TEST REPORT

Report Number: R14176161-E2V2

Applicant	:	Sony Corporation 1-7-1 Konan Minato-ku Tokyo, 108-0076, Japan
FCC ID	:	PY7-24116L
EUT Description	:	GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C AND E

Date Of Issue:

2022-04-06

Prepared by:
UL LLC
12 Laboratory Dr.
Research Triangle Park, NC 27709 U.S.A.
TEL: (919) 549-1400

ACCREDITED
CERT #0751.06

REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-03-30	Initial Issue	Brian Kiewra
V2	2022-04-05	Separated setup photos and updated section 7.3.	Brian Kiewra
V3	2022-04-06	Updated sections 3 and 7.3.	Brian Kiewra

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0076, Japan

EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac/ax, GPS, WPT & NFC

SERIAL NUMBER: QV7700E5BB, QV7700AFBB

SAMPLE RECEIPT DATE: 2022-02-24

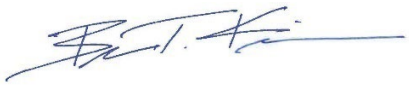
DATE TESTED: 2022-03-10 to 2022-03-18

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

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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 a2La, NIST, or any agency of the U.S. government.

Approved & Released For UL LLC By:	Reviewed By:	Prepared By:
		
Dan Coronia Operations Manager Consumer Technology Division UL LLC	Kiya Kedida Senior Project Engineer Consumer Technology Division UL LLC	Brian Kiewra Project Engineer Consumer Technology Division UL LLC

2. TEST RESULTS SUMMARY

This report contains data provided by the applicant which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Not performed	Radiated spot checks performed to justify data reuse.
See Comment	20/26dB BW		
15.247 (a) (2) 15.407 (e)	6dB BW		
15.247 (a)(1)	Hopping Frequency Separation		
15.247 (a)(1)(iii)	Number of Hopping Channels		
15.247 (a)(1)(iii)	Average Time of Occupancy		
See Comment	Average Power		
15.247 (d)	Conducted Spurious Emissions		
15.247 (b) (1,3) 15.407(a)(1-3)(h)(1)	Output Power		
15.247 (e) 15.407 (a) (1-3)	PSD		
15.207	AC Mains Conducted Emissions		
15.209, 15.205, 15.225 (d), 15.407(b)	Radiated Emissions	See Comment	Radiated spot checks performed on worst-case channels only to justify data reuse.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013 and KDB 484596 D01 Referencing Test Data v01.

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, certification # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
All emissions, radiated	6.01 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

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)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC.

7. REUSE OF TEST DATA

7.1. INTRODUCTION

According to the manufacturer, FCC ID: PY7-83262V and FCC ID: PY7-24116L unlicensed radios (WLAN/BT/BLE/NFC) are electrically identical. The FCC ID: PY7-83262V test data shall remain representative of FCC ID: PY7-24116L so, FCC ID: PY7-24116L leverages test data from FCC ID: PY7-83262V.

Manufacturer has also declared that DFS mechanism and software is identical to the lead device (PY7-83262V) and is to be reused.

The applicant takes full responsibility that the test data as referenced in this section represents compliance for this FCC ID.

7.2. DEVICES DIFFERENCES

Difference between PY7-83262V and PY7-24116L :

Sony Corporation hereby declares that the hardware of WLAN 2.4GHz , WLAN 5GHz, Bluetooth, GPS and WPT is identical among PY7-83262V and PY7-24116L. The change is related only to the cellular radio. Therefore the following report/data of PY7-83262V may represent for PY7-24116L.

7.3. REFERENCE DETAIL

Equipment Class	Reference FCC ID	Report Title/Section
DSS (BT)	PY7-83262V	R14176139-E2V2 FCC Report BT_Final/All sections
DTS (BLE)	PY7-83262V	R14176139-E3V4 FCC Report BLE_Final/All sections
DTS (WLAN)	PY7-83262V	R14176139-E4aV2 FCC Report DTS non-ax WLAN_Final/ All sections R14176139-E4bV2 FCC Report DTS ax WLAN_Final/ All sections
UNII (WLAN)	PY7-83262V	R14176139-E5aV3 FCC Report UNII 5.2_5.3 non-ax WLAN_Final/All sections R14176139-E5bV3 FCC Report UNII 5.2_5.3 ax WLAN_Final/All sections R14176139-E5cV2 FCC Report UNII 5.6 non-ax WLAN_Final/All sections R14176139-E5eV2 FCC Report UNII 5.8 non-ax WLAN_Final/All sections
DFS	PY7-83262V	R14176139-E6V3 FCC Report UNII DFS WLAN_Final/ All sections
NFC	PY7-83262V	R14176139-E9V2 FCC Report NFC_Final/All sections
WPT	PY7-83262V	R14176139-E7V1 FCC Report WPT_Final/All sections

7.4. SPOT CHECK VERIFICATION RESULTS SUMMARY

Spot check verification has been done on device PY7-24116L for radiated harmonic spurious. The data from the application has been verified through appropriate spot checks to demonstrate compliance for this device as shown in the summary.

PY7-24116L SPOT CHECK RESULTS									
Technology	Test Item	Channel	Measured Frequency (MHz)	PY7-83262V		PY7-24116L		Delta (dB) <+3dB	
				PK Reading (dBuV/m)	AV Reading (dBuV/m)	PK Reading (dBuV/m)	AV Reading (dBuV/m)	PK	AV
BT	RBE	0	2389	48.75	36.68	49.71	37.33	0.96	0.65
	RSE	39	2887	49.03	34.47	49.42	34.88	0.39	0.41
BLE	RBE	39	2483	50.79	41.19	50.39	39.59	-0.40	-1.60
	RSE	39	2745	47.78	35.58	48.23	36.93	0.45	1.35
2.4GHz WLAN	RBE	11	2483	51.22	39.56	51.12	39.37	-0.10	-0.19
	RSE	11	9094	46.74	-	47.93	-	1.19	-
			Note: Markers were all noise floor. Above PK values were >6dB below AV limit, therefore AV measurements not required.						
5GHz WLAN	RBE	38	5150	56.7	44.79	56.74	44.8	0.04	0.01
	RBE	102	5459	55.27	44.09	56.21	45.15	0.94	1.06
	RBE	149	5725	-37.77	-	-37.96	-	-0.19	-
			Note: No AV limit for above scan, therefore no AV measurements just PK.						
	RBE	50	5350	58.99	46.6	57.9	46.95	-1.09	0.35
NFC	RSE	13.56MHz	0.59751	16.54	-	7.13	-	-9.41	-
			166.57	26.79	-	27.95	-	1.16	-
WPT	RSE	110kHz	0.56585	13.49	-	9.94	-	-3.55	-
			183.51	27.45	-	29.47	-	2.02	-

8. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
1-18 GHz					
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-03-11	2022-03-11
AT0069	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2021-06-29	2022-06-29
Gain-Loss Chains					
C4-SAC03	Gain-loss string: 1-18GHz	Various	Various	2021-05-07	2022-05-07
Receiver & Software					
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
210642	Environmental Meter	Fisher Scientific	210701942	2021-8-16	2023-08-16

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
0.009-30MHz					
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2021-08-19	2022-08-19
30-1000 MHz					
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-08-30	2022-08-30
Gain-Loss Chains					
C2-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2021-07-09	2022-07-09
C2-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2021-07-09	2022-07-09
Receiver & Software					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2021-03-10	2022-03-10
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
Additional Equipment used					
s/n 181474409	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

9. SPOT CHECK DATA

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 1.5 m above the ground plane for measurement 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 above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T (360Hz) video bandwidth with peak detector for BT average measurements, RMS detection for BLE measurements, and linear voltage detection for WLAN measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to worst case mode.

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.

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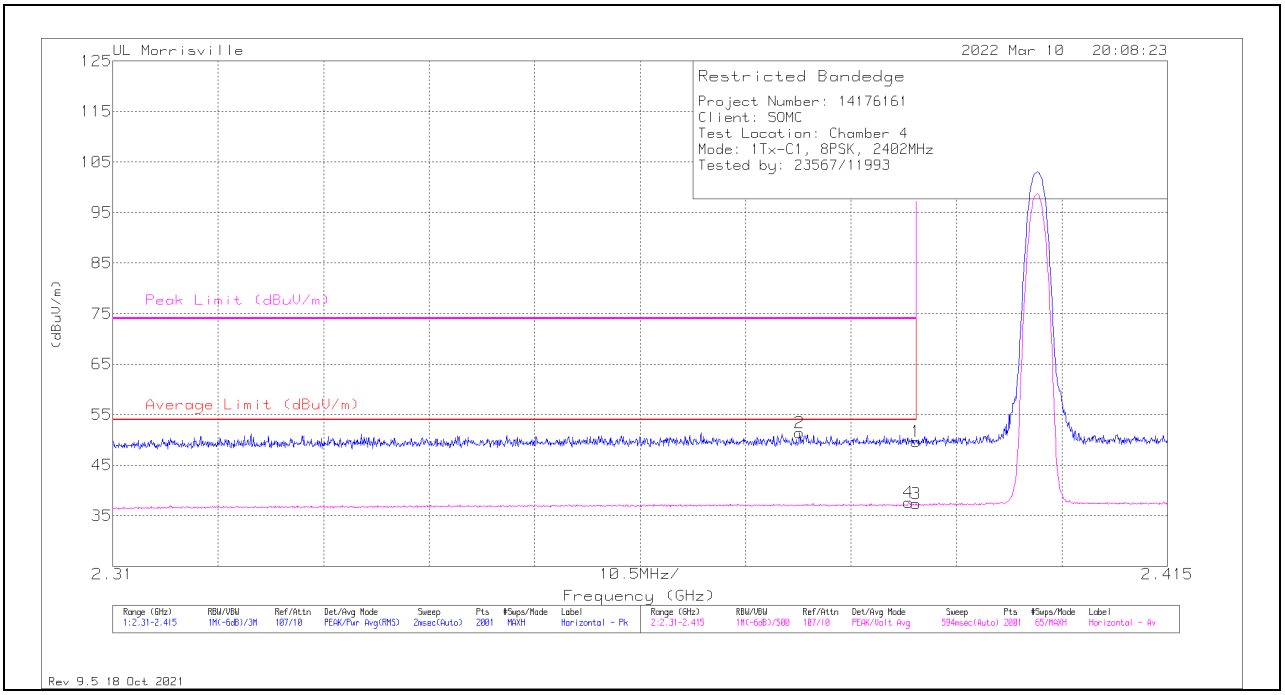
9.1. BLUETOOTH

BANDEDGE (LOW CHANNEL - CHAIN 1, 8PSK)

