



CERTIFICATION TEST REPORT

Report Number. : 4790632108-E4V2

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

Model : SM-A546U, SM-A546U1, SM-S546VL

FCC ID : A3LSMA546U

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

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

Date Of Issue:

2023-01-27

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ACCREDITED™

Testing Laboratory

TL-637

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2023-01-20	Initial issue	Dexter(Hyunsik) Yun
V2	2023-01-27	Updated to address TCB's question	Dexter(Hyunsik) Yun

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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/ax and NFC

MODEL NUMBER: SM-A546U, SM-A546U1, SM-S546VL

SERIAL NUMBER: R3CTA0AXZDA (CONDUCTED, Original);
R3CTA0AXPBY (RADIATED, Original);
R3CTB0F5WGD, R3CTB0F5QVZ (RADIATED, Spot-check);

DATE TESTED: 2022-12-05 ~ 2023-01-17(Original);
2023-01-11(Spot-check);

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for 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.

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Dexter(Hyunsik) Yun
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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMA546V DTS BLE (FCC CFR 47 Part 15C). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The A3LSMA546U model shares the same enclosure and circuit board as A3LSMA546V. The BLE antennas and surrounding circuitry and layout are identical between these two units.

After confirming through preliminary radiated emissions that the performance of the A3LSMA546V remains representative of A3LSMA546U. The test data of A3LSMA546V being submitted for this application to cover BLE features.

1.3. SPOT CHECK VERIFICATION DATA

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

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-A546V Results	SM-A546U Results		
					FCC ID : A3LSMA546V	FCC ID : A3LSMA546U		
DTS BLE 500 kbps	BANDEDGE	BLE 500kbps	2480 MHz	54 dBuV/m	45.49 dBuV/m	45.15 dBuV/m	-0.34 dB	
	RSE	BLE 500kbps	4880 MHz	54 dBuV/m	45.30 dBuV/m	40.27 dBuV/m	-5.03 dB	
DTS BLE 2Mbps	BANDEDGE	BLE 2Mbps	2480 MHz	54 dBuV/m	49.35 dBuV/m	48.82 dBuV/m	-0.53 dB	
	RSE	BLE 2Mbps	4880 MHz	54 dBuV/m	43.05 dBuV/m	38.13 dBuV/m	-4.92 dB	

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

1.4. REFERENCE DETAIL

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

Equipment Class	Reference FCC ID (Parent)	Application Type	Reference Test report number	Exhibit Type	Variant Test Report Number	Data Re-used
PCE	A3LSMA546V	Original Grant	4790632299-E2 (WWAN)	Test Report	4790632108-E2 (WWAN)	Partial
DTS	A3LSMA546V	Original Grant	4790632299-E3 (802.11b/g/n/ax)	Test Report	4790632108-E3 (802.11b/g/n/ax)	All
			4790632299-E4 (Bluetooth LE)	Test Report	4790632108-E4 (Bluetooth LE)	All
DSS	A3LSMA546V	Original Grant	4790632299-E5 (Bluetooth)	Test Report	4790632108-E5 (Bluetooth)	All
NII	A3LSMA546V	Original Grant	4790632299-E6 (802.11a/n/ac/ax)	Test Report	4790632108-E6 (802.11a/n/ac/ax)	All
DXX	A3LSMA546V	Original Grant	4790632299-E7 (NFC)	Test Report	4790632108-E7 (NFC)	All
CBE	A3LSMA546V	Original Grant	4790632299-E8 (CBRS)	Test Report	4790632108-E8 (CBRS)	All

2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 15.247 Meas Guidance v05r02.
4. KDB 484596 D01 Referencing Test Data v01
5. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
<input checked="" type="checkbox"/>	Chamber 1(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 2(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 3(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 4(3m Full-anechoic chamber)
<input type="checkbox"/>	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. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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	2.80 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.92 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.06 dB
Radiated Disturbance, 18 GHz to 40 GHz	6.02 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULES

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2021.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

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

Representative model	Difference	Derivative model	
		SM-A546U1	SM-S546VL
SM-A546U	Hardware	Same as SM-A546U	Same as SM-A546U
	Software	Same as SM-A546U	Different from SM-A546U (Exclude some of the main band)

Thus, SM-A546U was set for final test.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range[MHz]	Mode	Power Mode	Output Power [dBm]	Output Power [mW]
2 402 ~ 2 480	500kbps (37pkt)	Peak	13.150	20.654
		Average	12.801	19.059
	2Mbps (255pkt)	Peak	13.030	20.091
		Average	12.484	17.717

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 an internal antennas, with ANT (SUB5_WiFi1+BT) maximum gain of -1.95 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

Power verification

The Output Power of all data rate are all investigated, the 500 kbps(37 pkt) and 2 Mbps(255 pkt) power is the worst case for symbol rate. All tests were performed in these two modes.

Symbol Rate [Ms/s]	Mode	Freq. [MHz]	Conducted Burst Avg [dBm]	Symbol Rate [Ms/s]	Mode	Freq. [MHz]	Conducted Burst Avg [dBm]
1	1Mbps 37pkt	2402	12.742	2	2Mbps 37pkt	2402	12.277
		2440	12.553			2440	12.101
		2480	12.432			2480	12.233
	1Mbps 255pkt	2402	12.644		2Mbps 255pkt	2402	12.484
		2440	12.481			2440	12.310
		2480	12.319			2480	12.103
1 Coded S=8	125kbps 37pkt	2402	12.707	1 Coded S=2	500kbps 37pkt	2402	12.801
		2440	12.453			2440	12.583
		2480	12.428			2480	12.466
	125kbps 255pkt	2402	12.626		500kbps 255pkt	2402	12.661
		2440	12.345			2440	12.398
		2480	12.231			2480	12.279

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37T7WW84Y9SEA	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02116A	N/A

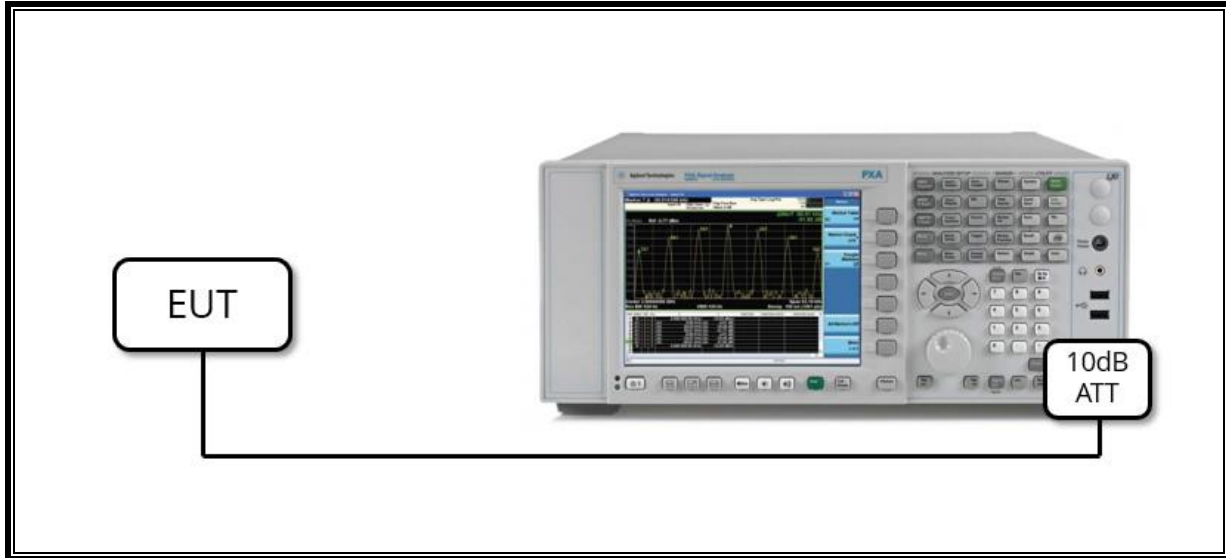
I/O CABLE

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

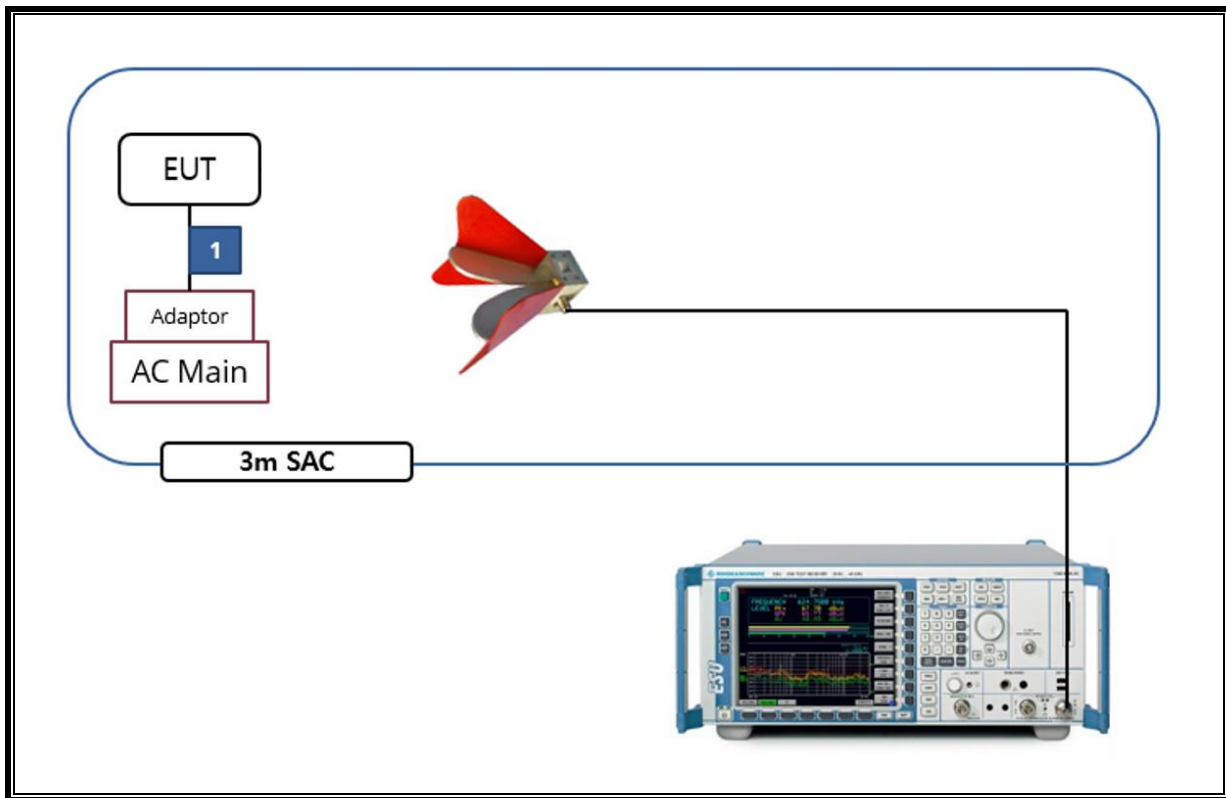
TEST SETUP

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

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. MEASUREMENT METHOD

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

OUTPUT POWER : ANSI C63.10-2013, Section 11.9.1.1 RBW \geq DTS bandwidth

POWER SPECTRAL DENSITY : ANSI C63.10-2013, Section 11.10.2 Method PKPSD (peak PSD)

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

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

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

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2024-08-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	2024-08-04
Antenna, Horn, 18 GHz	ETS	3115	00161451	2024-08-21
Antenna, Horn, 18 GHz	ETS	3117	00168724	2024-08-04
Antenna, Horn, 18 GHz	ETS	3117	00168717	2024-08-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2024-08-02
Preamplifier	ETS	3116C-PA	00168841	2023-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2023-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2023-08-01
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2023-08-01
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2023-08-03
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2023-08-01
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2023-01-18
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2023-01-19
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2023-08-03
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2023-08-03
Attenuator	PASTERNAK	PE7087-10	A001	2023-08-03
Attenuator	PASTERNAK	PE7087-10	A008	2023-08-03
Attenuator	PASTERNAK	PE7004-10	2	2023-08-01
Attenuator	PASTERNAK	PE7087-10	A009	2023-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2023-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2023-07-29
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2023-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	2023-08-01
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2023-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2023-08-01
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2023-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	2023-08-01
LISN	R&S	ENV-216	101837	2023-08-04
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

8. TEST RESULTS SUMMARY

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	-20 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

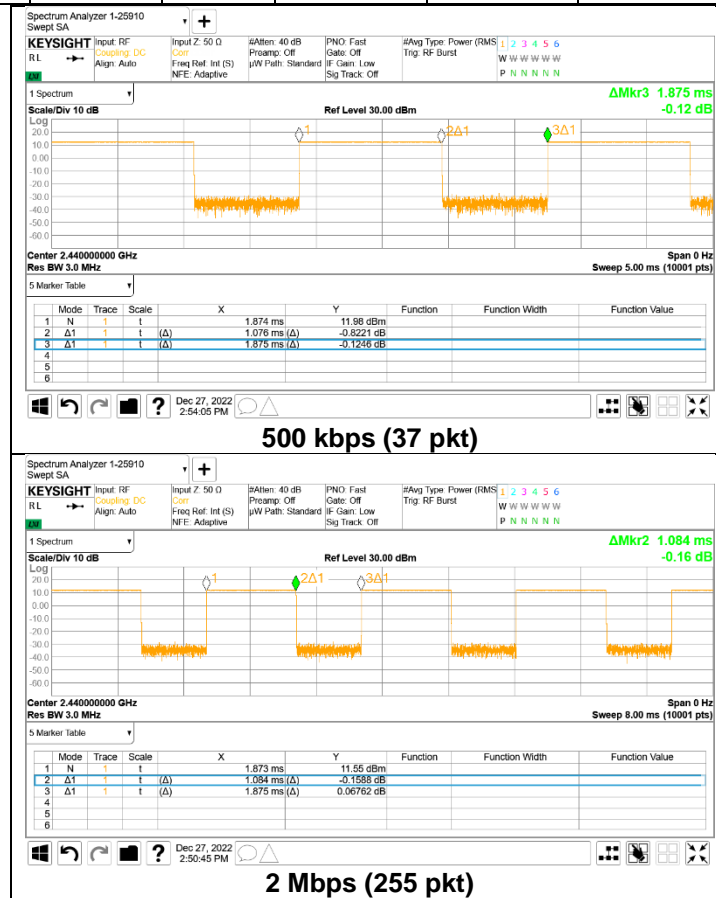
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

