



Report Number: R14311585-E4  
Issue Date: 2022-08-11  
FCC ID: PY7-93060R

# Electromagnetic Compatibility Test Report

For

**Sony Corporation  
1-7-1 Konan Minato-ku  
Tokyo, 108-0075, Japan**



Copyright © 2022 UL LLC

UL LLC authorizes the above-named company to reproduce this Report provided it is reproduced in its entirety.

## TEST REPORT DETAILS

Tests Performed By: UL LLC  
12 LABORATORY DR.  
RESEARCH TRIANGLE PARK, NC 27709, U.S.A.

Tests Performed For: Sony Corporation  
1-7-1 Konan Minato-ku  
Tokyo, 108-0075, Japan

Issue Date: 2022-08-11

FCC ID: PY7-93060R

Sample Serial Number: QV770047D5, QV7700F9D5

Applicable Standards: FCC 47 CFR PART 15 SUBPART B:2022

Date Test Item Received: 2022-06-27

Testing Start Date: 2022-07-07

Date Testing Complete: 2022-08-08

Overall Results: **Compliant**

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.

### REPORT DIRECTORY

- TEST REPORT DETAILS .....2
- REPORT DIRECTORY .....3
- REPORT REVISION HISTORY .....4
- 1.0 TEST METHODOLOGY .....5
  - 1.1 Deviations from standard test methods .....5
  - 1.2 Device Modifications Necessary for Compliance .....5
  - 1.3 TEST RESULTS SUMMARY .....5
- 2.0 DECISION RULES AND MEASUREMENT UNCERTAINTY .....6
  - 2.1 Metrological Traceability .....6
  - 2.2 Decision Rules .....6
  - 2.3 Measurement Uncertainty .....6
  - 2.4 Sample Calculation .....6
- 3.0 GENERAL - Product Description .....7
  - 3.1 Equipment Description .....7
  - 3.2 Device Configuration During Test .....7
    - 3.2.1 Equipment Used During Test: .....7
    - 3.2.2 Input/Output Ports: .....7
    - 3.2.3 EUT Highest Frequencies: .....8
    - 3.2.4 Power Interface: .....8
    - 3.2.5 Subassemblies .....8
    - 3.2.6 Manufacturer’s Description of Model Differences .....8
    - 3.2.7 Software and Firmware .....8
  - 3.3 Block Diagram .....8
  - 3.4 EUT Configurations .....8
  - 3.5 EUT Operation Modes .....9
  - 3.6 Rationale for EUT Configurations .....9
  - 3.7 Rationale for EUT Mode of Operation .....9
- 4.0 APPLICABLE EMISSIONS LIMITS AND TEST RESULTS ..... 10
  - 4.1 Test Conditions and Results - MAINS TERMINAL - CONDUCTED EMISSIONS ..... 10
  - 4.2 Test Conditions and Results - RADIATED EMISSIONS ..... 16
- Appendix A ..... 75
  - Facilities, Accreditations and Authorizations ..... 75
- END OF TEST REPORT ..... 75

## REPORT REVISION HISTORY

Revision Date	Revision Version	Description	Revised By	Revision Reviewed By
2022-08-03	V1	Initial Issue	B. Kiewra	M. Antola
2022-08-09	V2	Added PC Peripheral data	B. Kiewra	M. Antola
2022-08-11	V3	Clarified DL signal as being from callbox	B. Kiewra	M. Antola

### 1.0 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4:2014.

#### 1.1 Deviations from standard test methods

None

#### 1.2 Device Modifications Necessary for Compliance

None

### 1.3 TEST RESULTS SUMMARY

This product is considered Class B

Requirement – Test	Result (Compliant / Non-Compliant)
CONDUCTED EMISSIONS	Compliant
RADIATED EMISSIONS	Compliant

Approved & Released For

UL LLC. By:

Prepared By:



Michael Antola  
Staff Engineer  
Consumer Technology Division  
UL LLC.

Brian Kiewra  
Project Engineer  
Consumer Technology Division  
UL LLC.

## 2.0 DECISION RULES AND MEASUREMENT UNCERTAINTY

### 2.1 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

### 2.2 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).

### 2.3 Measurement Uncertainty

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

PARAMETER	U <sub>lab</sub>	U <sub>Cispr</sub>
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 db	3.4 db
Worst Case Radiated Disturbance, All ranges	6.01 db	6.3 db

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

### 2.4 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)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

### 3.0 GENERAL - Product Description

#### 3.1 Equipment Description

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

#### 3.2 Device Configuration During Test

##### 3.2.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Cell phone	Sony	PY7-93060R	None
AE	Headphones	Sony	MDR-EX15AP	None
AE	Power Supply	Sony	XQZ-UC11-010-236-21	None
AE	Laptop	Dell	Inspiron 15 3511	Used for PC peripheral setup
AE	Laptop	HP	11-ah112dx	Used for PC peripheral setup
AE	Power Supply	Dell	DA65NM191	Used for PC peripheral setup
AE	Power Supply	HP	TPN-CA14	Used for PC peripheral setup
AE	Monitor	ViewSonic	VS15453	Used for PC peripheral setup
AE	Monitor	ViewSonic	VS15562	Used for PC peripheral setup

Note: **EUT** - Equipment Under Test, **AE** - Auxiliary/Associated Equipment, or **SIM** - Simulator (Not Subjected to Test)

##### 3.2.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	USB	DC	N	N	Connected to power supply/laptop
2	Audio	I/O	N	N	Connected to headphones
3	HDMI	I/O	N	N	Connected to monitor for support laptop population
4	Audio	I/O	N	N	Connected to monitor for support laptop population
5	Mains	I/O	N	N	Connected to support laptop power supply

\*Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports

**3.2.3 EUT Highest Frequencies:**

Frequency (MHz)	Description
5825	Highest Tx Frequency

**3.2.4 Power Interface:**

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	100-240	-	-	50/60	Single	None
1	120Vac	-	-	60Hz	Single	Power Supply
2	4.28Vdc	-	-	DC	Single	Battery

**3.2.5 Subassemblies**

Description	Manufacturer	Model
None		

**3.2.6 Manufacturer’s Description of Model Differences**

None

**3.2.7 Software and Firmware**

The software installed during testing was 0.493 for idle sample and 0.428 for WWAN Rx sample.

**3.3 Block Diagram**

Refer to setup exhibit R14311585-EP4 for block diagram.

**3.4 EUT Configurations**

Configuration #	Description
1	Configured as table top equipment



### 3.5 EUT Operation Modes

Mode of Operation#	Description
1	Operating as intended on battery. Radio idle.
2	Operating as intended connected to power supply. Radio idle.
3	Operating as intended connected to power supply. Radio in Rx mode on supported LTE bands that transmit <960MHz. Note: LTE B5 covers GSM850 and WCDMA Band 5. Callbox was used to ensure that EUT was placed in Rx mode.
4	Operating as intended connected as PC Peripheral. Radio idle.

Supported Band(s)	Down Link Frequency Range (MHz)
GSM850, WCDMA 5, LTE B5	869-894
LTE B12	729-746
LTE B13	746-756

### 3.6 Rationale for EUT Configurations

Configuration #	Description
1	EUT was investigated in three orientations, X, Y, and Z. It was determined that worst-case orientation for radiated testing was Y for both battery and power supply/PC Peripheral modes. Therefore all final radiated testing performed with the EUT in the Y orientation.

### 3.7 Rationale for EUT Mode of Operation

Mode of Operation #	Description
1,2,3,4	EUT capable of operating on battery, connected to power supply, or connected as PC peripheral.

## 4.0 APPLICABLE EMISSIONS LIMITS AND TEST RESULTS

### 4.1 Test Conditions and Results - MAINS TERMINAL - CONDUCTED EMISSIONS

Test Engineer	86150/40882, 84740	
Test Date	2022-07-07, 2022-08-08	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	23.7 - 24.0°C
Humidity	10 % to 90 %	45.2 - 47.0%
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Supplementary information: None		

### Conducted Emissions EUT Configuration Settings

Power Interface #	EUT Configurations #	EUT Mode of Operation#
1	1	2,4
Supplementary information: None		

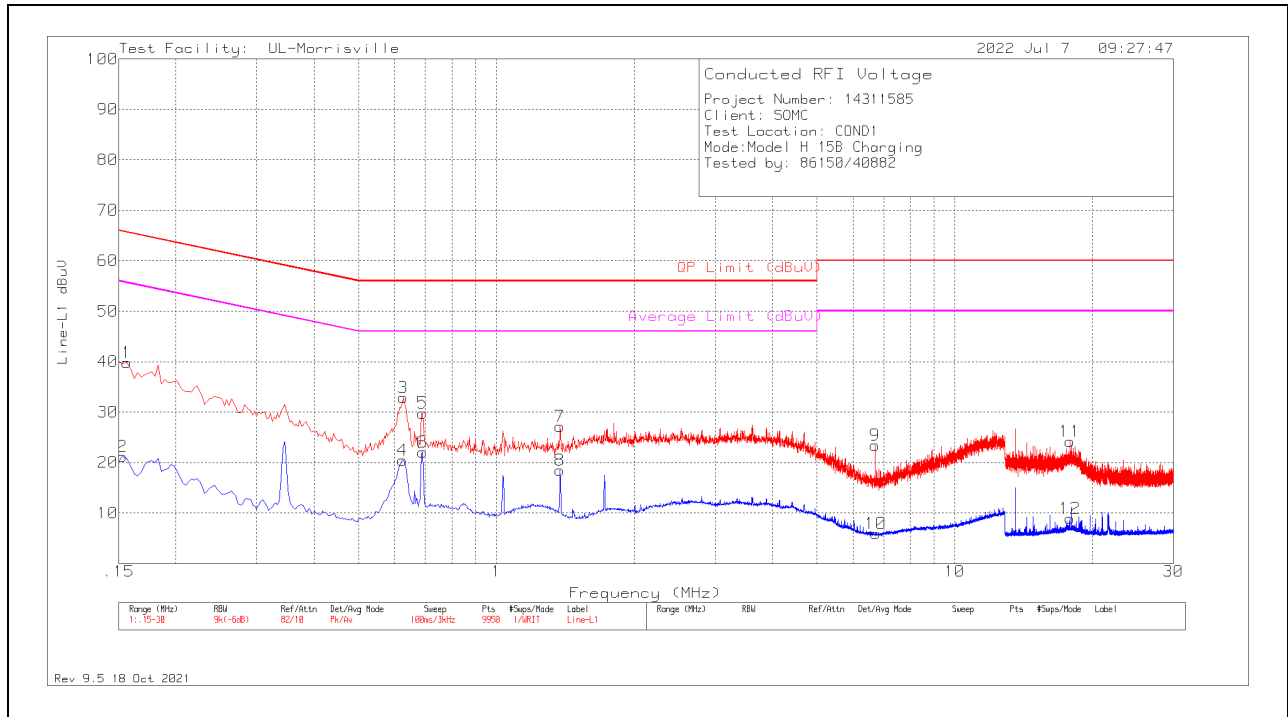
Refer to setup exhibit R14311585-EP4 for setup photos.

