

CERTIFICATION TEST REPORT

Report Number. : 4791377016-E5V1

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

Model : SM-A166M/DS, SM-A166M

FCC ID : A3LSMA166M

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

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

Date Of Issue:

2024-08-16

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Revision History

Rev.	Issue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac and NFC.

MODEL NUMBER: SM-A166M/DS, SM-A166M

SERIAL NUMBER: R3CX50MNLFY (CONDUCTED);
R3CX50MNK5Z, R3CX50MNJQV (RADIATED)

DATE TESTED: 2024-07-03 – 2024-08-16

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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Suwon Lab Engineer
UL KOREA LTD.

Tested By:



Myeongjun Kwon
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. ANSI C63.10-2020.

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:

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

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

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 and NFC.
This test report addresses the DSS(WLAN) operational mode.

Representative model	Difference	Derivative model
		SM-A166M
SM-A166M/DS	Hardware	SIM tray is single SIM
	Software	Dual SIM not supported

The model SM-A166M/DS was used for final testing and is representative of the test results in this report.

WiFi operating mode

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

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
		ANT1	ANT1
2412 - 2472	802.11b SISO	18.31	67.76
	802.11g SISO	17.80	60.26
	802.11n(HT20) SISO	16.56	45.29

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

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

The radio utilizes a internal antenna, with a maximum gain of: -4.60 dBi

“BT/WIFI_2.4GHz, 5GHz (SUB2)” as indicated in antenna specification are written as ANT1 in this report.

5.4. TESTED CHANNELS LIST

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

Note. Tested channels are applied to all test items.

5.5. WORST-CASE CONFIGURATION AND MODE

The fundamentals of the EUT were investigated in three orthogonal orientations X, Y and Z on 1TX SISO mode. It was determined that X orientation was the worst-case for 1TX SISO mode.

- i. Worst case of antenna axis: X

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 1TX SISO 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.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps 1TX

802.11g mode: 6 Mbps 1TX

802.11n HT20 mode: MCS0 1TX

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37TC7A00JBDKA	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A	N/A

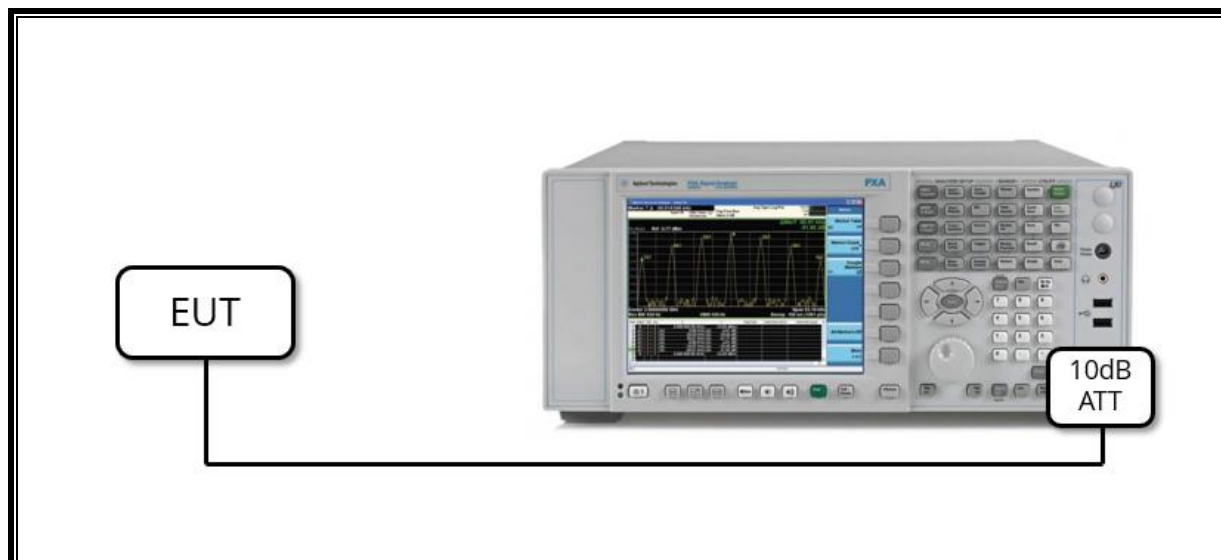
I/O CABLE

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

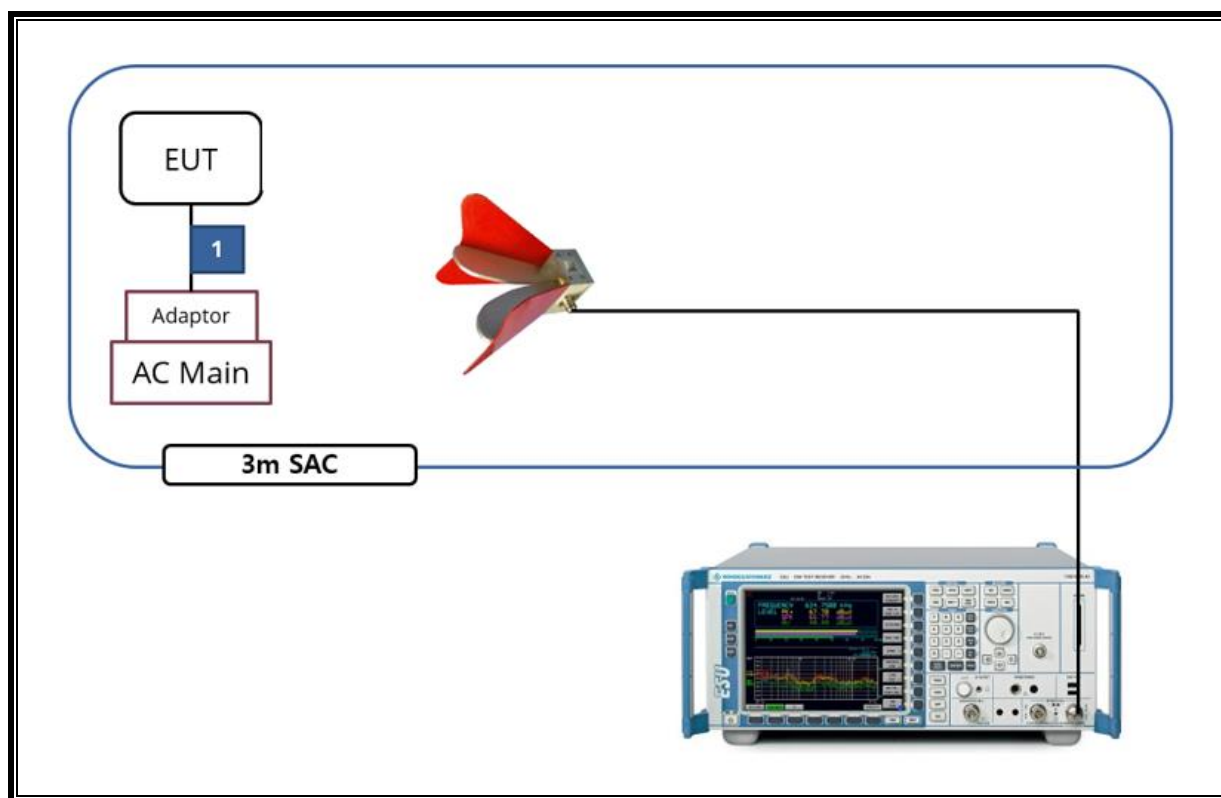
TEST SETUP

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 C63.10-2020, Section 11.8.2 Option 2

OUTPUT POWER : ANSI C63.10-2020, Section 11.9.2.3.1 Method AVGPM

POWER SPECTRAL DENSITY : ANSI C63.10-2020, Section 11.10.3 & 11.10.5 Method AVGPSD-1 and Method AVGPSD-2

Out-of-band Emissions (Conducted) : ANSI C63.10-2020, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Non-restricted Bands: ANSI C63.10-2020, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Restricted Bands : ANSI C63.10-2020, Section 11.12 Emissions in restricted frequency bands

AC Power Line Conducted Emission : ANSI C63.10-2020, 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	VULB 9163	750	2026-07-30
Antenna, Horn, 18 GHz	ETS	3117	00168717	2026-07-17
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2026-07-23
Preamplifier	ETS	3116C-PA	00168841	2025-07-25
Preamplifier, 1000 MHz	Sonoma	310N	341282	2025-07-22
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2025-07-23
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2025-07-24
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2025-01-03
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2025-01-03
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2025-07-23
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2025-07-23
Attenuator	PASTERNAK	PE7087-10	A001	2025-07-23
Attenuator	PASTERNAK	PE7087-10	A008	2025-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2025-07-23
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2025-07-22
EMI Test Receive, 3 GHz	R&S	ESR 3	101832	2025-07-22
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2025-07-22
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2025-07-22
High Pass Filter 6GHz	Micro-Tronics	HPS17542	21	2025-07-23
LISN	R&S	ENV216	101837	2025-07-22
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2025-09-07
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

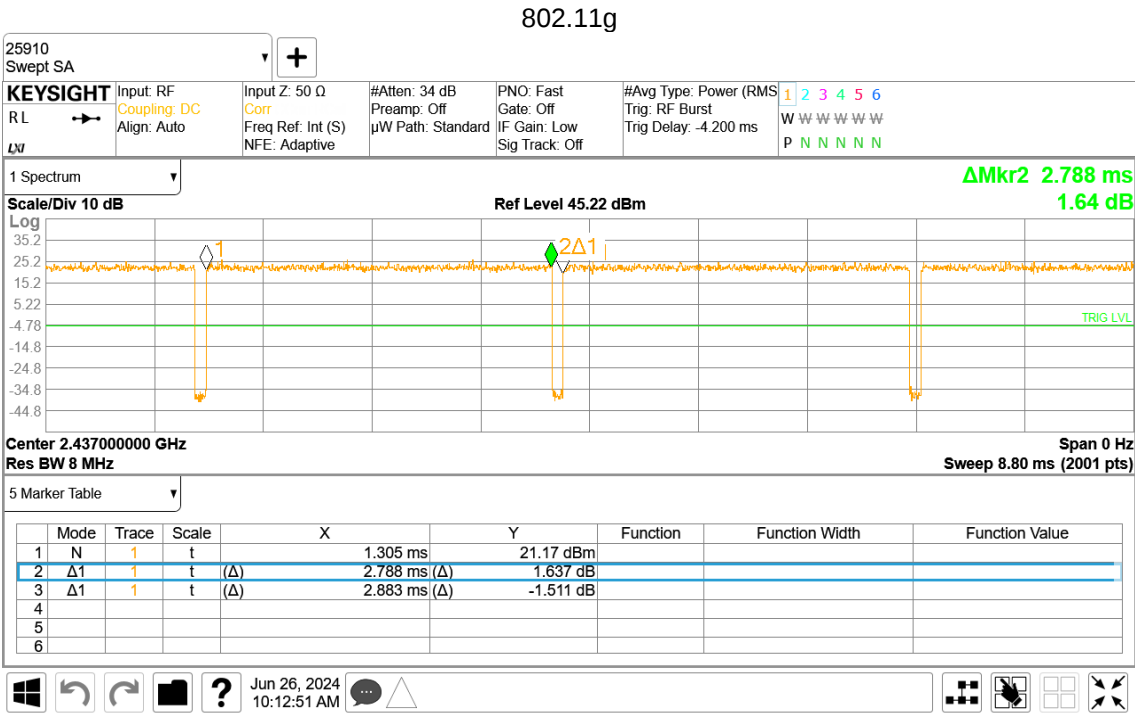
9. ANTENNA PORT TEST RESULTS

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 SISO	8.608	8.702	0.989	98.919	0.00	0.12
802.11g SISO	2.788	2.883	0.967	96.701	0.15	0.36
802.11n(HT20) SISO	5.377	5.496	0.978	97.835	0.10	0.19

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.