Mode	On time [msec]	Period [msec]	Duty cycle x [Linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2 400 ~ 2 483.5 MHz Bands						
500 kbps [37pkt]	1.076	1.875	0.574	57.387	2.41	0.929
2 Mbps [255pkt]	1.084	1.875	0.578	57.813	2.38	4.721



9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

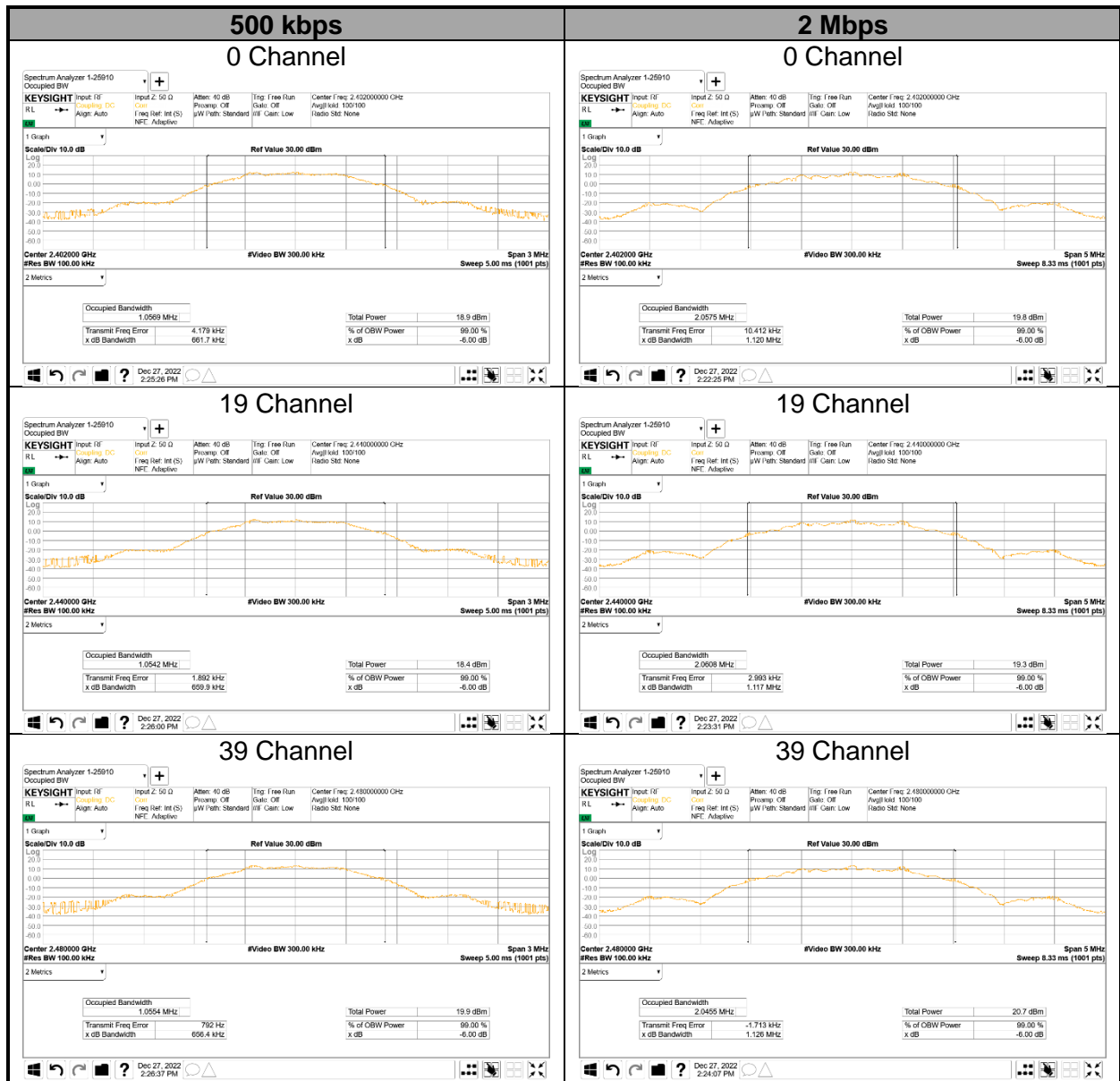
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

9.2.1. Test data

Mode	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
500kbps (37pkt)	0	2 402	661.7	500.0
	19	2 440	659.9	500.0
	39	2 480	656.4	500.0
2Mbps (255pkt)	0	2 402	1 120.0	500.0
	19	2 440	1 117.0	500.0
	39	2 480	1 126.0	500.0
Worst			656.4	500.0

9.2.2. 6 dB BANDWIDTH PLOTS



9.3. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

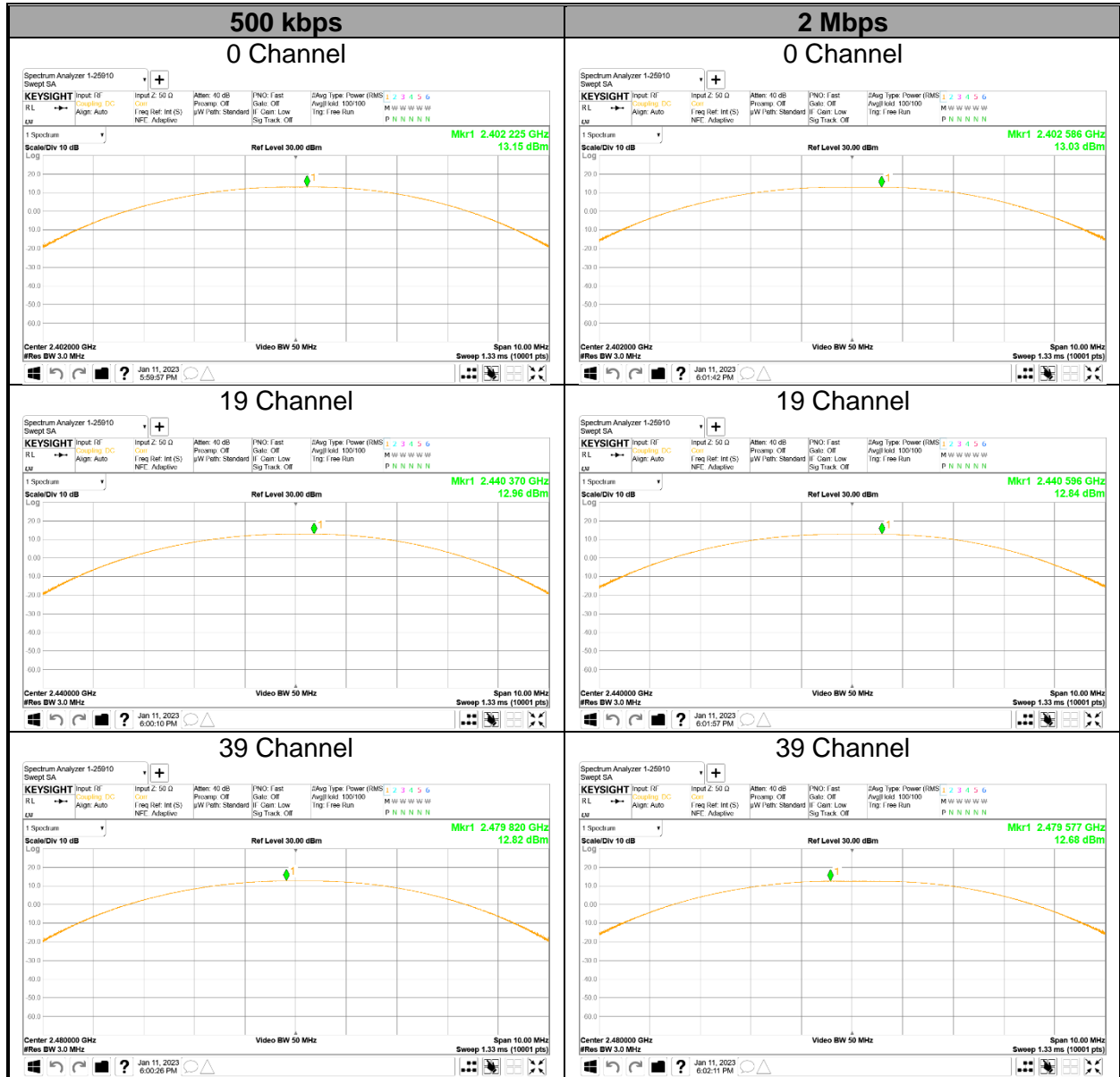
Peak power is measured using ANSI C63.10(2013) under section 11.9.1.1 utilizing spectrum analyzer(RBW \cong DTS bandwidth).

RESULTS

9.3.1. Test data

Mode	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
500 kbps (37 pkt)	0	2 402	13.150	30.000	-16.850
	19	2 440	12.960		-17.040
	39	2 480	12.820		-17.180
2 Mbps (255 pkt)	0	2 402	13.030		-16.970
	19	2 440	12.840		-17.160
	39	2 480	12.680		-17.320
Worst			13.150		-16.850

9.3.2. PEAK POWER PLOTS



9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband RF frame average power sensor. The cable assembly insertion loss and duty cycle correction factor were entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.4.1. Test data

Mode	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
500 kbps (37pkt)	0	2 402	12.801	19.059
	19	2 440	12.583	18.126
	39	2 480	12.466	17.644
2 Mbps (255pkt)	0	2 402	12.484	17.717
	19	2 440	12.310	17.022
	39	2 480	12.103	16.229

9.5. 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

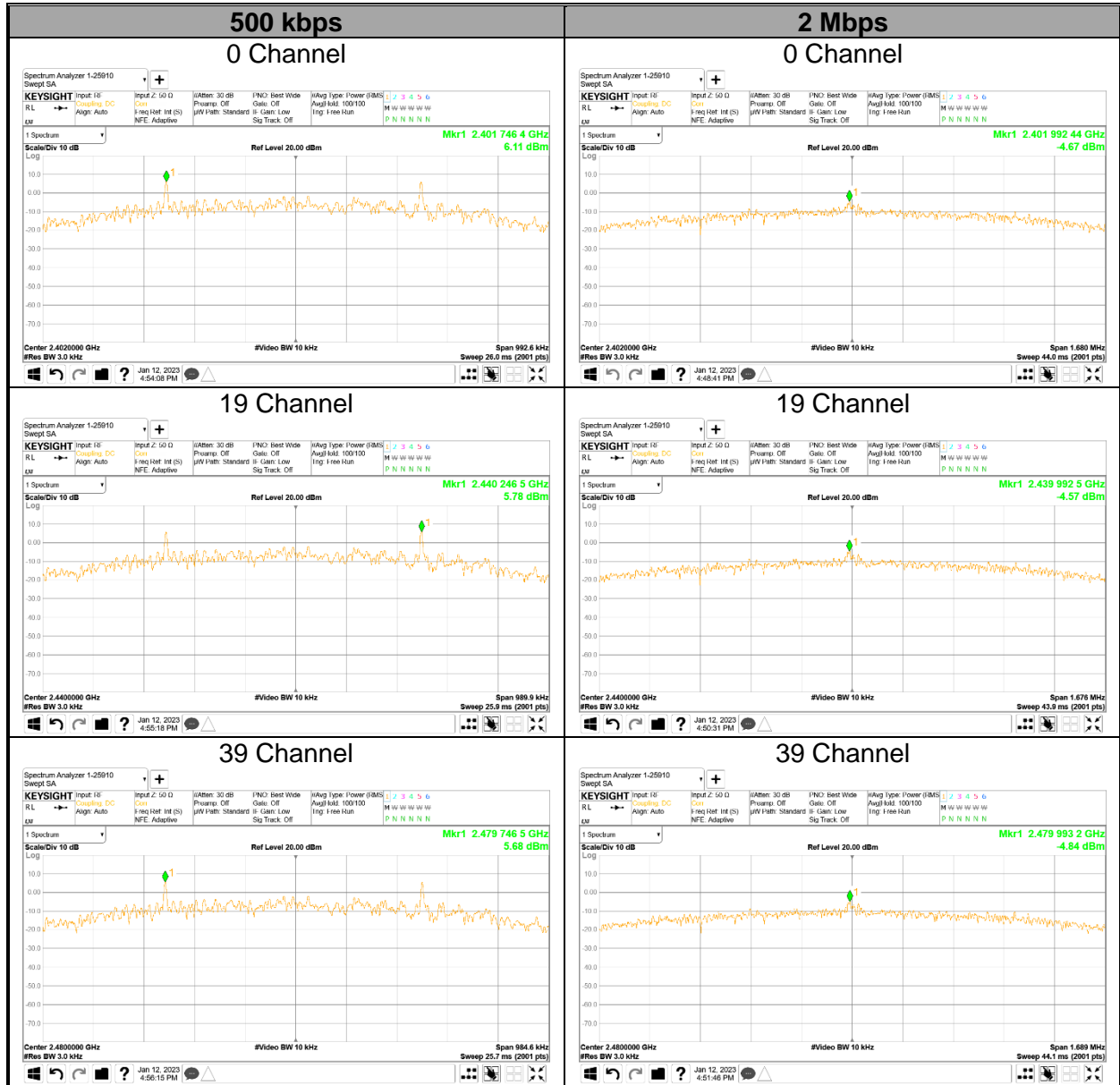
ANSI C63.10-2013, Section 11.10.2 Method PKPSD (peak PSD)