**Conducted Emissions Test Equipment**

Test Equipment Used - Line-Conducted Emissions – Voltage (Morrisville – Conducted 1)

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
CBL087	Coax cable, RG223, N-male to BNC-male, 20-ft.	Pasternack	PE3W06143-240	2022-04-05	2023-04-05
HI0096	Environmental Meter	Fisher Scientific	14-650-118	2021-09-21	2022-09-21
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2022-07-20	2023-07-20
LISN003	LISN, 50-ohm/50-uH, 250uH 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50/250-25-2-01	2021-08-16	2022-08-16
75141	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2021-08-17	2022-08-17
ATA222	Transient Limiter, 0.009-100MHz	Electro-Metrics	EM-7600	2022-04-05	2023-04-05
PS214	AC Power Source	Elgar	CW2501M (s/n 1523A02396)	NA	NA
PS216	AC Power Source	Elgar	CW2501M-1 (s/n 1045A04231)	NA	NA
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
CDECABLE001	ANSI C63.4 1m extension cable.	UL	Per Annex B of ANSI C63.4	2021-09-13	2022-09-13
LISN008	LISN, 50-ohm/50-uH, 2-conductor, 25A (For support gear only.)	Solar Electronics	8012-50-R-24-BNC	NA	NA

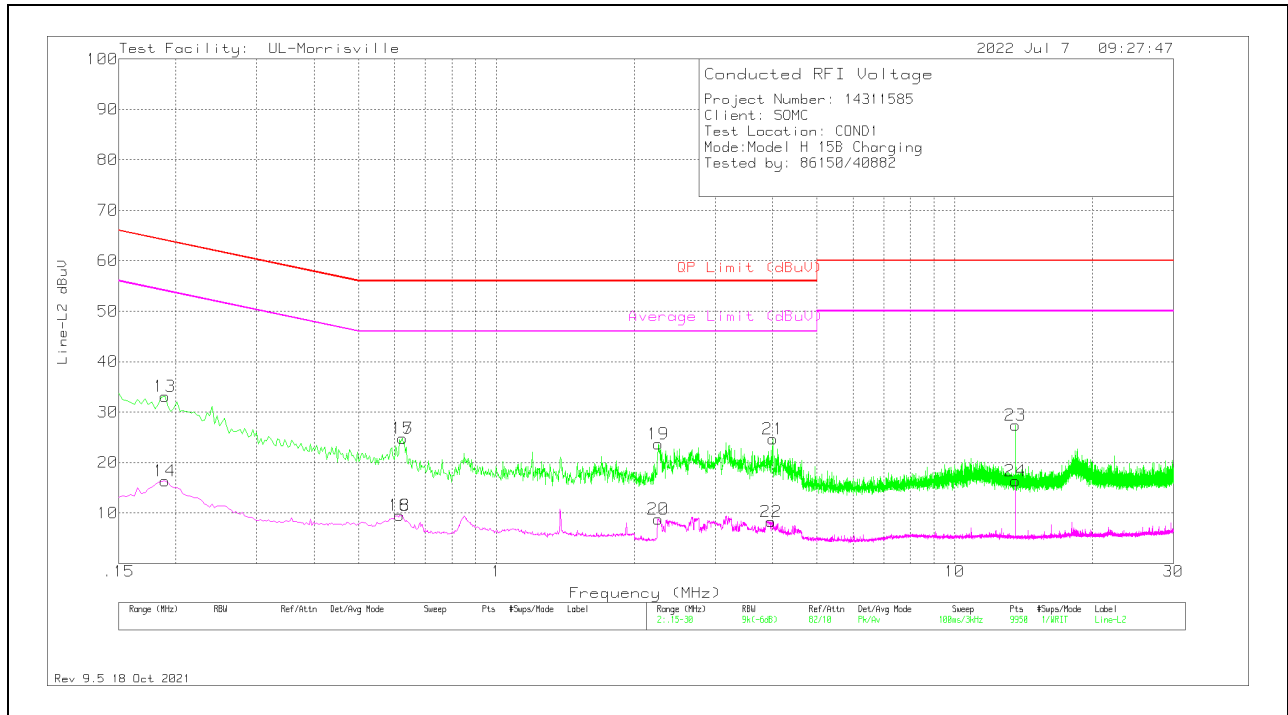
**Conducted Emissions Graph – Power Supply Line 1**



**Conducted Emissions Data Points – Power Supply Line 1**

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
2	.153	11.14	Av	.2	9.8	21.14	-	-	55.84	-34.7
1	.156	29.82	Pk	.2	9.8	39.82	65.67	-25.85	-	-
4	.624	10.67	Av	0	9.8	20.47	-	-	46	-25.53
3	.627	23.02	Pk	0	9.8	32.82	56	-23.18	-	-
5	.69	20.02	Pk	0	9.8	29.82	56	-26.18	-	-
6	.69	12.25	Av	0	9.8	22.05	-	-	46	-23.95
7	1.377	17.39	Pk	0	9.8	27.19	56	-28.81	-	-
8	1.377	8.67	Av	0	9.8	18.47	-	-	46	-27.53
9	6.699	13.38	Pk	.1	9.9	23.38	60	-36.62	-	-
10	6.723	-4.05	Av	.1	9.9	5.95	-	-	50	-44.05
11	17.859	13.97	Pk	.1	10.1	24.17	60	-35.83	-	-
12	17.859	-1.3	Av	.1	10.1	8.9	-	-	50	-41.1

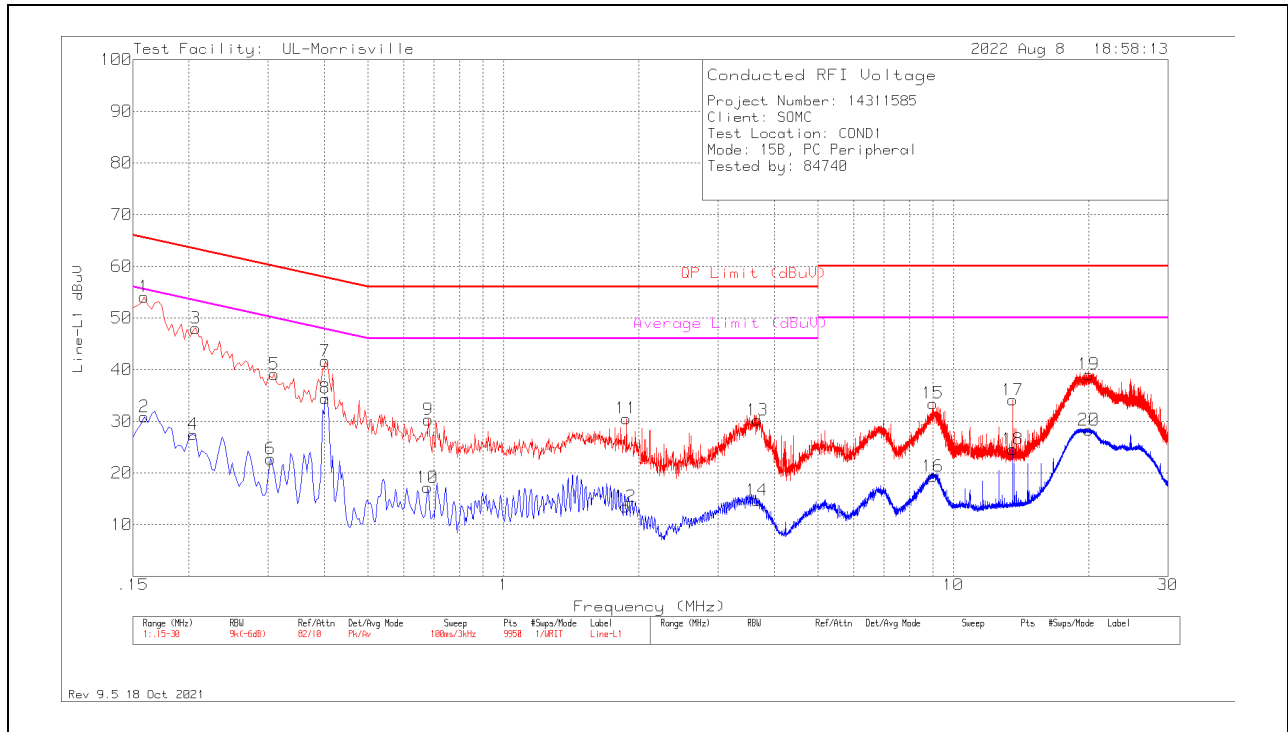
**Conducted Emissions Graph – Power Supply Line 2**



**Conducted Emissions Data Points – Power Supply Line 2**

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
13	.189	23.07	Pk	.2	9.8	33.07	64.08	-31.01	-	-
14	.189	6.34	Av	.2	9.8	16.34	-	-	54.08	-37.74
16	.615	-.24	Av	0	9.8	9.56	-	-	46	-36.44
18	.615	-.24	Av	0	9.8	9.56	-	-	46	-36.44
15	.624	14.96	Pk	0	9.8	24.76	56	-31.24	-	-
17	.624	14.96	Pk	0	9.8	24.76	56	-31.24	-	-
20	2.253	-1	Av	0	9.8	8.8	-	-	46	-37.2
19	2.256	13.87	Pk	0	9.8	23.67	56	-32.33	-	-
22	3.978	-1.61	Av	0	9.9	8.29	-	-	46	-37.71
21	4.014	14.76	Pk	0	9.9	24.66	56	-31.34	-	-
23	13.56	17.31	Pk	.1	10	27.41	60	-32.59	-	-
24	13.56	6.21	Av	.1	10	16.31	-	-	50	-33.69

