



CERTIFICATION TEST REPORT

Report Number. : 4790101669-E3V3

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

Model : SM-X900

FCC ID : A3LSMX900

IC : 649E-SMX900

EUT Description : DTS/UNII a/b/g/n/ac/ax Tablet + BT/BLE and WPT

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 Issue 2
INDUSTRY CANADA RSS-GEN Issue 5

Date Of Issue:
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2021-11-30	Initial issue	Hyunsik Yun
V2	2021-12-13	Updated to address TCB's question	Hyunsik Yun
V3	2021-12-15	Updated to address TCB's question	Hyunsik Yun

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: DTS/UNII a/b/g/n/ac/ax Tablet + BT/BLE and WPT

MODEL NUMBER: SM-X900

SERIAL NUMBER: R32RA0033JJ (CONDUCTED, ORIGINAL);
R32RA0034NV (RADIATED);
R32RB00B3WH (RADIATED, SPOT-CHECK)

DATE TESTED: 2021-11-05 ~ 2021-12-06 (Original);
2021-11-22 ~ 2021-12-06 (Spot-Check);

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
INDUSTRY CANADA RSS-247 Issue 2	Complies
INDUSTRY CANADA RSS-GEN Issue 5	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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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMX906B DTS(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 FCC ID: A3LSMX900 (IC : 649E-SMX900, Model number : SM-X900) shares the same enclosure and circuit board as FCC ID: A3LSMX906B (Model number : SM-X906B). The BLE antennas and surrounding circuitry and layout are identical between these two units for re-used bands.

In SM-X900 model, all of the RF parts(5G/LTE/WCDMA/GSM) are removed from the PCB.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMX906B (Model number : SM-X906B) remains representative of FCC ID: A3LSMX900 (IC : 649E-SMX900, Model number : SM-X900). The test data of FCC ID: A3LSMX906B (Model number : SM-X906B) being submitted for this application to cover BLE features.

Model number, SM-X906B, is not certified for ISED certification.

1.3. SPOT CHECK VERIFICATION DATA

Band	Test Item	Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-X906B Results	SM-X900 Results		
DTS BLE (2.4GHz)	Band Edge	1Mbps	2480 MHz	54 dBuV/m	44.34 dBuV/m	45.30 dBuV/m	0.96 dB	
	RSE	1Mbps	2480 MHz	74 dBuV/m	38.57 dBuV/m	33.46 dBuV/m	-5.11 dB	Noise Floor
	Band Edge	2Mbps	2480 MHz	54 dBuV/m	46.83 dBuV/m	45.58 dBuV/m	-1.25 dB	
	RSE	2Mbps	2440 MHz	74 dBuV/m	44.12 dBuV/m	39.87 dBuV/m	-4.25 dB	Noise Floor

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

1.4. REFERENCE DETAIL

Reference application that contains the re-used reference data.

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Title / Section
DTS	A3LSMX906B	Grant	4790101660-E4	Test	Report DTS [b, g, n ax] WLAN / All sections
			4790101660-E5	Test	Report BLE / All sections
DSS	A3LSMX906B	Grant	4790101660-E6	Test	Report BT / All sections
NII	A3LSMX906B	Grant	4790101660-E7	Test	Report UNII [a, n, ac, ax] WLAN / All sections
NII (6E)	A3LSMX906B	Grant	4790101660-E8	Test	Report UNII 6E [a, ax] WLAN / All sections
WPT	A3LSMX906B	Grant	4790101660-E9	Test	Report WPT / All sections

Note: ISED not supported U-NII 6E.

2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 DTS Meas Guidance v05r02.
4. KDB 662911 D01 Multiple Transmitter Output v02r01
5. ANSI C63.10-2013.
6. IC RSS-GEN Issue 5.
7. IC RSS-247 Issue 2.
8. KDB 484596 D01 Referencing Test Data v01

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
☒	Chamber 2
☒	Chamber 3

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>.

Used ISED Test Site Reg.(company number) : 2324L
CAB Identifier: KR0161

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:

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

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 DTS/UNII a/b/g/n/ac/ax Tablet + BT/BLE and WPT.
This test report addresses the DTS (BLE) operational mode.

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	1Mbps	Peak	16.148	41.191
		Average	15.756	37.636
	2Mbps	Peak	16.591	45.614
		Average	15.904	38.940

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 -2.4 dBi and ANT 2's maximum gain of -2.1 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.

For Antenna 1, 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.

For Antenna 2, 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.

- Supported Power modes:

ANT. Power	ANT1	ANT2	BLE-Dual
High(1M, 2M)	O	O	
Low(1M, 125k,500k, 2M)	O	O	

Since the target High power(1M, 2M) is higher than the target power of Low power(1M, 125k,500k, 2M), the test was performed in high power mode.

Note : All radiated and power line conducted tests were performed attached with travel adapter and earphone 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.

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	14.398	2	ANT1	2Mbps 37pkt (High)	2402	14.495
			2440	15.756				2440	15.904
			2480	13.811				2480	14.069
	ANT2		2402	14.275		ANT2		2402	14.361
			2440	15.703				2440	15.796
			2480	14.897				2480	15.026
	ANT1	1Mbps 255pkt (High)	2402	14.165		ANT1	2Mbps 255pkt (High)	2402	14.305
			2440	15.501				2440	15.668
			2480	13.486				2480	13.708
	ANT2		2402	14.065		ANT2		2402	14.266
			2440	15.505				2440	15.637
			2480	14.658				2480	14.829
1 Coded S=8	ANT1	125kbps 37pkt (Low)	2402	8.921	1 Coded S=2	ANT1	500kbps 37pkt (Low)	2402	8.973
			2440	9.869				2440	9.914
			2480	8.093				2480	8.124
	ANT2		2402	9.991		ANT2		2402	10.017
			2440	10.456				2440	10.477
			2480	9.129				2480	9.155
	ANT1	125kbps 255pkt (Low)	2402	8.950		ANT1	500kbps 255pkt (Low)	2402	8.965
			2440	9.879				2440	9.895
			2480	8.067				2480	8.075
	ANT2		2402	9.981		ANT2		2402	9.989
			2440	10.449				2440	10.453
			2480	9.115				2480	9.126

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA800	R37R8YN0CD1RC3	N/A
Data Cable	SAMSUNG	EP-DW767JWE	N/A	N/A

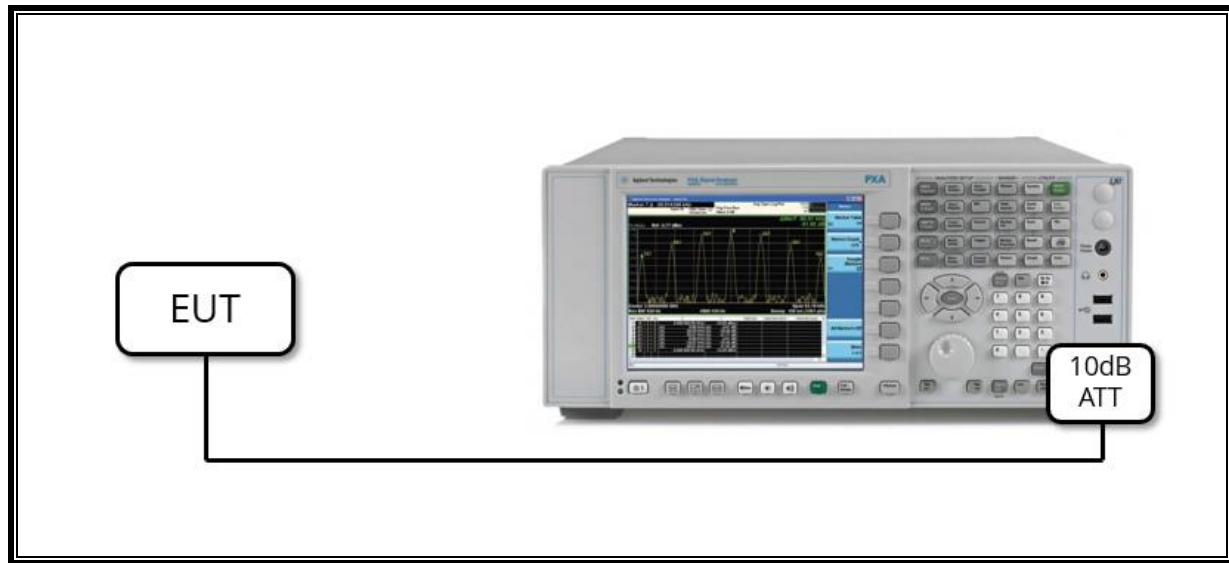
I/O CABLE

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

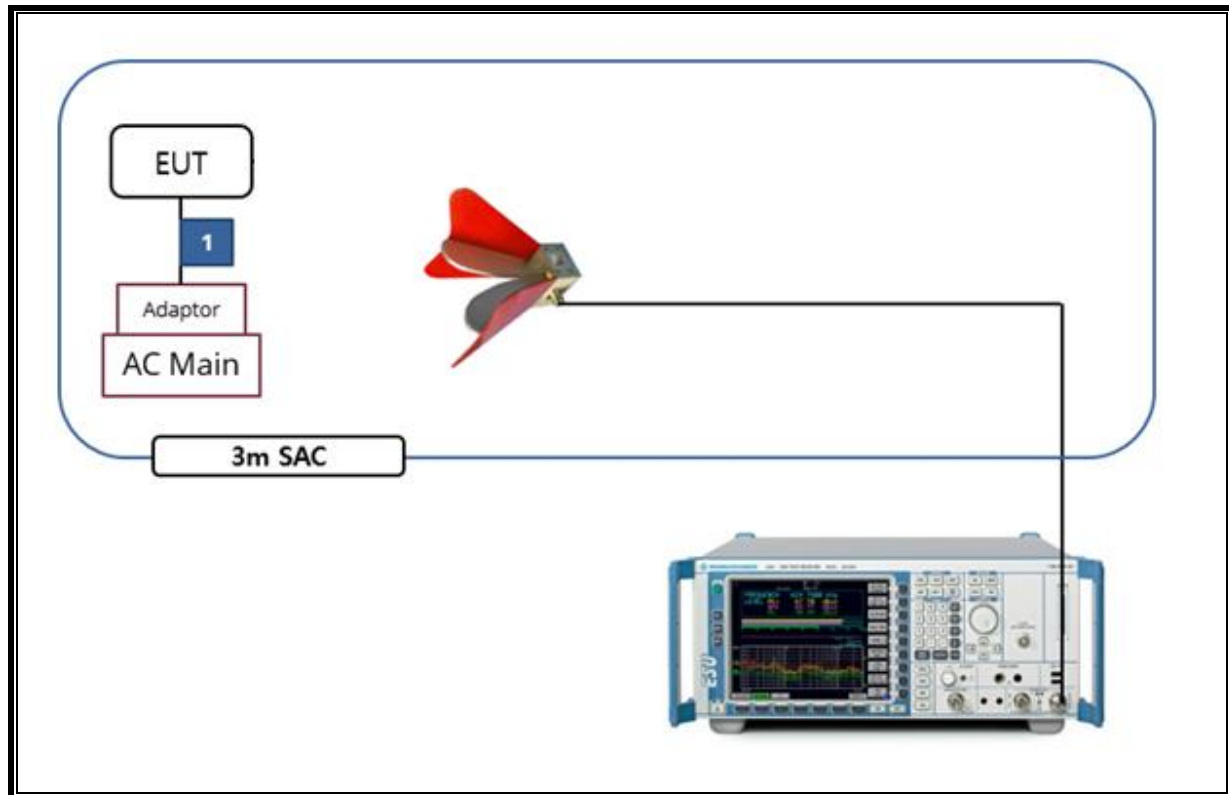
TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software in hidden menu exercised the EUT to enable 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	2022-08-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2022-08-13
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2022-08-13
Antenna, Horn, 18 GHz	ETS	3115	00167211	2022-07-27
Antenna, Horn, 18 GHz	ETS	3115	00161451	2022-08-15
Antenna, Horn, 18 GHz	ETS	3117	00168724	2022-07-27
Antenna, Horn, 18 GHz	ETS	3117	00168717	2022-08-15
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2022-08-04
Preamplifier	ETS	3116C-PA	00168841	2022-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2022-08-02
Preamplifier, 1000 MHz	Sonoma	310N	370599	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2022-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029168	2022-08-02
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2022-08-04
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2022-08-04
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2022-01-03
Average Power Sensor	Agilent / HP	U2000	MY54270007	2022-08-04
Average Power Sensor	Agilent / HP	U2000	MY54260010	2022-08-04
Attenuator	PASTERNAK	PE7087-10	A001	2022-08-03
Attenuator	PASTERNAK	PE7087-10	A008	2022-08-03
Attenuator	PASTERNAK	PE7004-10	2	2022-08-02
Attenuator	PASTERNAK	PE7087-10	A009	2022-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2022-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2022-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2022-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	019	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	2022-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	2022-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	020	2022-08-02
LISN	R&S	ENV-216	101837	2022-08-05
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	IC Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2(a)	Occupied Bandwidth(6dB)	> 500kHz	Conducted	PASS
2.1051, 15.247(d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-30 dBc		PASS
15.247 (b)(3)	RSS-247 5.4(d)	TX conducted output power	< 30 dBm		PASS
15.247(e)	RSS-247 5.4(b)	PSD	< 8 dBm/3kHz		PASS
15.207(a)	RSS-GEN Clause 7&8.9	AC Power Line conducted emissions	Section 11	Power Line conducted	PASS
15.205, 15.209	RSS-GEN Clause 8.8	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	PASS

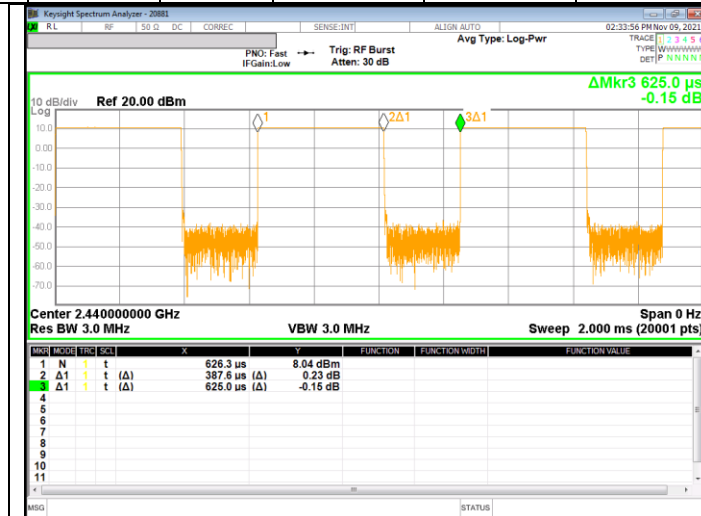
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

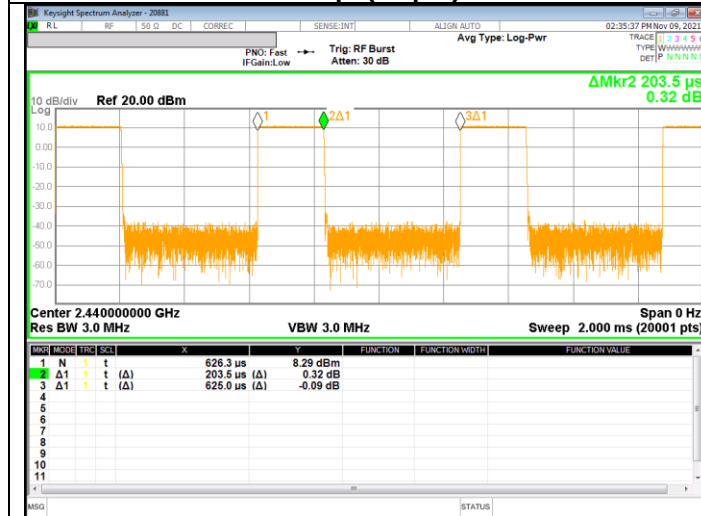
LIMITS

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]
2 400 ~ 2 483.5 MHz Bands						
1 Mbps [37pkt]	0.388	0.625	0.621	62.080	2.07	2.577
2 Mbps [37pkt]	0.204	0.625	0.326	32.560	4.87	4.914



1 Mbps(37 pkt)



2 Mbps(37 pkt)

9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 5.2 (a)

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

RESULTS

9.2.1. 1 Mbps

Ant.	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
ANT1	0	2 402	672.6	500.0
	19	2 440	672.8	500.0
	39	2 480	672.5	500.0
ANT2	0	2 402	674.3	500.0
	19	2 440	677.8	500.0
	39	2 480	671.3	500.0
Worst			671.3	500.0

9.2.2. 2 Mbps

Ant.	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
ANT1	0	2 402	1143.0	500.0
	19	2 440	1147.0	500.0
	39	2 480	1151.0	500.0
ANT2	0	2 402	1143.0	500.0
	19	2 440	1147.0	500.0
	39	2 480	1145.0	500.0
Worst			1143.0	500.0

9.2.3. 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 $\geq$ DTS bandwidth).