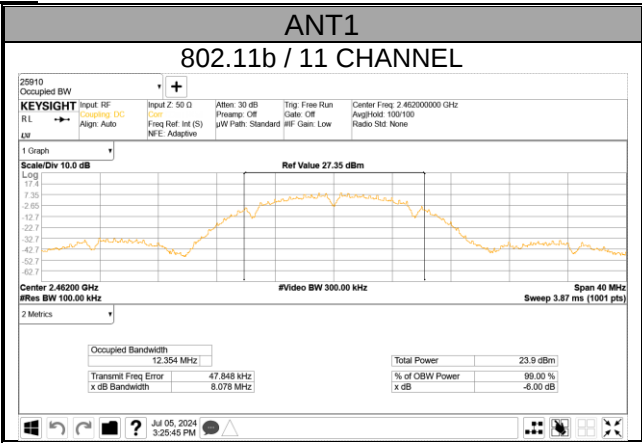
TEST PROCEDURE

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 SISO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	8.11	0.5
6	2 437	8.08	
11	2 462	8.08	
12	2 467	8.09	
13	2 472	8.08	
Worst		8.08	

9.2.2. 802.11g SISO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	14.48	0.5
6	2 437	15.89	
11	2 462	14.40	
12	2 467	15.37	
13	2 472	11.97	
Worst		11.97	

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

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	15.10	0.5
6	2 437	15.49	
11	2 462	13.36	
12	2 467	14.40	
13	2 472	13.86	
Worst		13.36	

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.

9.3.1. TEST RESULTS

- 802.11b,g,n mode

Mode	Channel	Frequency [MHz]	Average Power	Power Limit [dBm]
			ANT1 [dBm]	
802.11b	1	2 412	17.72	30.00
	6	2 437	18.31	
	11	2 462	17.82	
	12	2 467	7.04	
	13	2 472	5.18	
Worst Case			18.31	
802.11g	1	2 412	17.38	
	6	2 437	17.80	
	11	2 462	17.01	
	12	2 467	7.26	
	13	2 472	5.35	
Worst Case			17.80	
802.11n HT20	1	2 412	16.10	
	6	2 437	16.56	
	11	2 462	15.70	
	12	2 467	7.40	
	13	2 472	5.01	
Worst Case			16.56	

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

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.

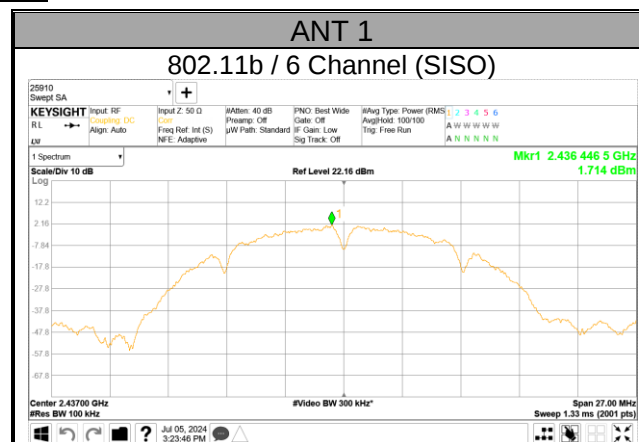
TEST PROCEDURE

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 MODE TEST RESULTS

- SISO MODE

Mode	Channel	Frequency [MHz]	Meas PSD [dBm/100kHz]	DCCF [dB]	Total Corr'd PSD [dBm/100kHz]	PSD Limit [dBm/3kHz]
			ANT1			
802.11b	1	2 412	0.177	0.00	0.177	8.00 ^{Note}
	6	2 437	1.714	0.00	1.714	
	11	2 462	1.027	0.00	1.027	
	12	2 467	-9.665	0.00	-9.665	
	13	2 472	-9.385	0.00	-9.385	
802.11g	1	2 412	-1.828	0.15	-1.682	
	6	2 437	-1.736	0.15	-1.590	
	11	2 462	-2.271	0.15	-2.125	
	12	2 467	-11.821	0.15	-11.675	
	13	2 472	-11.712	0.15	-11.566	
802.11n HT20	1	2 412	-3.657	0.10	-3.562	
	6	2 437	-2.925	0.10	-2.830	
	11	2 462	-3.421	0.10	-3.326	
	12	2 467	-11.747	0.10	-11.652	
	13	2 472	-12.257	0.10	-12.162	

- Calculation of Output PSD result

- 1TX : Corr'd PSD = Meas PSD + Duty Cycle CF

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

9.5. CONDUCTED SPURIOUS EMISSIONS

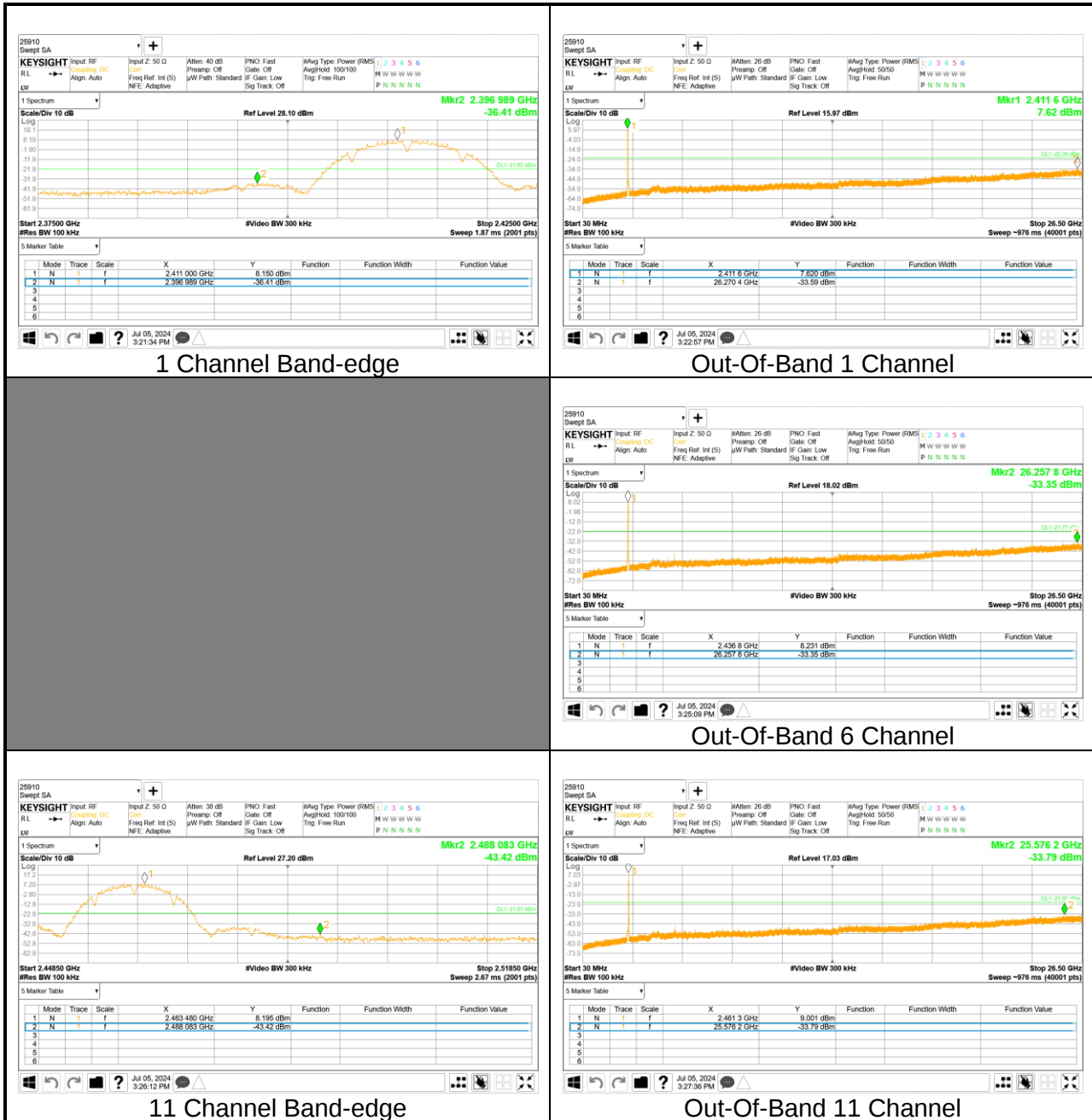
LIMITS

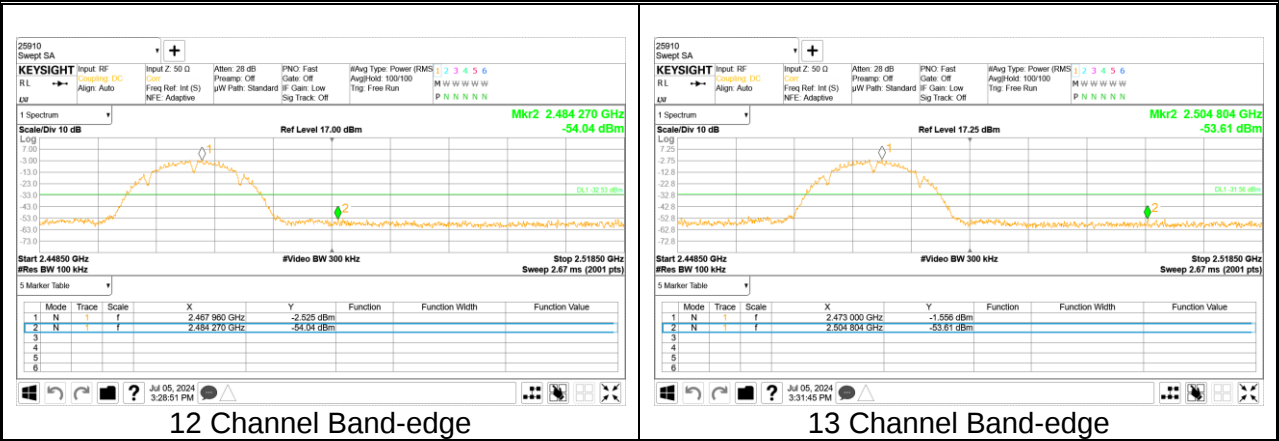
FCC §15.247 (d)