**Conducted Emissions Graph – PC Peripheral Line 1**

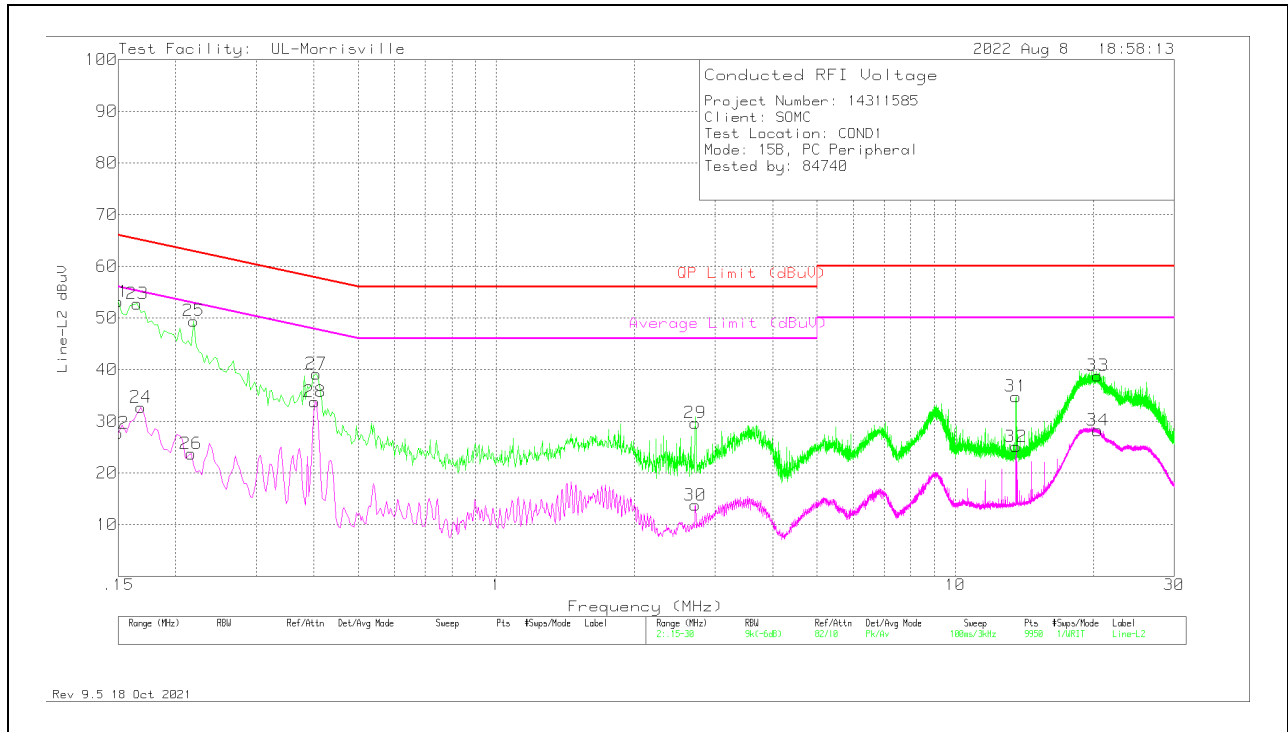


**Conducted Emissions Data Points – PC Peripheral Line 1**

Range 1: Line-L1 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
1	.159	44.09	Pk	.2	9.8	54.09	65.52	-11.43	-	-
2	.159	20.86	Av	.2	9.8	30.86	-	-	55.52	-24.66
4	.204	17.55	Av	.1	9.8	27.45	-	-	53.45	-26
3	.207	38.1	Pk	.1	9.8	48	63.32	-15.32	-	-
6	.303	12.87	Av	.1	9.8	22.77	-	-	50.16	-27.39
5	.309	29.2	Pk	.1	9.8	39.1	60	-20.9	-	-
7	.402	31.75	Pk	.1	9.8	41.65	57.81	-16.16	-	-
8	.402	24.55	Av	.1	9.8	34.45	-	-	47.81	-13.36
10	.678	7.38	Av	0	9.8	17.18	-	-	46	-28.82
9	.681	20.53	Pk	0	9.8	30.33	56	-25.67	-	-
12	1.869	3.7	Av	0	9.8	13.5	-	-	46	-32.5
11	1.875	20.74	Pk	0	9.8	30.54	56	-25.46	-	-
14	3.663	4.83	Av	0	9.9	14.73	-	-	46	-31.27
13	3.669	20.34	Pk	0	9.9	30.24	56	-25.76	-	-
16	9.003	9.24	Av	.1	10	19.34	-	-	50	-30.66
15	9.006	23.37	Pk	.1	10	33.47	60	-26.53	-	-
17	13.56	24.05	Pk	.1	10	34.15	60	-25.85	-	-
18	13.56	14.5	Av	.1	10	24.6	-	-	50	-25.4
19	19.977	28.78	Pk	.2	10.1	39.08	60	-20.92	-	-
20	19.98	18	Av	.2	10.1	28.3	-	-	50	-21.7

Pk - Peak detector  
Av - Average detection

**Conducted Emissions Graph – PC Peripheral Line 2**



**Conducted Emissions Data Points – PC Peripheral Line 2**

Range 2: Line-L2 .15 - 30MHz										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN VCF (dB)	Cbl/Limiter (dB)	Corrected Reading dBuV	QP Limit (dBuV)	Margin (dB)	Average Limit (dBuV)	Margin (dB)
21	.15	43.06	Pk	.3	9.8	53.16	66	-12.84	-	-
22	.15	17.61	Av	.3	9.8	27.71	-	-	56	-28.29
23	.165	42.76	Pk	.2	9.8	52.76	65.21	-12.45	-	-
24	.168	22.71	Av	.2	9.8	32.71	-	-	55.06	-22.35
26	.216	13.85	Av	.1	9.8	23.75	-	-	52.97	-29.22
25	.219	39.54	Pk	.1	9.8	49.44	62.86	-13.42	-	-
28	.402	23.89	Av	.1	9.8	33.79	-	-	47.81	-14.02
27	.405	29.29	Pk	.1	9.8	39.19	57.75	-18.56	-	-
29	2.712	19.89	Pk	0	9.8	29.69	56	-26.31	-	-
30	2.712	3.96	Av	0	9.8	13.76	-	-	46	-32.24
31	13.56	24.71	Pk	.1	10	34.81	60	-25.19	-	-
32	13.56	15	Av	.1	10	25.1	-	-	50	-24.9
33	20.427	28.54	Pk	.2	10.1	38.84	60	-21.16	-	-
34	20.436	17.94	Av	.2	10.1	28.24	-	-	50	-21.76

Pk - Peak detector  
Av - Average detection

**4.2 Test Conditions and Results - RADIATED EMISSIONS**

Test Engineer	86150/11993, 19289/11993	
Test Date	2022-07-12 to 2022-08-09	
Laboratory Parameters	Required prior to the test	During the test
Ambient Temperature	10 to 40 °C	21.8 - 24.7°C
Humidity	10 % to 90 %	51.5 – 53.3%
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30-40000MHz	3m
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dBµV/m)	
30-88	40	NA
88-216	43.5	NA
216-960	46	NA
Above 960	54	NA
	Peak	Average
Above 1 GHz	74	54
Supplementary information: None		

**Radiated Emissions EUT Configuration Settings**

Power Interface #	EUT Configurations #	EUT Mode of Operation#
1,2	1	1,2,3,4
Supplementary information: None		

Refer to setup exhibit R14311585-EP4 for setup photos.



**Radiated Emissions Test 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 1)

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>30-1000 MHz</b>					
AT006	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB1	2022-03-01	2023-03-01
<b>1-18 GHz</b>					
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-05-11	2023-05-11
<b>18-40 GHz</b>					
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
AT0061	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2021-11-04	2022-11-04
<b>Gain-Loss Chains</b>					
C1-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-05	2023-05-05
C1-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-05	2023-05-05
C1-SAC04	Gain-loss string: 18-40GHz	Various	Various	2022-05-05	2023-05-05
<b>Receiver &amp; Software</b>					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-04-14	2023-04-14
SA0020	Spectrum Analyzer	Agilent	E4446A	2022-06-08	2023-06-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
s/n 181474341	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

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

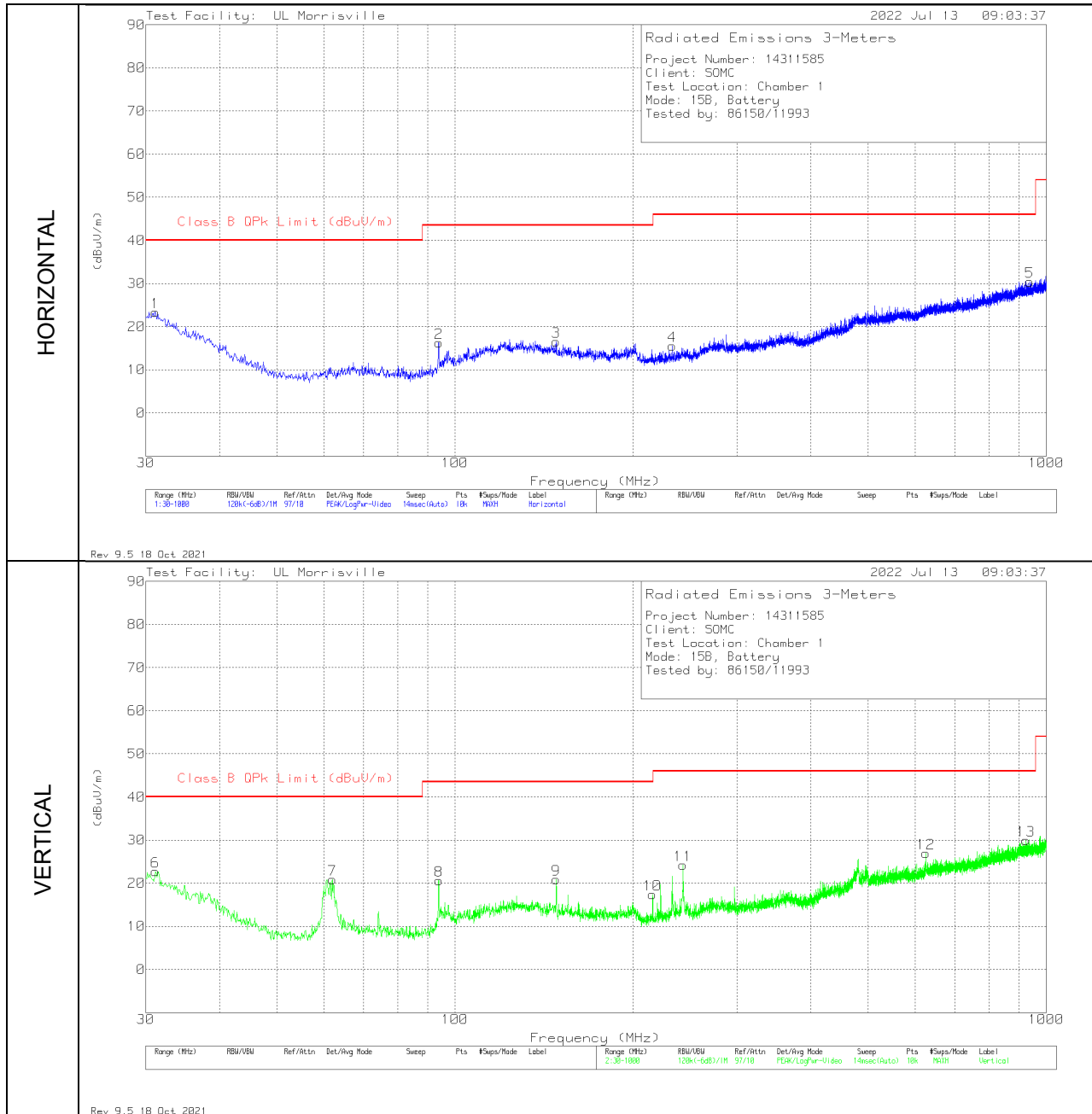
Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>30-1000 MHz</b>					
AT0081	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2021-12-08	2022-12-08
<b>1-18 GHz</b>					
AT0067	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-05-24	2023-05-24
<b>Gain-Loss Chains</b>					
C4-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-20	2023-05-20
C4-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-20	2023-05-20
<b>Receiver &amp; Software</b>					
197954	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-04-14	2023-04-14
<b>Additional Equipment used</b>					
s/n 210701941	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16
207620	Wideband Radio Communications Tester	Anritsu	MT8821C	2022-07-08	2023-07-08

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

Equipment ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
<b>18-40 GHz</b>					
AT0063	Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	2021-11-04	2022-11-04
AT0061	Horn Antenna, 26-40GHz	ARA	MWH-2640/B	2021-11-04	2022-11-04
<b>Gain-Loss Chains</b>					
C2-SAC04	Gain-loss string: 18-40GHz	Various	Various	2022-05-10	2023-05-10
<b>Receiver &amp; Software</b>					
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SA0020	Spectrum Analyzer	Agilent	E4446A	2022-06-08	2023-06-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
<b>Additional Equipment used</b>					
200540	Environmental Meter	Fisher Scientific	15-077-963	2021-09-27	2022-09-27

