CERTIFICATION TEST REPORT

Report Number. : 4790541040-E4V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-S916B/DS, SM-S916B
FCC ID	:	A3LSMS916B
EUT Description	:	GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC, WPT and UWB.
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2022-11-08

Prepared by:
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IAS ACCREDITED Testing Laboratory

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-10-25	Initial issue	Yeonhee Lim
V2	2022-11-08	Updated to address TCB's Question	Yeonhee Lim

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/ax, NFC, WPT and UWB.

MODEL NUMBER: SM-S916B/DS, SM-S916B

SERIAL NUMBER: R3CT8056G8T (CONDUCTED); R3CT90EXV6 (RADIATED);

DATE TESTED: 2022-09-16 ~ 2022-10-13;

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

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Yeonhee Lim
Suwon Lab Engineer
UL Korea, Ltd.

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. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

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

218 Maeyeong-ro
☐ Chamber 1(3m semi-anechoic chamber)
☒ Chamber 2(3m semi-anechoic chamber)
☐ Chamber 3(3m semi-anechoic chamber)
☐ Chamber 4(3m Full-anechoic chamber)
☐ Chamber 5(3m Full-anechoic chamber)

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

4. 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:

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

Corrected Reading (dBuV) = Meter Reading (dBuV) + External Cable (dB) + Cableloss (dB)
46.62 dBuV + 9.8 dB + 0.1 dB = 56.52 dBuV

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	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 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 115:2007.

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, WPT and UWB. This test report addresses the DTS (BLE) operational mode.

This report covers the Samsung models SM-S916B/DS and SM-S916B.
These models are identical in hardware except SM-S916B has single SIM tray.
With some pre-scan, model SM-S916B/DS 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]
2402 ~ 2480	1 Mbps (37pkt)	Peak	14.502	28.197
		Average	14.126	25.858
	2 Mbps (37pkt)	Peak	14.941	31.196
		Average	14.251	26.613

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 1's maximum gain of -1.56 dBi and ANT 2's maximum gain of -4.52 dBi.

"Wi-Fi 1" and "Wi-Fi 2" as indicated in antenna specification are written as ANT 1 and ANT 2 in this report.

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.

- Worst condition

	ANT1	ANT2
Axis	X	Z

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 1 Mbps(37 pkt) and 2 Mbps(37 pkt) power is the worst case for symbol rate. All tests were performed in these two modes.

1Mbps, 125k, and 500k differ only in coding method.
Compared to 1Mbps, 125k and 500k have low targets, so they are not marked separately.

Symbol Rate [Ms/s]	ANT.	Mode	Freq. [MHz]	Conducted Burst Avg [dBm]	Symbol Rate [Ms/s]	ANT.	Mode	Freq. [MHz]	Conducted Burst Avg [dBm]
1	ANT1	1Mbps 37pkt (High)	2402	12.923	2	ANT1	2Mbps 37pkt (High)	2402	12.965
			2440	13.823				2440	13.895
			2480	12.671				2480	12.780
	ANT2		**2402**	**14.126**		ANT2		**2402**	**14.251**
			2440	13.655				2440	13.755
			2480	12.009				2480	12.107
	ANT1	1Mbps 255pkt (High)	2402	12.667		ANT1	2Mbps 255pkt (High)	2402	12.745
			2440	13.557				2440	13.639
			2480	12.308				2480	12.466
	ANT2		2402	13.875		ANT2		2402	14.015
			2440	13.430				2440	13.529
			2480	11.753				2480	11.868

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA800	R37R38J4A28SE3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02111ABBE	N/A

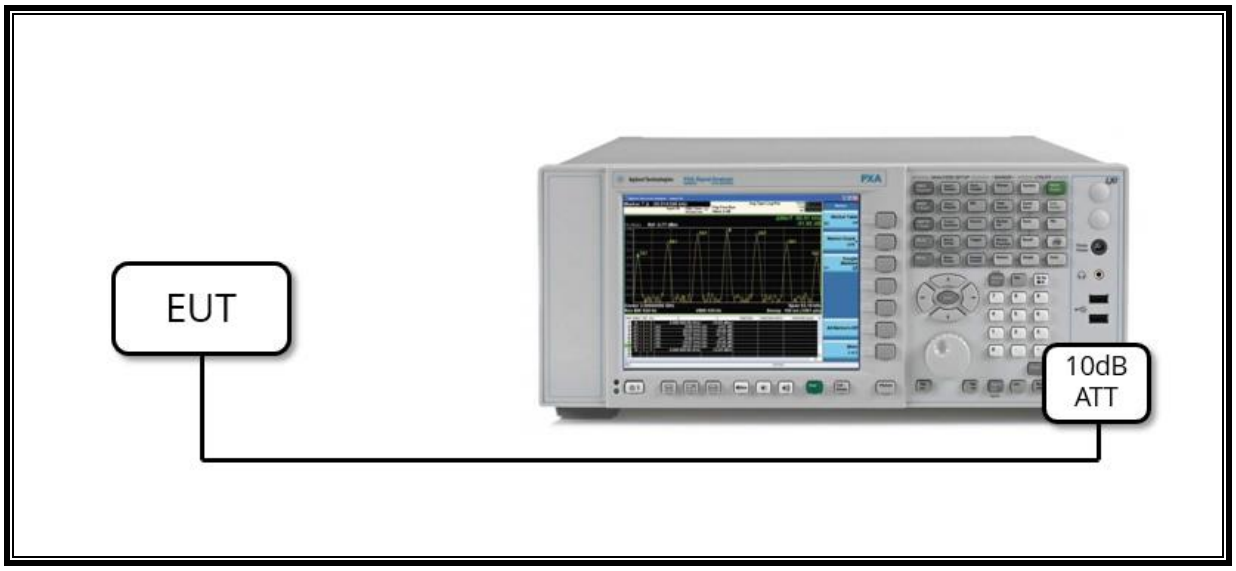
I/O CABLE

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

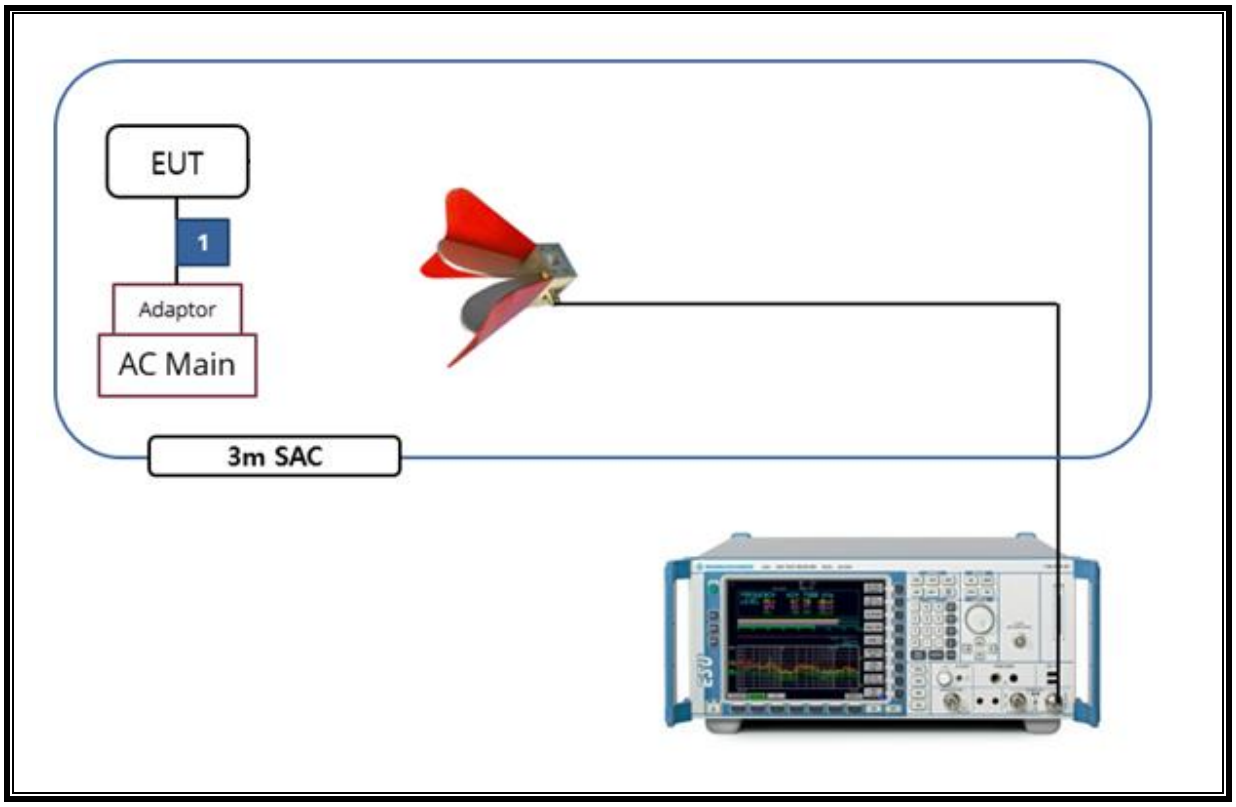
TEST SETUP

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 ≥ 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	PASTERNACK	PE7087-10	A001	2023-08-03
Attenuator	PASTERNACK	PE7087-10	A008	2023-08-03
Attenuator	PASTERNACK	PE7004-10	2	2023-08-01
Attenuator	PASTERNACK	PE7087-10	A009	2023-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2023-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2023-07-29
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2023-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	2023-08-01
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2023-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2023-08-01
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2023-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	2023-08-01
LISN	R&S	ENV-216	101837	2023-08-04
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06

UL Software			
Description	**Manufacturer**	**Model**	**Version**
Radiated software	UL	UL EMC	Ver 9.5
AC Line Conducted software	UL	UL EMC	Ver 9.5

8. TEST RESULTS SUMMARY

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Bandwidth(6dB)	> 500kHz	Conducted	PASS
2.1051, 15.247(d)	Band Edge / Conducted Spurious Emission	-20 dBc		PASS
15.247 (b)(3)	TX conducted output power	< 30 dBm		PASS
15.247(e)	PSD	< 8 dBm/3kHz		PASS
15.207(a)	AC Power Line conducted emissions	Section 11	Power Line conducted	PASS
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	PASS

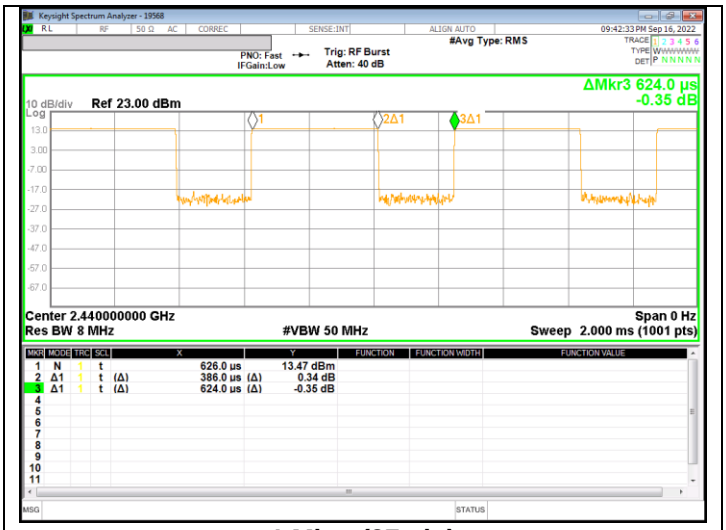
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

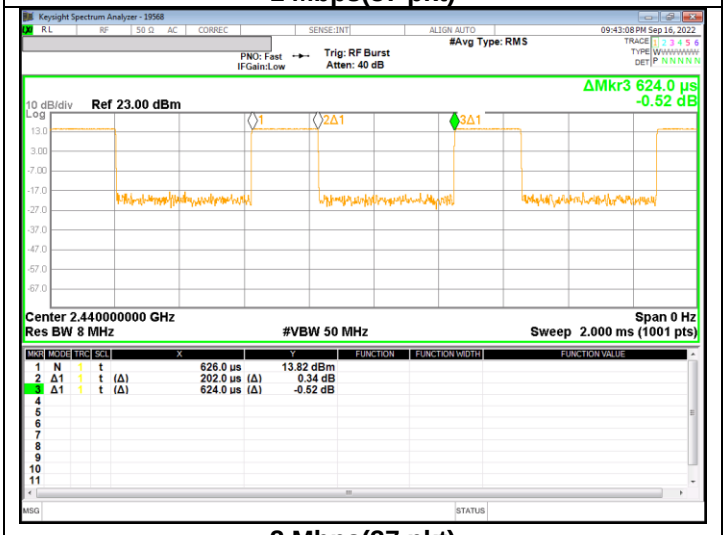
LIMITS

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]
2400 ~ 2483.5 MHz Bands						
1 Mbps [37pkt]	0.386	0.624	0.619	61.859	2.09	2.59
2 Mbps [37pkt]	0.202	0.624	0.324	32.372	4.90	4.95



1 Mbps(37 pkt)



2 Mbps(37 pkt)

9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

RESULTS

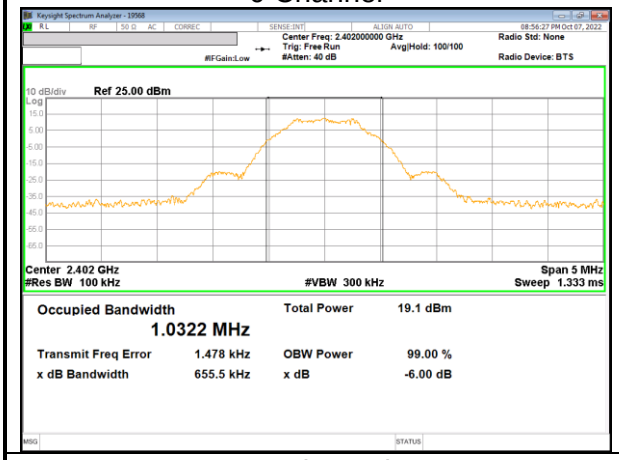
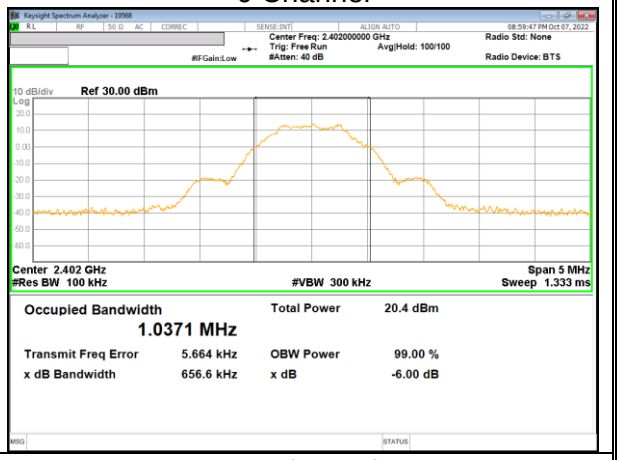
9.2.1. 1 Mbps

Antenna	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
ANT1	0	2402	**655.5**	500.0
	19	2440	655.6	
	39	2480	667.3	
ANT2	0	2402	656.6	
	19	2440	664.0	
	39	2480	664.1	
Worst			**655.5**	

9.2.2. 2 Mbps

Antenna	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
ANT1	0	2402	1 120.0	500.0
	19	2440	**1 092.0**	
	39	2480	1 274.0	
ANT2	0	2402	1 110.0	
	19	2440	1 128.0	
	39	2480	1 206.0	
Worst			**1 092.0**	

9.2.3. 6 dB BANDWIDTH PLOTS

1 Mbps / ANT1	1 Mbps / ANT2
0 Channel	0 Channel
	
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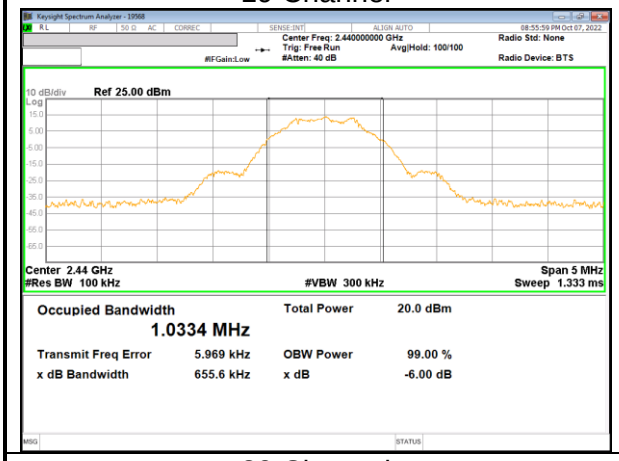	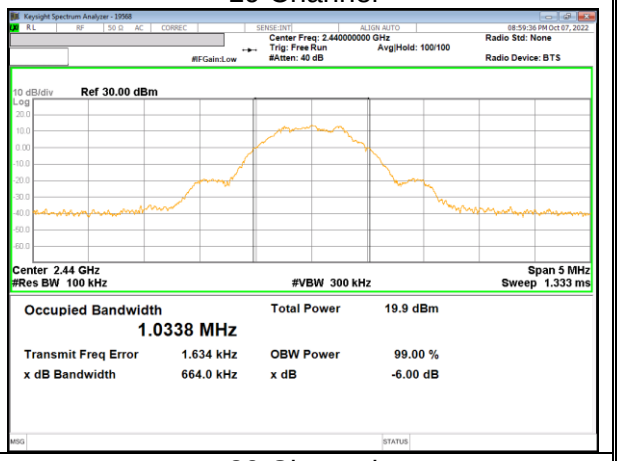
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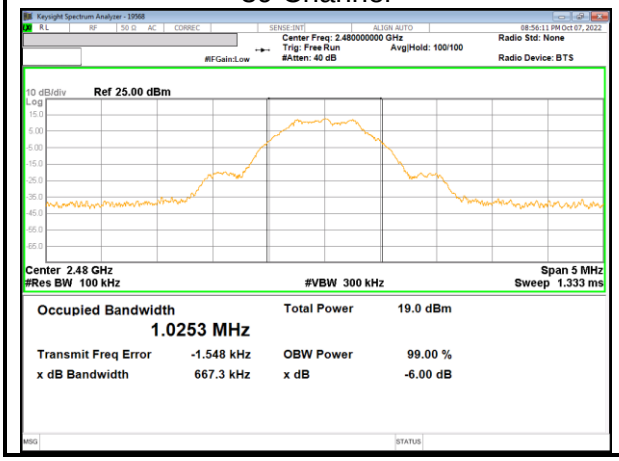
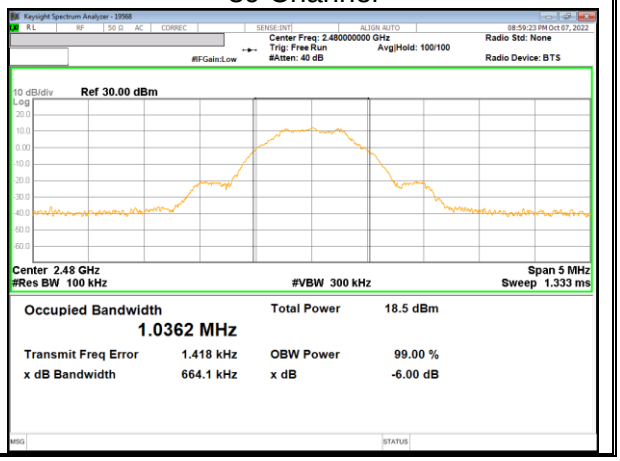
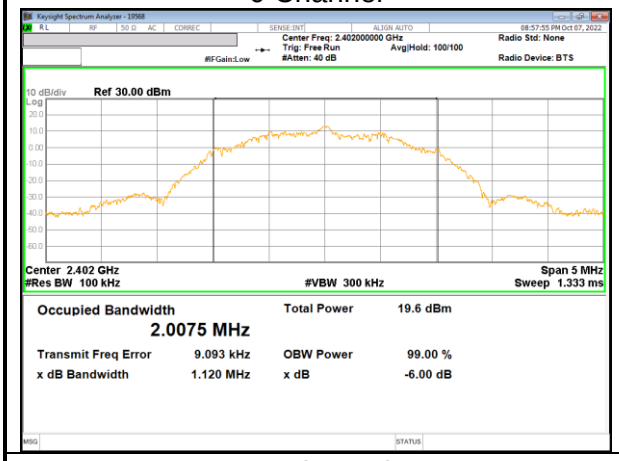
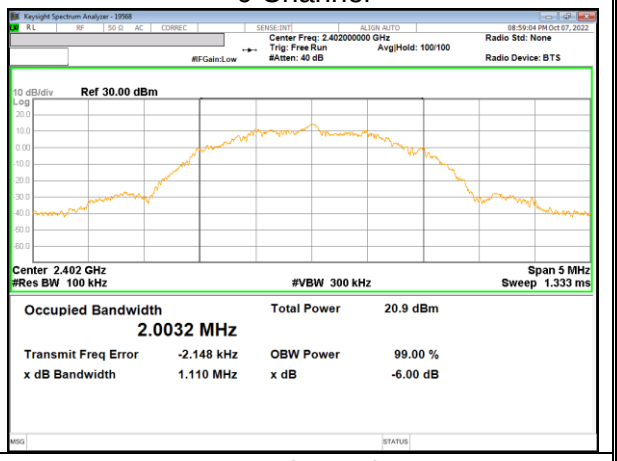
	

2 Mbps / ANT1	2 Mbps / ANT2
0 Channel	0 Channel
	
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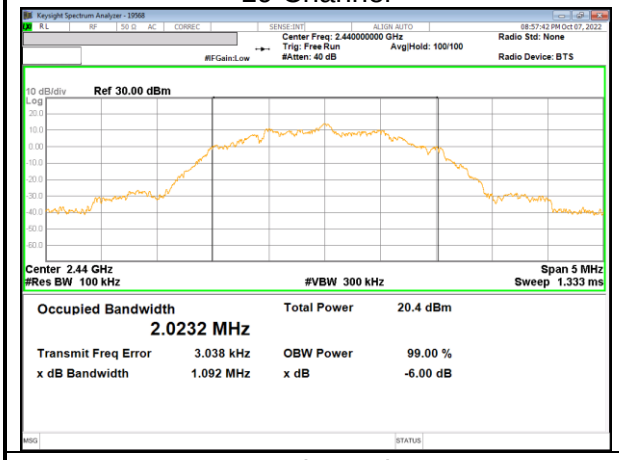
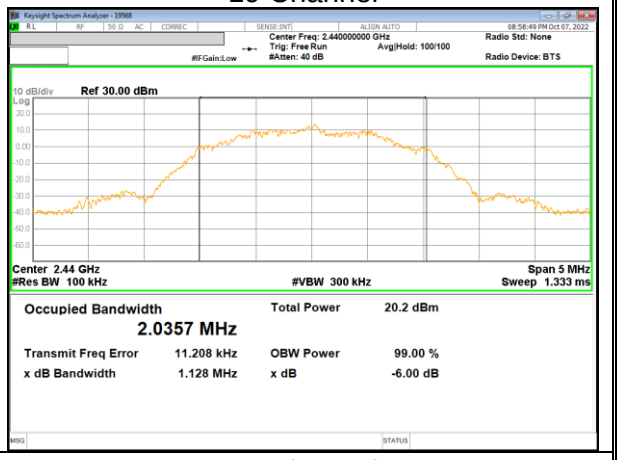
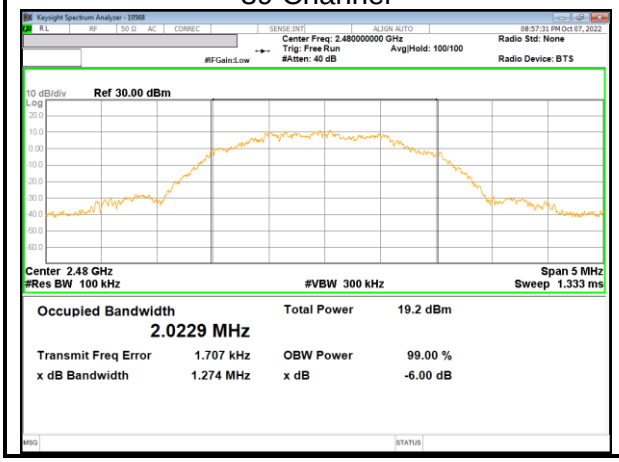
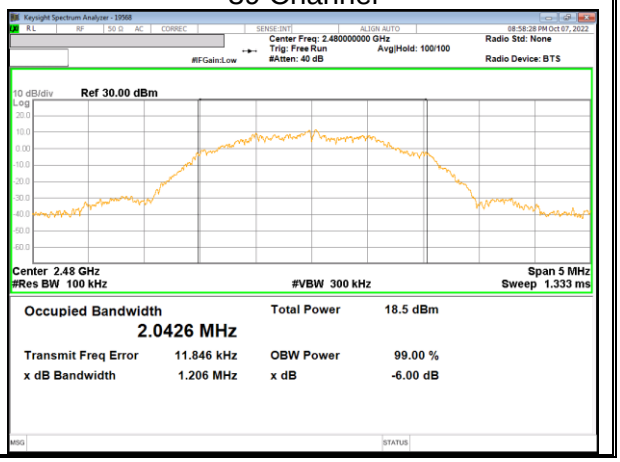
	
39 Channel	39 Channel
	

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 ≧ DTS bandwidth).