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

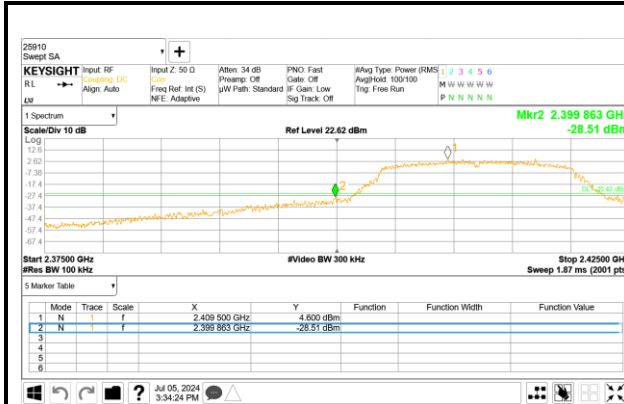
RESULTS

9.5.1. 802.11b MODE

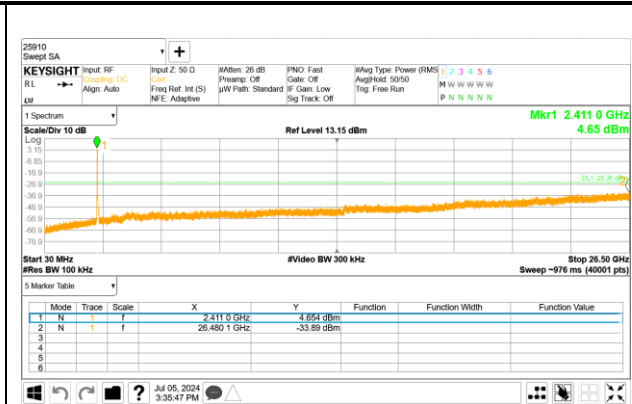




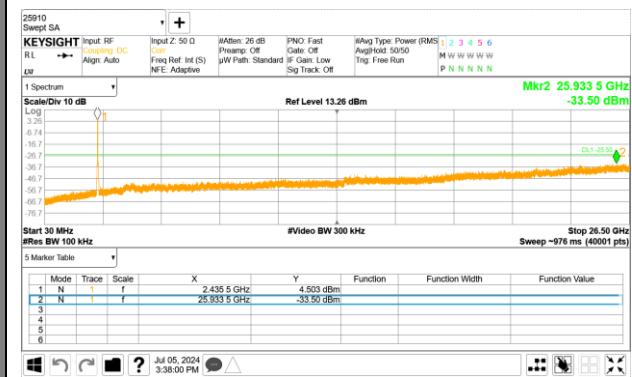
9.5.2. 802.11g MODE



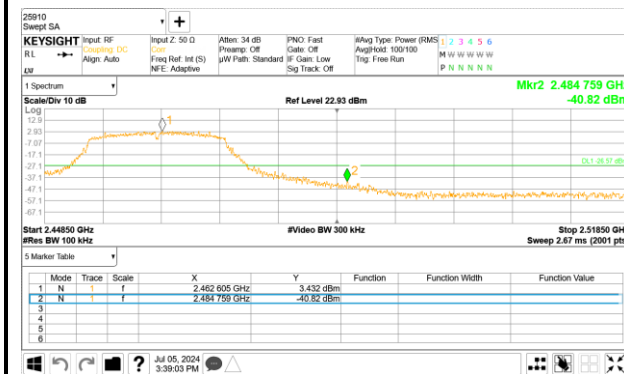
1 Channel Band-edge



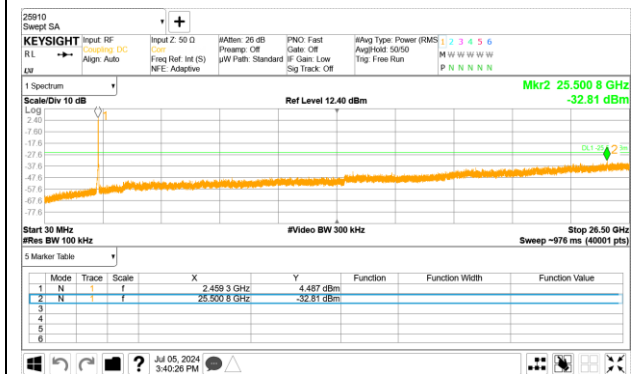
Out-Of-Band 1 Channel



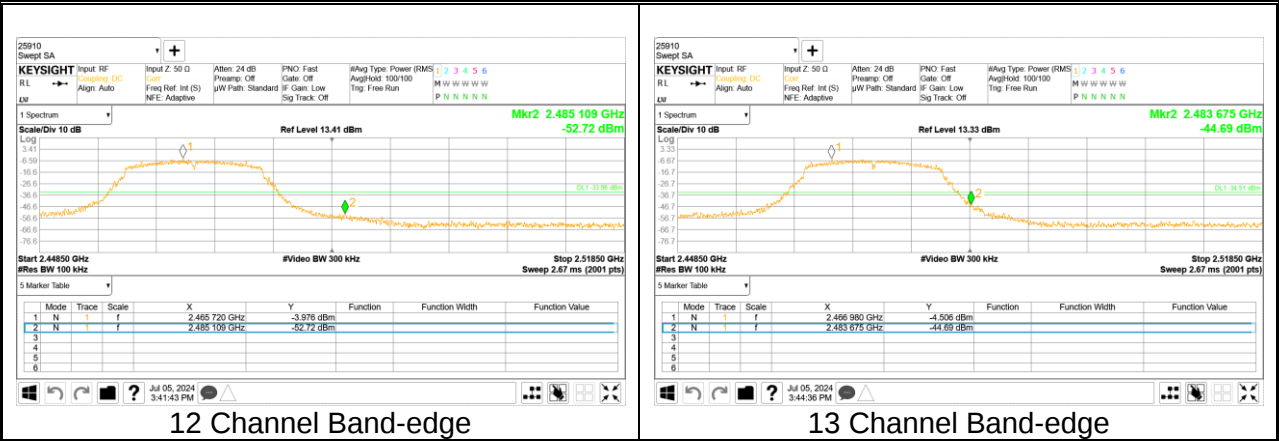
Out-Of-Band 6 Channel



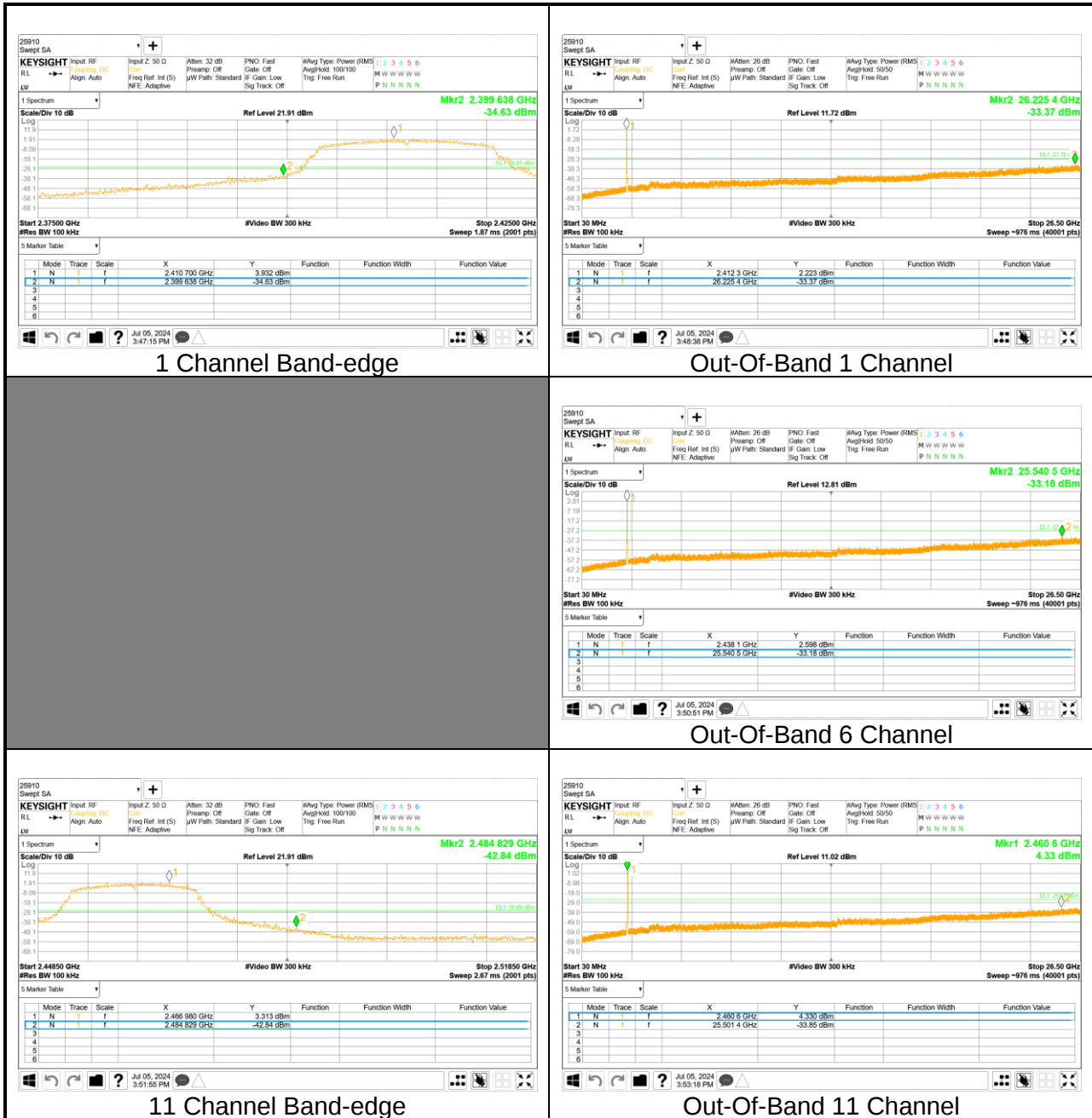
11 Channel Band-edge



Out-Of-Band 11 Channel



9.5.3. 802.11n HT20 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 SISO mode = 0.00 dB (98.92%);
802.11g SISO mode = 0.15 dB (96.70%);
802.11n(HT20) SISO mode = 0.10 dB (97.84%);

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.