**RADIATED EMISSIONS 30 TO 1000 MHz - Battery**

**Radiated Emissions Graph**



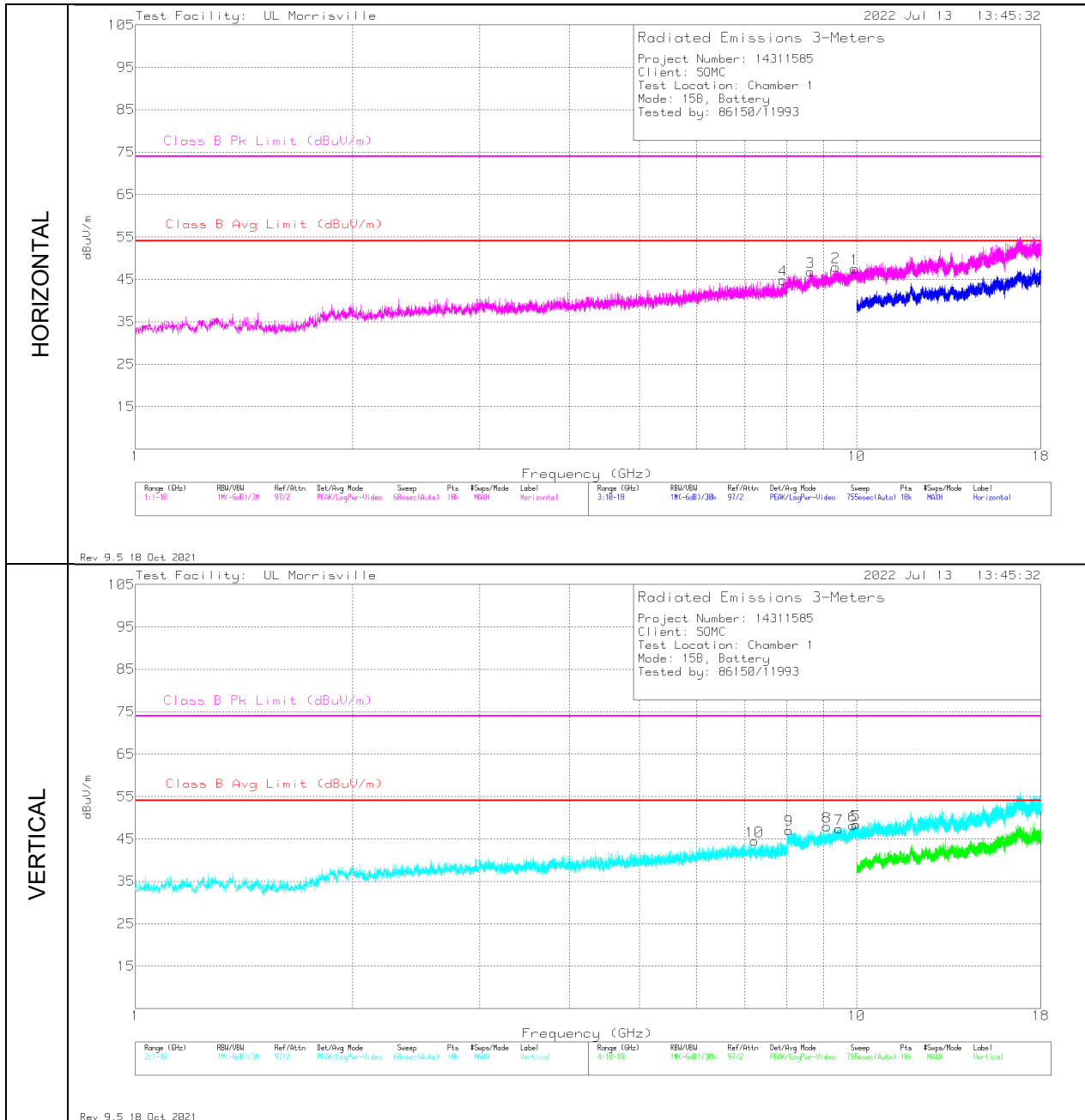
**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.1155	28.06	Pk	26.5	-31.2	23.36	40	-16.64	0-360	299	H
6	31.164	27.45	Pk	26.5	-31.2	22.75	40	-17.25	0-360	100	V
7	62.01	38.01	Pk	13.8	-30.9	20.91	40	-19.09	0-360	100	V
2	93.923	32.24	Pk	14.7	-30.6	16.34	43.52	-27.18	0-360	400	H
8	93.923	36.52	Pk	14.7	-30.6	20.62	43.52	-22.9	0-360	100	V
3	148.34	27.93	Pk	18.5	-29.9	16.53	43.52	-26.99	0-360	400	H
9	148.34	32.3	Pk	18.5	-29.9	20.9	43.52	-22.62	0-360	100	V
10	215.949	30.43	Pk	16.3	-29.3	17.43	43.52	-26.09	0-360	100	V
4	233.021	27.69	Pk	17	-29.1	15.59	46.02	-30.43	0-360	400	H
11	242.915	35.88	Pk	17.4	-29.1	24.18	46.02	-21.84	0-360	100	V
12	625.386	28.56	Pk	25.1	-26.7	26.96	46.02	-19.06	0-360	100	V
13	924.146	26.06	Pk	28.3	-24.4	29.96	46.02	-16.06	0-360	100	V
5	938.211	26.08	Pk	28.6	-24.3	30.38	46.02	-15.64	0-360	400	H

Pk - Peak detector

**RADIATED EMISSIONS 1000 TO 18,000 MHz – Battery**

**Radiated Emissions Graph**



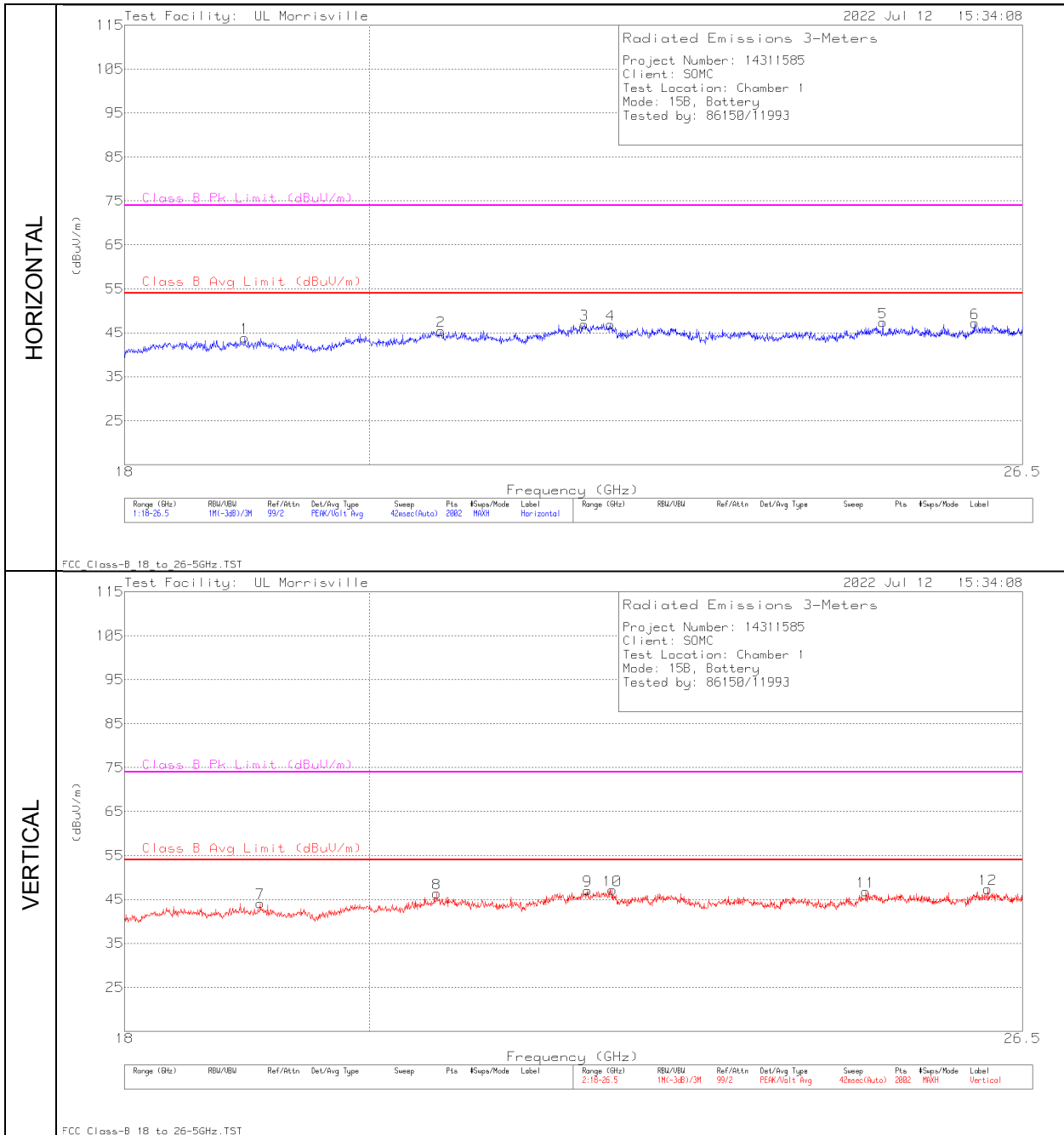
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10	7.21727	38.83	Pk	35.7	-30	44.53	54	-9.47	74	-29.47	0-360	101	V
4	7.90672	38.32	Pk	35.8	-29.2	44.92	54	-9.08	74	-29.08	0-360	200	H
9	8.05405	40.49	Pk	35.9	-29.3	47.09	54	-6.91	74	-26.91	0-360	200	V
3	8.62733	39.92	Pk	35.8	-28.9	46.82	54	-7.18	74	-27.18	0-360	200	H
8	9.09389	40.45	Pk	36.3	-28.8	47.95	54	-6.05	74	-26.05	0-360	200	V
2	9.3555	40.43	Pk	36.5	-29	47.93	54	-6.07	74	-26.07	0-360	200	H
7	9.45088	40.4	Pk	36.6	-29.6	47.4	54	-6.6	74	-26.6	0-360	200	V
6	9.87566	41.54	Pk	36.9	-27.9	50.54	-	-	74	-23.46	277	381	V
	9.87566	27.45	Av	36.9	-27.9	36.45	54	-17.55	-	-	277	381	V
1	9.92972	38.74	Pk	37	-28.2	47.54	54	-6.46	74	-26.46	0-360	200	H
5	9.98401	40.16	Pk	37.1	-28	49.26	-	-	74	-24.74	169	101	V
	9.98401	26.53	Av	37.1	-28	35.63	54	-18.37	-	-	169	101	V