RESULTS

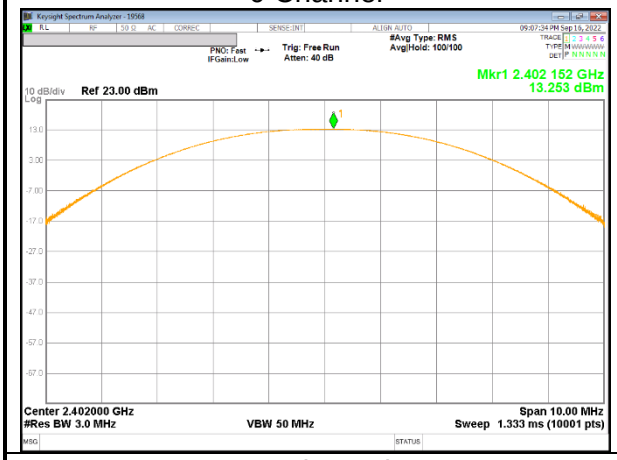
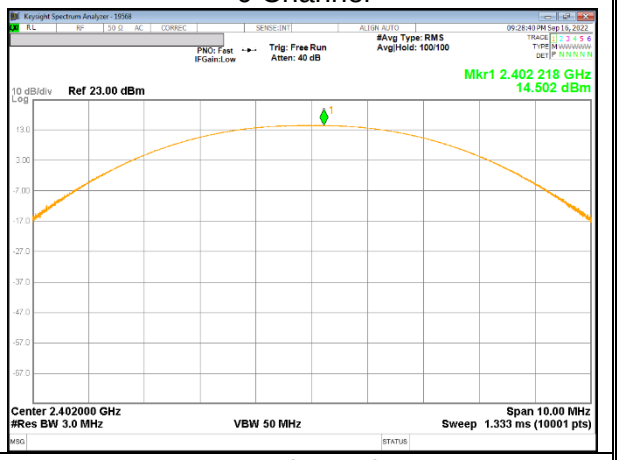
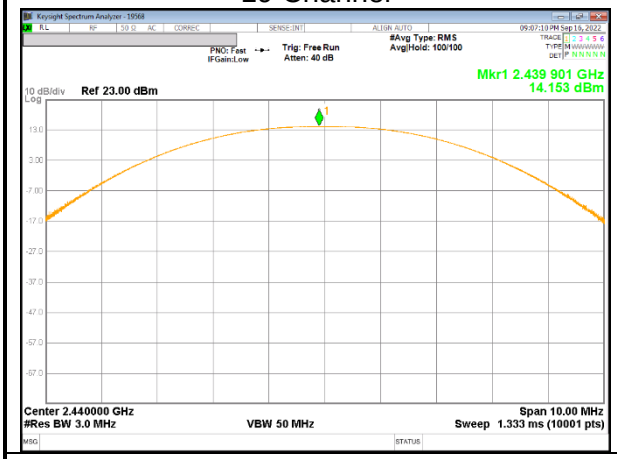
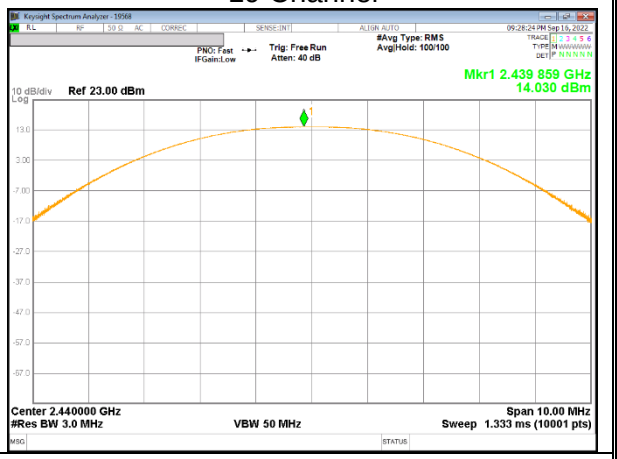
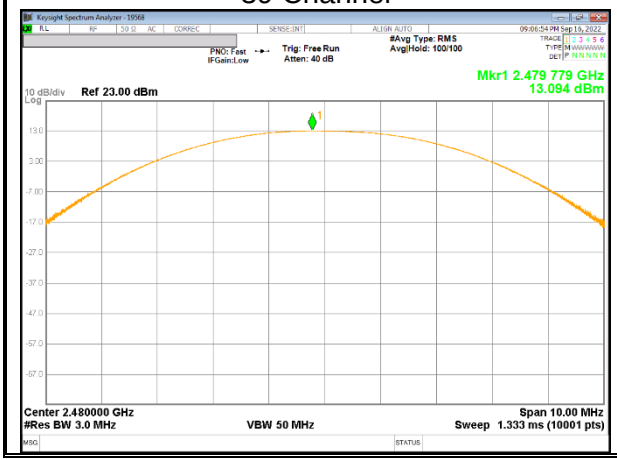
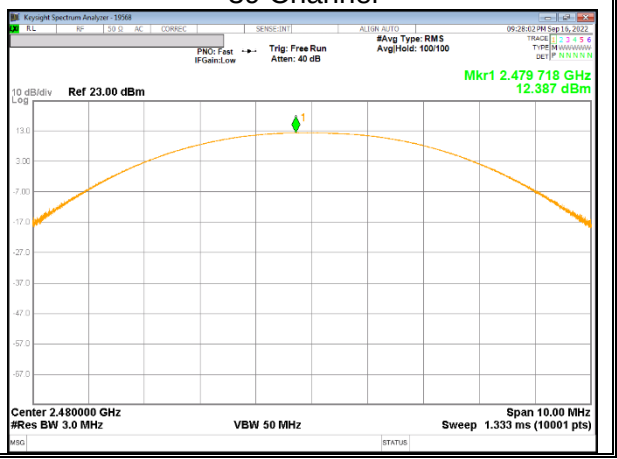
9.3.1. 1 Mbps

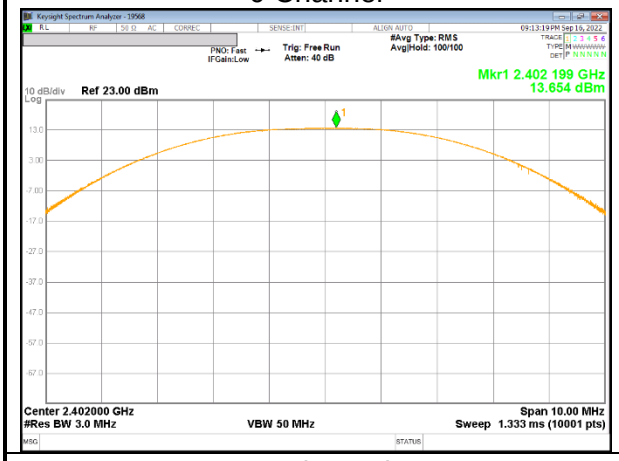
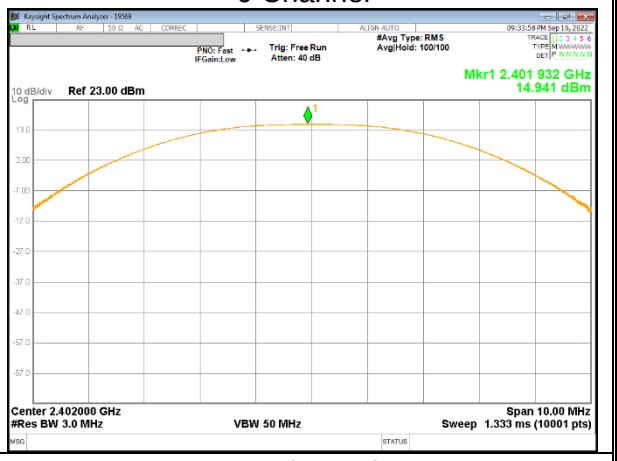
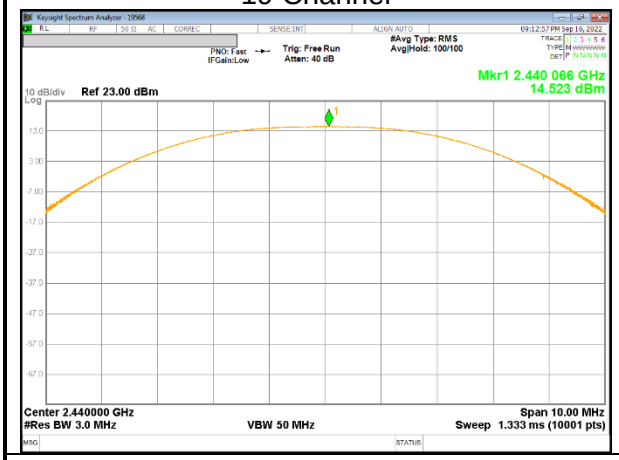
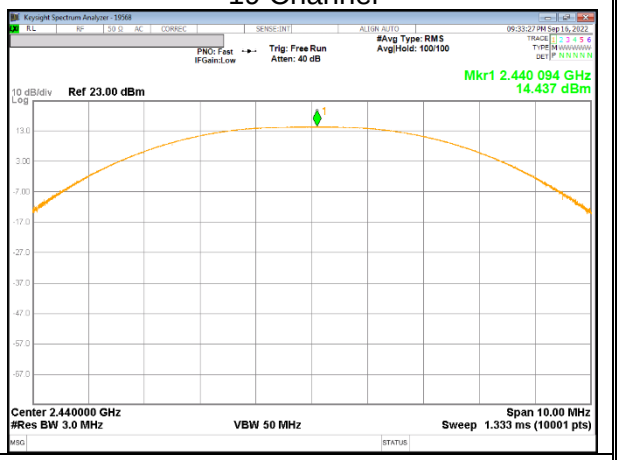
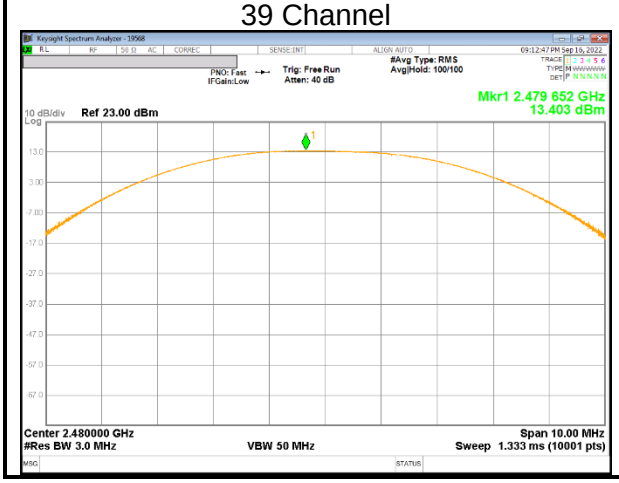
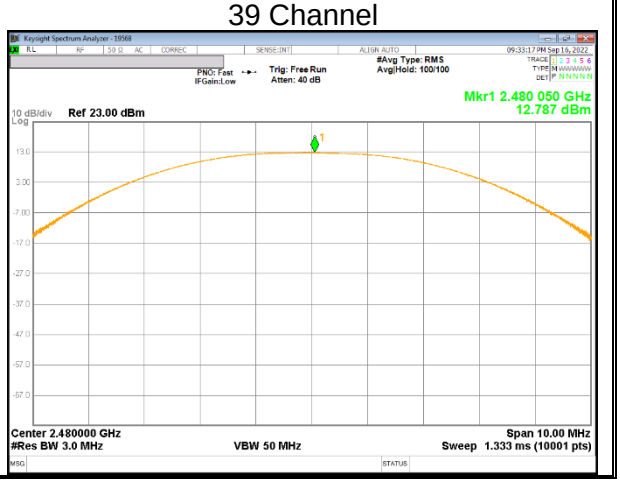
Antenna	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT1	0	2402	13.253	30.000	-16.747
	19	2440	14.153		-15.847
	39	2480	13.094		-16.906
ANT2	**0**	**2402**	**14.502**		**-15.498**
	19	2440	14.030		-15.970
	39	2480	12.387		-17.613
Worst			**14.502**		**-15.498**

9.3.2. 2 Mbps

Antenna	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT1	0	2402	13.654	30.000	-16.346
	19	2440	14.523		-15.477
	39	2480	13.403		-16.597
ANT2	**0**	**2402**	**14.941**		**-15.059**
	19	2440	14.437		-15.563
	39	2480	12.787		-17.213
Worst			**14.941**		**-15.059**

9.3.3. PEAK POWER PLOTS

1 Mbps / ANT1	1 Mbps / ANT2
0 Channel	0 Channel
	
19 Channel	19 Channel
	
39 Channel	39 Channel
	

2 Mbps / ANT1	2 Mbps / ANT2
0 Channel	0 Channel
	
19 Channel	19 Channel
	
39 Channel	39 Channel
	

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. 1 Mbps

Antenna	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT1	0	2402	12.923	19.602
	19	2440	13.823	24.116
	39	2480	12.671	18.497
ANT2	**0**	**2402**	**14.126**	**25.858**
	19	2440	13.655	23.201
	39	2480	12.009	15.882

9.4.2. 2 Mbps

Antenna	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT1	0	2402	12.965	19.792
	19	2440	13.895	24.519
	39	2480	12.780	18.967
ANT2	**0**	**2402**	**14.251**	**26.613**
	19	2440	13.755	23.741
	39	2480	12.107	16.244

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

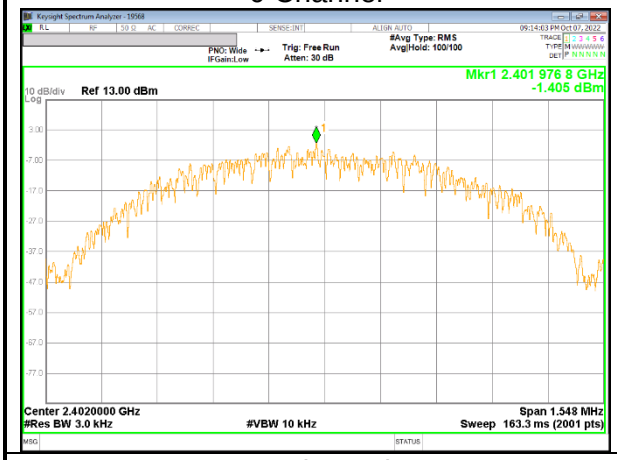
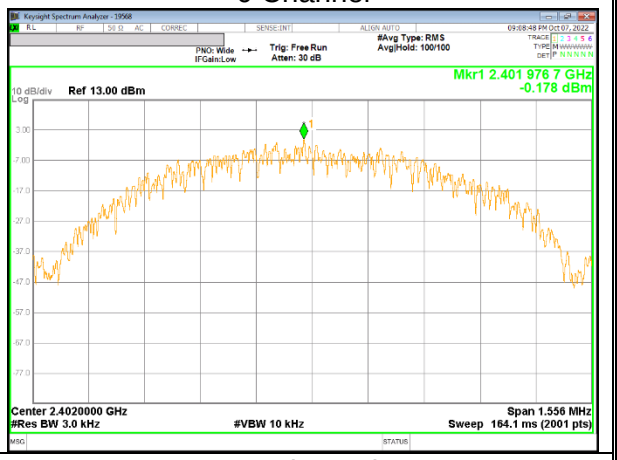
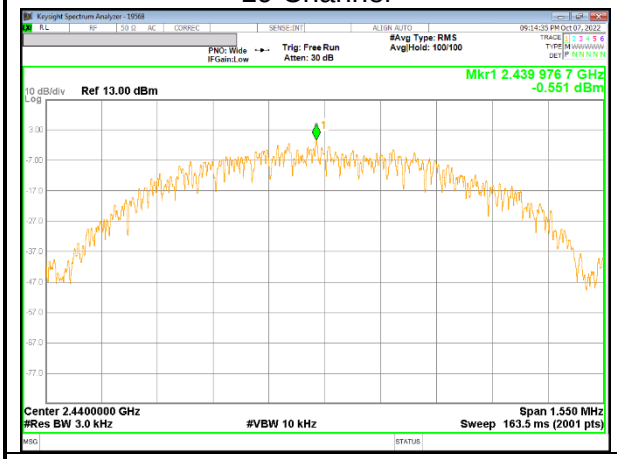
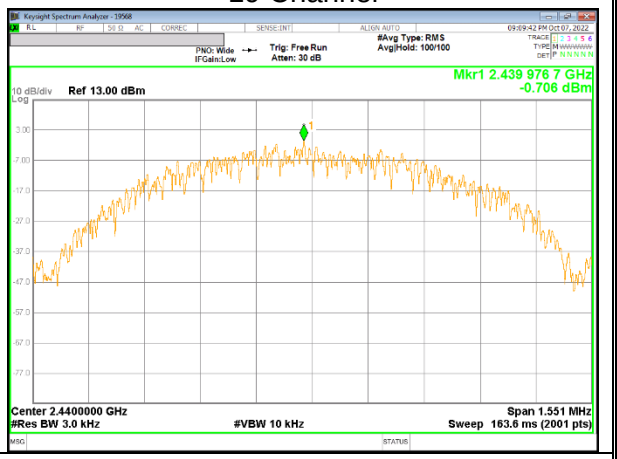
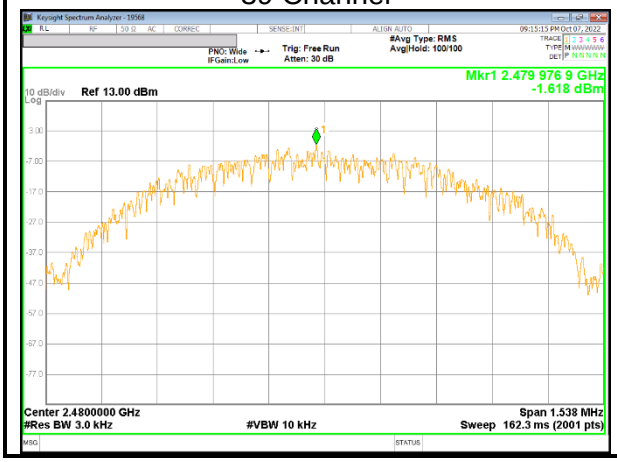
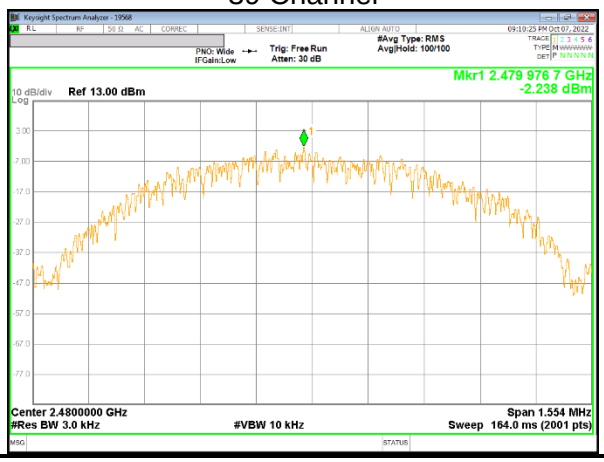
9.5.1. 1 Mbps

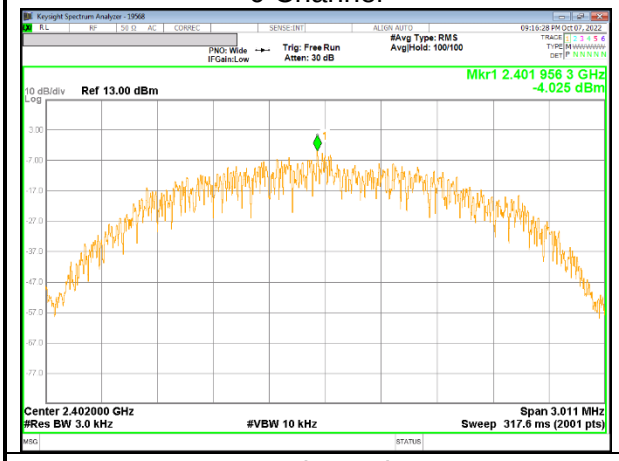
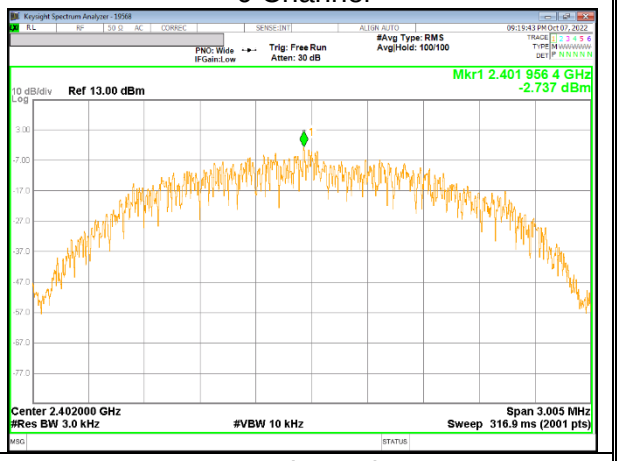
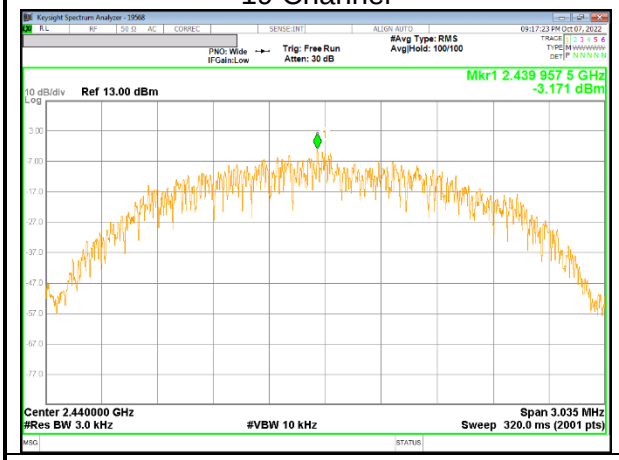
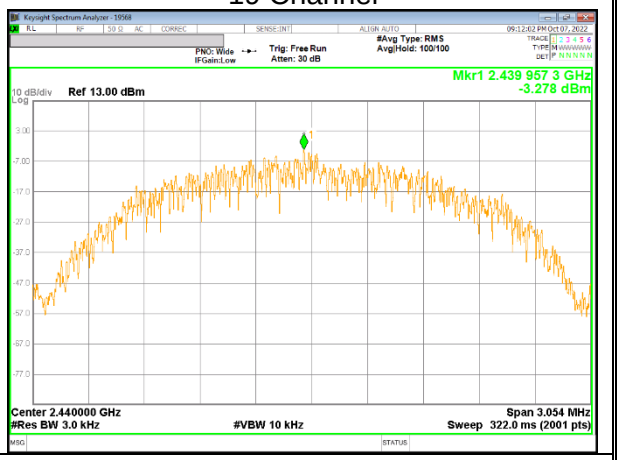
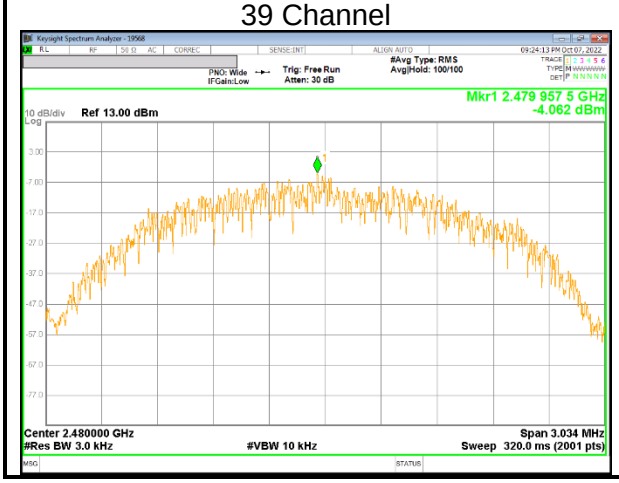
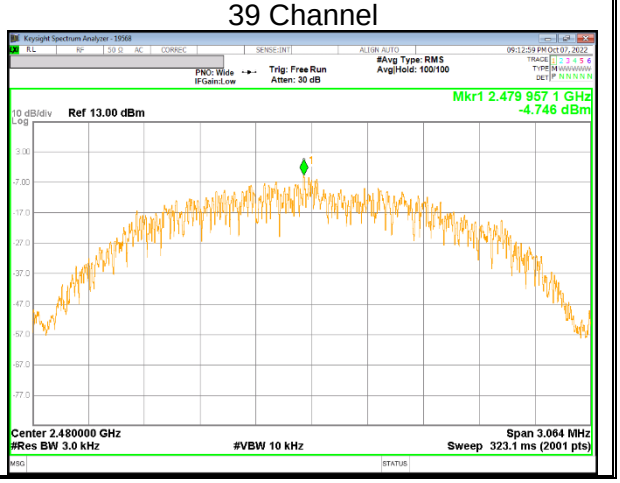
Antenna	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
ANT1	0	2402	-1.405	8.00	-9.405
	19	2440	-0.551		-8.551
	39	2480	-1.618		-9.618
ANT2	**0**	**2402**	**-0.178**		**-8.178**
	19	2440	-0.706		-8.706
	39	2480	-2.238		-10.238
Worst			**-0.178**		**-8.178**