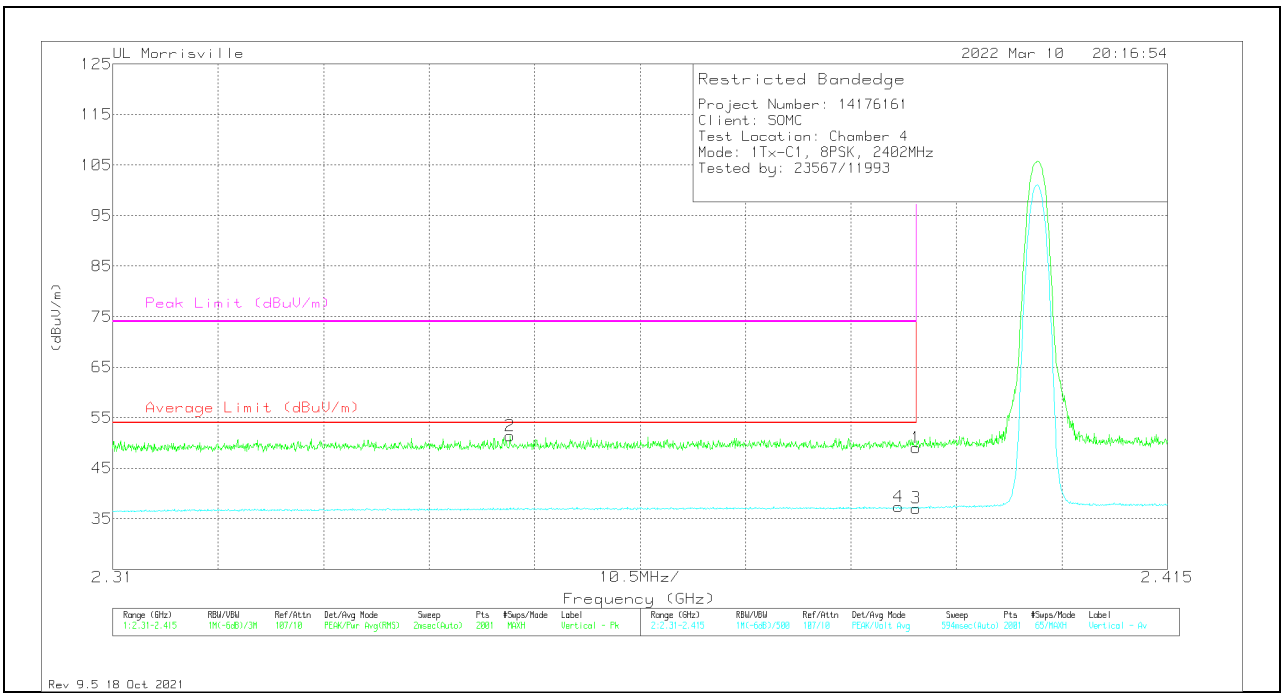
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	31.51	Pk	32	-13.8	49.71	-	-	74	-24.29	33	110	H
2	* ** 2.37836	33.31	Pk	32	-13.9	51.41	-	-	74	-22.59	33	110	H
3	* ** 2.38996	19.13	V1TV	32	-13.8	37.33	54	-16.67	-	-	33	110	H
4	* ** 2.38922	19.39	V1TV	32	-13.8	37.59	54	-16.41	-	-	33	110	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.38996	30.8	Pk	32	-13.8	49	-	-	74	-25	321	100	V
2	* ** 2.34953	33.26	Pk	32	-13.9	51.36	-	-	74	-22.64	321	100	V
3	* ** 2.38996	18.87	V1TV	32	-13.8	37.07	54	-16.93	-	-	321	100	V
4	* ** 2.38823	19.16	V1TV	32	-13.8	37.36	54	-16.64	-	-	321	100	V

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Pk - Peak detector
V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

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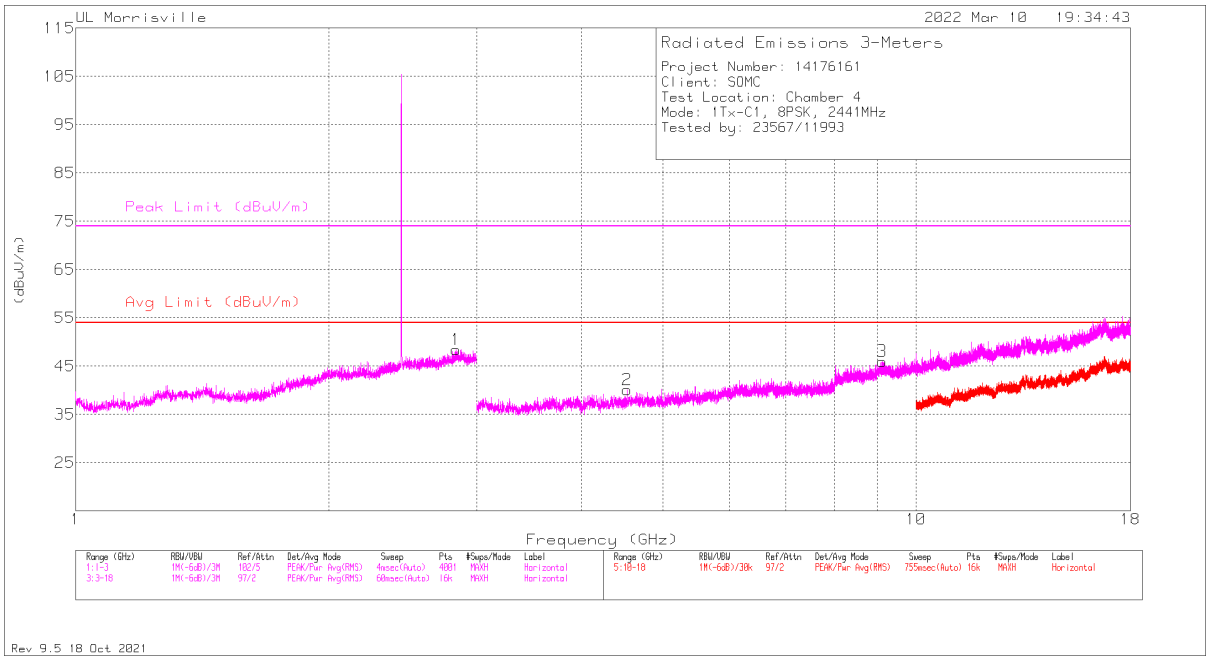
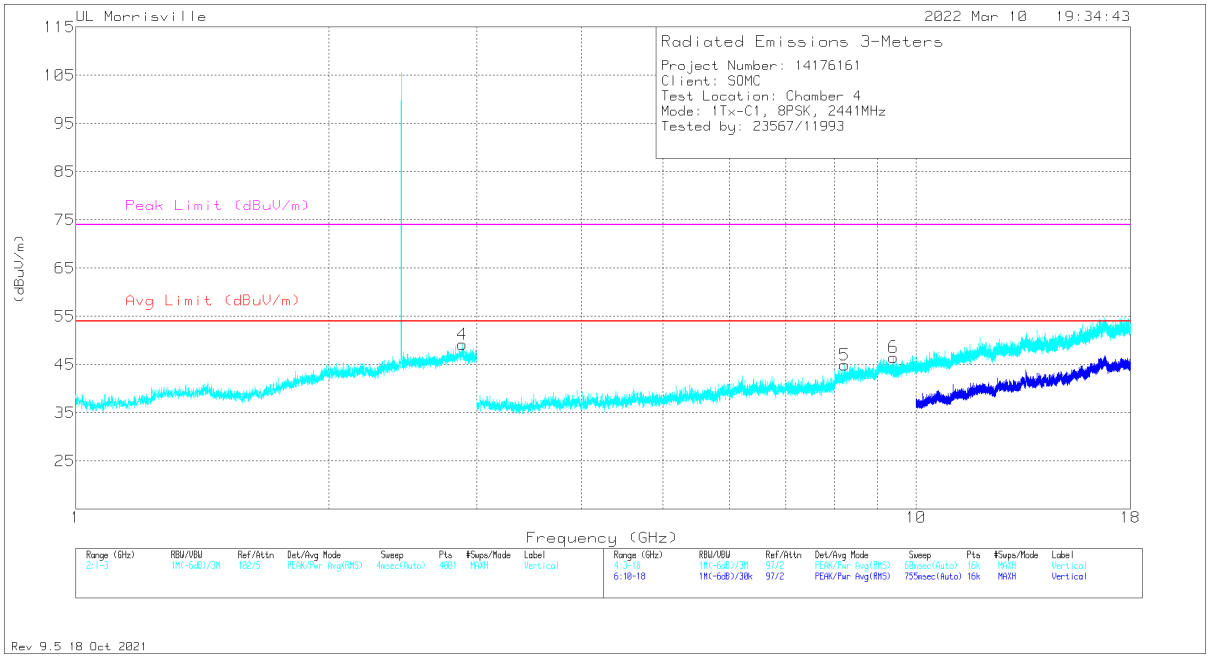
HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL – CHAIN 1, 8PSK



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.83823	29.55	PK2	32.4	-13	48.95	-	-	74	-25.05	20	371	H
	* ** 2.8376	15.05	V1TV	32.4	-13	34.45	54	-19.55	-	-	20	371	H
4	* ** 2.88664	29.72	PK2	32.5	-12.8	49.42	-	-	74	-24.58	262	141	V
	* ** 2.88742	15.18	V1TV	32.5	-12.8	34.88	54	-19.12	-	-	262	141	V
2	* ** 4.52906	38.68	Pk	33.8	-32.4	40.08	54	-13.92	74	-33.92	0-360	100	H
3	* ** 9.11063	36.02	Pk	36.1	-26.1	46.02	54	-7.98	74	-27.98	0-360	100	H
5	* ** 8.2275	37.02	Pk	35.7	-27.8	44.92	54	-9.08	74	-29.08	0-360	200	V
6	* ** 9.40406	36.34	Pk	36.4	-26.2	46.54	54	-7.46	74	-27.46	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - Maximum Peak
V1TV - VB=1/Ton, Linear Voltage Average where: Ton is packet duration

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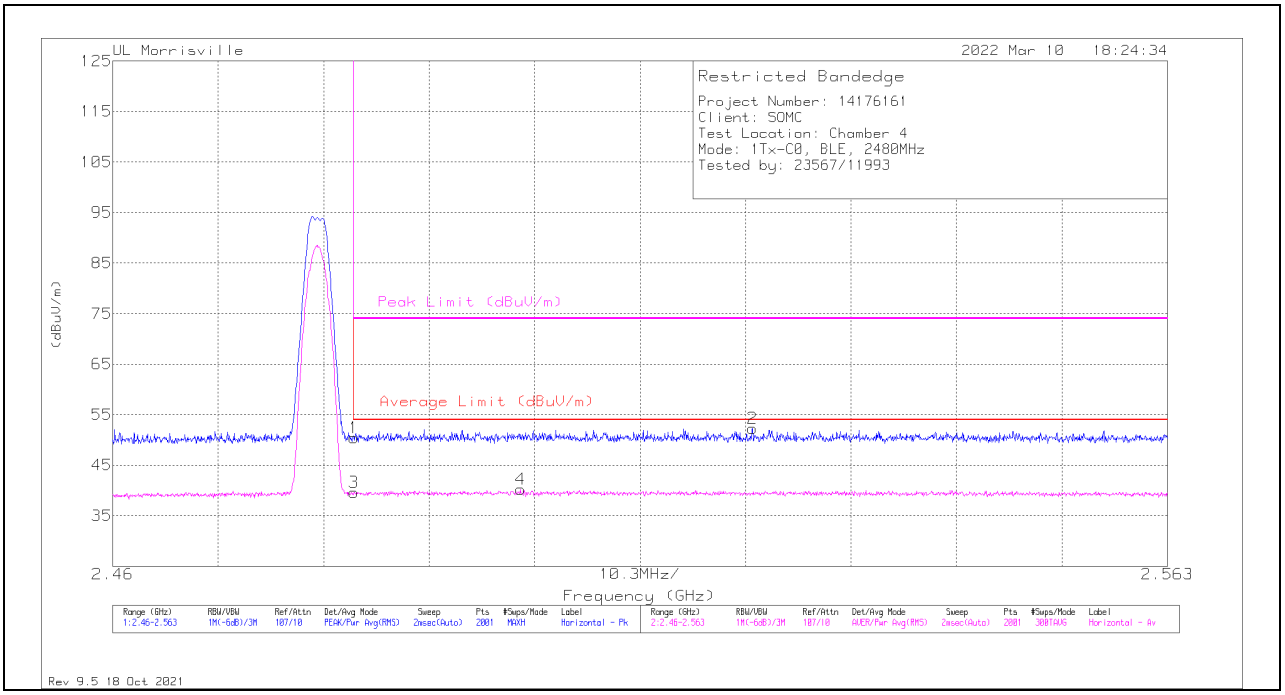
9.2. BLE

BANDEDGE (HIGH CHANNEL – CHAIN 0, 2Mbps)

