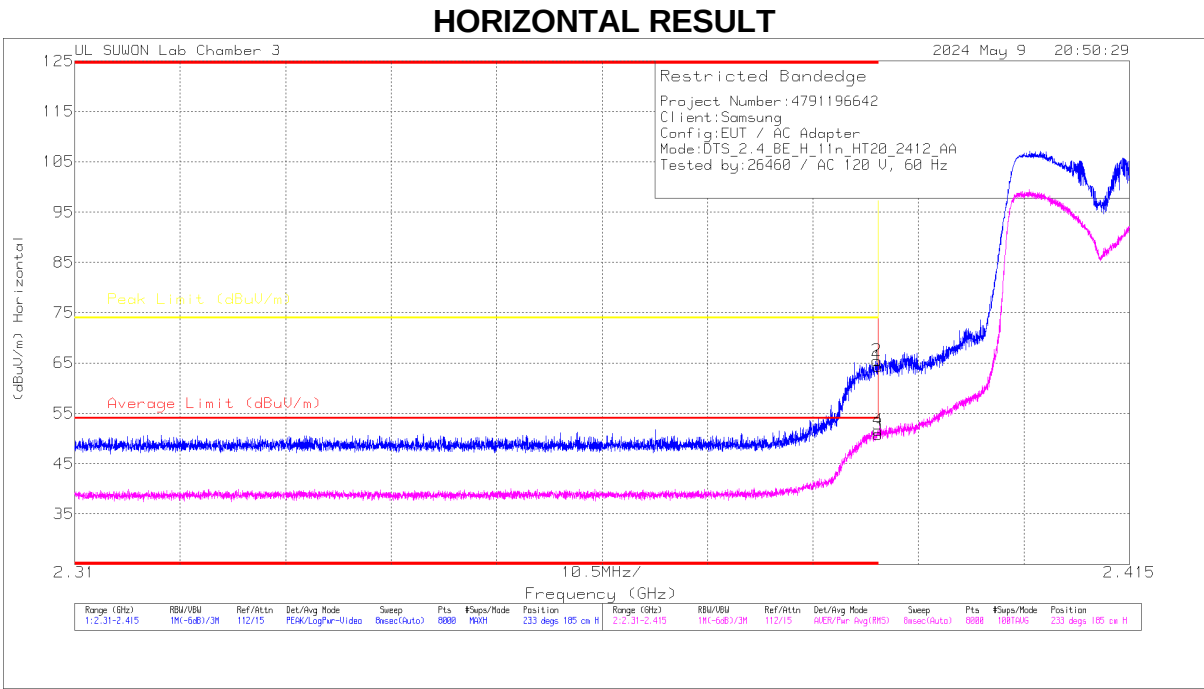
Note1. PK2 - KDB558074 Method: Maximum Peak / MAV1 - KDB558074 Option 1 Maximum RMS Average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_557_Factor(dB)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	56.99	Pk	32.1	-24.8	0	64.29	-	-	74	-9.71	233	185	H
2	* 2.38985	58.22	Pk	32.1	-24.8	0	65.52	-	-	74	-8.48	233	185	H
3	* 2.39	43.52	RMS	32.1	-24.8	0	50.82	54	-3.18	-	-	233	185	H
4	* 2.38996	44.33	RMS	32.1	-24.8	0	51.63	54	-2.37	-	-	233	185	H