9.5.2. 2 Mbps

Antenna	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
ANT1	0	2402	-4.025	8.00	-12.025
	19	2440	-3.171		-11.171
	39	2480	-4.062		-12.062
ANT2	**0**	**2402**	**-2.737**		**-10.737**
	19	2440	-3.278		-11.278
	39	2480	-4.746		-12.746
Worst			**-2.737**		**-10.737**

9.5.3. PSD TEST PLOTS

1 Mbps / ANT1	1 Mbps / ANT2
0 Channel	0 Channel
	
19 Channel	19 Channel
	
39 Channel	39 Channel
	

2 Mbps / ANT1	2 Mbps / ANT2
0 Channel	0 Channel
	
19 Channel	19 Channel
	
39 Channel	39 Channel
	

9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

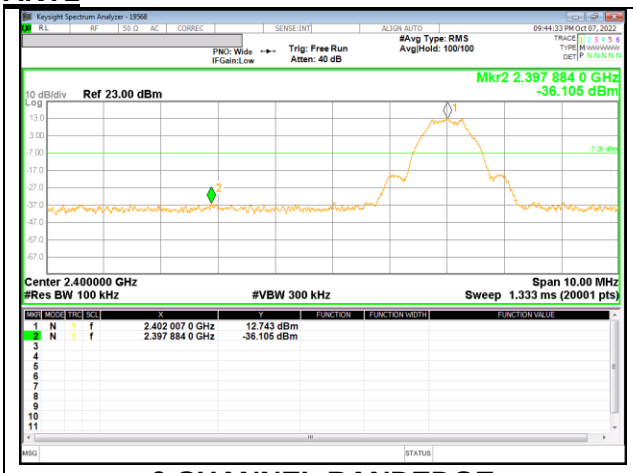
RSS-247 5.5

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

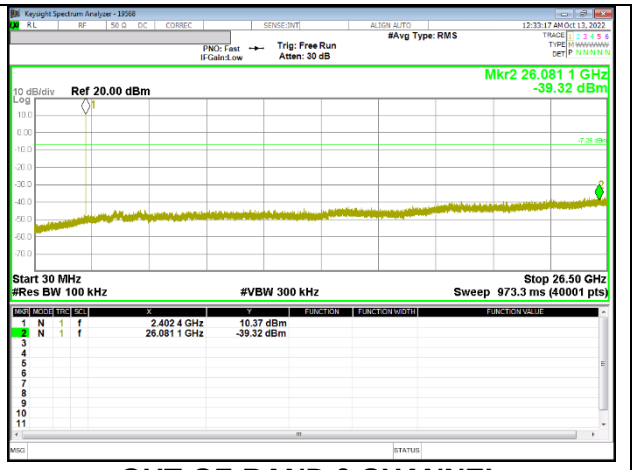
RESULTS

9.6.1. 1 Mbps

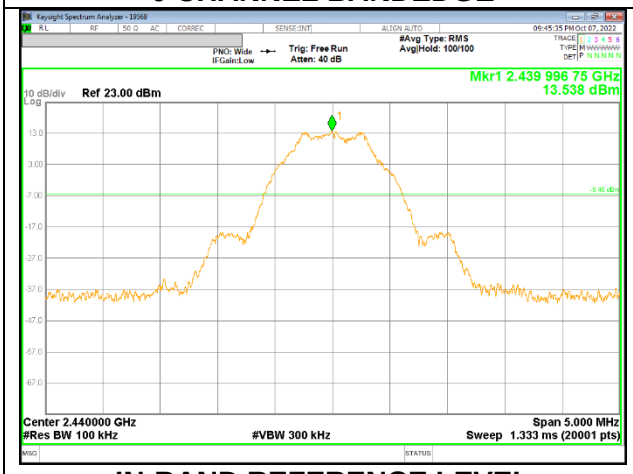
ANT1



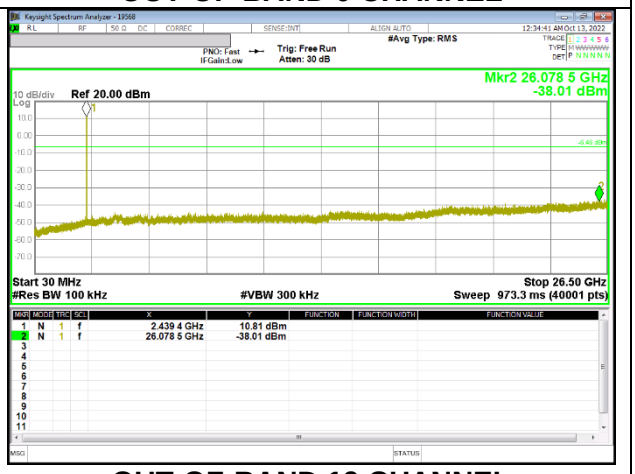
0 CHANNEL BANDEDGE



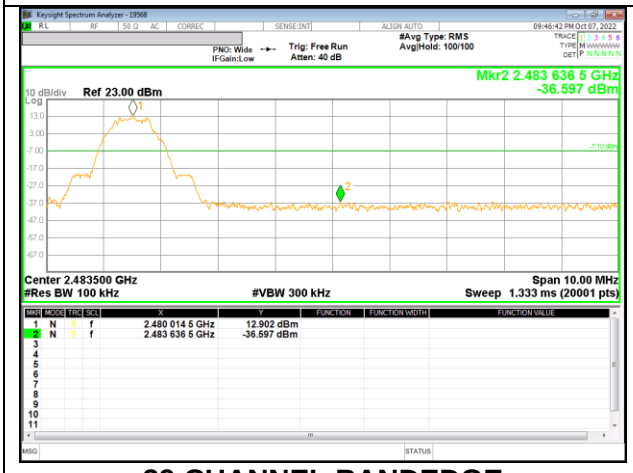
OUT-OF-BAND 0 CHANNEL



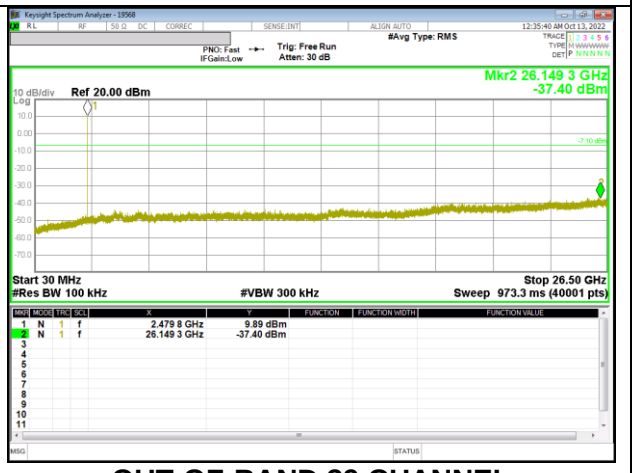
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL

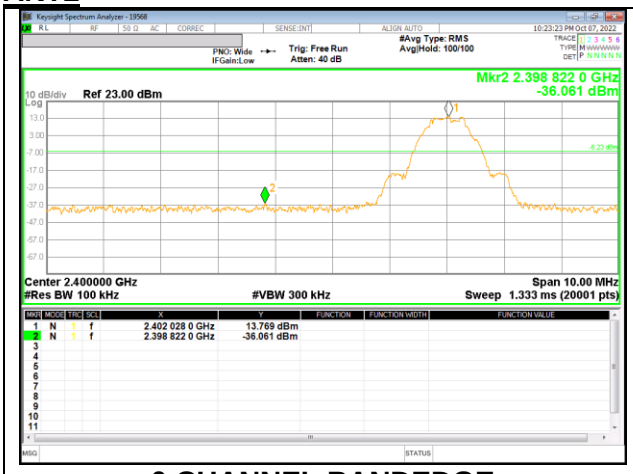


39 CHANNEL BANDEDGE

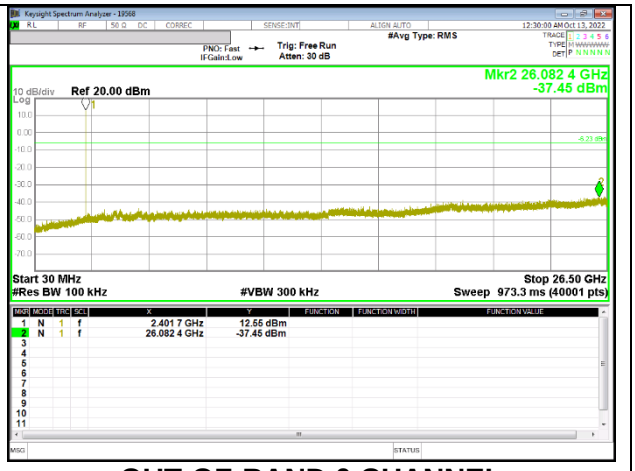


OUT-OF-BAND 39 CHANNEL

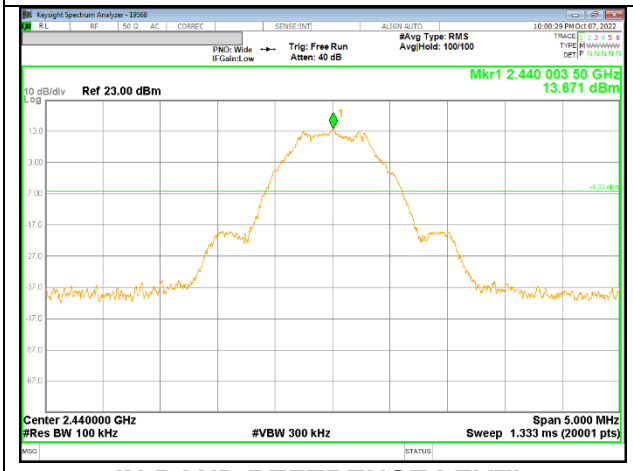
ANT2



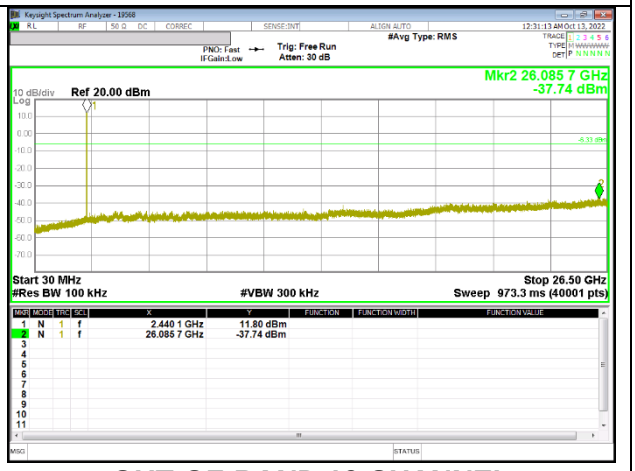
0 CHANNEL BANDEDGE



OUT-OF-BAND 0 CHANNEL

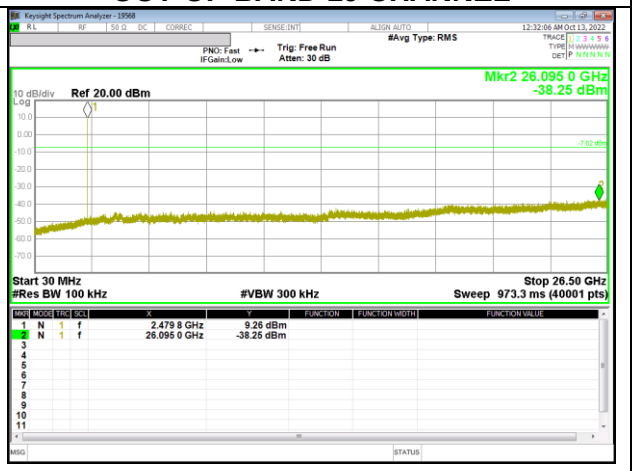


IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL

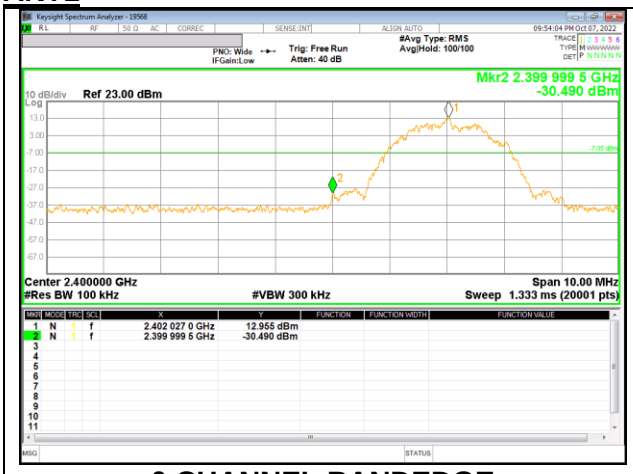
39 CHANNEL BANDEDGE



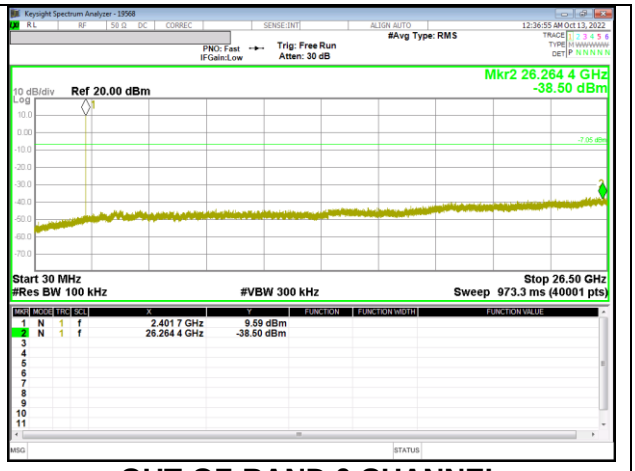
OUT-OF-BAND 39 CHANNEL

9.6.2. 2 Mbps

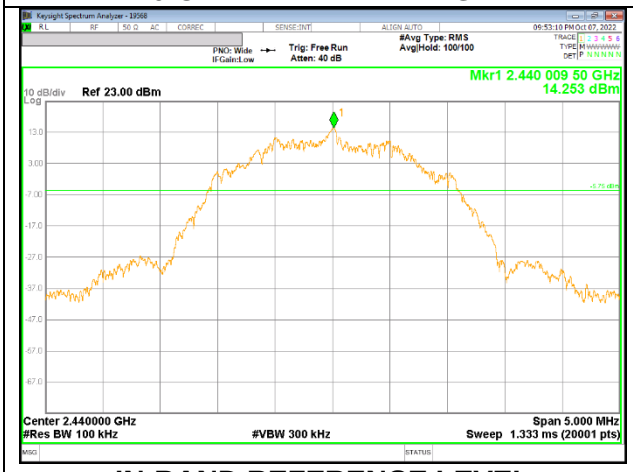
ANT1



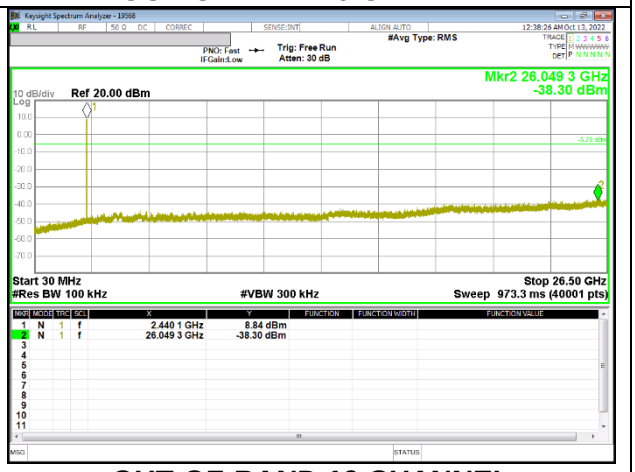
0 CHANNEL BANDEDGE



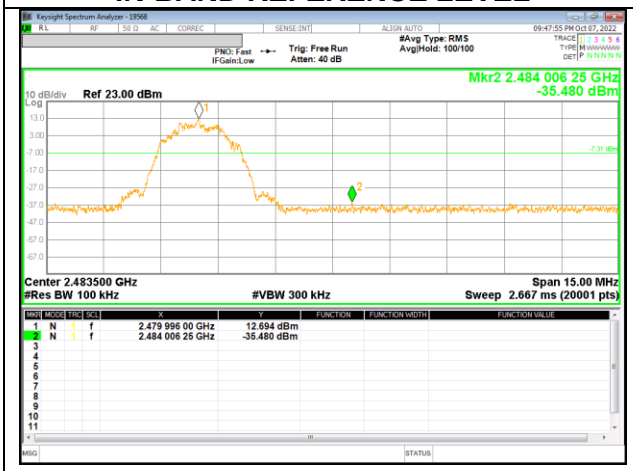
OUT-OF-BAND 0 CHANNEL



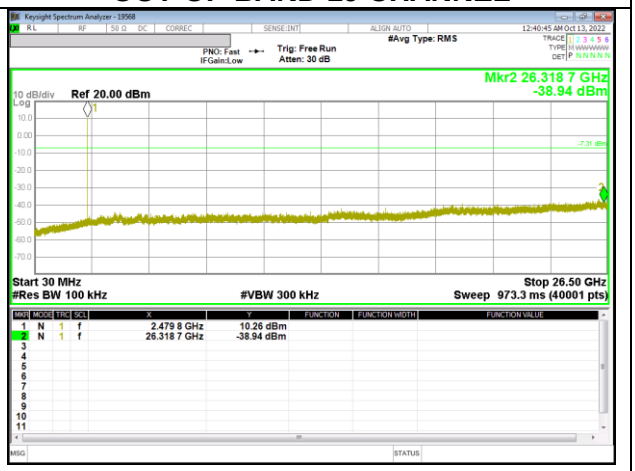
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL

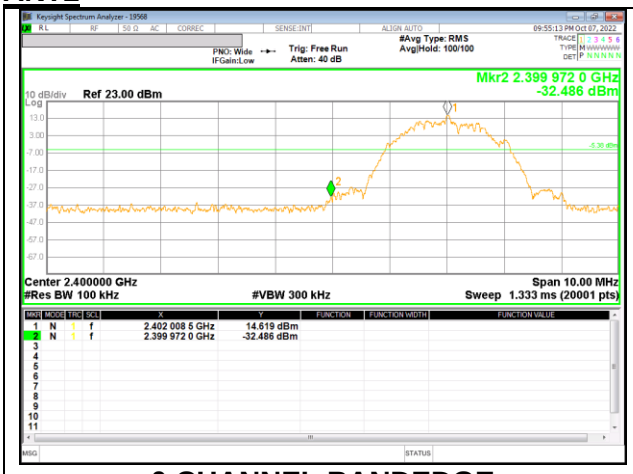


39 CHANNEL BANDEDGE

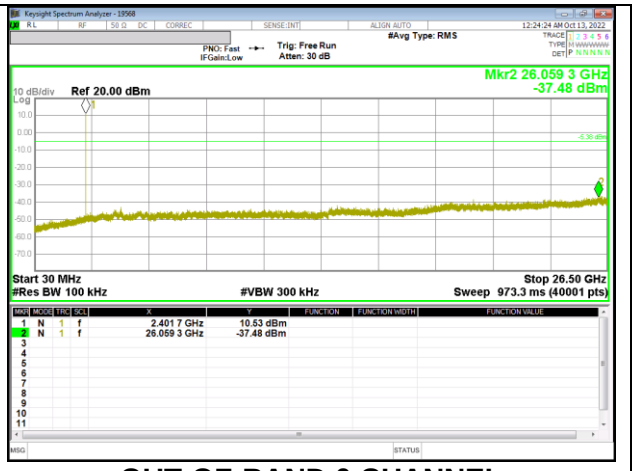


OUT-OF-BAND 39 CHANNEL

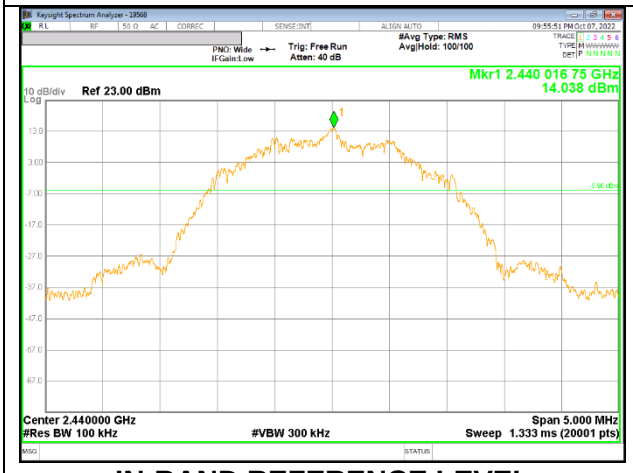
ANT2



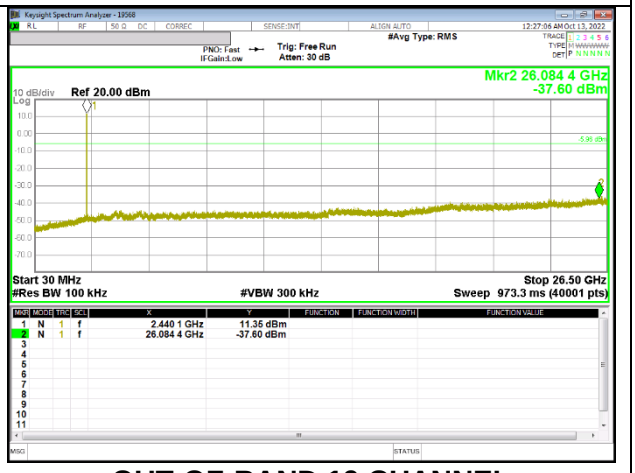
0 CHANNEL BANDEDGE



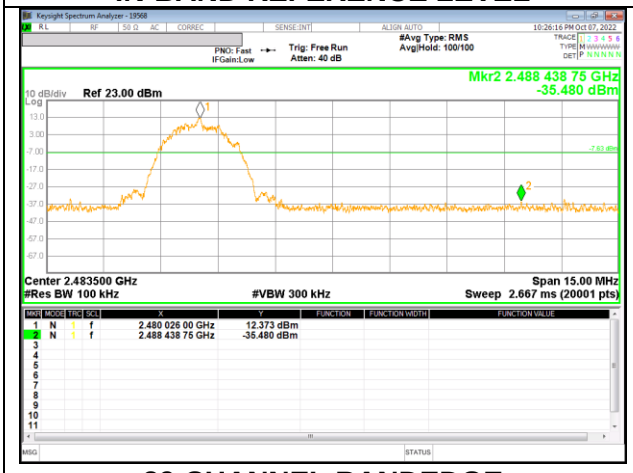
OUT-OF-BAND 0 CHANNEL



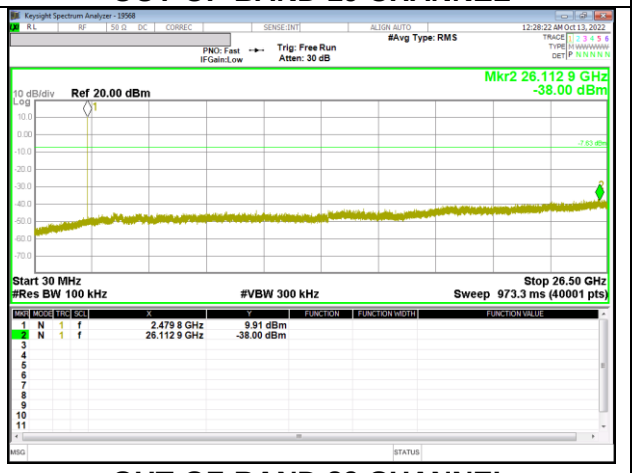
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL



39 CHANNEL BANDEDGE



OUT-OF-BAND 39 CHANNEL

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 (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.