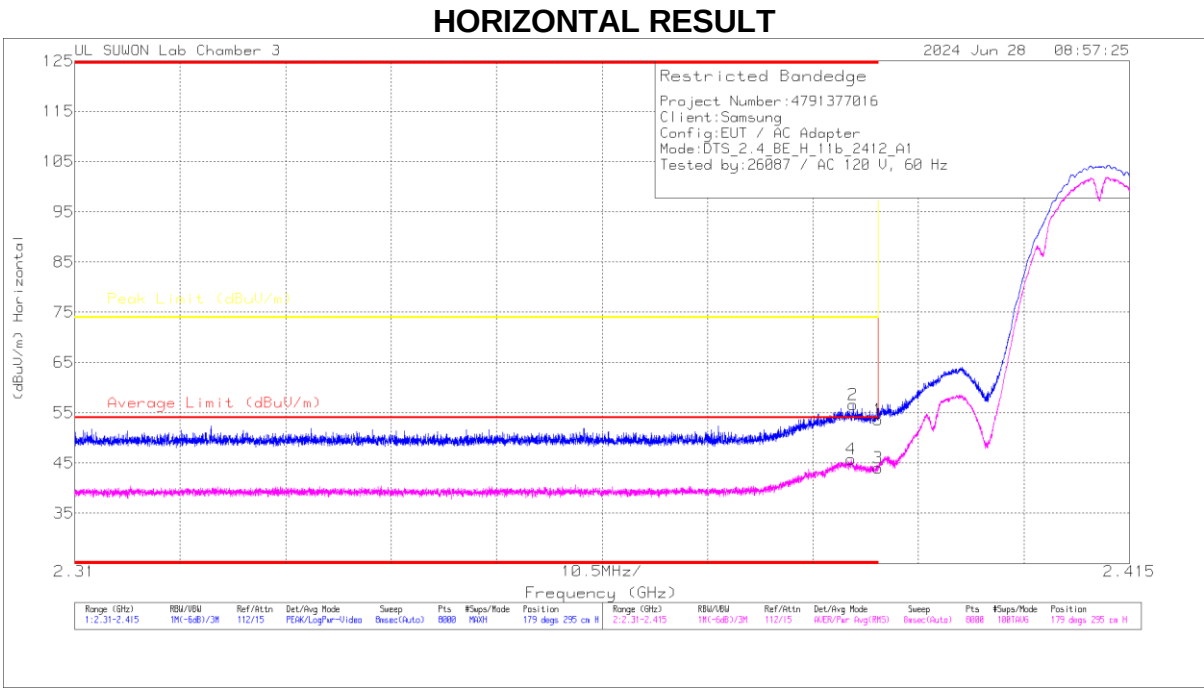
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field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

1TX Antenna 1

BANDEDGE (WORST CASE: 1 CHANNEL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dB/m)	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	* 2.39	46.3	Pk	32.1	-24.8	0	53.6	-	-	74	-20.4	179	295	H
2	* 2.38749	49.29	Pk	32.1	-24.8	0	56.59	-	-	74	-17.41	179	295	H
3	* 2.39	36.73	RMS	32.1	-24.8	0	44.03	54	-9.97	-	-	179	295	H
4	* 2.38732	38.51	RMS	32.1	-24.8	0	45.81	54	-8.19	-	-	179	295	H

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

BANDEDGE TEST DATA

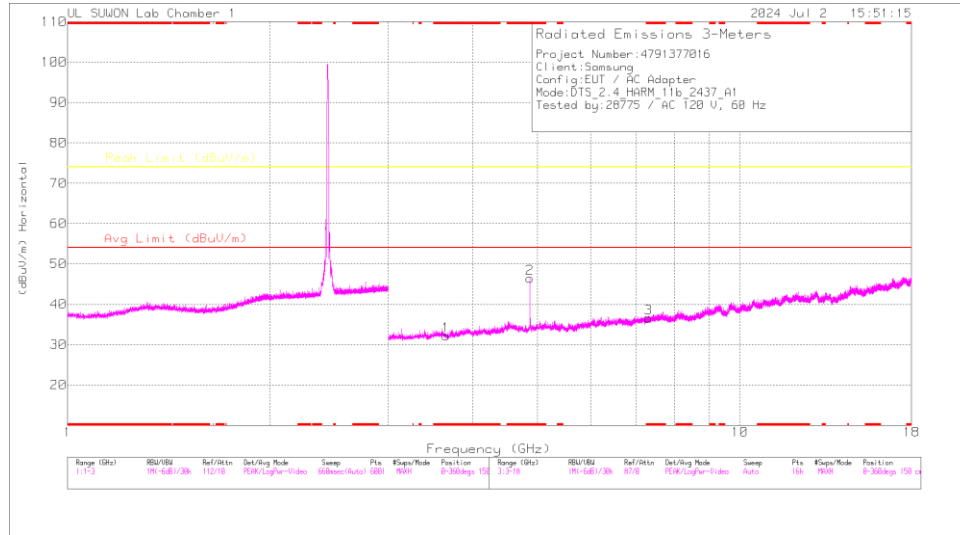
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result dBuV/m	AV Limit dBuV/m	AV Margin [dB]	PK Limit dBuV/m	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	46.30	Pk	32.10	-24.80	0.00	53.60	-	-	74.00	-20.40	179	295	H
		* 2.38749	49.29	Pk	32.10	-24.80	0.00	56.59	-	-	74.00	-17.41	179	295	H
		* 2.39	36.73	RMS	32.10	-24.80	0.00	44.03	54.00	-9.97	-	-	179	295	H
		* 2.38732	38.51	RMS	32.10	-24.80	0.00	45.81	54.00	-8.19	-	-	179	295	H
		* 2.39	44.46	Pk	32.10	-24.80	0.00	51.76	-	-	74.00	-22.24	267	110	V
		* 2.38725	47.28	Pk	32.10	-24.80	0.00	54.58	-	-	74.00	-19.42	267	110	V
		* 2.39	35.61	RMS	32.10	-24.80	0.00	42.91	54.00	-11.09	-	-	267	110	V
		* 2.3875	36.22	RMS	32.10	-24.80	0.00	43.52	54.00	-10.48	-	-	267	110	V
		* 2.4835	43.70	Pk	32.40	-24.80	0.00	51.30	-	-	74.00	-22.70	182	310	H
		* 2.48592	46.79	Pk	32.40	-24.80	0.00	54.39	-	-	74.00	-19.61	182	310	H
2462	ANT1	* 2.4835	34.56	RMS	32.40	-24.80	0.00	42.16	54.00	-11.84	-	-	182	310	H
		* 2.4869	36.35	RMS	32.40	-24.80	0.00	43.95	54.00	-10.05	-	-	182	310	H
		* 2.4835	44.85	Pk	32.40	-24.80	0.00	52.45	-	-	74.00	-21.55	263	105	V
		* 2.48542	45.59	Pk	32.40	-24.80	0.00	53.19	-	-	74.00	-20.81	263	105	V
		* 2.4835	33.54	RMS	32.40	-24.80	0.00	41.14	54.00	-12.86	-	-	263	105	V
		* 2.48667	34.74	RMS	32.40	-24.80	0.00	42.34	54.00	-11.66	-	-	263	105	V
		* 2.4835	43.49	Pk	32.40	-24.80	0.00	51.09	-	-	74.00	-22.91	182	312	H
		2.542	45.05	Pk	32.40	-24.70	0.00	52.75	-	-	74.00	-21.25	182	312	H
2467	ANT1	* 2.4835	32.94	RMS	32.40	-24.80	0.00	40.54	54.00	-13.46	-	-	182	312	H
		2.550	33.30	RMS	32.40	-24.70	0.00	41.00	54.00	-13.00	-	-	182	312	H
		* 2.4835	42.37	Pk	32.40	-24.80	0.00	49.97	-	-	74.00	-24.03	263	103	V
		2.511	44.58	Pk	32.40	-24.80	0.00	52.18	-	-	74.00	-21.82	263	103	V
		* 2.4835	32.62	RMS	32.40	-24.80	0.00	40.22	54.00	-13.78	-	-	263	103	V
		2.525	33.51	RMS	32.40	-24.80	0.00	41.11	54.00	-12.89	-	-	263	103	V
		* 2.4835	42.27	Pk	32.40	-24.80	0.00	49.87	-	-	74.00	-24.13	204	351	H
		2.506	44.94	Pk	32.40	-24.60	0.00	52.74	-	-	74.00	-21.26	204	351	H
2472	ANT1	* 2.4835	32.40	RMS	32.40	-24.80	0.00	40.00	54.00	-14.00	-	-	204	351	H
		2.539	33.21	RMS	32.40	-24.70	0.00	40.91	54.00	-13.09	-	-	204	351	H
		* 2.4835	42.08	Pk	32.40	-24.80	0.00	49.68	-	-	74.00	-24.32	265	105	V
		2.553	44.85	Pk	32.40	-24.70	0.00	52.55	-	-	74.00	-21.45	265	105	V
		* 2.4835	32.60	RMS	32.40	-24.80	0.00	40.20	54.00	-13.80	-	-	265	105	V
		2.555	33.13	RMS	32.40	-24.60	0.00	40.93	54.00	-13.07	-	-	265	105	V

Note1. Pk - Peak detector, RMS - RMS detector

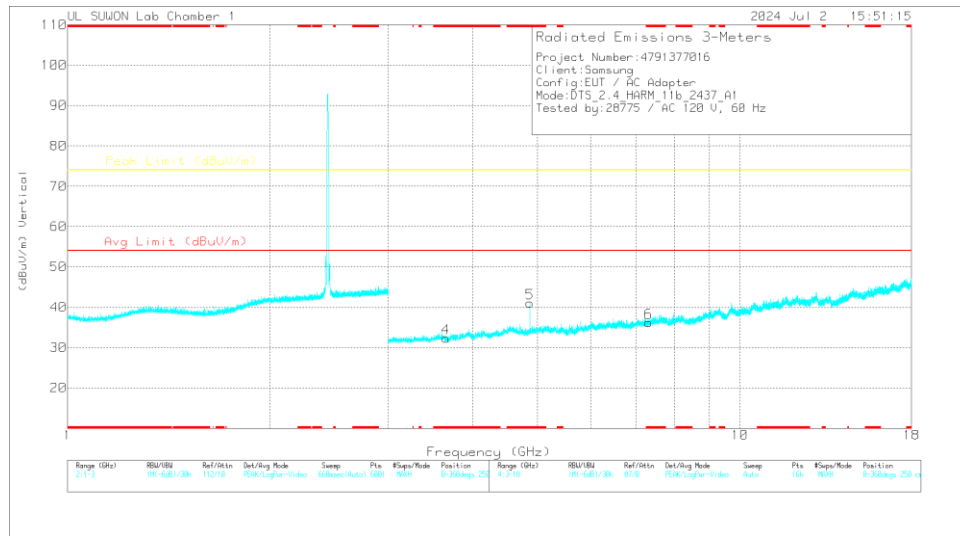
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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 Correction Factor (dBm)	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
* 3.65181	41.56	PK2	33.6	-33.7	0	41.46	-	-	74	-32.54	0	100	H
* 3.66198	41.29	PK2	33.6	-33.6	0	41.29	-	-	74	-32.71	0	100	V
* 4.87399	49.07	PK2	34.2	-32.7	0	50.57	-	-	74	-23.43	1	112	H
* 4.87395	45.35	MAV1	34.2	-32.7	0	46.85	54	-7.15	-	-	1	112	H
* 4.87395	46.48	PK2	34.2	-32.7	0	47.98	-	-	74	-26.02	237	100	V
* 4.87397	41.22	MAV1	34.2	-32.7	0	42.72	54	-11.28	-	-	237	100	V
* 7.30889	40.64	PK2	35.7	-30.5	0	45.84	-	-	74	-28.16	0	100	H
* 7.31249	40.29	PK2	35.7	-30.5	0	45.49	-	-	74	-28.51	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	ANT1	3.143	43.06	PK2	32.90	-34.10	0.00	41.86	-	-	74.00	-32.14	155	154	H
		3.143	42.57	PK2	32.90	-34.10	0.00	41.37	-	-	74.00	-32.63	135	134	V
		* 4.19132	41.62	PK2	34.00	-32.80	0.00	42.82	-	-	74.00	-31.18	33	245	H
		* 4.21062	29.56	MAv1	34.00	-33.00	0.00	30.56	54.00	-23.44	-	-	33	245	H
		* 4.20258	41.88	PK2	34.00	-32.90	0.00	42.98	-	-	74.00	-31.02	152	102	V
		* 4.21066	29.56	MAv1	34.00	-33.00	0.00	30.56	54.00	-23.44	-	-	152	102	V
		* 4.82412	44.14	PK2	34.20	-32.70	0.00	45.64	-	-	74.00	-28.36	7	122	H
		* 4.82396	37.02	MAv1	34.20	-32.70	0.00	38.52	54.00	-15.48	-	-	7	122	H
		* 4.82384	42.55	PK2	34.20	-32.70	0.00	44.05	-	-	74.00	-29.95	267	100	V
		* 4.8239	33.86	MAv1	34.20	-32.70	0.00	35.36	54.00	-18.64	-	-	267	100	V
2437	ANT1	* 3.65181	41.56	PK2	33.60	-33.70	0.00	41.46	-	-	74.00	-32.54	0	100	H
		* 3.66198	41.29	PK2	33.60	-33.60	0.00	41.29	-	-	74.00	-32.71	0	100	V
		* 4.87399	49.07	PK2	34.20	-32.70	0.00	50.57	-	-	74.00	-23.43	1	112	H
		* 4.87395	45.35	MAv1	34.20	-32.70	0.00	46.85	54.00	-7.15	-	-	1	112	H
		* 4.87395	46.48	PK2	34.20	-32.70	0.00	47.98	-	-	74.00	-26.02	237	100	V
		* 4.87397	41.22	MAv1	34.20	-32.70	0.00	42.72	54.00	-11.28	-	-	237	100	V
		* 7.30889	40.64	PK2	35.70	-30.50	0.00	45.84	-	-	74.00	-28.16	0	100	H
		* 7.31249	40.29	PK2	35.70	-30.50	0.00	45.49	-	-	74.00	-28.51	0	100	V
		* 3.68924	40.84	PK2	33.60	-33.50	0.00	40.94	-	-	74.00	-33.06	0	100	H
2462	ANT1	* 3.69709	41.37	PK2	33.50	-33.50	0.00	41.37	-	-	74.00	-32.63	0	100	V
		* 4.92394	48.89	PK2	34.20	-32.70	0.00	50.39	-	-	74.00	-23.61	8	141	H
		* 4.92396	45.27	MAv1	34.20	-32.70	0.00	46.77	54.00	-7.23	-	-	8	141	H
		* 4.92402	46.74	PK2	34.20	-32.70	0.00	48.24	-	-	74.00	-25.76	248	100	V
		* 4.92396	41.36	MAv1	34.20	-32.70	0.00	42.86	54.00	-11.14	-	-	248	100	V
		* 7.38653	40.88	PK2	35.60	-30.20	0.00	46.28	-	-	74.00	-27.72	0	100	H
		* 7.38661	41.34	PK2	35.60	-30.20	0.00	46.74	-	-	74.00	-27.26	0	100	V

