CERTIFICATION TEST REPORT

Report Number. : S-4797511838-E5V1

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SC-53F, SCG33
FCC ID	:	A3LSMA253JPN
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:
2024-11-22

Prepared by:
UL KOREA LTD.
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL KOREA LTD. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433

IAS ACCREDITED Testing Laboratory TL-637

Revision History

Rev.	Issue Date	Revisions	Presented By
V1	2024-11-22	Initial issue	David Jung

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_15C(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

TABLE OF CONTENTS

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:	SC-53F, SCG33
SERIAL NUMBER:	R3CX90B51HA, R3CX90B4ZLT(CONDUCTED); R3CX90B4Z0Z, R3CX90B4ZMW, R3CX90B51WD(RADIATED)
DATE TESTED:	2024-10-22 - 2024-11-22

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
UL KOREA LTD. By:

Seokhwan Hong
Suwon Lab Engineer
UL KOREA LTD.

Tested By:

David Jung
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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
28.9 dBuV/m = 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB

AC Corrected Reading (dBuV) = Measured Voltage (dBuV) + Extension Cord Loss (dB) + Cable Loss (dB)
44.72 dBuV = 34.72 dBuV + 9.9 dB + 0.1 dB

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
RF Output Power	0.70 dB
Power Spectral Density	1.40 dB
Occupied Bandwidth	0.25 %
Conducted Spurious Emissions	1.5 dB
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 DTS(WLAN) operational mode.

Representative model	Difference	Derivative model
		SCG33
SC-53F	Hardware	Same
	Software	The UI has changed according to Service Provider

The model SC-53F 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	16.74	47.206
	802.11g SISO	16.64	46.132
	802.11n(HT20) SISO	16.53	44.978

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: -3.4 dBi

“Ant F SUB #3” 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
6	2 437	O	O	O
11	2 462	O	O	O
12	2 467	O	O	O
13	2 472	O	O	O

Note. Tested channels are applied to all test items.

5.5. WORST-CASE CONFIGURATION AND MODE

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.

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 worst 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

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218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37W75RPPJASEB	N/A
Data Cable	SAMSUNG	EP-DA705	N/A	N/A

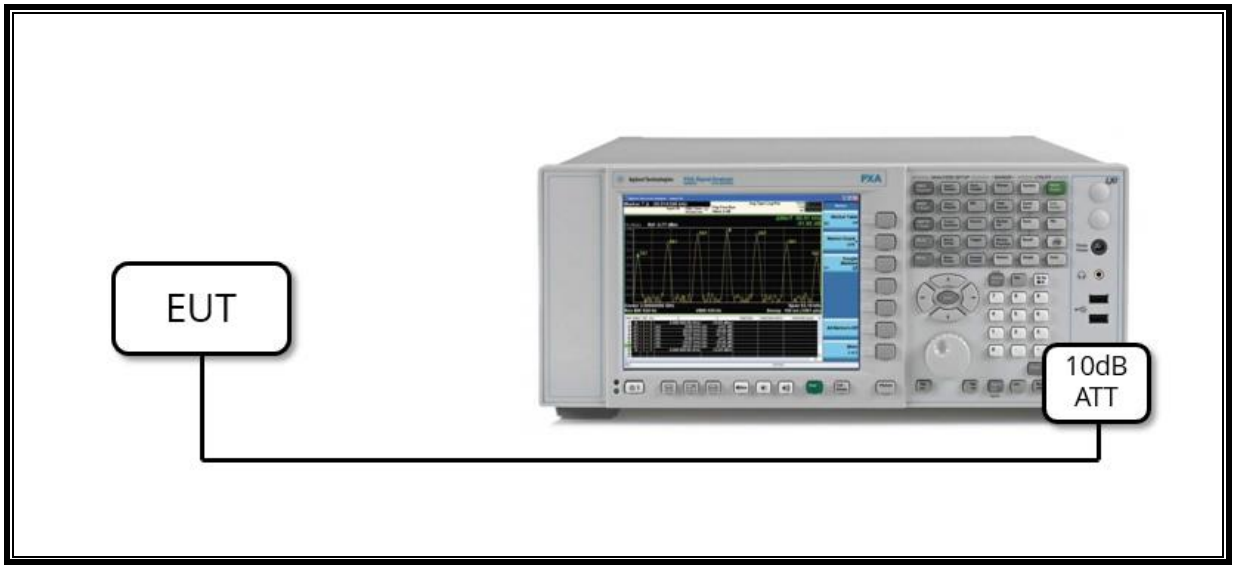
I/O CABLE

I/O Cable List						
Cable No.	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	C Type	Shielded	1.0 m	N/A

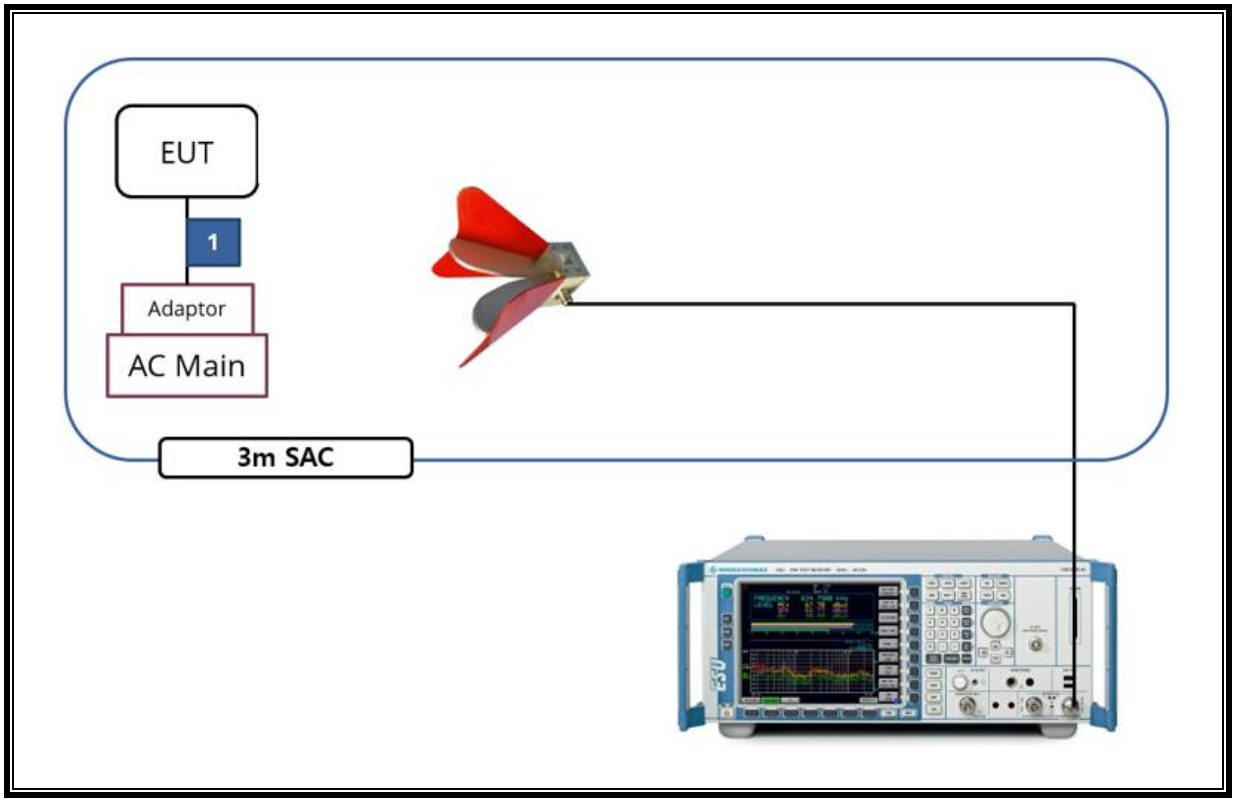
TEST SETUP

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)



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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

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7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	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
RF Switching Unit	TA Engineering	TA-018S-16	SW-1	N/A
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2025-07-23
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2025-07-23
Attenuator	PASTERNACK	PE7087-10	A001	2025-07-23
Attenuator	PASTERNACK	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-Z2E	100900	2025-07-25
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

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

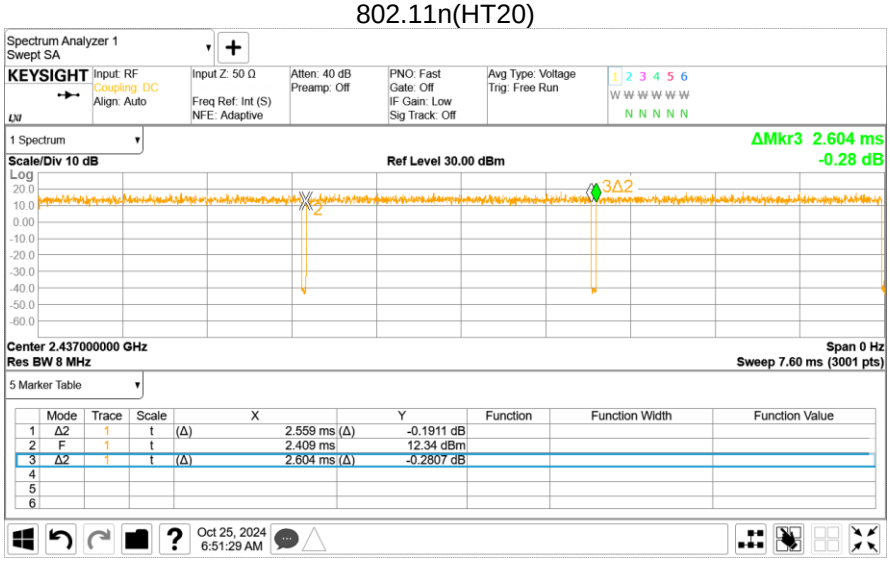
LIMITS

None; for reporting purposes only.

Mode	On Time [ms]	Period [ms]	Duty Cycle X [Linear]	Duty Cycle X [%]	Duty Cycle Correction Factor[dB]	1/T Minimum VBW[kHz]
802.11b SISO	8.380	8.420	1.00	99.52	0.00	0.12
802.11g SISO	2.753	2.800	0.98	98.32	0.00	0.36
802.11n(HT20) SISO	2.559	2.604	0.98	98.27	0.00	0.39

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

802.11n(HT20)



9.2. 6 dB BANDWIDTH

LIMITS

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

TEST PROCEDURE

Reference to ANSI C63.10-2020, Section 11.8.2 Option 2: The transmitter output is connected to a spectrum analyzer with the RBW set to 1% to 5% of OBW, the VBW >= 3 x RBW, Peak detector and Max hold.

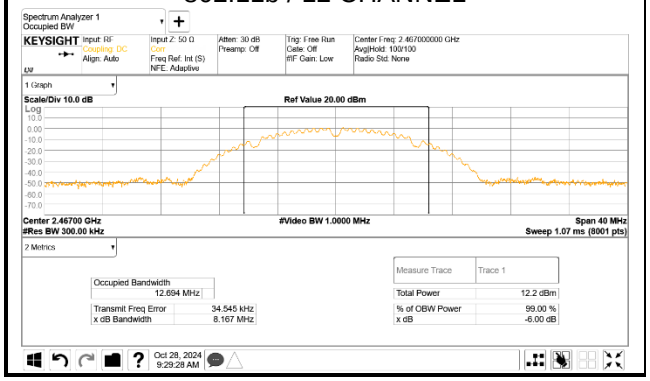
RESULTS

- Please refer to the next page

WORST CASE TEST PLOTS

ANT1

802.11b / 12 CHANNEL



9.2.1. 802.11b SISO MODE IN THE 2.4 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
		ANT 1	
1	2 412	8.213	0.5
6	2 437	8.197	
11	2 462	8.208	
12	2 467	8.167	
13	2 472	8.179	
Worst		**8.167**	

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	16.180	0.5
6	2 437	16.100	
11	2 462	16.250	
12	2 467	16.190	
13	2 472	16.200	
Worst		**16.100**	

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	17.450	0.5
6	2 437	17.280	
11	2 462	17.270	
12	2 467	17.360	
13	2 472	17.280	
Worst		**17.270**	

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.