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 1 Mbps, DCF = 10log(1/0.0.619)= 2.086 dB (Spectrum Analyzer round it up to 2.09 dB) and for 2 Mbps, DCF = 10log(1/0.324)= 4.898 dB (Spectrum Analyzer round it up to 4.90 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.

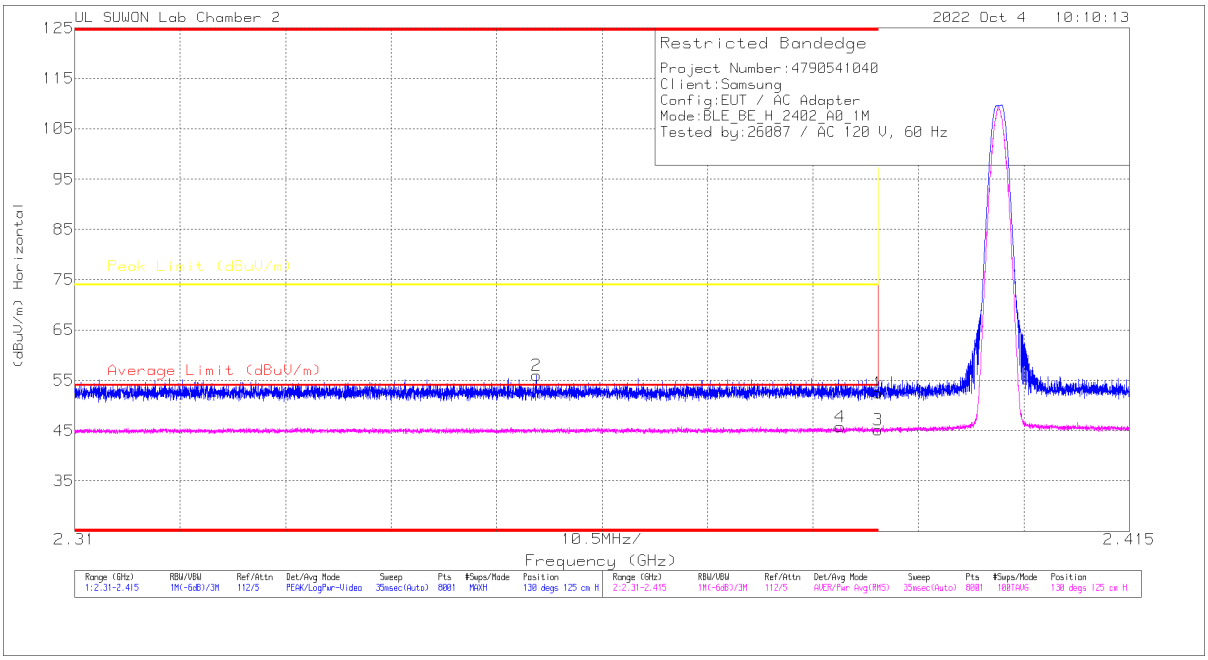
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. 1 Mbps

ANT1

BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

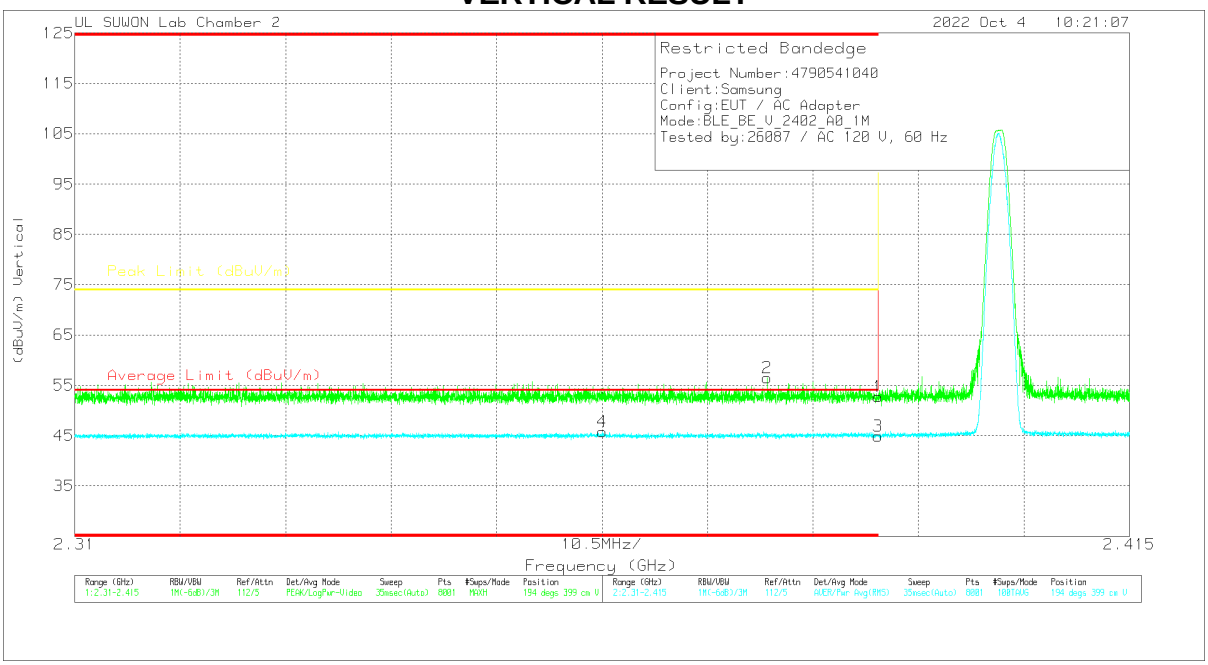


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.32	Pk	31.9	-19.7	0	52.52	-	-	74	-21.48	130	125	H
2	*2.35595	43.78	Pk	31.8	-19.6	0	55.98	-	-	74	-18.02	130	125	H
3	*2.39	30.91	RMS	31.9	-19.7	2.09	45.2	54	-8.8	-	-	130	125	H
4	*2.3862	31.4	RMS	31.9	-19.6	2.09	45.79	54	-8.21	-	-	130	125	H

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

VERTICAL RESULT



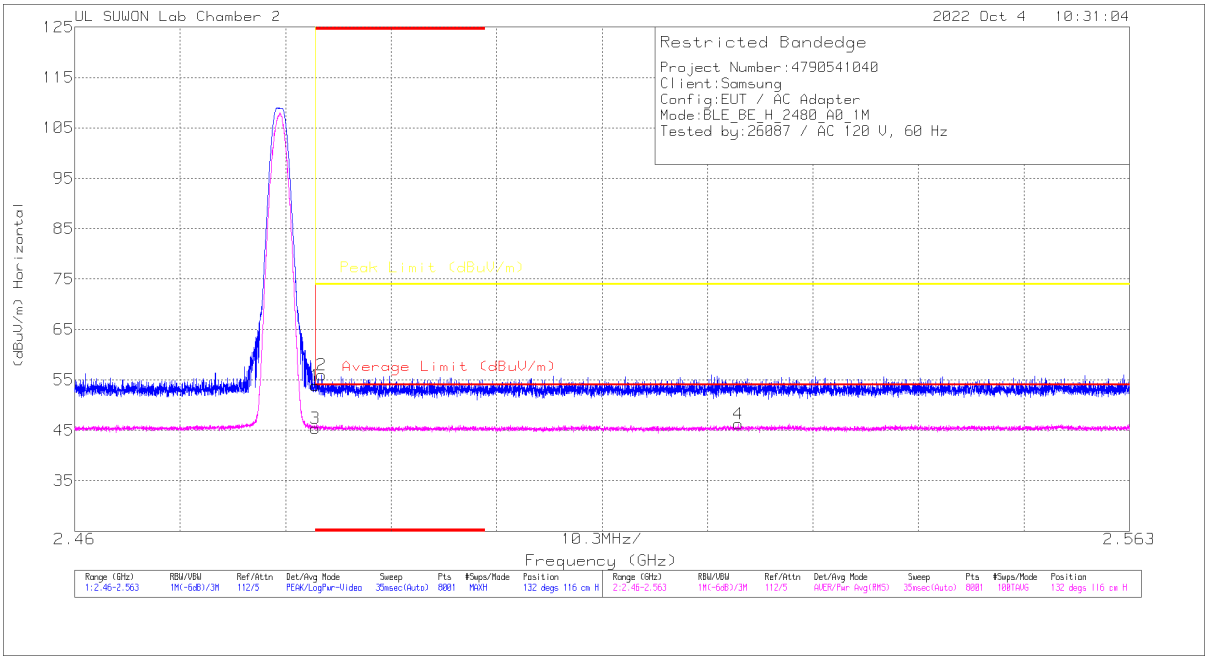
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.57	Pk	31.9	-19.7	0	52.77	-	-	74	-21.23	194	399	V
2	* 2.37896	44.2	Pk	31.9	-19.6	0	56.5	-	-	74	-17.5	194	399	V
3	* 2.39	30.64	RMS	31.9	-19.7	2.09	44.93	54	-9.07	-	-	194	399	V
4	* 2.3625	31.4	RMS	31.8	-19.5	2.09	45.79	54	-8.21	-	-	194	399	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

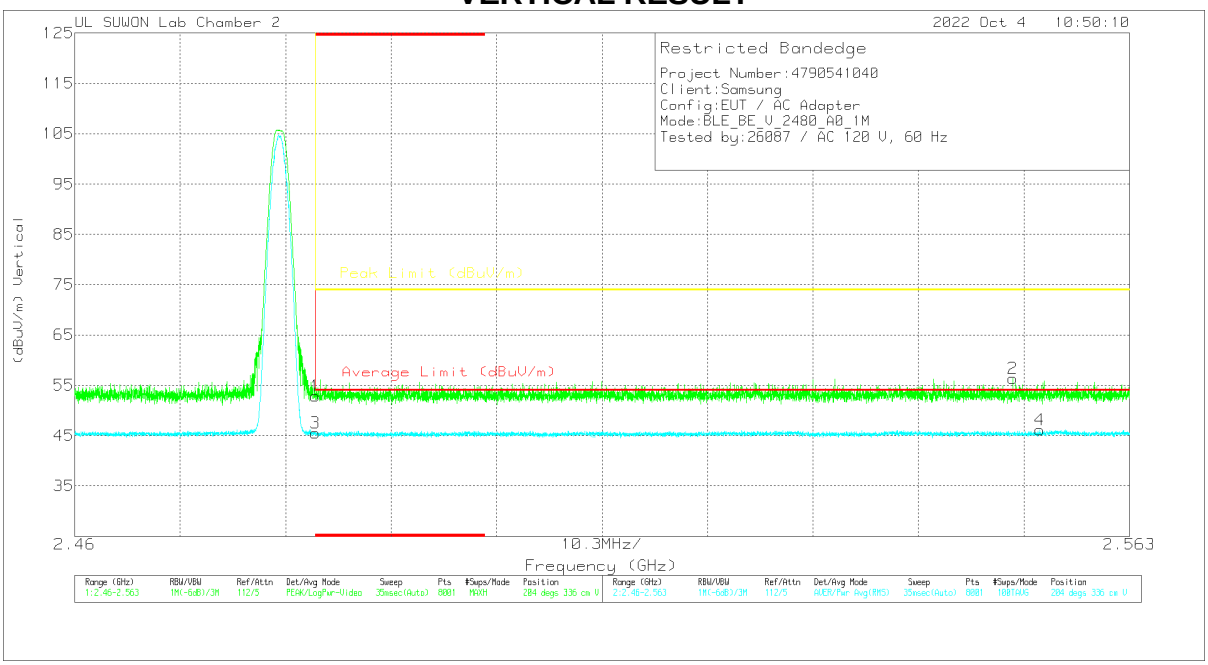


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	41.51	Pk	32	-19.6	0	53.91	-	-	74	-20.09	132	116	H
2	* 2.48413	43.63	Pk	32	-19.6	0	56.03	-	-	74	-17.97	132	116	H
3	* 2.48351	30.88	RMS	32	-19.6	2.09	45.37	54	-8.63	-	-	132	116	H
4	2.5248	31.44	RMS	32.1	-19.4	2.09	46.23	54	-7.77	-	-	132	116	H

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

VERTICAL RESULT



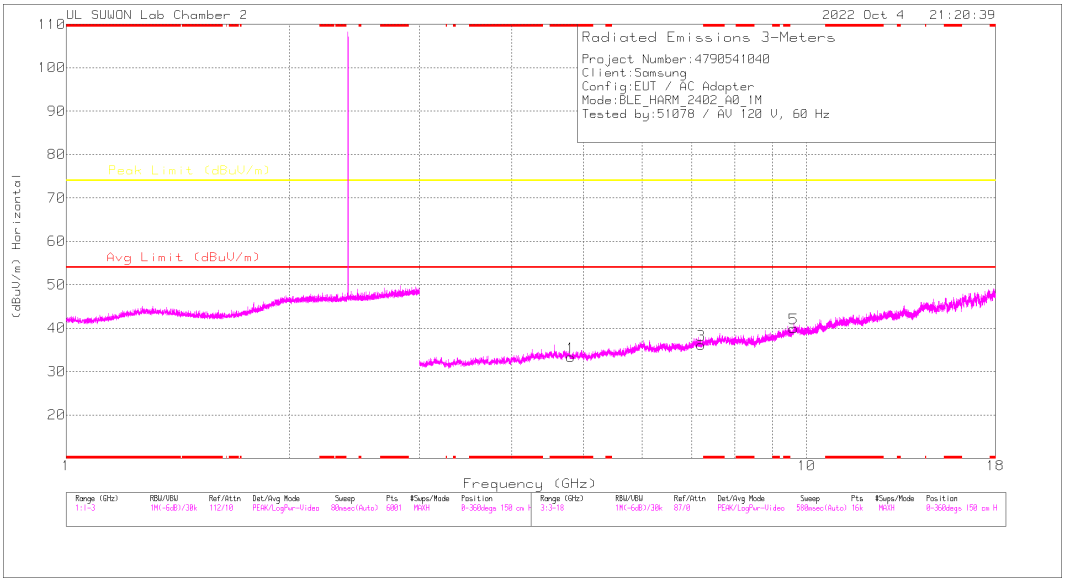
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.44	Pk	32	-19.6	0	52.84	-	-	74	-21.16	204	336	V
2	2.55162	43.61	Pk	32.2	-19.5	0	56.31	-	-	74	-17.69	204	336	V
3	* 2.48351	30.99	RMS	32	-19.6	2.09	45.48	54	-8.52	-	-	204	336	V
4	2.55426	31.33	RMS	32.2	-19.5	2.09	46.12	54	-7.88	-	-	204	336	V

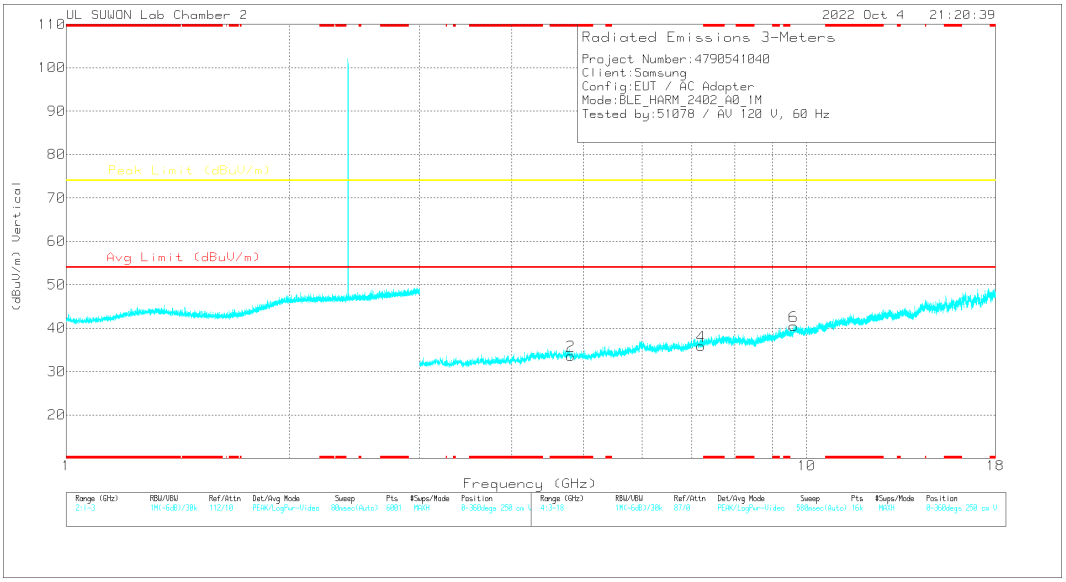
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

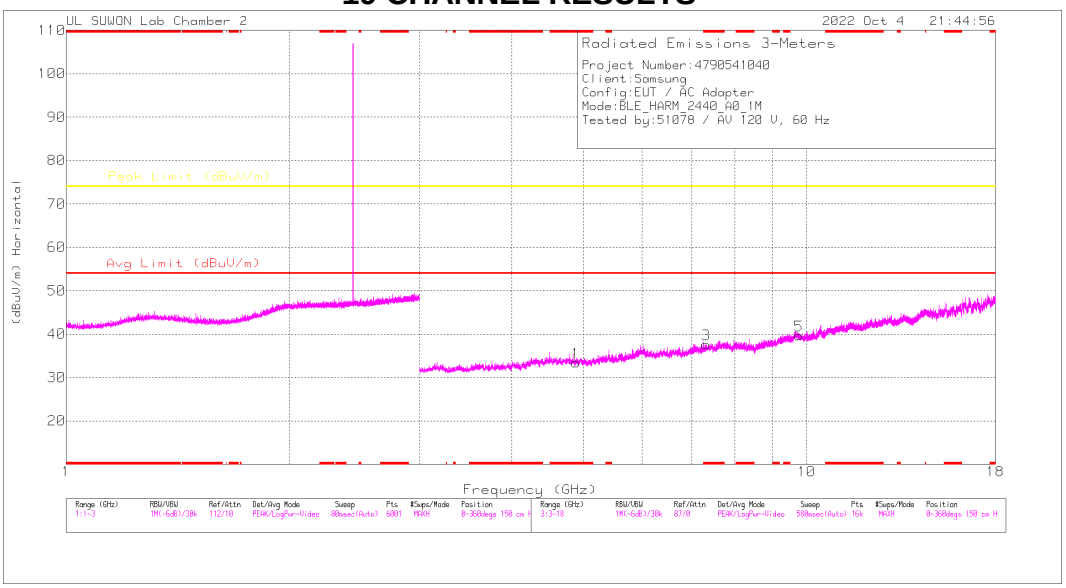
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

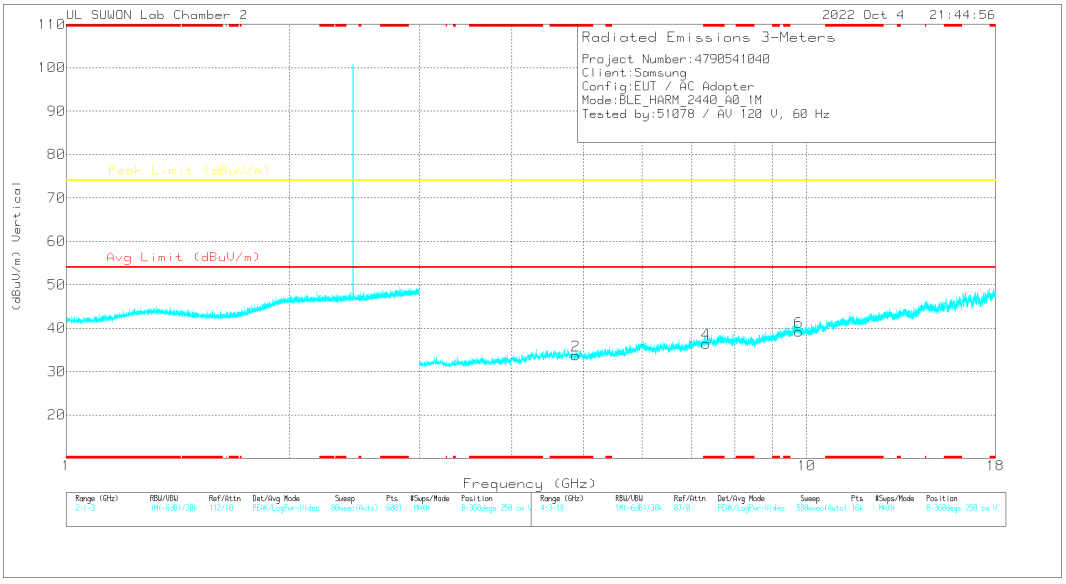
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80547	37.12	PK2	34	-27.7	0	43.42	-	-	74	-30.58	0	100	H
* 4.80238	36.3	PK2	34	-27.7	0	42.6	-	-	74	-31.4	0	100	V
7.20759	34.85	PK2	35.7	-25.1	0	45.45	-	-	74	-28.55	0	100	H
7.20537	35.22	PK2	35.7	-25	0	45.92	-	-	74	-28.08	0	100	V
9.60406	32.64	PK2	36.9	-21.3	0	48.24	-	-	74	-25.76	0	100	H
9.60114	32.72	PK2	36.9	-21.4	0	48.22	-	-	74	-25.78	0	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