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

BANDEDGE TEST DATA

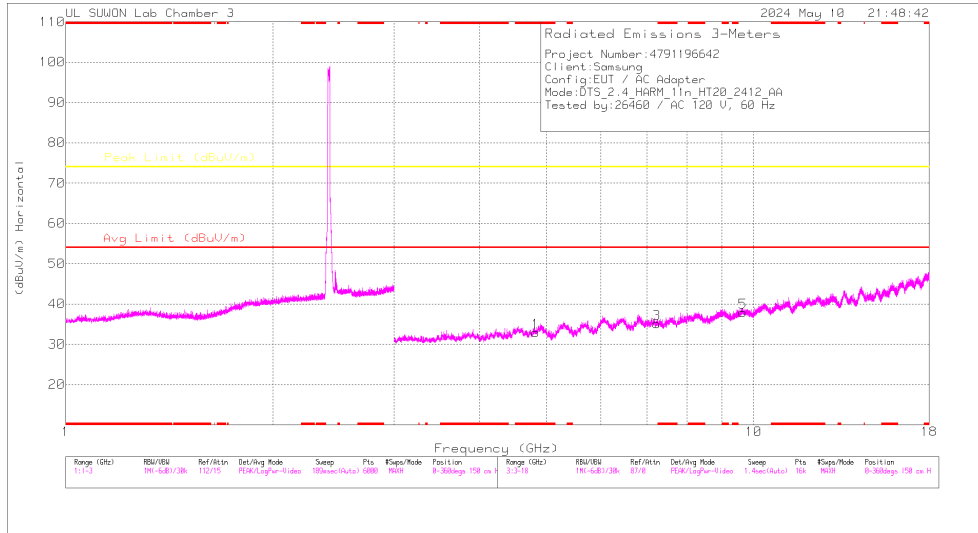
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	MIMO	* 2.39	56.99	Pk	32.10	-24.80	0.00	64.29	-	-	74.00	-9.71	233	185	H
		* 2.38985	58.22	Pk	32.10	-24.80	0.00	65.52	-	-	74.00	-8.48	233	185	H
		* 2.39	43.52	RMS	32.10	-24.80	0.00	50.82	54.00	-3.18	-	-	233	185	H
		* 2.38996	44.33	RMS	32.10	-24.80	0.00	51.63	54.00	-2.37	-	-	233	185	H
		* 2.39	55.47	Pk	32.10	-24.80	0.00	62.77	-	-	74.00	-11.23	118	391	V
		* 2.38998	56.28	Pk	32.10	-24.80	0.00	63.58	-	-	74.00	-10.42	118	391	V
		* 2.39	42.77	RMS	32.10	-24.80	0.00	50.07	54.00	-3.93	-	-	118	391	V
		* 2.38941	42.43	RMS	32.10	-24.80	0.00	49.73	54.00	-4.27	-	-	118	391	V
2457	MIMO	* 2.4835	47.43	Pk	32.40	-24.80	0.00	55.03	-	-	74.00	-18.97	239	132	H
		* 2.48354	48.74	Pk	32.40	-24.80	0.00	56.34	-	-	74.00	-17.66	239	132	H
		* 2.4835	35.55	RMS	32.40	-24.80	0.00	43.15	54.00	-10.85	-	-	239	132	H
		* 2.48353	35.69	RMS	32.40	-24.80	0.00	43.29	54.00	-10.71	-	-	239	132	H
		* 2.4835	45.57	Pk	32.40	-24.80	0.00	53.17	-	-	74.00	-20.83	137	369	V
		* 2.48363	47.48	Pk	32.40	-24.80	0.00	55.08	-	-	74.00	-18.92	137	369	V
		* 2.4835	35.39	RMS	32.40	-24.80	0.00	42.99	54.00	-11.01	-	-	137	369	V
		* 2.48351	35.79	RMS	32.40	-24.80	0.00	43.39	54.00	-10.61	-	-	137	369	V
2462	MIMO	* 2.4835	54.22	Pk	32.40	-24.80	0.00	61.82	-	-	74.00	-12.18	239	132	H
		* 2.48363	55.53	Pk	32.40	-24.80	0.00	63.13	-	-	74.00	-10.87	239	132	H
		* 2.4835	41.60	RMS	32.40	-24.80	0.00	49.20	54.00	-4.80	-	-	239	132	H
		* 2.48356	42.84	RMS	32.40	-24.80	0.00	50.44	54.00	-3.56	-	-	239	132	H
		* 2.4835	52.27	Pk	32.40	-24.80	0.00	59.87	-	-	74.00	-14.13	135	321	V
		* 2.48393	52.06	Pk	32.40	-24.80	0.00	59.66	-	-	74.00	-14.34	135	321	V
		* 2.4835	38.97	RMS	32.40	-24.80	0.00	46.57	54.00	-7.43	-	-	135	321	V
		* 2.48353	40.29	RMS	32.40	-24.80	0.00	47.89	54.00	-6.11	-	-	135	321	V
2467	MIMO	* 2.4835	41.53	Pk	32.40	-24.80	0.00	49.13	-	-	74.00	-24.87	0	134	H
		2.534	44.80	Pk	32.40	-24.80	0.00	52.40	-	-	74.00	-21.60	0	134	H
		* 2.4835	32.49	RMS	32.40	-24.80	0.00	40.09	54.00	-13.91	-	-	0	134	H
		* 2.48364	33.21	RMS	32.40	-24.80	0.00	40.81	54.00	-13.19	-	-	0	134	H
		* 2.4835	41.96	Pk	32.40	-24.80	0.00	49.56	-	-	74.00	-24.44	140	362	V
		2.553	44.05	Pk	32.40	-24.70	0.00	51.75	-	-	74.00	-22.25	140	362	V
		* 2.4835	31.94	RMS	32.40	-24.80	0.00	39.54	54.00	-14.46	-	-	140	362	V
		* 2.48753	33.38	RMS	32.40	-24.90	0.00	40.88	54.00	-13.12	-	-	140	362	V
2472	MIMO	* 2.4835	42.72	Pk	32.40	-24.80	0.00	50.32	-	-	74.00	-23.68	0	224	H
		2.526	45.06	Pk	32.40	-24.80	0.00	52.66	-	-	74.00	-21.34	0	224	H
		* 2.4835	32.92	RMS	32.40	-24.80	0.00	40.52	54.00	-13.48	-	-	0	224	H
		2.514	33.04	RMS	32.40	-24.60	0.00	40.84	54.00	-13.16	-	-	0	224	H
		* 2.4835	42.24	Pk	32.40	-24.80	0.00	49.84	-	-	74.00	-24.16	141	363	V
		2.530	44.83	Pk	32.40	-24.70	0.00	52.53	-	-	74.00	-21.47	141	363	V
		* 2.4835	31.98	RMS	32.40	-24.80	0.00	39.58	54.00	-14.42	-	-	141	363	V
		* 2.49092	33.23	RMS	32.40	-24.80	0.00	40.83	54.00	-13.17	-	-	141	363	V