RESULTS

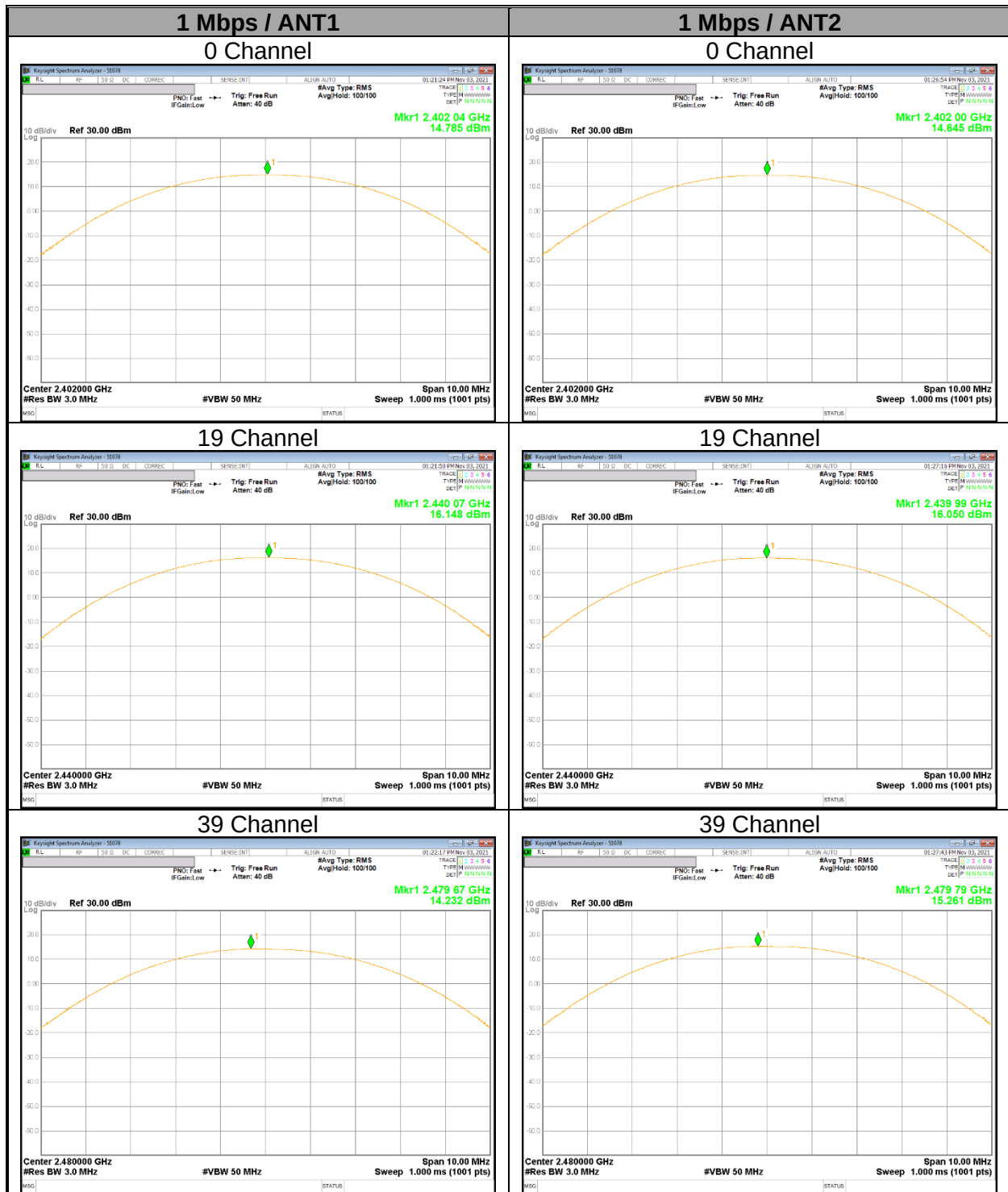
9.3.1. 1 Mbps

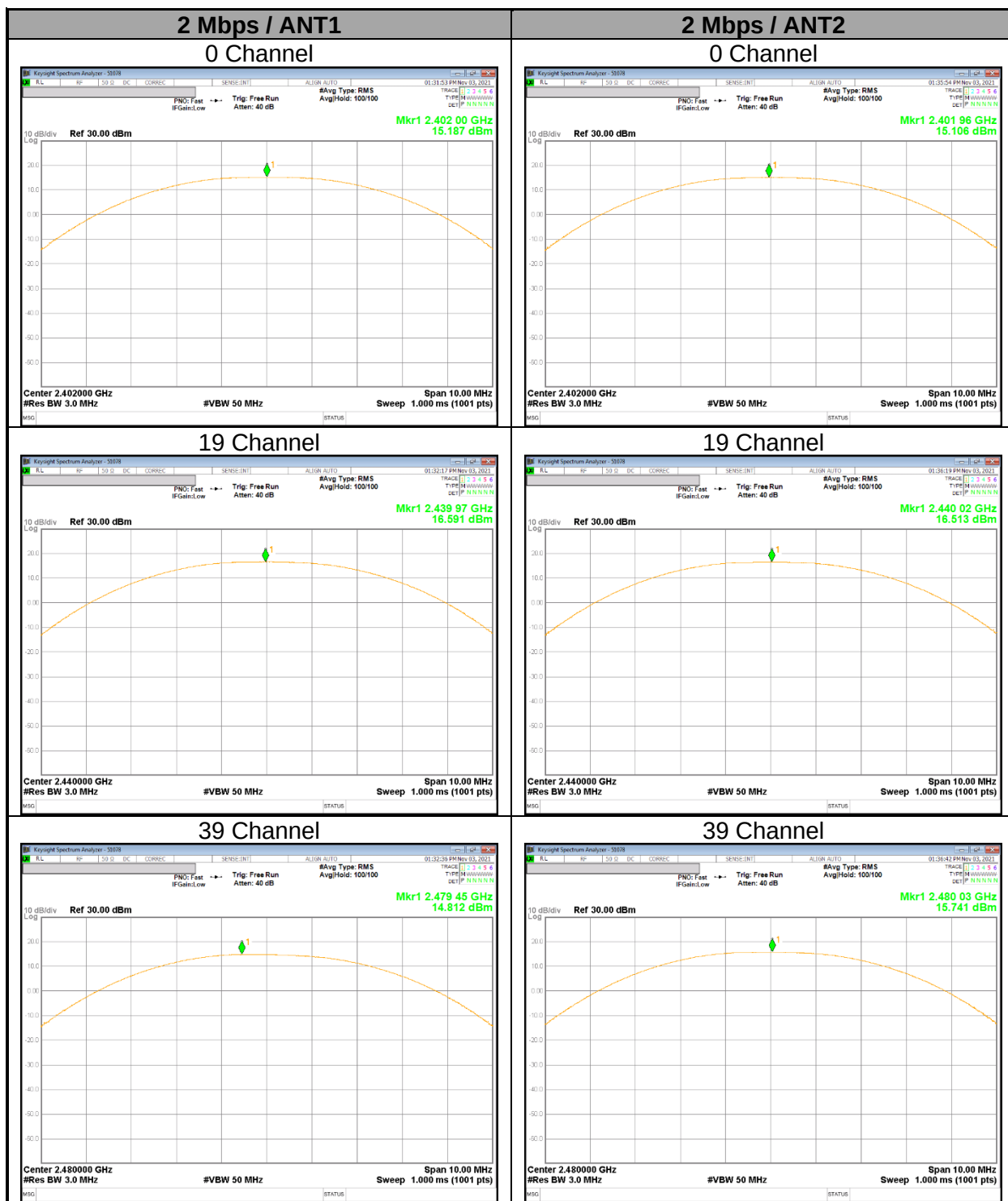
Antenna	Power Mode	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT1	High	0	2 402	14.785	30.000	-15.215
		19	2 440	16.148		-13.852
		39	2 480	14.232		-15.768
ANT2		0	2 402	14.645		-15.355
		19	2 440	16.050		-13.950
		39	2 480	15.261		-14.739
Worst				16.148	-13.852	

9.3.2. 2 Mbps

Antenna	PA.	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
ANT1	High	0	2 402	15.187	30.000	-14.813
		19	2 440	16.591		-13.409
		39	2 480	14.812		-15.188
ANT2		0	2 402	15.106		-14.894
		19	2 440	16.513		-13.487
		39	2 480	15.741		-14.259
Worst				16.591	-13.409	

9.3.3. 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. 1 Mbps

Antenna	Power Mode	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT1	High	0	2 402	14.398	27.530
		19	2 440	15.756	37.636
		39	2 480	13.811	24.049
ANT2		0	2 402	14.275	26.761
		19	2 440	15.703	37.179
		39	2 480	14.897	30.882

9.4.2. 2 Mbps

Antenna	Power Mode	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
ANT1	High	0	2 402	14.495	28.151
		19	2 440	15.904	38.940
		39	2 480	14.069	25.521
ANT2		0	2 402	14.361	27.296
		19	2 440	15.796	37.984
		39	2 480	15.026	31.813

9.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

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

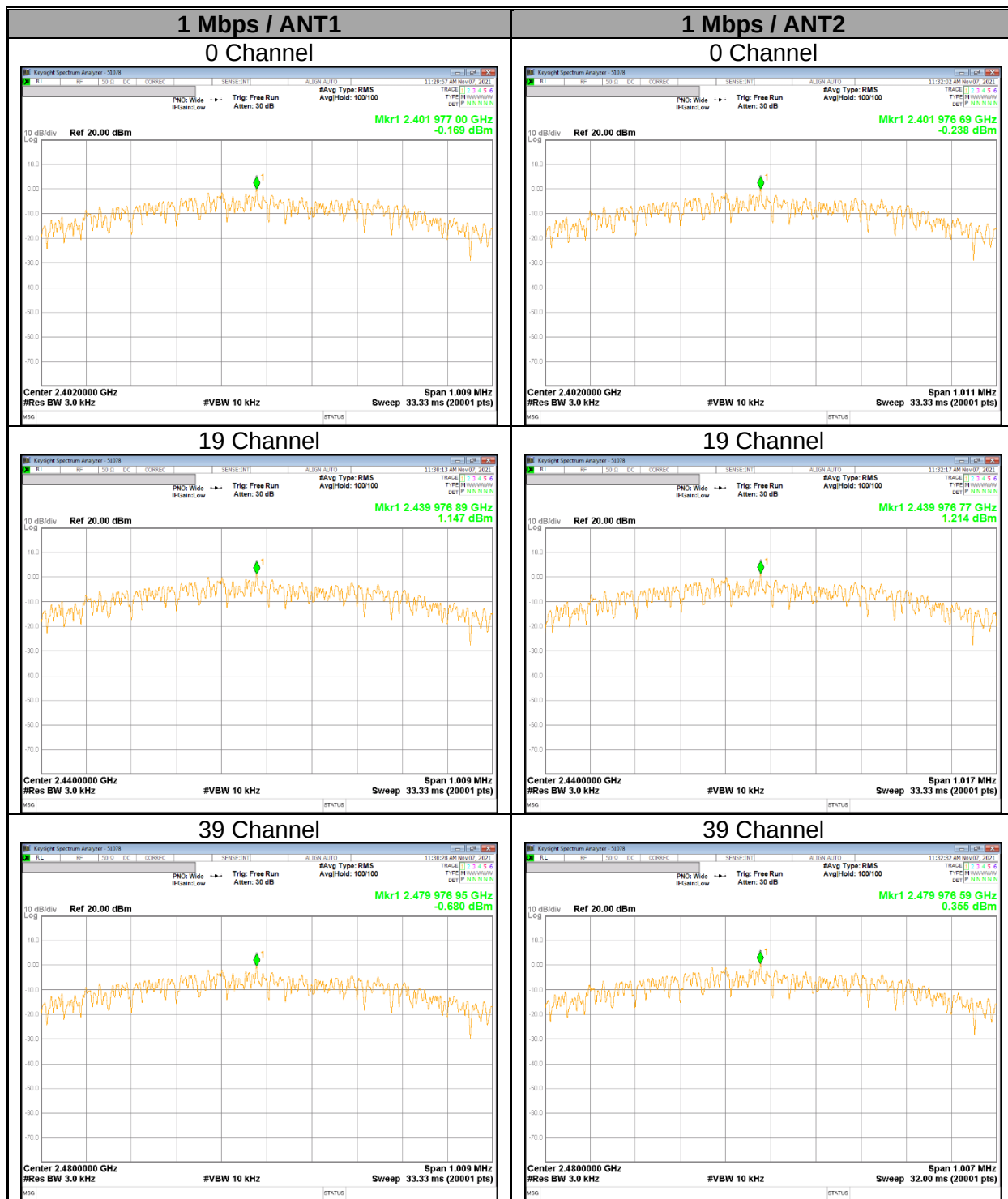
9.5.1. 1 Mbps

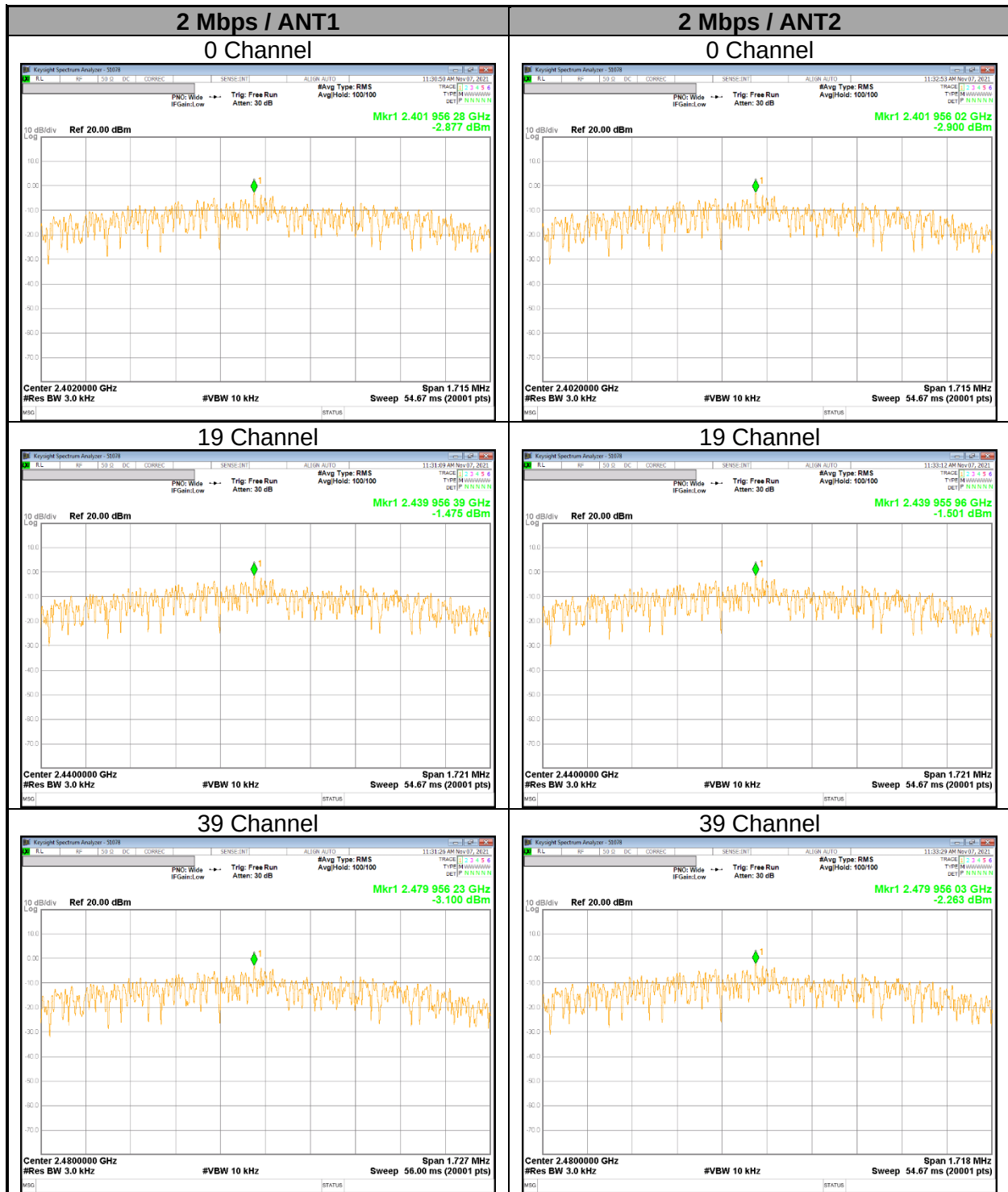
Antenna	Power Mode	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
ANT1	High	0	2 402	-0.169	8.00	-8.169
		19	2 440	1.147		-6.853
		39	2 480	-0.680		-8.680
ANT2		0	2 402	-0.238		-8.238
		19	2 440	1.214		-6.786
		39	2 480	0.355		-7.645
Worst				1.147	-6.853	

9.5.2. 2 Mbps

Antenna	Power Mode	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
ANT1	High	0	2 402	-2.877	8.00	-10.877
		19	2 440	-1.475		-9.475
		39	2 480	-3.100		-11.100
ANT2		0	2 402	-2.900		-10.900
		19	2 440	-1.501		-9.501
		39	2 480	-2.263		-10.263
Worst				-1.475	-9.475	

9.5.3. PSD TEST PLOTS





9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

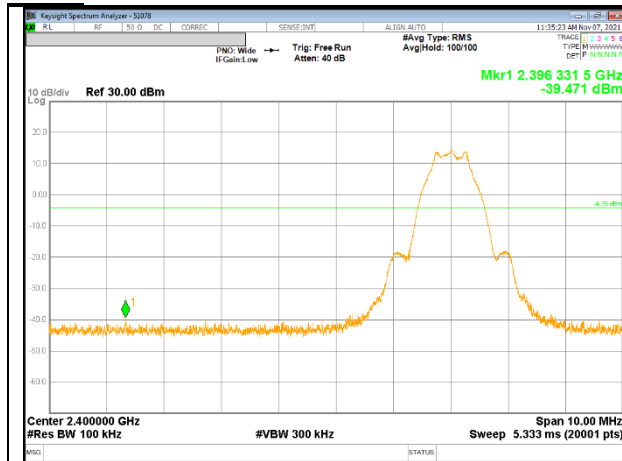
RSS-247 5.5

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

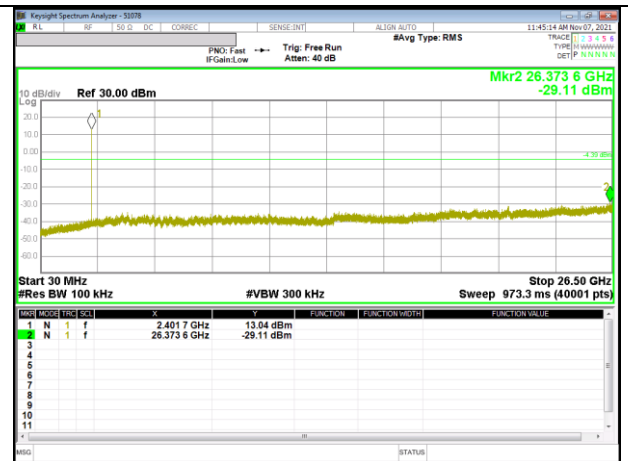
RESULTS

9.6.1. 1 Mbps

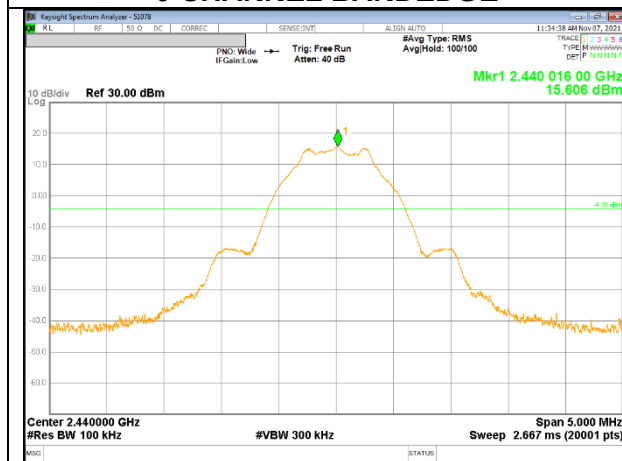
ANT1



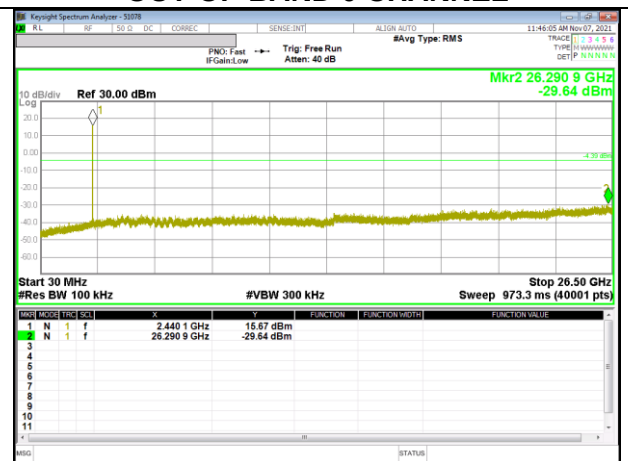
0 CHANNEL BANDEDGE



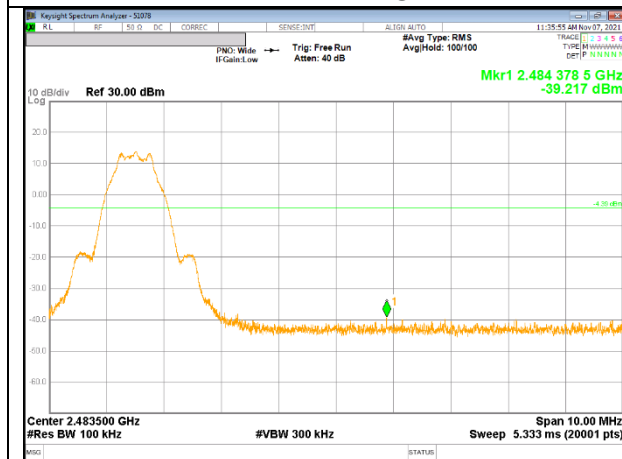
OUT-OF-BAND 0 CHANNEL



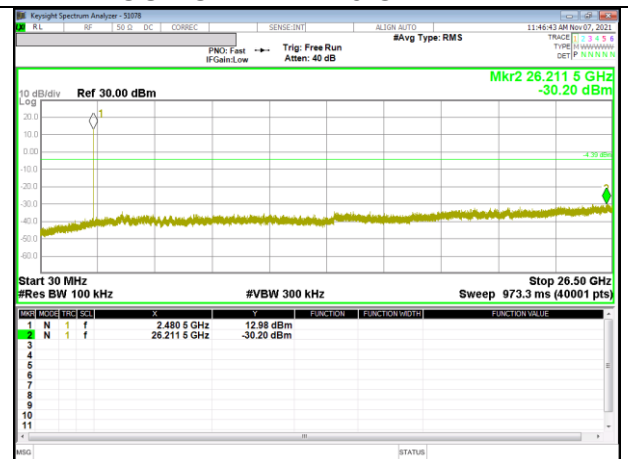
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL