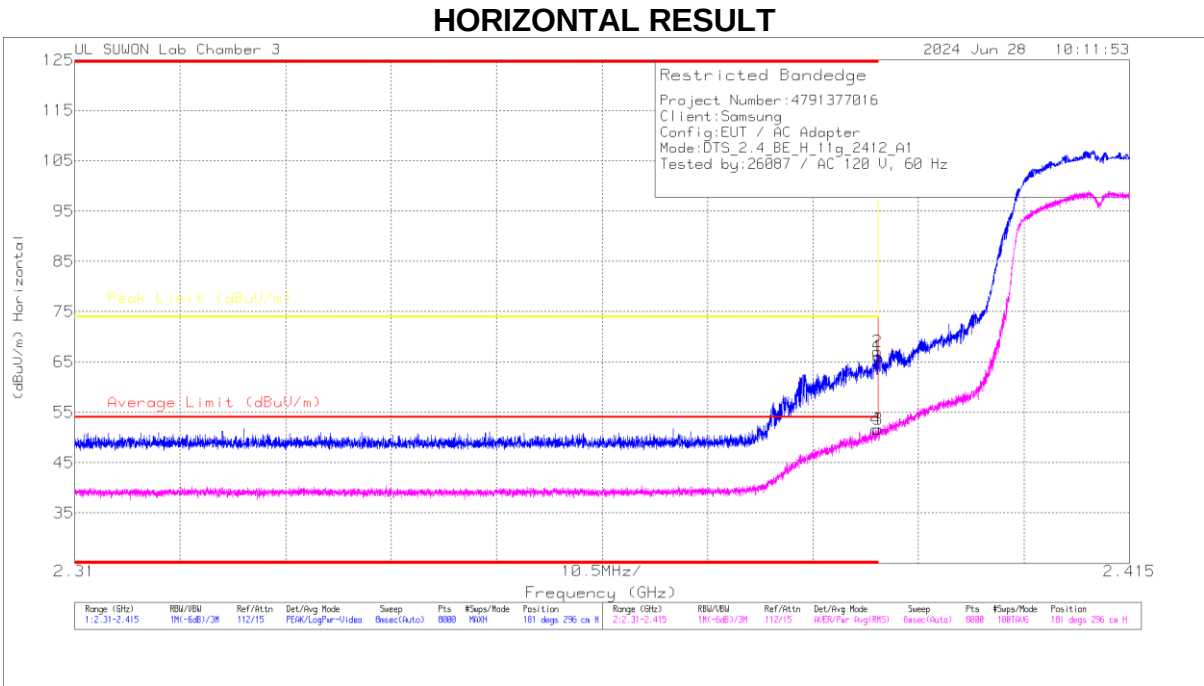
Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average

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

1TX Antenna 1

BANDEDGE (WORST CASE: 1 CHANNEL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dB/m)	Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (m)	Height (cm)	Polarity
1	* 2.39	58.76	Pk	32.1	-24.8	0	66.06	-	-	74	-7.94	181	296	H
2	* 2.38994	55.79	Pk	32.1	-24.8	0	67.09	-	-	74	-6.91	181	296	H
3	* 2.39	44.14	RMS	32.1	-24.8	15	51.59	54	-2.41	-	-	181	296	H
4	* 2.38976	44.12	RMS	32.1	-24.8	15	51.57	54	-2.43	-	-	181	296	H

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

BANDEDGE TEST DATA

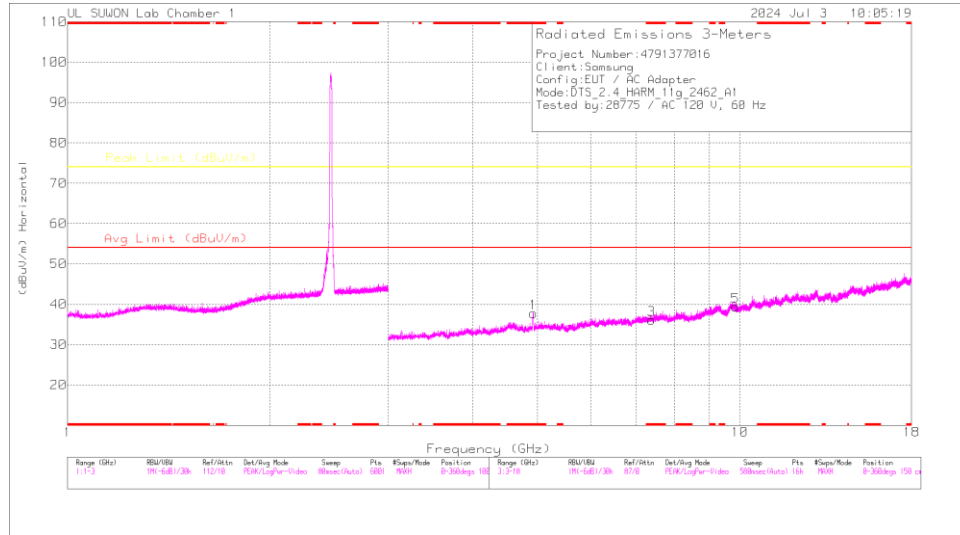
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	58.76	Pk	32.10	-24.80	0.00	66.06	-	-	74.00	-7.94	181	296	H
		* 2.38994	59.79	Pk	32.10	-24.80	0.00	67.09	-	-	74.00	-6.91	181	296	H
		* 2.39	44.14	RMS	32.10	-24.80	0.15	51.59	54.00	-2.41	-	-	181	296	H
		* 2.38976	44.12	RMS	32.10	-24.80	0.15	51.57	54.00	-2.43	-	-	181	296	H
		* 2.39	56.43	Pk	32.10	-24.80	0.00	63.73	-	-	74.00	-10.27	267	112	V
		* 2.38996	56.96	Pk	32.10	-24.80	0.00	64.26	-	-	74.00	-9.74	267	112	V
		* 2.39	40.97	RMS	32.10	-24.80	0.15	48.42	54.00	-5.58	-	-	267	112	V
		* 2.38902	41.69	RMS	32.10	-24.80	0.15	49.14	54.00	-4.86	-	-	267	112	V
2462	ANT1	* 2.4835	53.86	Pk	32.40	-24.80	0.00	61.46	-	-	74.00	-12.54	203	134	H
		* 2.4838	54.19	Pk	32.40	-24.80	0.00	61.79	-	-	74.00	-12.21	203	134	H
		* 2.4835	40.14	RMS	32.40	-24.80	0.15	47.89	54.00	-6.11	-	-	203	134	H
		* 2.48408	40.63	RMS	32.40	-24.80	0.15	48.38	54.00	-5.62	-	-	203	134	H
		* 2.4835	51.62	Pk	32.40	-24.80	0.00	59.22	-	-	74.00	-14.78	266	104	V
		* 2.48373	52.53	Pk	32.40	-24.80	0.00	60.13	-	-	74.00	-13.87	266	104	V
		* 2.4835	38.14	RMS	32.40	-24.80	0.15	45.89	54.00	-8.11	-	-	266	104	V
		* 2.48382	38.59	RMS	32.40	-24.80	0.15	46.34	54.00	-7.66	-	-	266	104	V
2467	ANT1	* 2.4835	44.71	Pk	32.40	-24.80	0.00	52.31	-	-	74.00	-21.69	186	310	H
		* 2.48492	48.41	Pk	32.40	-24.80	0.00	56.01	-	-	74.00	-17.99	186	310	H
		* 2.4835	34.74	RMS	32.40	-24.80	0.15	42.49	54.00	-11.51	-	-	186	310	H
		* 2.48381	35.35	RMS	32.40	-24.80	0.15	43.10	54.00	-10.90	-	-	186	310	H
		* 2.4835	44.11	Pk	32.40	-24.80	0.00	51.71	-	-	74.00	-22.29	263	103	V
		* 2.48474	45.92	Pk	32.40	-24.80	0.00	53.52	-	-	74.00	-20.48	263	103	V
		* 2.4835	34.28	RMS	32.40	-24.80	0.15	42.03	54.00	-11.97	-	-	263	103	V
		* 2.48371	34.54	RMS	32.40	-24.80	0.15	42.29	54.00	-11.71	-	-	263	103	V
2472	ANT1	* 2.4835	51.99	Pk	32.40	-24.80	0.00	59.59	-	-	74.00	-14.41	185	350	H
		* 2.48364	52.59	Pk	32.40	-24.80	0.00	60.19	-	-	74.00	-13.81	185	350	H
		* 2.4835	38.29	RMS	32.40	-24.80	0.15	46.04	54.00	-7.96	-	-	185	350	H
		* 2.48351	38.88	RMS	32.40	-24.80	0.15	46.63	54.00	-7.37	-	-	185	350	H
		* 2.4835	48.14	Pk	32.40	-24.80	0.00	55.74	-	-	74.00	-18.26	267	123	V
		* 2.48405	50.06	Pk	32.40	-24.80	0.00	57.66	-	-	74.00	-16.34	267	123	V
		* 2.4835	36.19	RMS	32.40	-24.80	0.15	43.94	54.00	-10.06	-	-	267	123	V
		* 2.48376	37.08	RMS	32.40	-24.80	0.15	44.83	54.00	-9.17	-	-	267	123	V