RESULTS

9.5.1. Test data

Mode	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
500 kbps (37pkt)	0	2 402	6.11	8.00	-1.89
	19	2 440	5.78		-2.22
	39	2 480	5.68		-2.32
2 Mbps (255pkt)	0	2 402	-4.67		-12.67
	19	2 440	-4.57		-12.57
	39	2 480	-4.84		-12.84
Worst			6.11	-1.89	

9.5.2. PSD TEST PLOTS



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

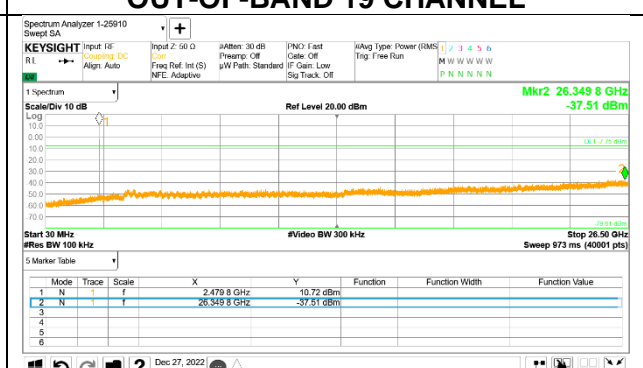
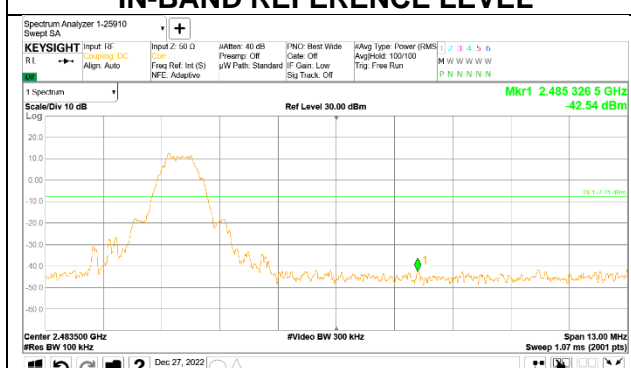
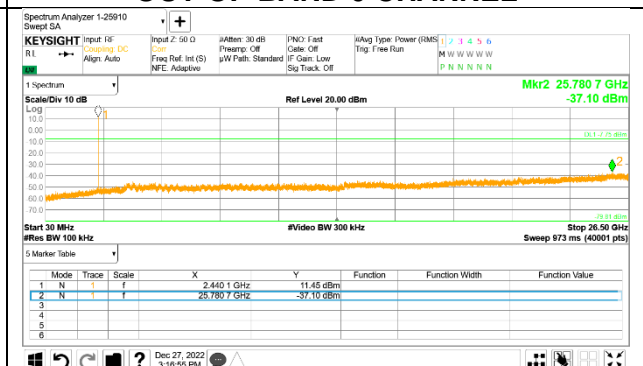
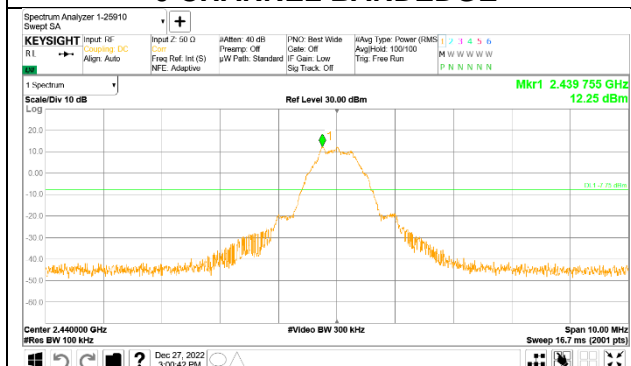
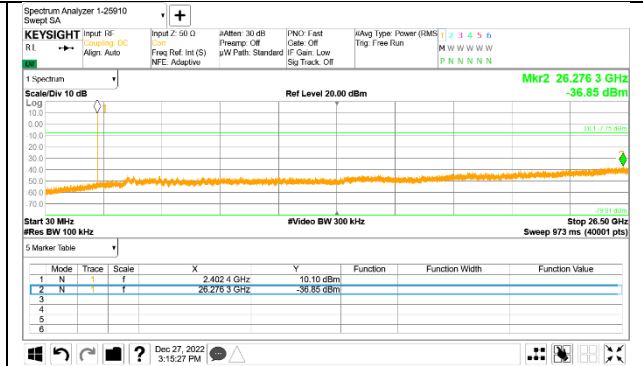
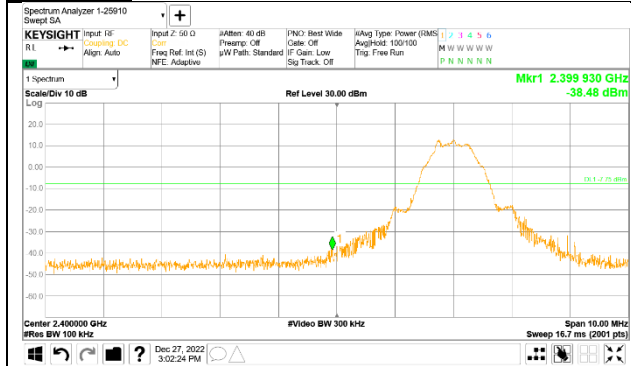
FCC §15.247 (d)

Output power was measured based on the use of a peak measurement.
Therefore, spurious emissions are required to be 20 dBc.

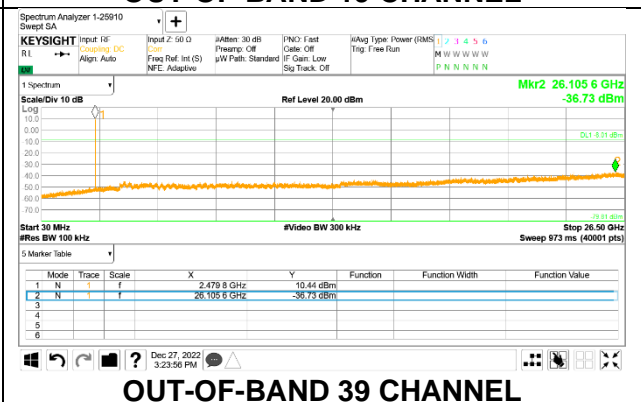
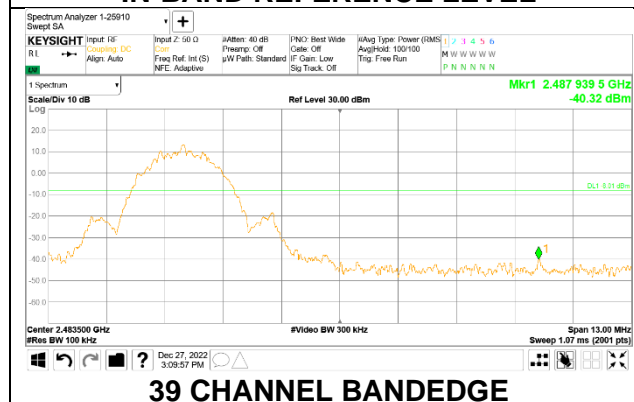
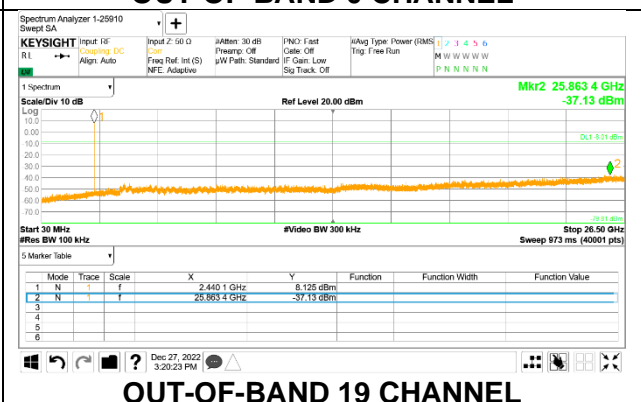
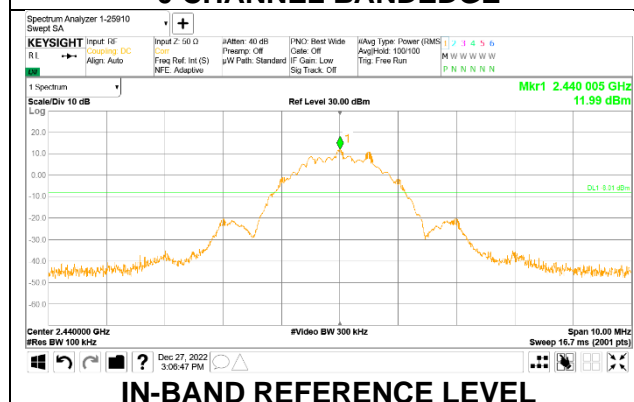
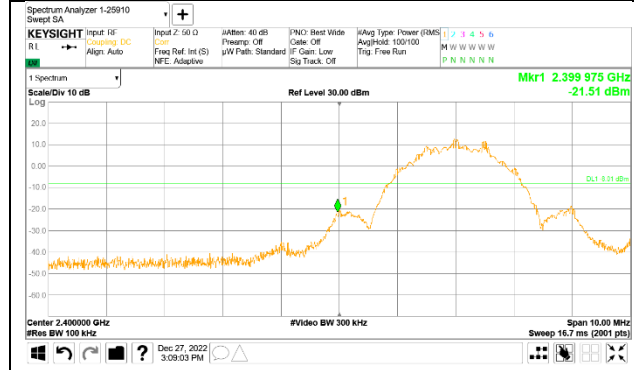
RESULTS

9.6.1. Test plot

500 kbps



2 Mbps



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits ($\mu\text{V}/\text{m}$)	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.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. 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, then the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. (Restricted band-edge, Final detection of spurious harmonic emissions)
Duty cycle factor = $10 \log(1/x)$. For this sample: For 500 kbps, DCF = $10 \log(1/0.574)=2.412\text{dB}$ (Spectrum Analyzer round it up to 2.41 dB) and for 2 Mbps, DCF = $10 \log(1/0.578)=2.380\text{ dB}$ (Spectrum Analyzer round it up to 2.38 dB).

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 the 2.4 GHz 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 9kHz to 30MHz; 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.

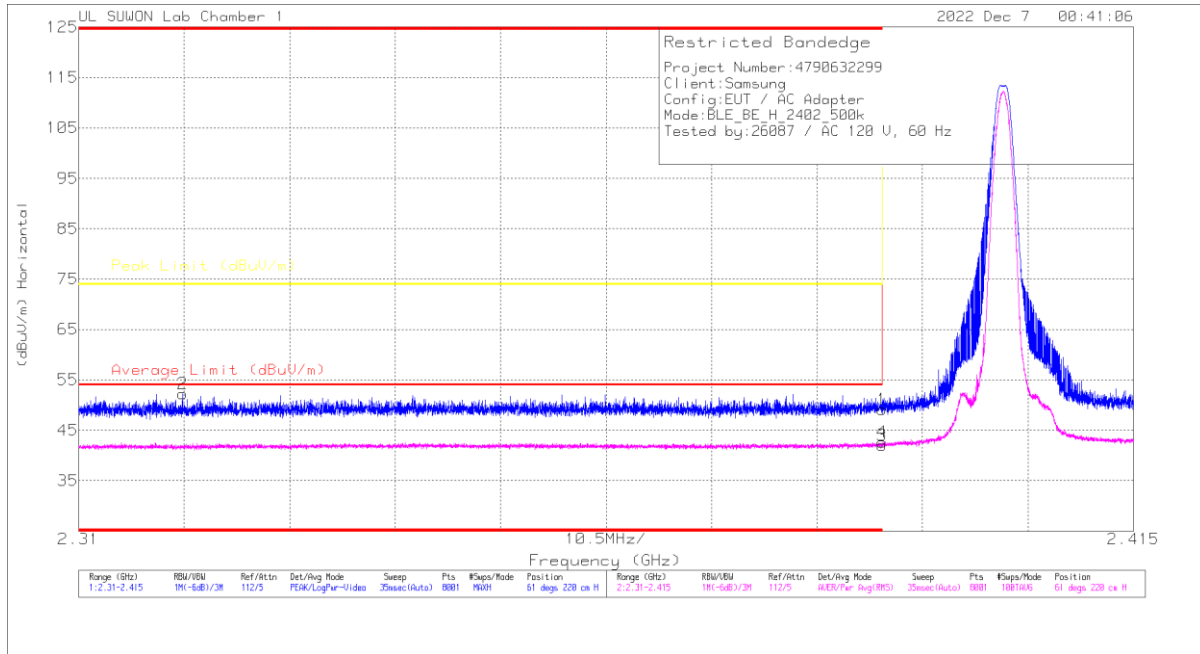
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field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