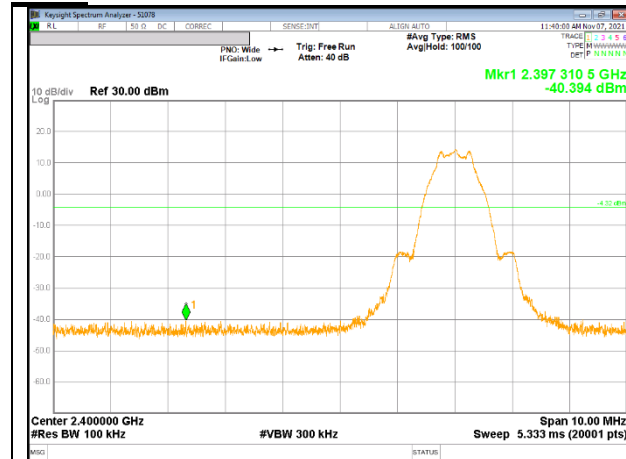


39 CHANNEL BANDEDGE

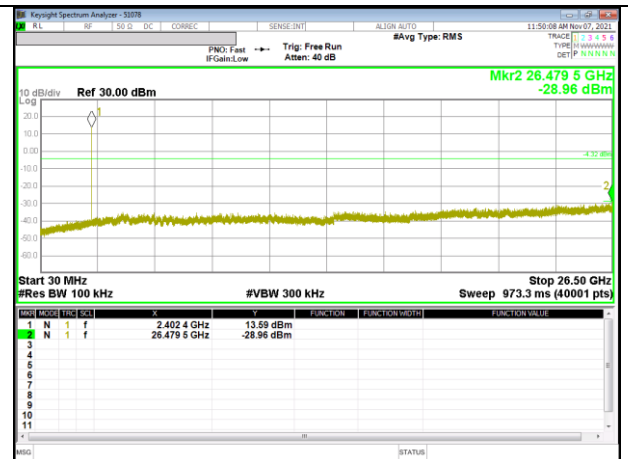


OUT-OF-BAND 39 CHANNEL

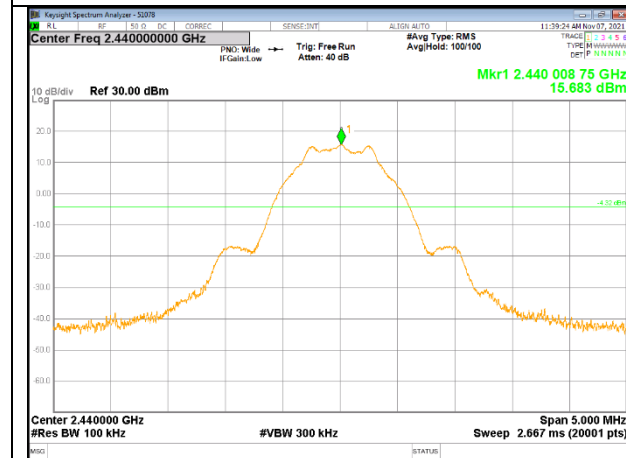
ANT2



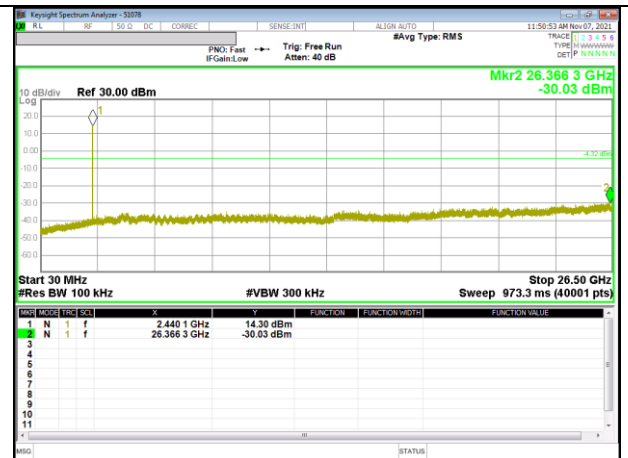
0 CHANNEL BANDEDGE



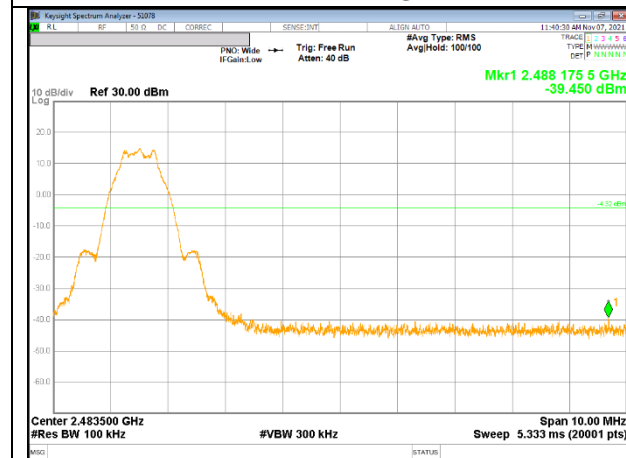
OUT-OF-BAND 0 CHANNEL



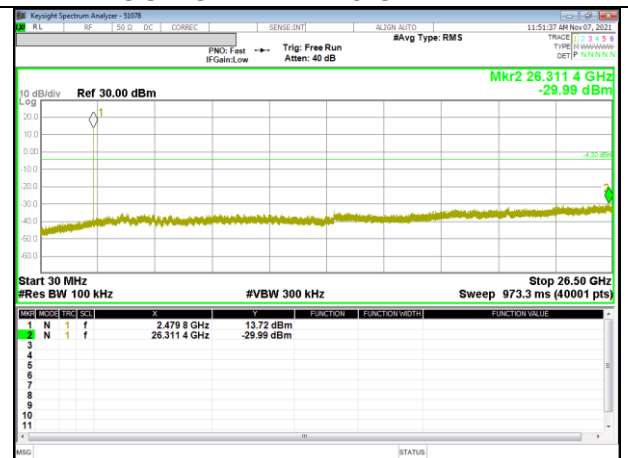
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL



39 CHANNEL BANDEDGE



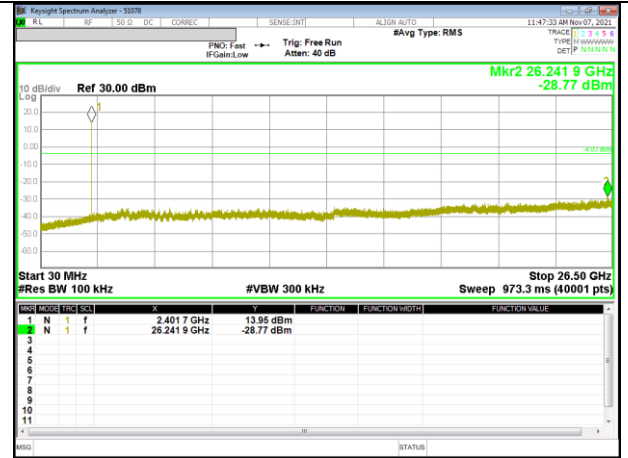
OUT-OF-BAND 39 CHANNEL

9.6.2. 2Mbps

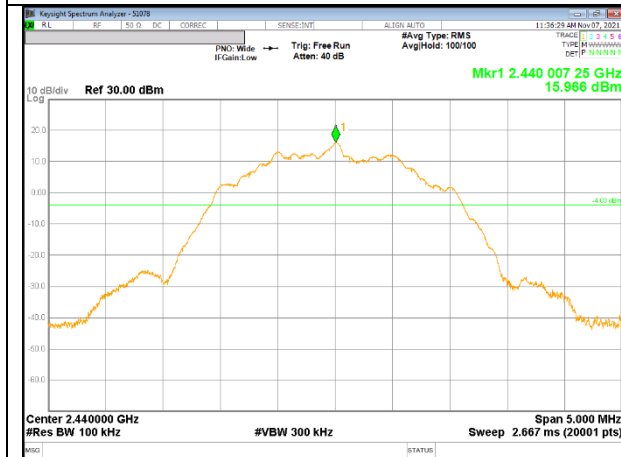
ANT1



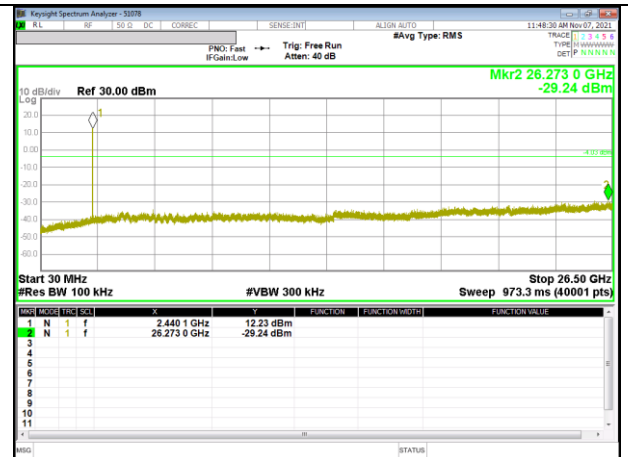
0 CHANNEL BANDEDGE



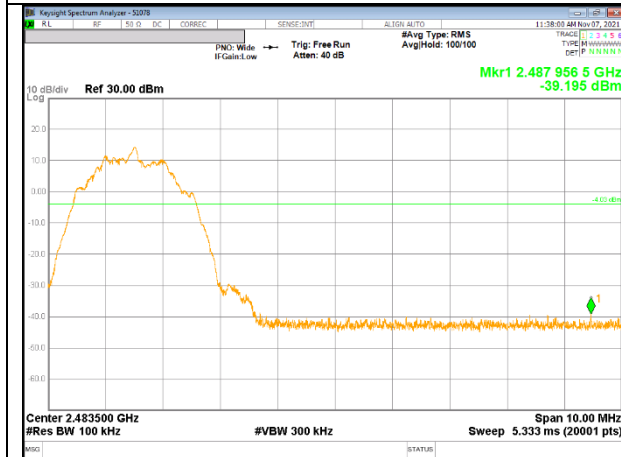
OUT-OF-BAND 0 CHANNEL



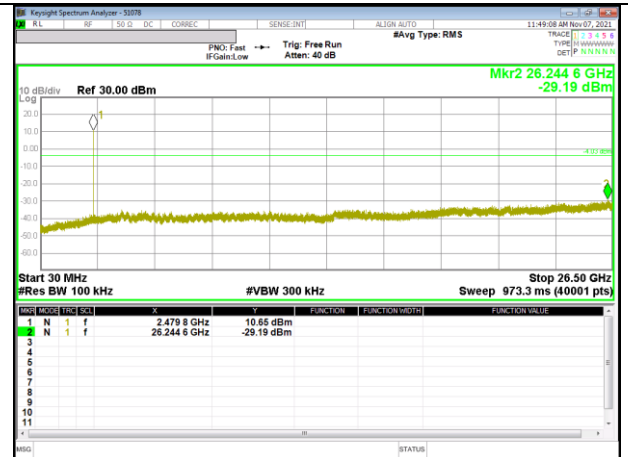
IN-BAND REFERENCE LEVEL



OUT-OF-BAND 19 CHANNEL

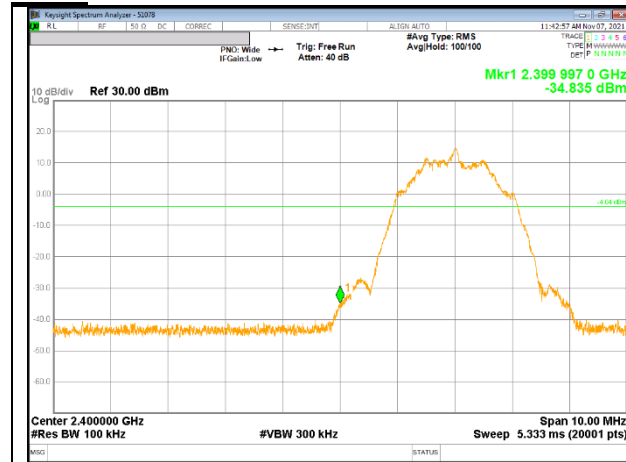


39 CHANNEL BANDEDGE

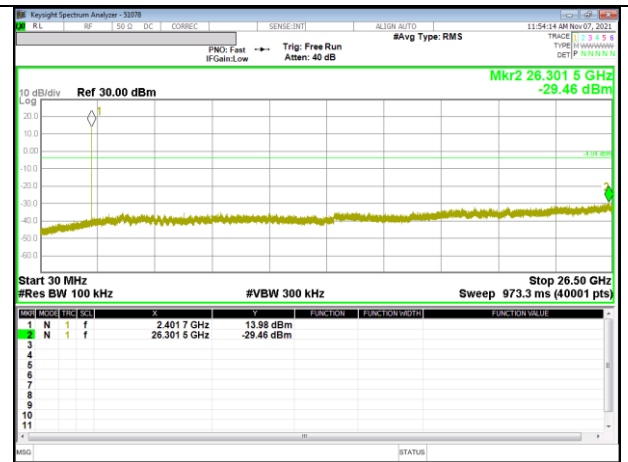


OUT-OF-BAND 39 CHANNEL

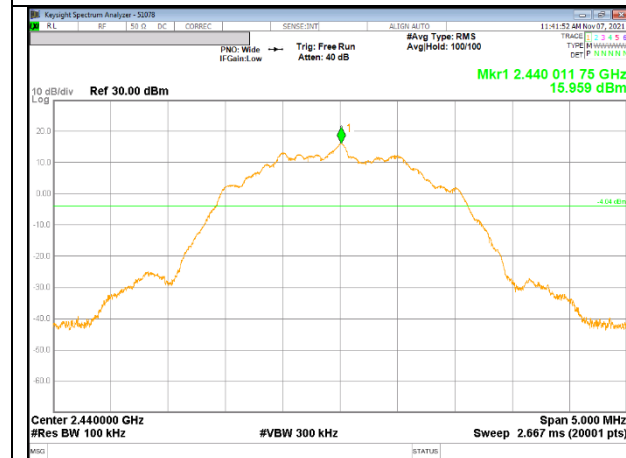
ANT2



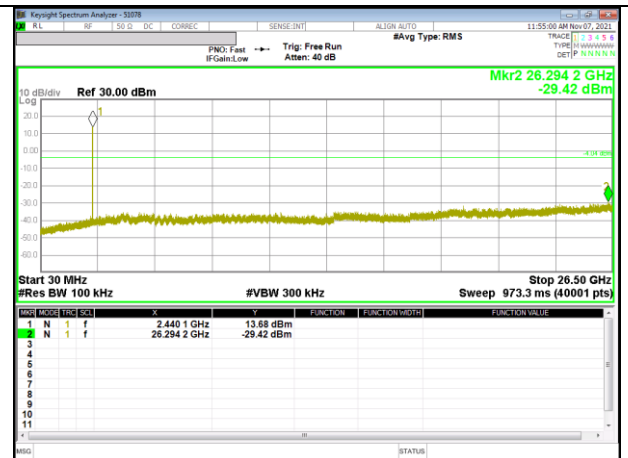
0 CHANNEL BANDEDGE



OUT-OF-BAND 0 CHANNEL



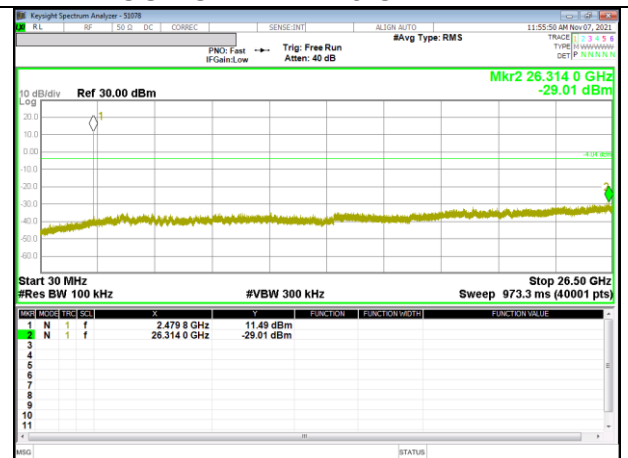
IN-BAND REFERENCE LEVEL



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 = $10\log(1/0.6208)=2.070$ dB (Spectrum Analyzer round it up to 2.07 dB) and for 2 Mbps, DCF = $10\log(1/0.3256)=4.873$ dB (Spectrum Analyzer round it up to 4.87 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.

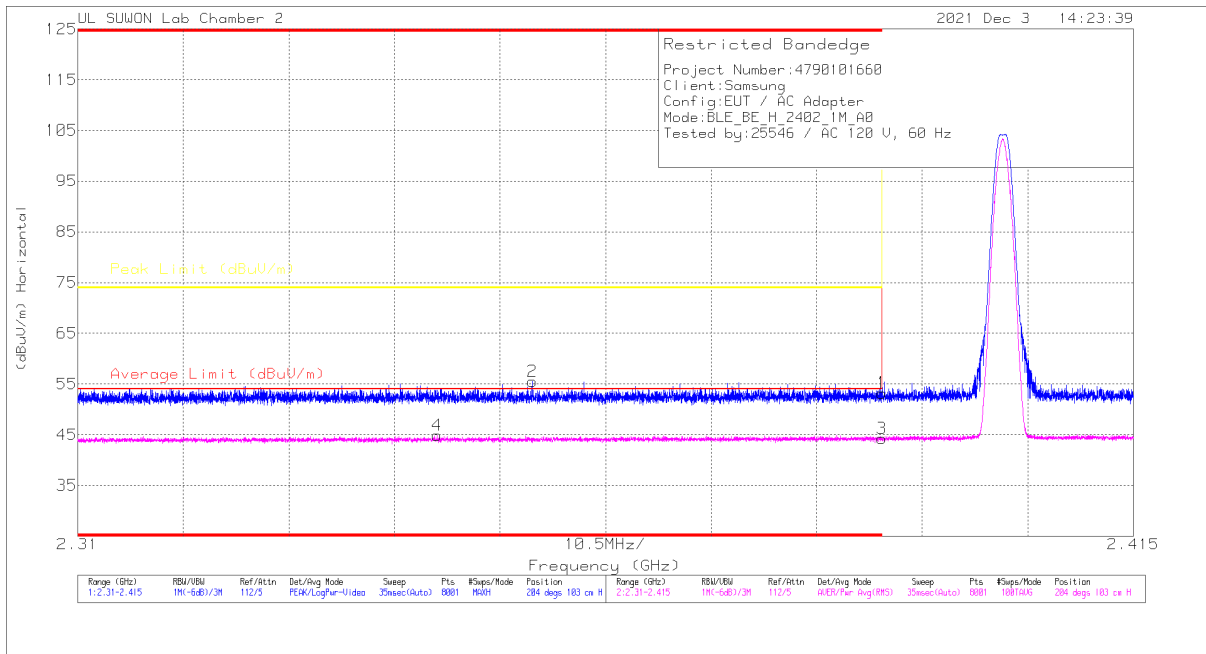
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. 1 Mbps

ANT1

BANDEGE (0 CHANNEL)

HORIZONTAL RESULT

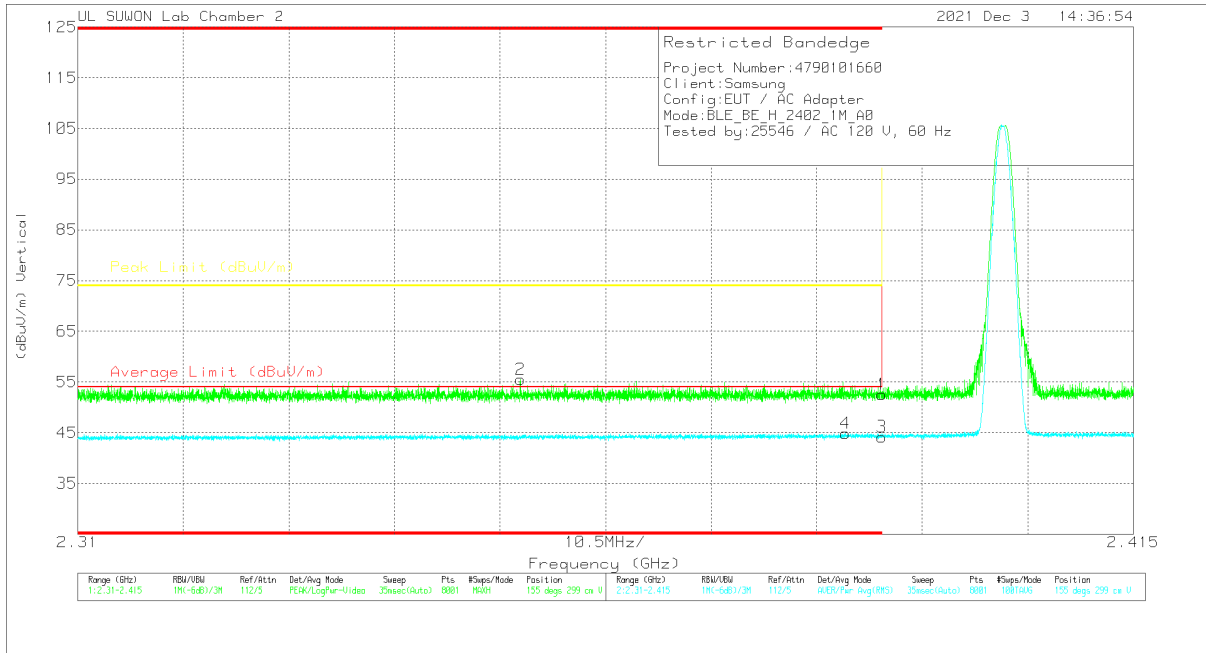


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_001669/24	10dB_ATT[dB]	DC Cor (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.93	Pk	31.9	-20.6	0	53.23	-	-	74	-20.77	204	103	H
2	* 2.35526	44.36	Pk	31.8	-20.6	0	55.56	-	-	74	-18.44	204	103	H
3	* 2.39	30.95	RMS	31.9	-20.6	2.07	44.32	54	-9.68	-	-	204	103	H
4	* 2.34574	31.59	RMS	31.8	-20.6	2.07	44.86	54	-9.14	-	-	204	103	H