Pk - Peak detector  
 Av - Average detection

**RADIATED EMISSIONS 18,000 TO 26,000 MHz – Battery**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

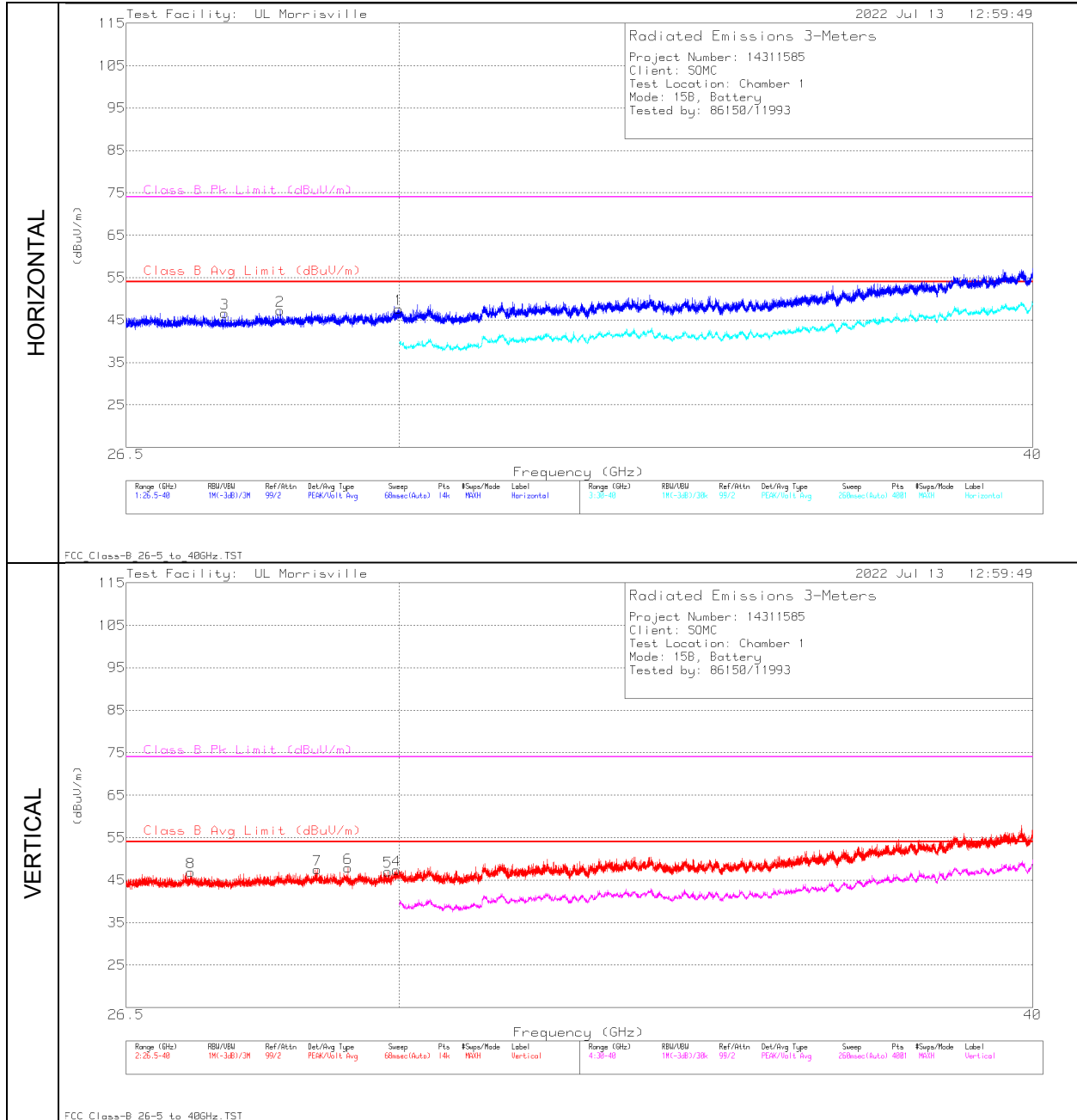
Marker	Frequency (GHz)	Meter Reading(dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	18.95577	49.88	Pk	33.3	-39.3	43.88	54	-10.12	74	-30.12	0-360	101	H
7	19.08321	50.12	Pk	33.4	-39.4	44.12	54	-9.88	74	-29.88	0-360	101	V
8	20.5912	51.57	Pk	33.9	-39.1	46.37	54	-7.63	74	-27.63	0-360	149	V
2	20.62944	50.58	Pk	33.9	-39.1	45.38	54	-8.62	74	-28.62	0-360	101	H
3	21.94203	49.52	Pk	36.7	-39.3	46.92	54	-7.08	74	-27.08	0-360	150	H
9	21.97176	49.53	Pk	36.8	-39.3	47.03	54	-6.97	74	-26.97	0-360	249	V
4	22.19265	49.6	Pk	36.9	-39.6	46.9	54	-7.1	74	-27.1	0-360	300	H
10	22.20965	49.72	Pk	36.9	-39.5	47.12	54	-6.88	74	-26.88	0-360	101	V
11	24.77111	49.98	Pk	35.2	-38.4	46.78	54	-7.22	74	-27.22	0-360	149	V
5	24.95377	50.86	Pk	35.1	-38.6	47.36	54	-6.64	74	-26.64	0-360	101	H
6	25.96052	49.31	Pk	35.4	-37.5	47.21	54	-6.79	74	-26.79	0-360	250	H
12	26.10495	49.65	Pk	35.4	-37.7	47.35	54	-6.65	74	-26.65	0-360	149	V

Pk - Peak detector



**RADIATED EMISSIONS 26,000 TO 40,000 MHz – Battery**

**Radiated Emissions Graph**



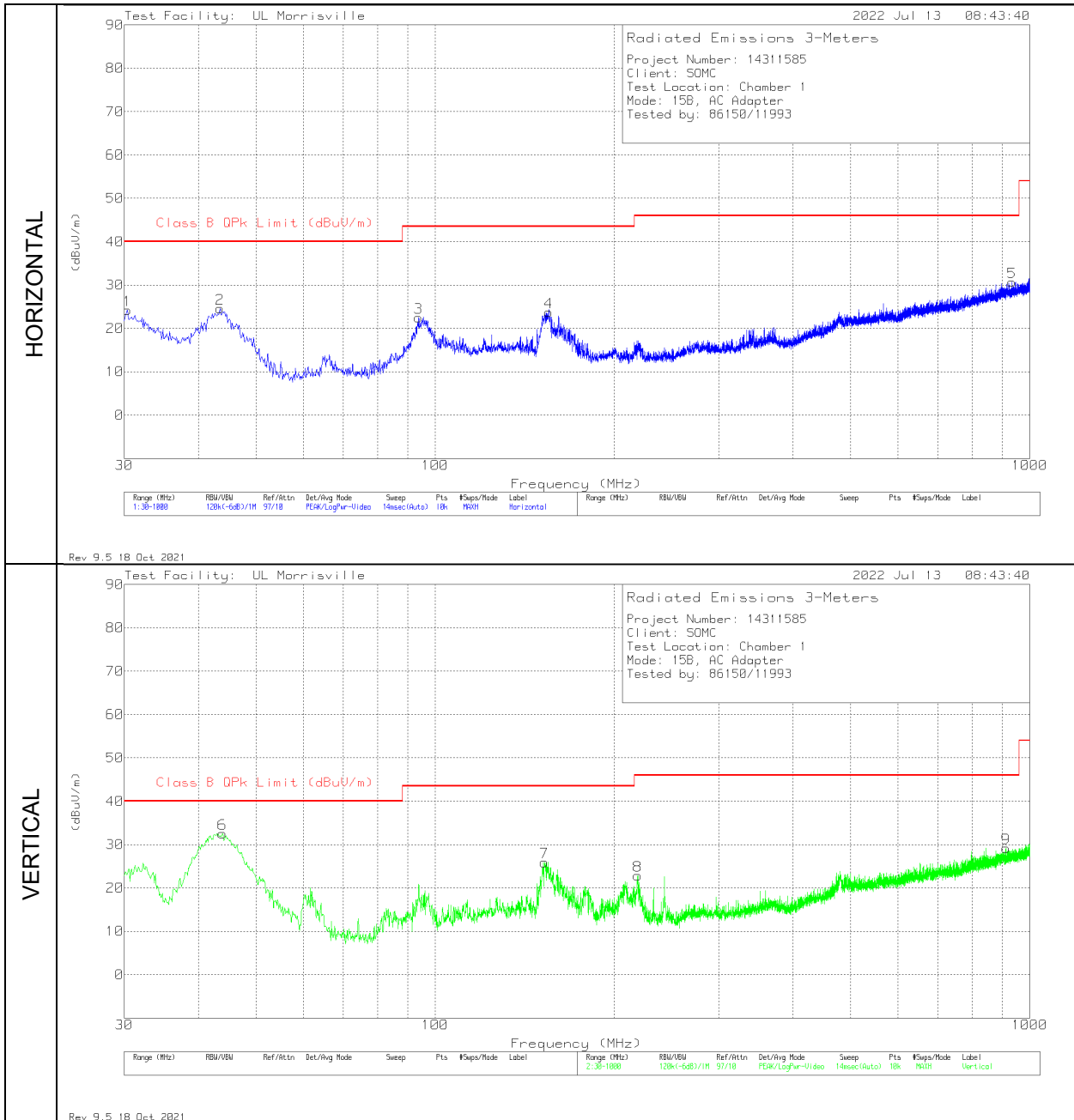
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	27.28873	47.16	Pk	36.2	-36.5	46.86	54	-7.14	74	-27.14	0-360	151	V
3	27.71009	47.87	Pk	35.8	-37	46.67	54	-7.33	74	-27.33	0-360	250	H
2	28.42265	47.64	Pk	36.3	-36.7	47.24	54	-6.76	74	-26.76	0-360	149	H
7	28.9009	47.52	Pk	36.3	-36.3	47.52	54	-6.48	74	-26.48	0-360	151	V
6	29.30973	48.11	Pk	36.3	-36.5	47.91	54	-6.09	74	-26.09	0-360	101	V
5	29.84776	47.16	Pk	36.6	-36.7	47.06	54	-6.94	74	-26.94	0-360	300	V
4	29.96443	46.62	Pk	36.7	-35.9	47.42	54	-6.58	74	-26.58	0-360	151	V
1	29.98854	46.88	Pk	36.7	-36	47.58	54	-6.42	74	-26.42	0-360	300	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – Power Supply**