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. 500 kbps

BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

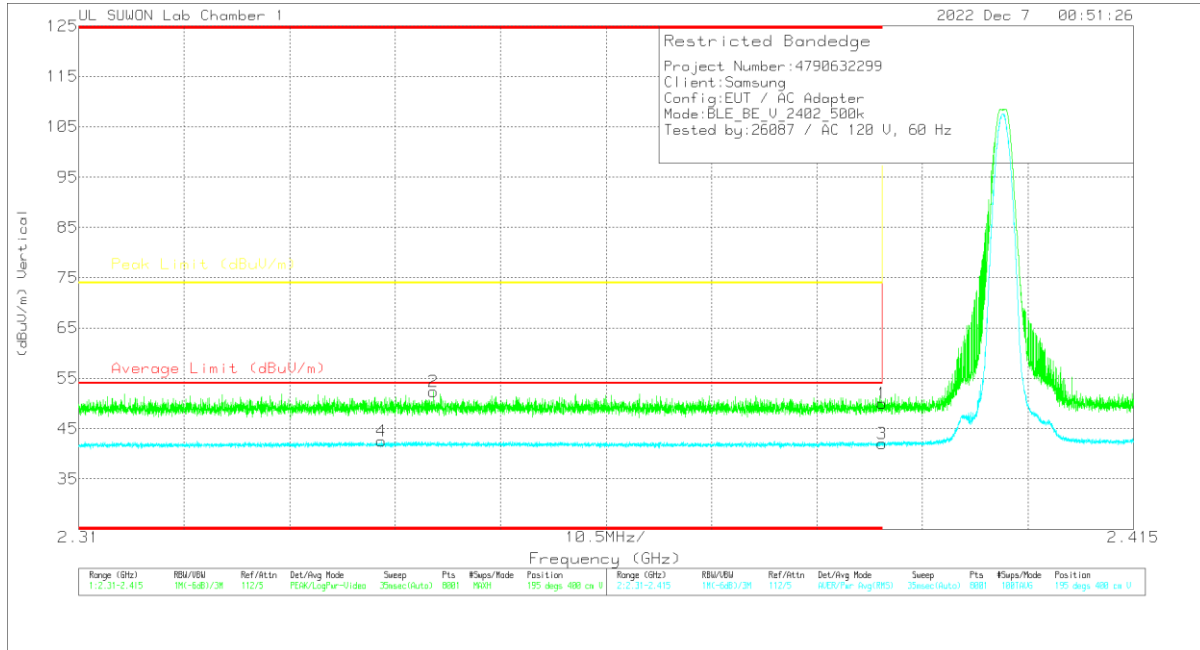


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.68	Pk	31.9	-28.4	0	49.18	-	-	74	-24.82	61	220	H
2	* 2.32036	49.03	Pk	31.7	-28.5	0	52.23	-	-	74	-21.77	61	220	H
3	* 2.39	36.16	RMS	31.9	-28.4	2.41	42.07	54	-11.93	-	-	61	220	H
4	* 2.38996	36.71	RMS	31.9	-28.4	2.41	42.62	54	-11.38	-	-	61	220	H

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

VERTICAL RESULT



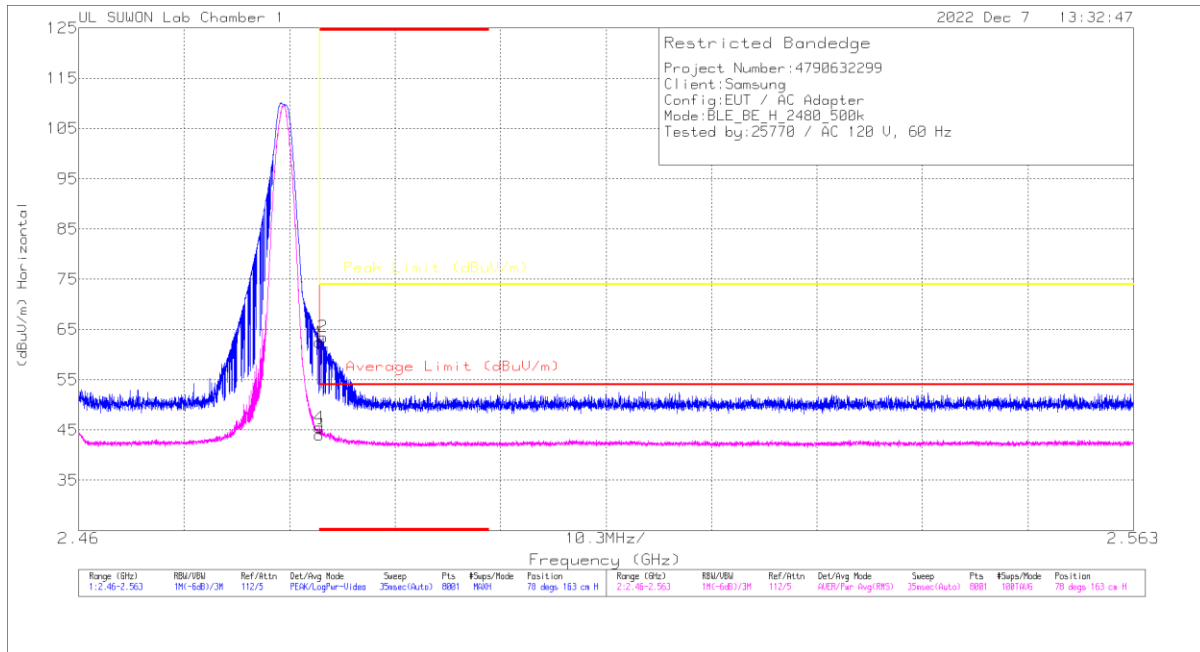
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.239	46.56	Pk	31.9	-28.4	0	50.06	-	-	74	-23.94	195	400	V
2	* 2.34531	49.01	Pk	31.8	-28.4	0	52.41	-	-	74	-21.59	195	400	V
3	* 2.39	36.09	RMS	31.9	-28.4	2.41	42	54	-12	-	-	195	400	V
4	* 2.34015	36.8	RMS	31.8	-28.5	2.41	42.51	54	-11.49	-	-	195	400	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT



Trace Markers

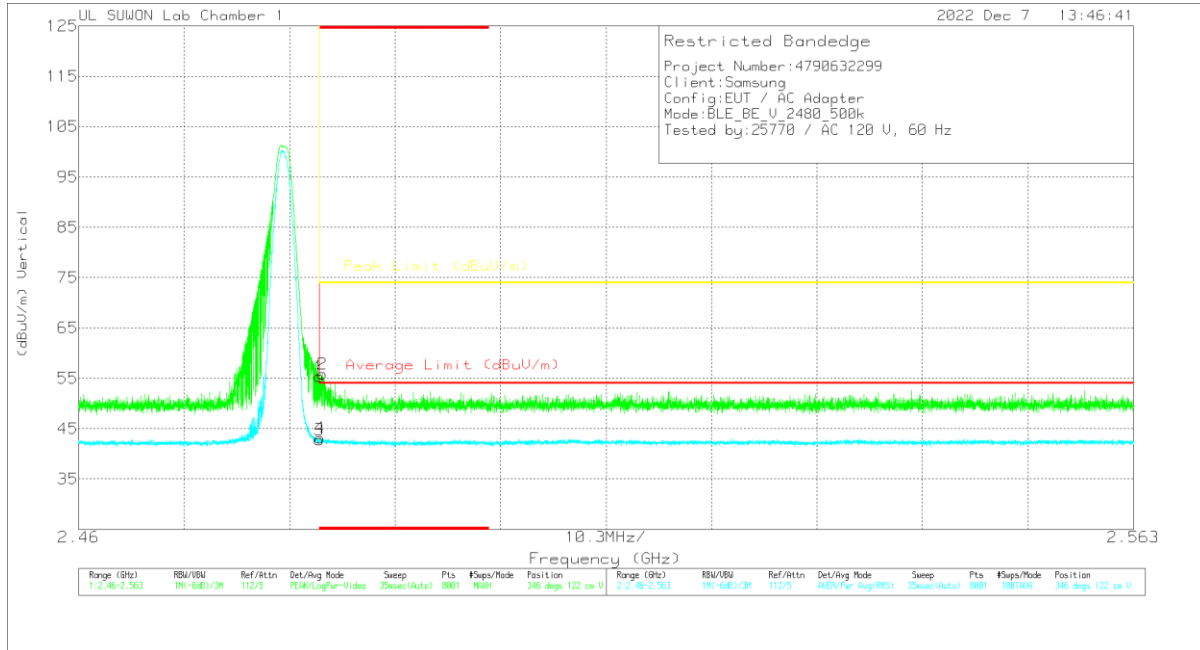
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	58.52	PK	32.2	-28.3	0	62.42	-	-	74	-11.58	78	163	H
2	* 2.48388	59.63	PK	32.2	-28.3	0	63.53	-	-	74	-10.47	78	163	H
3	* 2.48351	37.77	RMS	32.2	-28.3	2.41	44.08	54	-9.92	-	-	78	163	H
4	* 2.48352	39.18	RMS	32.2	-28.3	2.41	45.49	54	-8.51	-	-	78	163	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULT



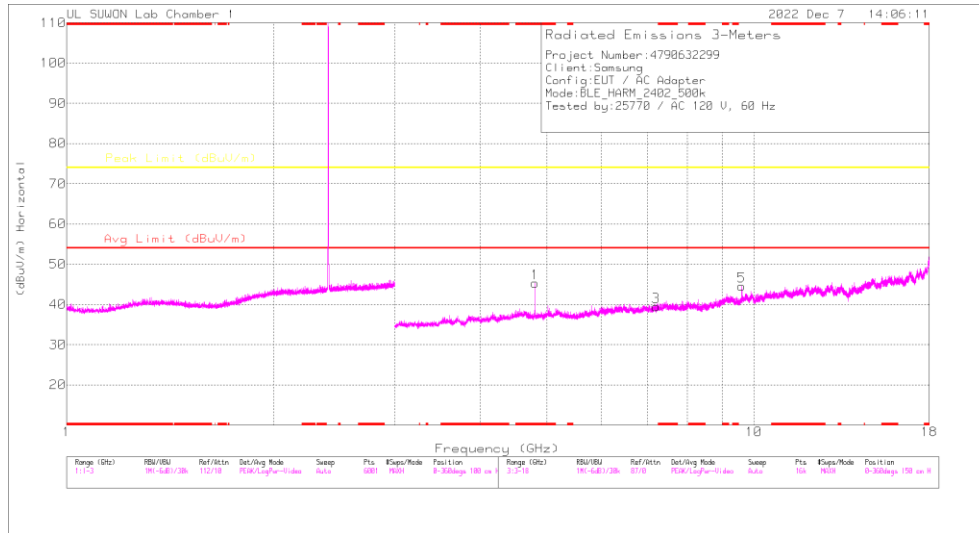
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	51.45	Pk	32.2	-28.3	0	55.35	-	-	74	-18.65	346	122	V
2	* 2.48381	52	Pk	32.2	-28.3	0	55.9	-	-	74	-18.1	346	122	V
3	* 2.48351	36.42	RMS	32.2	-28.3	2.41	42.73	54	-11.27	-	-	346	122	V
4	* 2.48356	36.81	RMS	32.2	-28.3	2.41	43.12	54	-10.88	-	-	346	122	V

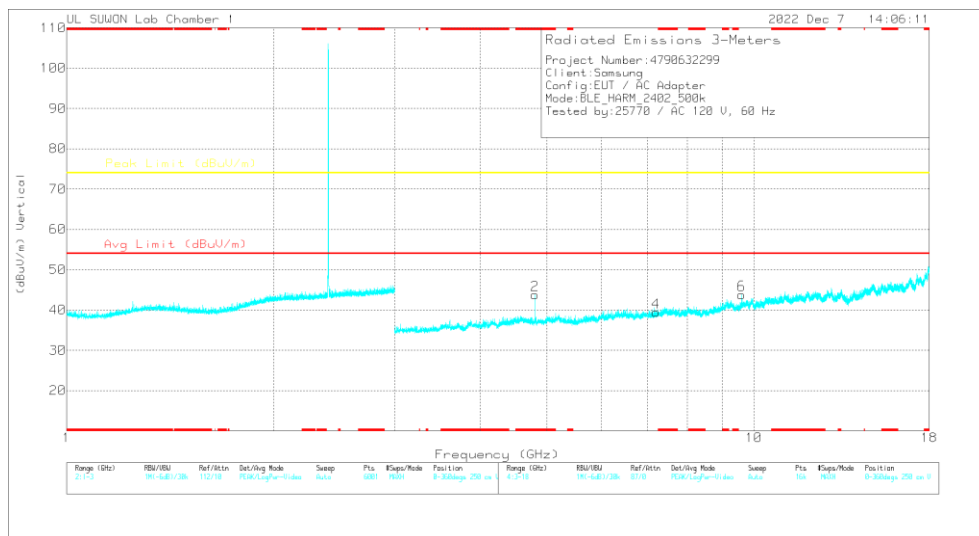
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

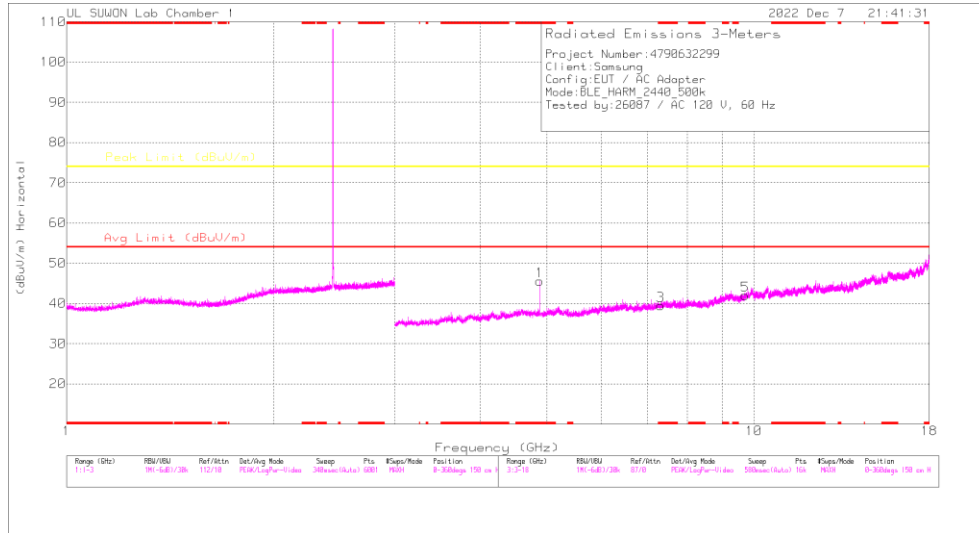
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