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

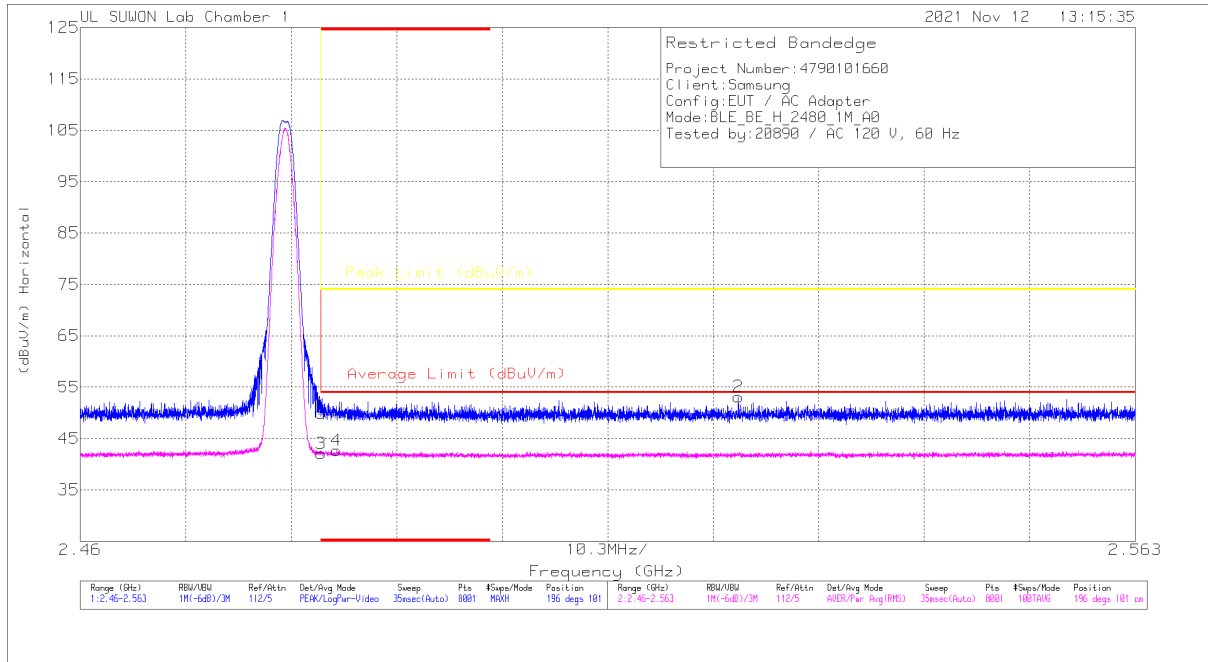
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_90166724	10dB_ATT[dB]	DC Cor (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	41.28	PK	31.9	-20.6	0	52.58	-	-	74	-21.42	155	299	V
2	* 2.35402	44.31	PK	31.8	-20.6	0	55.51	-	-	74	-18.49	155	299	V
3	* 2.39	30.83	RMS	31.9	-20.6	2.07	44.2	54	-9.8	-	-	155	299	V
4	* 2.38635	31.53	RMS	31.9	-20.6	2.07	44.9	54	-9.1	-	-	155	299	V

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

BANDEDGE (39 CHANNEL)**HORIZONTAL RESULT****Trace Markers**

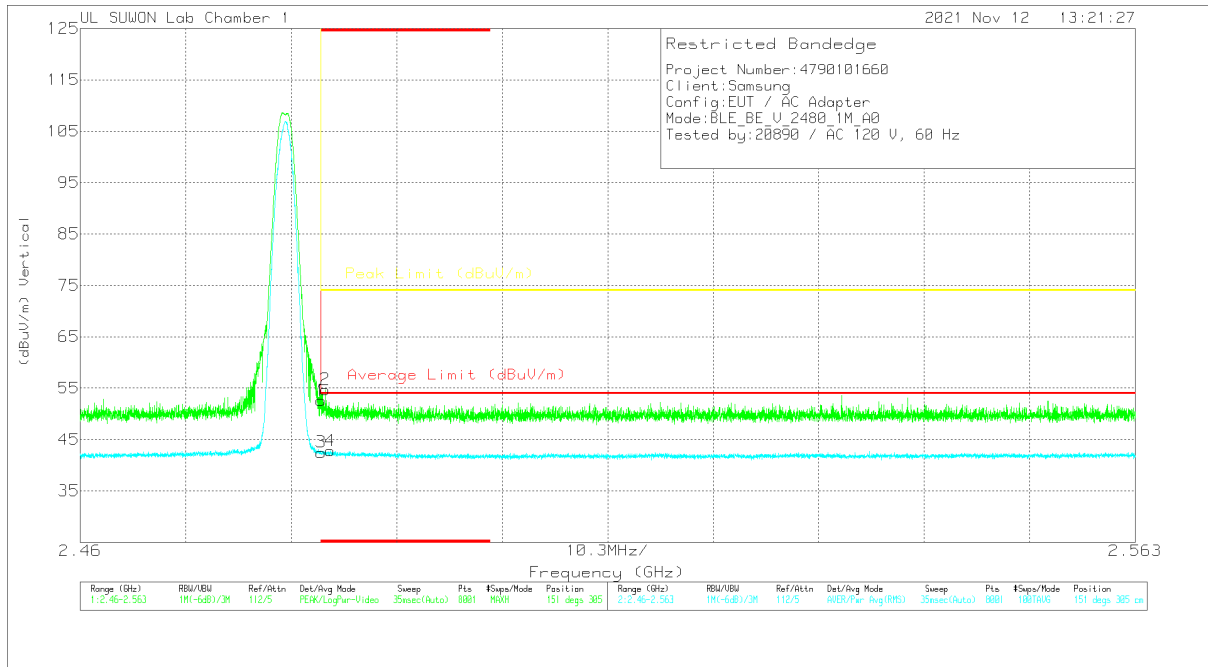
Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	3117_00166917	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Acimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	43.09	Pk	32	-25.1	0	49.99	-	-	74	-24.01	196	101	H
2	2.52425	46.1	Pk	32	-25	0	53.1	-	-	74	-20.9	196	101	H
3	* 2.48351	33.1	RMS	32	-25.1	2.07	42.07	54	-11.93	-	-	196	101	H
4	* 2.48502	33.63	RMS	32	-25	2.07	42.7	54	-11.3	-	-	196	101	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



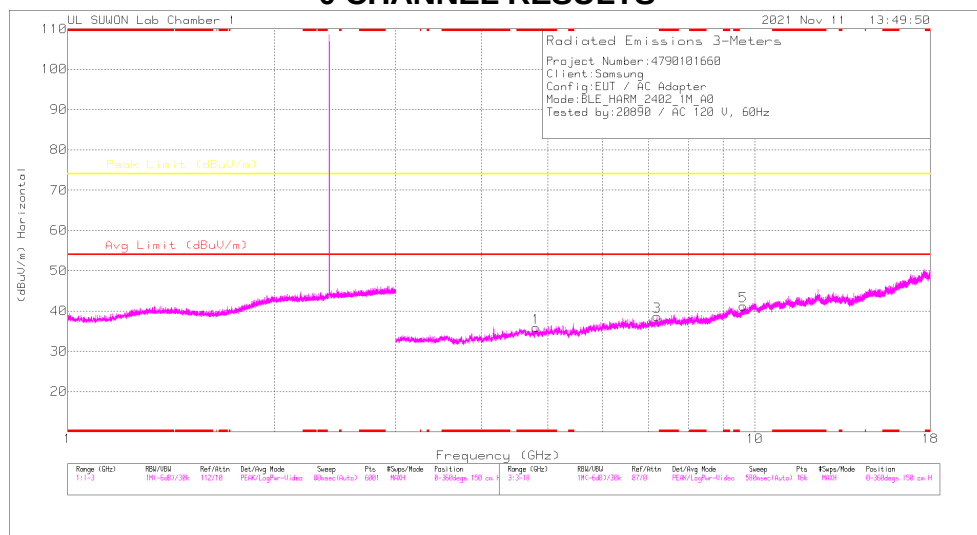
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00160717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.48351	45.71	PK	32	-25.1	0	52.61	-	-	74	-21.39	151	305	V
2	* 2.48392	47.82	PK	32	-25.1	0	54.72	-	-	74	-19.28	151	305	V
3	* 2.48351	33.55	RMS	32	-25.1	2.07	42.52	54	-11.48	-	-	151	305	V
4	* 2.48439	33.85	RMS	32	-25.1	2.07	42.82	54	-11.18	-	-	151	305	V

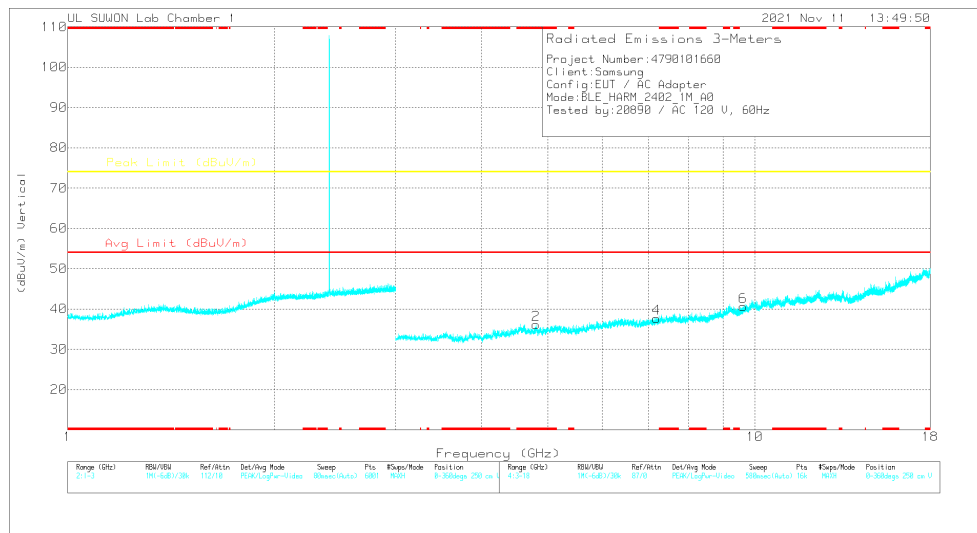
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

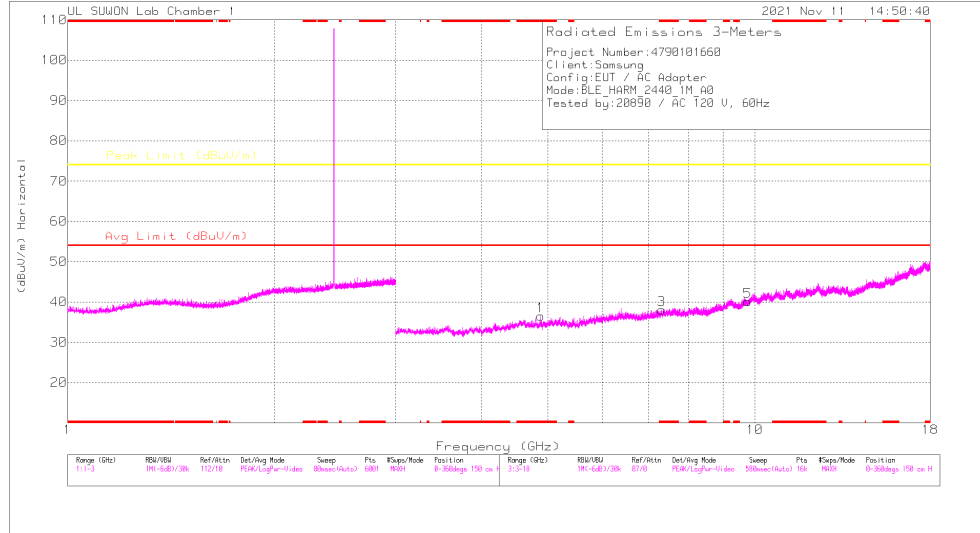
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

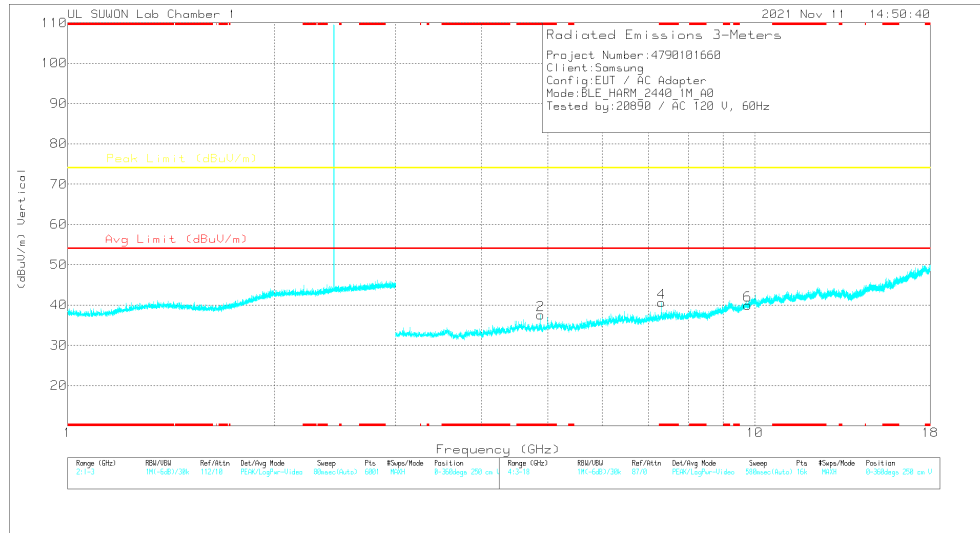
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80347	41.28	PK2	34.1	-31.2	0	44.18	-	-	74	-29.82	360	100	H
* 4.81121	41.59	PK2	34.1	-31.2	0	44.49	-	-	74	-29.51	360	100	V
7.21337	37.95	PK2	35.9	-27.5	0	46.35	-	-	74	-27.65	360	100	H
7.20658	38.37	PK2	35.9	-27.5	0	46.77	-	-	74	-27.23	360	100	V
9.60947	34.65	PK2	37.1	-22.9	0	48.85	-	-	74	-25.15	360	100	H
9.62026	35.02	PK2	37.2	-22.9	0	49.32	-	-	74	-24.68	360	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

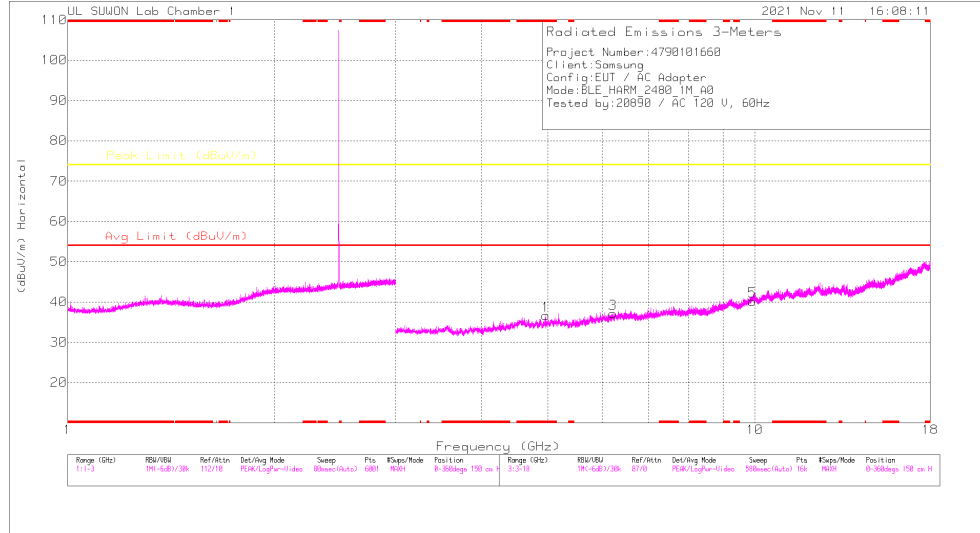
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

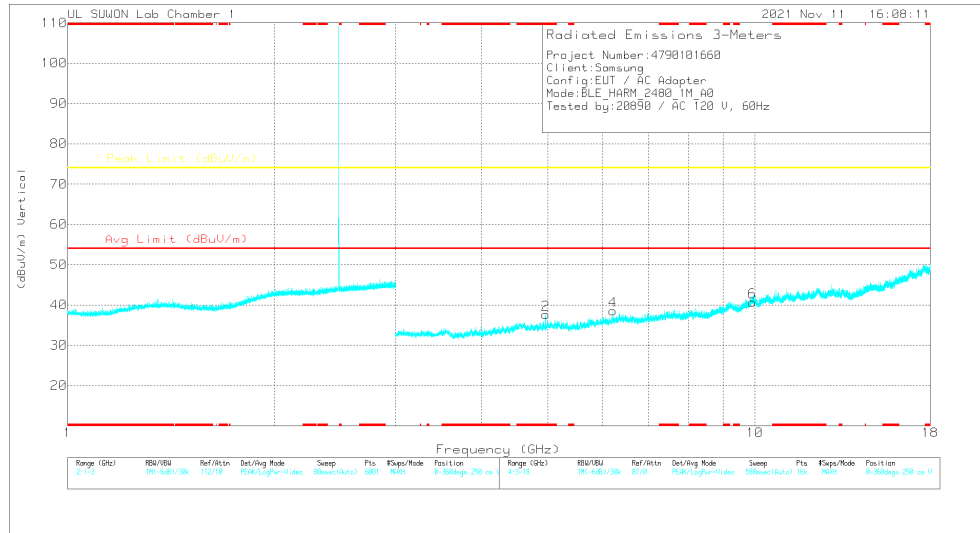
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88025	42.49	PK2	34.1	-31.3	0	45.29	-	-	74	-28.71	176	104	H
* 4.87991	31.65	MAV1	34.1	-31.3	2.07	36.52	54	-17.48	-	-	176	104	H
* 4.88049	43.1	PK2	34.1	-31.3	0	45.9	-	-	74	-28.1	166	241	V
* 4.87979	31.79	MAV1	34.1	-31.3	2.07	36.66	54	-17.34	-	-	166	241	V
* 7.31031	38.81	PK2	35.8	-27.3	0	47.31	-	-	74	-26.69	72	148	H
* 7.31163	25.99	MAV1	35.8	-27.2	2.07	36.66	54	-17.34	-	-	72	148	H
* 7.32073	39.41	PK2	35.8	-27.1	0	48.11	-	-	74	-25.89	145	338	V
* 7.31685	26	MAV1	35.8	-27.2	2.07	36.67	54	-17.33	-	-	145	338	V
9.75381	35.73	PK2	37.4	-23.6	0	49.53	-	-	74	-24.47	0	100	H
9.77023	34.7	PK2	37.5	-23.6	0	48.6	-	-	74	-25.4	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)	Altitude (Degs)	Height (cm)	Polarity
* 4.96007	43.11	PK2	34.1	-31.4	0	45.81	-	-	74	-28.19	173	100	H
* 4.95983	32.72	MAv1	34.1	-31.4	2.07	37.49	54	-16.51	-	-	173	100	H
* 4.95983	43.46	PK2	34.1	-31.4	0	46.16	-	-	74	-27.84	181	263	V
* 4.95983	33.8	MAv1	34.1	-31.4	2.07	38.57	54	-15.43	-	-	181	263	V
6.21662	39.62	PK2	35.5	-29	0	46.12	-	-	74	-27.88	264	256	H
6.20654	27.06	MAv1	35.5	-29.1	2.07	35.53	-	-	-	-	264	256	H
6.20788	38.89	PK2	35.5	-29.1	0	45.29	-	-	74	-28.71	147	287	V
6.2081	27.02	MAv1	35.5	-29.1	2.07	35.49	-	-	-	-	147	287	V
9.9182	33.99	PK2	37.7	-21.5	0	50.19	-	-	74	-23.81	0	100	H
9.92303	34.02	PK2	37.7	-21.4	0	50.32	-	-	74	-23.68	0	100	V