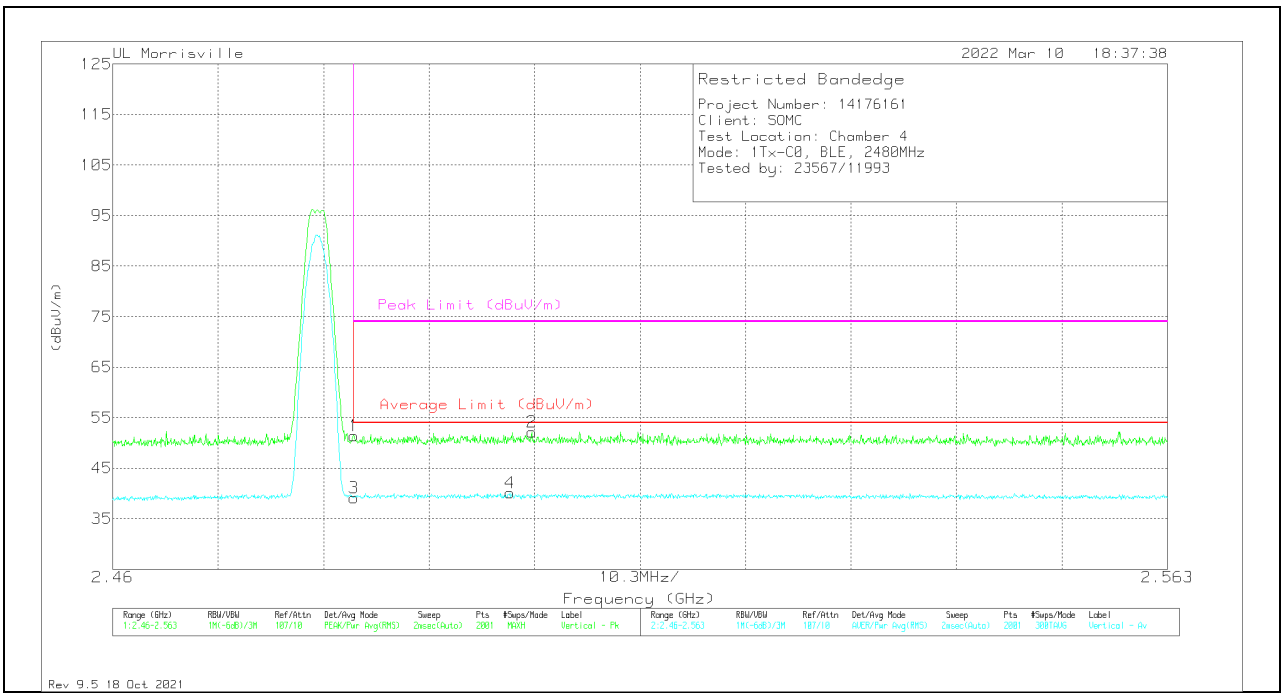
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (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	* ** 2.48354	31.49	Pk	32.6	-13.7	0	50.39	-	-	74	-23.61	110	268	H
2	** 2.52247	33.37	Pk	32.6	-13.7	0	52.27	-	-	74	-21.73	110	268	H
3	* ** 2.48354	18.27	RMS	32.6	-13.7	2.42	39.59	54	-14.41	-	-	110	268	H
4	* ** 2.49981	18.89	RMS	32.6	-13.7	2.42	40.21	54	-13.79	-	-	110	268	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (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	* ** 2.48354	32.48	Pk	32.6	-13.7	0	51.38	-	-	74	-22.62	35	143	V
2	** 2.50094	33.31	Pk	32.6	-13.7	0	52.21	-	-	74	-21.79	35	143	V
3	* ** 2.48354	17.85	RMS	32.6	-13.7	2.42	39.17	54	-14.83	-	-	35	143	V
4	* ** 2.49878	18.76	RMS	32.6	-13.7	2.42	40.08	54	-13.92	-	-	35	143	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
RMS - RMS detection

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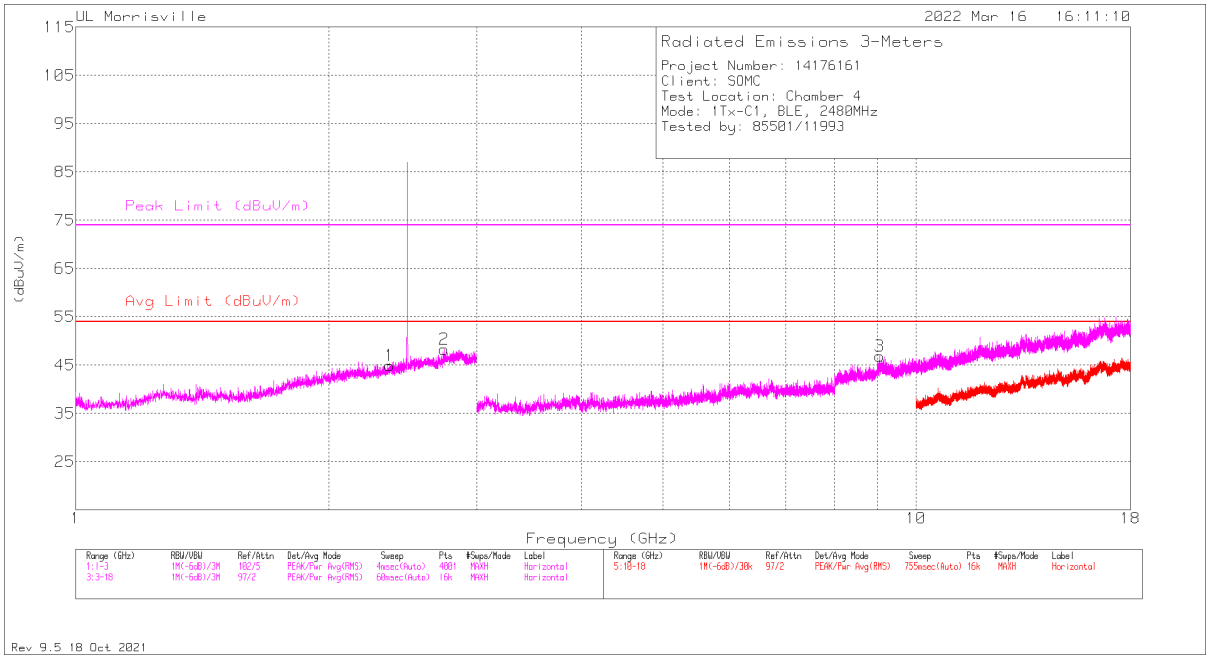
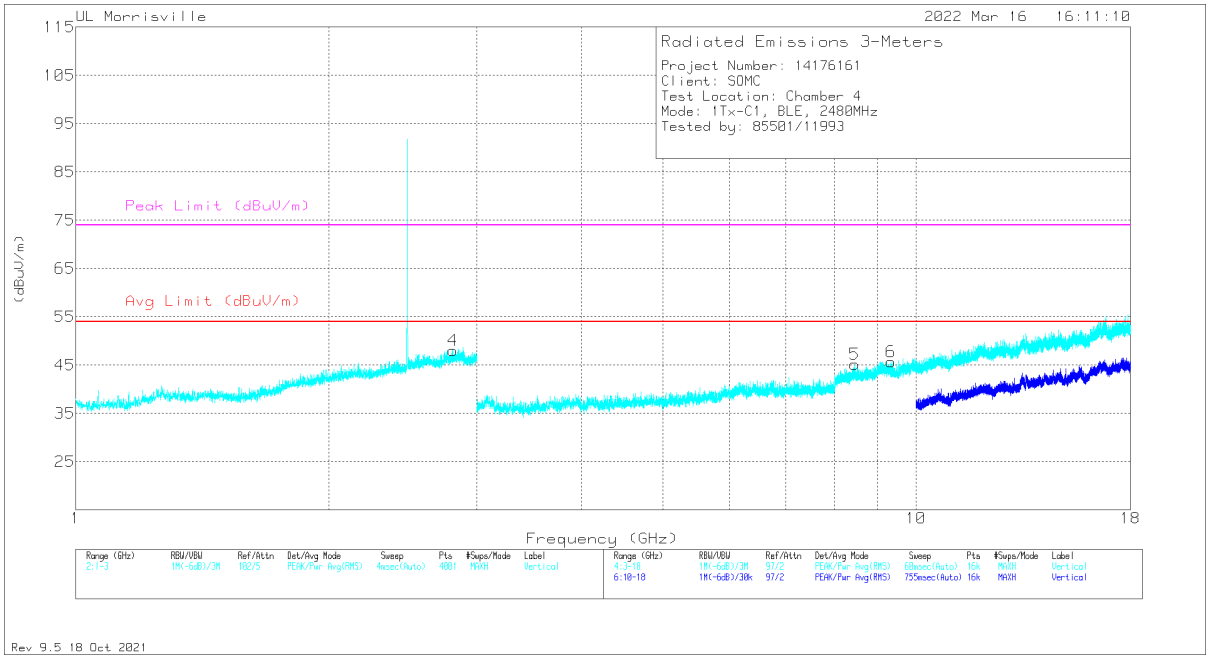
HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL – CHAIN 1, 125Kbps



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0069 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.363	27.02	Pk	31.8	-13.9	0	44.92	54	-9.08	74	-29.08	0-360	100	H
2	* ** 2.74241	29.33	PK2	32.1	-13.2	0	48.23	-	-	74	-25.77	0	231	H
	* ** 2.74521	17.92	ADR	32.1	-13.2	0.11	36.93	54	-17.07	-	-	0	231	H
4	* ** 2.811	28.49	Pk	32.5	-13	0	47.99	54	-6.01	74	-26.01	0-360	200	V
3	* ** 9.05344	36.3	Pk	36.1	-25.5	0	46.9	54	-7.1	74	-27.1	0-360	100	H
5	* ** 8.45813	36.68	Pk	35.7	-27.2	0	45.18	54	-8.82	74	-28.82	0-360	200	V
6	* ** 9.33281	35.1	Pk	36.4	-25.8	0	45.7	54	-8.3	74	-28.3	0-360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - Maximum Peak
ADR - RMS average

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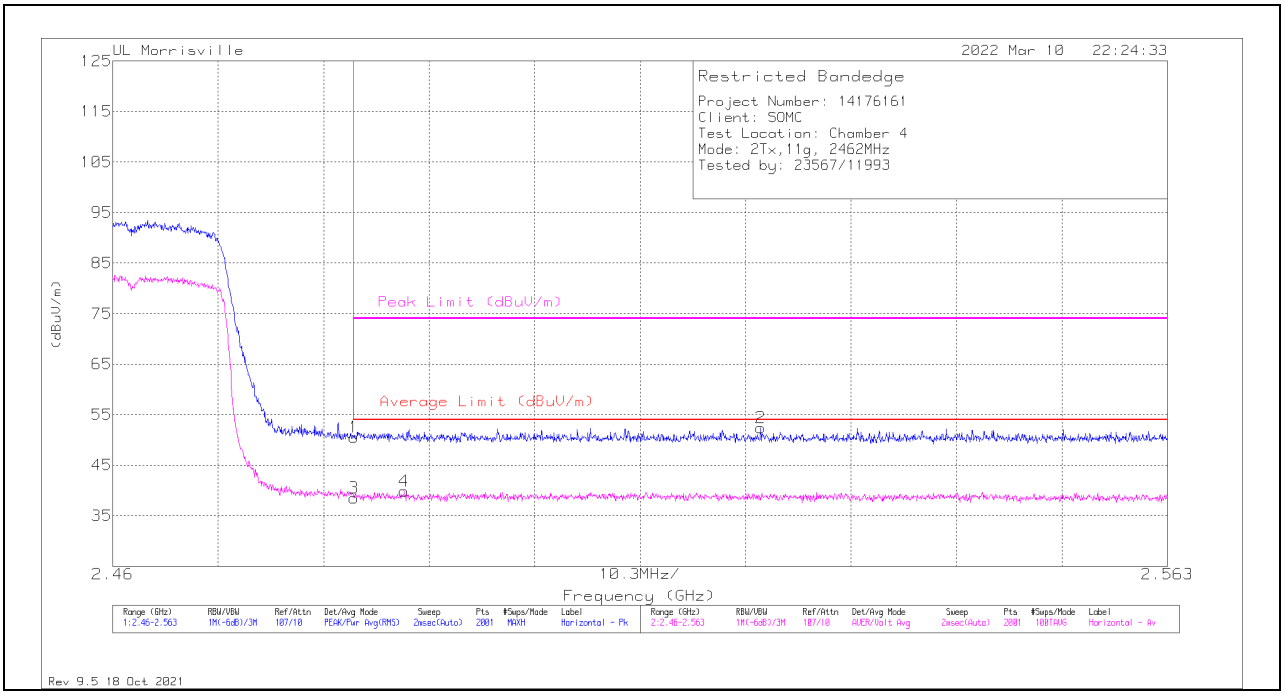
9.3. 2.4GHz WLAN