Note1. Pk - Peak detector, RMS - RMS detector

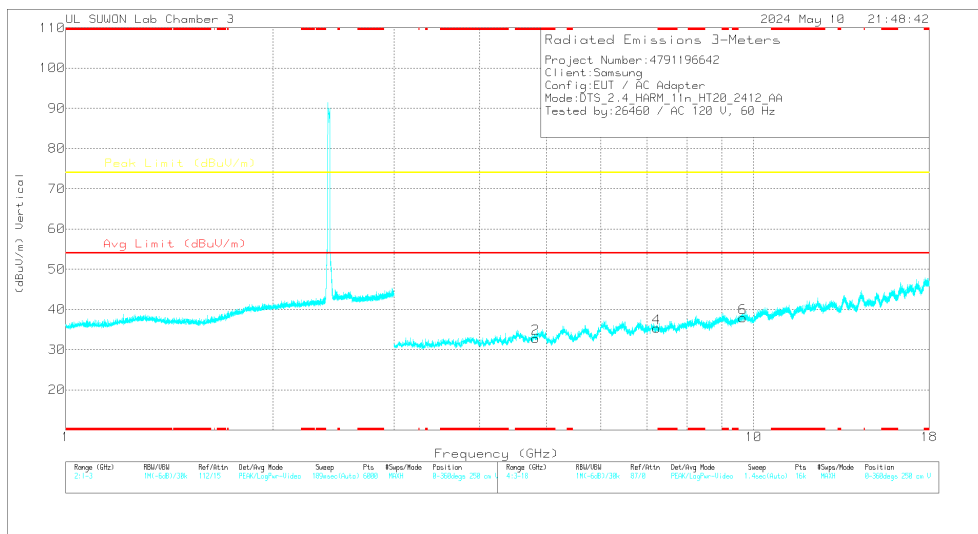
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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	Antenna_957_F actor(dB)	3GHz_HP_Path Loss(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
* 4.82312	39.36	PK2	34.3	-30.1	0	43.56	-	-	74	-30.44	0	100	H
* 4.82405	38.96	PK2	34.3	-30.1	0	43.16	-	-	74	-30.84	0	100	V
7.2359	35.75	PK2	35.8	-25.8	0	45.75	-	-	74	-28.25	0	100	H
7.23684	35.7	PK2	35.8	-25.8	0	45.7	-	-	74	-28.3	0	100	V
9.64789	33.21	PK2	36.8	-21.8	0	48.21	-	-	74	-25.79	0	100	H
9.64872	33.02	PK2	36.8	-21.8	0	48.02	-	-	74	-25.98	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 [dB/m]	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	* 4.82312	39.36	PK2	34.30	-30.10	0.00	43.56	-	-	74.00	-30.44	0	100	H
		* 4.82405	38.96	PK2	34.30	-30.10	0.00	43.16	-	-	74.00	-30.84	0	100	V
		7.236	35.75	PK2	35.80	-25.80	0.00	45.75	-	-	74.00	-28.25	0	100	H
		7.237	35.70	PK2	35.80	-25.80	0.00	45.70	-	-	74.00	-28.30	0	100	V
		9.648	33.21	PK2	36.80	-21.80	0.00	48.21	-	-	74.00	-25.79	0	100	H
		9.649	33.02	PK2	36.80	-21.80	0.00	48.02	-	-	74.00	-25.98	0	100	V
2437	MIMO	* 4.8745	40.29	PK2	34.20	-29.80	0.00	44.69	-	-	74.00	-29.31	0	100	H
		* 4.87485	39.74	PK2	34.20	-29.80	0.00	44.14	-	-	74.00	-29.86	0	100	V
		* 7.31044	35.30	PK2	35.80	-25.50	0.00	45.60	-	-	74.00	-28.40	0	100	H
		* 7.31169	35.39	PK2	35.80	-25.50	0.00	45.69	-	-	74.00	-28.31	0	100	V
		9.748	32.85	PK2	36.90	-21.60	0.00	48.15	-	-	74.00	-25.85	0	100	H
		9.748	32.80	PK2	36.90	-21.60	0.00	48.10	-	-	74.00	-25.90	0	100	V
2457	MIMO	* 4.91415	39.96	PK2	34.20	-29.90	0.00	44.26	-	-	74.00	-29.74	0	100	H
		* 4.91386	40.02	PK2	34.20	-29.90	0.00	44.32	-	-	74.00	-29.68	0	100	V
		* 7.37134	34.91	PK2	35.80	-25.50	0.00	45.21	-	-	74.00	-28.79	0	100	H
		* 7.37133	34.92	PK2	35.80	-25.50	0.00	45.22	-	-	74.00	-28.78	0	100	V
		9.827	31.87	PK2	37.10	-21.50	0.00	47.47	-	-	74.00	-26.53	0	100	H
		9.828	32.05	PK2	37.10	-21.50	0.00	47.65	-	-	74.00	-26.35	0	100	V

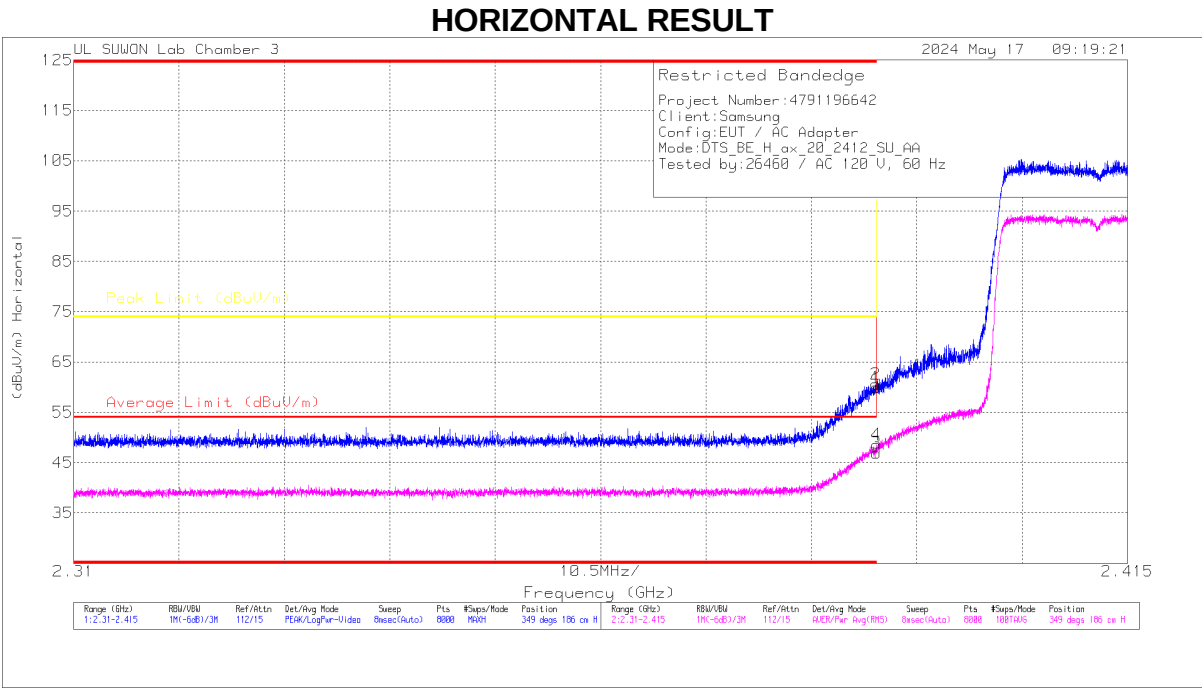
Note1. PK2 - KDB558074 Method: Maximum Peak / MAV1 - KDB558074 Option 1 Maximum RMS Average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