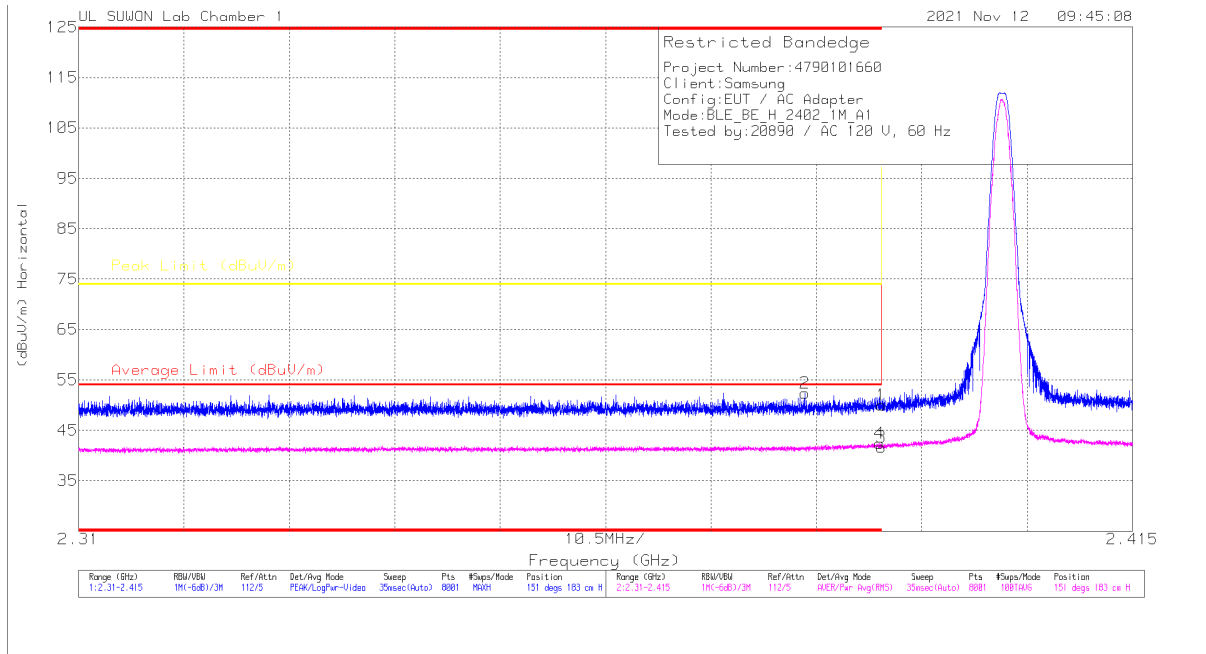
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

ANT2
BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

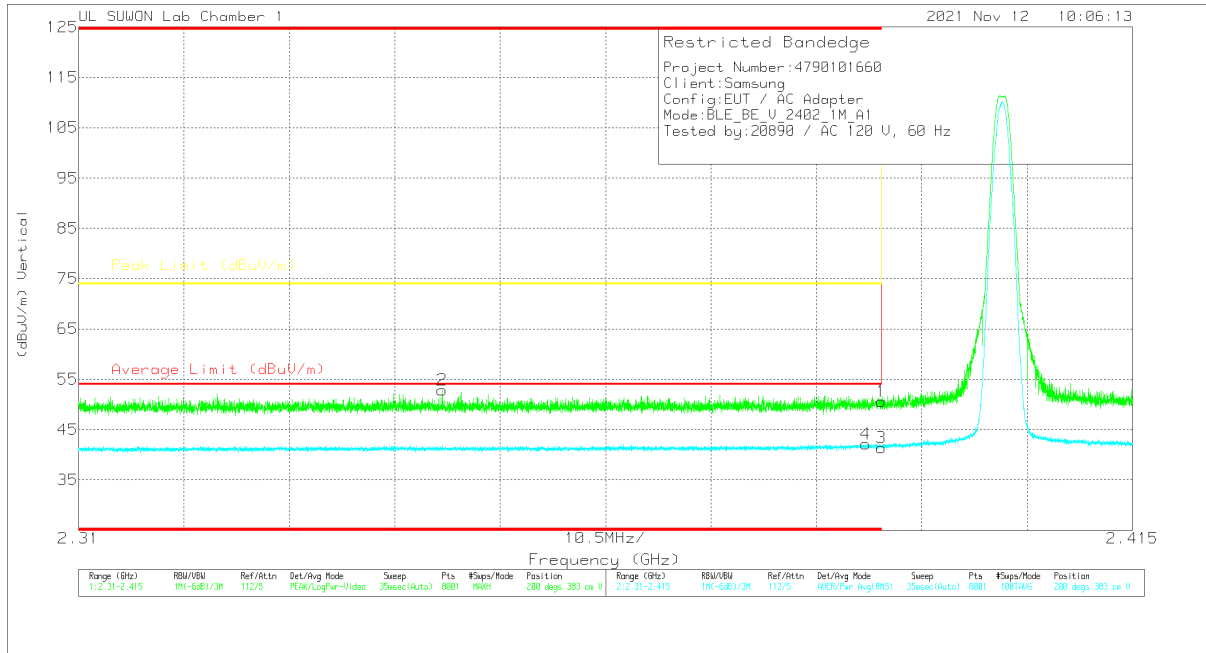


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_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	43.5	PK	31.8	-25.3	0	50	-	-	74	-24	151	183	H
2	* 2.38238	45.93	PK	31.8	-25.3	0	52.43	-	-	74	-21.57	151	183	H
3	* 2.39	33.13	RMS	31.8	-25.3	2.07	41.7	54	-12.3	-	-	151	183	H
4	* 2.38977	33.8	RMS	31.8	-25.3	2.07	42.37	54	-11.63	-	-	151	183	H

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

VERTICAL RESULT



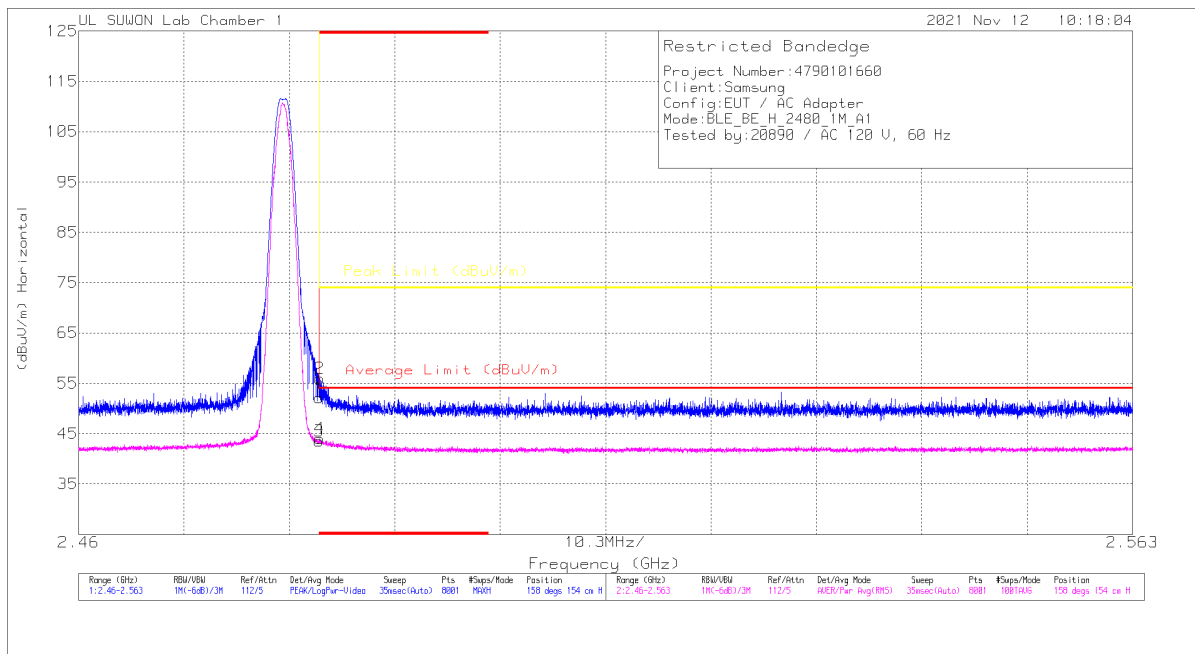
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	44.11	PK	31.8	-25.3	0	50.61	-	-	74	-23.39	200	383	V
2	* 2.34621	46.66	PK	31.7	-25.5	0	52.86	-	-	74	-21.14	200	383	V
3	* 2.39	32.83	RMS	31.8	-25.3	2.07	41.4	54	-12.6	-	-	200	383	V
4	* 2.3884	33.64	RMS	31.8	-25.3	2.07	42.21	54	-11.79	-	-	200	383	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

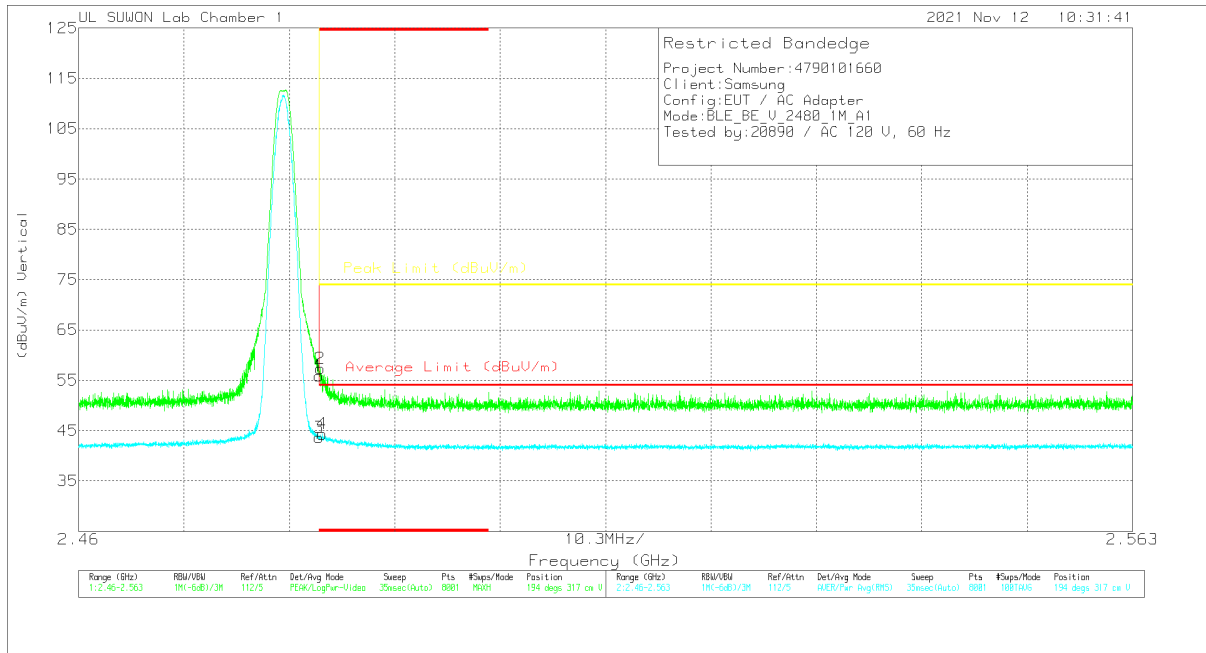


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166917	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	45.28	PK	32	-25.1	0	52.18	-	-	74	-21.82	158	154	H
2	* 2.48355	49.03	PK	32	-25.1	0	55.93	-	-	74	-18.07	158	154	H
3	* 2.48351	34.52	RMS	32	-25.1	2.07	43.49	54	-10.51	-	-	158	154	H
4	* 2.48357	35.06	RMS	32	-25.1	2.07	44.03	54	-9.97	-	-	158	154	H

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

VERTICAL RESULT



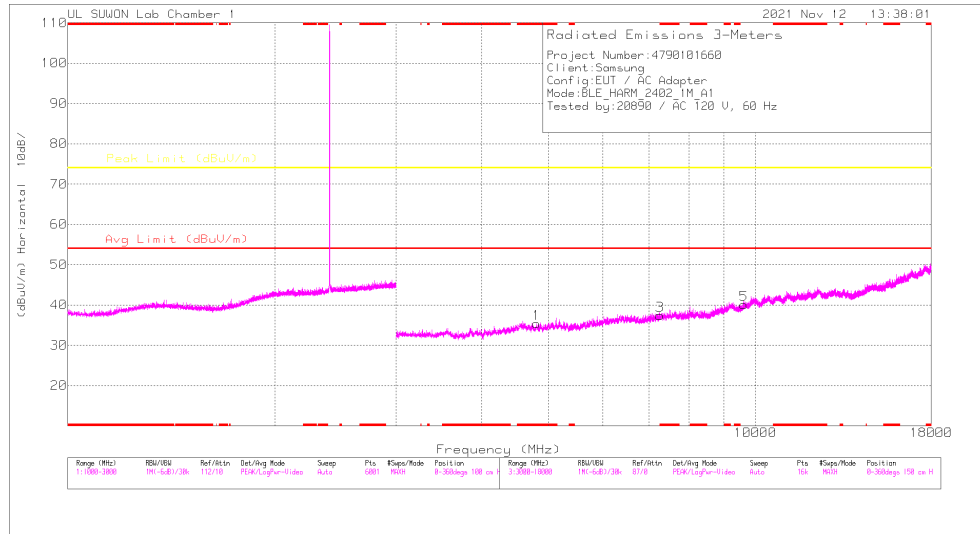
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.48351	48.97	PK	32	-25.1	0	55.87	-	-	74	-18.13	194	317	V
2	* 2.48363	50.47	PK	32	-25.1	0	57.37	-	-	74	-16.63	194	317	V
3	* 2.48351	34.73	RMS	32	-25.1	2.07	43.7	54	-10.3	-	-	194	317	V
4	* 2.48362	35.37	RMS	32	-25.1	2.07	44.34	54	-9.66	-	-	194	317	V

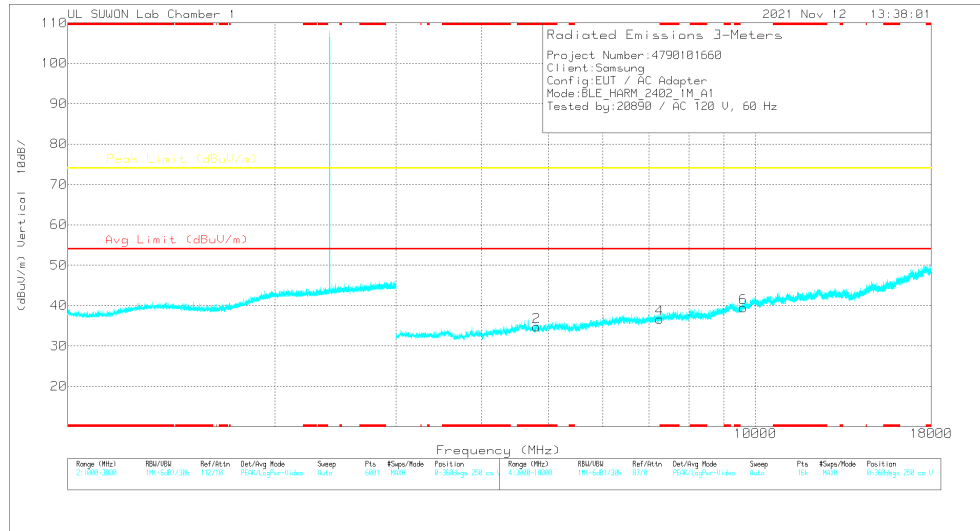
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

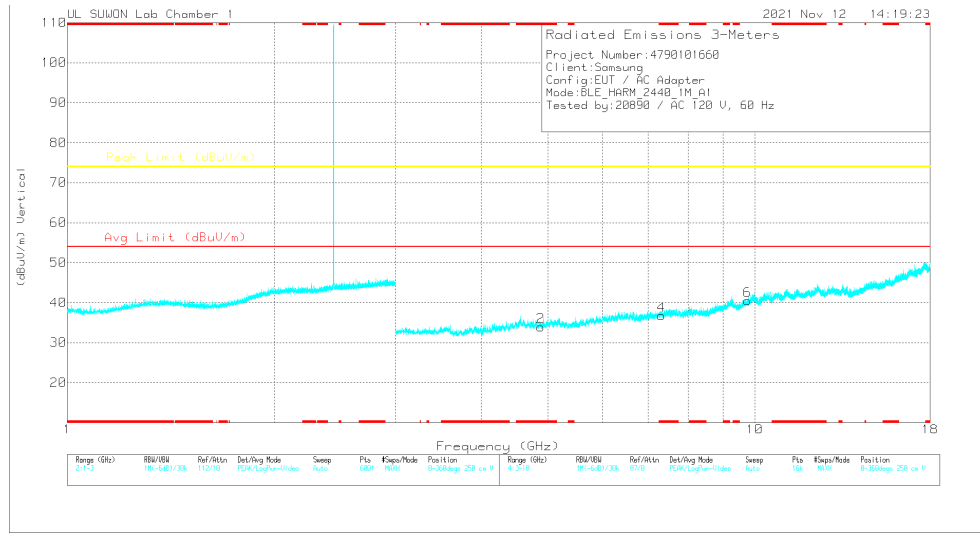
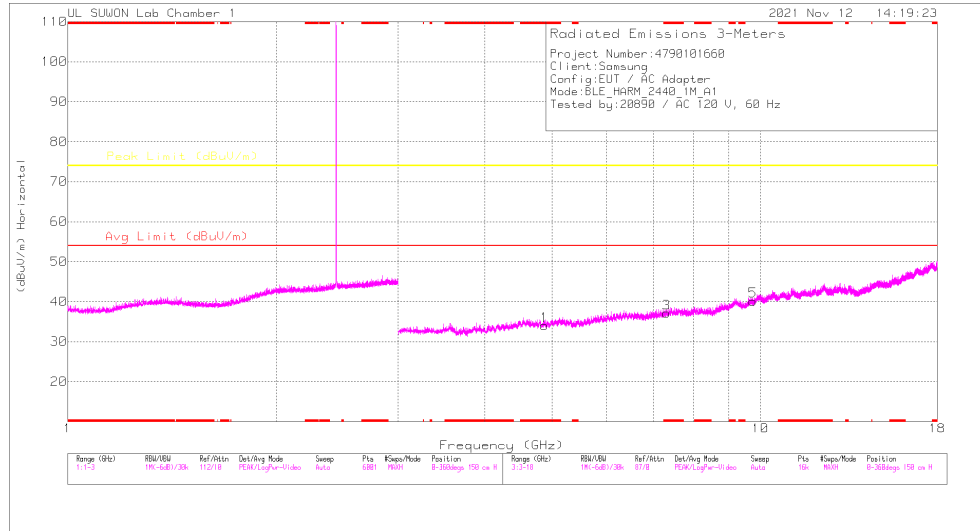
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

Frequency (MHz)	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
* 4802.2865	41.48	PK2	34.1	-31.2	0	44.38	-	-	74	-29.62	0	100	H
* 4809.329	41.35	PK2	34.1	-31.2	0	44.25	-	-	74	-29.75	0	100	V
* 7263.2793	37.94	PK2	35.8	-27.4	0	46.34	-	-	74	-27.66	0	100	H
* 7253.8333	37.78	PK2	35.8	-27.4	0	46.18	-	-	74	-27.82	0	100	V
9600.6341	34.72	PK2	37.1	-22.8	0	49.02	-	-	74	-24.98	0	100	H
9610.4767	34.59	PK2	37.1	-22.9	0	48.79	-	-	74	-25.21	0	100	V