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_15C(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

9.3.1. TEST RESULTS

- 802.11b, g, n20 mode

Mode	Channel	Frequency [MHz]	Average Power	Power Limit [dBm]
			ANT1 [dBm]	
802.11b	1	2 412	16.33	30.00
	6	2 437	16.74	
	11	2 462	16.66	
	12	2 467	8.64	
	13	2 472	8.42	
Worst Case			**16.74**	
802.11g	1	2 412	16.18	
	6	2 437	16.64	
	11	2 462	16.52	
	12	2 467	8.45	
	13	2 472	8.23	
Worst Case			**16.64**	
802.11n HT20	1	2 412	16.13	
	6	2 437	16.53	
	11	2 462	16.42	
	12	2 467	8.37	
	13	2 472	8.16	
Worst Case			**16.53**	

- 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.

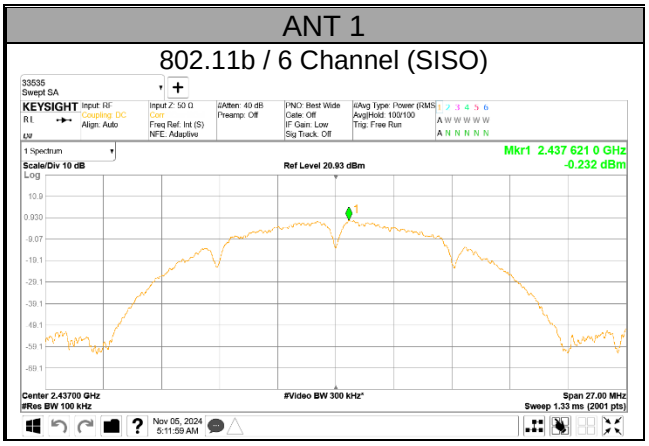
TEST PROCEDURE

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 PLOT



9.4.1. 802.11b/g/n20 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	-0.616	0.00	-0.616	8.00 Note
	6	2 437	-0.232	0.00	-0.232	
	11	2 462	-0.481	0.00	-0.481	
	12	2 467	-8.451	0.00	-8.451	
	13	2 472	-8.839	0.00	-8.839	
802.11g	1	2 412	-2.409	0.00	-2.409	
	6	2 437	-2.535	0.00	-2.535	
	11	2 462	-2.762	0.00	-2.762	
	12	2 467	-10.726	0.00	-10.726	
	13	2 472	-11.452	0.00	-11.452	
802.11n HT20	1	2 412	-3.109	0.00	-3.109	
	6	2 437	-3.105	0.00	-3.105	
	11	2 462	-3.180	0.00	-3.180	
	12	2 467	-11.198	0.00	-11.198	
	13	2 472	-11.309	0.00	-11.309	

- 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

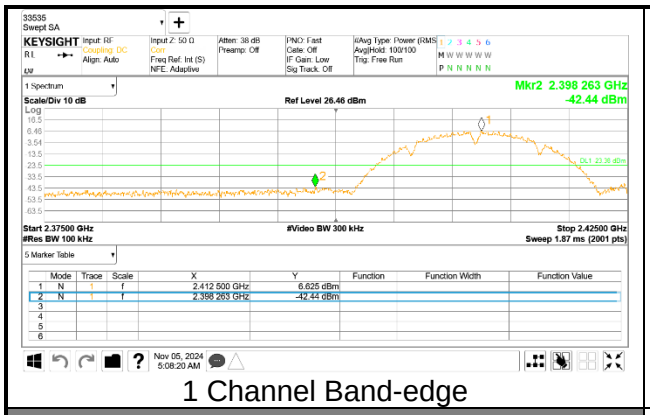
LIMITS

FCC §15.247 (d)

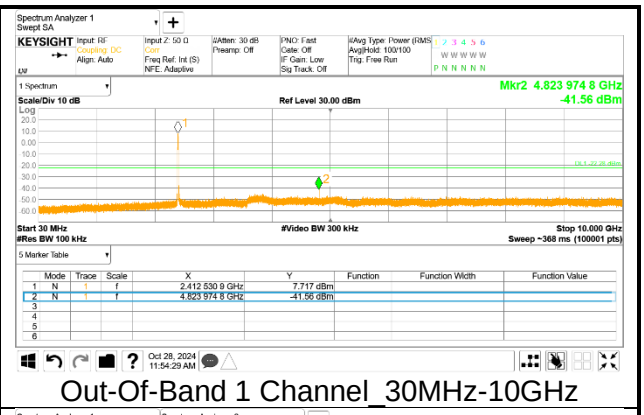
Output power was measured based on the use of average measurement therefore the required attenuation is 30 dB.

RESULTS

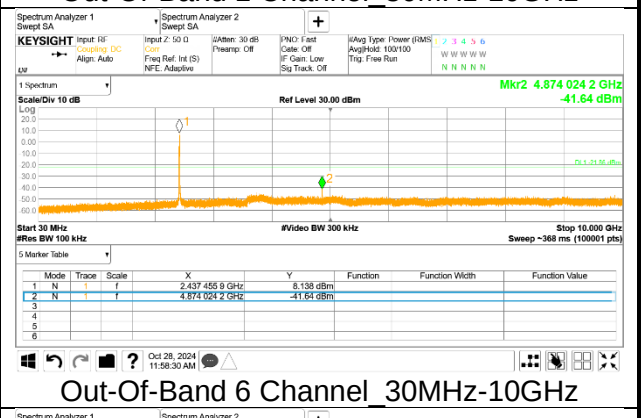
9.5.1. 802.11b MODE



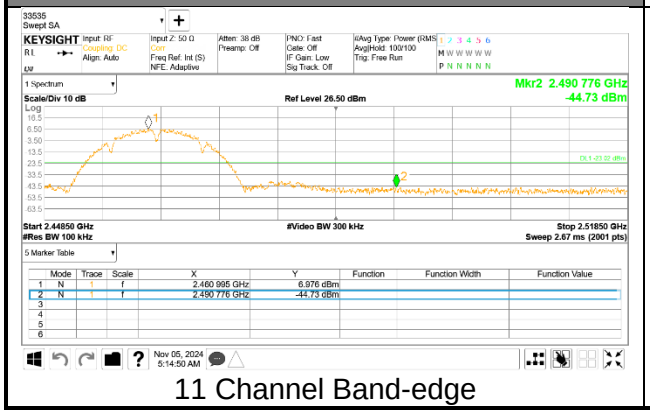
1 Channel Band-edge



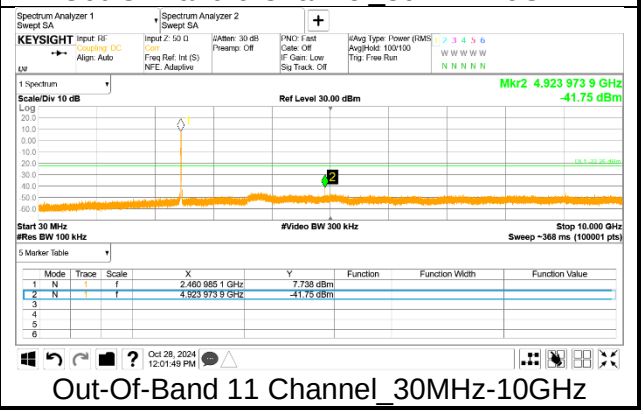
Out-Of-Band 1 Channel_30MHz-10GHz



Out-Of-Band 6 Channel_30MHz-10GHz



11 Channel Band-edge



Out-Of-Band 11 Channel_30MHz-10GHz

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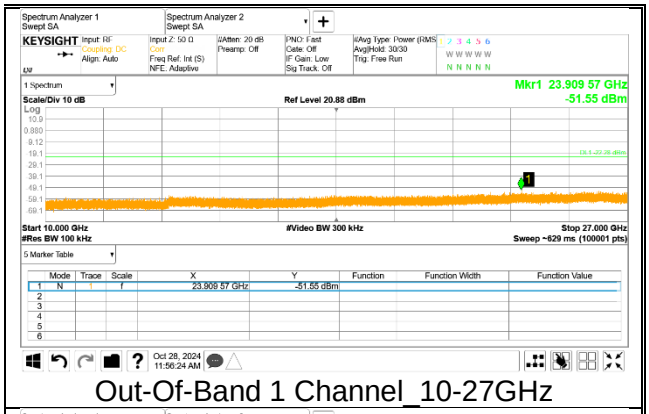
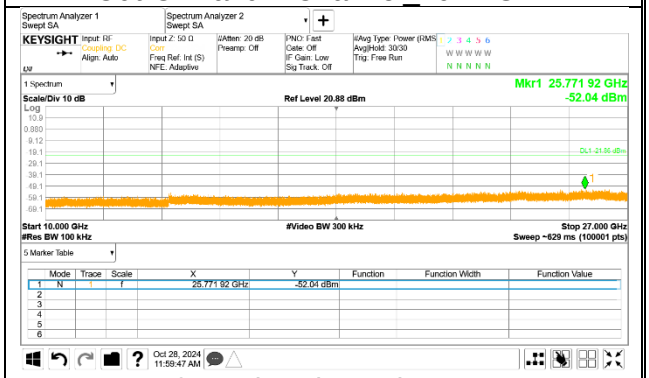
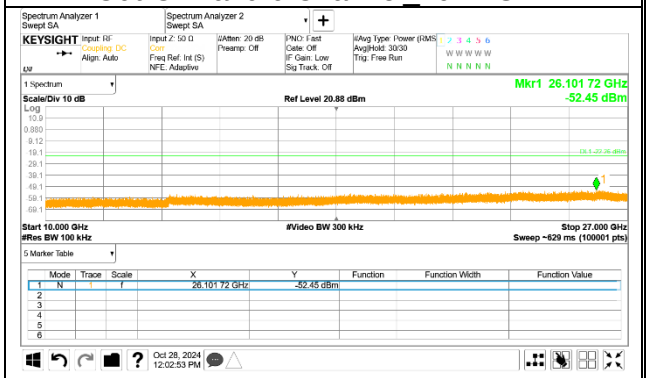