10.1.4. TX ABOVE 1 GHz 802.11ax HE20 MODE IN THE 2.4 GHz BAND

2TX Antenna 1 + Antenna 2

BANDEDGE (1 CHANNEL, SU)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_Sef_Factor(dB)	10dB_Path Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	52.69	Pk	32.1	-24.8	0	59.99	-	-	74	-14.01	349	186	H
2	* 2.38989	53.35	Pk	32.1	-24.8	0	60.65	-	-	74	-13.35	349	186	H
3	* 2.39	39.6	RMS	32.1	-24.8	0	46.9	54	-7.1	-	-	349	186	H
4	* 2.38997	41.27	RMS	32.1	-24.8	0	48.57	54	-5.43	-	-	349	186	H

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

BANDEDGE TEST DATA

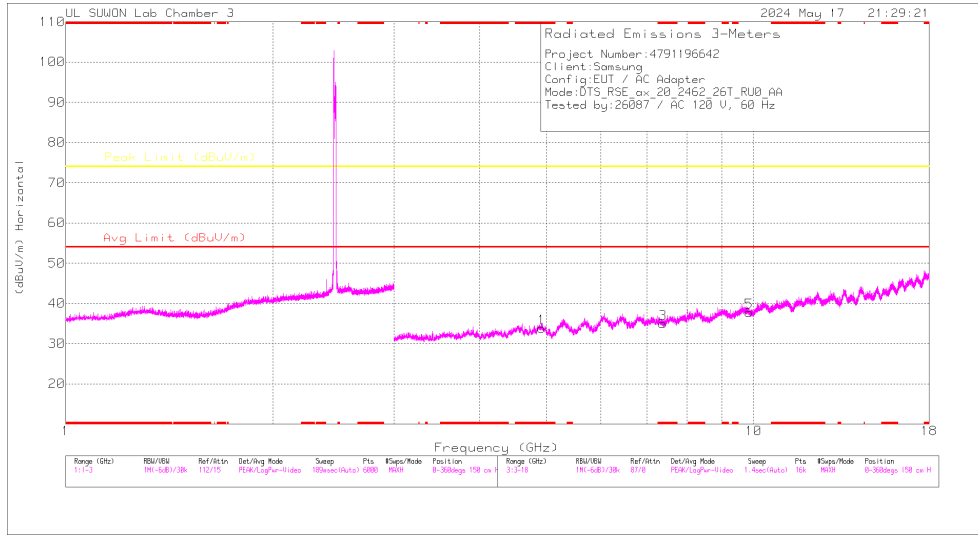
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412 RU mode 26 Tone Offset 0	MIMO	* 2.39	42.32	Pk	32.10	-24.80	0.00	49.62	-	-	74.00	-24.38	231	139	H
		* 2.38985	48.50	Pk	32.10	-24.80	0.00	55.80	-	-	74.00	-18.20	231	139	H
		* 2.39	32.81	RMS	32.10	-24.80	0.00	40.11	54.00	-13.89	-	-	231	139	H
		* 2.38939	33.45	RMS	32.10	-24.80	0.00	40.75	54.00	-13.25	-	-	231	139	H
		* 2.39	43.40	Pk	32.10	-24.80	0.00	50.70	-	-	74.00	-23.30	130	389	V
		* 2.38981	45.67	Pk	32.10	-24.80	0.00	52.97	-	-	74.00	-21.03	130	389	V
		* 2.39	32.55	RMS	32.10	-24.80	0.00	39.85	54.00	-14.15	-	-	130	389	V
		* 2.38948	33.51	RMS	32.10	-24.80	0.00	40.81	54.00	-13.19	-	-	130	389	V
		* 2.39	52.69	Pk	32.10	-24.80	0.00	59.99	-	-	74.00	-14.01	349	186	H
		* 2.38989	53.35	Pk	32.10	-24.80	0.00	60.65	-	-	74.00	-13.35	349	186	H
2412 SU mode	MIMO	* 2.39	39.60	RMS	32.10	-24.80	0.00	46.90	54.00	-7.10	-	-	349	186	H
		* 2.38997	41.27	RMS	32.10	-24.80	0.00	48.57	54.00	-5.43	-	-	349	186	H
		* 2.39	50.17	Pk	32.10	-24.80	0.00	57.47	-	-	74.00	-16.53	116	388	V
		* 2.3898	51.85	Pk	32.10	-24.80	0.00	59.15	-	-	74.00	-14.85	116	388	V
		* 2.39	38.92	RMS	32.10	-24.80	0.00	46.22	54.00	-7.78	-	-	116	388	V
		* 2.38989	39.54	RMS	32.10	-24.80	0.00	46.84	54.00	-7.16	-	-	116	388	V
		* 2.39	49.48	Pk	32.10	-24.80	0.00	56.78	-	-	74.00	-17.22	346	186	H
		* 2.38993	52.47	Pk	32.10	-24.80	0.00	59.77	-	-	74.00	-14.23	346	186	H
		* 2.39	38.39	RMS	32.10	-24.80	0.00	45.69	54.00	-8.31	-	-	346	186	H
		* 2.38998	38.95	RMS	32.10	-24.80	0.00	46.25	54.00	-7.75	-	-	346	186	H
2417 SU mode	MIMO	* 2.39	52.69	Pk	32.10	-24.80	0.00	59.99	-	-	74.00	-14.01	116	390	V
		* 2.38916	51.75	Pk	32.10	-24.80	0.00	59.05	-	-	74.00	-14.95	116	390	V
		* 2.39	38.16	RMS	32.10	-24.80	0.00	45.46	54.00	-8.54	-	-	116	390	V
		* 2.38985	37.45	RMS	32.10	-24.80	0.00	44.75	54.00	-9.25	-	-	116	390	V
		* 2.4835	50.00	Pk	32.40	-24.80	0.00	57.60	-	-	74.00	-16.40	227	113	H
		* 2.48358	52.34	Pk	32.40	-24.80	0.00	59.94	-	-	74.00	-14.06	227	113	H
		* 2.4835	37.86	RMS	32.40	-24.80	0.00	45.46	54.00	-8.54	-	-	227	113	H
		* 2.48356	39.48	RMS	32.40	-24.80	0.00	47.08	54.00	-6.92	-	-	227	113	H
		* 2.4835	49.10	Pk	32.40	-24.80	0.00	56.70	-	-	74.00	-17.30	120	364	V
		* 2.48359	51.55	Pk	32.40	-24.80	0.00	59.15	-	-	74.00	-14.85	120	364	V
2457 SU mode	MIMO	* 2.4835	37.98	RMS	32.40	-24.80	0.00	45.58	54.00	-8.42	-	-	120	364	V
		* 2.48362	38.52	RMS	32.40	-24.80	0.00	46.12	54.00	-7.88	-	-	120	364	V
		* 2.4835	44.93	Pk	32.40	-24.80	0.00	52.53	-	-	74.00	-21.47	231	134	H
		* 2.48362	46.42	Pk	32.40	-24.80	0.00	54.02	-	-	74.00	-19.98	231	134	H
		* 2.4835	33.32	RMS	32.40	-24.80	0.00	40.92	54.00	-13.08	-	-	231	134	H
		* 2.4835	33.49	RMS	32.40	-24.70	0.00	41.19	54.00	-12.81	-	-	231	134	H