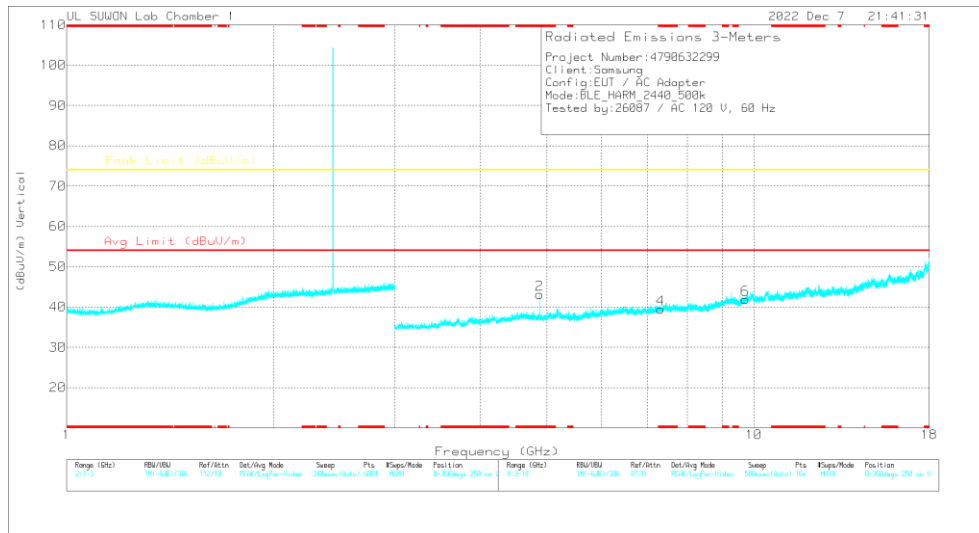
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80457	51.05	PK2	34.2	-33.2	0	52.05	-	-	74	-21.95	167	100	H
* 4.80442	42.2	MAV1	34.2	-33.2	1.15	44.35	54	-9.65	-	-	167	100	H
* 4.80355	50.97	PK2	34.2	-33.2	0	51.97	-	-	74	-22.03	186	299	V
* 4.80359	42.25	MAV1	34.2	-33.2	1.15	44.4	54	-9.6	-	-	186	299	V
7.20525	42.72	PK2	35.8	-30.1	0	48.42	-	-	74	-25.58	360	100	H
7.20773	42.66	PK2	35.8	-30.1	0	48.36	-	-	74	-25.64	0	100	V
9.6071	41.89	PK2	37.1	-26.2	0	52.79	-	-	74	-21.21	292	112	H
9.60903	41.79	PK2	37.1	-26.2	0	52.69	-	-	74	-21.31	162	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

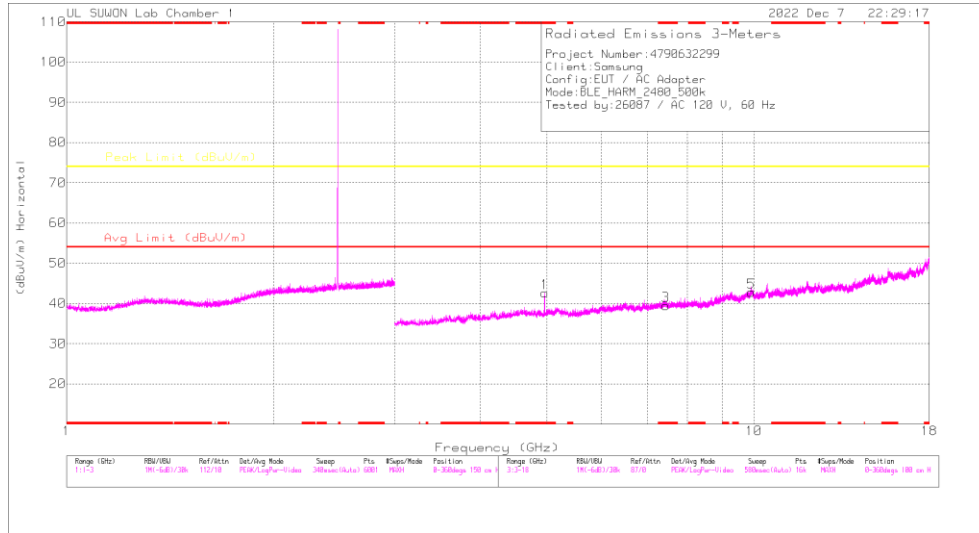
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

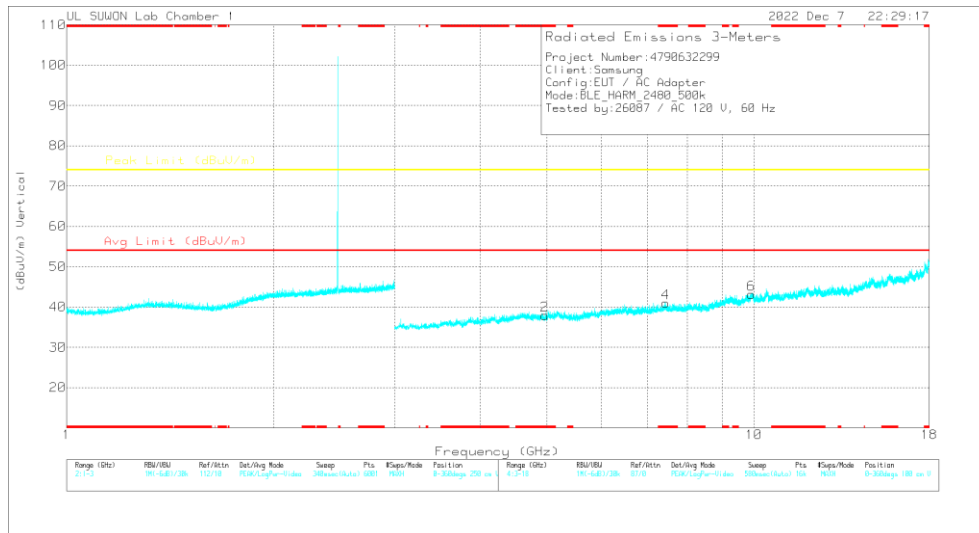
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87952	51.08	PK2	34.2	-33.1	0	52.18	-	-	74	-21.82	77	110	H
* 4.8804	41.79	MAV1	34.2	-33.1	2.41	45.3	54	-8.7	-	-	77	110	H
* 4.87974	51.36	PK2	34.2	-33.1	0	52.46	-	-	74	-21.54	193	327	V
* 4.88036	41.78	MAV1	34.2	-33.1	2.41	45.29	54	-8.71	-	-	193	327	V
* 7.31577	43.62	PK2	35.7	-30.2	0	49.12	-	-	74	-24.88	0	100	H
* 7.31162	43.58	PK2	35.7	-30.2	0	49.08	-	-	74	-24.92	0	100	V
9.72426	40.73	PK2	37.3	-27.2	0	50.83	-	-	74	-23.17	0	100	H
9.71645	40.6	PK2	37.3	-27.3	0	50.6	-	-	74	-23.4	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

39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

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

Radiated Emissions

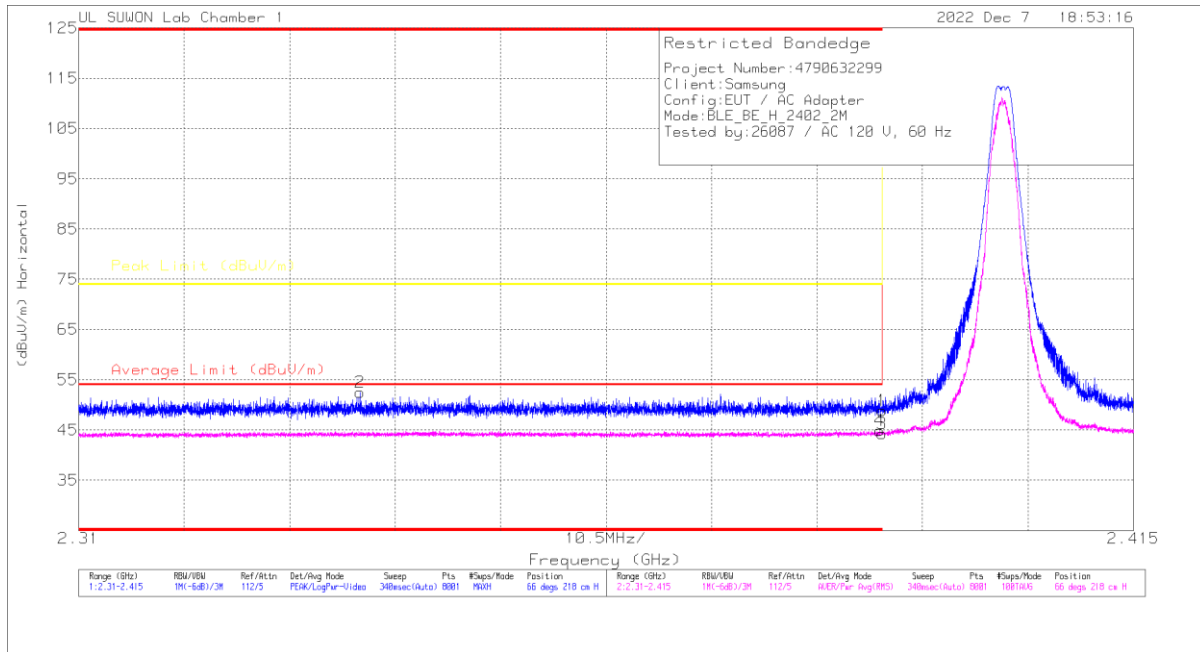
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96029	49.2	PK2	34.2	-33.3	0	50.1	-	-	74	-23.9	150	129	H
* 4.96031	39.08	MAV1	34.2	-33.3	2.41	42.39	54	-11.61	-	-	150	129	H
* 4.90627	45.57	PK2	34.2	-33	0	46.77	-	-	74	-27.23	0	100	V
* 7.44056	43.17	PK2	35.6	-29.6	0	49.17	-	-	74	-24.83	0	100	H
* 7.45014	43.24	PK2	35.6	-29.6	0	49.24	-	-	74	-24.76	0	100	V
9.91915	41.2	PK2	37.6	-25.3	0	53.5	-	-	74	-20.5	174	141	H
9.92243	40.51	PK2	37.6	-25.2	0	52.91	-	-	74	-21.09	214	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

10.2.2. 2 Mbps

BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

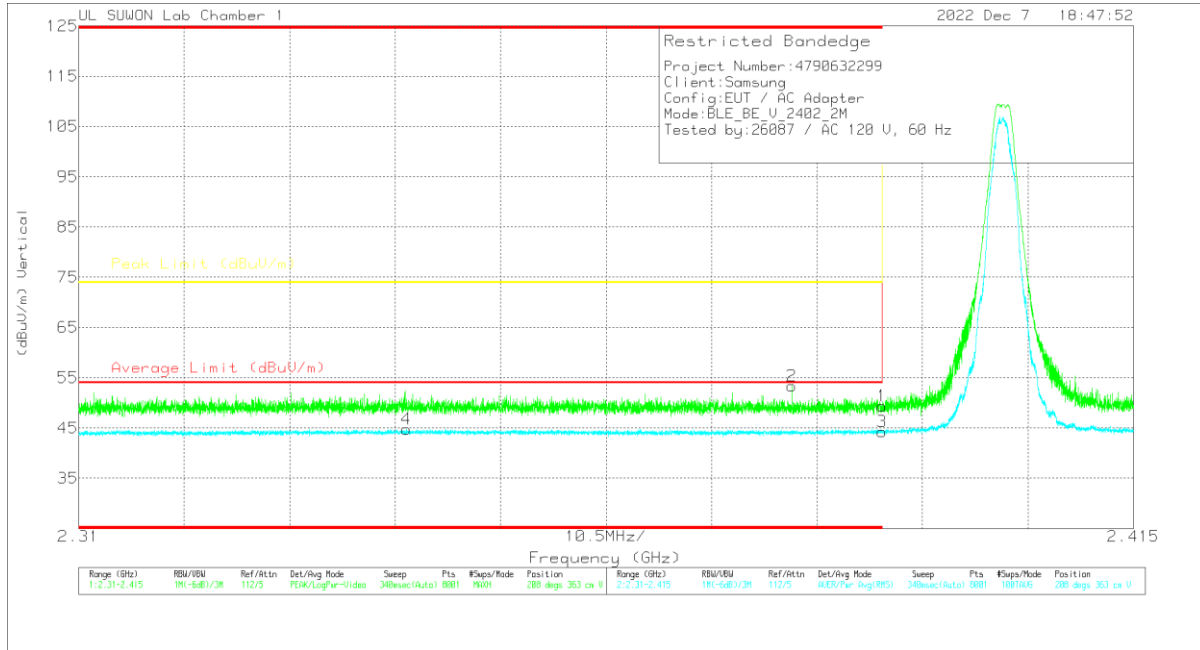


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.33	Pk	31.9	-28.4	0	48.83	-	-	74	-25.17	66	218	H
2	* 2.33804	49.12	Pk	31.8	-28.4	0	52.52	-	-	74	-21.48	66	218	H
3	* 2.39	36.03	RMS	31.9	-28.4	2.38	41.91	54	-12.09	-	-	66	218	H
4	* 2.38973	36.74	RMS	31.9	-28.4	2.38	42.62	54	-11.38	-	-	66	218	H

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

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.91	Pk	31.9	-28.4	0	49.41	-	-	74	-24.59	208	363	V
2	* 2.38098	50.01	Pk	31.9	-28.5	0	53.41	-	-	74	-20.59	208	363	V
3	* 2.39	36.1	RMS	31.9	-28.4	2.38	41.98	54	-12.02	-	-	208	363	V
4	* 2.34263	36.69	RMS	31.8	-28.4	2.38	42.57	54	-11.43	-	-	208	363	V