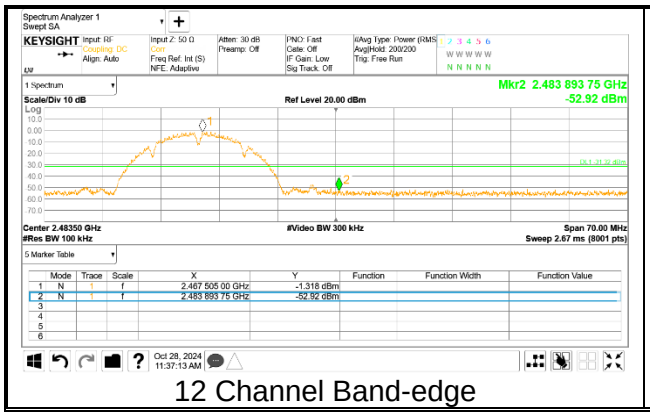
Out-Of-Band 1 Channel_10-27GHz



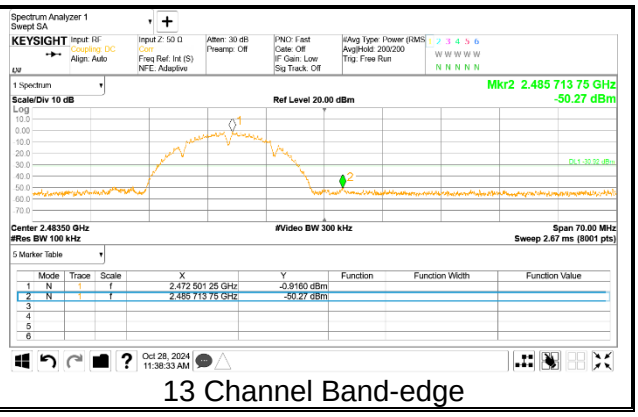
Out-Of-Band 6 Channel_10-27GHz



Out-Of-Band 11 Channel_10-27GHz

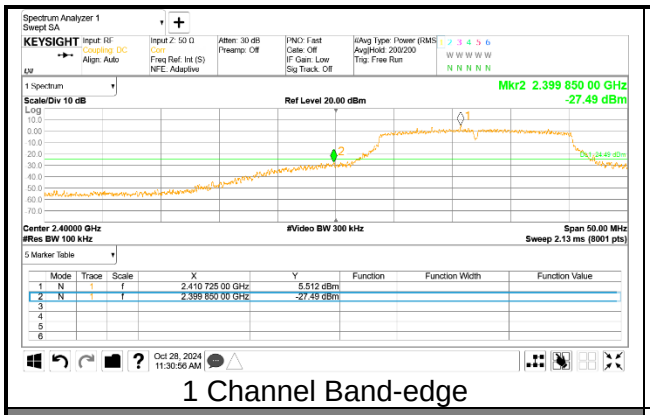


12 Channel Band-edge

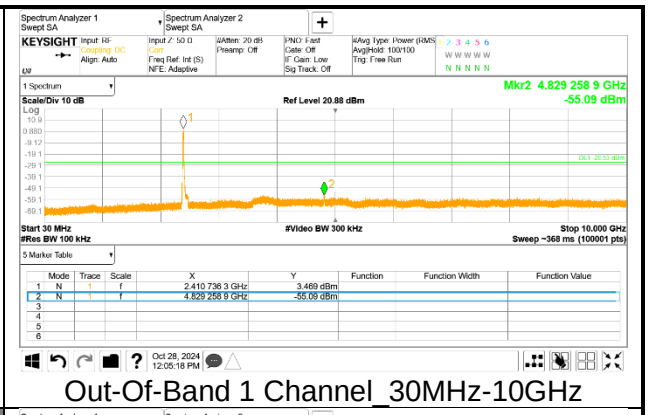


13 Channel Band-edge

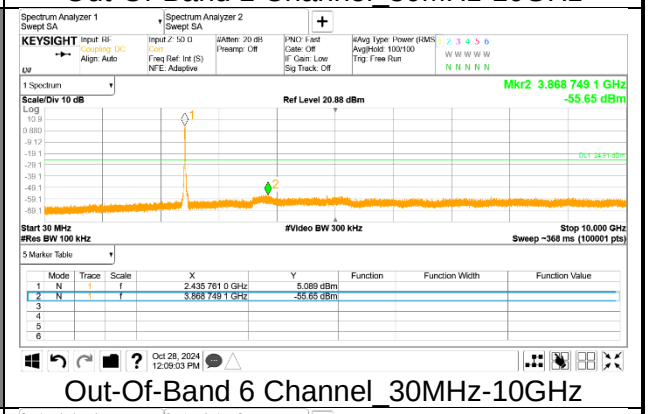
9.5.2. 802.11g MODE



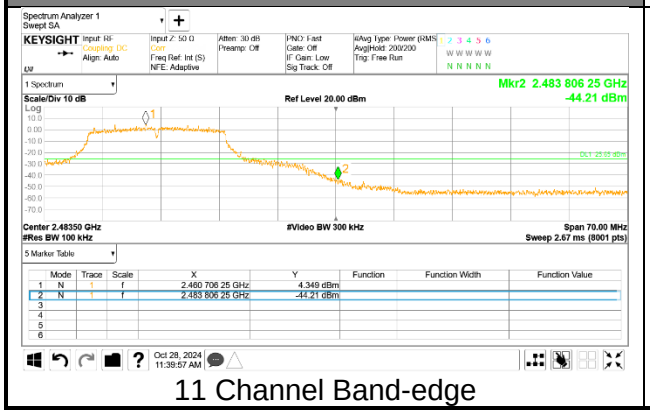
1 Channel Band-edge



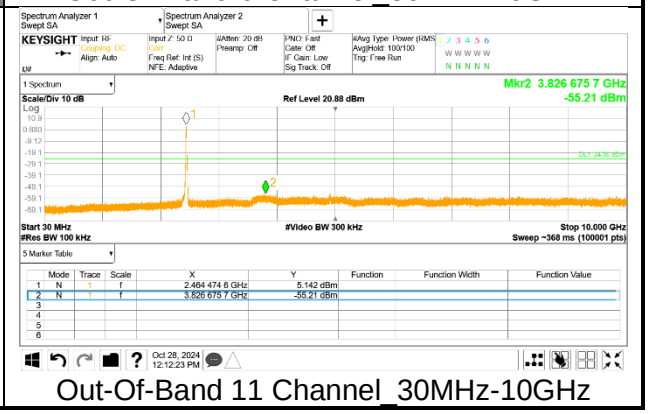
Out-Of-Band 1 Channel_30MHz-10GHz



Out-Of-Band 6 Channel_30MHz-10GHz



11 Channel Band-edge



Out-Of-Band 11 Channel_30MHz-10GHz

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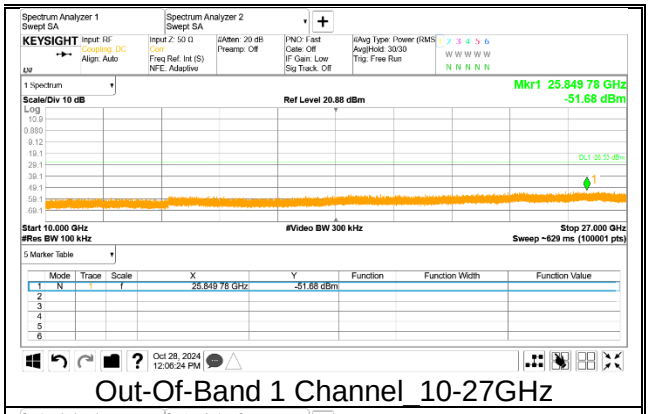
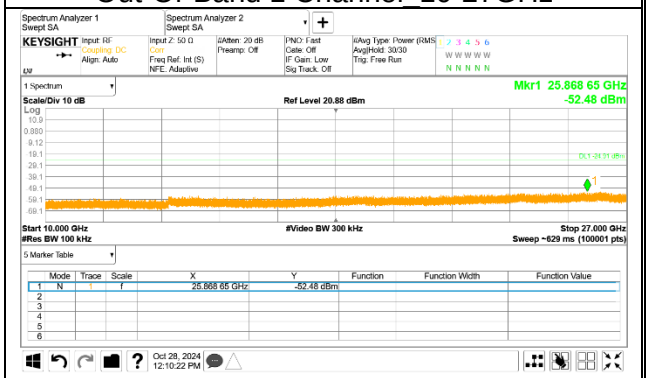
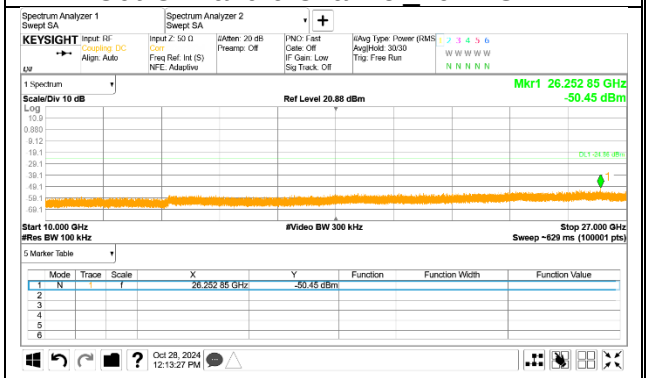


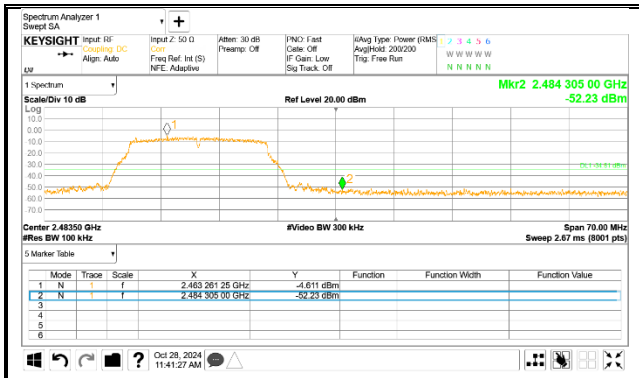
Out-Of-Band 1 Channel_10-27GHz



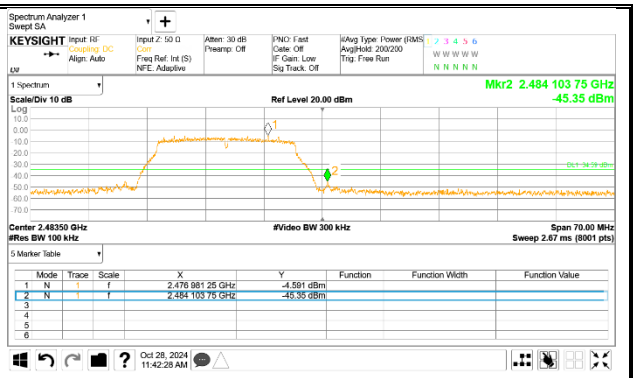
Out-Of-Band 6 Channel_10-27GHz



Out-Of-Band 11 Channel_10-27GHz



12 Channel Band-edge



13 Channel Band-edge

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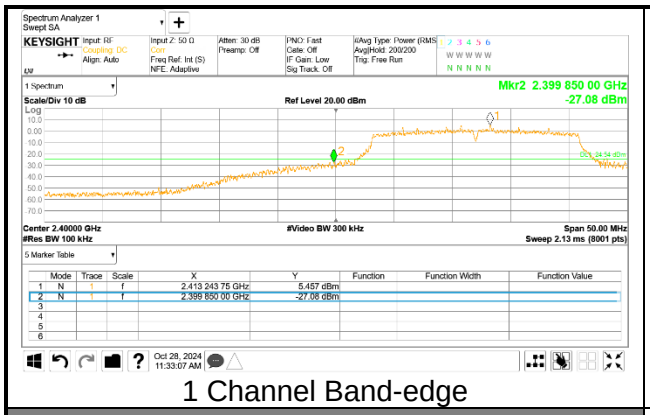
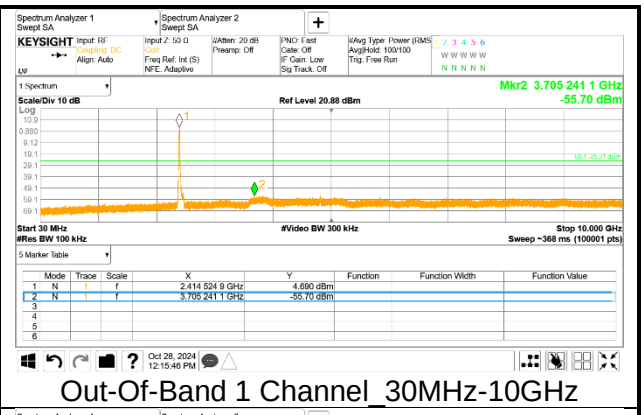
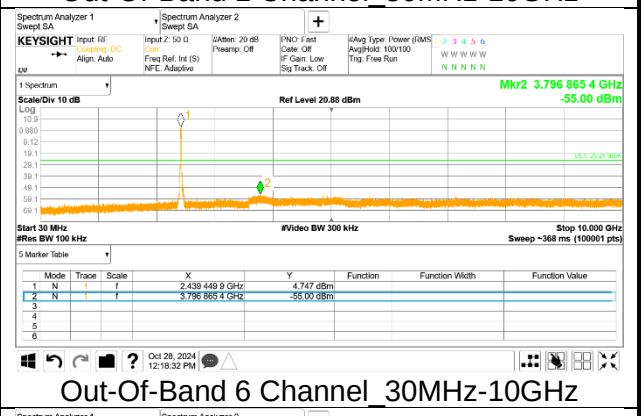
9.5.3. 802.11n HT20 MODE