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

19 CHANNEL RESULTS



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

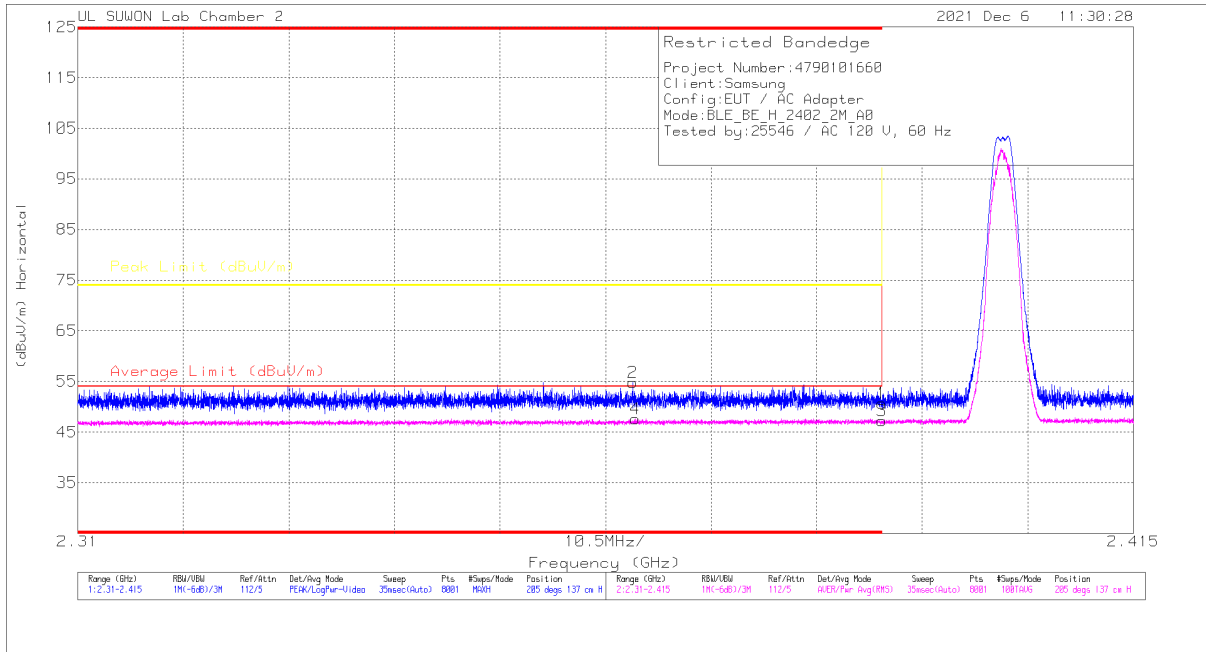
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87823	41.92	PK2	34.1	-31.3	0	44.72	-	-	74	-29.28	0	100	H
* 4.87369	41.28	PK2	34.1	-31.3	0	44.08	-	-	74	-29.92	0	100	V
* 7.32378	38.02	PK2	35.8	-27.1	0	46.72	-	-	74	-27.28	0	100	H
* 7.31805	38.02	PK2	35.8	-27.2	0	46.62	-	-	74	-27.38	0	100	V
9.75091	34.93	PK2	37.4	-23.5	0	48.83	-	-	74	-25.17	0	100	H
9.75551	35.12	PK2	37.4	-23.5	0	49.02	-	-	74	-24.98	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

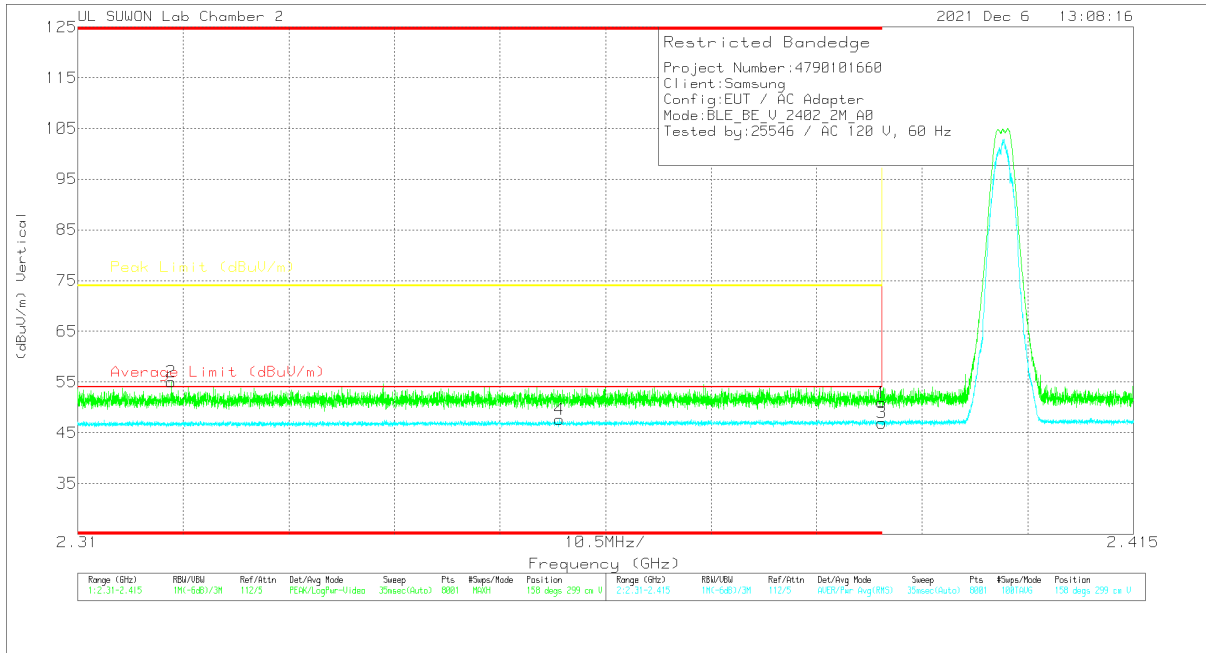
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Cor (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (m)	Height (m)	Polarity
1	* 2.39	39.35	PK	31.9	-20.6	0	50.65	-	-	74	-23.35	205	137	H
2	* 2.36519	43.58	PK	31.8	-20.6	0	54.78	-	-	74	-19.22	205	137	H
3	* 2.39	31.01	RMS	31.9	-20.6	4.87	47.18	54	-6.82	-	-	205	137	H
4	* 2.36547	31.59	RMS	31.8	-20.6	4.87	47.66	54	-6.34	-	-	205	137	H

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

PK - Peak detector

RMS - RMS detection

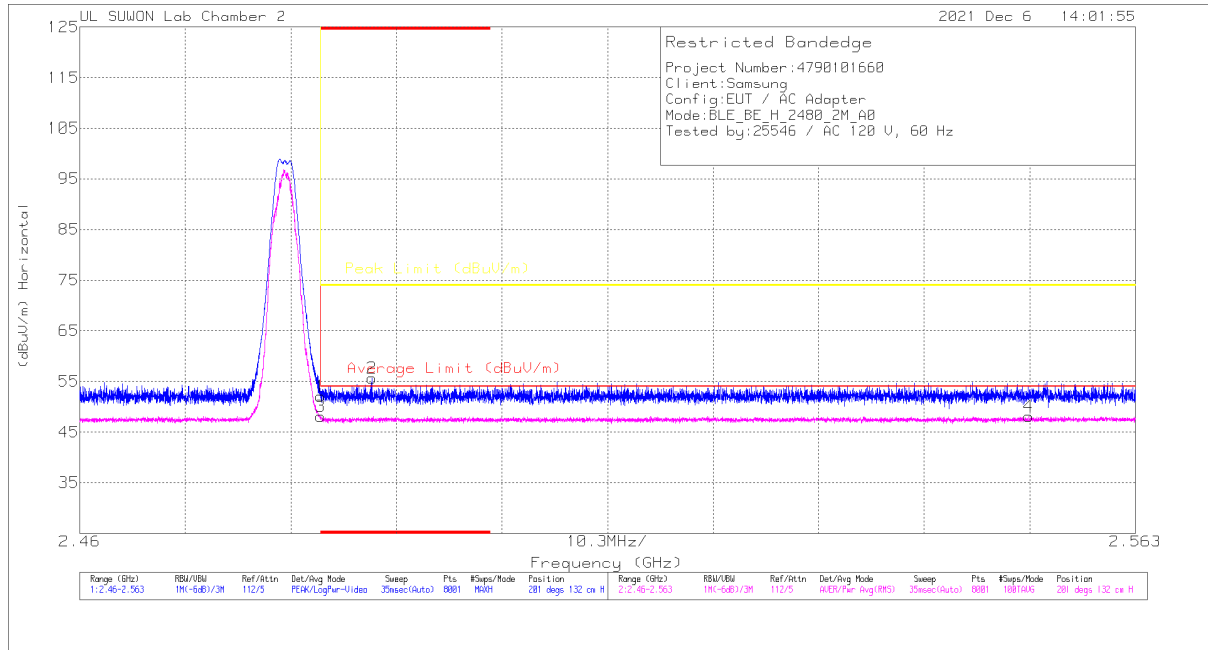
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_90166724	10dB_ATT[dB]	DC Cor (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	39.6	Pk	31.9	-20.6	0	50.9	-	-	74	-23.1	158	299	V
2	* 2.31928	44.03	Pk	31.7	-20.7	0	55.03	-	-	74	-18.97	158	299	V
3	* 2.39	30.76	RMS	31.9	-20.6	4.87	46.93	54	-7.07	-	-	158	299	V
4	* 2.35789	31.55	RMS	31.8	-20.6	4.87	47.62	54	-6.38	-	-	158	299	V

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

BANDEDGE (39 CHANNEL)**HORIZONTAL RESULT****Trace Markers**

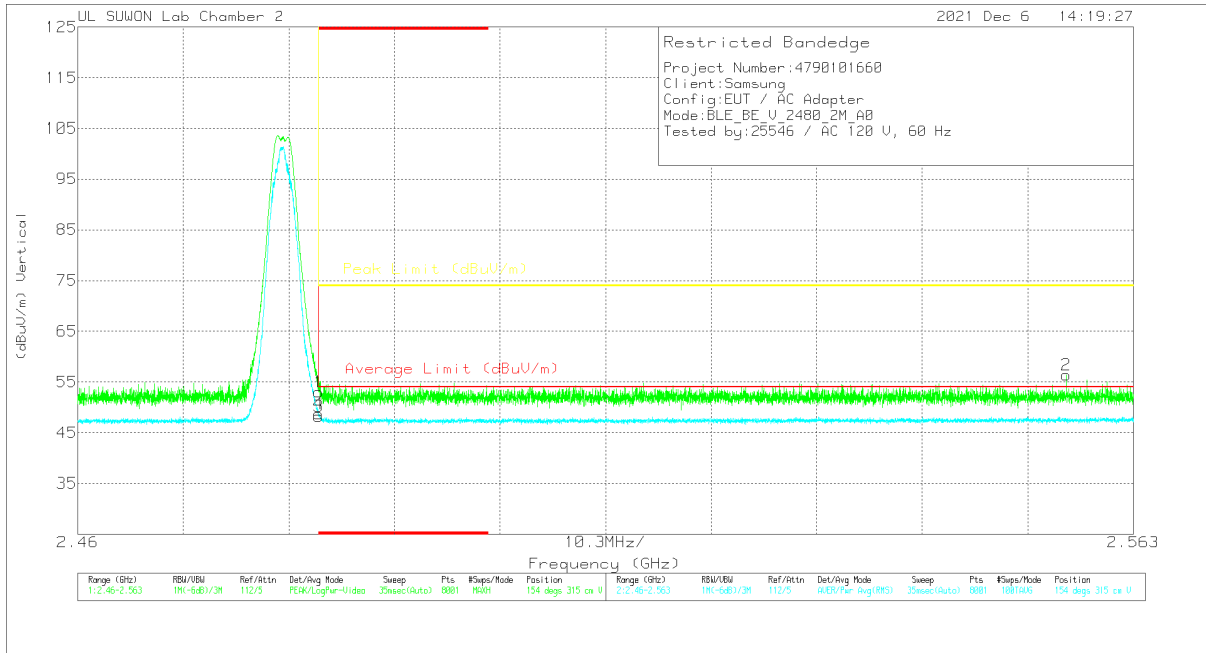
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166724	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	40.43	PK	32	-20.4	0	52.03	-	-	74	-21.97	201	132	H
2	* 2.48949	44	PK	32.1	-20.4	0	55.7	-	-	74	-18.3	201	132	H
3	* 2.48351	31.59	RMS	32	-20.4	4.87	48.06	54	-5.94	-	-	201	132	H
4	2.5526	31.36	RMS	32.2	-20.3	4.87	48.13	54	-5.87	-	-	201	132	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meas 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)	Acimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	41.45	Pk	32	-20.4	0	53.05	-	-	74	-20.95	154	315	V
2	2.55646	44.5	Pk	32.2	-20.3	0	56.4	-	-	74	-17.6	154	315	V
3	* 2.48351	31.71	RMS	32	-20.4	4.87	48.18	54	-5.82	-	-	154	315	V
4	* 2.48352	32.2	RMS	32	-20.4	4.87	48.67	54	-5.33	-	-	154	315	V

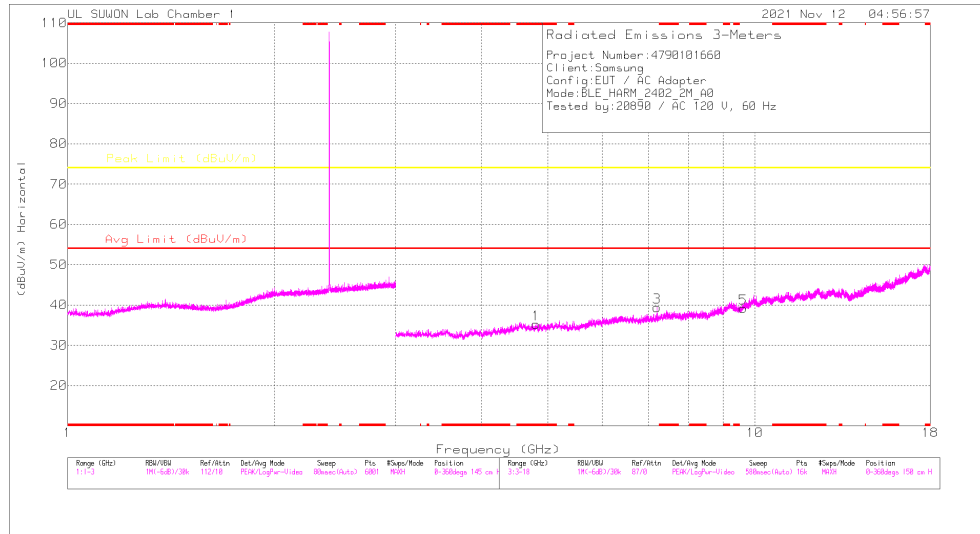
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

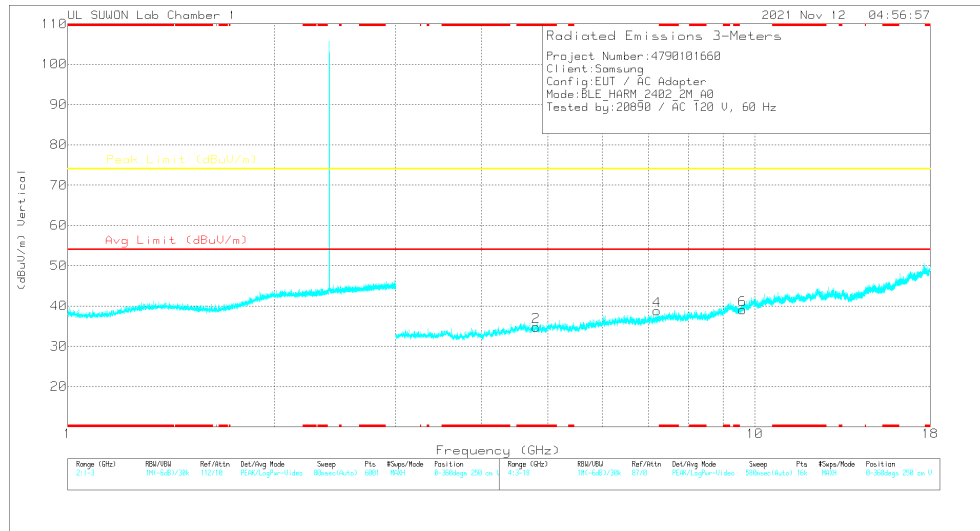
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

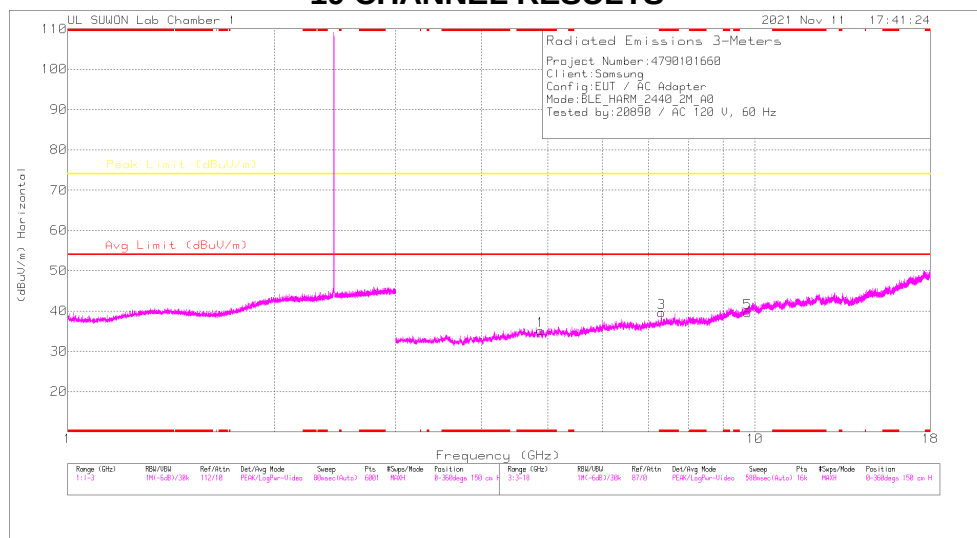
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

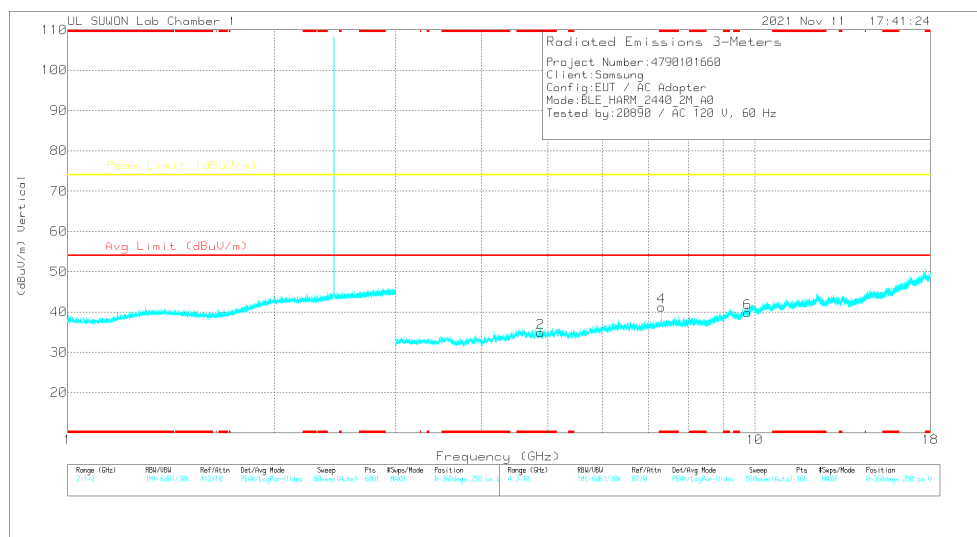
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80289	42.15	PK2	34.1	-31.2	0	45.05	-	-	74	-28.95	360	100	H
* 4.80184	41.18	PK2	34.1	-31.2	0	44.08	-	-	74	-29.92	0	100	V
7.21067	37.66	PK2	35.9	-27.5	0	46.06	-	-	74	-27.94	62	232	H
7.20745	38.92	PK2	35.9	-27.5	0	47.32	-	-	74	-26.68	331	100	V
9.60334	34.33	PK2	37.1	-22.9	0	48.53	-	-	74	-25.47	360	100	H
9.61472	34.42	PK2	37.2	-22.9	0	48.72	-	-	74	-25.28	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