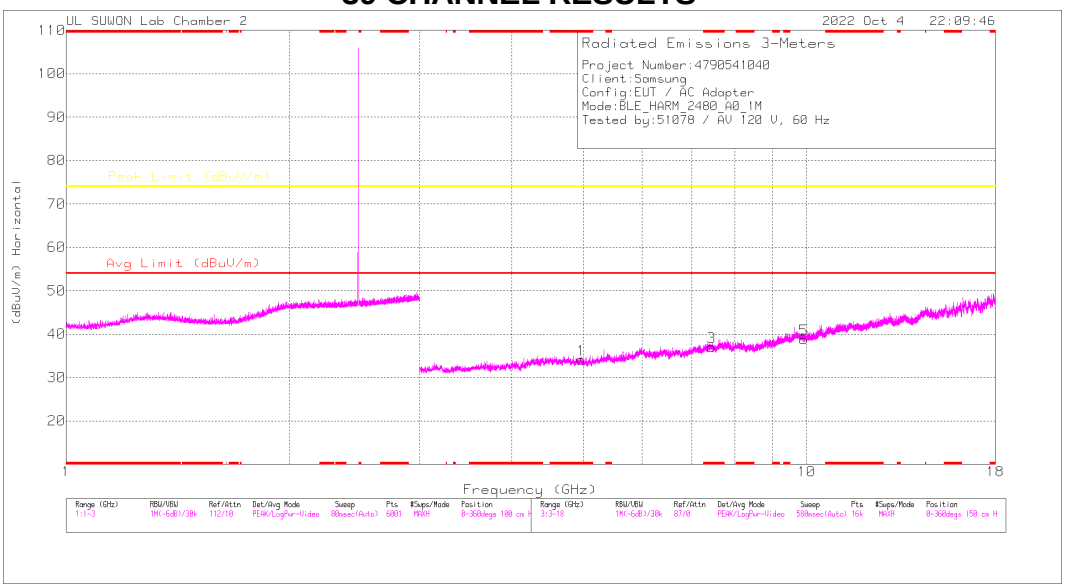
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

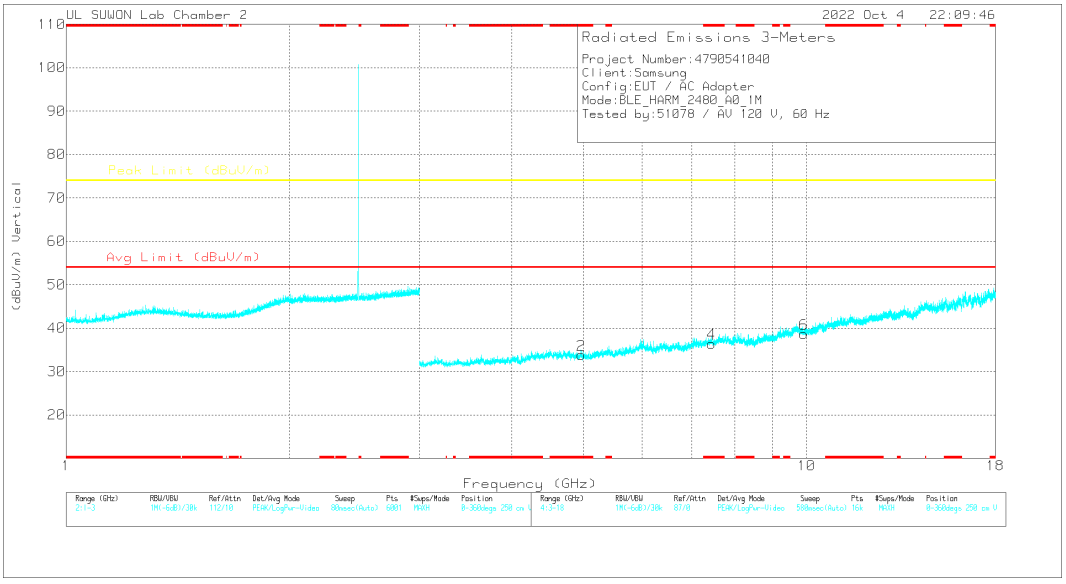
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88425	36.92	PK2	34	-27.6	0	43.32	-	-	74	-30.68	0	100	H
* 4.8806	36.94	PK2	34	-27.6	0	43.34	-	-	74	-30.66	0	100	V
* 7.32146	35.27	PK2	35.7	-24.5	0	46.47	-	-	74	-27.53	0	100	H
* 7.32476	35.46	PK2	35.7	-24.4	0	46.76	-	-	74	-27.24	0	100	V
9.76199	32.4	PK2	37.1	-21	0	48.5	-	-	74	-25.5	0	100	H
9.75212	32	PK2	37.1	-20.9	0	48.2	-	-	74	-25.8	0	100	V

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

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.

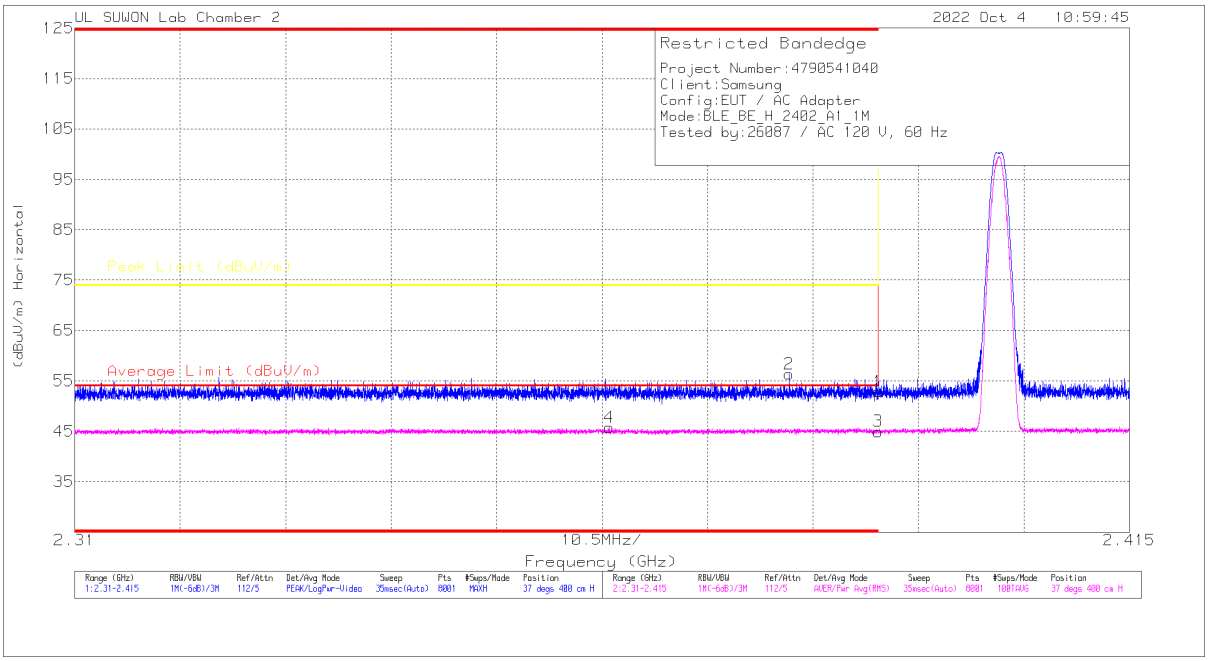
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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
* 4.9518	36.16	PK2	34	-27.1	0	43.06	-	-	74	-30.94	0	100	H
* 4.96152	36.03	PK2	34	-27	0	43.03	-	-	74	-30.97	0	100	V
* 7.43277	34.23	PK2	35.7	-23.7	0	46.23	-	-	74	-27.77	0	100	H
* 7.44253	34.98	PK2	35.7	-23.7	0	46.98	-	-	74	-27.02	0	100	V
9.92034	31.53	PK2	37.3	-21.1	0	47.73	-	-	74	-26.27	0	100	H
9.92179	31.91	PK2	37.3	-21.1	0	48.11	-	-	74	-25.89	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

ANT2
BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

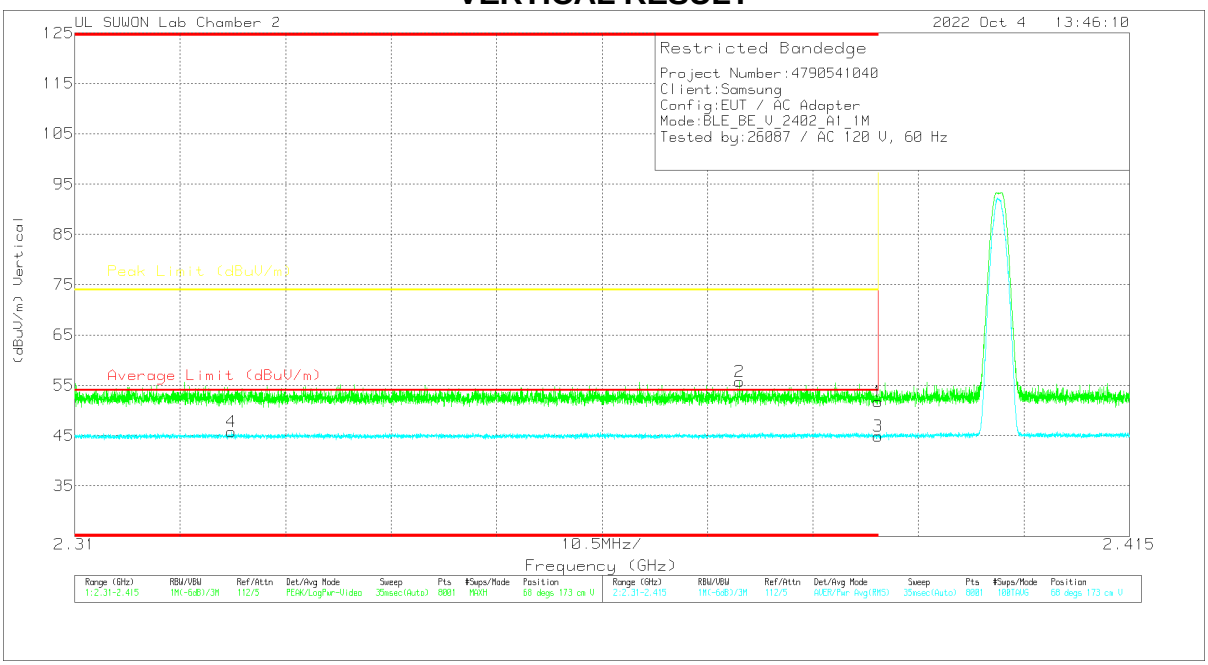


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.67	Pk	31.9	-19.7	0	52.87	-	-	74	-21.13	37	400	H
2	* 2.38114	44.11	Pk	31.9	-19.6	0	56.41	-	-	74	-17.59	37	400	H
3	* 2.39	30.67	RMS	31.9	-19.7	2.09	44.96	54	-9.04	-	-	37	400	H
4	* 2.36322	31.47	RMS	31.8	-19.6	2.09	45.76	54	-8.24	-	-	37	400	H

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

VERTICAL RESULT



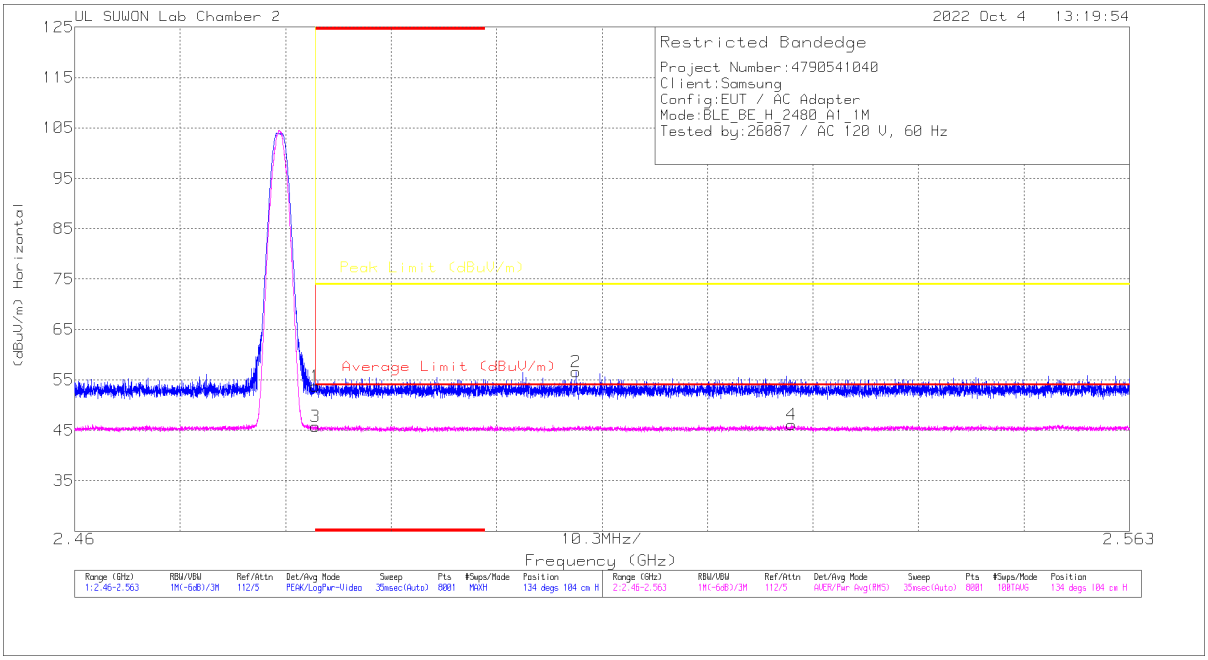
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	39.55	Pk	31.9	-19.7	0	51.75	-	-	74	-22.25	68	173	V
2	* 2.37619	43.44	Pk	31.9	-19.6	0	55.74	-	-	74	-18.26	68	173	V
3	* 2.39	30.65	RMS	31.9	-19.7	2.09	44.94	54	-9.06	-	-	68	173	V
4	* 2.32562	31.49	RMS	31.8	-19.6	2.09	45.78	54	-8.22	-	-	68	173	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

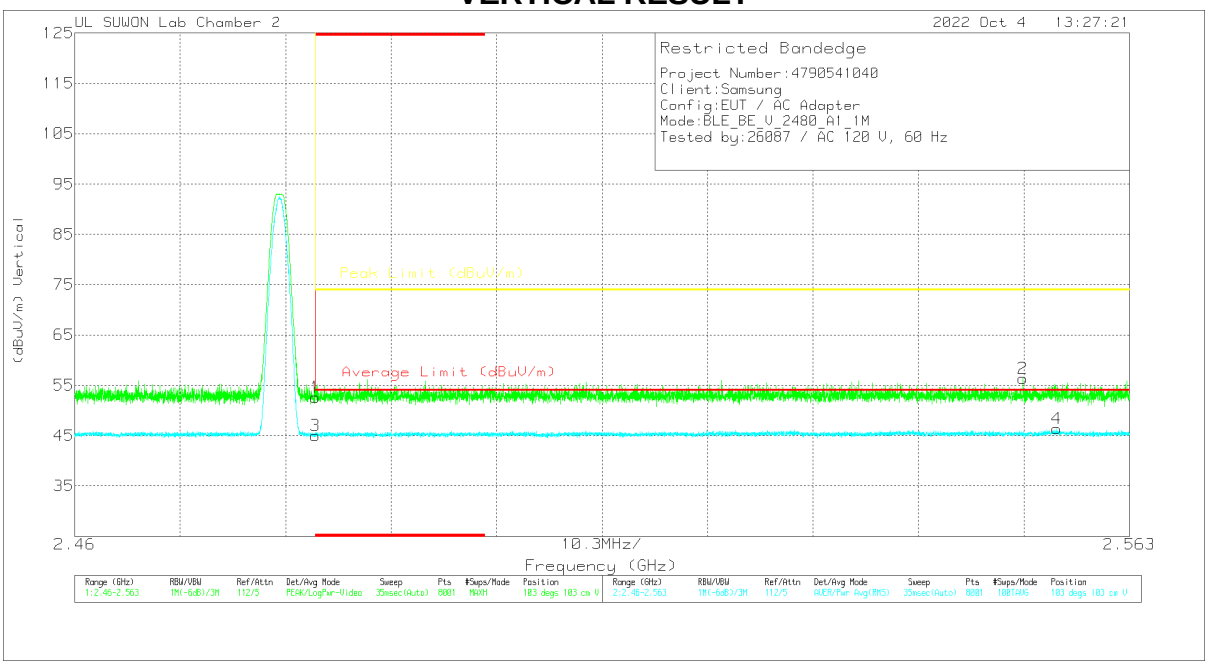


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	41.39	Pk	32	-19.6	0	53.79	-	-	74	-20.21	134	104	H
2	2.50896	44.01	Pk	32.1	-19.5	0	56.61	-	-	74	-17.39	134	104	H
3	* 2.48351	31.26	RMS	32	-19.6	2.09	45.75	54	-8.25	-	-	134	104	H
4	2.53003	31.27	RMS	32.1	-19.3	2.09	46.16	54	-7.84	-	-	134	104	H

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

VERTICAL RESULT



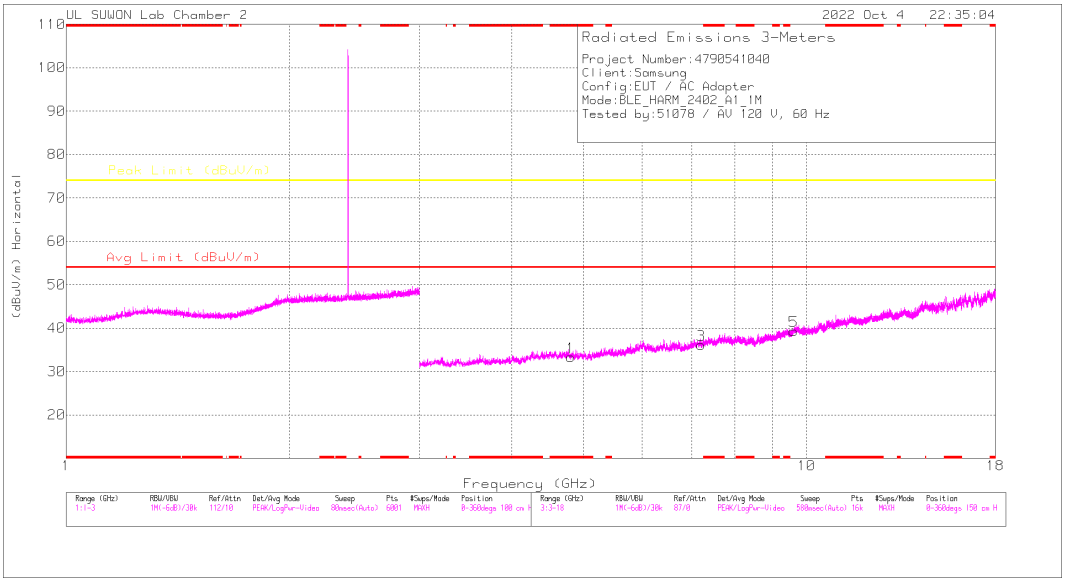
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.27	Pk	32	-19.6	0	52.67	-	-	74	-21.33	103	103	V
2	2.55261	43.61	Pk	32.2	-19.5	0	56.31	-	-	74	-17.69	103	103	V
3	* 2.48351	30.58	RMS	32	-19.6	2.09	45.07	54	-8.93	-	-	103	103	V
4	2.55591	31.38	RMS	32.2	-19.3	2.09	46.37	54	-7.63	-	-	103	103	V

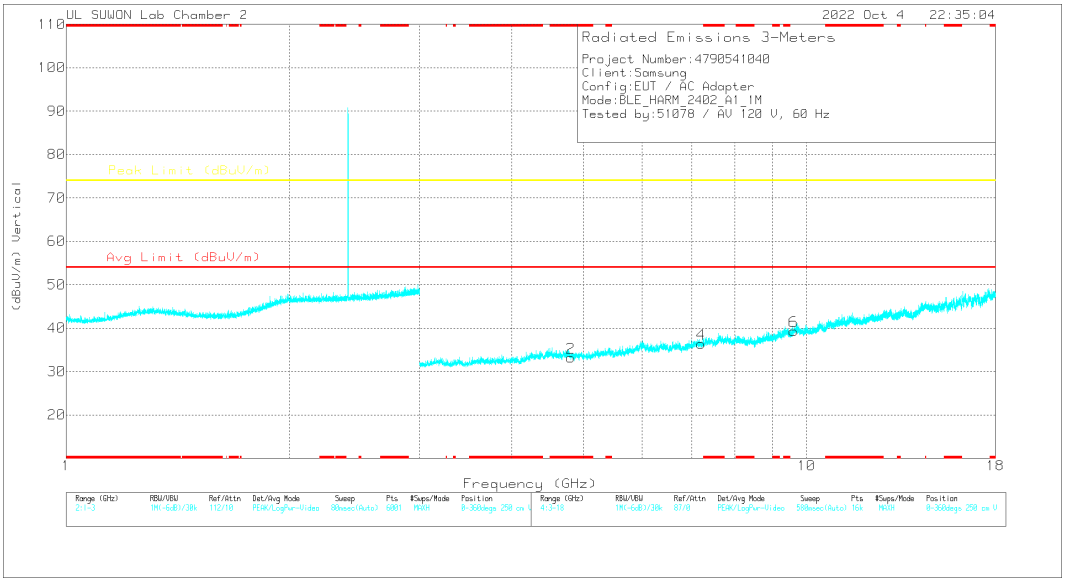
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

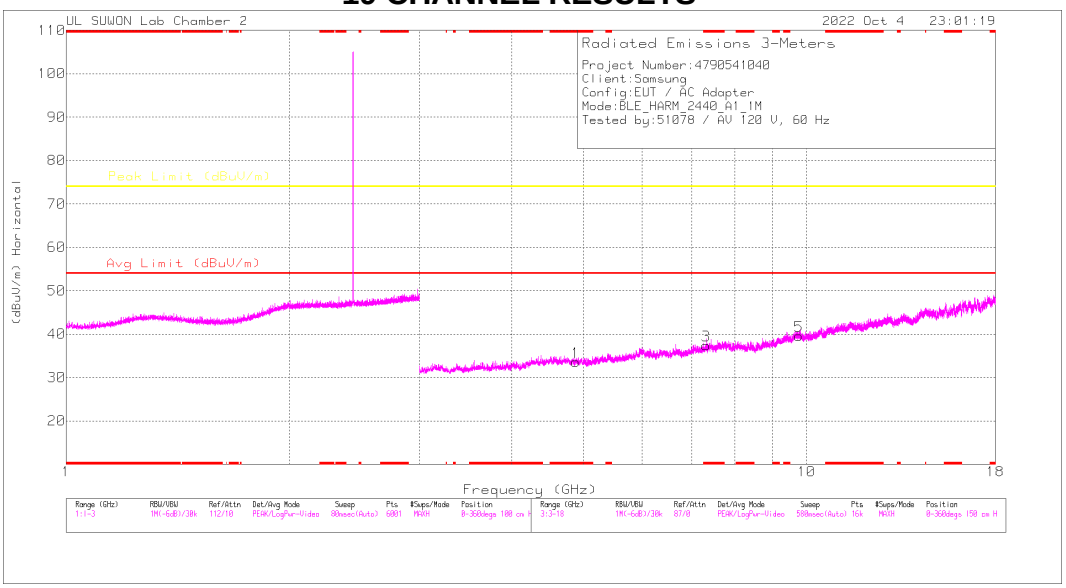
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

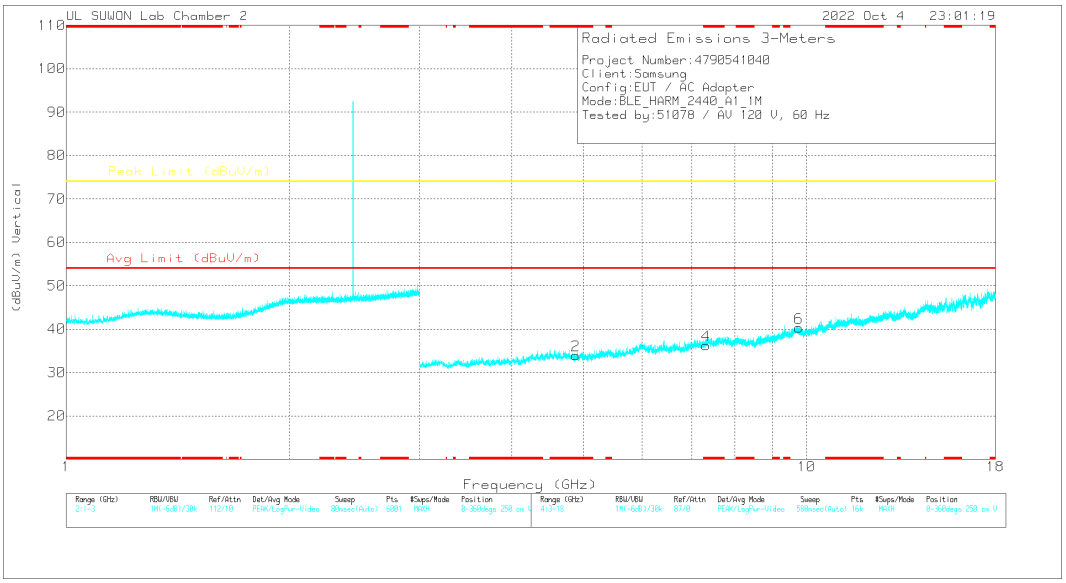
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80394	36.22	PK2	34	-27.7	0	42.52	-	-	74	-31.48	0	100	H
* 4.80449	36.34	PK2	34	-27.7	0	42.64	-	-	74	-31.36	0	100	V
7.19862	35.45	PK2	35.6	-25	0	46.05	-	-	74	-27.95	0	100	H
7.21131	34.58	PK2	35.7	-25.1	0	45.18	-	-	74	-28.82	0	100	V
9.60365	32.92	PK2	36.9	-21.3	0	48.52	-	-	74	-25.48	0	100	H
9.61657	33.3	PK2	36.9	-21.2	0	49	-	-	74	-25	0	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