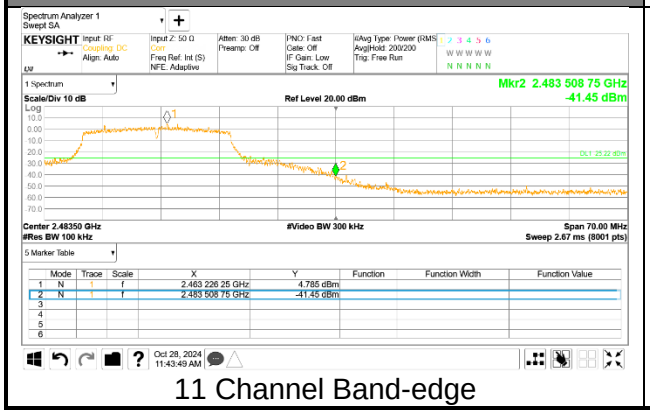
1 Channel Band-edge



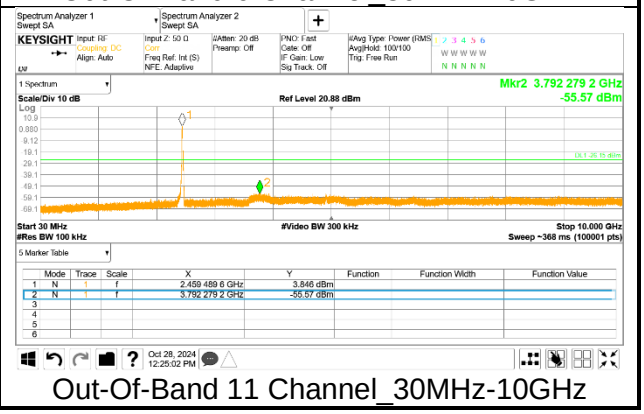
Out-Of-Band 1 Channel_30MHz-10GHz



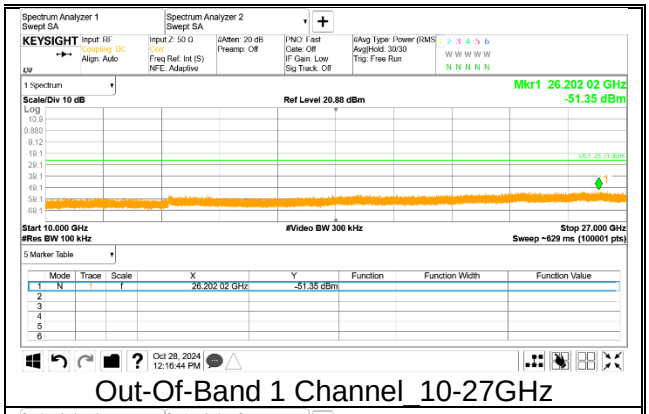
Out-Of-Band 6 Channel_30MHz-10GHz



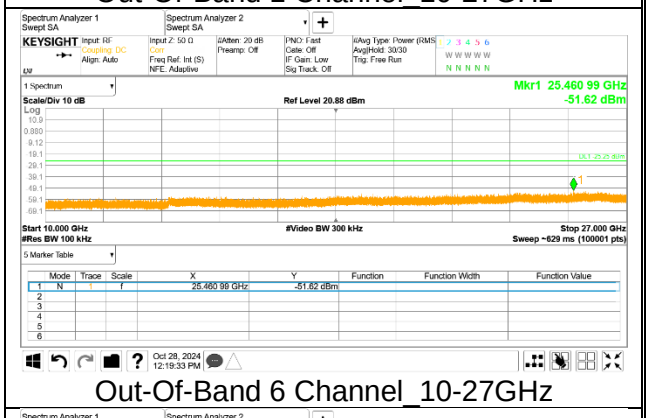
11 Channel Band-edge



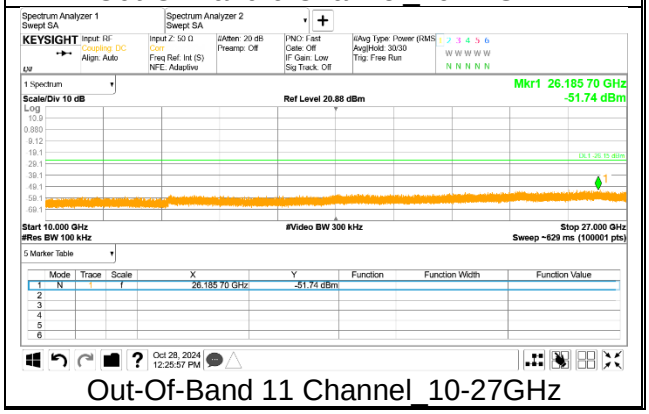
Out-Of-Band 11 Channel_30MHz-10GHz



Out-Of-Band 1 Channel_10-27GHz

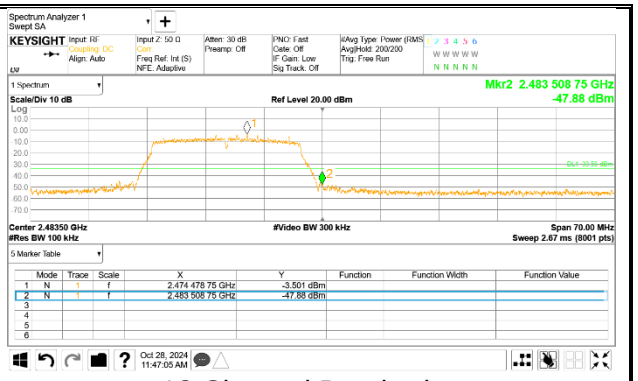


Out-Of-Band 6 Channel_10-27GHz



Out-Of-Band 11 Channel_10-27GHz

12 Channel Band-edge



13 Channel Band-edge

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

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

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

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1 GHz and 150 cm for above 1 GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements.
(Restriced bandedge, Final detection of spurious harmonic emissions)

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

802.11b SISO mode = 0.00 dB (99.52%)
802.11g SISO mode = 0.00 dB (98.32%)
802.11n(HT20) SISO mode = 0.00 dB (98.27%)

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

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

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

Note : Emission was pre-scanned from 9 kHz to 30 MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

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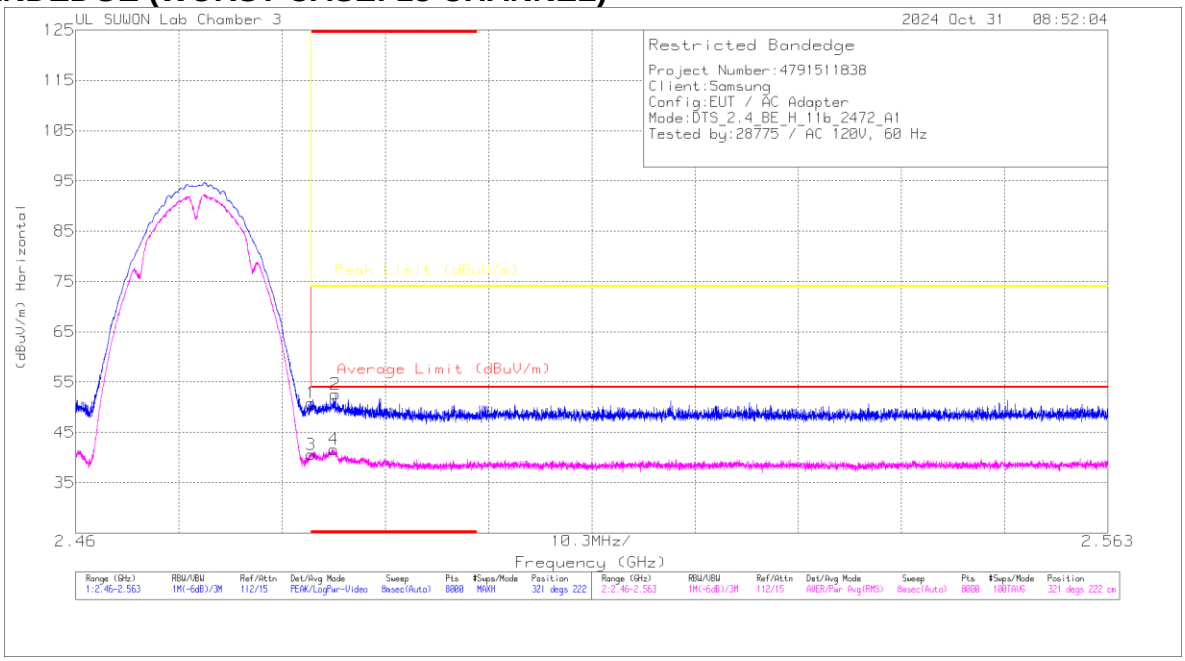
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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: 13 CHANNEL)



HORIZONTAL RESULT

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_957_ Factor(dB/m)	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	* 2.4835	43.35	Pk	32.4	-24.9	0	50.85	-	-	74	-23.15	321	222	H
2	* 2.48591	45.13	Pk	32.4	-24.9	0	52.63	-	-	74	-21.37	321	222	H
3	* 2.4835	33.11	RMS	32.4	-24.9	0	40.61	54	-13.39	-	-	321	222	H
4	* 2.48577	34.15	RMS	32.4	-24.9	0	41.65	54	-12.35	-	-	321	222	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	40.54	Pk	32.10	-24.90	0.00	47.74	-	-	74.00	-26.26	314	188	H
		* 2.38572	44.21	Pk	32.10	-25.00	0.00	51.31	-	-	74.00	-22.69	314	188	H
		* 2.39	31.86	RMS	32.10	-24.90	0.00	39.06	54.00	-14.94	-	-	314	188	H
		* 2.38541	33.68	RMS	32.10	-25.00	0.00	40.78	54.00	-13.22	-	-	314	188	H
		* 2.39	40.52	Pk	32.10	-24.90	0.00	47.72	-	-	74.00	-26.28	253	383	V
		* 2.3461	43.60	Pk	32.00	-25.00	0.00	50.60	-	-	74.00	-23.40	253	383	V
		* 2.39	30.09	RMS	32.10	-24.90	0.00	37.29	54.00	-16.71	-	-	253	383	V
		* 2.3882	32.39	RMS	32.10	-25.10	0.00	39.39	54.00	-14.61	-	-	253	383	V
2462	ANT1	* 2.4835	42.24	Pk	32.40	-24.90	0.00	49.74	-	-	74.00	-24.26	329	132	H
		* 2.48837	45.65	Pk	32.40	-24.90	0.00	53.15	-	-	74.00	**-20.85**	329	132	H
		* 2.4835	32.37	RMS	32.40	-24.90	0.00	39.87	54.00	-14.13	-	-	329	132	H
		* 2.48711	33.89	RMS	32.40	-24.90	0.00	41.39	54.00	-12.61	-	-	329	132	H
		* 2.4835	40.69	Pk	32.40	-24.90	0.00	48.19	-	-	74.00	-25.81	252	362	V
		* 2.48856	43.88	Pk	32.40	-24.90	0.00	51.38	-	-	74.00	-22.62	252	362	V
		* 2.4835	32.25	RMS	32.40	-24.90	0.00	39.75	54.00	-14.25	-	-	252	362	V
		* 2.48861	32.65	RMS	32.40	-24.90	0.00	40.15	54.00	-13.85	-	-	252	362	V
2467	ANT1	* 2.4835	40.92	Pk	32.40	-24.90	0.00	48.42	-	-	74.00	-25.58	319	133	H
		2.520	43.81	Pk	32.40	-24.80	0.00	51.41	-	-	74.00	-22.59	319	133	H
		* 2.4835	31.81	RMS	32.40	-24.90	0.00	39.31	54.00	-14.69	-	-	319	133	H
		* 2.48394	32.43	RMS	32.40	-24.90	0.00	39.93	54.00	-14.07	-	-	319	133	H
		* 2.4835	41.01	Pk	32.40	-24.90	0.00	48.51	-	-	74.00	-25.49	262	357	V
		2.511	44.06	Pk	32.40	-24.90	0.00	51.56	-	-	74.00	-22.44	262	357	V
		* 2.4835	31.06	RMS	32.40	-24.90	0.00	38.56	54.00	-15.44	-	-	262	357	V
		2.529	32.25	RMS	32.40	-24.80	0.00	39.85	54.00	-14.15	-	-	262	357	V
2472	ANT1	* 2.4835	43.35	Pk	32.40	-24.90	0.00	50.85	-	-	74.00	-23.15	321	222	H
		* 2.48591	45.13	Pk	32.40	-24.90	0.00	52.63	-	-	74.00	-21.37	321	222	H
		* 2.4835	33.11	RMS	32.40	-24.90	0.00	40.61	54.00	-13.39	-	-	321	222	H
		* 2.48577	34.15	RMS	32.40	-24.90	0.00	41.65	54.00	**-12.35**	-	-	321	222	H
		* 2.4835	41.90	Pk	32.40	-24.90	0.00	49.40	-	-	74.00	-24.60	265	357	V
		2.542	43.50	Pk	32.40	-24.70	0.00	51.20	-	-	74.00	-22.80	265	357	V
		* 2.4835	31.83	RMS	32.40	-24.90	0.00	39.33	54.00	-14.67	-	-	265	357	V
		* 2.48417	32.50	RMS	32.40	-24.90	0.00	40.00	54.00	-14.00	-	-	265	357	V