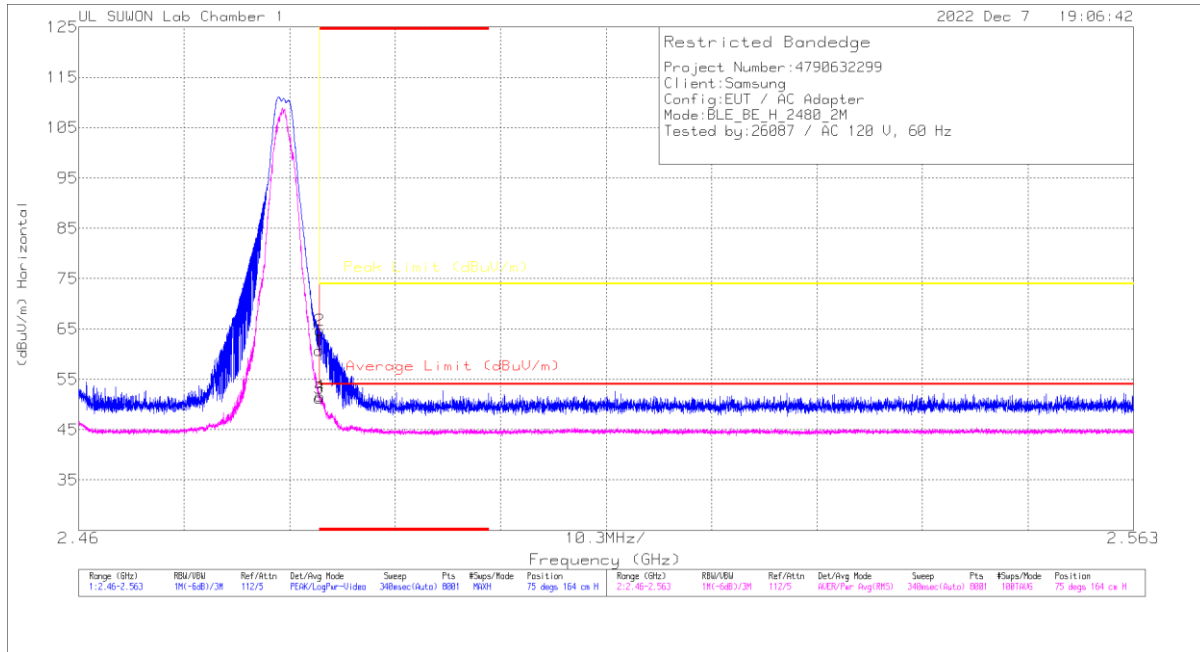
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

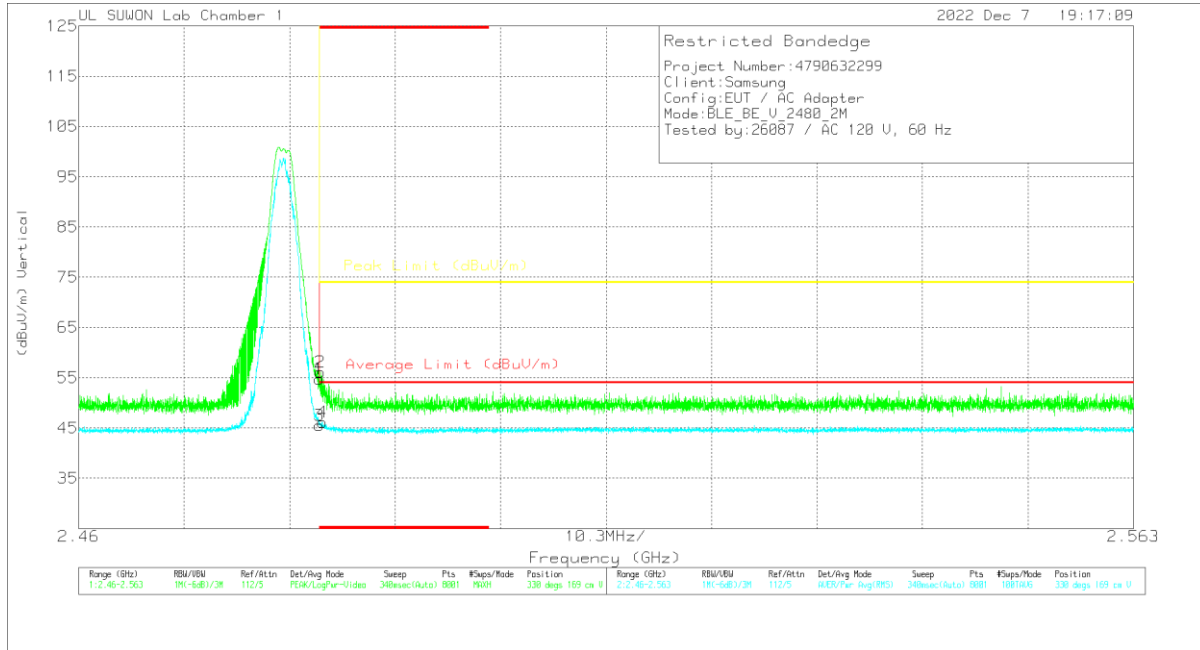


Trace Markers

Marker	Frequency (GHz)	Marker Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	56.77	PK	32.2	-28.3	0	60.67	-	-	74	-13.33	75	164	H
2	* 2.48355	60.84	PK	32.2	-28.3	0	64.74	-	-	74	-9.26	75	164	H
3	* 2.48351	42.65	RMS	32.2	-28.3	2.38	48.93	54	-5.07	-	-	75	164	H
4	* 2.48355	43.07	RMS	32.2	-28.3	2.38	49.35	54	-4.65	-	-	75	164	H

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

VERTICAL RESULT



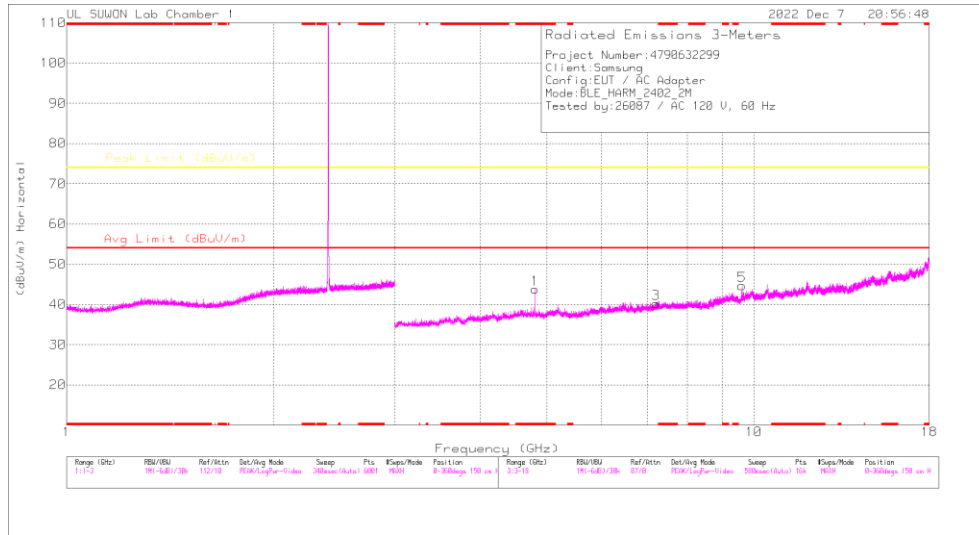
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	10dB_ATT(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	50.86	Pk	32.2	-28.3	0	54.76	-	-	74	-19.24	330	169	V
2	* 2.48359	52.16	Pk	32.2	-28.3	0	56.06	-	-	74	-17.94	330	169	V
3	* 2.48351	36.91	RMS	32.2	-28.3	2.38	43.19	54	-10.81	-	-	330	169	V
4	* 2.48379	37.55	RMS	32.2	-28.3	2.38	43.83	54	-10.17	-	-	330	169	V

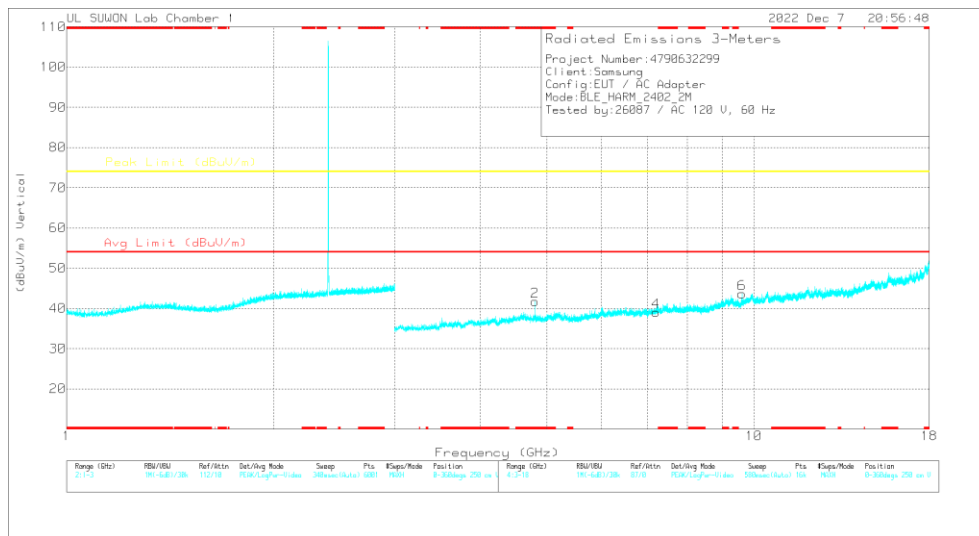
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

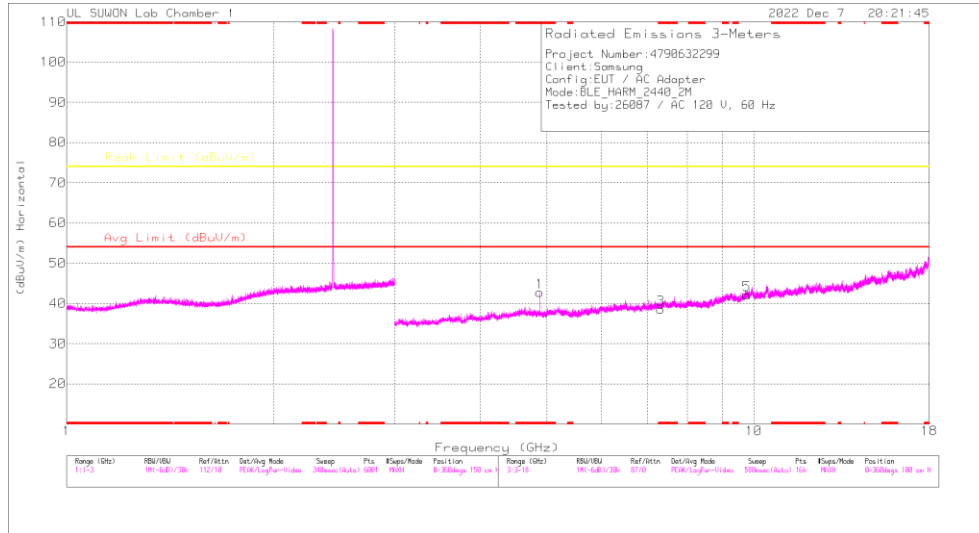
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

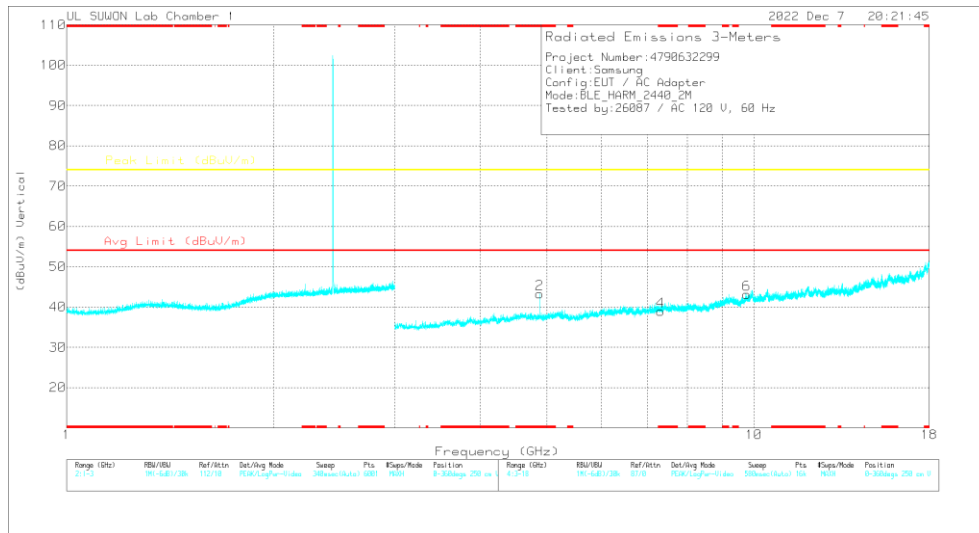
Frequency (GHz)	Meter Reading (dBu)	Det	3117_0016871_7	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBu/m)	Avg Limit (dBu/m)	Margin (dB)	Peak Limit (dBu/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80415	51.25	PK2	34.2	-33.2	0	52.25	-	-	74	-21.75	145	161	H
* 4.80415	39.6	MAv1	34.2	-33.2	2.38	42.98	54	-11.02	-	-	145	161	H
7.21149	43.21	PK2	35.8	-30.1	0	48.91	-	-	74	-25.09	0	100	H
9.80622	41.93	PK2	37.1	-26.2	0	52.83	-	-	74	-21.17	291	122	H
* 4.80327	51.88	PK2	34.2	-33.2	0	52.88	-	-	74	-21.12	194	382	V
* 4.80407	38.92	MAv1	34.2	-33.2	2.38	42.3	54	-11.7	-	-	194	382	V
7.19936	42.85	PK2	35.8	-30.1	0	48.55	-	-	74	-25.45	0	100	V
9.60816	41.44	PK2	37.1	-26.2	0	52.34	-	-	74	-21.66	161	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