BANDEDGE (HIGH CHANNEL – 2TX, 802.11g)

HORIZONTAL RESULT

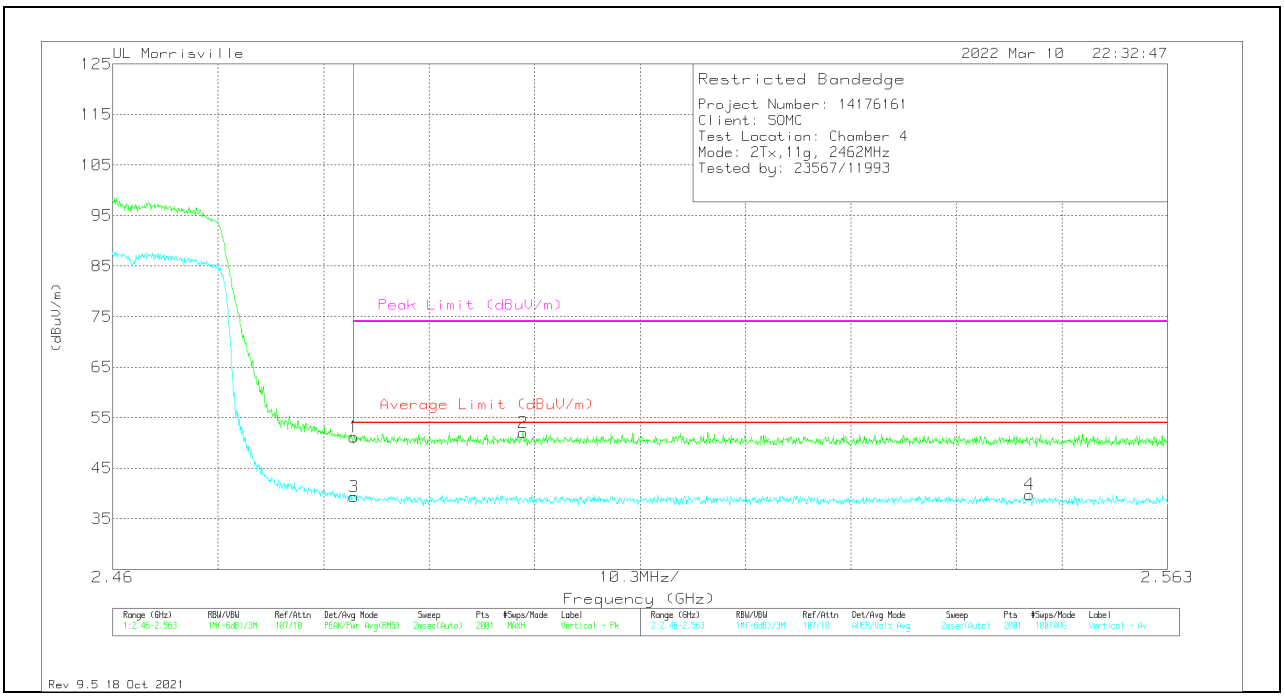


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	31.64	Pk	32.6	-13.7	50.54	-	-	74	-23.46	62	256	H
2	** 2.52329	33.61	Pk	32.5	-13.7	52.41	-	-	74	-21.59	62	256	H
3	* ** 2.48354	19.6	ADV	32.6	-13.7	38.5	54	-15.5	-	-	62	256	H
4	* ** 2.48848	20.96	ADV	32.6	-13.7	39.86	54	-14.14	-	-	62	256	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

VERTICAL RESULT



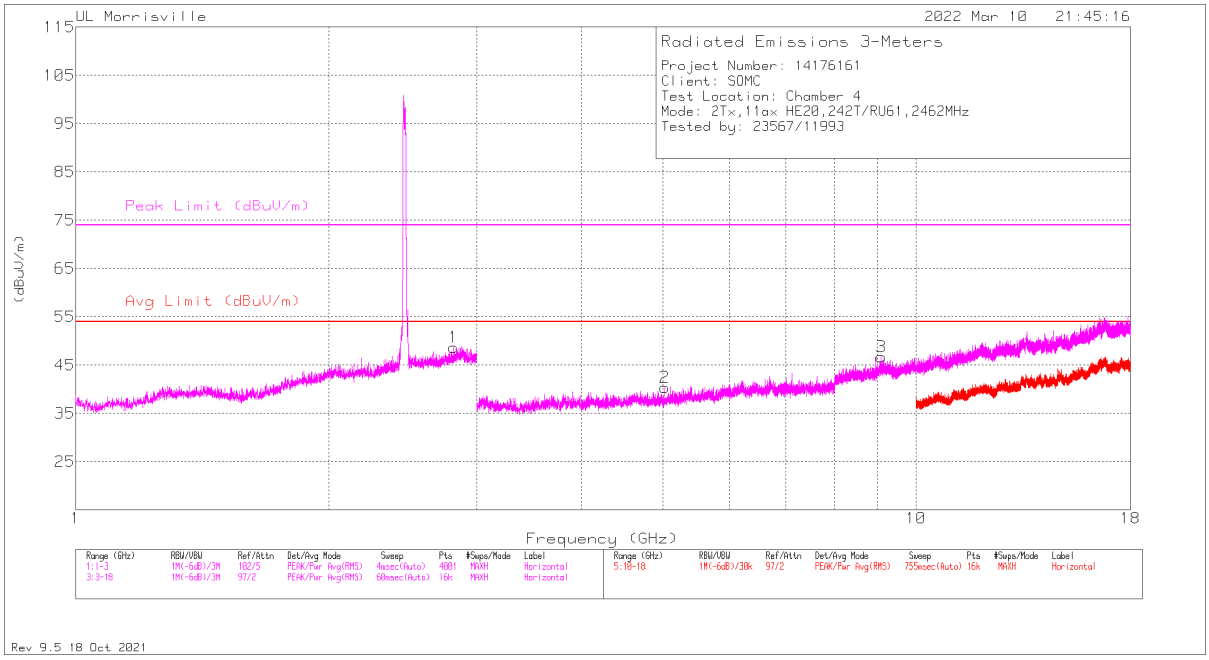
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.48354	32.22	Pk	32.6	-13.7	51.12	-	-	74	-22.88	90	198	V
2	** 2.50007	33.18	Pk	32.6	-13.7	52.08	-	-	74	-21.92	90	198	V
3	* ** 2.48354	20.47	ADV	32.6	-13.7	39.37	54	-14.63	-	-	90	198	V
4	** 2.54956	21.2	ADV	32.2	-13.6	39.8	54	-14.2	-	-	90	198	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

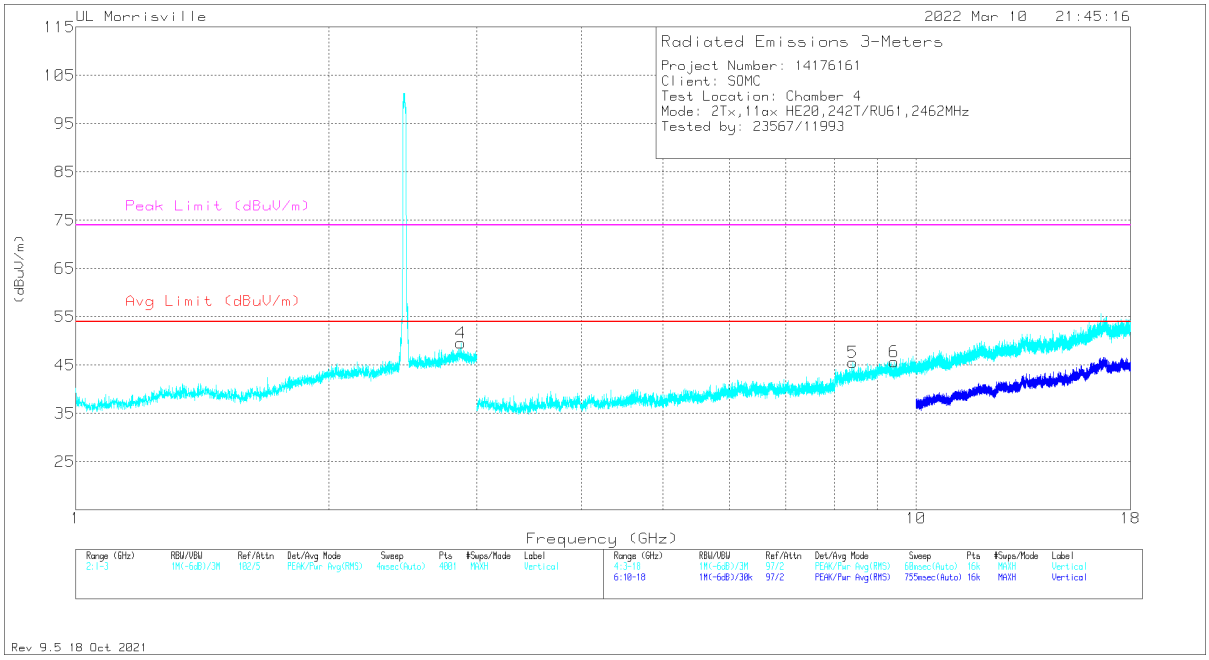
UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

HARMONICS AND SPURIOUS EMISSIONS

HIGH CHANNEL 2TX, 802.11ax HE20 242T/RU61



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 2.81281	29.66	PK2	32.4	-13	49.06	-	-	74	-24.94	192	399	H
	* ** 2.8156	16.79	ADV	32.4	-13	36.19	54	-17.81	-	-	192	399	H
4	* ** 2.87575	30.23	PK2	32.5	-12.8	49.93	-	-	74	-24.07	145	195	V
	* ** 2.87503	16.99	ADV	32.5	-12.8	36.69	54	-17.31	-	-	145	195	V
2	* ** 5.02125	39.27	Pk	33.9	-32.8	40.37	54	-13.63	74	-33.63	0-360	100	H
3	* ** 9.09375	36.44	Pk	36.1	-25.8	46.74	54	-7.26	74	-27.26	0-360	100	H
5	* ** 8.41125	37.43	Pk	35.7	-27.5	45.63	54	-8.37	74	-28.37	0-360	200	V
6	* ** 9.41625	35.75	Pk	36.4	-26.4	45.75	54	-8.25	74	-28.25	0-360	200	V