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

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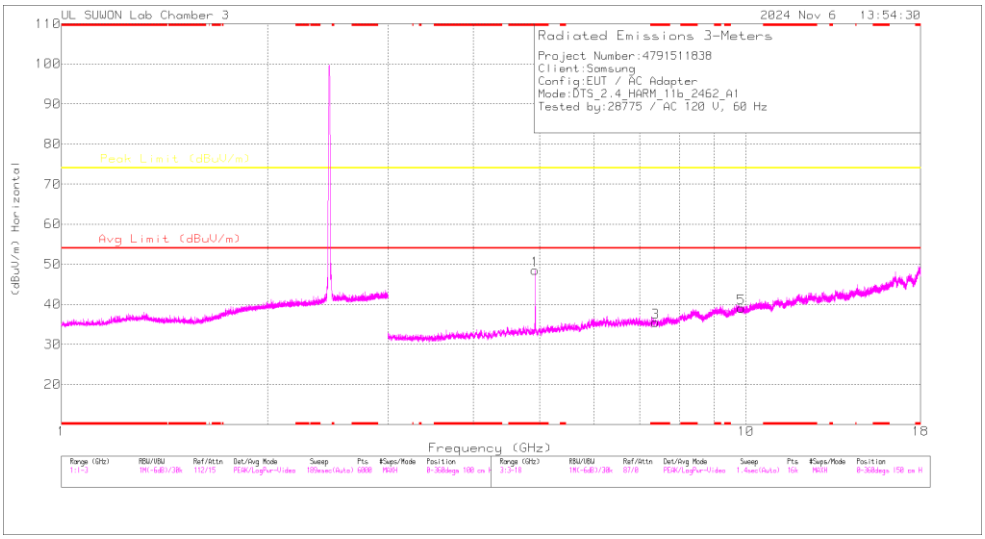
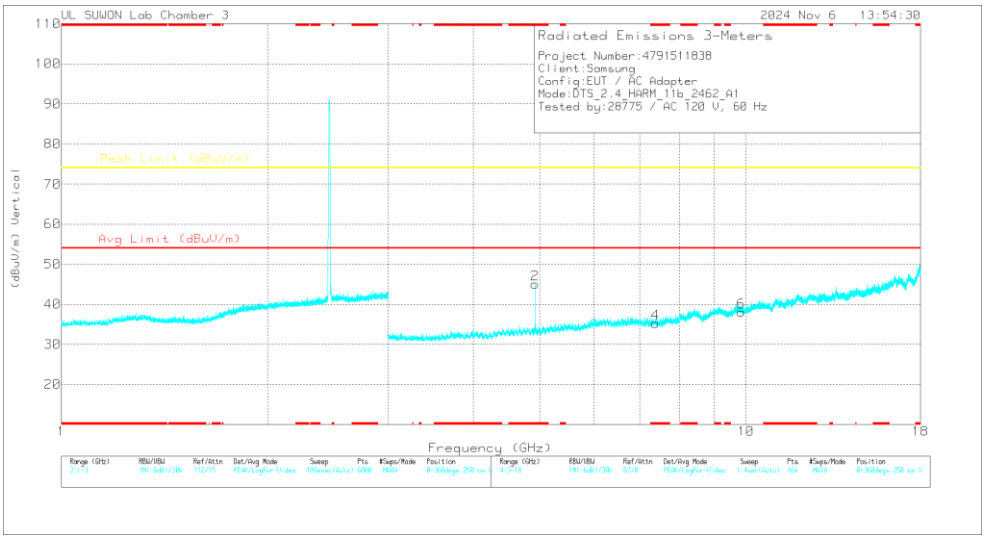
HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 11 CHANNEL)

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_957_ Factor(dB/m)	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
* 4.92383	48.43	PK2	34.2	-30.6	0	52.03	-	-	74	-21.97	153	149	H
* 4.92398	45.18	MAv1	34.2	-30.6	0	48.78	54	-5.22	-	-	153	149	H
* 4.92401	47.15	PK2	34.2	-30.6	0	50.75	-	-	74	-23.25	204	301	V
* 4.92397	43.58	MAv1	34.2	-30.6	0	47.18	54	-6.82	-	-	204	301	V
* 7.3824	34.81	PK2	35.7	-24.7	0	45.81	-	-	74	-28.19	0	100	H
* 7.38597	34.99	PK2	35.7	-24.7	0	45.99	-	-	74	-28.01	0	100	V
9.85333	34.93	PK2	37.1	-21.4	0	50.63	-	-	74	-23.37	0	100	H
9.84554	32.1	PK2	37.1	-21.4	0	47.8	-	-	74	-26.2	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	* 4.82397	47.08	PK2	34.30	-30.00	0.00	51.38	-	-	74.00	-22.62	125	113	H
		* 4.82402	43.45	MAv1	34.30	-30.10	0.00	47.65	54.00	-6.35	-	-	125	113	H
		* 4.82399	47.01	PK2	34.30	-30.00	0.00	51.31	-	-	74.00	-22.69	194	379	V
		* 4.82395	43.55	MAv1	34.30	-30.00	0.00	47.85	54.00	-6.15	-	-	194	379	V
		7.237	43.85	PK2	35.80	-25.70	0.00	53.95	-	-	74.00	-20.05	59	103	H
		7.236	46.07	PK2	35.80	-25.70	0.00	56.17	-	-	74.00	**-17.83**	316	100	V
		9.646	33.27	PK2	36.80	-21.30	0.00	48.77	-	-	74.00	-25.23	0	100	H
		9.646	33.60	PK2	36.80	-21.30	0.00	49.10	-	-	74.00	-24.90	0	100	V
2437	ANT1	* 4.87401	48.54	PK2	34.20	-30.50	0.00	52.24	-	-	74.00	-21.76	152	140	H
		* 4.87401	44.39	MAv1	34.20	-30.50	0.00	48.09	54.00	-5.91	-	-	152	140	H
		* 4.87407	47.09	PK2	34.20	-30.50	0.00	50.79	-	-	74.00	-23.21	204	308	V
		* 4.87396	43.59	MAv1	34.20	-30.50	0.00	47.29	54.00	-6.71	-	-	204	308	V
		* 7.31315	35.26	PK2	35.80	-25.20	0.00	45.86	-	-	74.00	-28.14	0	100	H
		* 7.31112	35.26	PK2	35.80	-25.30	0.00	45.76	-	-	74.00	-28.24	0	100	V
		9.752	32.67	PK2	36.90	-21.30	0.00	48.27	-	-	74.00	-25.73	0	100	H
		9.752	33.42	PK2	36.90	-21.30	0.00	49.02	-	-	74.00	-24.98	0	100	V
2462	ANT1	* 4.92383	48.43	PK2	34.20	-30.60	0.00	52.03	-	-	74.00	-21.97	153	149	H
		* 4.92398	45.18	MAv1	34.20	-30.60	0.00	48.78	54.00	**-5.22**	-	-	153	149	H
		* 4.92401	47.15	PK2	34.20	-30.60	0.00	50.75	-	-	74.00	-23.25	204	301	V
		* 4.92397	43.58	MAv1	34.20	-30.60	0.00	47.18	54.00	-6.82	-	-	204	301	V
		* 7.3824	34.81	PK2	35.70	-24.70	0.00	45.81	-	-	74.00	-28.19	0	100	H
		* 7.38597	34.99	PK2	35.70	-24.70	0.00	45.99	-	-	74.00	-28.01	0	100	V
		9.853	34.93	PK2	37.10	-21.40	0.00	50.63	-	-	74.00	-23.37	0	100	H
		9.846	32.55	PK2	37.10	-21.30	0.00	48.35	-	-	74.00	-25.65	0	100	V

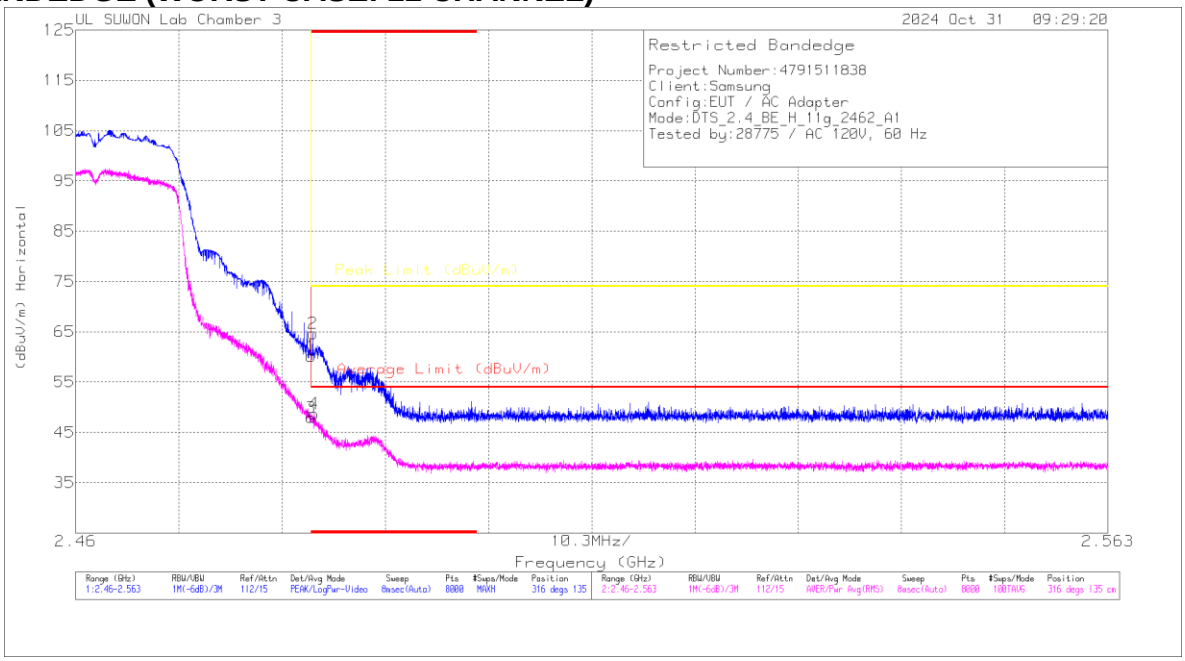
Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_15C(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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

1TX Antenna 1

BANDEDGE (WORST CASE: 11 CHANNEL)



HORIZONTAL RESULT

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_957_ Factor(dB/m)	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	* 2.4835	52.64	Pk	32.4	-24.9	0	60.14	-	-	74	-13.86	316	135	H
2	* 2.48366	57.17	Pk	32.4	-24.9	0	64.67	-	-	74	-9.33	316	135	H
3	* 2.4835	40.44	RMS	32.4	-24.9	0	47.94	54	-6.06	-	-	316	135	H
4	* 2.48381	41.21	RMS	32.4	-24.9	0	48.71	54	-5.29	-	-	316	135	H