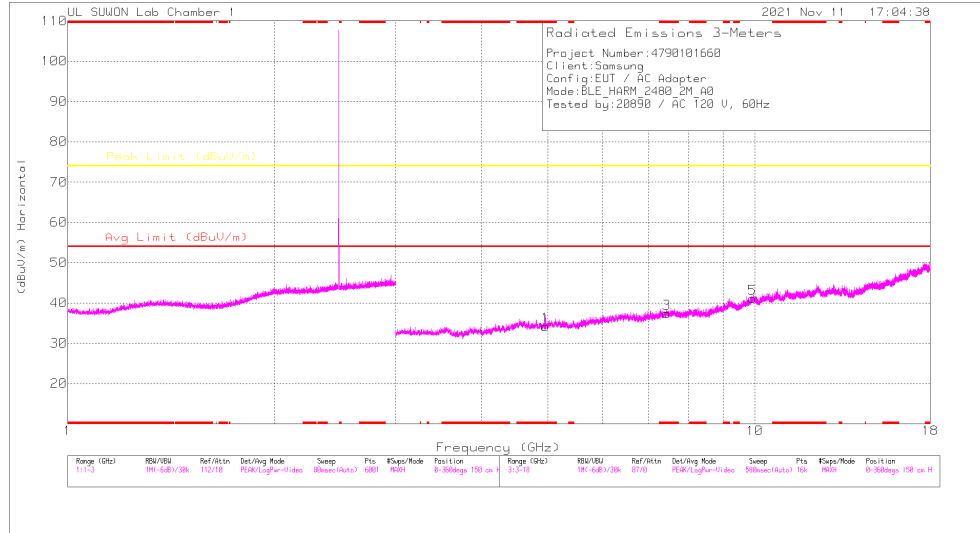
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016871 7	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
* 4.88153	41.77	PK2	34.1	-31.3	0	44.57	-	-	74	-29.43	0	100	H
* 4.87655	41.14	PK2	34.1	-31.3	0	43.94	-	-	74	-30.06	0	100	V
* 7.31853	38.41	PK2	35.8	-27.2	0	47.01	-	-	74	-26.99	353	145	H
* 7.31853	26.96	MAV1	35.8	-27.2	4.87	40.43	54	-13.57	-	-	353	145	H
* 7.32163	42.14	PK2	35.8	-27.1	0	50.84	-	-	74	-23.16	154	100	V
* 7.31853	30.65	MAV1	35.8	-27.2	4.87	44.12	54	-9.88	-	-	154	100	V
9.75802	34.63	PK2	37.4	-23.6	0	48.43	-	-	74	-25.57	0	100	H
9.76945	34.52	PK2	37.5	-23.6	0	48.42	-	-	74	-25.58	0	100	V

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

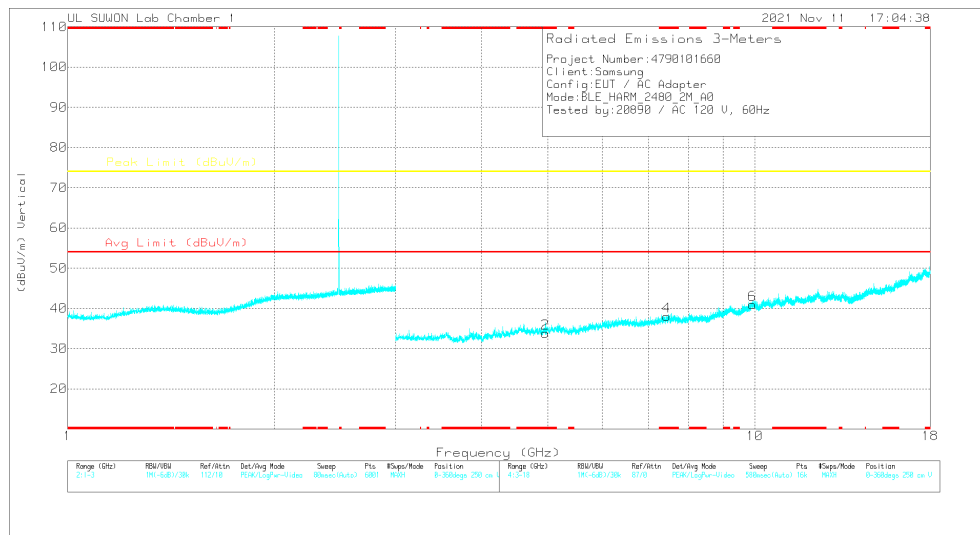
PK2 - KDB558074 Method: Maximum Peak

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.

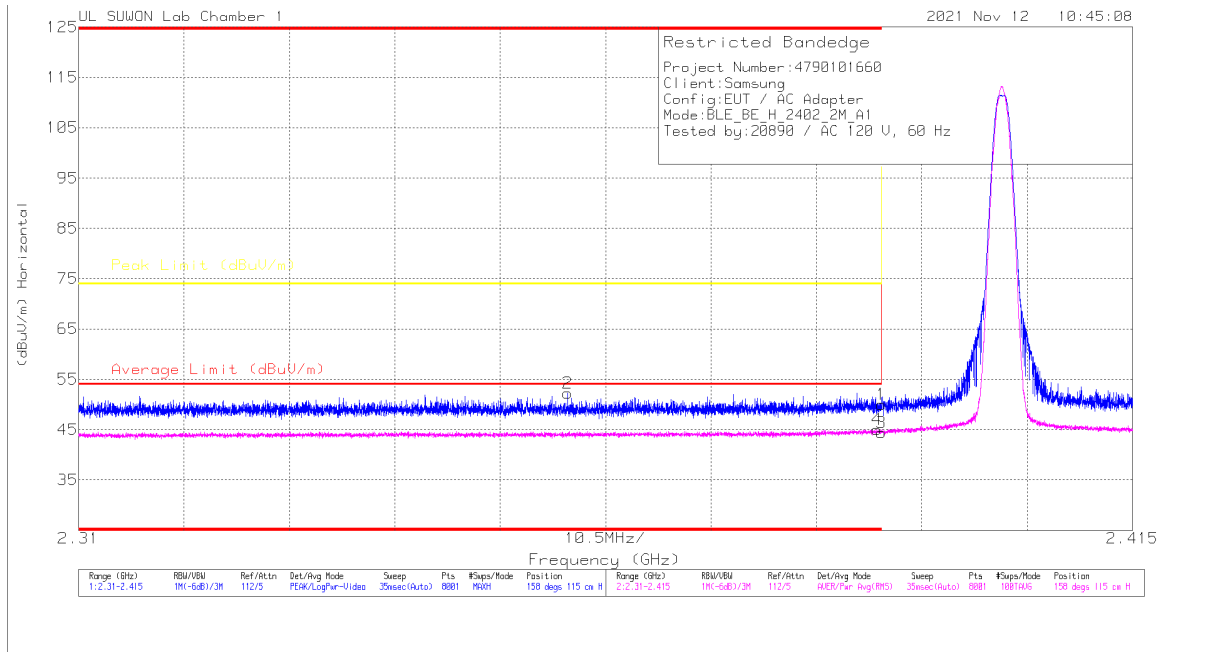
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HPI(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
* 4.94944	41.03	PK2	34.1	-31.4	0	43.73	-	-	74	-30.27	0	100	H
* 4.95264	40.96	PK2	34.1	-31.4	0	43.66	-	-	74	-30.34	0	100	V
* 7.44689	37.78	PK2	35.8	-26.7	0	46.88	-	-	74	-27.12	0	100	H
* 7.43982	37.67	PK2	35.8	-26.7	0	46.77	-	-	74	-27.23	0	100	V
9.912	34.23	PK2	37.7	-21.6	0	50.33	-	-	74	-23.67	0	100	H
9.92911	33.93	PK2	37.7	-21.4	0	50.23	-	-	74	-23.77	0	100	V

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

ANT2
BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT

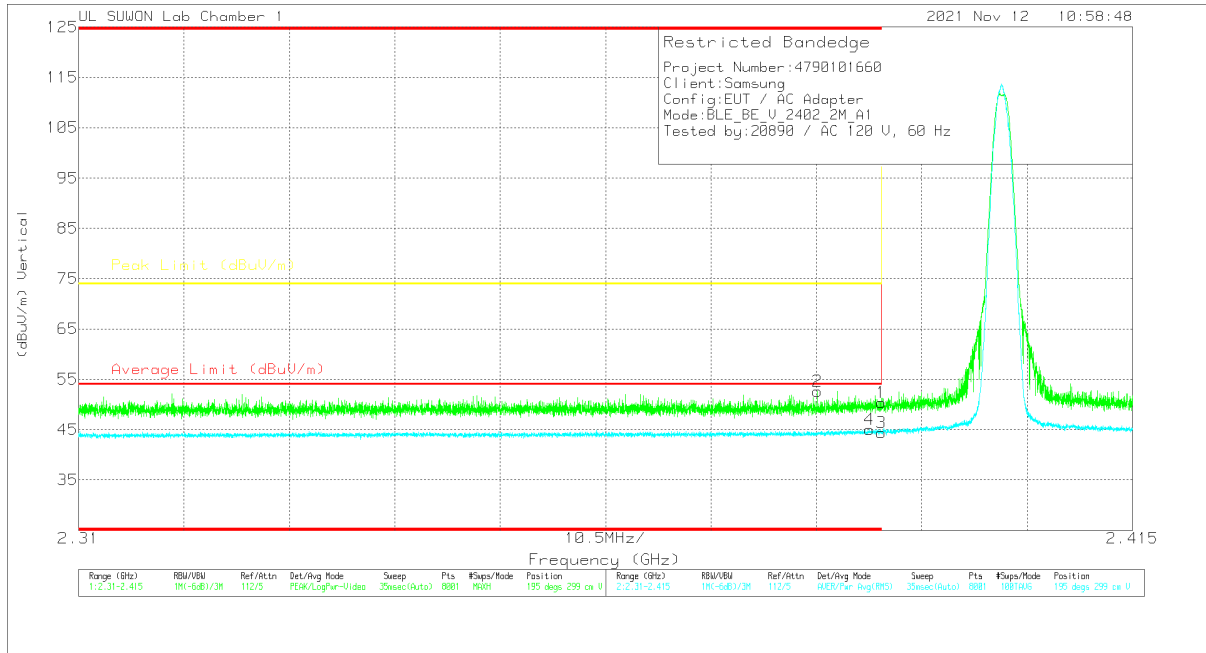


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_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	43.48	PK	31.8	-25.3	0	49.98	-	-	74	-24.02	158	115	H
2	* 2.38973	46.08	PK	31.7	-25.5	0	52.28	-	-	74	-21.72	158	115	H
3	* 2.39	33	RMS	31.8	-25.3	4.87	44.37	54	-9.63	-	-	158	115	H
4	* 2.38955	33.67	RMS	31.8	-25.3	4.87	45.04	54	-8.96	-	-	158	115	H

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

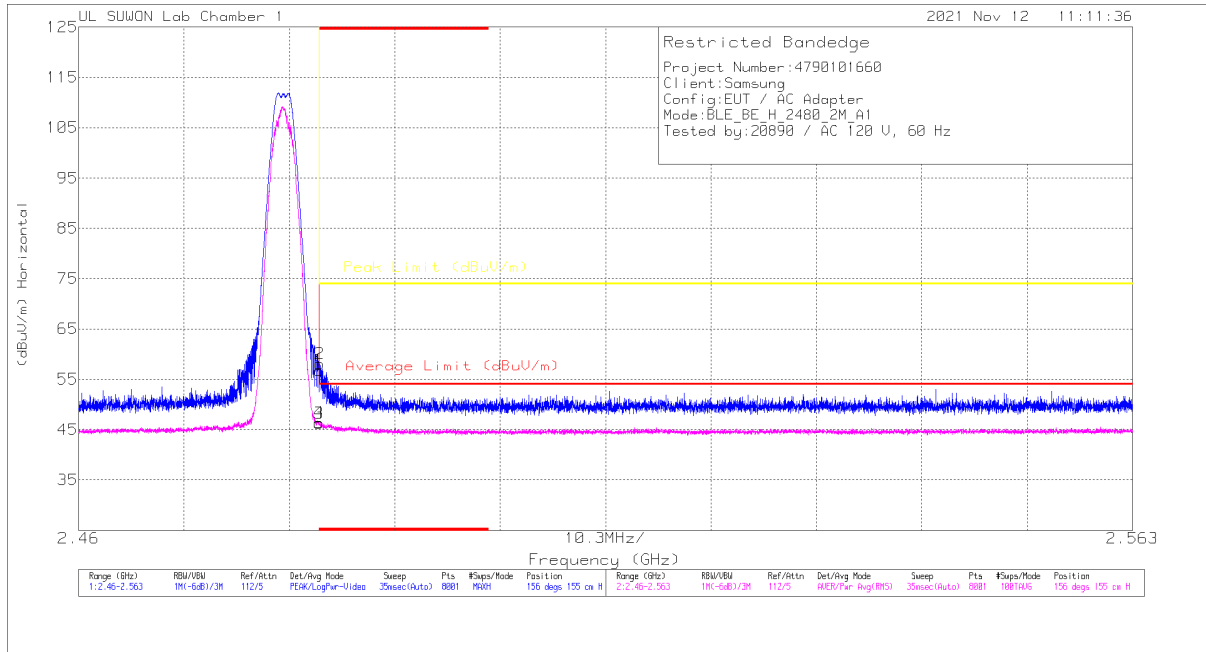
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.39	43.85	PK	31.8	-25.3	0	50.35	-	-	74	-23.65	195	299	V
2	* 2.38361	46.17	PK	31.8	-25.3	0	52.67	-	-	74	-21.33	195	299	V
3	* 2.39	33.08	RMS	31.8	-25.3	4.87	44.45	54	-9.55	-	-	195	299	V
4	* 2.38882	33.69	RMS	31.8	-25.3	4.87	45.06	54	-8.94	-	-	195	299	V

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

BANDEDGE (39 CHANNEL)**HORIZONTAL RESULT****Trace Markers**

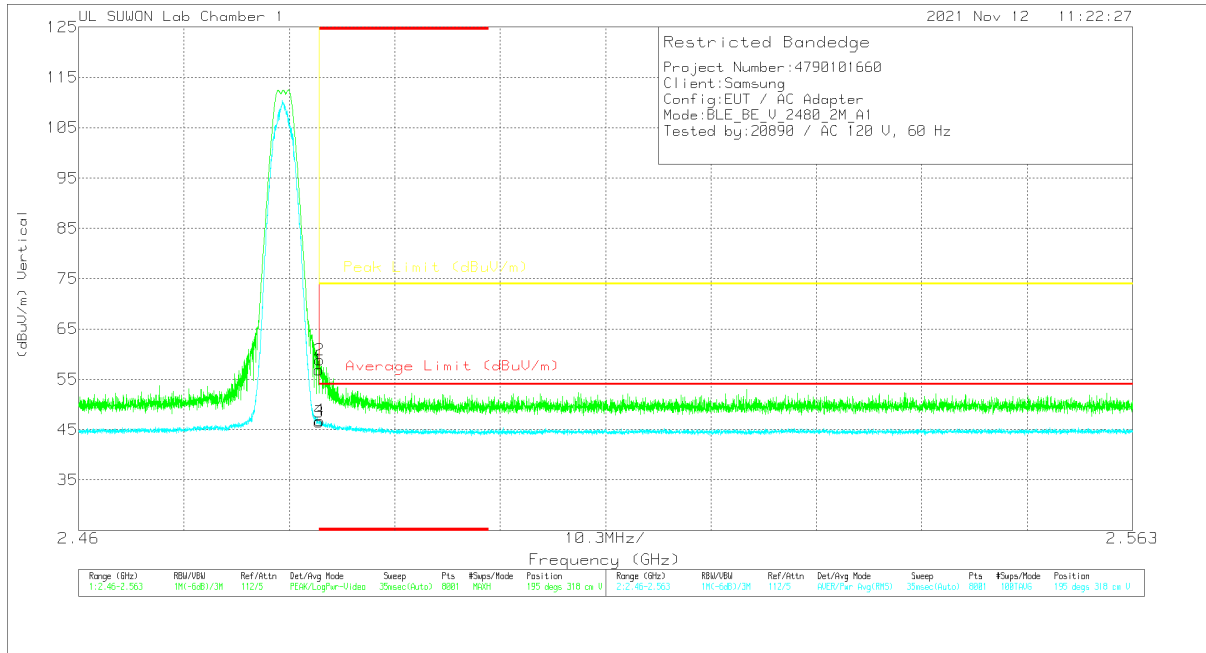
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	49.81	PK	32	-25.1	0	56.71	-	-	74	-17.29	156	155	H
2	* 2.48355	51.22	PK	32	-25.1	0	58.12	-	-	74	-15.88	156	155	H
3	* 2.48351	34.47	RMS	32	-25.1	4.87	46.24	54	-7.76	-	-	156	155	H
4	* 2.48352	34.66	RMS	32	-25.1	4.87	46.43	54	-7.57	-	-	156	155	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULT



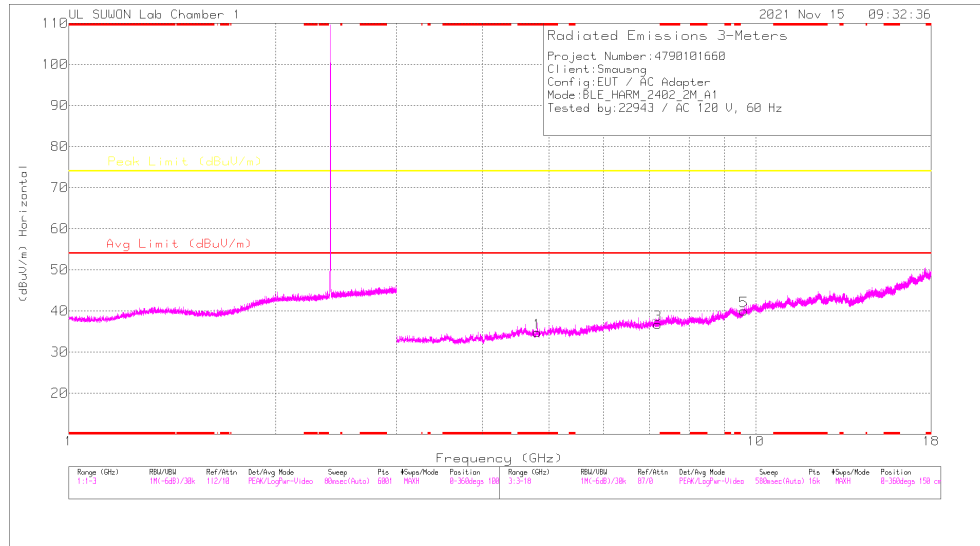
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00166717	10dB_ATT[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.48351	49.97	PK	32	-25.1	0	56.87	-	-	74	-17.13	195	318	V
2	* 2.48355	51.99	PK	32	-25.1	0	58.89	-	-	74	-15.11	195	318	V
3	* 2.48351	34.78	RMS	32	-25.1	4.87	46.55	54	-7.45	-	-	195	318	V
4	* 2.48355	35.06	RMS	32	-25.1	4.87	46.83	54	-7.17	-	-	195	318	V

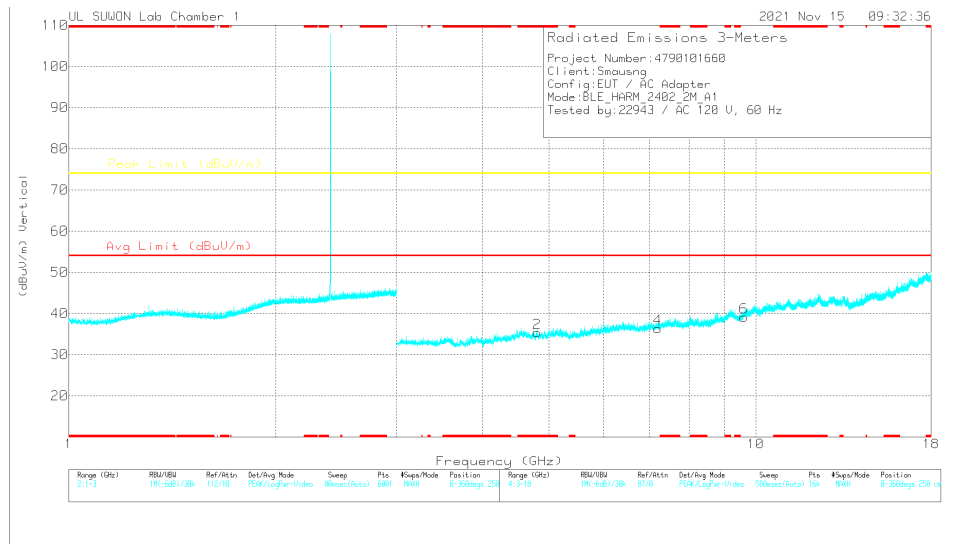
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