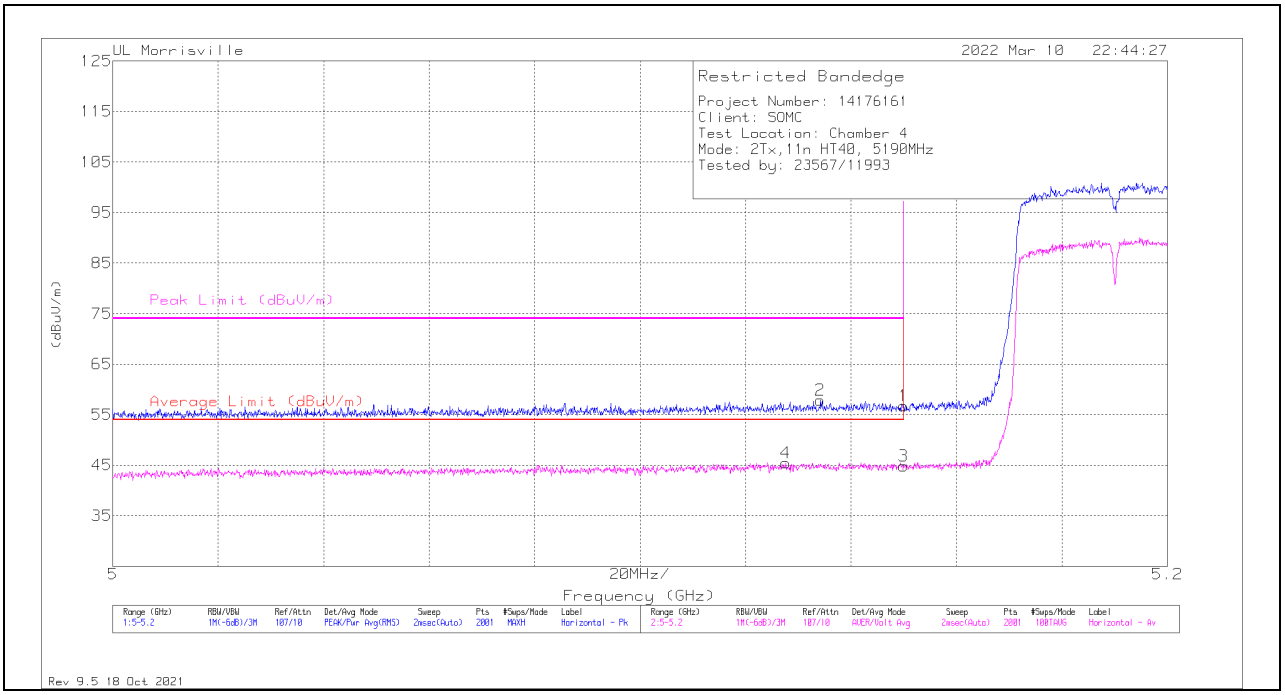
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
PK2 - Maximum Peak
ADV - Linear Voltage Average

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

9.4. 5GHz WLAN

BANDEDGE (5.2 BAND LOW CHANNEL – 2TX, 802.11n HT40)

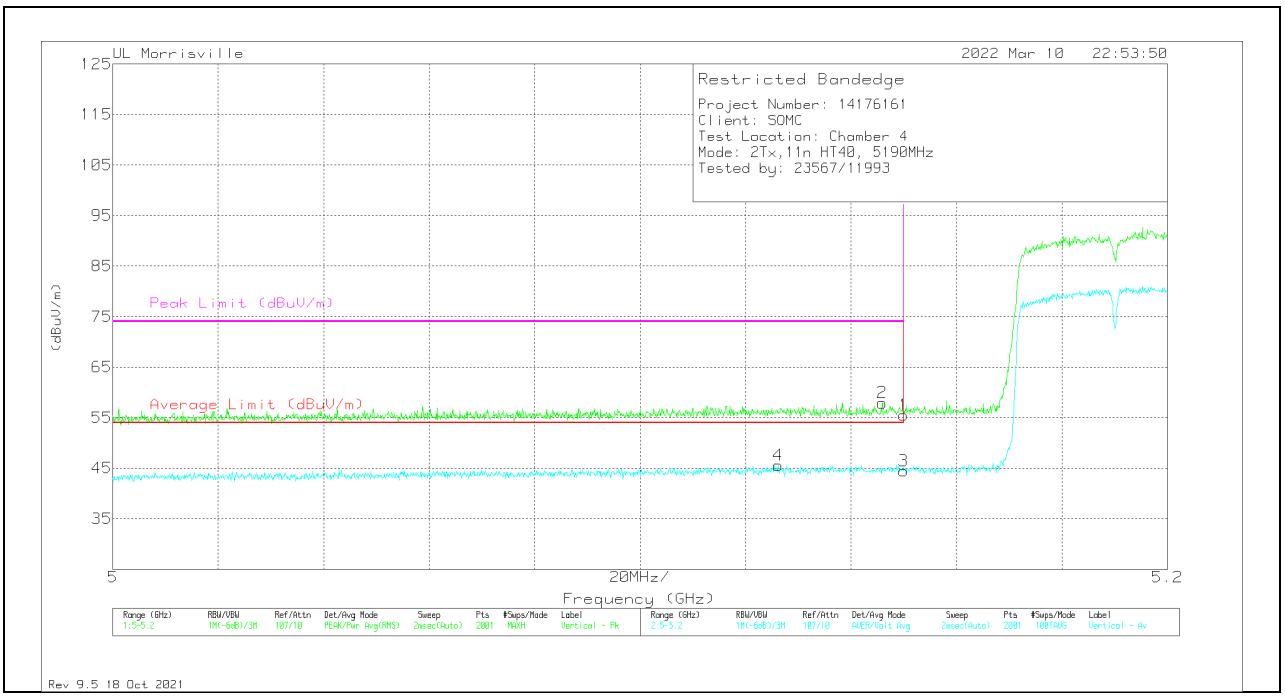
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.15	32.84	Pk	34.2	-10.3	56.74	-	-	74	-17.26	334	149	H
2	* ** 5.1342	33.89	Pk	34.2	-10.2	57.89	-	-	74	-16.11	334	149	H
3	* ** 5.15	20.9	ADV	34.2	-10.3	44.8	54	-9.2	-	-	334	149	H
4	* ** 5.1276	21.56	ADV	34.1	-10.2	45.46	54	-8.54	-	-	334	149	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT



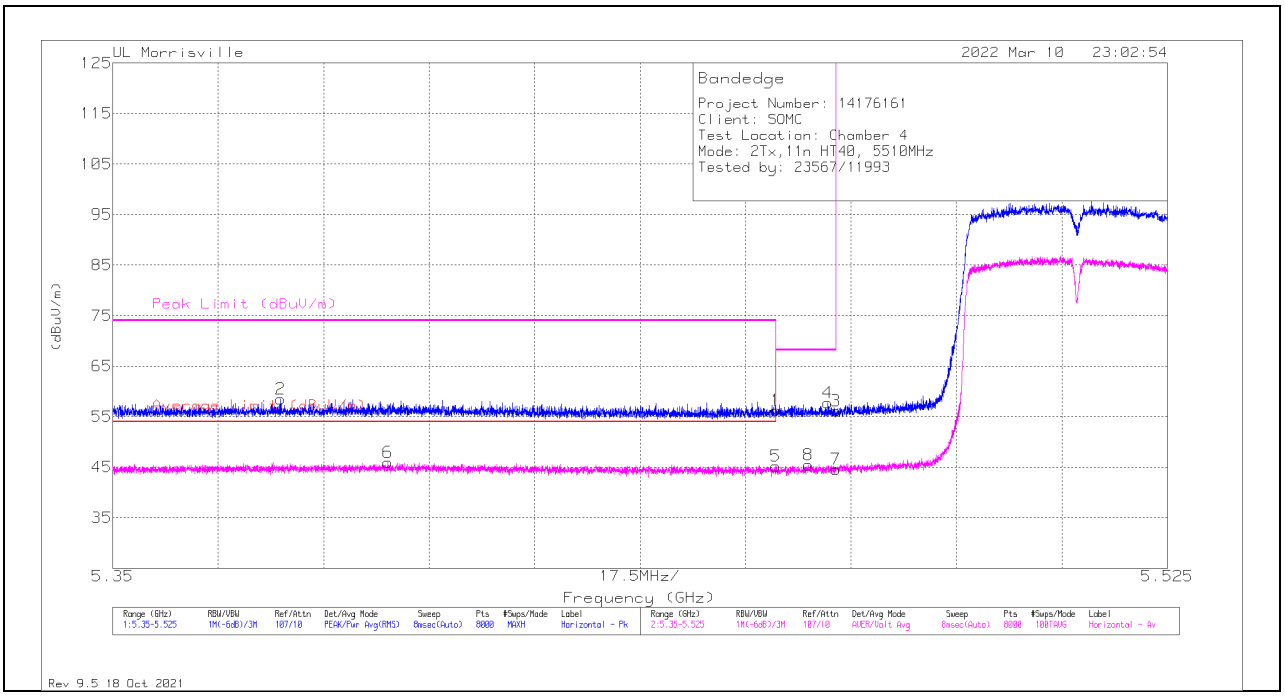
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.15	31.62	Pk	34.2	-10.3	55.52	-	-	74	-18.48	8	211	V
2	* ** 5.1459	34.03	Pk	34.2	-10.3	57.93	-	-	74	-16.07	8	211	V
3	* ** 5.15	20.55	ADV	34.2	-10.3	44.45	54	-9.55	-	-	8	211	V
4	* ** 5.1262	21.69	ADV	34.1	-10.2	45.59	54	-8.41	-	-	8	211	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

BANDEDGE (5.6 BAND LOW CHANNEL – 2TX, 802.11nHT40)

HORIZONTAL RESULT

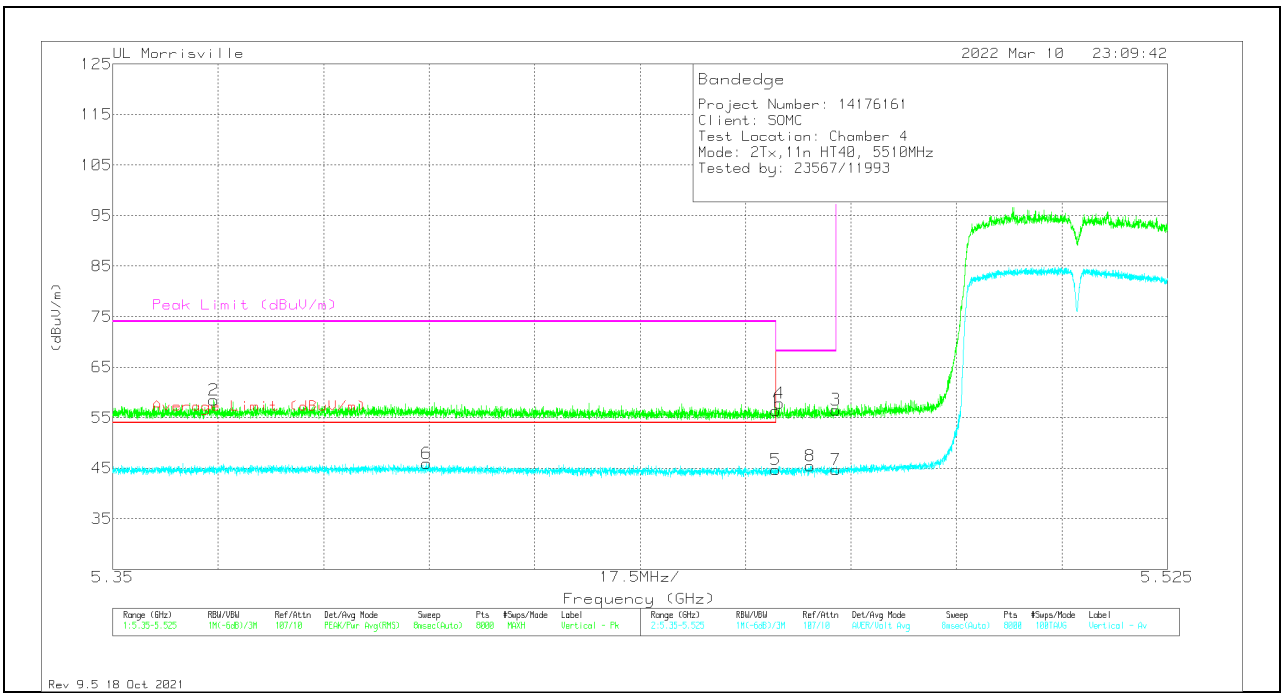


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.45998	31.51	Pk	34.4	-9.7	56.21	-	-	74	-17.79	322	100	H
2	* ** 5.37785	34.09	Pk	34.5	-10.1	58.49	-	-	74	-15.51	322	100	H
5	* ** 5.45998	20.45	ADV	34.4	-9.7	45.15	54	-8.85	-	-	322	100	H
6	* ** 5.39568	21.38	ADV	34.4	-9.8	45.98	54	-8.02	-	-	322	100	H
8	5.46543	20.76	ADV	34.4	-9.7	45.46	-	-	-	-	322	100	H
4	5.46867	33.05	Pk	34.4	-9.7	57.75	-	-	68.2	-10.45	322	100	H
3	5.46998	31.43	Pk	34.4	-9.7	56.13	-	-	68.2	-12.07	322	100	H
7	5.46998	19.93	ADV	34.4	-9.7	44.63	-	-	-	-	322	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