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

BANDEDGE TEST DATA

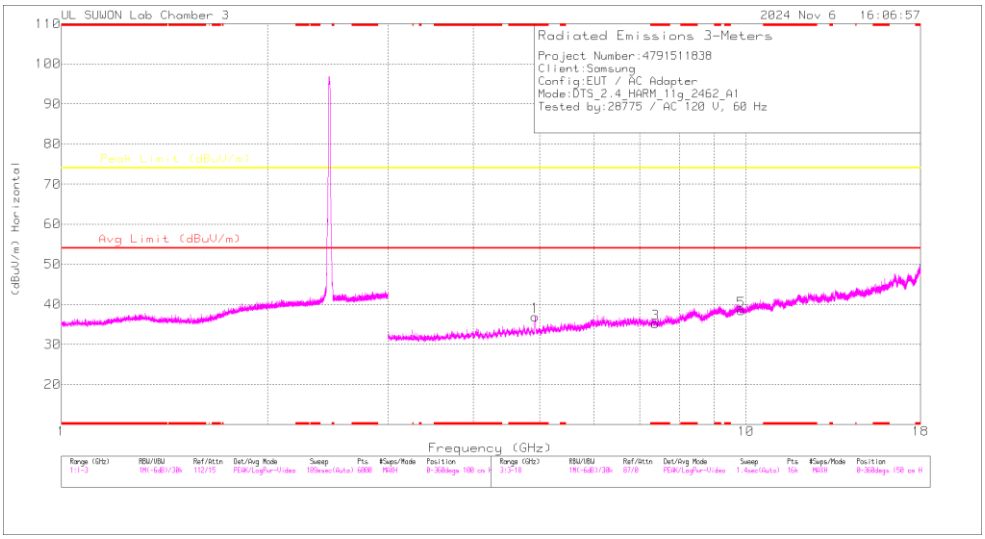
Freq. [MHz]	Antenna	Frequency [GHz]	Reading [dBuV]	Detector Mode	ANT Factor [dB/m]	Loss [dB]	DC Corr [dB]	Result [dBuV/m]	AV Limit [dBuV/m]	AV Margin [dB]	PK Limit [dBuV/m]	PK Margin [dB]	Azimuth [Degs]	Height [cm]	Polarity
2412	ANT1	* 2.39	49.67	Pk	32.10	-24.90	0.00	56.87	-	-	74.00	-17.13	326	118	H
		* 2.38969	51.60	Pk	32.10	-24.90	0.00	58.80	-	-	74.00	-15.20	326	118	H
		* 2.39	36.70	RMS	32.10	-24.90	0.00	43.90	54.00	-10.10	-	-	326	118	H
		* 2.38984	37.16	RMS	32.10	-24.90	0.00	44.36	54.00	-9.64	-	-	326	118	H
		* 2.39	41.39	Pk	32.10	-24.90	0.00	48.59	-	-	74.00	-25.41	309	100	V
		* 2.38972	43.28	Pk	32.10	-24.90	0.00	50.48	-	-	74.00	-23.52	309	100	V
		* 2.39	31.77	RMS	32.10	-24.90	0.00	38.97	54.00	-15.03	-	-	309	100	V
		* 2.38956	32.52	RMS	32.10	-25.00	0.00	39.62	54.00	-14.38	-	-	309	100	V
2462	ANT1	* 2.4835	52.64	Pk	32.40	-24.90	0.00	60.14	-	-	74.00	-13.86	316	135	H
		* 2.48366	57.17	Pk	32.40	-24.90	0.00	64.67	-	-	74.00	**-9.33**	316	135	H
		* 2.4835	40.44	RMS	32.40	-24.90	0.00	47.94	54.00	-6.06	-	-	316	135	H
		* 2.48381	41.21	RMS	32.40	-24.90	0.00	48.71	54.00	**-5.29**	-	-	316	135	H
		* 2.4835	48.27	Pk	32.40	-24.90	0.00	55.77	-	-	74.00	-18.23	281	397	V
		* 2.48381	50.46	Pk	32.40	-24.90	0.00	57.96	-	-	74.00	-16.04	281	397	V
		* 2.4835	36.93	RMS	32.40	-24.90	0.00	44.43	54.00	-9.57	-	-	281	397	V
		* 2.48376	36.60	RMS	32.40	-24.90	0.00	44.10	54.00	-9.90	-	-	281	397	V
2467	ANT1	* 2.4835	43.63	Pk	32.40	-24.90	0.00	51.13	-	-	74.00	-22.87	327	133	H
		* 2.48354	44.37	Pk	32.40	-24.90	0.00	51.87	-	-	74.00	-22.13	327	133	H
		* 2.4835	31.72	RMS	32.40	-24.90	0.00	39.22	54.00	-14.78	-	-	327	133	H
		* 2.48399	33.56	RMS	32.40	-24.90	0.00	41.06	54.00	-12.94	-	-	327	133	H
		* 2.4835	40.78	Pk	32.40	-24.90	0.00	48.28	-	-	74.00	-25.72	263	397	V
		* 2.49074	44.04	Pk	32.40	-24.90	0.00	51.54	-	-	74.00	-22.46	263	397	V
		* 2.4835	31.37	RMS	32.40	-24.90	0.00	38.87	54.00	-15.13	-	-	263	397	V
		* 2.48955	32.37	RMS	32.40	-24.90	0.00	39.87	54.00	-14.13	-	-	263	397	V
2472	ANT1	* 2.4835	47.35	Pk	32.40	-24.90	0.00	54.85	-	-	74.00	-19.15	314	100	H
		* 2.48434	49.75	Pk	32.40	-24.90	0.00	57.25	-	-	74.00	-16.75	314	100	H
		* 2.4835	35.24	RMS	32.40	-24.90	0.00	42.74	54.00	-11.26	-	-	314	100	H
		* 2.48421	37.84	RMS	32.40	-24.90	0.00	45.34	54.00	-8.66	-	-	314	100	H
		* 2.4835	42.52	Pk	32.40	-24.90	0.00	50.02	-	-	74.00	-23.98	262	397	V
		* 2.48436	45.80	Pk	32.40	-24.90	0.00	53.30	-	-	74.00	-20.70	262	397	V
		* 2.4835	32.24	RMS	32.40	-24.90	0.00	39.74	54.00	-14.26	-	-	262	397	V
		* 2.48408	34.57	RMS	32.40	-24.90	0.00	42.07	54.00	-11.93	-	-	262	397	V

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

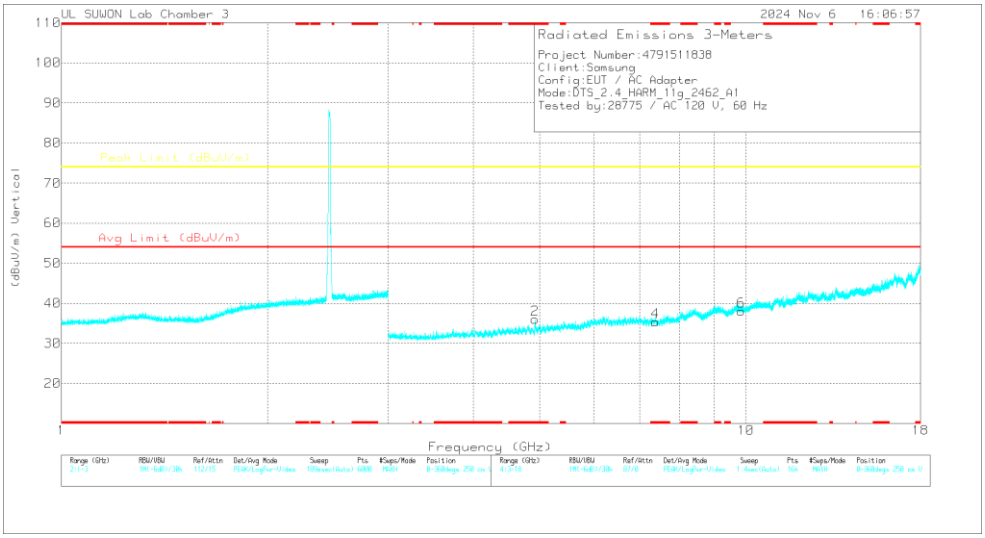
UL KOREA LTD. Suwon Laboratory FORM ID: FCC_15C(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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_957_ Factor(dB/m)	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
* 4.92028	44.23	PK2	34.2	-30.7	0	47.73	-	-	74	-26.27	149	147	H
* 4.92318	32.78	MAv1	34.2	-30.6	0	36.38	54	-17.62	-	-	149	147	H
* 4.9178	44.68	PK2	34.2	-30.6	0	48.28	-	-	74	-25.72	211	287	V
* 4.92589	32.52	MAv1	34.3	-30.6	0	36.22	54	-17.78	-	-	211	287	V
* 7.36856	35.31	PK2	35.8	-24.8	0	46.31	-	-	74	-27.69	0	100	H
* 7.38347	35.22	PK2	35.7	-24.7	0	46.22	-	-	74	-27.78	0	100	V
9.84806	32.34	PK2	37.1	-21.4	0	48.04	-	-	74	-25.96	0	100	H
9.85347	33.41	PK2	37.1	-21.4	0	49.11	-	-	74	-24.89	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	* 4.82014	43.20	PK2	34.30	-30.00	0.00	47.50	-	-	74.00	-26.50	125	111	H
		* 4.82408	31.04	MAv1	34.30	-30.10	0.00	35.24	54.00	-18.76	-	-	125	111	H
		* 4.82577	43.11	PK2	34.20	-30.10	0.00	47.21	-	-	74.00	-26.79	215	332	V
		* 4.82522	30.92	MAv1	34.20	-30.10	0.00	35.02	54.00	-18.98	-	-	215	332	V
		7.240	35.38	PK2	35.80	-25.60	0.00	45.58	-	-	74.00	-28.42	0	100	H
		7.232	35.65	PK2	35.80	-25.70	0.00	45.75	-	-	74.00	-28.25	0	100	V
		9.645	32.99	PK2	36.80	-21.40	0.00	48.39	-	-	74.00	-25.61	0	100	H
		9.644	32.60	PK2	36.80	-21.40	0.00	48.00	-	-	74.00	-26.00	0	100	V
2437	ANT1	* 4.87579	43.47	PK2	34.20	-30.40	0.00	47.27	-	-	74.00	-26.73	150	108	H
		* 4.87609	31.91	MAv1	34.20	-30.40	0.00	35.71	54.00	-18.29	-	-	150	108	H
		* 4.87229	43.52	PK2	34.20	-30.50	0.00	47.22	-	-	74.00	-26.78	199	294	V
		* 4.87459	31.69	MAv1	34.20	-30.50	0.00	35.39	54.00	-18.61	-	-	199	294	V
		* 7.31506	35.03	PK2	35.80	-25.20	0.00	45.63	-	-	74.00	-28.37	0	100	H
		* 7.30902	35.13	PK2	35.80	-25.30	0.00	45.63	-	-	74.00	-28.37	0	100	V
		9.749	32.73	PK2	36.90	-21.30	0.00	48.33	-	-	74.00	-25.67	0	100	H
		9.745	33.55	PK2	36.90	-21.20	0.00	49.25	-	-	74.00	**-24.75**	0	100	V
2462	ANT1	* 4.92028	44.23	PK2	34.20	-30.70	0.00	47.73	-	-	74.00	-26.27	149	147	H
		* 4.92318	32.78	MAv1	34.20	-30.60	0.00	36.38	54.00	**-17.62**	-	-	149	147	H
		* 4.9178	44.68	PK2	34.20	-30.60	0.00	48.28	-	-	74.00	-25.72	211	287	V
		* 4.92589	32.52	MAv1	34.30	-30.60	0.00	36.22	54.00	-17.78	-	-	211	287	V
		* 7.36856	35.31	PK2	35.80	-24.80	0.00	46.31	-	-	74.00	-27.69	0	100	H
		* 7.38347	35.22	PK2	35.70	-24.70	0.00	46.22	-	-	74.00	-27.78	0	100	V
		9.848	32.34	PK2	37.10	-21.40	0.00	48.04	-	-	74.00	-25.96	0	100	H
		9.853	33.41	PK2	37.10	-21.40	0.00	49.11	-	-	74.00	-24.89	0	100	V

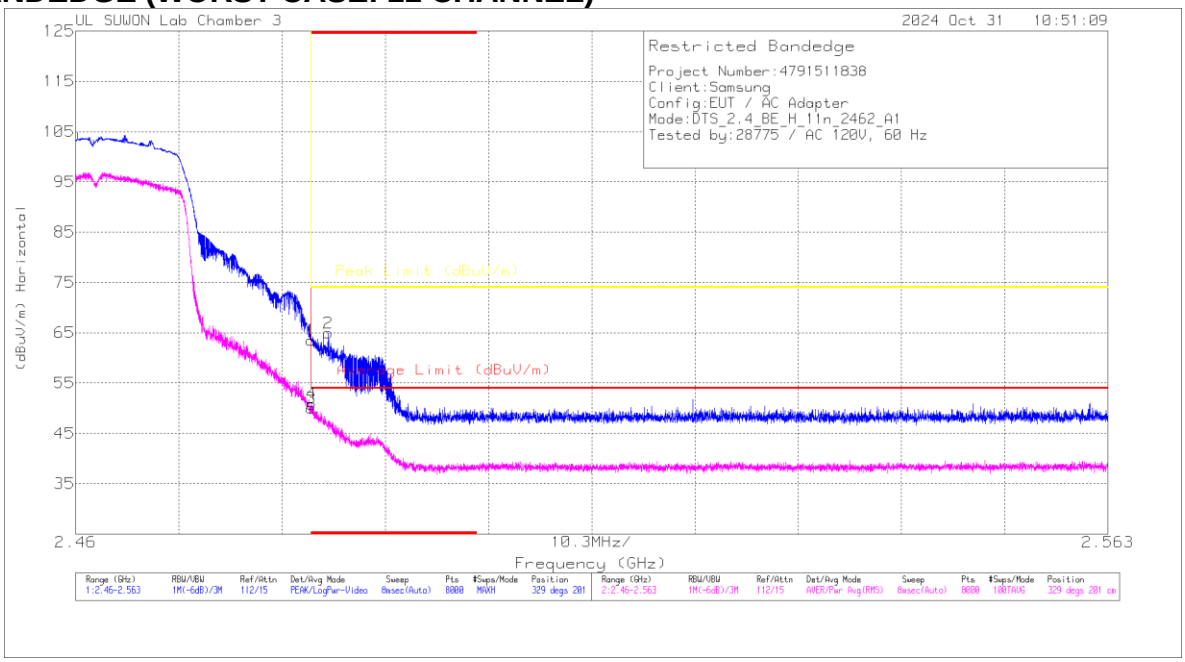
Note1. PK2 - KDB558074 Method: Maximum Peak / MAv1 - KDB558074 Option 1 Maximum RMS Average
Note2. * - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

UL KOREA LTD. Suwon Laboratory FORM ID: FCC_15C(05)
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

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

1TX Antenna 1

BANDEDGE (WORST CASE: 11 CHANNEL)