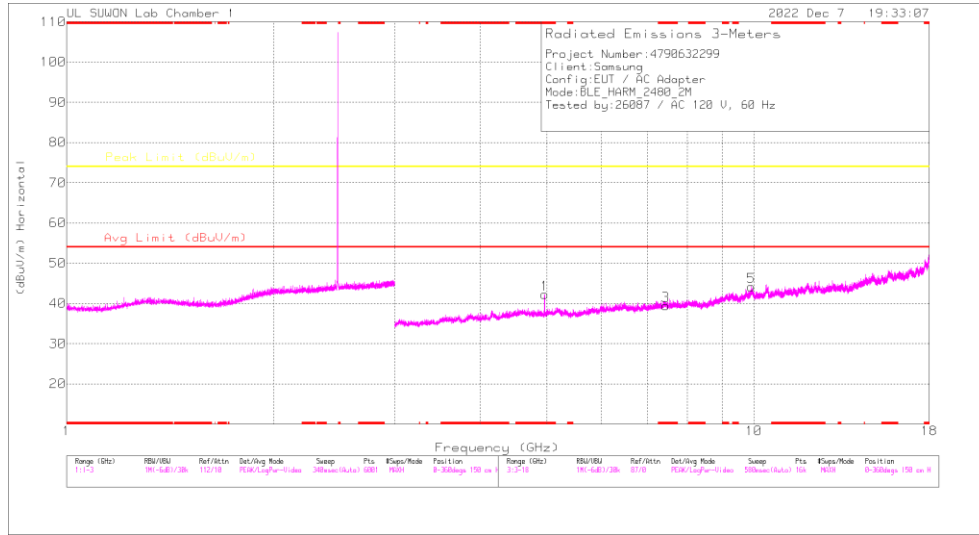
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

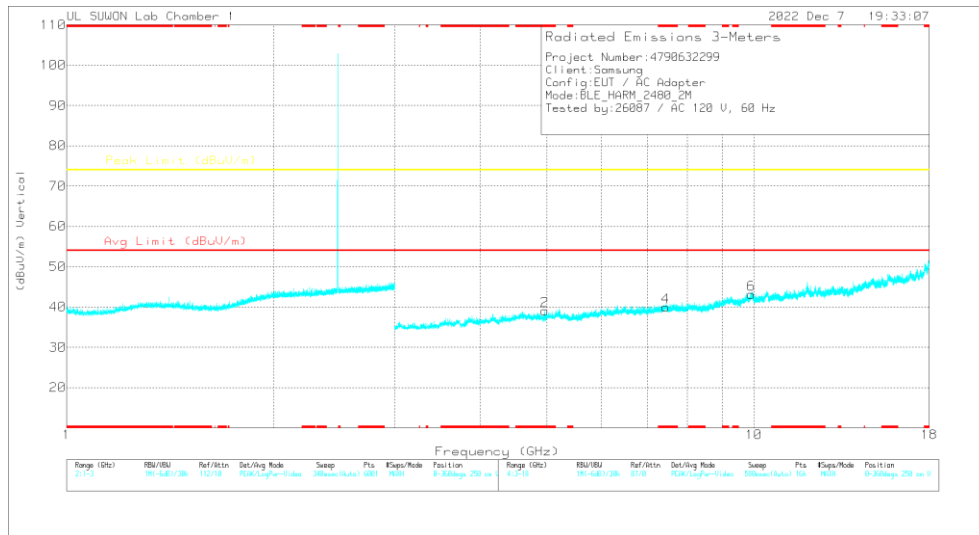
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88032	51.1	PK2	34.2	-33.1	0	52.2	-	-	74	-21.8	66	348	H
* 4.87908	39.57	MAV1	34.2	-33.1	2.38	43.05	54	-10.95	-	-	66	348	H
* 4.87905	50.34	PK2	34.2	-33.1	0	51.44	-	-	74	-22.56	198	276	V
* 4.87891	39.05	MAV1	34.2	-33.1	2.38	42.53	54	-11.47	-	-	198	276	V
* 7.31449	43.19	PK2	35.7	-30.2	0	48.69	-	-	74	-25.31	0	100	H
* 7.32965	43.31	PK2	35.7	-30.2	0	48.81	-	-	74	-25.19	0	100	V
9.76045	40.49	PK2	37.3	-26.5	0	51.29	-	-	74	-22.71	0	100	H
9.75932	40.46	PK2	37.3	-26.5	0	51.26	-	-	74	-22.74	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

39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

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

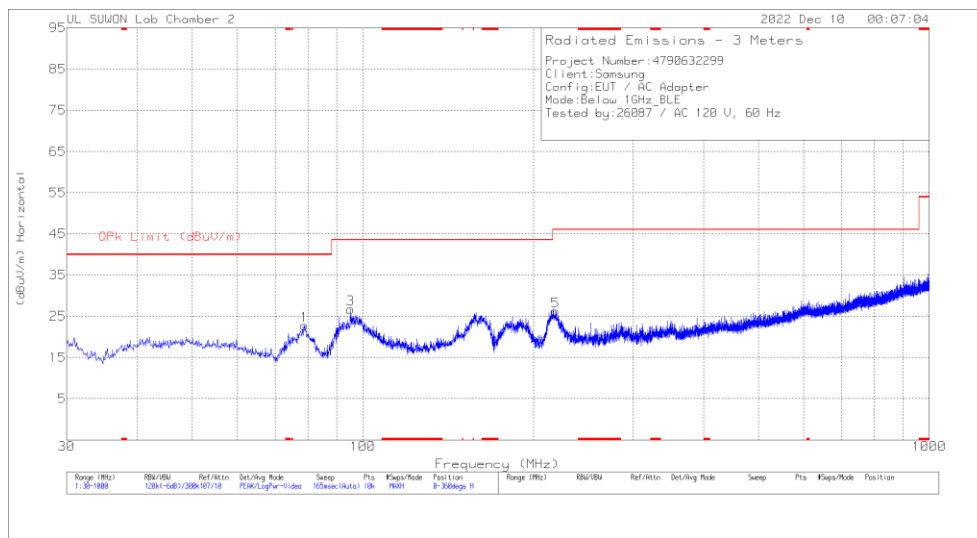
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96003	48.57	PK2	34.2	-33.3	0	49.47	-	-	74	-24.53	152	110	H
* 4.96105	36.48	MAV1	34.2	-33.3	2.38	39.76	54	-14.24	-	-	152	110	H
* 4.95947	47.86	PK2	34.2	-33.3	0	48.76	-	-	74	-25.24	193	297	V
* 4.96007	36.04	MAV1	34.2	-33.3	2.38	39.32	54	-14.68	-	-	193	297	V
* 7.43174	43.13	PK2	35.6	-29.5	0	49.23	-	-	74	-24.77	0	100	H
* 7.44878	43.08	PK2	35.6	-29.6	0	49.08	-	-	74	-24.92	0	100	V
9.91763	40.12	PK2	37.6	-25.4	0	52.32	-	-	74	-21.68	0	100	H
9.91165	39.34	PK2	37.6	-25.6	0	51.34	-	-	74	-22.66	0	100	V

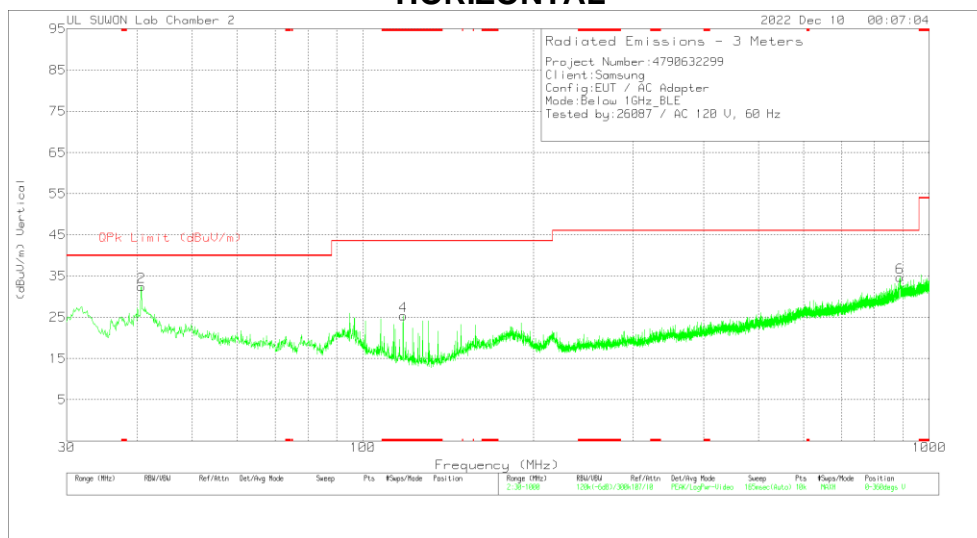
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



HORIZONTAL



VERTICAL

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	OPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	78.888	41.19	Pk	12.4	-30.8	0	22.79	40	-17.21	0-360	100	H
3	95.087	40.72	Pk	16.5	-30.5	0	26.72	43.52	-16.8	0-360	200	H
5	218.956	38.83	Pk	17	-29.6	0	26.23	46.02	-19.79	0-360	100	H
2	40.67	45.06	Pk	18.8	-31.4	0	32.46	40	-7.54	0-360	100	V
4	* 117.882	40.04	Pk	15.7	-30.4	0	25.34	43.52	-18.18	0-360	100	V
6	888.062	32.68	Pk	27.8	-25.8	0	34.68	46.02	-11.34	0-360	100	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.

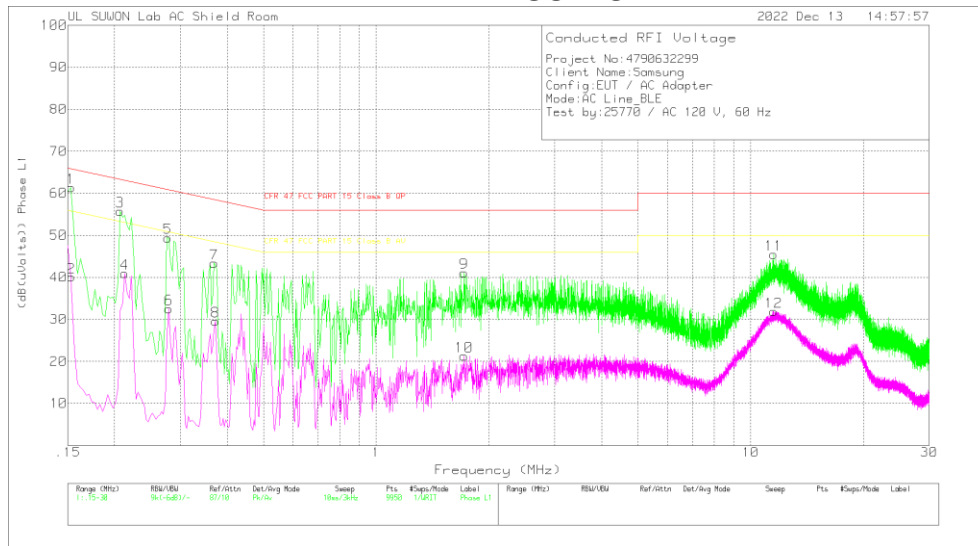
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1. 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]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.153	51.48	Pk	9.8	.1	61.38	65.84	-4.46	-	-
2	.153	30.18	Av	9.8	.1	40.08	-	-	55.84	-15.76
3	.207	45.77	Pk	9.8	.2	55.77	63.32	-7.55	-	-
4	.213	30.94	Av	9.8	.2	40.94	-	-	53.09	-12.15
5	.2775	39.52	Pk	9.7	.2	49.42	60.89	-11.47	-	-
6	.279	22.63	Av	9.7	.2	32.53	-	-	50.85	-18.32
7	.369	33.37	Pk	9.8	.2	43.37	58.52	-15.15	-	-
8	.372	19.58	Av	9.8	.2	29.58	-	-	48.46	-18.88
9	1.716	31.12	Pk	9.7	.3	41.12	56	-14.88	-	-
10	1.716	11.28	Av	9.7	.3	21.28	-	-	46	-24.72
11	11.535	35.3	Pk	9.9	.3	45.5	60	-14.5	-	-
12	11.529	21.69	Av	9.9	.3	31.89	-	-	50	-18.11

Pk - Peak detector

Av - Average detection

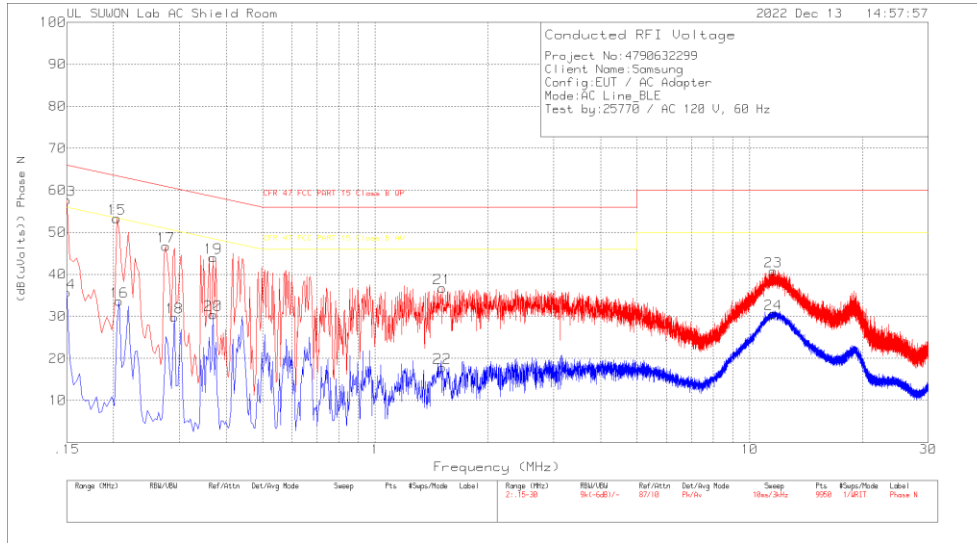
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_L1[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15315	38.79	Qp	9.8	.1	48.69	65.83	-17.14	-	-
.20625	34	Qp	9.8	.2	44	63.35	-19.35	-	-