		* 2.4835	41.90	Pk	32.40	-24.80	0.00	49.50	-	-	74.00	-24.50	119	364	V
		* 2.48626	47.69	Pk	32.40	-24.80	0.00	55.29	-	-	74.00	-18.71	119	364	V
		* 2.4835	31.68	RMS	32.40	-24.80	0.00	39.28	54.00	-14.72	-	-	119	364	V
		* 2.48396	33.83	RMS	32.40	-24.80	0.00	41.43	54.00	-12.57	-	-	119	364	V
2462 RU mode 26 Tone Offset 8	MIMO	* 2.4835	50.30	Pk	32.40	-24.80	0.00	57.90	-	-	74.00	-16.10	229	113	H
		* 2.48375	52.64	Pk	32.40	-24.80	0.00	60.24	-	-	74.00	-13.76	229	113	H
		* 2.4835	39.24	RMS	32.40	-24.80	0.00	46.84	54.00	-7.16	-	-	229	113	H
		* 2.48353	40.07	RMS	32.40	-24.80	0.00	47.67	54.00	-6.33	-	-	229	113	H
		* 2.4835	48.40	Pk	32.40	-24.80	0.00	56.00	-	-	74.00	-18.00	119	363	V
		* 2.48416	51.18	Pk	32.40	-24.80	0.00	58.78	-	-	74.00	-15.22	119	363	V
		* 2.4835	39.09	RMS	32.40	-24.80	0.00	46.69	54.00	-7.31	-	-	119	363	V
		* 2.48375	38.72	RMS	32.40	-24.80	0.00	46.32	54.00	-7.68	-	-	119	363	V
		* 2.4835	41.65	Pk	32.40	-24.80	0.00	49.25	-	-	74.00	-24.75	350	112	H
		* 2.49376	45.14	Pk	32.40	-24.80	0.00	52.74	-	-	74.00	-21.26	350	112	H
2462 SU mode	MIMO	* 2.4835	32.02	RMS	32.40	-24.80	0.00	39.62	54.00	-14.38	-	-	350	112	H
		* 2.4848	33.49	RMS	32.40	-24.80	0.00	41.09	54.00	-12.91	-	-	350	112	H
		* 2.4835	41.89	Pk	32.40	-24.80	0.00	49.49	-	-	74.00	-24.51	119	363	V
		* 2.541	45.31	Pk	32.40	-24.70	0.00	53.01	-	-	74.00	-20.99	119	363	V
		* 2.4835	33.15	RMS	32.40	-24.80	0.00	40.75	54.00	-13.25	-	-	119	363	V
		* 2.513	33.44	RMS	32.40	-24.70	0.00	41.14	54.00	-12.86	-	-	119	363	V
		* 2.4835	41.91	Pk	32.40	-24.80	0.00	49.51	-	-	74.00	-24.49	229	113	H
		* 2.522	45.58	Pk	32.40	-24.90	0.00	53.08	-	-	74.00	-20.92	229	113	H
		* 2.4835	31.77	RMS	32.40	-24.80	0.00	39.37	54.00	-14.63	-	-	229	113	H
		* 2.561	33.34	RMS	32.40	-24.70	0.00	41.04	54.00	-12.96	-	-	229	113	H
2467 SU mode	MIMO	* 2.4835	41.95	Pk	32.40	-24.80	0.00	49.55	-	-	74.00	-24.45	122	363	V
		* 2.549	44.55	Pk	32.40	-24.70	0.00	52.25	-	-	74.00	-21.75	122	363	V
		* 2.4835	31.61	RMS	32.40	-24.80	0.00	39.21	54.00	-14.79	-	-	122	363	V
		* 2.543	33.36	RMS	32.40	-24.70	0.00	41.06	54.00	-12.94	-	-	122	363	V
		* 2.4835	49.81	Pk	32.40	-24.80	0.00	57.41	-	-	74.00	-16.59	233	155	H
		* 2.48353	51.36	Pk	32.40	-24.80	0.00	58.96	-	-	74.00	-15.04	233	155	H
		* 2.4835	33.84	RMS	32.40	-24.80	0.00	41.44	54.00	-12.56	-	-	233	155	H
		* 2.48366	33.98	RMS	32.40	-24.80	0.00	41.58	54.00	-12.42	-	-	233	155	H
		* 2.4835	48.67	Pk	32.40	-24.80	0.00	56.27	-	-	74.00	-17.73	118	355	V
		* 2.48356	47.90	Pk	32.40	-24.80	0.00	55.50	-	-	74.00	-18.50	118	355	V
2472 RU mode 26 Tone Offset 8	MIMO	* 2.4835	32.51	RMS	32.40	-24.80	0.00	40.11	54.00	-13.89	-	-	118	355	V
		* 2.48355	33.76	RMS	32.40	-24.80	0.00	41.36	54.00	-12.64	-	-	118	355	V
		* 2.4835	43.30	Pk	32.40	-24.80	0.00	50.90	-	-	74.00	-23.10	233	155	H
		* 2.546	44.64	Pk	32.40	-24.60	0.00	52.44	-	-	74.00	-21.56	233	155	H
		* 2.4835	33.32	RMS	32.40	-24.80	0.00	40.92	54.00	-13.08	-	-	233	155	H
		* 2.48371	33.67	RMS	32.40	-24.80	0.00	41.27	54.00	-12.73	-	-	233	155	H
		* 2.4835	45.73	Pk	32.40	-24.80	0.00	53.33	-	-	74.00	-20.67	121	363	V
		* 2.531	44.86	Pk	32.40	-24.80	0.00	52.46	-	-	74.00	-21.54	121	363	V
		* 2.4835	32.79	RMS	32.40	-24.80	0.00	40.39	54.00	-13.61	-	-	121	363	V
		* 2.554	33.36	RMS	32.40	-24.60	0.00	41.16	54.00	-12.84	-	-	121	363	V