**Radiated Emissions Graph**



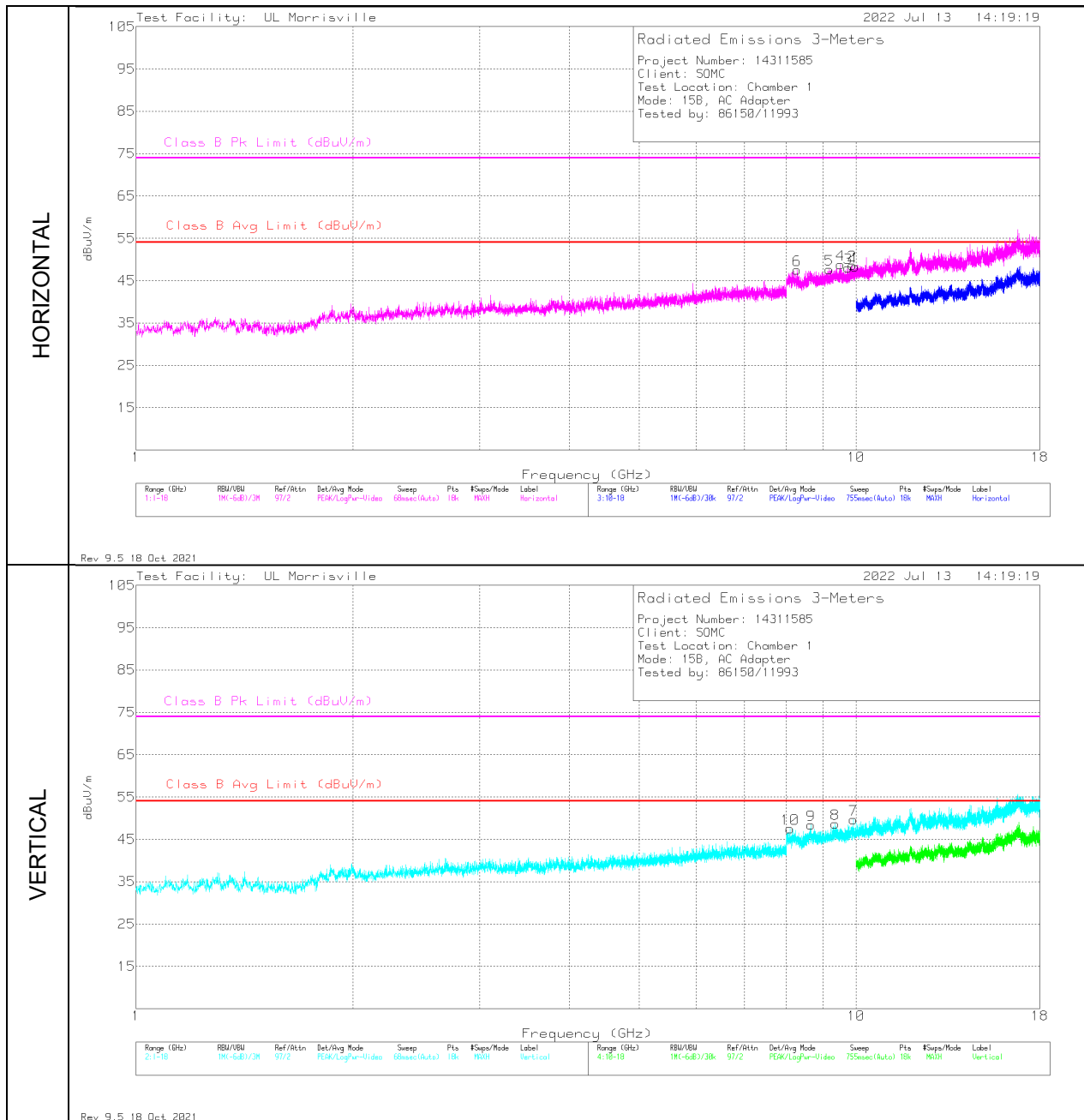
**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0066 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.388	28.79	Pk	26.7	-31.3	24.19	40	-15.81	0-360	400	H
2	43.483	38.61	Pk	17.3	-31.3	24.61	40	-15.39	0-360	299	H
6	43.871	46.89	Pk	17	-31.3	32.59	40	-7.41	0-360	100	V
3	93.826	38.49	Pk	14.6	-30.6	22.49	43.52	-21.03	0-360	299	H
7	152.705	37.61	Pk	18.2	-29.9	25.91	43.52	-17.61	0-360	100	V
4	155.13	35.45	Pk	18.2	-29.9	23.75	43.52	-19.77	0-360	200	H
8	219.15	35.87	Pk	16.4	-29.4	22.87	46.02	-23.15	0-360	100	V
9	911.633	25.45	Pk	28.2	-24.5	29.15	46.02	-16.87	0-360	100	V
5	932.585	26.61	Pk	28.5	-24.4	30.71	46.02	-15.31	0-360	299	H

Pk - Peak detector

**RADIATED EMISSIONS 1000 TO 18,000 MHz – Power Supply**

**Radiated Emissions Graph**



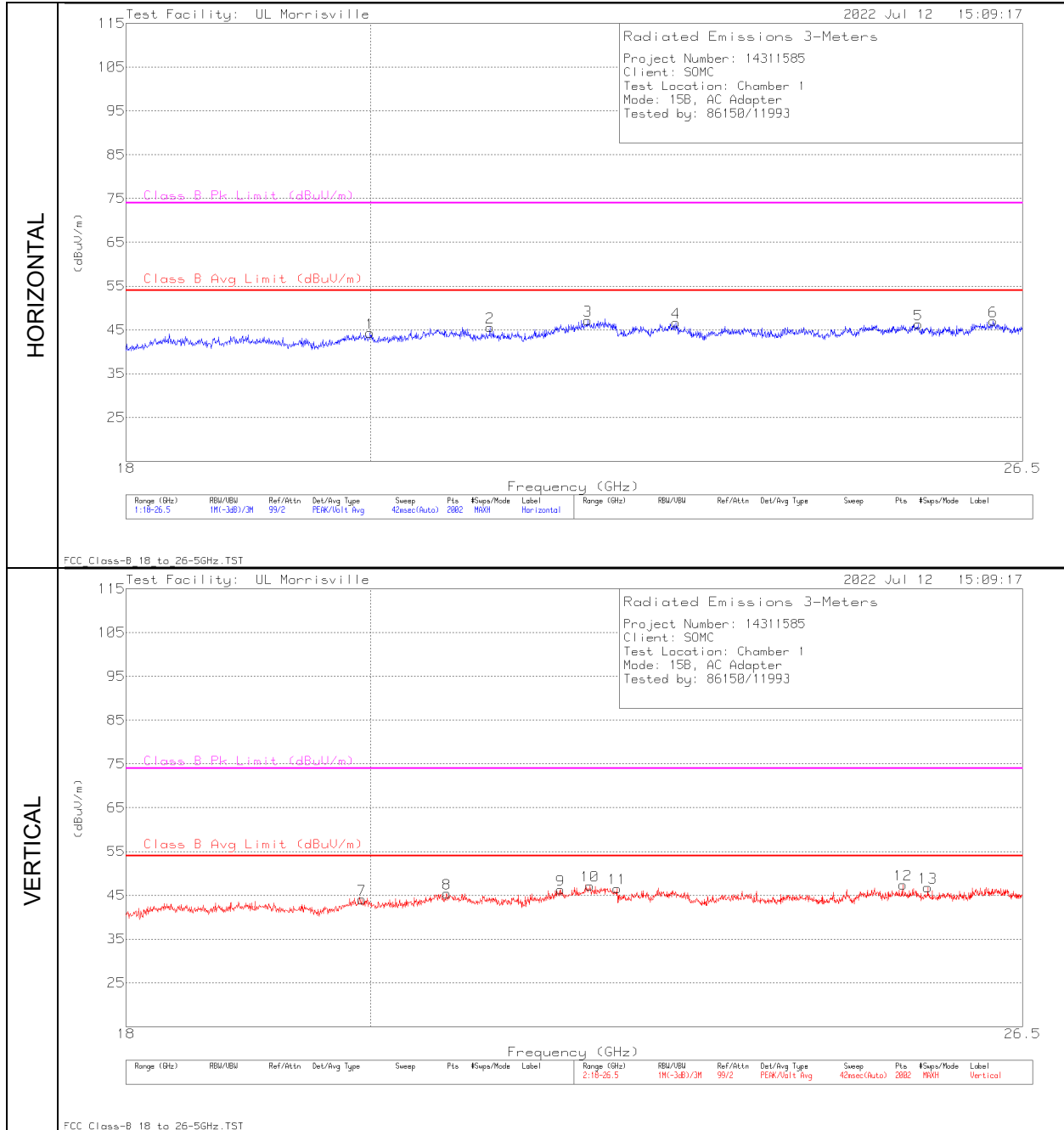
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0072 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10	8.10316	41.38	Pk	35.9	-29.7	47.58	54	-6.42	74	-26.42	0-360	300	V
6	8.28072	41.3	Pk	35.8	-29.6	47.5	54	-6.5	74	-26.5	0-360	400	H
9	8.65894	42.08	Pk	35.8	-29.3	48.58	-	-	74	-25.42	107	119	V
	8.65894	28.28	Av	35.8	-29.3	34.78	54	-19.22	-	-	107	119	V
5	9.18644	40.55	Pk	36.3	-29.2	47.65	54	-6.35	74	-26.35	0-360	400	H
8	9.35322	41.91	Pk	36.5	-28.7	49.71	-	-	74	-24.29	156	279	V
	9.35322	28.44	Av	36.5	-28.7	36.24	54	-17.76	-	-	156	279	V
4	9.52344	41.34	Pk	36.8	-28.7	49.44	-	-	74	-24.56	11	111	H
	9.52344	27.66	Av	36.8	-28.7	35.76	54	-18.24	-	-	11	111	H
3	9.74407	40.49	Pk	36.8	-29	48.29	-	-	74	-25.71	238	155	H
	9.74407	27.18	Av	36.8	-29	34.98	54	-19.02	-	-	238	155	H
2	9.87829	41.77	Pk	36.9	-28.1	50.57	-	-	74	-23.43	161	206	H
	9.87829	27.76	Av	36.9	-28.1	36.56	54	-17.44	-	-	161	206	H
7	9.91894	41.33	Pk	37	-28.2	50.13	-	-	74	-23.87	317	117	V
	9.91894	27.81	Av	37	-28.2	36.61	54	-17.39	-	-	317	117	V
1	9.96696	40.85	Pk	37.1	-27.9	50.05	-	-	74	-23.95	42	340	H
	9.96696	27.12	Av	37.1	-27.9	36.32	54	-17.68	-	-	42	340	H