Qp - Quasi-Peak detector

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.15	47.94	Pk	9.7	.1	57.74	66	-8.26	-	-
14	.15	25.86	Av	9.7	.1	35.66	-	-	56	-20.34
15	.204	43.31	Pk	9.8	.2	53.31	63.45	-10.14	-	-
16	.207	23.6	Av	9.8	.2	33.6	-	-	53.32	-19.72
17	.276	36.76	Pk	9.7	.2	46.66	60.94	-14.28	-	-
18	.291	19.92	Av	9.7	.2	29.82	-	-	50.5	-20.68
19	.369	34.02	Pk	9.8	.2	44.02	58.52	-14.5	-	-
20	.369	20.45	Av	9.8	.2	30.45	-	-	48.52	-18.07
21	1.509	26.72	Pk	9.7	.3	36.72	56	-19.28	-	-
22	1.509	7.84	Av	9.7	.3	17.84	-	-	46	-28.16
23	11.568	30.58	Pk	9.9	.3	40.78	60	-19.22	-	-
24	11.568	20.41	Av	9.9	.3	30.61	-	-	50	-19.39

Pk - Peak detector

Av - Average detection

Quasi-Peak Emissions

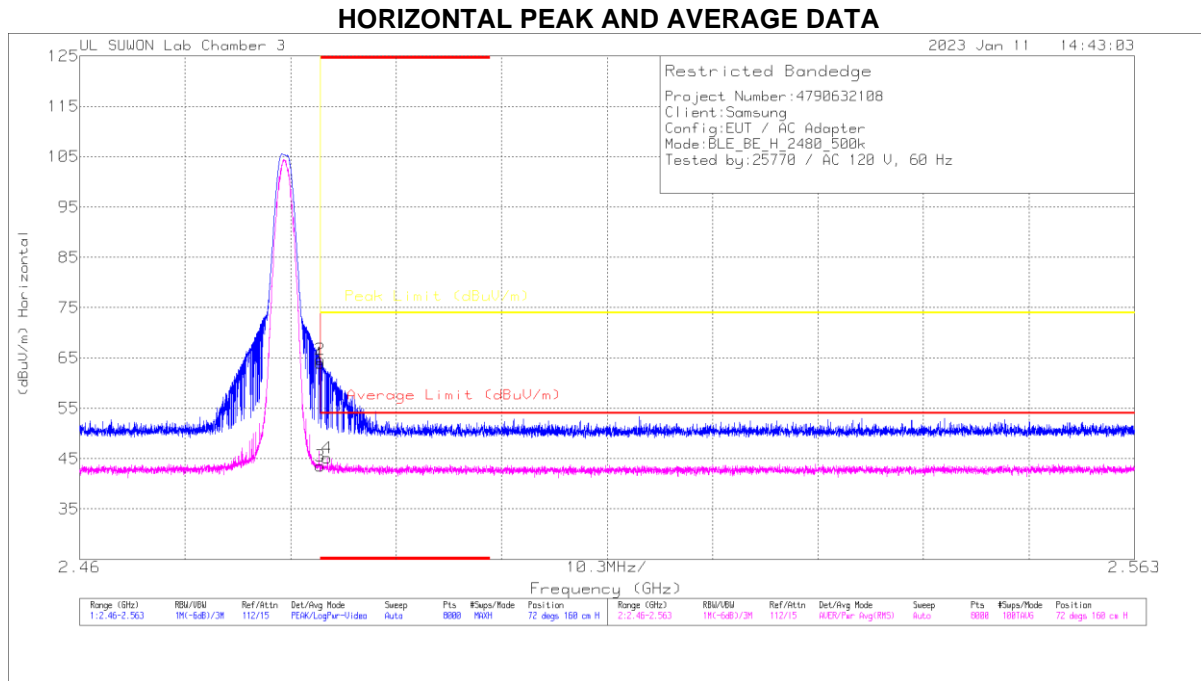
Range 2: Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101836_Wit h EX_N[dB]	CABLELOS S(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.1515	38.6	Qp	9.7	.1	48.4	65.92	-17.52	-	-

Qp - Quasi-Peak detector

12. SPOT-CHECK TEST RESULT

BANDEDGE (WORST CASE: 500 kbps / 2480 MHz)

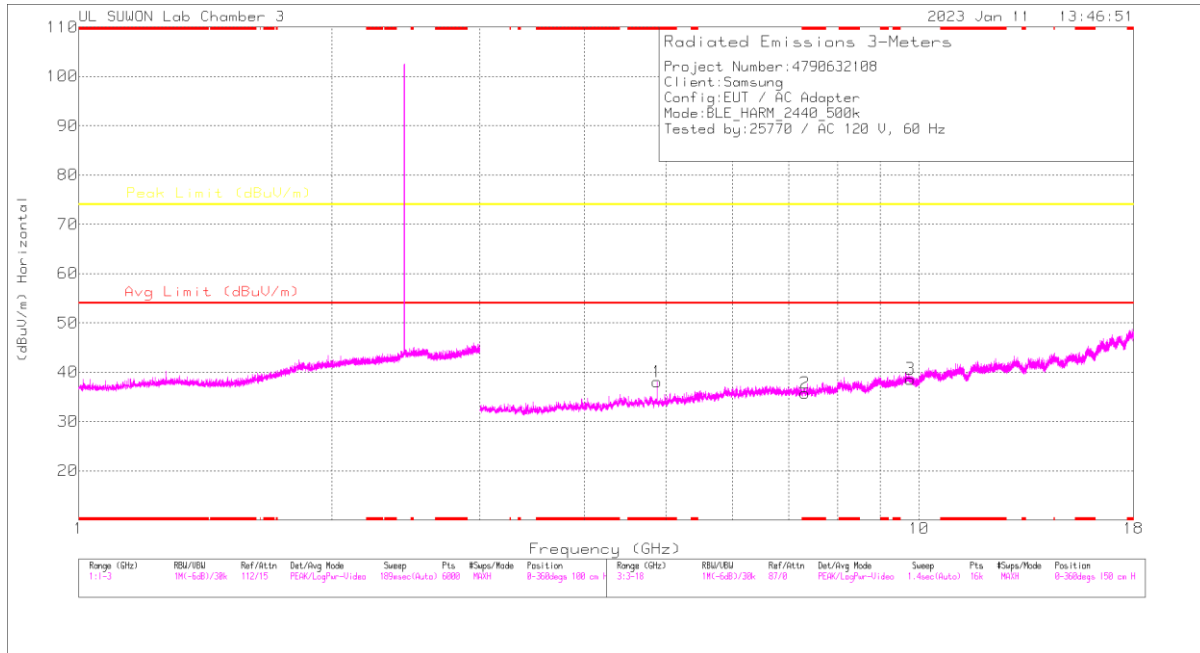


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	55.77	Pk	32.9	-24.7	0	63.97	-	-	74	-10.03	72	160	H
2	* 2.48351	56.51	Pk	32.9	-24.7	0	64.71	-	-	74	-9.29	72	160	H
3	* 2.4835	32.86	RMS	32.9	-24.7	2.41	43.47	54	-10.53	-	-	72	160	H
4	* 2.48418	34.54	RMS	32.9	-24.7	2.41	45.15	54	-8.85	-	-	72	160	H

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 500 kbps / 2440 MHz)
2440 MHz HORIZONTAL



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

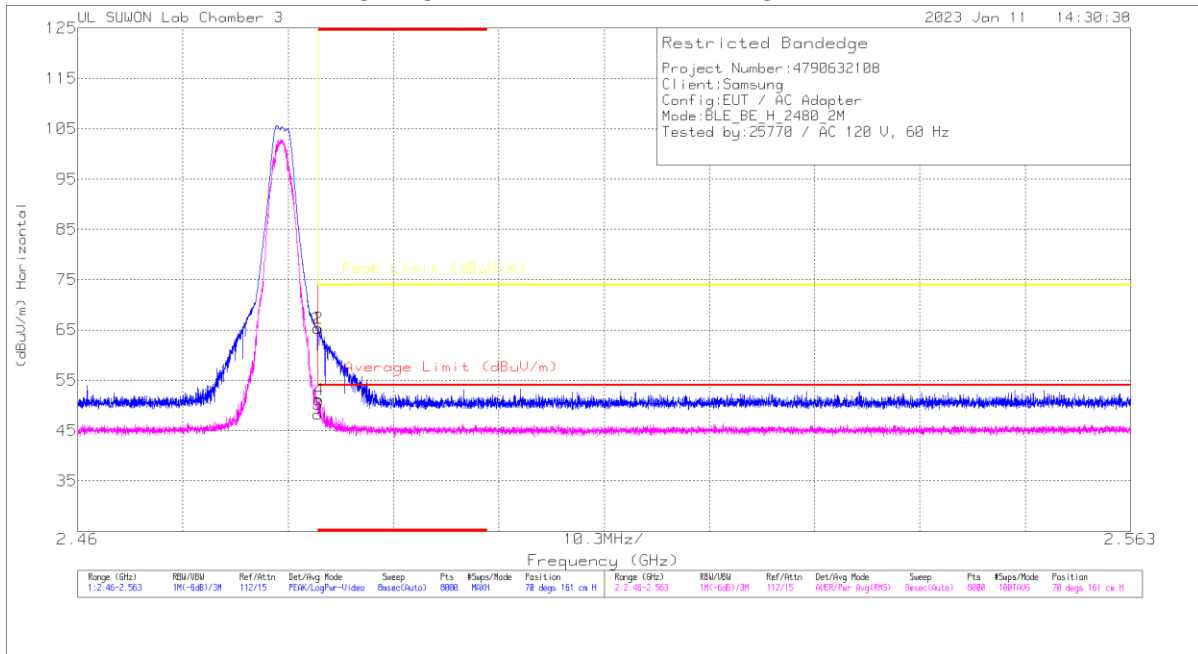
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0021895 7	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88052	43.55	PK2	34.7	-30.6	0	47.65	-	-	74	-26.35	153	100	H
* 4.88025	33.76	MAV1	34.7	-30.6	2.41	40.27	54	-13.73	-	-	153	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

BANDEDGE (WORST CASE: 2Mbps / 2480 MHz)

HORIZONTAL PEAK AND AVERAGE DATA

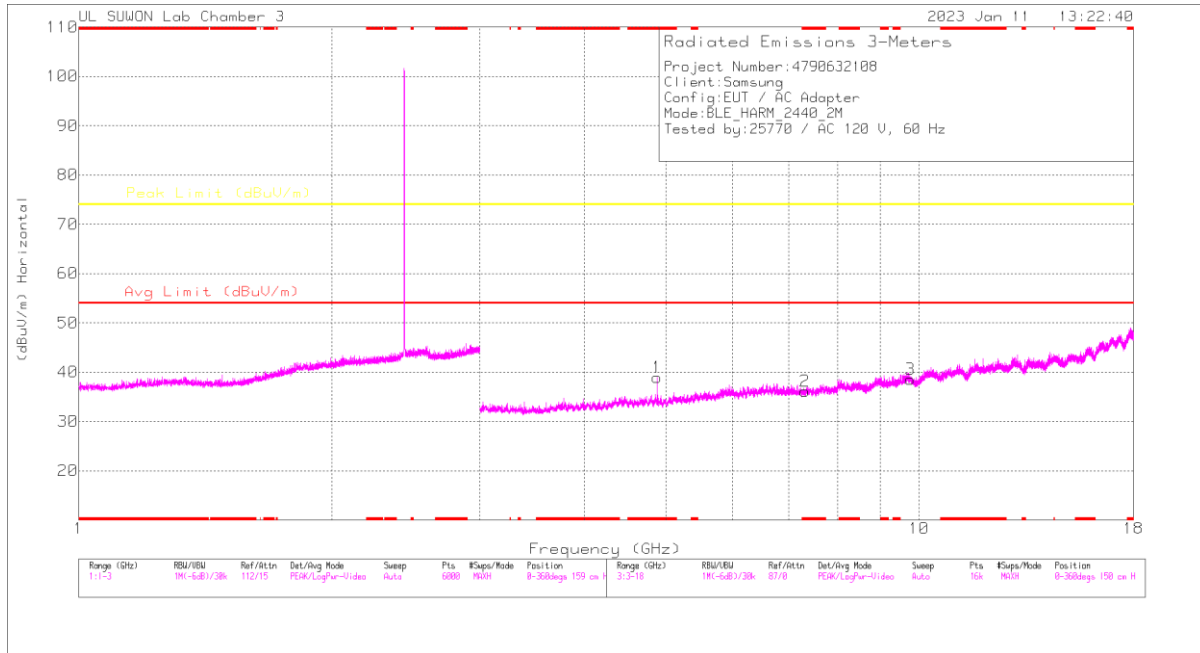


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218857	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.17	Pk		-24.7	0	65.37	-	-	74	-8.63	70	161	H
2	* 2.48353	57.12	Pk		-24.7	0	65.32	-	-	74	-8.68	70	161	H
3	* 2.4835	35.4	RMS		-24.7	2.38	45.98	54	-9.02	-	-	70	161	H
4	* 2.48359	38.24	RMS		-24.7	2.38	48.82	54	-5.18	-	-	70	161	H

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

HARMONICS AND SPURIOUS EMISSIONS(WORST CASE: 2Mbps / 2440 MHz)
2440 MHz HORIZONTAL



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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0021895 7	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88103	42.9	PK2	34.7	-30.6	0	47	-	-	74	-27	149	110	H
* 4.87898	31.65	MAv1	34.7	-30.6	2.38	38.13	54	-15.87	-	-	149	110	H

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

END OF TEST REPORT