Note1. Pk - Peak detector, RMS - RMS detector

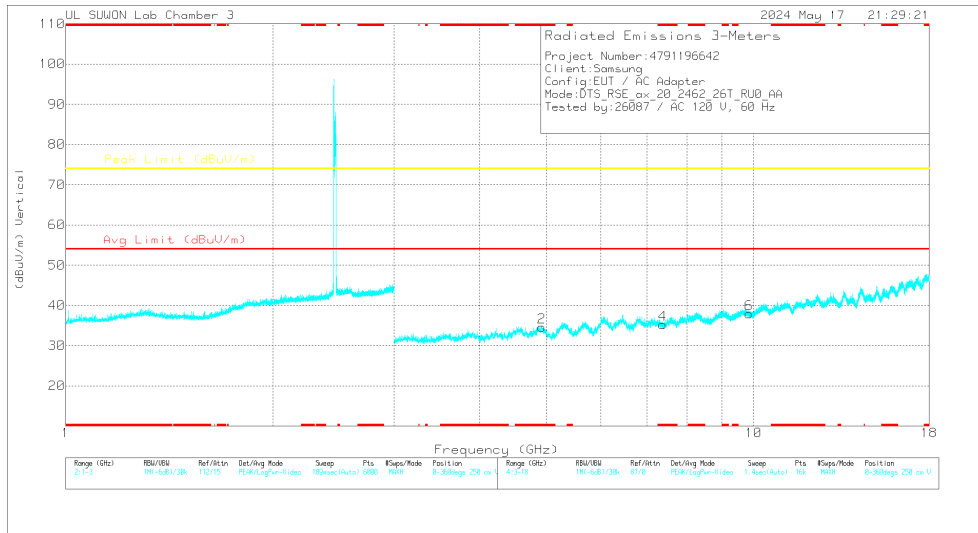
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 11 CHANNEL, 0RU)

CH 11 RESULTS



HORIZONTAL



VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_957_Factor(dB)	3GHz_HP_Path Loss(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
* 4.92121	40.05	PK2	34.2	-29.9	0	44.35	-	-	74	-29.65	0	100	H
* 4.92166	40.44	PK2	34.2	-29.9	0	44.74	-	-	74	-29.26	0	100	V
* 7.38975	34.61	PK2	35.7	-25.3	0	45.01	-	-	74	-28.99	0	100	H
* 7.3846	35	PK2	35.7	-25.4	0	45.3	-	-	74	-28.7	0	100	V
9.85016	32.17	PK2	37.1	-21.4	0	47.87	-	-	74	-26.13	0	100	H
9.84932	32.79	PK2	37.1	-21.4	0	48.49	-	-	74	-25.51	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

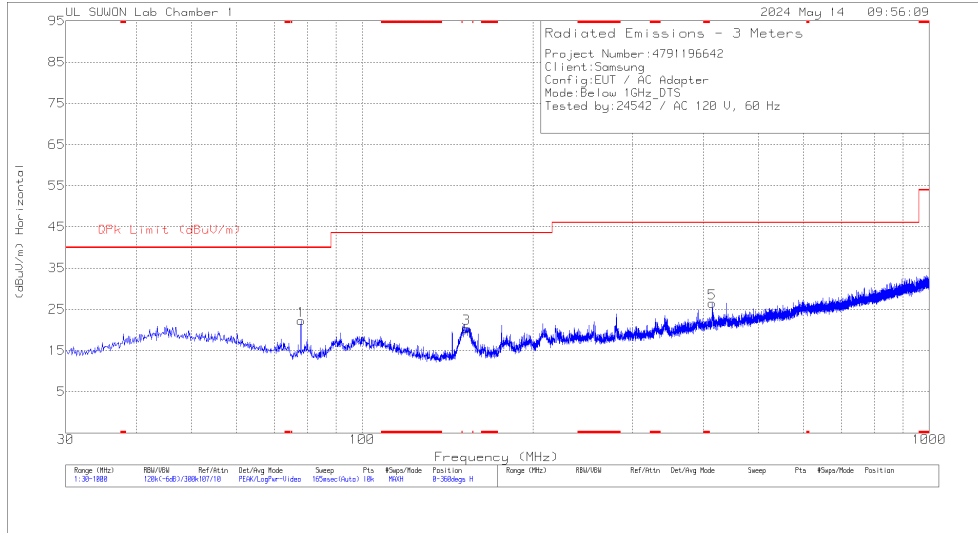
HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	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 RU mode 26 Tone offset 8	MIMO	* 4.82359	39.12	PK2	34.30	-30.10	0.00	43.32	-	-	74.00	-30.68	0	100	H
		* 4.82577	39.09	PK2	34.20	-30.00	0.00	43.29	-	-	74.00	-30.71	0	100	V
		7.237	35.87	PK2	35.80	-25.70	0.00	45.97	-	-	74.00	-28.03	0	100	H
		7.237	35.42	PK2	35.80	-25.80	0.00	45.42	-	-	74.00	-28.58	0	100	V
		9.646	33.04	PK2	36.80	-21.70	0.00	48.14	-	-	74.00	-25.86	0	100	H
		9.649	32.90	PK2	36.80	-21.70	0.00	48.00	-	-	74.00	-26.00	0	100	V
2437 RU mode 26 Tone offset 8	MIMO	* 4.86935	40.29	PK2	34.20	-29.90	0.00	44.59	-	-	74.00	-29.41	0	100	H
		* 4.87696	40.10	PK2	34.20	-29.90	0.00	44.40	-	-	74.00	-29.60	0	100	V
		* 7.31294	35.25	PK2	35.80	-25.50	0.00	45.55	-	-	74.00	-28.45	0	100	H
		* 7.3085	35.26	PK2	35.80	-25.50	0.00	45.56	-	-	74.00	-28.44	0	100	V
		9.753	32.73	PK2	36.90	-21.60	0.00	48.03	-	-	74.00	-25.97	0	100	H
		9.747	32.67	PK2	36.90	-21.60	0.00	47.97	-	-	74.00	-26.03	0	100	V
2462 RU mode 26 Tone offset 0	MIMO	* 4.92121	40.05	PK2	34.20	-29.90	0.00	44.35	-	-	74.00	-29.65	0	100	H
		* 4.92166	40.44	PK2	34.20	-29.90	0.00	44.74	-	-	74.00	-29.26	0	100	V
		* 7.38975	34.61	PK2	35.70	-25.30	0.00	45.01	-	-	74.00	-28.99	0	100	H
		* 7.3846	35.00	PK2	35.70	-25.40	0.00	45.30	-	-	74.00	-28.70	0	100	V
		9.850	32.17	PK2	37.10	-21.40	0.00	47.87	-	-	74.00	-26.13	0	100	H
		9.849	32.79	PK2	37.10	-21.40	0.00	48.49	-	-	74.00	-25.51	0	100	V