Note1. Pk - Peak detector, RMS - RMS detector

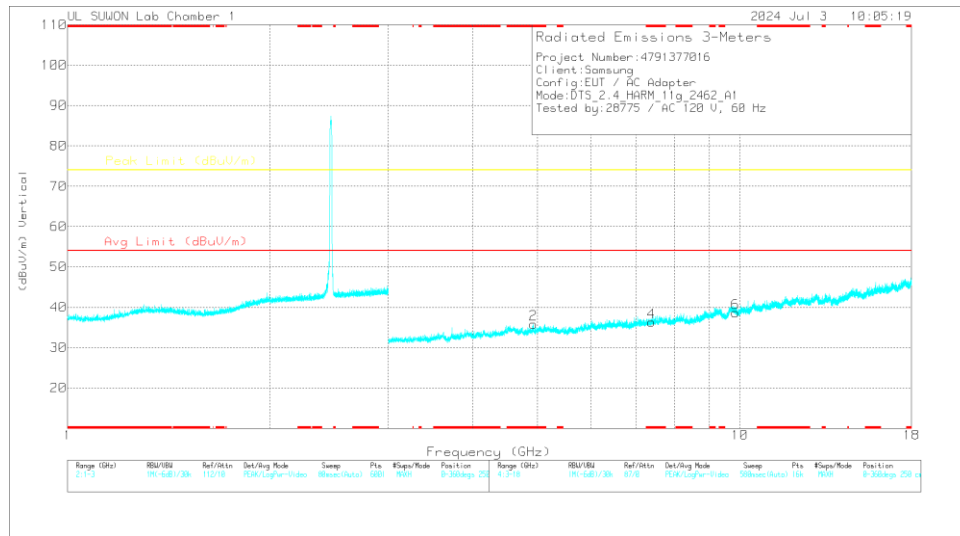
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 11 CHANNEL)

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 Correction Factor (dBm)	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
* 4.92916	46.22	PK2	34.2	-32.7	0	47.72	-	-	74	-26.28	357	102	H
* 4.92412	34.41	MAV1	34.2	-32.7	15	36.06	54	-17.94	74	-	357	102	H
* 4.92175	44.33	PK2	34.2	-32.7	0	45.83	-	-	74	-28.17	248	100	V
* 4.92403	32.35	MAV1	34.2	-32.7	15	34	54	-20	74	-	248	100	V
* 7.38703	40.49	PK2	35.6	-30.2	0	45.89	-	-	74	-28.11	0	100	H
* 7.38207	40.46	PK2	35.6	-30.2	0	45.86	-	-	74	-28.14	0	100	V
9.84719	37.32	PK2	37.5	-26.1	0	48.72	-	-	74	-25.28	0	100	H
9.84798	37.31	PK2	37.5	-26.1	0	48.71	-	-	74	-25.29	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 [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	ANT1	* 4.82686	42.82	PK2	34.20	-32.70	0.00	44.32	-	-	74.00	-29.68	3	114	H
		* 4.82419	30.53	MAv1	34.20	-32.70	0.15	32.18	54.00	-21.82	-	-	3	114	H
		* 4.82787	42.30	PK2	34.20	-32.60	0.00	43.90	-	-	74.00	-30.10	262	101	V
		* 4.82212	30.15	MAv1	34.20	-32.70	0.15	31.80	54.00	-22.20	-	-	262	101	V
		7.239	41.56	PK2	35.70	-30.60	0.00	46.66	-	-	74.00	-27.34	0	100	H
		7.238	40.55	PK2	35.70	-30.60	0.00	45.65	-	-	74.00	-28.35	0	100	V
		9.652	37.60	PK2	37.20	-26.00	0.00	48.80	-	-	74.00	-25.20	0	100	H
		9.646	37.00	PK2	37.20	-26.00	0.00	48.20	-	-	74.00	-25.80	0	100	V
2437	ANT1	* 4.87489	46.54	PK2	34.20	-32.70	0.00	48.04	-	-	74.00	-25.96	3	126	H
		* 4.8742	34.13	MAv1	34.20	-32.70	0.15	35.78	54.00	-18.22	-	-	3	126	H
		* 4.87919	44.06	PK2	34.20	-32.80	0.00	45.46	-	-	74.00	-28.54	236	100	V
		* 4.87535	31.85	MAv1	34.20	-32.70	0.15	33.50	54.00	-20.50	-	-	236	100	V
		* 7.31044	40.76	PK2	35.70	-30.50	0.00	45.96	-	-	74.00	-28.04	0	100	H
		* 7.31168	40.60	PK2	35.70	-30.50	0.00	45.80	-	-	74.00	-28.20	0	100	V
		9.749	36.68	PK2	37.30	-25.50	0.00	48.48	-	-	74.00	-25.52	0	100	H
		9.749	36.66	PK2	37.30	-25.50	0.00	48.46	-	-	74.00	-25.54	0	100	V
2462	ANT1	* 4.92916	46.22	PK2	34.20	-32.70	0.00	47.72	-	-	74.00	-26.28	357	102	H
		* 4.92412	34.41	MAv1	34.20	-32.70	0.15	36.06	54.00	-17.94	-	-	357	102	H
		* 4.92175	44.33	PK2	34.20	-32.70	0.00	45.83	-	-	74.00	-28.17	248	100	V
		* 4.92403	32.35	MAv1	34.20	-32.70	0.15	34.00	54.00	-20.00	-	-	248	100	V
		* 7.38703	40.49	PK2	35.60	-30.20	0.00	45.89	-	-	74.00	-28.11	0	100	H
		* 7.38207	40.46	PK2	35.60	-30.20	0.00	45.86	-	-	74.00	-28.14	0	100	V
		9.847	37.32	PK2	37.50	-26.10	0.00	48.72	-	-	74.00	-25.28	0	100	H
		9.848	37.31	PK2	37.50	-26.10	0.00	48.71	-	-	74.00	-25.29	0	100	V

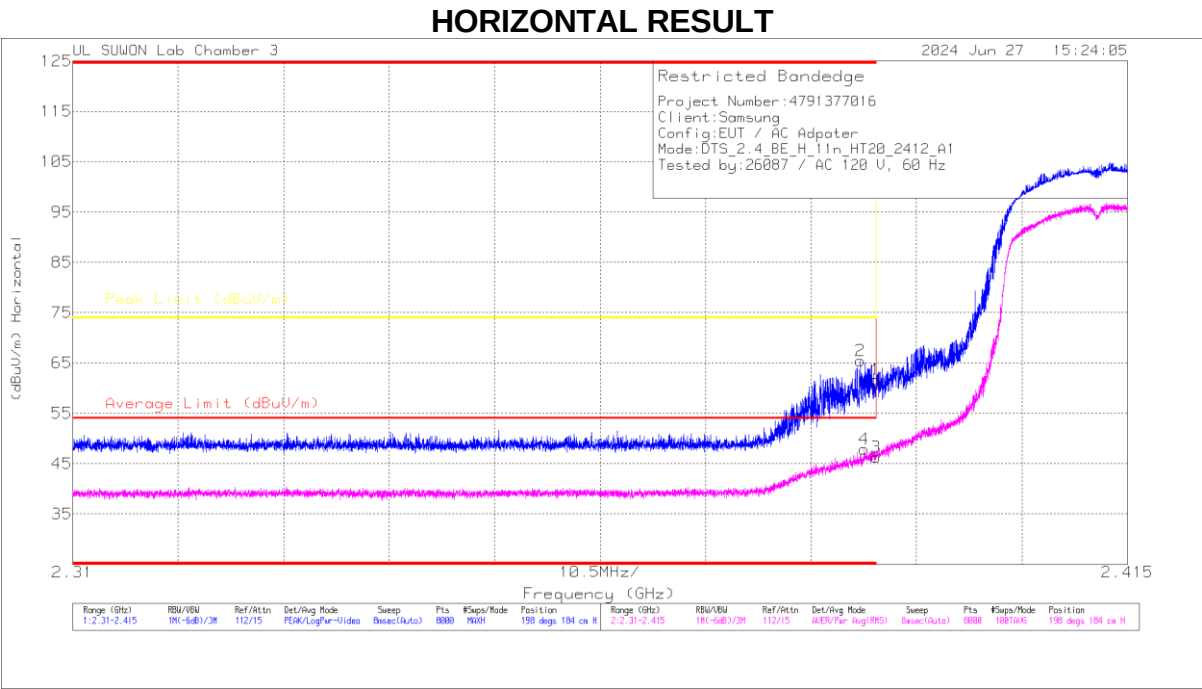
Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average

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

1TX Antenna 1

BANDEDGE (WORST CASE: 1 CHANNEL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor (dBm)	Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (deg)	Height (cm)	Polarity
1	* 2.39	54.35	Pk	32.1	-24.8	0	61.59	-	-	74	-12.31	198	184	H
2	* 2.38841	58.11	Pk	32.1	-24.8	0	65.41	-	-	74	-8.59	198	184	H
3	* 2.39	38.89	RMS	32.1	-24.8	1	46.29	54	-7.71	-	-	198	184	H
4	* 2.38881	40.53	RMS	32.1	-24.8	1	47.93	54	-6.07	-	-	198	184	H