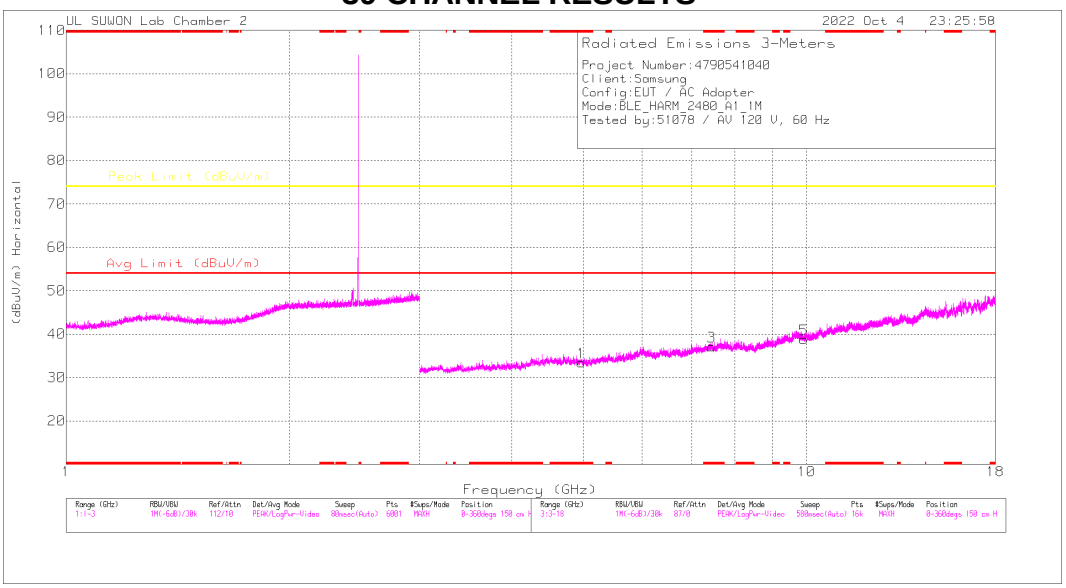
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

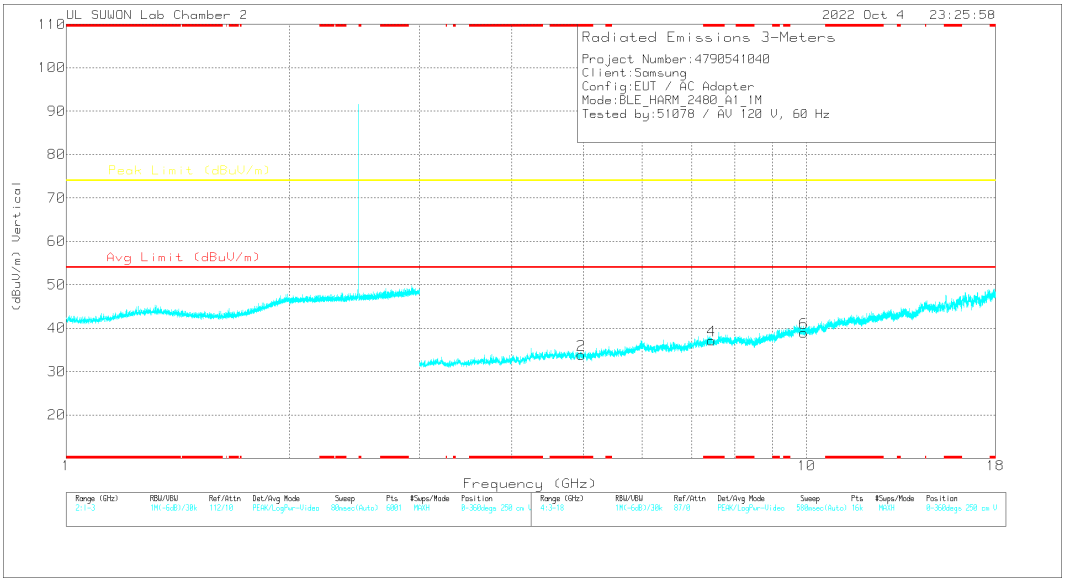
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88009	37.08	PK2	34	-27.7	0	43.38	-	-	74	-30.62	0	100	H
* 4.87894	36.75	PK2	34	-27.7	0	43.05	-	-	74	-30.95	0	100	V
* 7.32598	35.33	PK2	35.7	-24.4	0	46.63	-	-	74	-27.37	0	100	H
* 7.31238	35.6	PK2	35.7	-24.6	0	46.7	-	-	74	-27.3	0	100	V
9.7666	32.27	PK2	37.1	-21	0	48.37	-	-	74	-25.63	0	100	H
9.76884	32.3	PK2	37.1	-21	0	48.4	-	-	74	-25.6	0	100	V

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

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

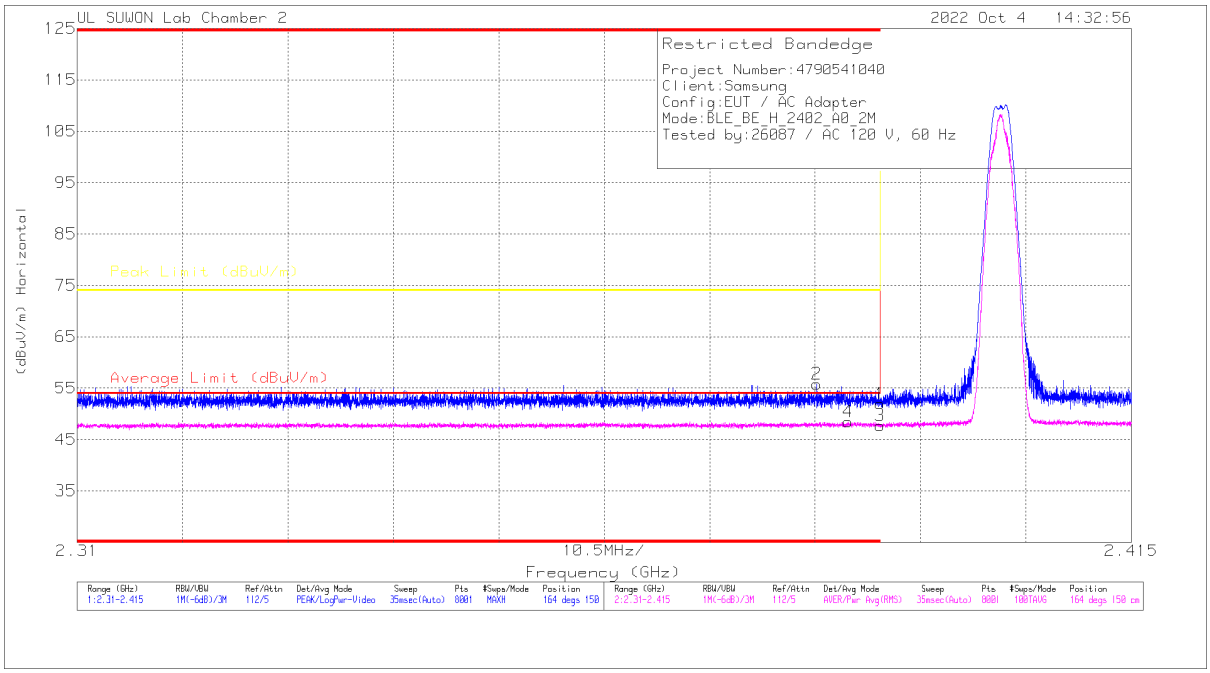
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96316	35.93	PK2	34	-26.9	0	43.03	-	-	74	-30.97	0	100	H
* 4.95076	35.86	PK2	34	-27.1	0	42.76	-	-	74	-31.24	0	100	V
* 7.43255	34.69	PK2	35.7	-23.7	0	46.69	-	-	74	-27.31	0	100	H
* 7.44404	34.22	PK2	35.7	-23.7	0	46.22	-	-	74	-27.78	0	100	V
9.92113	32.11	PK2	37.3	-21.1	0	48.31	-	-	74	-25.69	0	100	H
9.9166	31.74	PK2	37.3	-21.1	0	47.94	-	-	74	-26.06	0	100	V

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

10.2.2. 2 Mbps

ANT1
BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

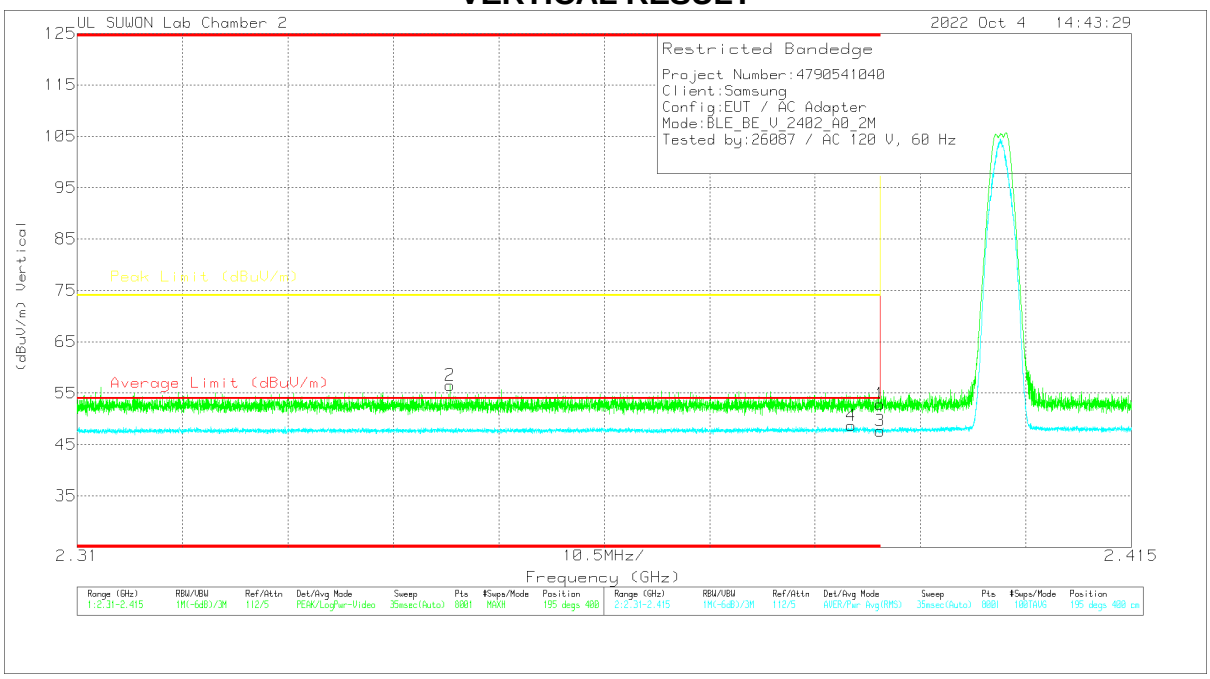


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	39.79	Pk	31.9	-19.7	0	51.99	-	-	74	-22.01	164	150	H
2	*2.38367	43.51	Pk	31.9	-19.6	0	55.81	-	-	74	-18.19	164	150	H
3	*2.39	30.64	RMS	31.9	-19.7	4.9	47.74	54	-6.26	-	-	164	150	H
4	*2.38679	31.26	RMS	31.9	-19.6	4.9	48.46	54	-5.54	-	-	164	150	H

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

VERTICAL RESULT



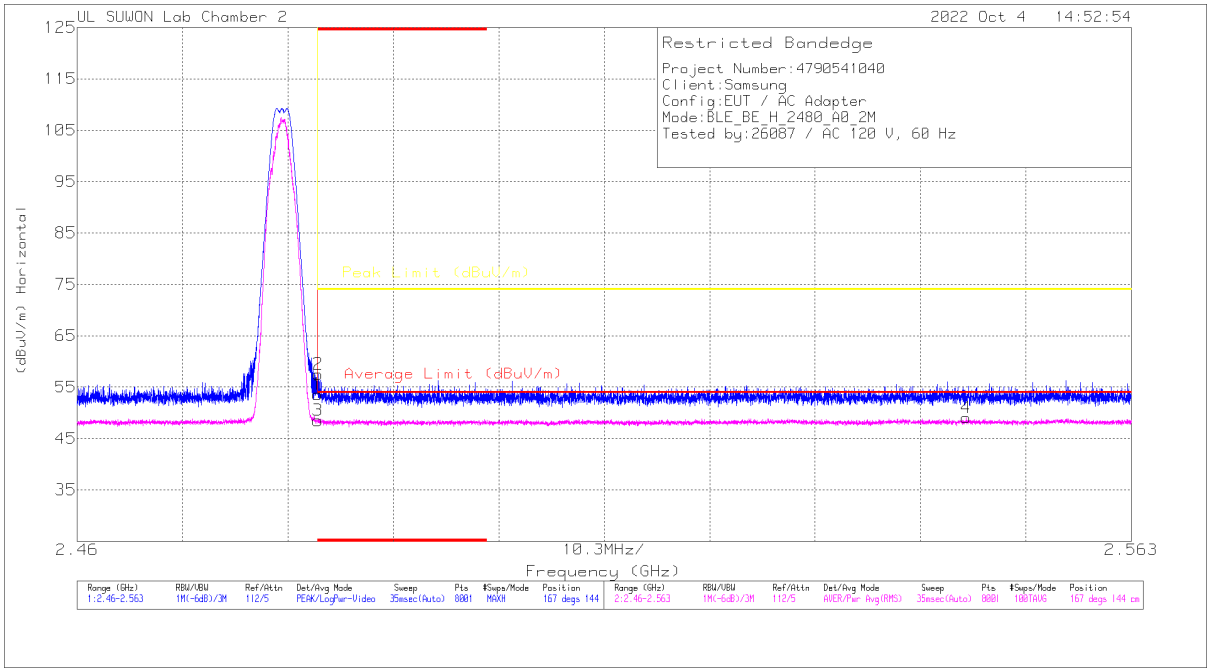
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.71	Pk	31.9	-19.7	0	52.91	-	-	74	-21.09	195	400	V
2	* 2.34712	44.34	Pk	31.8	-19.6	0	56.54	-	-	74	-17.46	195	400	V
3	* 2.39	30.57	RMS	31.9	-19.7	4.9	47.67	54	-6.33	-	-	195	400	V
4	* 2.38708	31.49	RMS	31.9	-19.6	4.9	48.69	54	-5.31	-	-	195	400	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

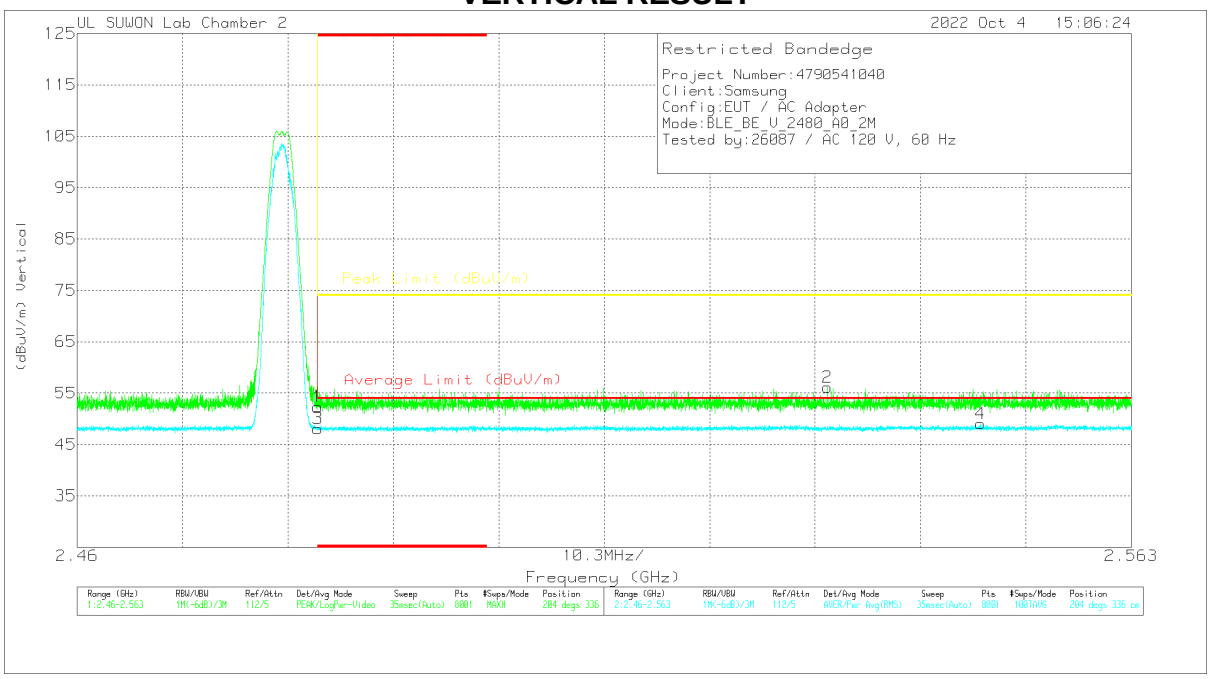


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	41.19	Pk	32	-19.6	0	53.59	-	-	74	-20.41	167	144	H
2	* 2.48354	45.13	Pk	32	-19.6	0	57.53	-	-	74	-16.47	167	144	H
3	* 2.48351	31.23	RMS	32	-19.6	4.9	48.53	54	-5.47	-	-	167	144	H
4	2.54685	31.53	RMS	32.1	-19.5	4.9	49.03	54	-4.97	-	-	167	144	H

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

VERTICAL RESULT



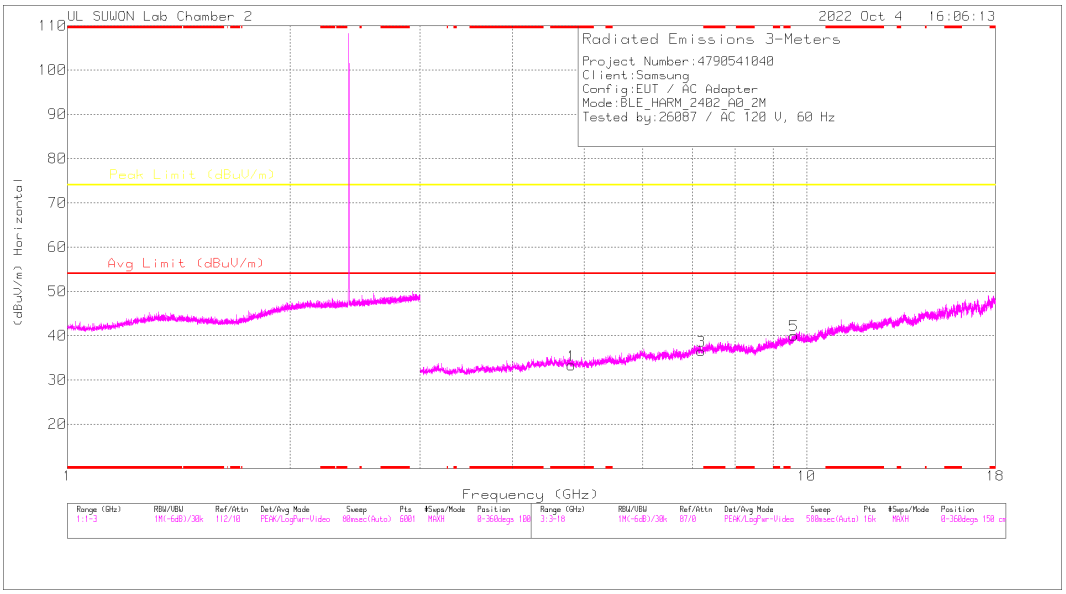
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	39.92	Pk	32	-19.6	0	52.32	-	-	74	-21.68	204	336	V
2	2.53328	43.65	Pk	32.1	-19.6	0	56.15	-	-	74	-17.85	204	336	V
3	* 2.48351	30.82	RMS	32	-19.6	4.9	48.12	54	-5.88	-	-	204	336	V
4	2.54828	31.53	RMS	32.1	-19.5	4.9	49.03	54	-4.97	-	-	204	336	V

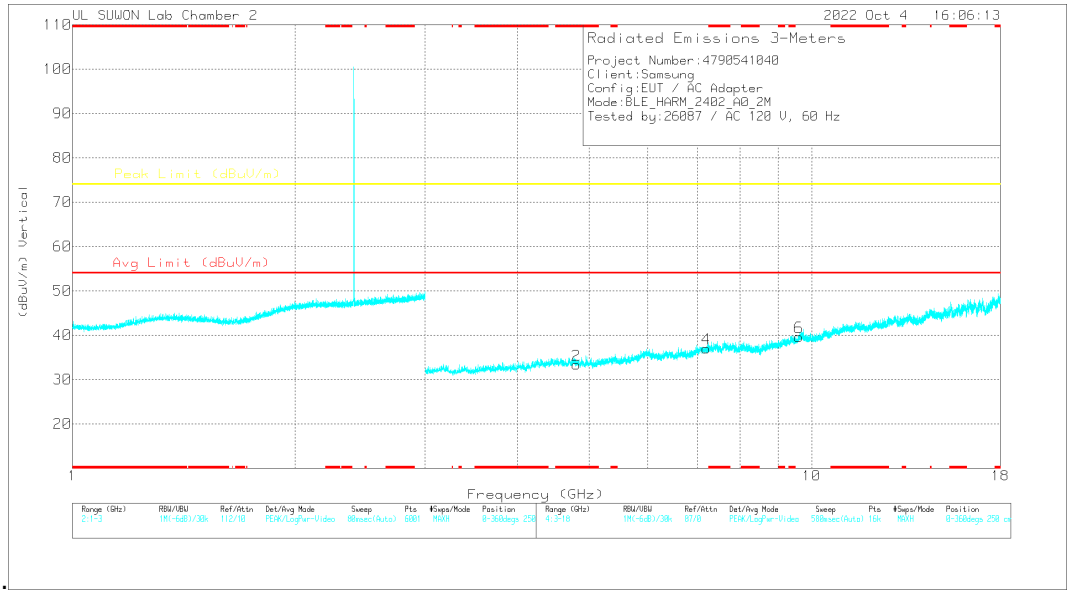
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