VERTICAL RESULT



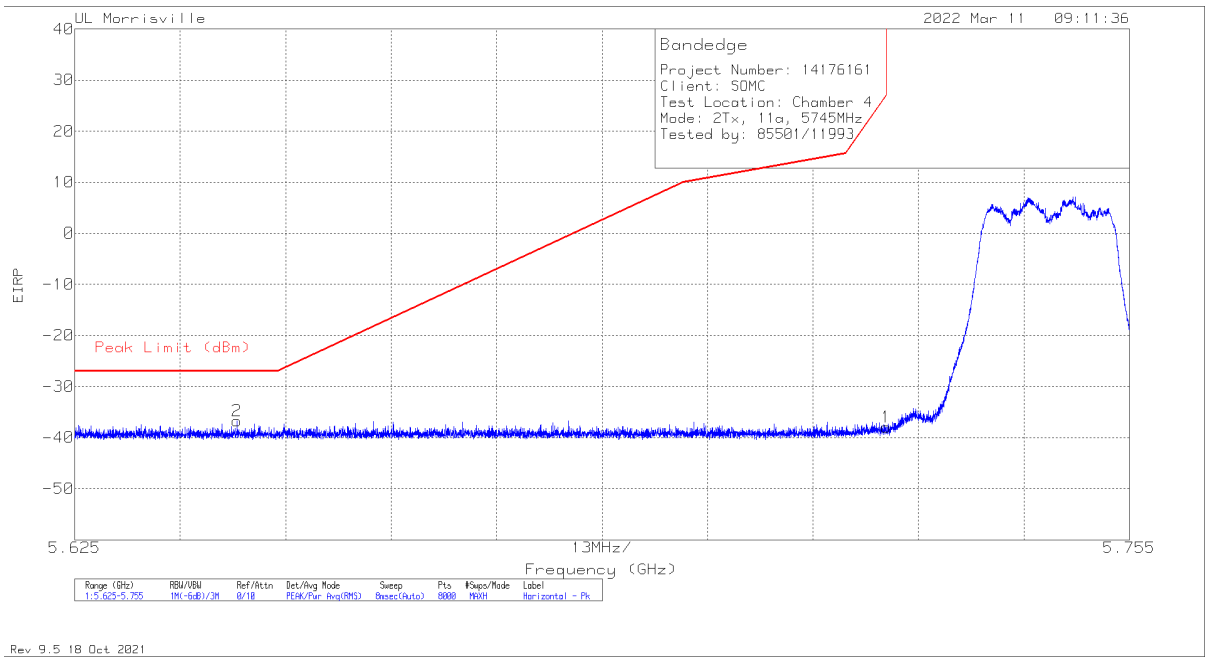
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.45998	31.65	Pk	34.4	-9.7	56.35	-	-	74	-17.65	26	100	V
2	* ** 5.36678	34.11	Pk	34.5	-10.1	58.51	-	-	74	-15.49	26	100	V
5	* ** 5.45998	20.03	ADV	34.4	-9.7	44.73	54	-9.27	-	-	26	100	V
6	* ** 5.40207	21.35	ADV	34.4	-9.8	45.95	54	-8.05	-	-	26	100	V
4	5.46059	33.2	Pk	34.4	-9.7	57.9	-	-	68.2	-10.3	26	100	V
8	5.46576	20.71	ADV	34.4	-9.7	45.41	-	-	-	-	26	100	V
3	5.46998	31.86	Pk	34.4	-9.7	56.56	-	-	68.2	-11.64	26	100	V
7	5.46998	20.05	ADV	34.4	-9.7	44.75	-	-	-	-	26	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

BANDEDGE (5.8 BAND LOW CHANNEL – 2TX, 802.11a)

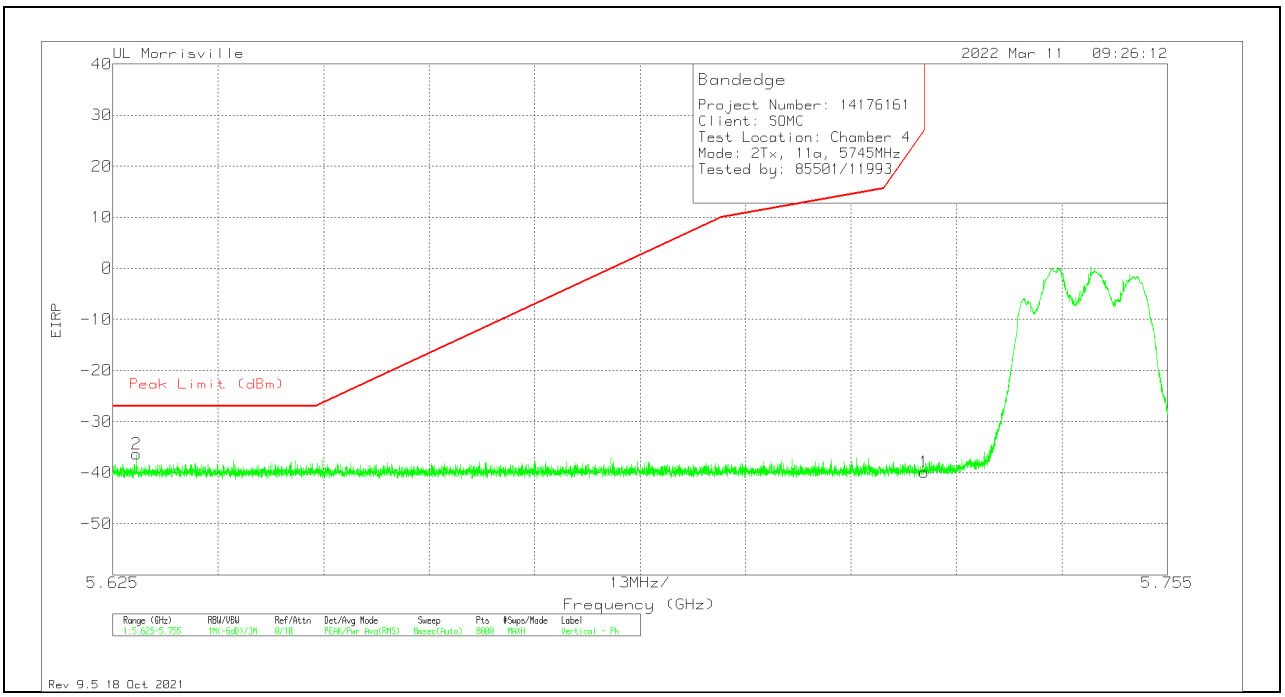
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64501	-73.38	Pk	34.4	-9.5	11.8	-36.68	-27	-9.68	72	136	H
1	5.725	-74.86	Pk	34.5	-9.4	11.8	-37.96	27	-64.96	72	136	H

Pk - Peak detector

VERTICAL RESULT

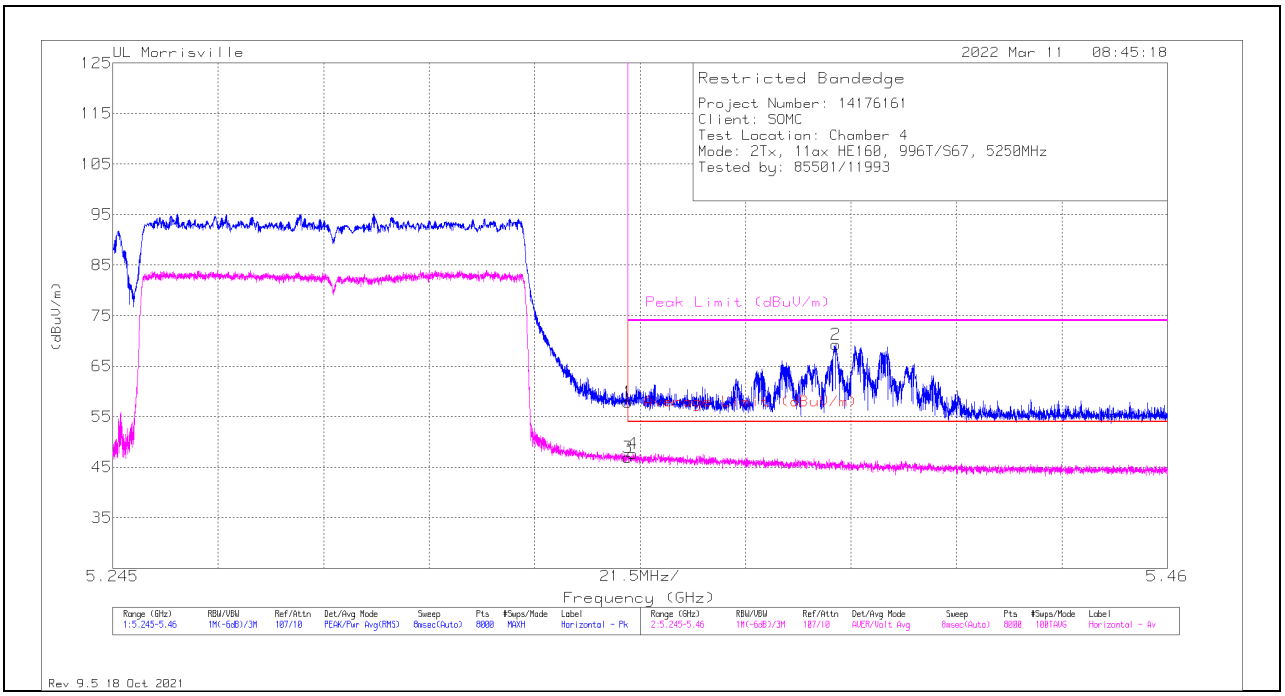


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.62794	-73.09	Pk	34.4	-9.5	11.8	-36.39	-27	-9.39	9	320	V
1	5.725	-76.77	Pk	34.5	-9.4	11.8	-39.87	27	-66.87	9	320	V

Pk - Peak detector

BANDEDGE (5.2 BAND HIGH CHANNEL – 2TX, 802.11ax HE160 996T/RUS67)