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

BANDEDGE TEST DATA

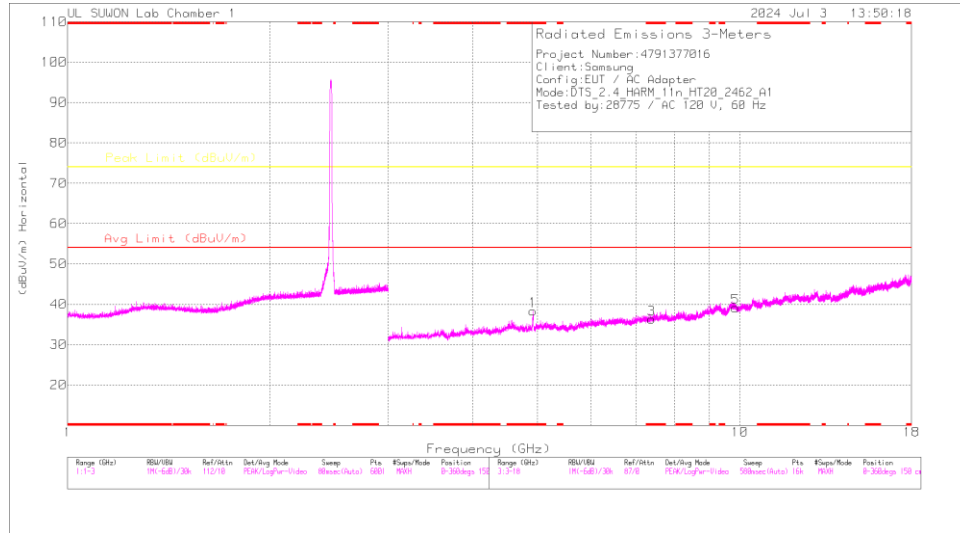
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	54.39	Pk	32.10	-24.80	0.00	61.69	-	-	74.00	-12.31	198	184	H
		* 2.38841	58.11	Pk	32.10	-24.80	0.00	65.41	-	-	74.00	-8.59	198	184	H
		* 2.39	38.89	RMS	32.10	-24.80	0.10	46.29	54.00	-7.71	-	-	198	184	H
		* 2.38881	40.53	RMS	32.10	-24.80	0.10	47.93	54.00	-6.07	-	-	198	184	H
		* 2.39	54.33	Pk	32.10	-24.80	0.00	61.63	-	-	74.00	-12.37	269	111	V
		* 2.38918	56.21	Pk	32.10	-24.80	0.00	63.51	-	-	74.00	-10.49	269	111	V
		* 2.39	37.74	RMS	32.10	-24.80	0.10	45.14	54.00	-8.86	-	-	269	111	V
		* 2.38863	38.73	RMS	32.10	-24.80	0.10	46.13	54.00	-7.87	-	-	269	111	V
2462	ANT1	* 2.4835	51.03	Pk	32.40	-24.80	0.00	58.63	-	-	74.00	-15.37	202	134	H
		* 2.48541	52.31	Pk	32.40	-24.80	0.00	59.91	-	-	74.00	-14.09	202	134	H
		* 2.4835	38.20	RMS	32.40	-24.80	0.10	45.90	54.00	-8.10	-	-	202	134	H
		* 2.48353	38.94	RMS	32.40	-24.80	0.10	46.64	54.00	-7.36	-	-	202	134	H
		* 2.4835	49.46	Pk	32.40	-24.80	0.00	57.06	-	-	74.00	-16.94	265	103	V
		* 2.48488	50.57	Pk	32.40	-24.80	0.00	58.17	-	-	74.00	-15.83	265	103	V
		* 2.4835	37.17	RMS	32.40	-24.80	0.10	44.87	54.00	-9.13	-	-	265	103	V
		* 2.48409	37.25	RMS	32.40	-24.80	0.10	44.95	54.00	-9.05	-	-	265	103	V
2467	ANT1	* 2.4835	44.02	Pk	32.40	-24.80	0.00	51.62	-	-	74.00	-22.38	184	310	H
		* 2.48505	45.75	Pk	32.40	-24.80	0.00	53.35	-	-	74.00	-20.65	184	310	H
		* 2.4835	33.08	RMS	32.40	-24.80	0.10	40.78	54.00	-13.22	-	-	184	310	H
		* 2.48466	34.36	RMS	32.40	-24.80	0.10	42.06	54.00	-11.94	-	-	184	310	H
		* 2.4835	42.08	Pk	32.40	-24.80	0.00	49.68	-	-	74.00	-24.32	265	120	V
		* 2.48953	45.29	Pk	32.40	-24.80	0.00	52.89	-	-	74.00	-21.11	265	120	V
		* 2.4835	32.79	RMS	32.40	-24.80	0.10	40.49	54.00	-13.51	-	-	265	120	V
		* 2.48371	34.06	RMS	32.40	-24.80	0.10	41.76	54.00	-12.24	-	-	265	120	V
2472	ANT1	* 2.4835	55.20	Pk	32.40	-24.80	0.00	62.80	-	-	74.00	-11.20	181	312	H
		* 2.48354	57.28	Pk	32.40	-24.80	0.00	64.88	-	-	74.00	-9.12	181	312	H
		* 2.4835	38.76	RMS	32.40	-24.80	0.10	46.46	54.00	-7.54	-	-	181	312	H
		* 2.48354	40.00	RMS	32.40	-24.80	0.10	47.70	54.00	-6.30	-	-	181	312	H
		* 2.4835	55.05	Pk	32.40	-24.80	0.00	62.65	-	-	74.00	-11.35	266	122	V
		* 2.48354	55.41	Pk	32.40	-24.80	0.00	63.01	-	-	74.00	-10.99	266	122	V
		* 2.4835	37.31	RMS	32.40	-24.80	0.10	45.01	54.00	-8.99	-	-	266	122	V
		* 2.4836	37.31	RMS	32.40	-24.80	0.10	45.01	54.00	-8.99	-	-	266	122	V

Note1. Pk - Peak detector, RMS - RMS detector

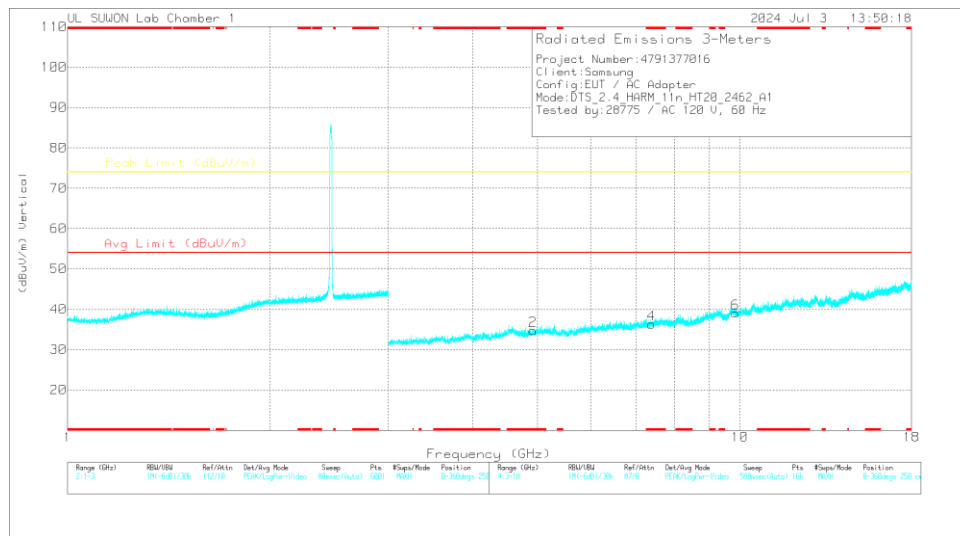
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 11 CHANNEL)

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 Correction Factor (dB/m)	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
* 4.91772	45.36	PK2	34.2	-32.7	0	46.86	-	-	74	-27.14	0	101	H
* 4.92407	33.87	MAv1	34.2	-32.7	.1	35.47	54	-18.53	-	-	0	101	H
* 4.91753	44.23	PK2	34.2	-32.7	0	45.73	-	-	74	-28.27	247	100	V
* 4.92498	32.05	MAv1	34.2	-32.7	.1	33.65	54	-20.35	-	-	247	100	V
* 7.38201	40.53	PK2	35.6	-30.2	0	45.93	-	-	74	-28.07	0	100	H
* 7.38219	40.71	PK2	35.6	-30.2	0	46.11	-	-	74	-27.89	0	100	V
9.84793	37.57	PK2	37.5	-26.1	0	48.97	-	-	74	-25.03	0	100	H
9.85118	37.13	PK2	37.5	-26.2	0	48.43	-	-	74	-25.57	0	100	V

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

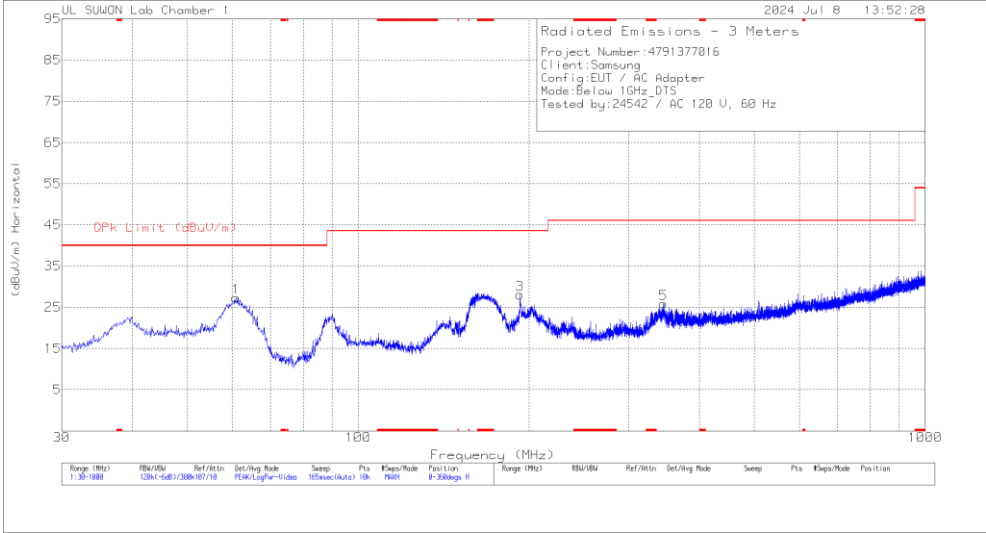
HARMONICS AND SPURIOUS EMISSIONS TEST DATA

Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [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	ANT1	* 4.82372	42.53	PK2	34.20	-32.70	0.00	44.03	-	-	74.00	-29.97	359	111	H
		* 4.82708	30.43	MAv1	34.20	-32.70	0.10	32.03	54.00	-21.97	-	-	359	111	H
		* 4.81328	41.97	PK2	34.20	-32.70	0.00	43.47	-	-	74.00	-30.53	243	105	V
		* 4.80941	30.04	MAv1	34.20	-32.70	0.10	31.64	54.00	-22.36	-	-	243	105	V
		7.241	40.76	PK2	35.70	-30.60	0.00	45.86	-	-	74.00	-28.14	0	100	H
		7.240	40.49	PK2	35.70	-30.60	0.00	45.59	-	-	74.00	-28.41	0	100	V
		9.648	37.21	PK2	37.20	-26.00	0.00	48.41	-	-	74.00	-25.59	0	100	H
		9.647	37.51	PK2	37.20	-26.00	0.00	48.71	-	-	74.00	-25.29	0	100	V
2437	ANT1	* 4.87888	45.65	PK2	34.20	-32.80	0.00	47.05	-	-	74.00	-26.95	0	110	H
		* 4.87576	33.56	MAv1	34.20	-32.70	0.10	35.16	54.00	-18.84	-	-	0	110	H
		* 4.88042	43.33	PK2	34.20	-32.80	0.00	44.73	-	-	74.00	-29.27	228	100	V
		* 4.87542	31.60	MAv1	34.20	-32.70	0.10	33.20	54.00	-20.80	-	-	228	100	V
		* 7.31035	40.83	PK2	35.70	-30.50	0.00	46.03	-	-	74.00	-27.97	0	100	H
		* 7.31462	40.38	PK2	35.70	-30.50	0.00	45.58	-	-	74.00	-28.42	0	100	V
		9.753	36.56	PK2	37.30	-25.50	0.00	48.36	-	-	74.00	-25.64	0	100	H
		9.744	36.74	PK2	37.30	-25.50	0.00	48.54	-	-	74.00	-25.46	0	100	V
2462	ANT1	* 4.91772	45.36	PK2	34.20	-32.70	0.00	46.86	-	-	74.00	-27.14	0	101	H
		* 4.92407	33.87	MAv1	34.20	-32.70	0.10	35.47	54.00	-18.53	-	-	0	101	H
		* 4.91753	44.23	PK2	34.20	-32.70	0.00	45.73	-	-	74.00	-28.27	247	100	V
		* 4.92498	32.05	MAv1	34.20	-32.70	0.10	33.65	54.00	-20.35	-	-	247	100	V
		* 7.38201	40.53	PK2	35.60	-30.20	0.00	45.93	-	-	74.00	-28.07	0	100	H
		* 7.38219	40.71	PK2	35.60	-30.20	0.00	46.11	-	-	74.00	-27.89	0	100	V
		9.848	37.57	PK2	37.50	-26.10	0.00	48.97	-	-	74.00	-25.03	0	100	H
		9.851	37.13	PK2	37.50	-26.20	0.00	48.43	-	-	74.00	-25.57	0	100	V