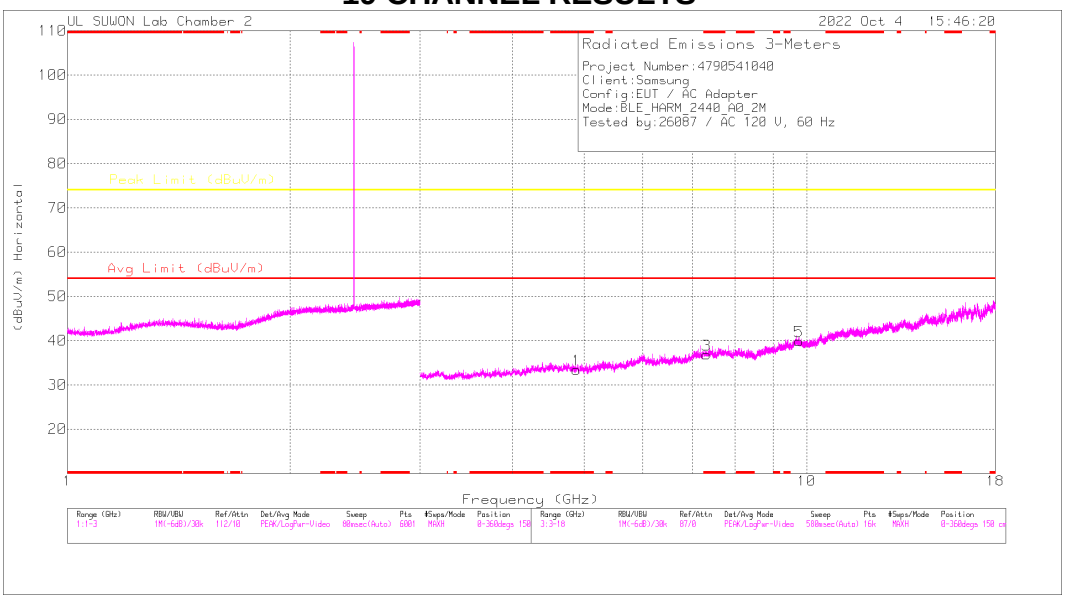
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

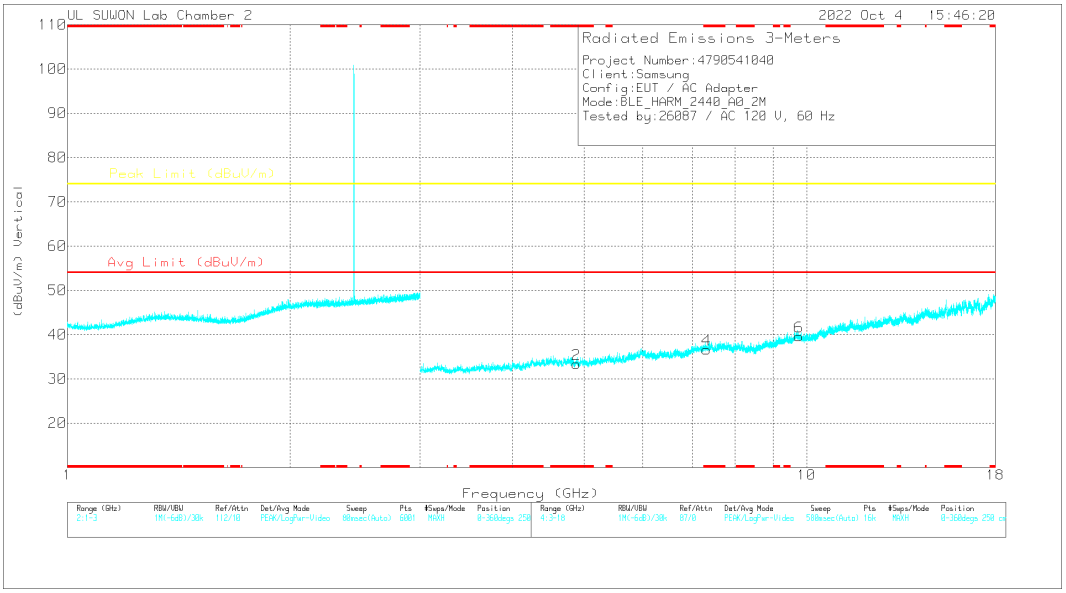
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80538	36.12	PK2	34.1	-27.7	42.52	-	-	74	-31.48	360	100	H
* 4.80533	35.96	PK2	34.1	-27.7	42.36	-	-	74	-31.64	360	100	V
7.20702	34.8	PK2	36.2	-25.1	45.9	-	-	74	-28.1	360	100	H
7.20667	34.85	PK2	36.2	-25	46.05	-	-	74	-27.95	360	100	V
9.61003	32.69	PK2	37	-21.2	48.49	-	-	74	-25.51	360	100	H
9.60723	32.63	PK2	37	-21.3	48.33	-	-	74	-25.67	360	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

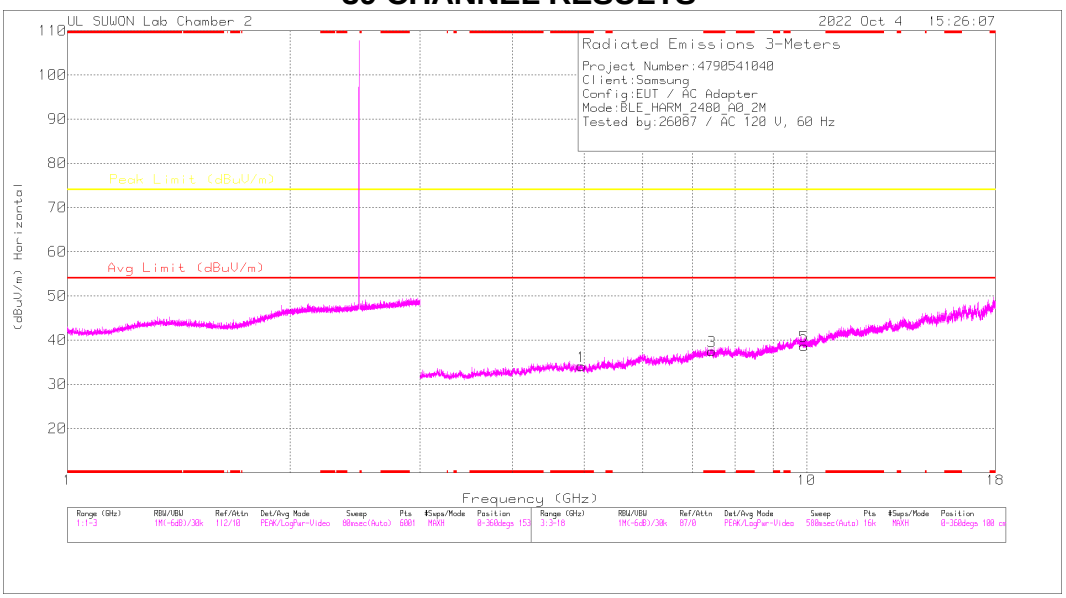
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

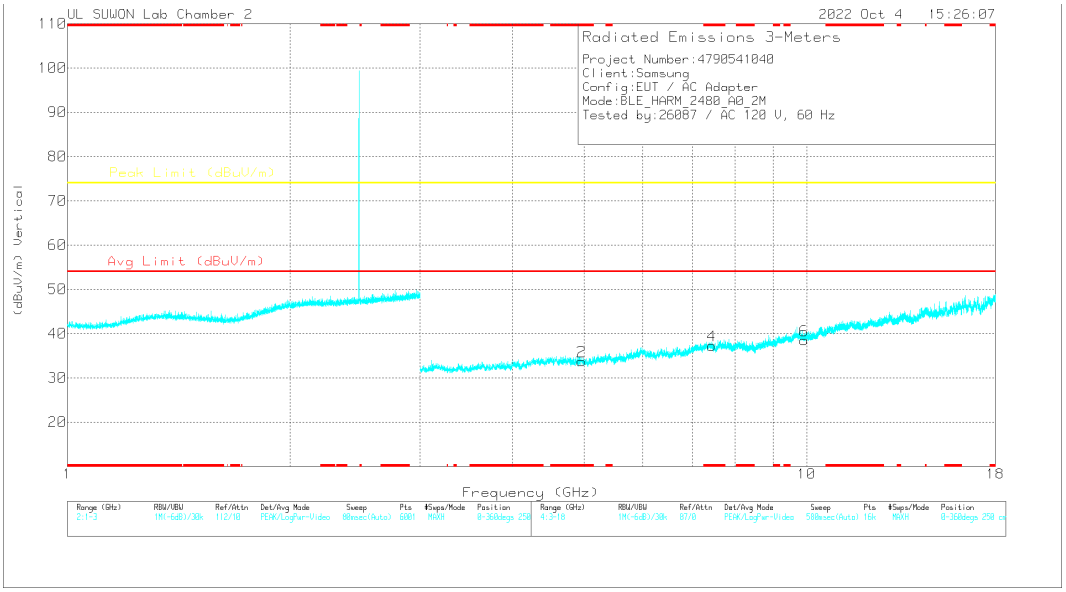
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87908	36.36	PK2	34.1	-27.7	42.76	-	-	74	-31.24	0	100	H
* 4.88081	36.31	PK2	34.1	-27.6	42.81	-	-	74	-31.19	0	100	V
* 7.31876	35.11	PK2	36.1	-24.6	46.61	-	-	74	-27.39	0	100	H
* 7.32114	35.19	PK2	36.1	-24.5	46.79	-	-	74	-27.21	0	100	V
9.7619	32.14	PK2	37.2	-21	48.34	-	-	74	-25.66	0	100	H
9.76218	32.43	PK2	37.2	-21	48.63	-	-	74	-25.37	0	100	V

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

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.

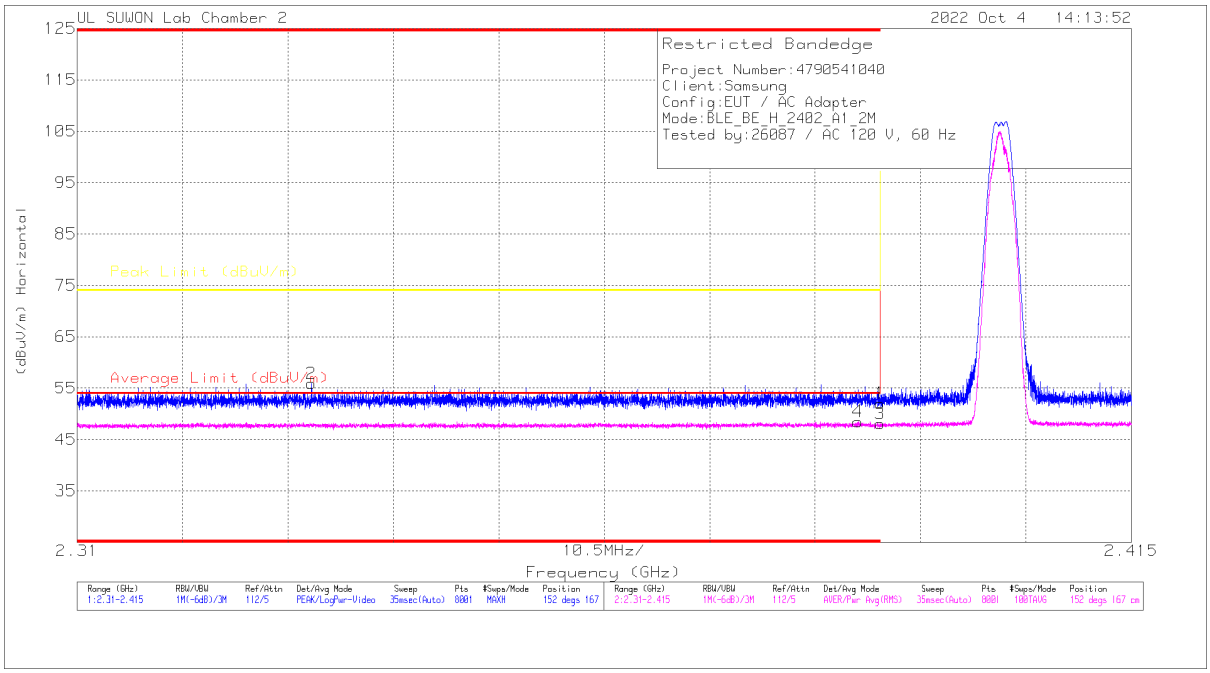
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.95924	35.77	PK2	34.1	-27	42.87	-	-	74	-31.13	360	100	H
* 4.95946	36.04	PK2	34.1	-27	43.14	-	-	74	-30.86	360	100	V
* 7.44133	34.34	PK2	36	-23.7	46.64	-	-	74	-27.36	360	100	H
* 7.44022	34.12	PK2	36	-23.7	46.42	-	-	74	-27.58	360	100	V
9.9221	31.69	PK2	37.4	-21.1	47.99	-	-	74	-26.01	360	100	H
9.92162	31.56	PK2	37.4	-21.1	47.86	-	-	74	-26.14	360	100	V

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

ANT2
BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

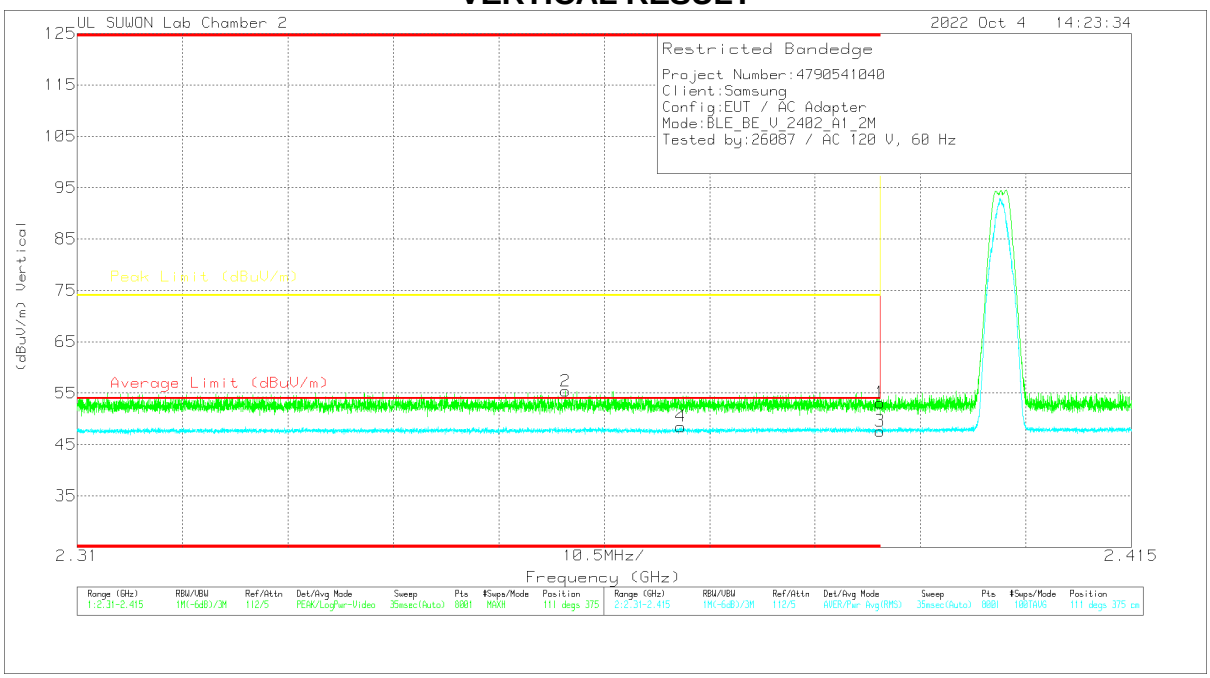


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	39.83	Pk	31.9	-19.7	0	52.03	-	-	74	-21.97	152	167	H
2	* 2.33331	43.68	Pk	31.8	-19.6	0	55.88	-	-	74	-18.12	152	167	H
3	* 2.39	30.98	RMS	31.9	-19.7	4.9	48.08	54	-5.92	-	-	152	167	H
4	* 2.38777	31.16	RMS	31.9	-19.5	4.9	48.46	54	-5.54	-	-	152	167	H

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

VERTICAL RESULT



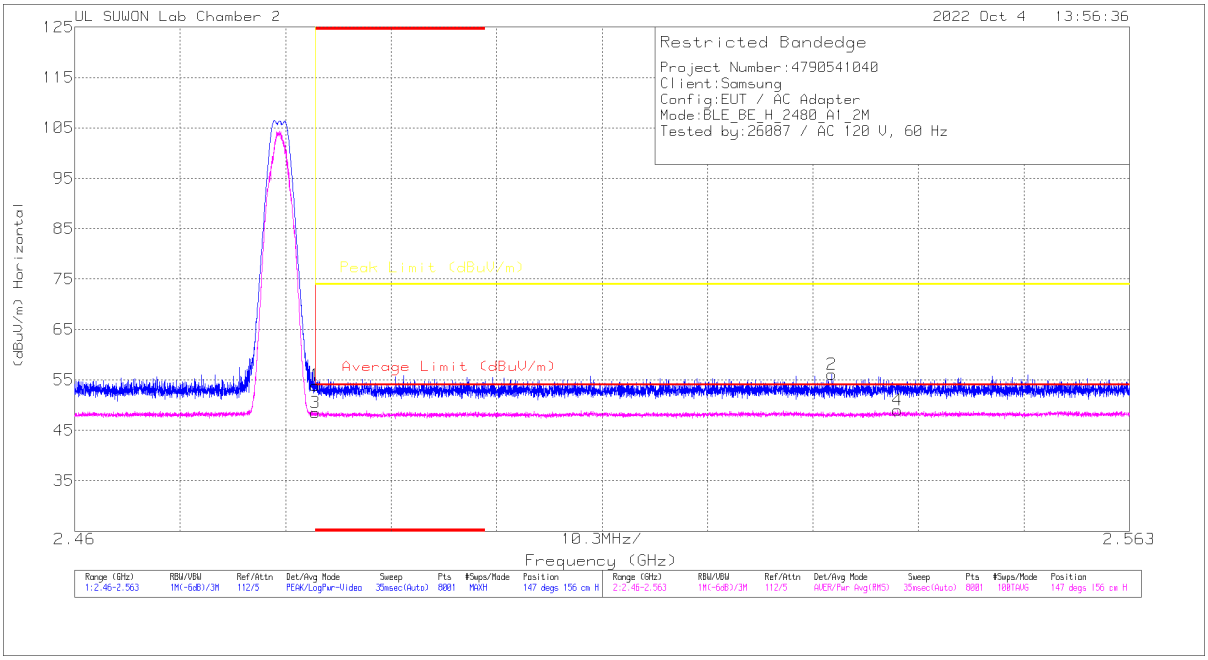
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.96	Pk	31.9	-19.7	0	53.16	-	-	74	-20.84	111	375	V
2	* 2.35863	43.22	Pk	31.8	-19.6	0	55.42	-	-	74	-18.58	111	375	V
3	* 2.39	30.52	RMS	31.9	-19.7	4.9	47.62	54	-6.38	-	-	111	375	V
4	* 2.37013	31.41	RMS	31.8	-19.6	4.9	48.51	54	-5.49	-	-	111	375	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

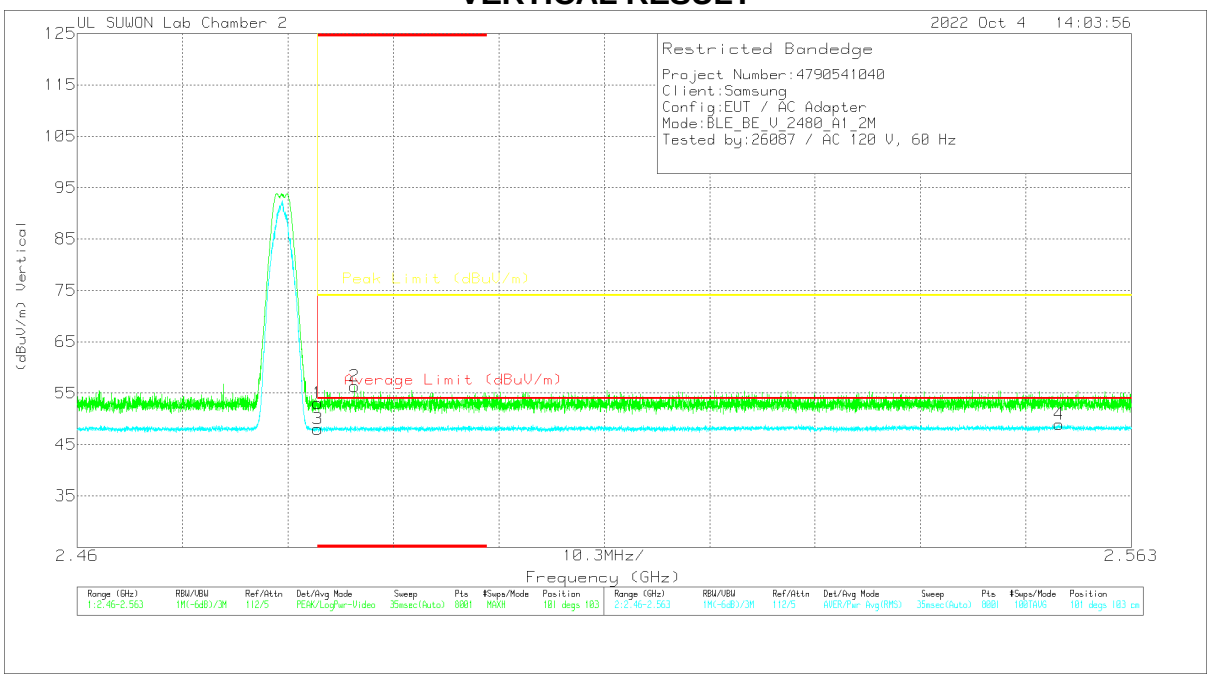


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	41.53	Pk	32	-19.6	0	53.93	-	-	74	-20.07	147	156	H
2	2.53394	43.55	Pk	32.1	-19.5	0	56.15	-	-	74	-17.85	147	156	H
3	* 2.48351	31.16	RMS	32	-19.6	4.9	48.46	54	-5.54	-	-	147	156	H
4	2.54038	31.4	RMS	32.1	-19.4	4.9	49	54	-5	-	-	147	156	H

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

VERTICAL RESULT



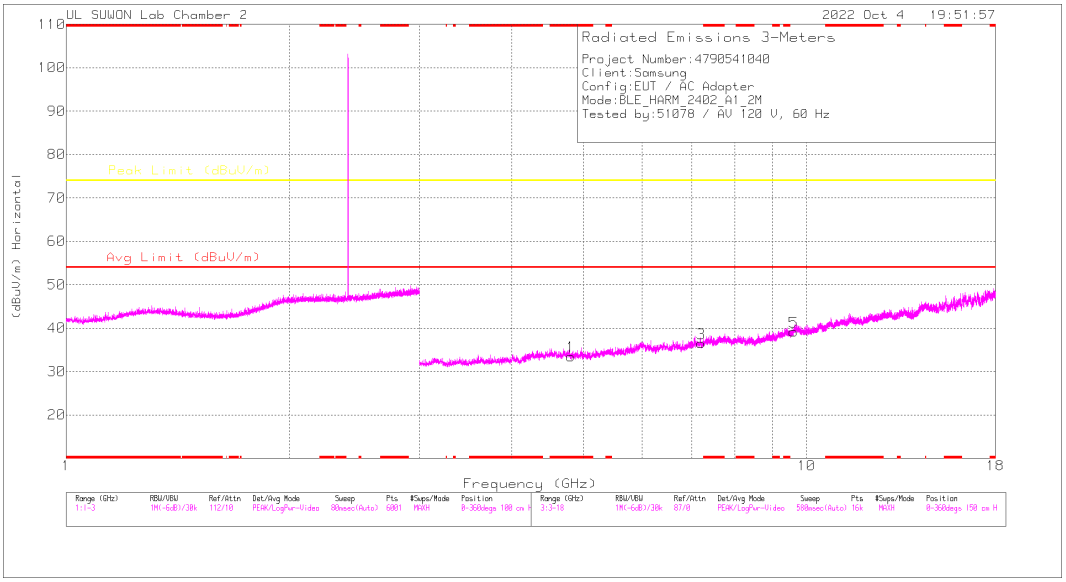
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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	40.66	Pk	32	-19.6	0	53.06	-	-	74	-20.94	101	103	V
2	* 2.4871	43.95	Pk	32	-19.6	0	56.35	-	-	74	-17.65	101	103	V
3	* 2.48351	30.74	RMS	32	-19.6	4.9	48.04	54	-5.96	-	-	101	103	V
4	2.55593	31.15	RMS	32.2	-19.3	4.9	48.95	54	-5.05	-	-	101	103	V