HORIZONTAL RESULT

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Antenna_957_ Factor(dB/m)	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	* 2.4835	56	Pk	32.4	-24.9	0	63.5	-	-	74	-10.5	329	201	H
2	* 2.48523	57.43	Pk	32.4	-24.9	0	64.93	-	-	74	-9.07	329	201	H
3	* 2.4835	42.53	RMS	32.4	-24.9	0	50.03	54	-3.97	-	-	329	201	H
4	* 2.48354	43.36	RMS	32.4	-24.9	0	50.86	54	-3.14	-	-	329	201	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	52.91	Pk	32.10	-24.90	0.00	60.11	-	-	74.00	-13.89	332	188	H
		* 2.3891	55.45	Pk	32.10	-25.00	0.00	62.55	-	-	74.00	-11.45	332	188	H
		* 2.39	40.40	RMS	32.10	-24.90	0.00	47.60	54.00	-6.40	-	-	332	188	H
		* 2.38994	40.66	RMS	32.10	-24.90	0.00	47.86	54.00	-6.14	-	-	332	188	H
		* 2.39	45.23	Pk	32.10	-24.90	0.00	52.43	-	-	74.00	-21.57	265	377	V
		* 2.38965	47.56	Pk	32.10	-24.90	0.00	54.76	-	-	74.00	-19.24	265	377	V
		* 2.39	34.85	RMS	32.10	-24.90	0.00	42.05	54.00	-11.95	-	-	265	377	V
		* 2.38996	35.46	RMS	32.10	-24.90	0.00	42.66	54.00	-11.34	-	-	265	377	V
2462	ANT1	* 2.4835	56.00	Pk	32.40	-24.90	0.00	63.50	-	-	74.00	-10.50	329	201	H
		* 2.48523	57.43	Pk	32.40	-24.90	0.00	64.93	-	-	74.00	**-9.07**	329	201	H
		* 2.4835	42.53	RMS	32.40	-24.90	0.00	50.03	54.00	-3.97	-	-	329	201	H
		* 2.48354	43.36	RMS	32.40	-24.90	0.00	50.86	54.00	**-3.14**	-	-	329	201	H
		* 2.4835	51.60	Pk	32.40	-24.90	0.00	59.10	-	-	74.00	-14.90	282	397	V
		* 2.48366	52.39	Pk	32.40	-24.90	0.00	59.89	-	-	74.00	-14.11	282	397	V
		* 2.4835	37.93	RMS	32.40	-24.90	0.00	45.43	54.00	-8.57	-	-	282	397	V
		* 2.48355	38.00	RMS	32.40	-24.90	0.00	45.50	54.00	-8.50	-	-	282	397	V
2467	ANT1	* 2.4835	44.70	Pk	32.40	-24.90	0.00	52.20	-	-	74.00	-21.80	316	137	H
		* 2.48407	47.04	Pk	32.40	-24.90	0.00	54.54	-	-	74.00	-19.46	316	137	H
		* 2.4835	32.98	RMS	32.40	-24.90	0.00	40.48	54.00	-13.52	-	-	316	137	H
		* 2.48498	33.27	RMS	32.40	-24.90	0.00	40.77	54.00	-13.23	-	-	316	137	H
		* 2.4835	41.06	Pk	32.40	-24.90	0.00	48.56	-	-	74.00	-25.44	283	395	V
		2.559	43.78	Pk	32.40	-24.80	0.00	51.38	-	-	74.00	-22.62	283	395	V
		* 2.4835	31.43	RMS	32.40	-24.90	0.00	38.93	54.00	-15.07	-	-	283	395	V
		* 2.48403	32.25	RMS	32.40	-24.90	0.00	39.75	54.00	-14.25	-	-	283	395	V
2472	ANT1	* 2.4835	49.67	Pk	32.40	-24.90	0.00	57.17	-	-	74.00	-16.83	329	221	H
		* 2.48356	52.69	Pk	32.40	-24.90	0.00	60.19	-	-	74.00	-13.81	329	221	H
		* 2.4835	37.91	RMS	32.40	-24.90	0.00	45.41	54.00	-8.59	-	-	329	221	H
		* 2.48359	38.25	RMS	32.40	-24.90	0.00	45.75	54.00	-8.25	-	-	329	221	H
		* 2.4835	45.54	Pk	32.40	-24.90	0.00	53.04	-	-	74.00	-20.96	262	396	V
		* 2.48577	47.91	Pk	32.40	-24.90	0.00	55.41	-	-	74.00	-18.59	262	396	V
		* 2.4835	34.65	RMS	32.40	-24.90	0.00	42.15	54.00	-11.85	-	-	262	396	V
		* 2.4836	34.71	RMS	32.40	-24.90	0.00	42.21	54.00	-11.79	-	-	262	396	V

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

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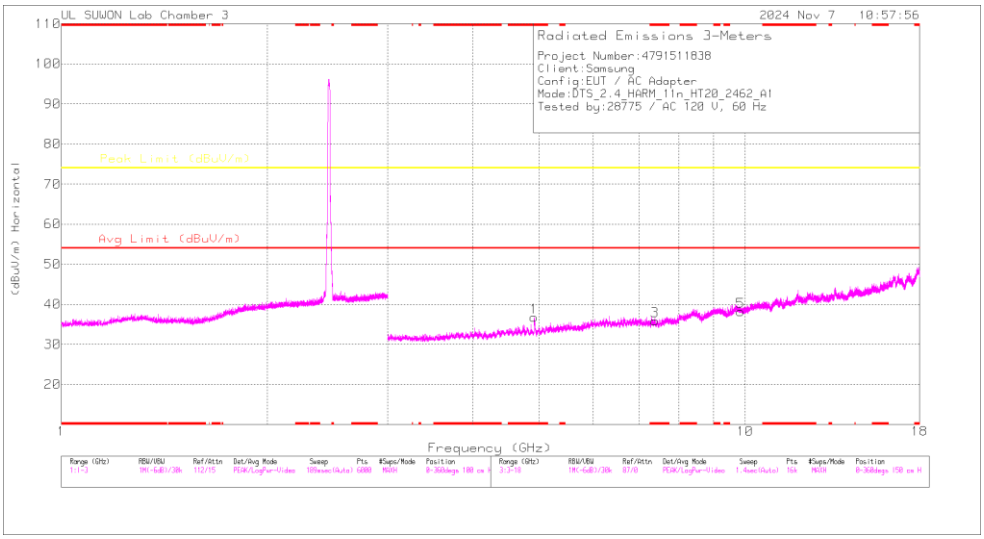
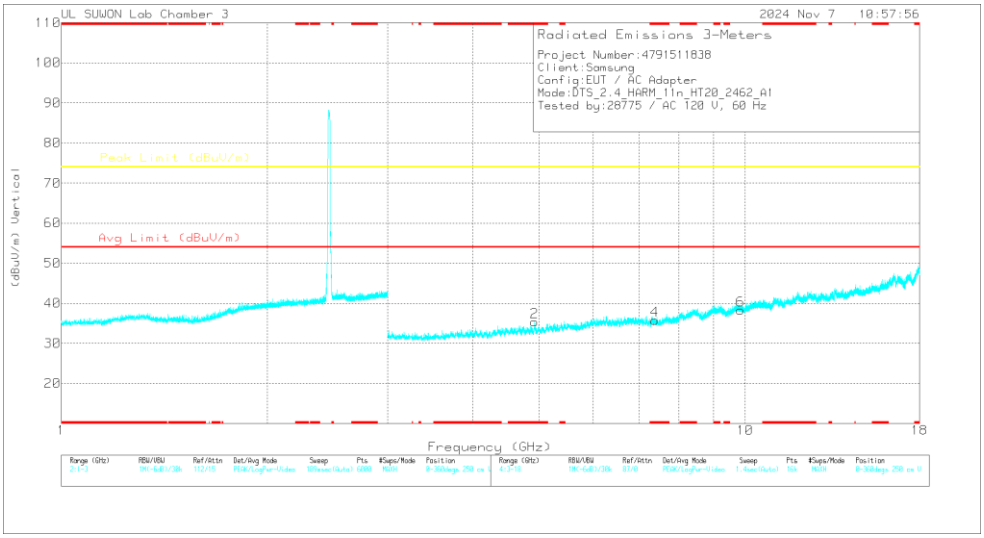
HARMONICS AND SPURIOUS EMISSIONS (WORST CASE: 11 CHANNEL)

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_957_ Factor(dB/m)	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
* 4.92194	44.72	PK2	34.2	-30.7	0	48.22	-	-	74	-25.78	150	147	H
* 4.92419	32.4	MAv1	34.2	-30.6	0	36	54	-18	-	-	150	147	H
* 4.92565	43.96	PK2	34.3	-30.6	0	47.66	-	-	74	-26.34	204	301	V
* 4.92326	31.87	MAv1	34.2	-30.6	0	35.47	54	-18.53	-	-	204	301	V
* 7.38282	35.57	PK2	35.7	-24.7	0	46.57	-	-	74	-27.43	0	100	H
* 7.38209	34.99	PK2	35.7	-24.6	0	46.09	-	-	74	-27.91	0	100	V
9.84832	32.94	PK2	37.1	-21.4	0	48.64	-	-	74	-25.36	0	100	H
9.84978	32.64	PK2	37.1	-21.3	0	48.44	-	-	74	-25.56	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
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	* 4.82553	43.28	PK2	34.20	-30.10	0.00	47.38	-	-	74.00	-26.62	149	111	H
		* 4.82598	31.09	MAv1	34.20	-30.10	0.00	35.19	54.00	-18.81	-	-	149	111	H
		* 4.82119	43.98	PK2	34.30	-30.00	0.00	48.28	-	-	74.00	-25.72	193	380	V
		* 4.82598	31.38	MAv1	34.20	-30.10	0.00	35.48	54.00	-18.52	-	-	193	380	V
		7.248	35.77	PK2	35.80	-25.60	0.00	45.97	-	-	74.00	-28.03	0	100	H
		7.239	35.86	PK2	35.80	-25.60	0.00	46.06	-	-	74.00	-27.94	0	100	V
		9.630	32.88	PK2	36.80	-21.40	0.00	48.28	-	-	74.00	-25.72	0	100	H
		9.640	32.94	PK2	36.80	-21.40	0.00	48.34	-	-	74.00	-25.66	0	100	V
2437	ANT1	* 4.87458	43.39	PK2	34.20	-30.50	0.00	47.09	-	-	74.00	-26.91	150	106	H
		* 4.87366	31.57	MAv1	34.20	-30.50	0.00	35.27	54.00	-18.73	-	-	150	106	H
		* 4.87515	43.01	PK2	34.20	-30.50	0.00	46.71	-	-	74.00	-27.29	212	277	V
		* 4.87361	31.31	MAv1	34.20	-30.50	0.00	35.01	54.00	-18.99	-	-	212	277	V
		* 7.31218	34.83	PK2	35.80	-25.20	0.00	45.43	-	-	74.00	-28.57	0	100	H
		* 7.31352	35.40	PK2	35.80	-25.20	0.00	46.00	-	-	74.00	-28.00	0	100	V
		9.768	33.47	PK2	36.90	-21.30	0.00	49.07	-	-	74.00	**-24.93**	0	100	H
		9.749	33.08	PK2	36.90	-21.30	0.00	48.68	-	-	74.00	-25.32	0	100	V
2462	ANT1	* 4.92194	44.72	PK2	34.20	-30.70	0.00	48.22	-	-	74.00	-25.78	150	147	H
		* 4.92419	32.40	MAv1	34.20	-30.60	0.00	36.00	54.00	**-18.00**	-	-	150	147	H
		* 4.92565	43.96	PK2	34.30	-30.60	0.00	47.66	-	-	74.00	-26.34	204	301	V
		* 4.92326	31.87	MAv1	34.20	-30.60	0.00	35.47	54.00	-18.53	-	-	204	301	V
		* 7.38282	35.57	PK2	35.70	-24.70	0.00	46.57	-	-	74.00	-27.43	0	100	H
		* 7.38209	34.99	PK2	35.70	-24.60	0.00	46.09	-	-	74.00	-27.91	0	100	V
		9.848	32.94	PK2	37.10	-21.40	0.00	48.64	-	-	74.00	-25.36	0	100	H
		9.850	32.64	PK2	37.10	-21.30	0.00	48.44	-	-	74.00	-25.56	0	100	V