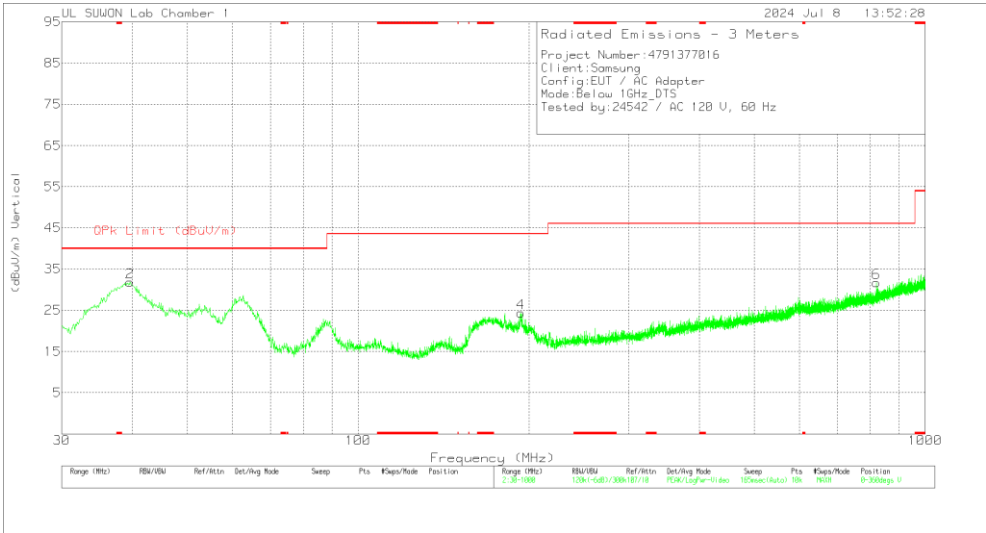
Note1. PK2 - KDB558074 Method: Maximum Peak / MAV1 - KDB558074 Option 1 Maximum RMS Average

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	Antenna Correction Factor (dB/m)	Loss(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degrs)	Height (cm)	Polarity
1	60.846	39.99	Pk	18.1	-30.7	0	27.39	40	-12.61	0-360	300	H
3	192.863	40.55	Pk	16.8	-29.3	0	28.05	43.52	-15.47	0-360	100	H
5	345.25	33.86	Pk	20.2	-28.2	0	25.86	46.02	-20.16	0-360	100	H
2	39.603	44.65	Pk	18.3	-31.1	0	31.85	40	-8.15	0-360	200	V
4	193.542	36.8	Pk	16.9	-29.3	0	24.4	43.52	-19.12	0-360	200	V
6	821.132	31.67	Pk	26.1	-26.1	0	31.67	46.02	-14.35	0-360	400	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.

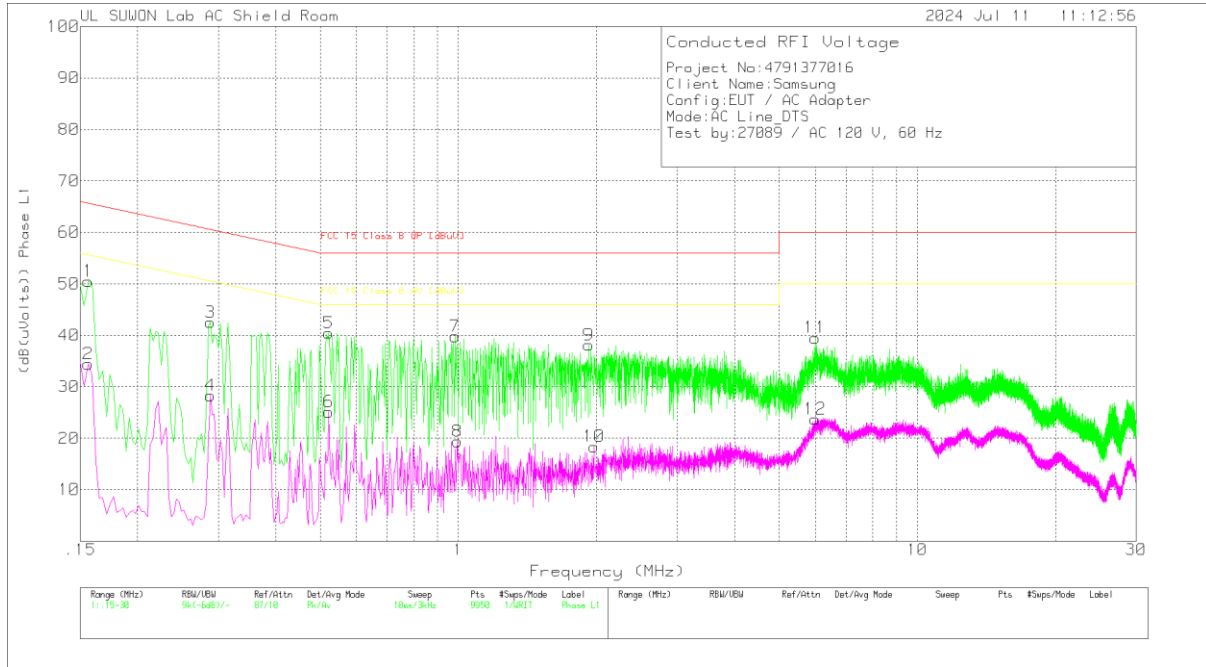
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1.1. AC Power Line

LINE 1 RESULTS



Trace Markers

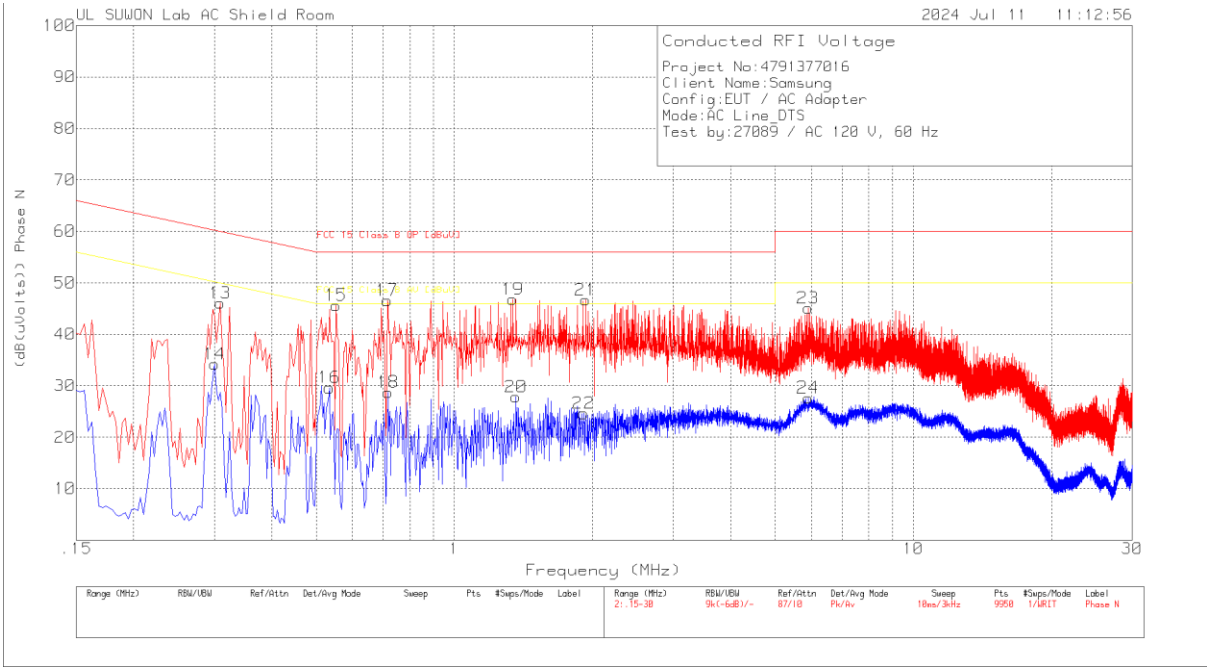
Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1 [dB]	Cable Loss [dB]	Corrected Reading [dBuV]	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
1	.156	40.6	Pk	9.8	.1	50.5	65.67	-15.17	-	-
2	.156	24.52	Av	9.8	.1	34.42	-	-	55.67	-21.25
3	.288	32.7	Pk	9.7	.1	42.5	60.58	-18.08	-	-
4	.288	18.5	Av	9.7	.1	28.3	-	-	50.58	-22.28
5	.522	30.43	Pk	9.9	.1	40.43	56	-15.57	-	-
6	.522	15.11	Av	9.9	.1	25.11	-	-	46	-20.89
7	.984	29.9	Pk	9.8	.1	39.8	56	-16.2	-	-
8	.996	9.48	Av	9.8	.1	19.38	-	-	46	-26.62
9	1.923	28.32	Pk	9.7	.1	38.12	56	-17.88	-	-
10	1.974	8.57	Av	9.7	.1	18.37	-	-	46	-27.63
11	5.988	29.53	Pk	9.8	.2	39.53	60	-20.47	-	-
12	5.988	13.7	Av	9.8	.2	23.7	-	-	50	-26.3

Pk - Peak detector

Av - Average detection

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 [dBuV]	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
13	.309	36.27	Pk	9.7	.1	46.07	60	-13.93	-	-
14	.3	24.4	Av	9.7	.1	34.2	-	-	50.24	-16.04
15	.552	35.71	Pk	9.8	.1	45.61	56	-10.39	-	-
16	.534	19.63	Av	9.9	.1	29.63	-	-	46	-16.37
17	.714	36.67	Pk	9.8	.1	46.57	56	-9.43	-	-
18	.717	18.82	Av	9.8	.1	28.72	-	-	46	-17.28
19	1.341	37	Pk	9.7	.1	46.8	56	-9.2	-	-
20	1.362	18.03	Av	9.7	.1	27.83	-	-	46	-18.17
21	1.932	36.86	Pk	9.7	.1	46.66	56	-9.34	-	-
22	1.911	14.83	Av	9.7	.1	24.63	-	-	46	-21.37
23	5.898	35.08	Pk	9.8	.2	45.08	60	-14.92	-	-
24	5.898	17.63	Av	9.8	.2	27.63	-	-	50	-22.37

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 [dBuV]	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.71325	27.77	Qp	9.8	.1	37.67	56	-18.33	-	-
1.34175	27.72	Qp	9.7	.1	37.52	56	-18.48	-	-
1.93275	26.87	Qp	9.7	.1	36.67	56	-19.33	-	-

Qp - Quasi-Peak detector

END OF TEST REPORT