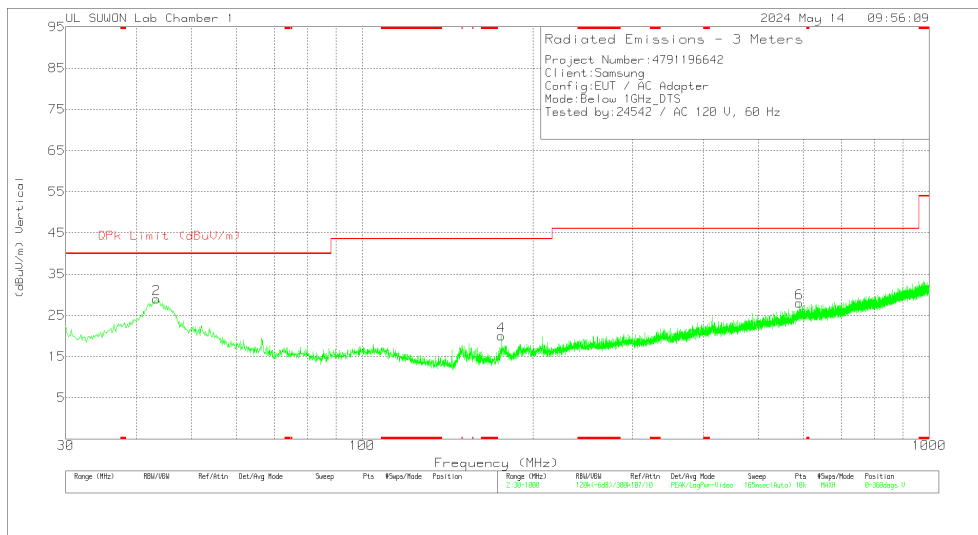
Note1. PK2 - KDB558074 Method: Maximum Peak / MAV1 - KDB558074 Option 1 Maximum RMS Average

Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

10.2. WORST CASE BELOW 1 GHz



HORIZONTAL



VERTICAL

Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G(dB)	Corrected Reading (dBuV/m)	OPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	78.015	40.24	Pk	12.4	-30.4	22.24	40	-17.76	0-360	100	H
3	152.802	36.23	Pk	13.9	-29.7	20.43	43.52	-23.09	0-360	100	H
5	414.411	33.06	Pk	21.4	-28	26.46	46.02	-19.56	0-360	100	H
2	43.386	40.68	Pk	19.3	-31	28.98	40	-11.02	0-360	200	V
4	175.888	34.75	Pk	14.8	-29.5	20.05	43.52	-23.47	0-360	200	V
6	590.757	31.04	Pk	24.3	-27.3	28.04	46.02	-17.98	0-360	200	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.

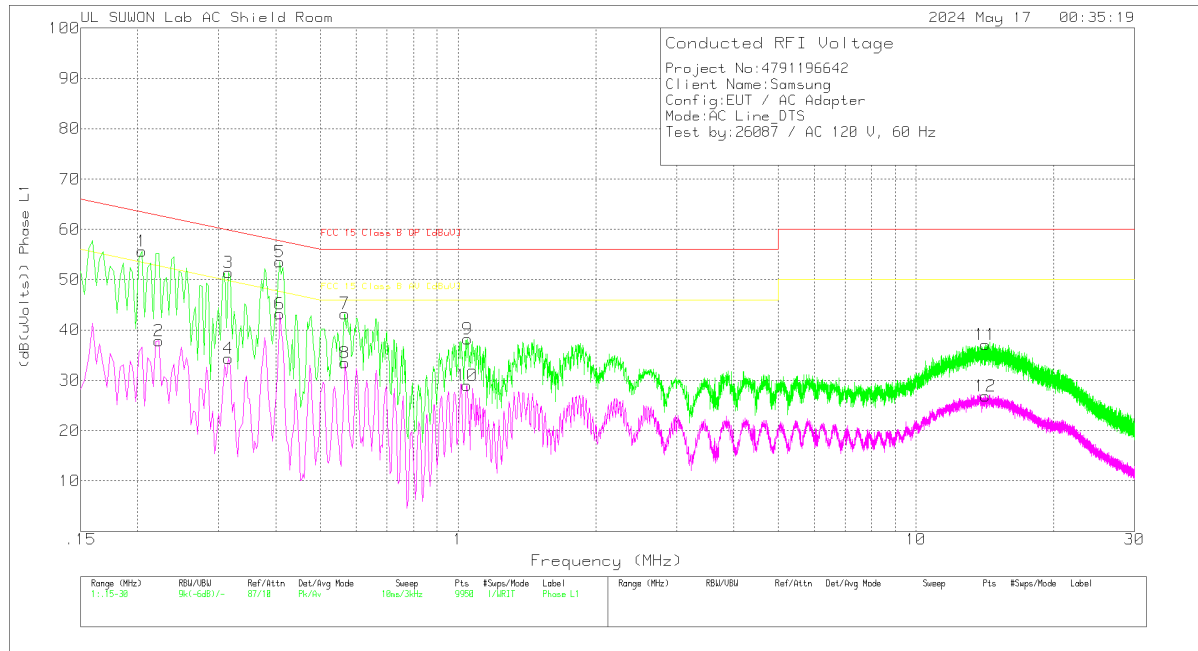
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1.1. AC Power Line