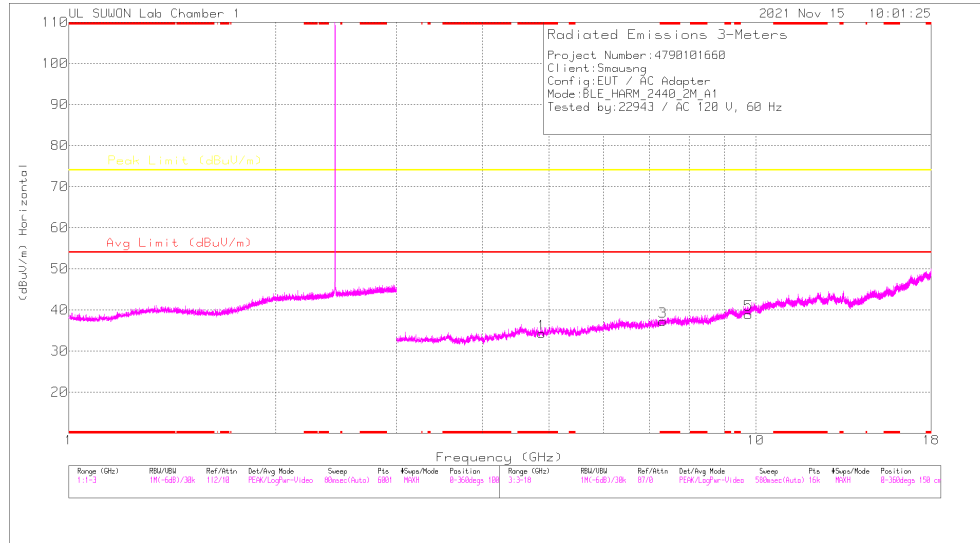
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

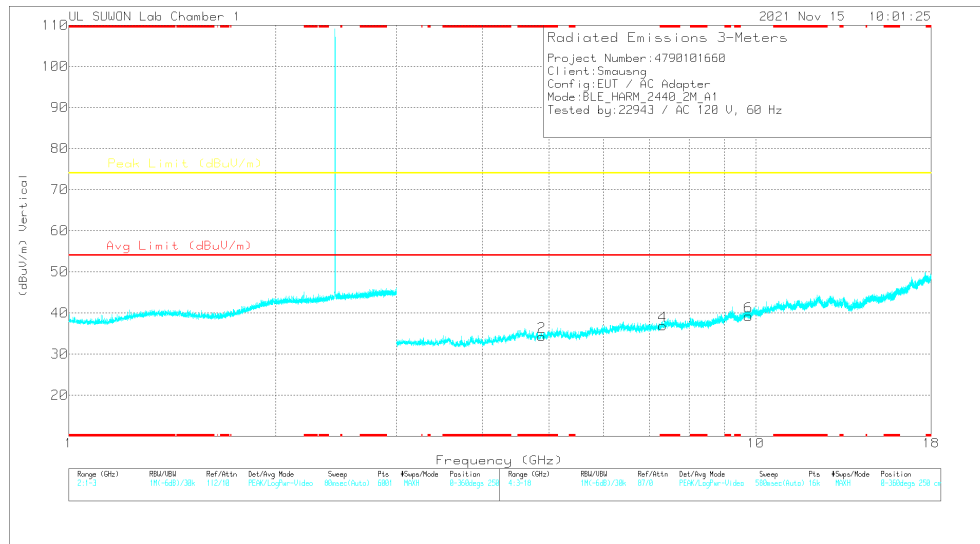
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
* 4.80431	41.56	PK2	34.1	-31.2	0	44.46	-	-	74	-29.54	0	100	H
* 4.7995	41.56	PK2	34.1	-31.2	0	44.46	-	-	74	-29.54	0	100	V
7.20004	37.48	PK2	35.9	-27.5	0	45.88	-	-	74	-28.12	0	100	H
7.2012	38.59	PK2	35.9	-27.5	0	46.99	-	-	74	-27.01	0	100	V
9.61143	34.51	PK2	37.1	-22.8	0	48.81	-	-	74	-25.19	0	100	H
9.60707	34.45	PK2	37.1	-22.8	0	48.75	-	-	74	-25.25	0	100	V

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

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

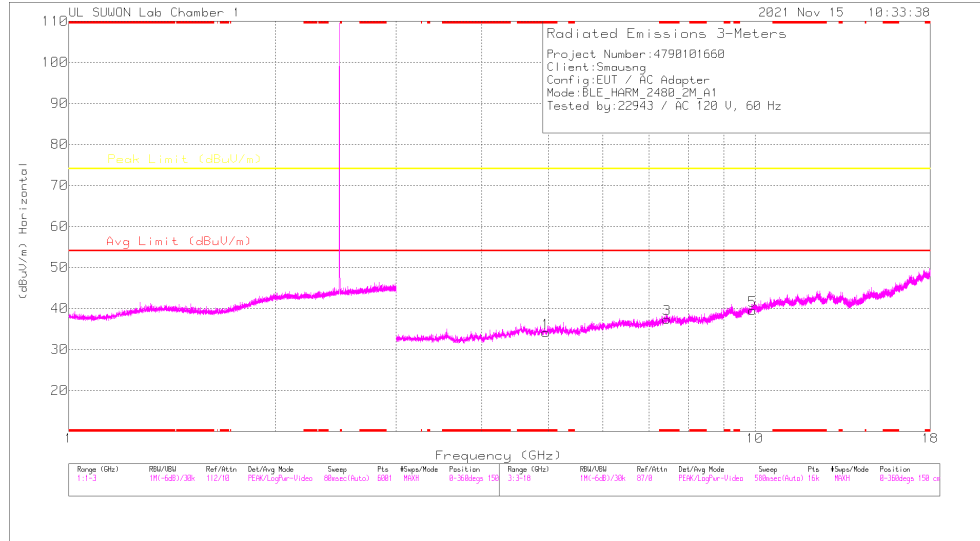
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

RADIATED EMISSIONS

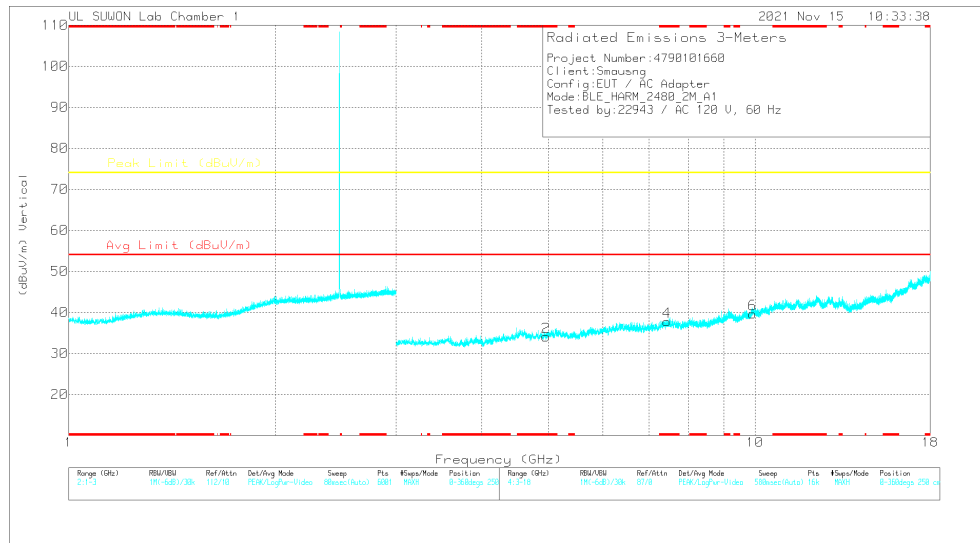
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168717	3GHz_HP(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87294	41.12	PK2	34.1	-31.3	0	43.92	-	-	74	-30.08	0	100	H
* 4.87552	42.39	PK2	34.1	-31.3	0	45.19	-	-	74	-28.81	0	100	V
* 7.31476	37.74	PK2	35.8	-27.2	0	46.34	-	-	74	-27.66	0	100	H
* 7.31653	38.26	PK2	35.8	-27.2	0	46.86	-	-	74	-27.14	0	100	V
9.76307	35.36	PK2	37.4	-23.6	0	49.16	-	-	74	-24.84	0	100	H
9.75343	34.56	PK2	37.4	-23.6	0	48.36	-	-	74	-25.64	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.

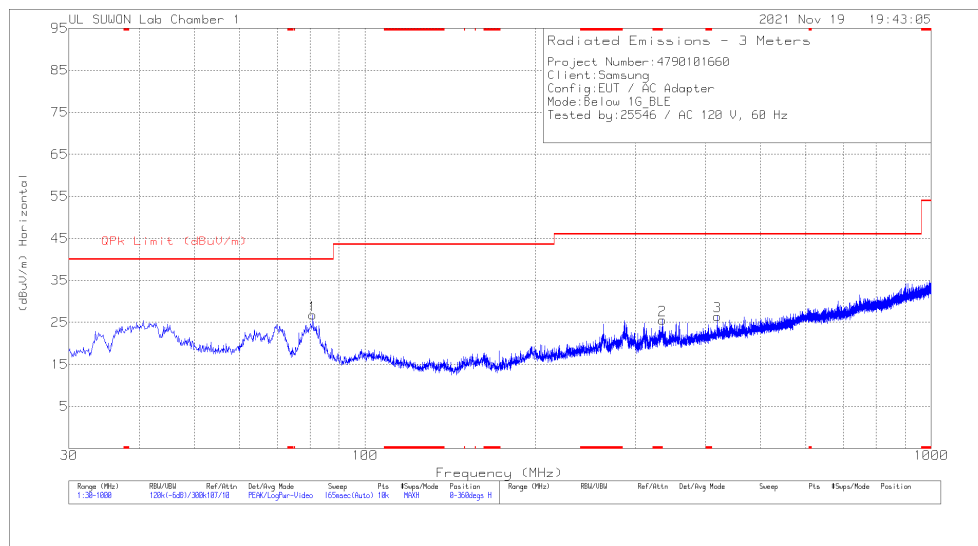
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_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
* 4.95574	40.62	PK2	34.1	-31.4	0	43.32	-	-	74	-30.68	0	100	H
* 4.9556	40.65	PK2	34.1	-31.4	0	43.35	-	-	74	-30.65	0	100	V
* 7.44115	37.26	PK2	35.8	-26.7	0	46.36	-	-	74	-27.64	0	100	H
* 7.43796	37.61	PK2	35.8	-26.6	0	46.81	-	-	74	-27.19	0	100	V
9.92988	33.67	PK2	37.7	-21.4	0	49.97	-	-	74	-24.03	0	100	H
9.91289	34.23	PK2	37.7	-21.6	0	50.33	-	-	74	-23.67	0	100	V

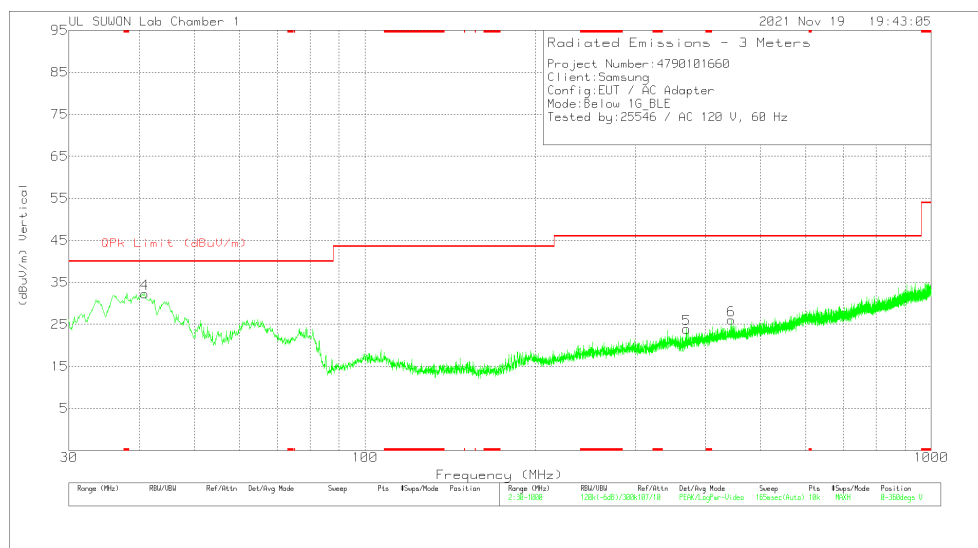
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak

10.3. WORST CASE BELOW 1 GHZ

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



HORIZONTAL



VERTICAL

Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	80.925	44.34	Pk	12.8	-30.4	26.74	40	-13.26	0-360	300	H
2	335.55	33.69	Pk	20.3	-28.4	25.59	46.02	-20.43	0-360	200	H
3	419.455	32.36	Pk	21.9	-27.8	26.46	46.02	-19.56	0-360	200	H
4	40.864	44.41	Pk	18.9	-31	32.31	40	-7.69	0-360	100	V
5	369.985	31.4	Pk	20.7	-28.2	23.9	46.02	-22.12	0-360	100	V
6	443.511	31.72	Pk	22.1	-27.8	26.02	46.02	-20	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.

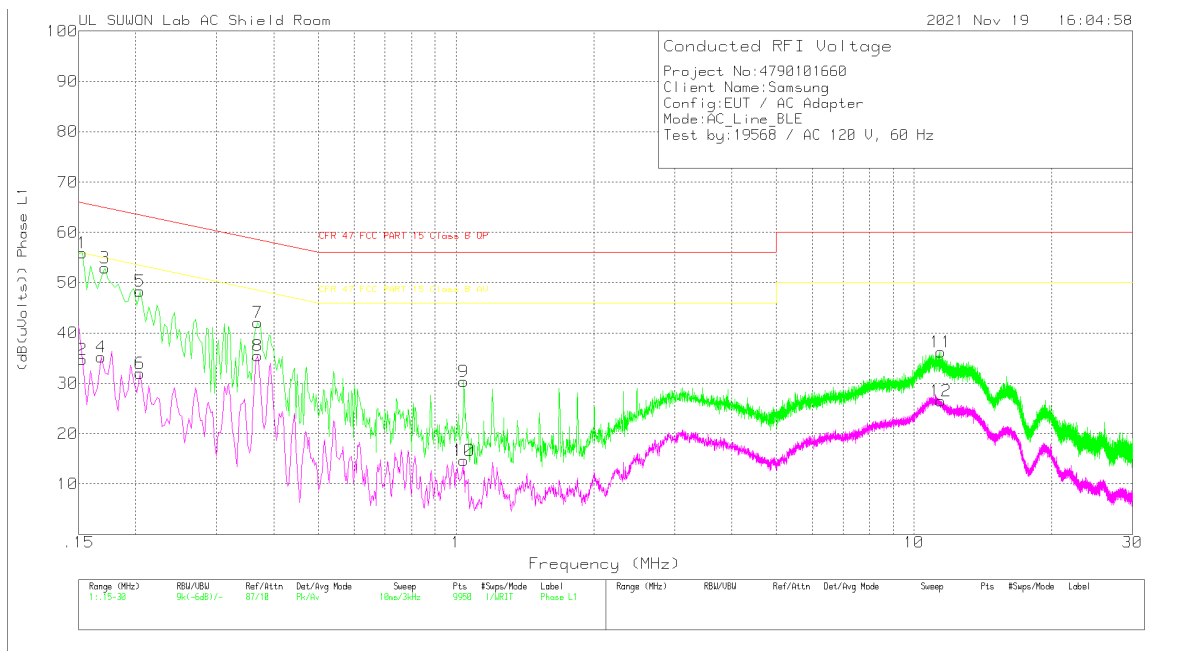
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1.1. 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	45.96	Pk	9.8	.1	55.86	65.84	-9.98	-	-
2	.153	24.83	Av	9.8	.1	34.73	-	-	55.84	-21.11
3	.171	42.74	Pk	10	.2	52.94	64.91	-11.97	-	-
4	.168	25.14	Av	10	.1	35.24	-	-	55.06	-19.82
5	.204	38.29	Pk	9.8	.2	48.29	63.45	-15.16	-	-
6	.204	21.97	Av	9.8	.2	31.97	-	-	53.45	-21.48
7	.369	32.1	Pk	9.8	.2	42.1	58.52	-16.42	-	-
8	.369	25.51	Av	9.8	.2	35.51	-	-	48.52	-13.01
9	1.041	20.39	Pk	9.7	.3	30.39	56	-25.61	-	-
10	1.041	4.63	Av	9.7	.3	14.63	-	-	46	-31.37
11	11.457	25.99	Pk	9.9	.3	36.19	60	-23.81	-	-
12	11.454	16.34	Av	9.9	.3	26.54	-	-	50	-23.46

Pk - Peak detector

Av - Average detection

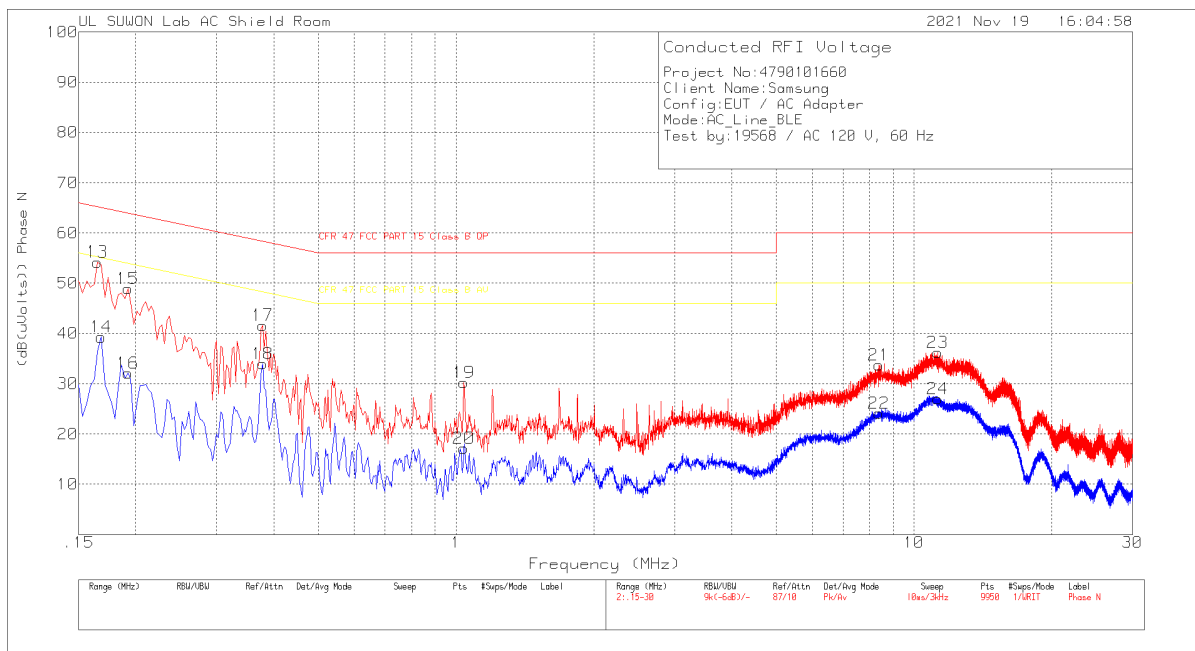
Quasi-Peak Emissions

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)
.15	37.24	Qp	9.7	.1	47.04	66	-18.96	-	-

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	.165	44.23	Pk	9.9	.1	54.23	65.21	-10.98	-	-
14	.168	29.18	Av	10	.1	39.28	-	-	55.06	-15.78
15	.192	38.87	Pk	9.9	.2	48.97	63.95	-14.98	-	-
16	.192	22.03	Av	9.9	.2	32.13	-	-	53.95	-21.82
17	.378	31.64	Pk	9.8	.2	41.64	58.32	-16.68	-	-
18	.378	23.95	Av	9.8	.2	33.95	-	-	48.32	-14.37
19	1.041	20.27	Pk	9.7	.3	30.27	56	-25.73	-	-
20	1.041	7.13	Av	9.7	.3	17.13	-	-	46	-28.87
21	8.388	23.63	Pk	9.8	.3	33.73	60	-26.27	-	-
22	8.379	14.05	Av	9.8	.3	24.15	-	-	50	-25.85
23	11.256	26.08	Pk	9.9	.3	36.28	60	-23.72	-	-
24	11.256	16.76	Av	9.9	.3	26.96	-	-	50	-23.04

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)
.15	37.8	Qp	9.7	.1	47.6	66	-18.4	-	-

Qp - Quasi-Peak detector

END OF TEST REPORT