Pk - Peak detector  
 Av - Average detection

**RADIATED EMISSIONS 18,000 TO 26,000 MHz – Power Supply**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

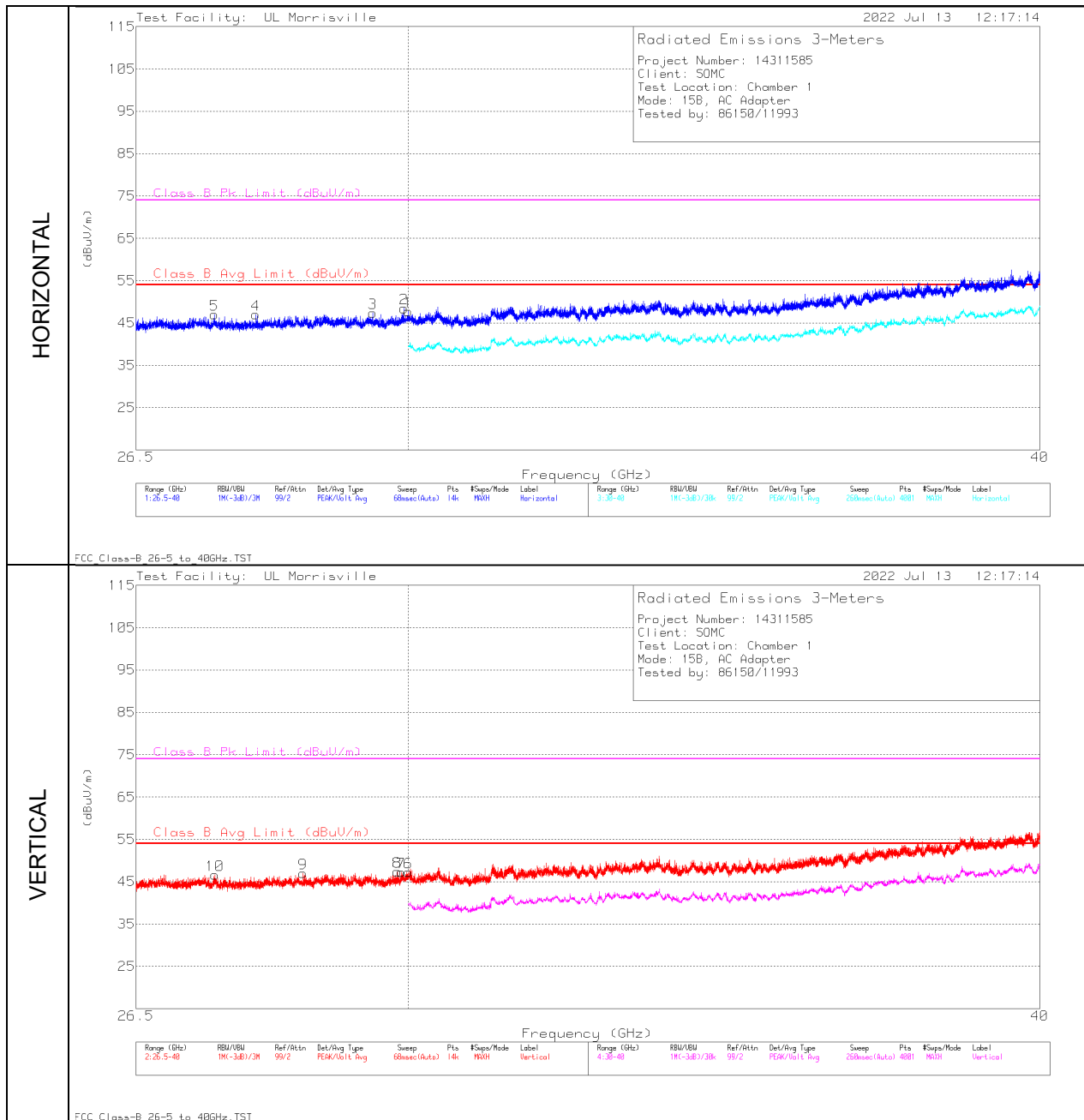
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7	19.92854	49.46	Pk	33.5	-38.9	44.06	54	-9.94	74	-29.94	0-360	199	V
1	19.9965	49.8	Pk	33.5	-39	44.3	54	-9.7	74	-29.7	0-360	251	H
8	20.67191	50.68	Pk	33.9	-39.2	45.38	54	-8.62	74	-28.62	0-360	101	V
2	21.06272	50.69	Pk	34.2	-39.3	45.59	54	-8.41	74	-28.41	0-360	101	H
9	21.71264	49.28	Pk	35.4	-38.4	46.28	54	-7.72	74	-27.72	0-360	101	V
3	21.96752	49.65	Pk	36.8	-39.3	47.15	54	-6.85	74	-26.85	0-360	101	H
10	21.98876	49.69	Pk	36.9	-39.4	47.19	54	-6.81	74	-26.81	0-360	299	V
11	22.24788	49.29	Pk	36.8	-39.5	46.59	54	-7.41	74	-27.41	0-360	149	V
4	22.82134	50.16	Pk	35.8	-39.3	46.66	54	-7.34	74	-27.34	0-360	200	H
12	25.16617	50.14	Pk	35.2	-37.9	47.44	54	-6.56	74	-26.56	0-360	299	V
5	25.33608	48.88	Pk	35.2	-37.8	46.28	54	-7.72	74	-27.72	0-360	101	H
13	25.43803	49.69	Pk	35.1	-38	46.79	54	-7.21	74	-27.21	0-360	249	V
6	26.16442	49.19	Pk	35.4	-37.6	46.99	54	-7.01	74	-27.01	0-360	101	H

Pk - Peak detector



**RADIATED EMISSIONS 26,000 TO 40,000 MHz – Power Supply**

**Radiated Emissions Graph**



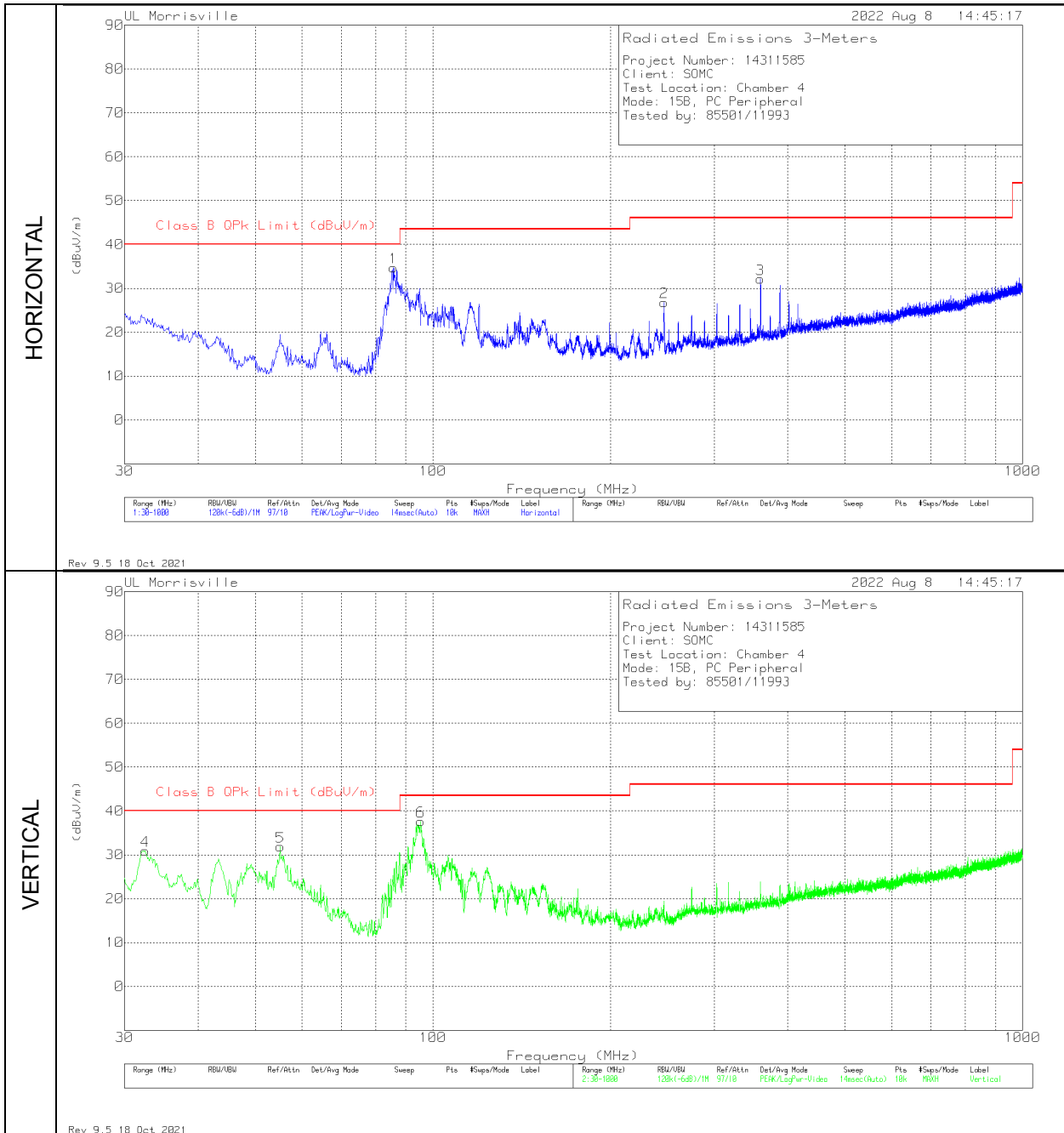
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	ANT (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	27.46036	47.71	Pk	36.1	-36.8	47.01	54	-6.99	74	-26.99	0-360	200	H
10	27.46711	47.24	Pk	36.1	-36.7	46.64	54	-7.36	74	-27.36	0-360	200	V
4	27.98779	48.06	Pk	36	-37.1	46.96	54	-7.04	74	-27.04	0-360	299	H
9	28.59235	47.4	Pk	36.3	-36.7	47	54	-7	74	-27	0-360	300	V
3	29.51511	47.54	Pk	36.2	-36.4	47.34	54	-6.66	74	-26.66	0-360	299	H
8	29.84873	47.42	Pk	36.6	-36.7	47.32	54	-6.68	74	-26.68	0-360	250	V
7	29.90561	46.75	Pk	36.6	-36.1	47.25	54	-6.75	74	-26.75	0-360	300	V
2	29.94099	47.38	Pk	36.7	-35.8	48.28	-	-	74	-25.72	275	178	H
	29.94099	36.02	Av	36.7	-35.8	36.92	54	-17.08	-	-	275	178	H
1	29.99529	46.96	Pk	36.7	-35.9	47.76	54	-6.24	74	-26.24	0-360	299	H
6	29.99529	46.45	Pk	36.7	-35.9	47.25	54	-6.75	74	-26.75	0-360	300	V

Pk - Peak detector  
 Av - Average detection

**RADIATED EMISSIONS 30 TO 1000 MHz – PC Peripheral**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

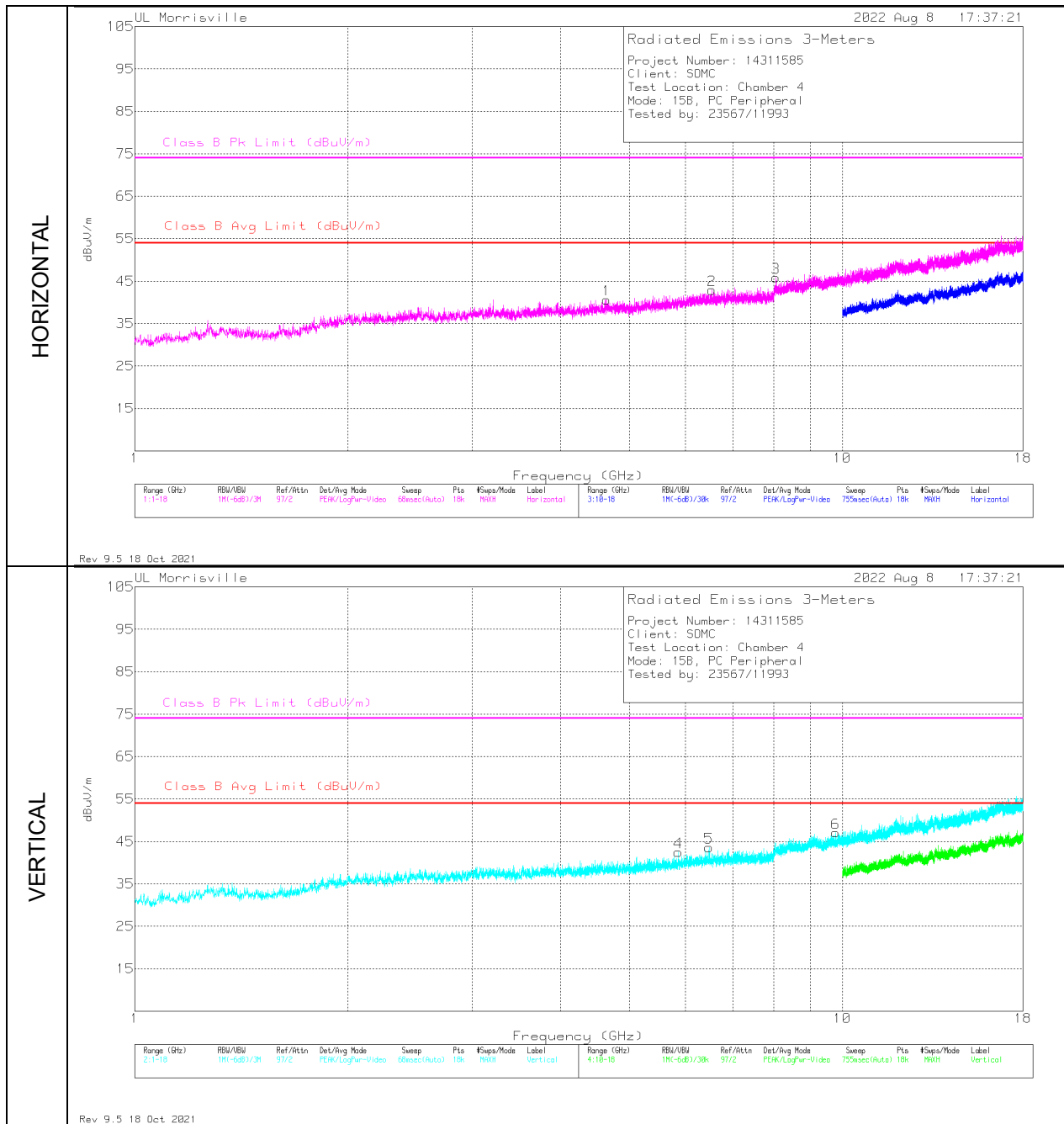
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	32.522	37.13	Pk	25.5	-31.7	30.93	40	-9.07	0-360	100	V
5	55.123	50.06	Pk	13.2	-31.4	31.86	40	-8.14	0-360	100	V
1	85.9054	46.68	Qp	13.5	-30.9	29.28	40	-10.72	187	222	H
6	95.1935	49.14	Qp	15.2	-30.8	33.54	43.52	-9.98	84	105	V
2	246.601	38.43	Pk	18	-29.6	26.83	46.02	-19.19	0-360	100	H
3	359.412	39.7	Pk	21.1	-28.7	32.1	46.02	-13.92	0-360	100	H