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

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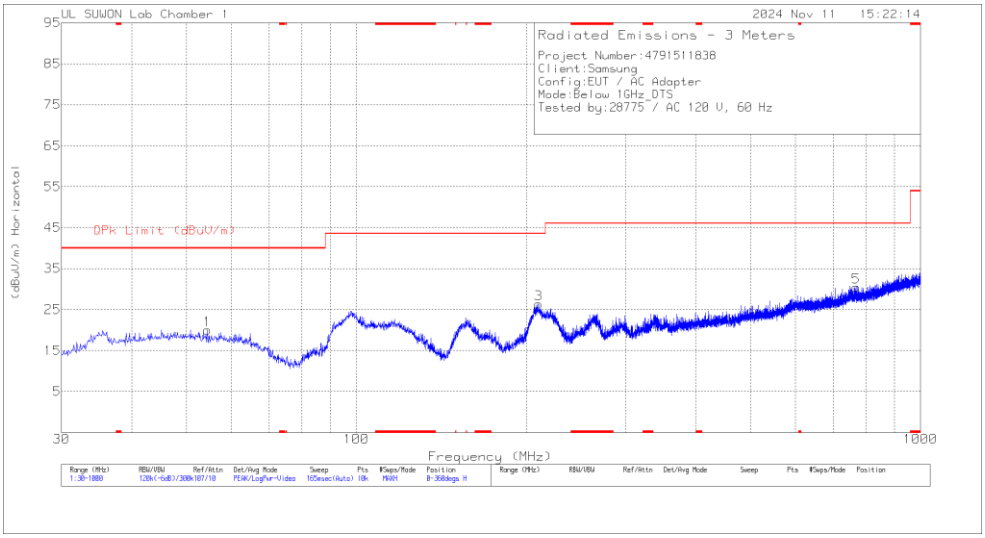
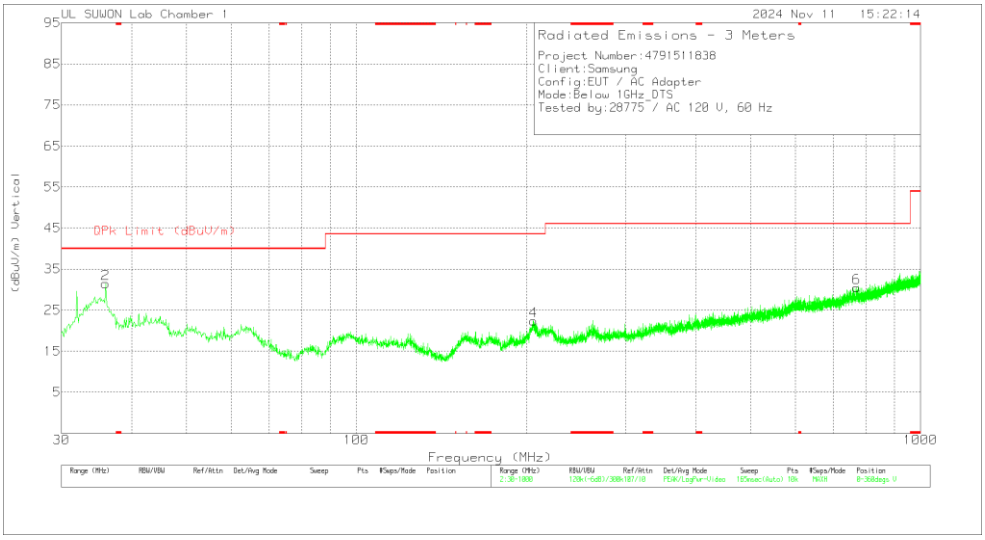
10.2. WORST CASE BELOW 1 GHZ



HORIZONTAL



VERTICAL

Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna_845_ Factor(dB/m)	Below_1G_ Path Loss(dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	54.444	31.35	Pk	19.4	-30.8	19.95	40	-20.05	0-360	200	H
3	210.42	39.07	Pk	16.6	-29.3	26.37	43.52	-17.15	0-360	100	H
5	769.625	30.36	Pk	26.6	-26.5	30.46	46.02	-15.56	0-360	100	H
2	35.917	45.6	Pk	17	-31.1	31.5	40	-8.5	0-360	200	V
4	205.958	34.9	Pk	16.6	-29.1	22.4	43.52	-21.12	0-360	200	V
6	770.886	30.32	Pk	26.6	-26.5	30.42	46.02	-15.6	0-360	400	V

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

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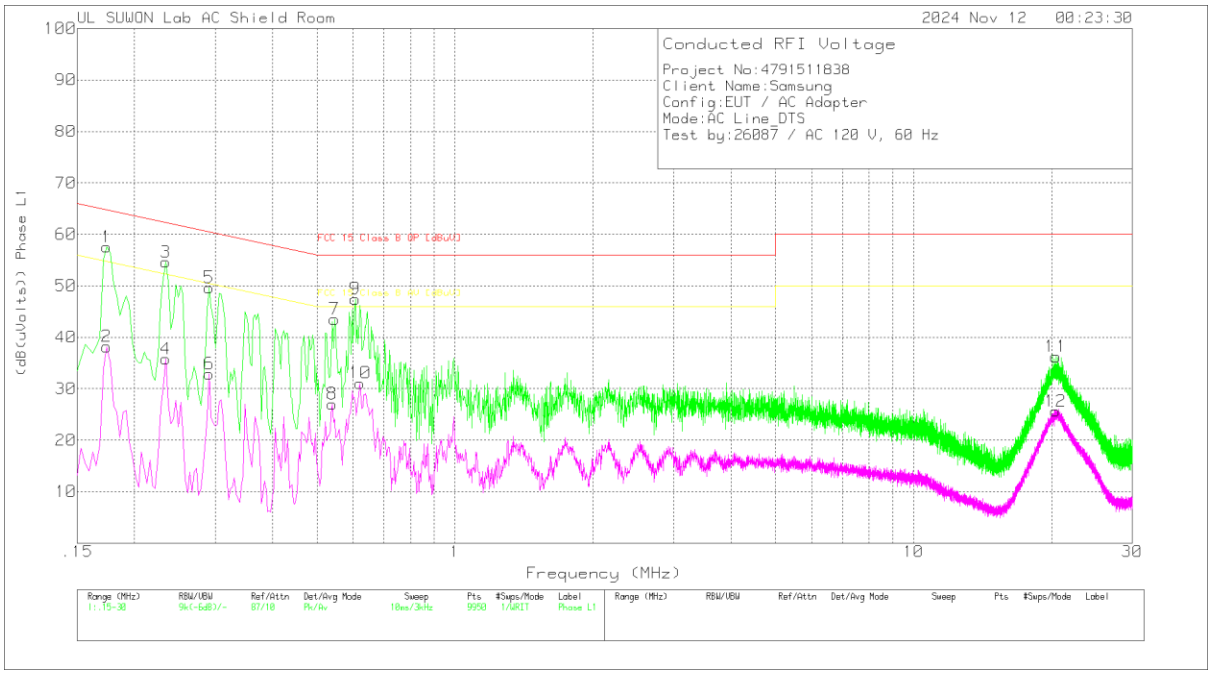
11.1.1. AC Power Line

LINE 1 DATA



Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With 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	.174	47.45	Pk	10	.1	57.55	64.77	-7.22	-	-
2	.174	28.09	Av	10	.1	38.19	-	-	54.77	-16.58
3	.234	44.81	Pk	9.7	.1	54.61	62.31	-7.7	-	-
4	.234	25.98	Av	9.7	.1	35.78	-	-	52.31	-16.53
5	.291	39.82	Pk	9.7	.1	49.62	60.5	-10.88	-	-
6	.291	23.1	Av	9.7	.1	32.9	-	-	50.5	-17.6
7	.546	33.51	Pk	9.9	.1	43.51	56	-12.49	-	-
8	.54	17.03	Av	9.9	.1	27.03	-	-	46	-18.97
9	.606	37.56	Pk	9.8	.1	47.46	56	-8.54	-	-
10	.621	21.19	Av	9.8	.1	31.09	-	-	46	-14.91
11	20.445	25.75	Pk	10.2	.3	36.25	60	-23.75	-	-
12	20.418	15.15	Av	10.2	.3	25.65	-	-	50	-24.35

Pk - Peak detector
Av - Average detection

Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1 [dB]	Cable Loss [dB]	Corrected Reading [dBuV]	FCC 15 Class B QP [dBuV]	Margin (dB)	FCC 15 Class B AV [dBuV]	Margin (dB)
.17475	45.77	Qp	10	.1	55.87	64.73	-8.86	-	-
.23325	42.45	Qp	9.7	.1	52.25	62.33	-10.08	-	-
.60615	31.68	Qp	9.8	.1	41.58	56	-14.42	-	-

Qp - Quasi-Peak detector

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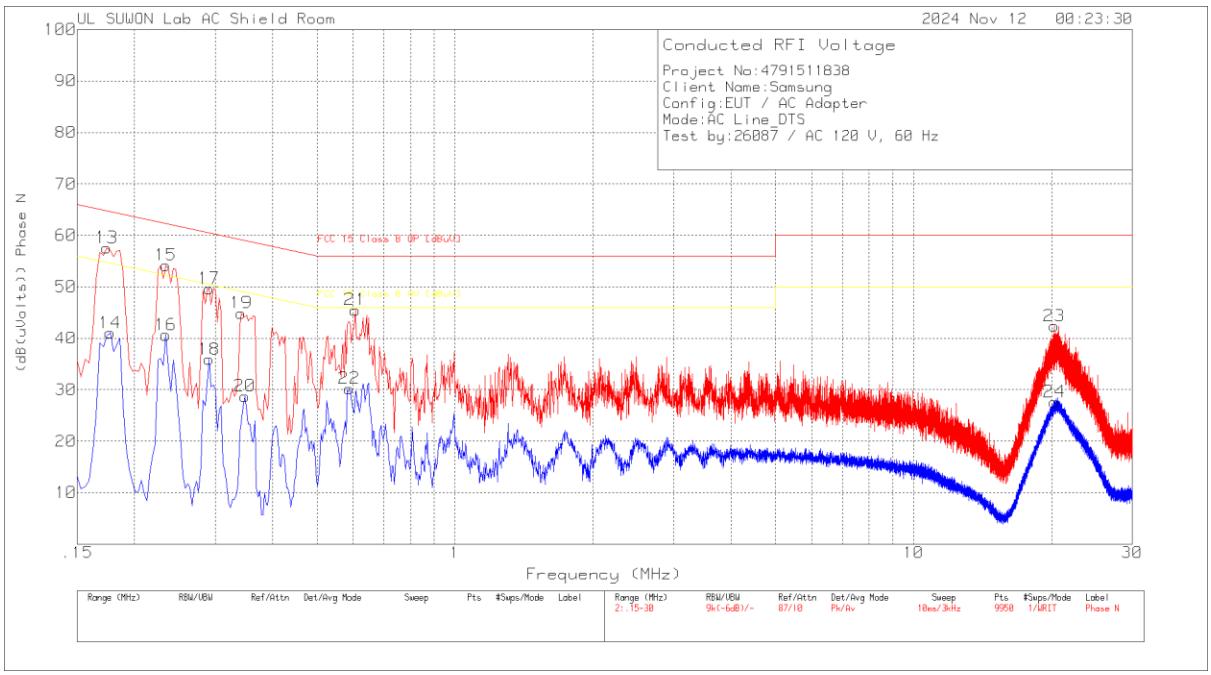
LINE 2 DATA



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	.174	47.48	Pk	10	.1	57.58	64.77	-7.19	-	-
14	.177	30.95	Av	10	.1	41.05	-	-	54.63	-13.58
15	.234	44.4	Pk	9.7	.1	54.2	62.31	-8.11	-	-
16	.234	30.84	Av	9.7	.1	40.64	-	-	52.31	-11.67
17	.291	39.86	Pk	9.7	.1	49.66	60.5	-10.84	-	-
18	.291	26.1	Av	9.7	.1	35.9	-	-	50.5	-14.6
19	.342	35	Pk	9.8	.1	44.9	59.15	-14.25	-	-
20	.348	18.86	Av	9.8	.1	28.76	-	-	49.01	-20.25
21	.606	35.61	Pk	9.8	.1	45.51	56	-10.49	-	-
22	.588	20.33	Av	9.8	.1	30.23	-	-	46	-15.77
23	20.283	31.78	Pk	10.3	.3	42.38	60	-17.62	-	-
24	20.304	17.05	Av	10.3	.3	27.65	-	-	50	-22.35

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)
.17475	45.84	Qp	10	.1	55.94	64.73	-8.79	-	-
.23325	42.19	Qp	9.7	.1	51.99	62.33	-10.34	-	-

Qp - Quasi-Peak detector

END OF TEST REPORT

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