LINE 1 RESULTS



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1 [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
1	.204	45.8	Pk	9.8	.1	55.7	63.45	-7.75	-	-
2	.222	27.95	Av	9.8	.1	37.85	-	-	52.74	-14.89
3	.315	41.65	Pk	9.7	.1	51.45	59.84	-8.39	-	-
4	.315	24.56	Av	9.7	.1	34.36	-	-	49.84	-15.48
5	.408	43.64	Pk	9.8	.1	53.54	57.69	-4.15	-	-
6	.408	33.35	Av	9.8	.1	43.25	-	-	47.69	-4.44
7	.567	33.36	Pk	9.8	.1	43.26	56	-12.74	-	-
8	.567	23.58	Av	9.8	.1	33.48	-	-	46	-12.52
9	1.05	28.44	Pk	9.7	.1	38.24	56	-17.76	-	-
10	1.047	19.15	Av	9.7	.1	28.95	-	-	46	-17.05
11	14.175	26.78	Pk	10	.3	37.08	60	-22.92	-	-
12	14.175	16.57	Av	10	.3	26.87	-	-	50	-23.13

Pk - Peak detector

Av - Average detection

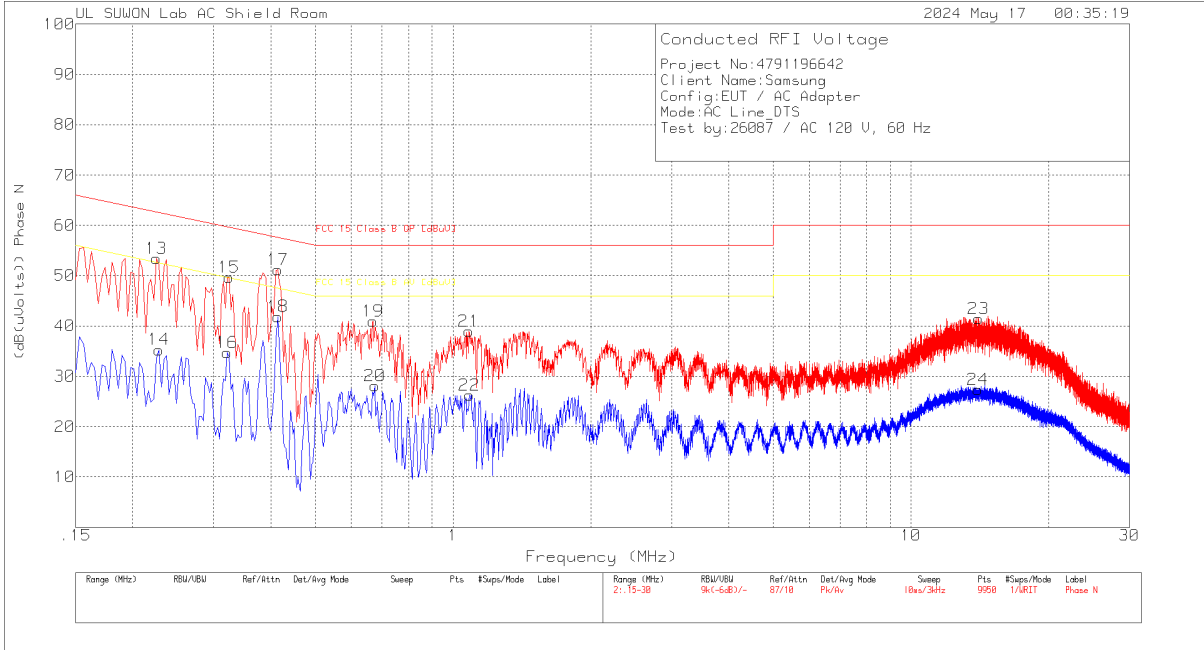
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1 [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.20475	37.21	Qp	9.8	.1	47.11	63.42	-16.31	-	-
.31575	38.48	Qp	9.7	.1	48.28	59.82	-11.54	-	-
.40875	39.02	Qp	9.8	.1	48.92	57.67	-8.75	-	-

Qp - Quasi-Peak detector

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
13	.225	43.58	Pk	9.7	.1	53.38	62.63	-9.25	-	-
14	.228	25.49	Av	9.7	.1	35.29	-	-	52.52	-17.23
15	.324	39.92	Pk	9.7	.1	49.72	59.6	-9.88	-	-
16	.321	24.97	Av	9.7	.1	34.77	-	-	49.68	-14.91
17	.414	41.28	Pk	9.8	.1	51.18	57.57	-6.39	-	-
18	.414	31.99	Av	9.8	.1	41.89	-	-	47.57	-5.68
19	.669	31.02	Pk	9.8	.1	40.92	56	-15.08	-	-
20	.675	18.26	Av	9.8	.1	28.16	-	-	46	-17.84
21	1.083	29.2	Pk	9.7	.1	39	56	-17	-	-
22	1.086	16.51	Av	9.7	.1	26.31	-	-	46	-19.69
23	14.04	31.17	Pk	10	.3	41.47	60	-18.53	-	-
24	14.019	17.1	Av	10	.3	27.4	-	-	50	-22.6

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N [dB]	Cable Loss [dB]	Corrected Reading (dB(uVolts))	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.22425	42.31	Qp	9.7	.1	52.11	62.66	-10.55	-	-
.32325	36.09	Qp	9.7	.1	45.89	59.62	-13.73	-	-
.41325	40.14	Qp	9.8	.1	50.04	57.58	-7.54	-	-

Qp - Quasi-Peak detector

END OF TEST REPORT