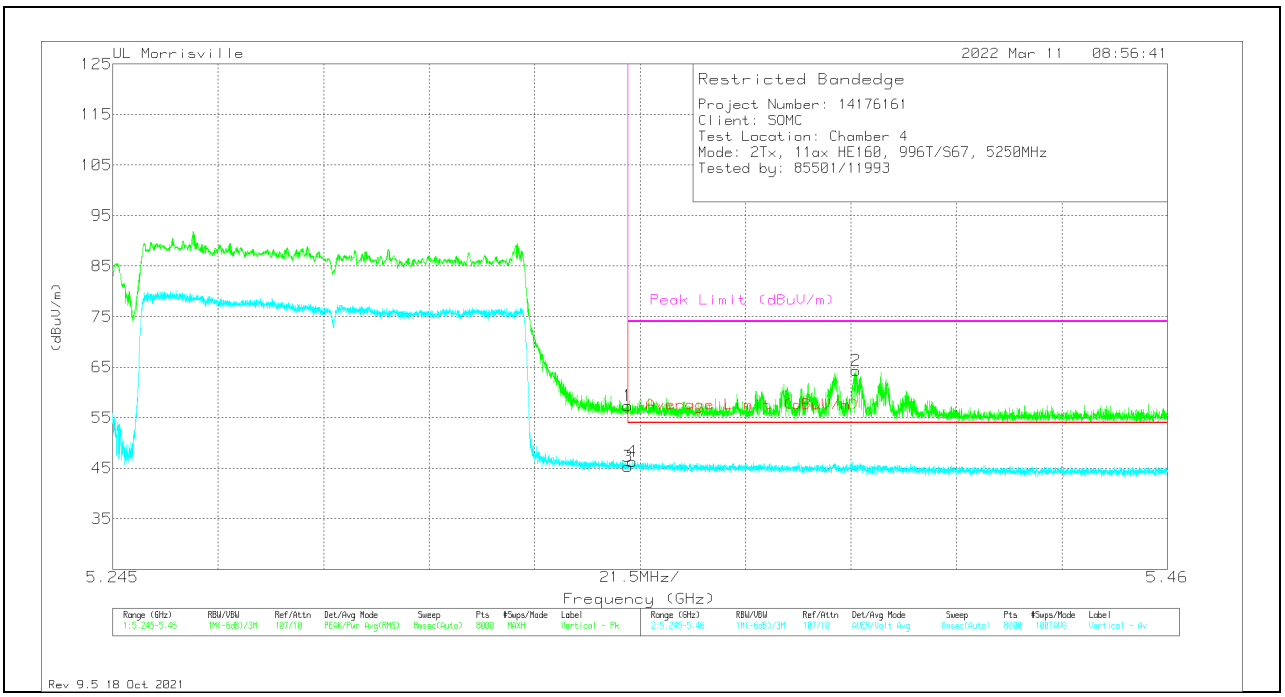
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.35001	33.5	Pk	34.5	-10.1	57.9	-	-	74	-16.1	340	100	H
2	* ** 5.39243	44.78	Pk	34.4	-9.9	69.28	-	-	74	-4.72	340	100	H
3	* ** 5.35001	22.55	ADV	34.5	-10.1	46.95	54	-7.05	-	-	340	100	H
4	* ** 5.35101	23.29	ADV	34.5	-10.1	47.69	54	-6.31	-	-	340	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206211 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 5.35001	32.96	Pk	34.5	-10.1	57.36	-	-	74	-16.64	27	378	V
2	* ** 5.39646	39.69	Pk	34.4	-9.8	64.29	-	-	74	-9.71	27	378	V
3	* ** 5.35001	20.91	ADV	34.5	-10.1	45.31	54	-8.69	-	-	27	378	V
4	* ** 5.3509	21.9	ADV	34.5	-10.1	46.3	54	-7.7	-	-	27	378	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector
ADV - Linear Voltage Average

UL LLC
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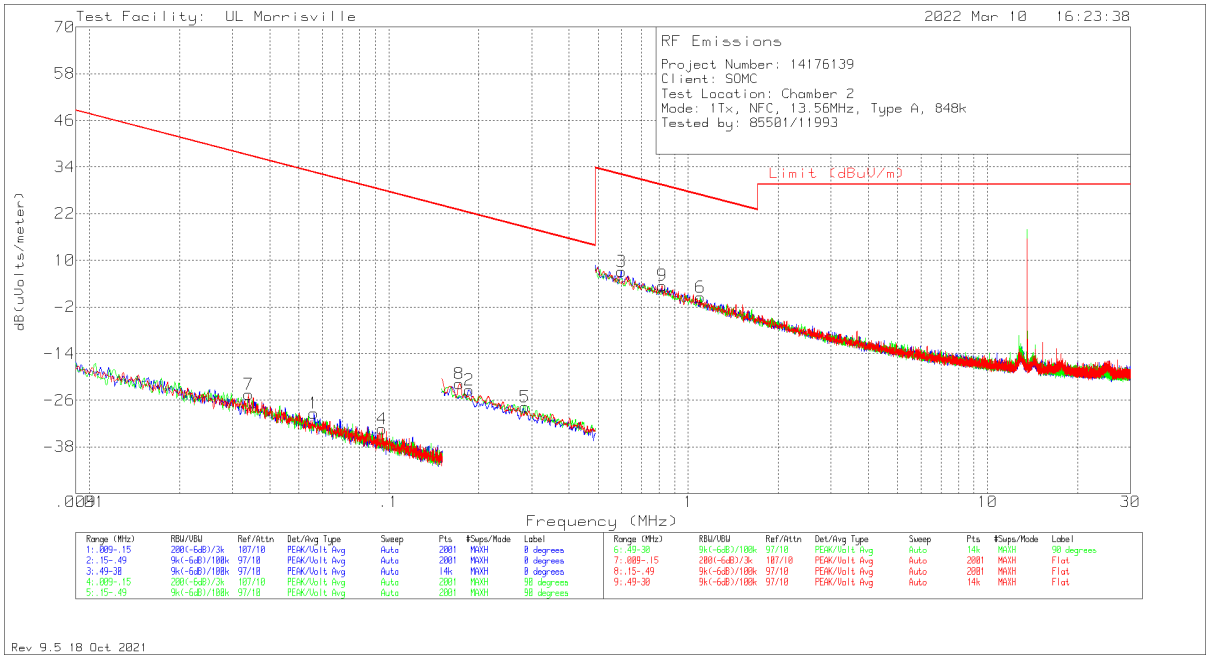
9.5. NFC

HARMONICS AND SPURIOUS EMISSIONS – NO TAG, TYPE A, 848Kbps

0.009 to 30MHz

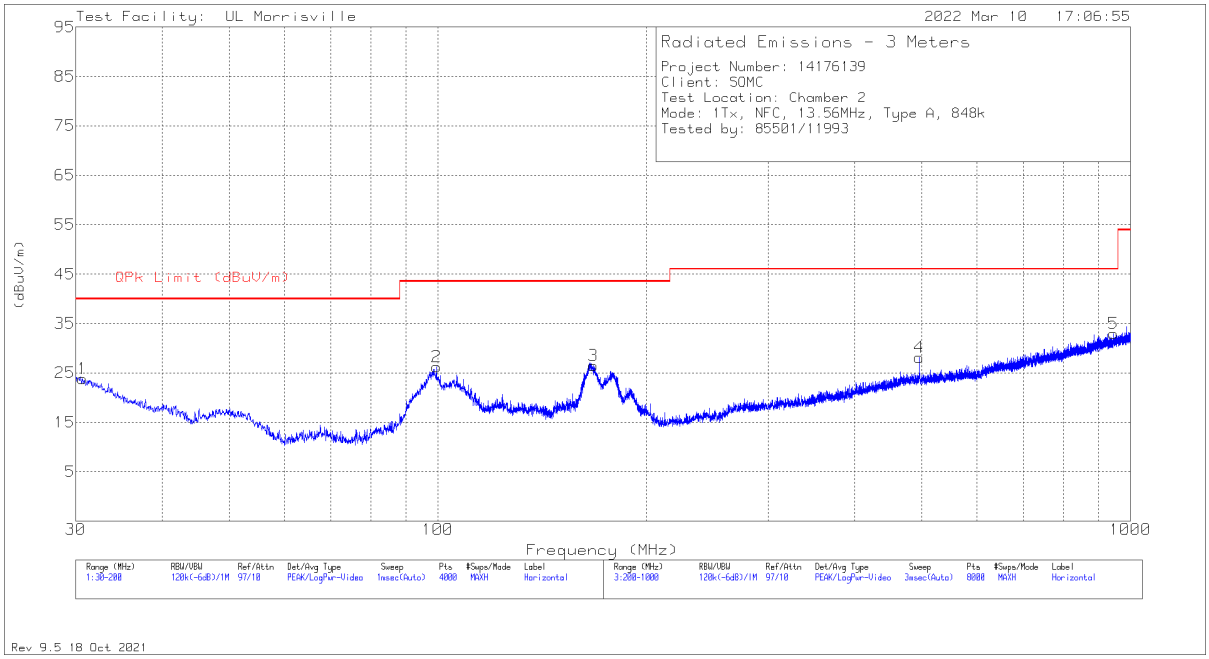


RADIATED EMISSIONS

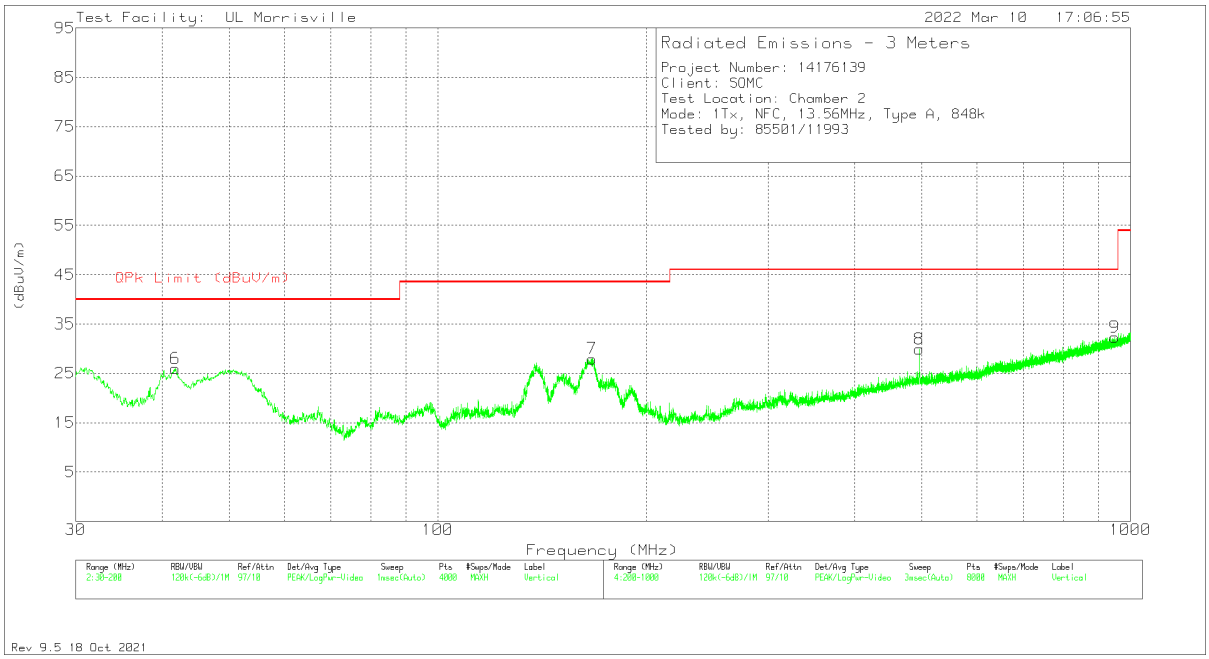
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	QP/ AV Limit (dBuV/m)	PK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
7	.03399	42.4	Pk	13	.1	-80	-24.5	36.98	36.98	-61.48	0-360
1	.05629	38.84	Pk	11.7	.1	-80	-29.36	32.6	32.6	-61.96	0-360
4	.0948	35.13	Pk	11.4	.1	-80	-33.37	28.07	-	-61.44	0-360
8	.17176	46.88	Pk	11.2	.1	-80	-21.82	22.91	22.91	-44.73	0-360
2	.1857	45.33	Pk	11.2	.1	-80	-23.37	22.23	22.23	-45.6	0-360
5	.28498	40.94	Pk	11.2	.1	-80	-27.76	18.51	18.51	-46.27	0-360
3	.59751	35.73	Pk	11.2	.2	-40	7.13	32.08	-	-24.95	0-360
9	.81779	31.99	Pk	11.3	.2	-40	3.49	29.35	-	-25.86	0-360
6	1.0971	28.95	Pk	11.3	.2	-40	.45	26.8	-	-26.35	0-360