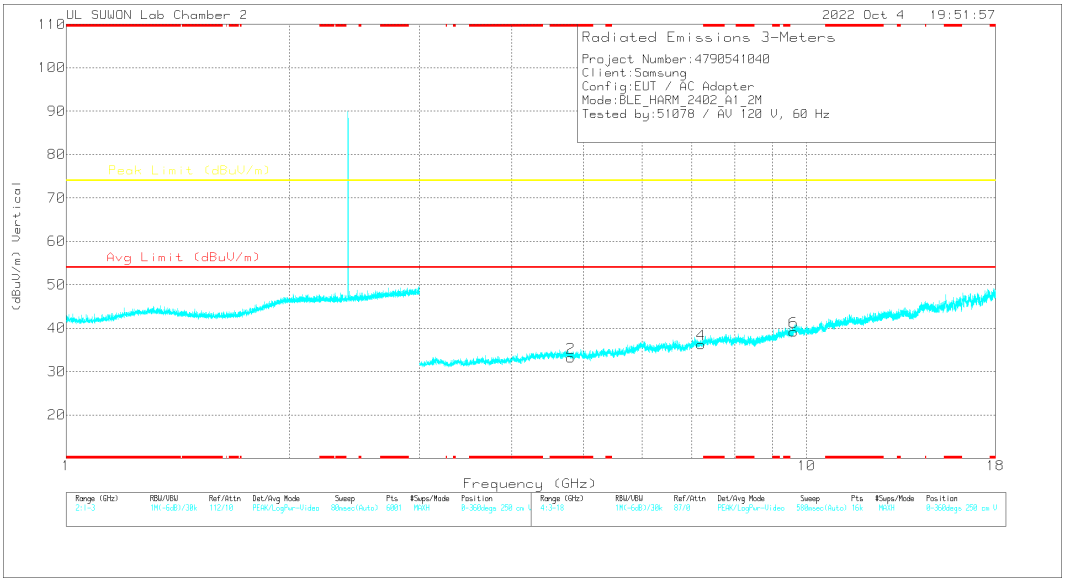
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

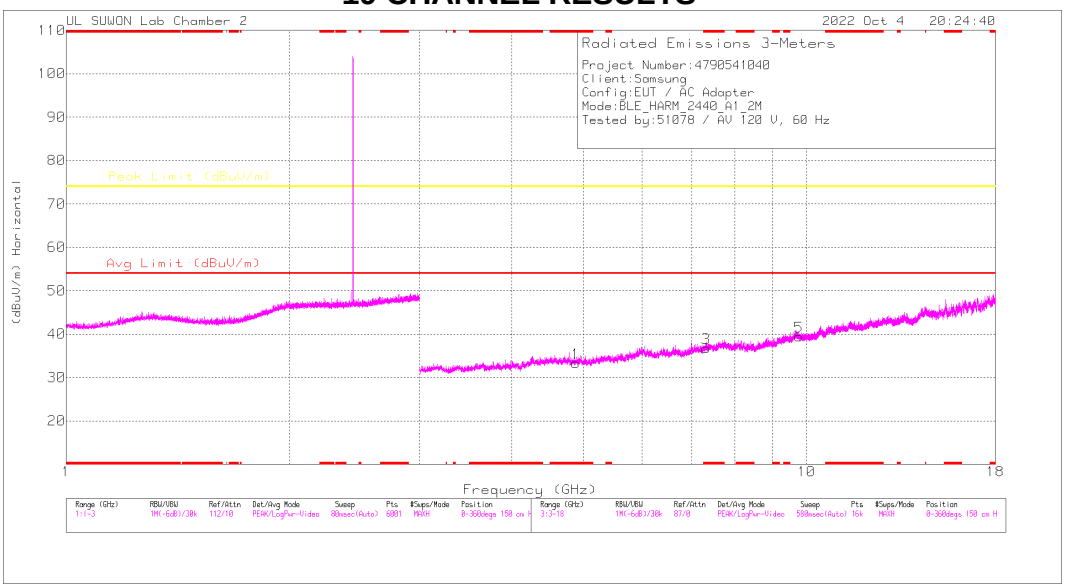
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

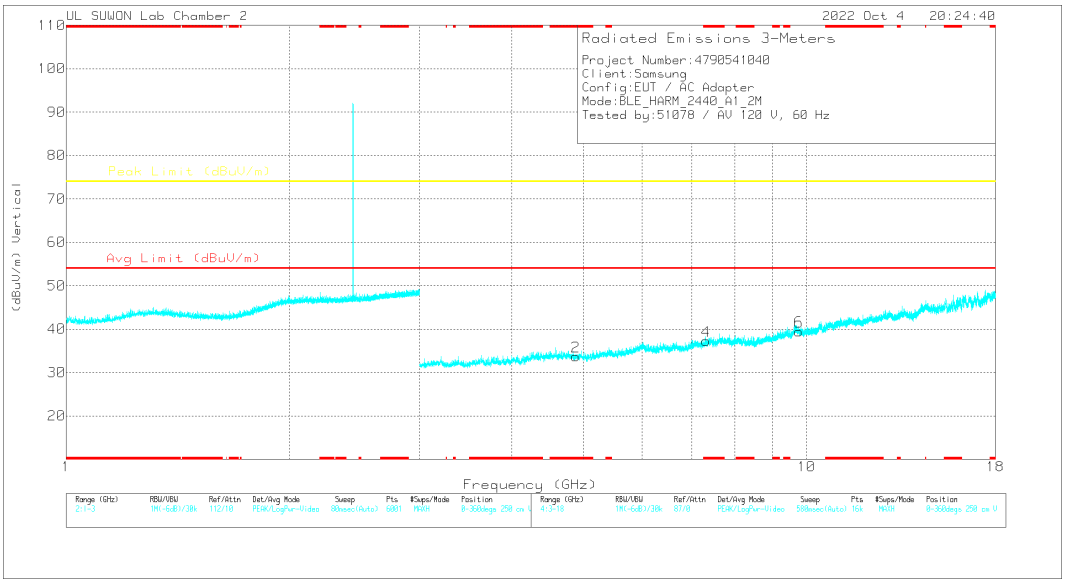
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80982	36.52	PK2	34	-27.8	0	42.72	-	-	74	-31.28	0	100	H
* 4.80934	36.49	PK2	34	-27.7	0	42.79	-	-	74	-31.21	0	100	V
7.20952	35.25	PK2	35.7	-25.1	0	45.85	-	-	74	-28.15	0	100	H
7.20548	34.97	PK2	35.7	-25	0	45.67	-	-	74	-28.33	0	100	V
9.61183	32.68	PK2	36.9	-21.3	0	48.28	-	-	74	-25.72	0	100	H
9.60591	32.32	PK2	36.9	-21.3	0	47.92	-	-	74	-26.08	0	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

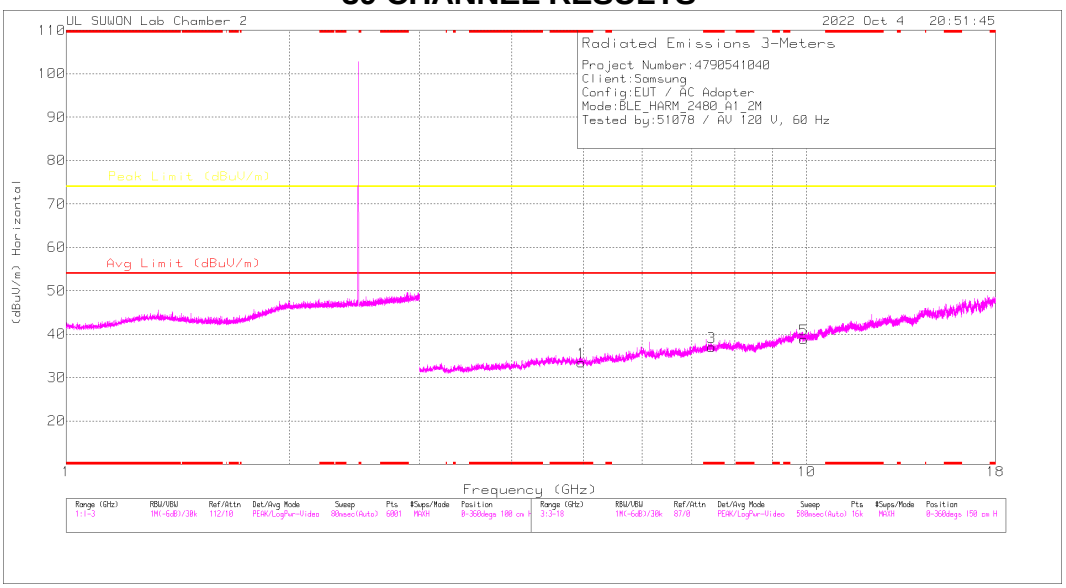
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

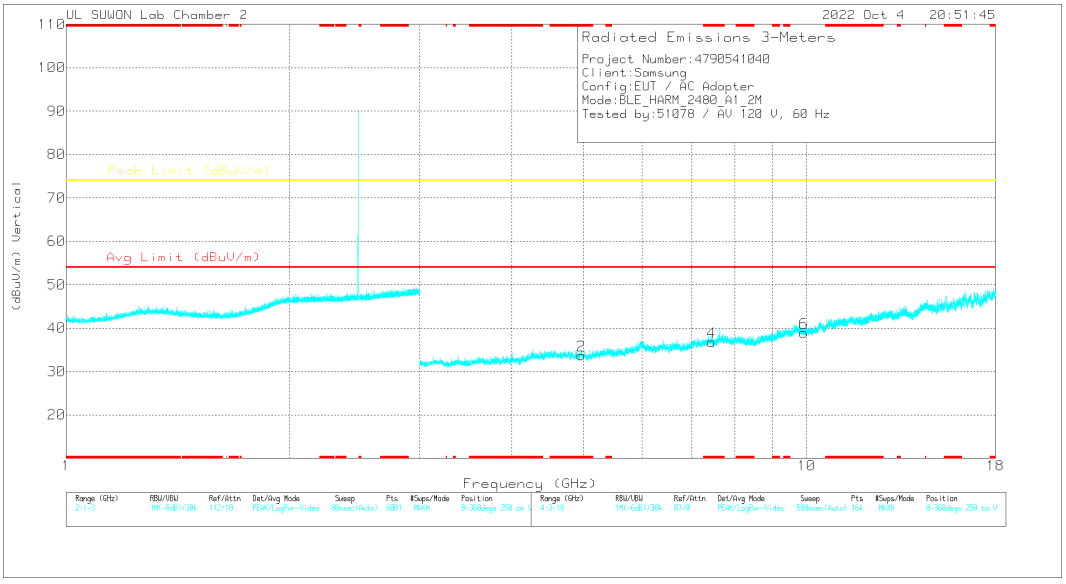
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88664	36.61	PK2	34	-27.6	0	43.01	-	-	74	-30.99	0	100	H
* 4.87987	36.75	PK2	34	-27.7	0	43.05	-	-	74	-30.95	0	100	V
* 7.31718	34.94	PK2	35.7	-24.6	0	46.04	-	-	74	-27.96	0	100	H
* 7.31278	34.91	PK2	35.7	-24.6	0	46.01	-	-	74	-27.99	0	100	V
9.76571	32.35	PK2	37.1	-21	0	48.45	-	-	74	-25.55	0	100	H
9.75124	32.32	PK2	37.1	-20.9	0	48.52	-	-	74	-25.48	0	100	V

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

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.

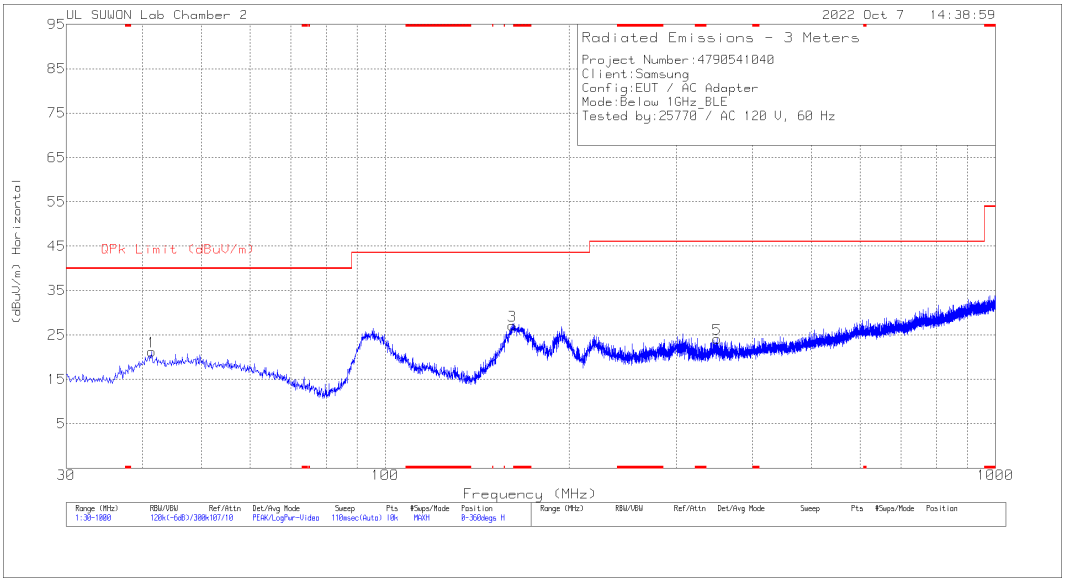
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	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
* 4.95976	36.11	PK2	34	-27	0	43.11	-	-	74	-30.89	0	100	H
* 4.96419	35.71	PK2	34	-26.9	0	42.81	-	-	74	-31.19	0	100	V
* 7.45001	34.05	PK2	35.7	-23.8	0	45.95	-	-	74	-28.05	0	100	H
* 7.44375	35	PK2	35.7	-23.7	0	47	-	-	74	-27	0	100	V
9.92139	31.66	PK2	37.3	-21.1	0	47.86	-	-	74	-26.14	0	100	H
9.93004	32.21	PK2	37.3	-21	0	48.51	-	-	74	-25.49	0	100	V

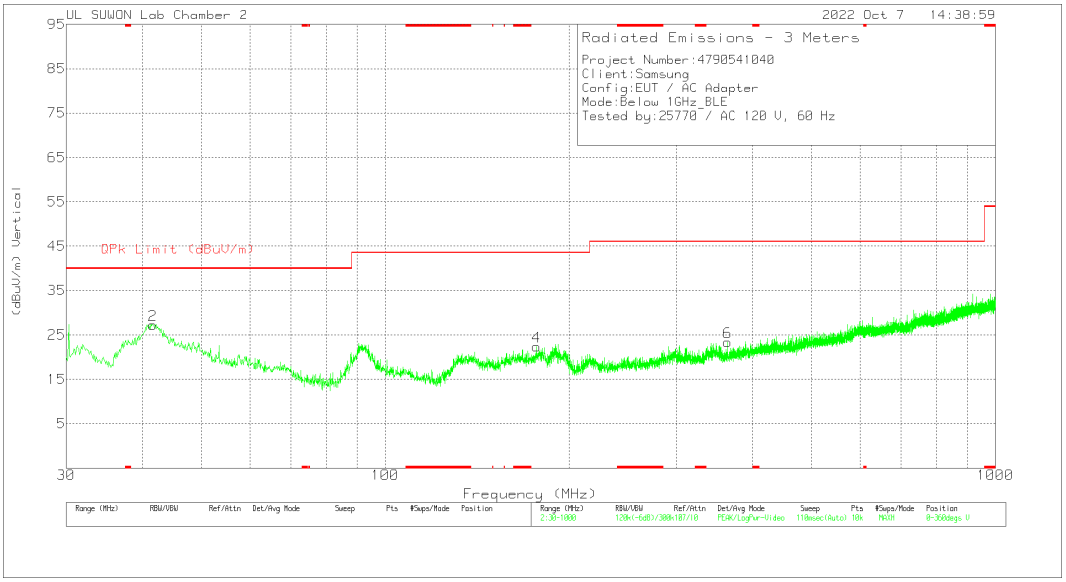
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

10.3. WORST CASE BELOW 1 GHz

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



HORIZONTAL



VERTICAL

Below 1GHz Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	41.446	33.47	Pk	19.1	-31.3	0	21.27	40	-18.73	0-360	100	H
3	161.532	42.71	Pk	14.4	-30	0	27.11	43.52	-16.41	0-360	100	H
5	349.615	32.09	Pk	20.8	-28.8	0	24.09	46.02	-21.93	0-360	100	H
2	41.64	39.46	Pk	19.2	-31.4	0	27.26	40	-12.74	0-360	100	V
4	176.955	37.33	Pk	15.1	-30	0	22.43	43.52	-21.09	0-360	100	V
6	364.262	31.73	Pk	20.2	-28.6	0	23.33	46.02	-22.69	0-360	100	V

Pk - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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.

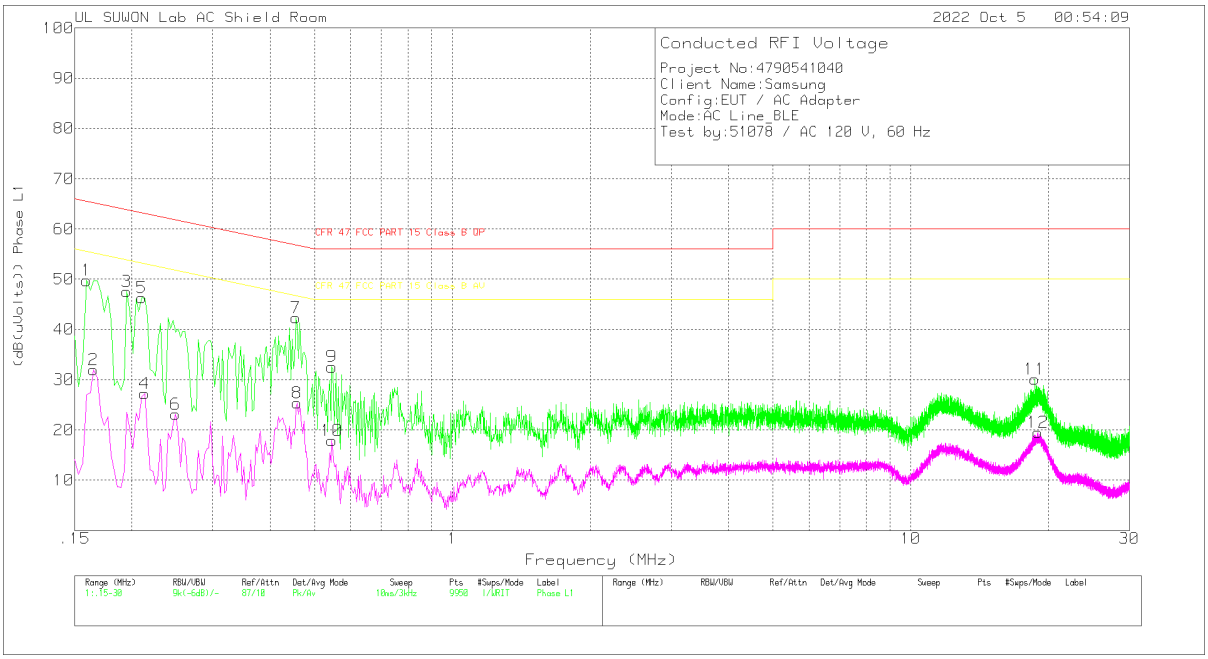
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1. AC Power Line

LINE 1 RESULTS

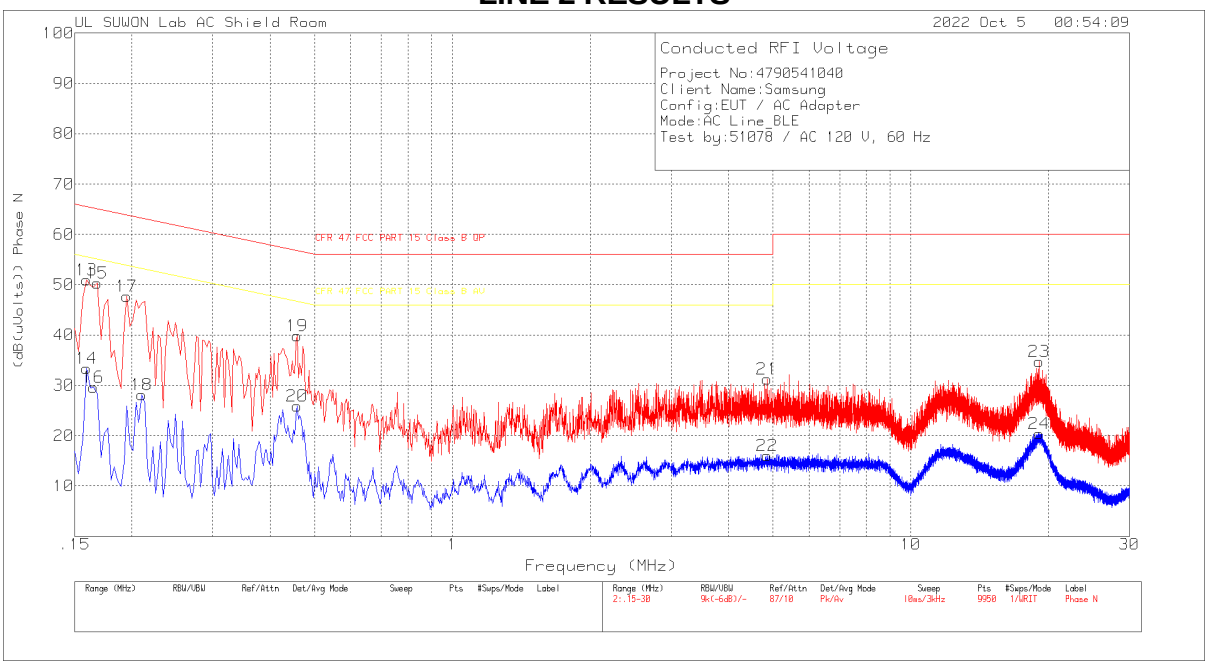


Trace Markers
Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_L1[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.159	39.85	Pk	9.8	.1	49.75	65.52	-15.77	-	-
2	.165	21.99	Av	9.9	.1	31.99	-	-	55.21	-23.22
3	.195	37.52	Pk	9.9	.2	47.62	63.82	-16.2	-	-
4	.213	17.22	Av	9.8	.2	27.22	-	-	53.09	-25.87
5	.21	36.31	Pk	9.8	.2	46.31	63.21	-16.9	-	-
6	.249	13.3	Av	9.6	.2	23.1	-	-	51.79	-28.69
7	.456	32.22	Pk	9.9	.2	42.32	56.77	-14.45	-	-
8	.459	15.29	Av	9.9	.2	25.39	-	-	46.71	-21.32
9	.546	22.45	Pk	9.9	.2	32.55	56	-23.45	-	-
10	.546	7.76	Av	9.9	.2	17.86	-	-	46	-28.14
11	18.651	19.6	Pk	10.1	.4	30.1	60	-29.9	-	-
12	18.963	8.99	Av	10.1	.4	19.49	-	-	50	-30.51

Pk - Peak detector
Av - Average detection

LINE 2 RESULTS



Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101836_With EX_N[dB]	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.159	41.08	Pk	9.8	.1	50.98	65.52	-14.54	-	-
14	.159	23.51	Av	9.8	.1	33.41	-	-	55.52	-22.11
15	.168	40.15	Pk	10	.1	50.25	65.06	-14.81	-	-
16	.165	19.64	Av	9.9	.1	29.64	-	-	55.21	-25.57
17	.195	37.55	Pk	9.9	.2	47.65	63.82	-16.17	-	-
18	.21	18.17	Av	9.8	.2	28.17	-	-	53.21	-25.04
19	.459	29.74	Pk	9.9	.2	39.84	56.71	-16.87	-	-
20	.459	15.82	Av	9.9	.2	25.92	-	-	46.71	-20.79
21	4.86	21.29	Pk	9.7	.3	31.29	56	-24.71	-	-
22	4.86	6.08	Av	9.7	.3	16.08	-	-	46	-29.92
23	19.08	24.09	Pk	10.2	.4	34.69	60	-25.31	-	-
24	19.08	9.81	Av	10.2	.4	20.41	-	-	50	-29.59

Pk - Peak detector
Av - Average detection

END OF TEST REPORT

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