Pk - Peak detector

30 to 1000MHz



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.6802	28.69	Pk	26.4	-31.3	23.79	40	-16.21	0-360	101	H
6	41.733	38.81	Pk	18.5	-31.3	26.01	40	-13.99	0-360	101	V
2	99.548	40.28	Pk	16.3	-30.4	26.18	43.52	-17.34	0-360	299	H
7	166.8429	39.55	Pk	18.1	-29.7	27.95	43.52	-15.57	0-360	101	V
3	167.5656	38.29	Pk	18	-29.8	26.49	43.52	-17.03	0-360	101	H
8	495.5384	33.71	Pk	23.7	-27.5	29.91	46.02	-16.11	0-360	101	V
4	495.8385	32.26	Pk	23.7	-27.8	28.16	46.02	-17.86	0-360	101	H
5	945.0969	29.08	Pk	28.8	-24.9	32.98	46.02	-13.04	0-360	198	H
9	949.5974	28.08	Pk	28.9	-24.7	32.28	46.02	-13.74	0-360	199	V

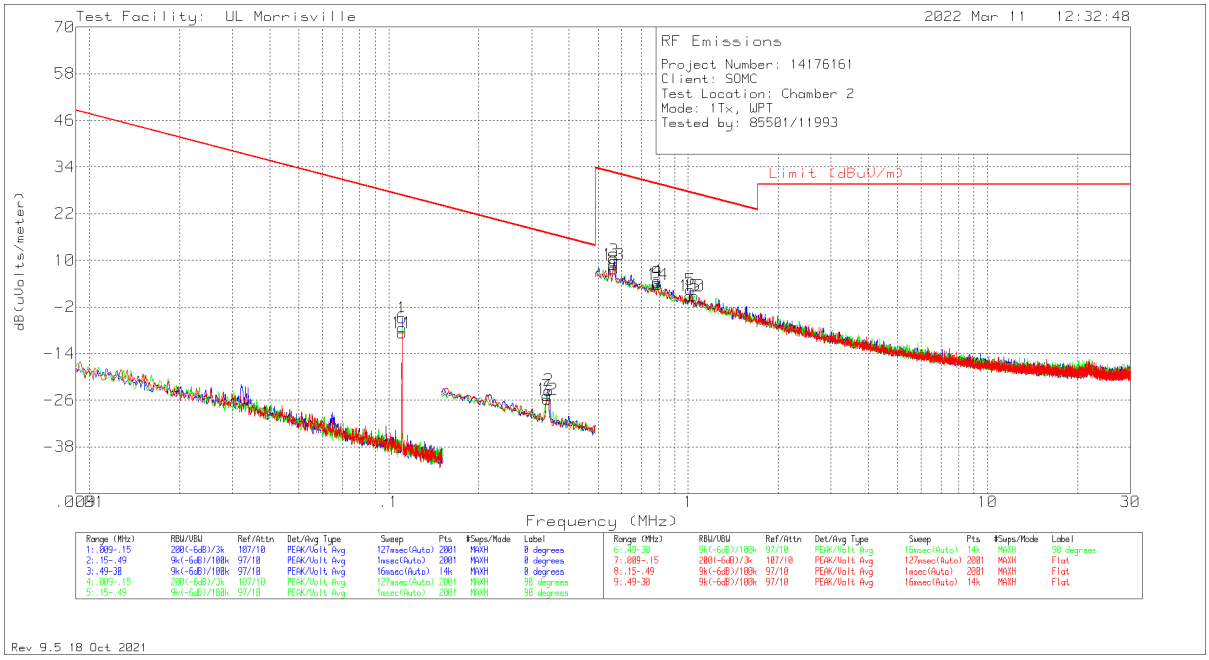
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

UL LLC
12 Laboratory Dr., RTP, NC 27709; USA TEL: (919)549-1400

9.6. WPT

HARMONICS AND SPURIOUS EMISSIONS – CONFIG 1

0.009 to 30MHz

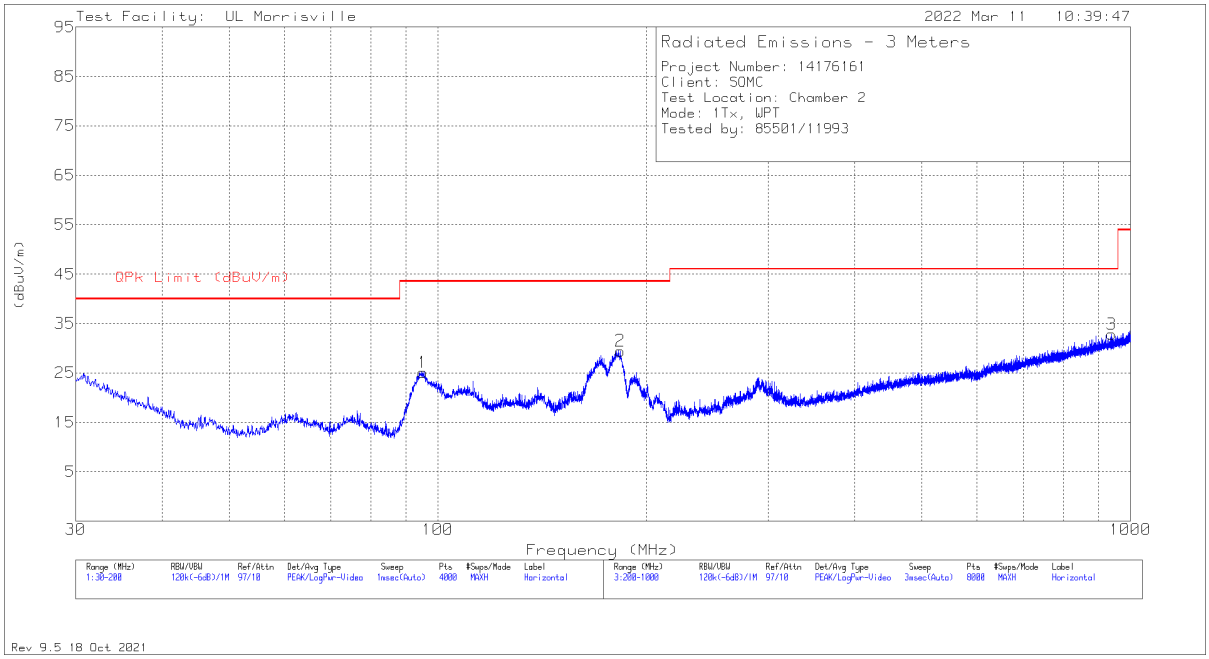


RADIATED EMISSIONS

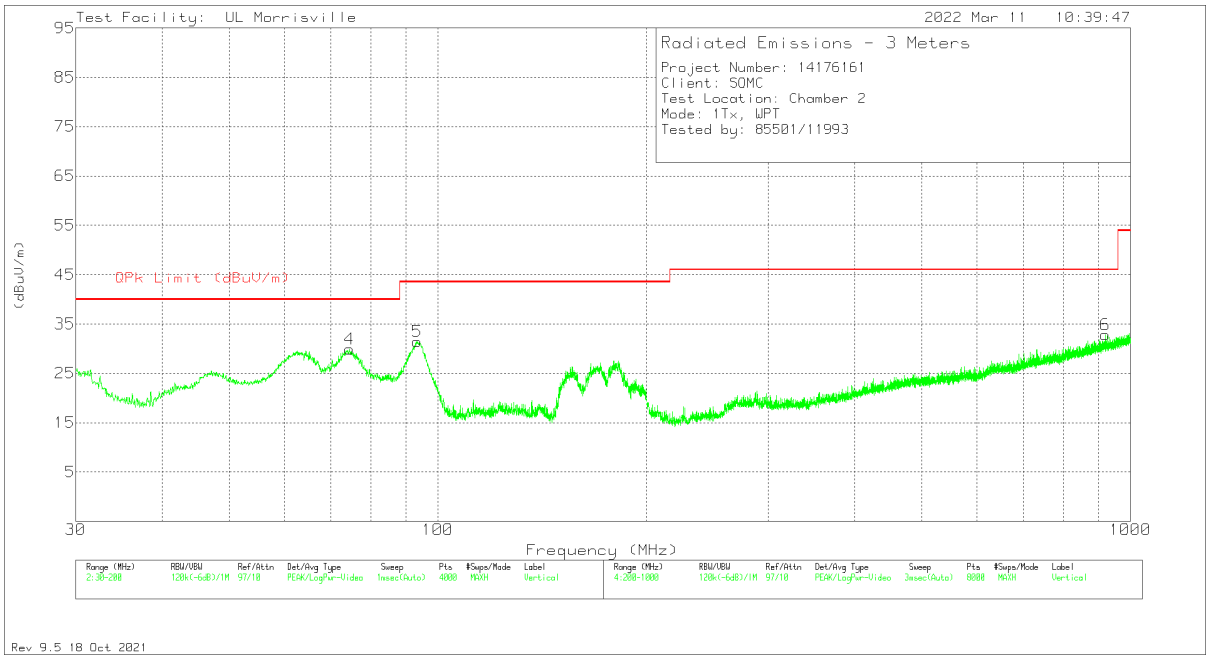
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0079 (dB/m)	Cbl (dB)	Dist. Corr. Factor (dB)	Corrected Reading dB(uVolts/meter)	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Loop Angle
1	.11004	63.92	Pk	11.4	.1	-80	-4.58	26.77	-31.35	114	0 degs
	.11004	63.75	Av	11.4	.1	-80	-4.75	26.77	-31.52	114	0 degs
2	.34159	45.24	Pk	11.2	.1	-80	-23.46	16.93	-40.39	0-360	0 degs
3	.56589	38.54	Pk	11.2	.2	-40	9.94	32.55	-22.61	0-360	0 degs
4	.78934	33.25	Pk	11.3	.2	-40	4.75	29.66	-24.91	0-360	0 degs
5	1.017	30.91	Pk	11.3	.2	-40	2.41	27.46	-25.05	0-360	0 degs
6	.11004	61.8	Pk	11.4	.1	-80	-6.7	26.77	-33.47	199	90 degs
	.11004	61.74	Av	11.4	.1	-80	-6.76	26.77	-33.53	199	90 degs
7	.33794	43.92	Pk	11.2	.1	-80	-24.78	17.03	-41.81	0-360	90 degs
8	.56378	36.45	Pk	11.2	.2	-40	7.85	32.58	-24.73	0-360	90 degs
9	.78934	32.76	Pk	11.3	.2	-40	4.26	29.66	-25.4	0-360	90 degs
10	1.04651	29.36	Pk	11.3	.2	-40	.86	27.21	-26.35	0-360	Flat
11	.11004	59.83	Pk	11.4	.1	-80	-8.67	26.77	-35.44	283	Flat
	.11004	59.63	Av	11.4	.1	-80	-8.87	26.77	-35.64	286	Flat
12	.33879	42.91	Pk	11.2	.1	-80	-25.79	17.01	-42.8	0-360	Flat
13	.56378	37.51	Pk	11.2	.2	-40	8.91	32.58	-23.67	0-360	Flat
14	.79144	32.29	Pk	11.3	.2	-40	3.79	29.64	-25.85	0-360	Flat
15	1.01489	29.35	Pk	11.3	.2	-40	.85	27.48	-26.63	0-360	Flat

Pk - Peak detector

30 to 1000MHz



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0073 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	74.5515	46.85	Pk	14	-30.9	29.95	40	-10.05	0-360	101	V
5	93.3839	47.66	Pk	14.4	-30.6	31.46	43.52	-12.06	0-360	101	V
1	95.1269	40.92	Pk	14.9	-30.7	25.12	43.52	-18.4	0-360	298	H
2	183.5072	41.67	Pk	17.3	-29.5	29.47	43.52	-14.05	0-360	198	H
6	920.4937	28.98	Pk	28.7	-24.9	32.78	46.02	-13.24	0-360	101	V
3	938.596	29.15	Pk	28.7	-25	32.85	46.02	-13.17	0-360	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
** - indicates frequency in Taiwan NCC LP0002 Restricted Band
Pk - Peak detector

10. SETUP PHOTOS

Refer to R14176161-EP4V1 for setup photos.

END OF REPORT

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