Pk - Peak detector

Qp - Quasi-Peak detector

**RADIATED EMISSIONS 1000 TO 18,000 MHz – PC Peripheral**

**Radiated Emissions Graph**



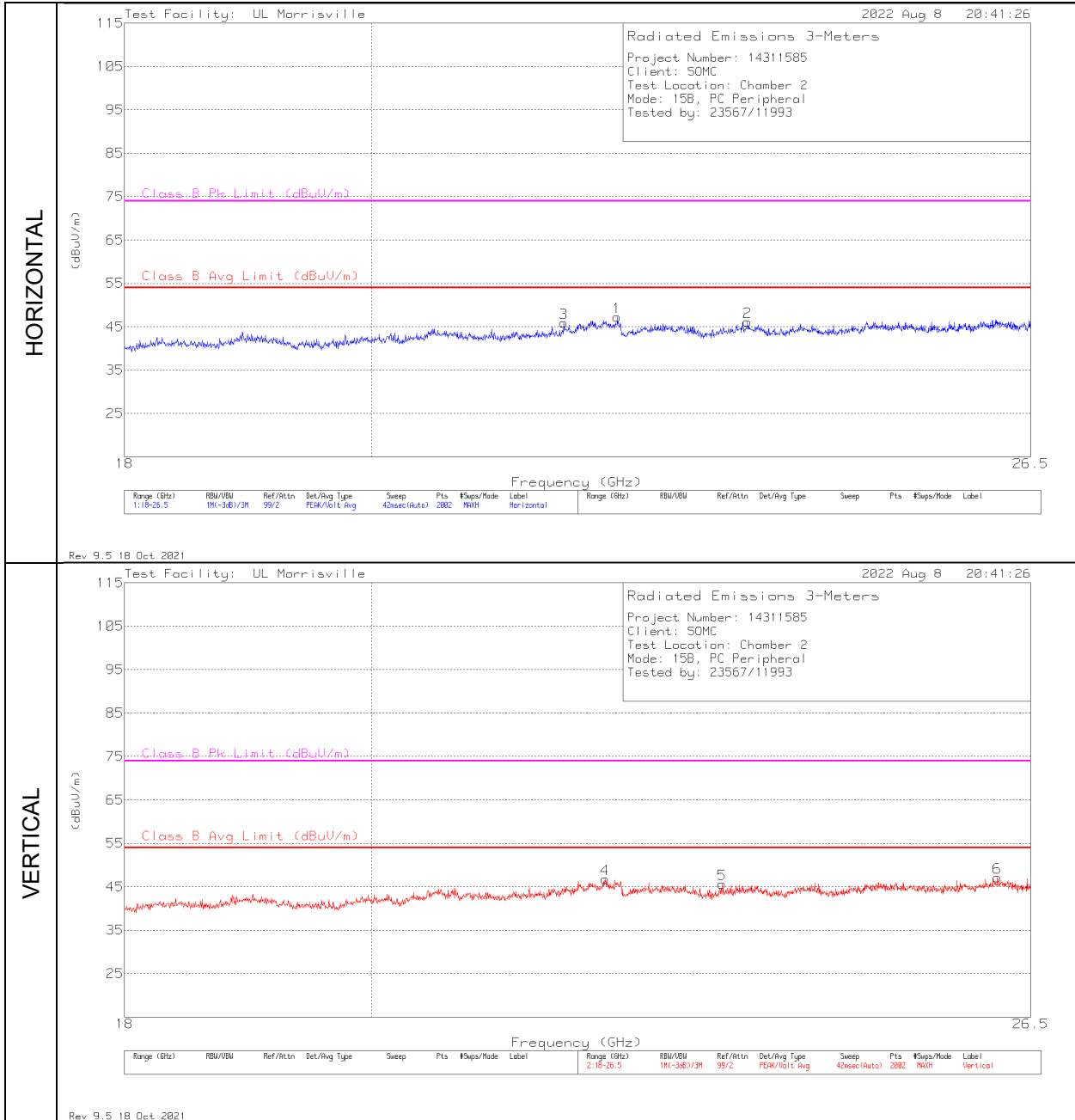
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	4.64083	38.86	Pk	34.1	-32.3	40.66	54	-13.34	74	-33.34	0-360	300	H
4	5.86294	38.29	Pk	35	-30.8	42.49	54	-11.51	74	-31.51	0-360	200	V
5	6.47872	37.12	Pk	35.6	-29.1	43.62	54	-10.38	74	-30.38	0-360	200	V
2	6.53633	36.63	Pk	35.6	-29.3	42.93	54	-11.07	74	-31.07	0-360	300	H
3	8.05783	37.94	Pk	35.8	-27.9	45.84	54	-8.16	74	-28.16	0-360	300	H
6	9.78238	36.97	Pk	36.8	-26.7	47.07	54	-6.93	74	-26.93	0-360	200	V

Pk - Peak detector

**RADIATED EMISSIONS 18,000 TO 26,000 MHz – PC Peripheral**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

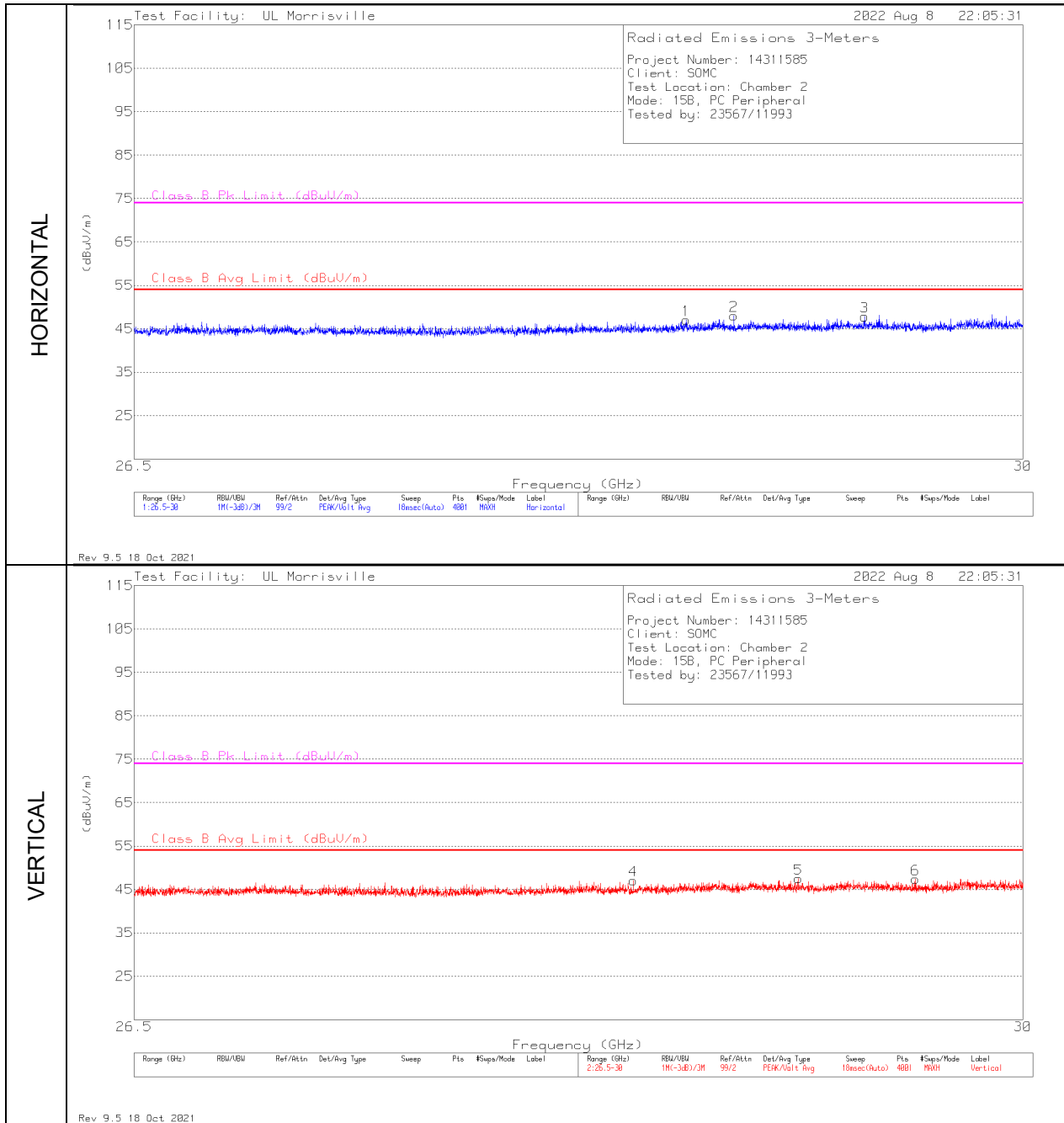
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0063 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	21.71264	48.85	Pk	35.4	-38.4	45.85	54	-8.15	74	-28.15	0-360	250	H
4	22.0992	47.87	Pk	37.1	-38.2	46.77	54	-7.23	74	-27.23	0-360	101	V
1	22.21389	48.77	Pk	36.8	-38.3	47.27	54	-6.73	74	-26.73	0-360	150	H
5	23.22914	48.68	Pk	35	-38	45.68	54	-8.32	74	-28.32	0-360	150	V
2	23.48401	48.84	Pk	35	-37.7	46.14	54	-7.86	74	-27.86	0-360	150	H
6	26.12619	47.82	Pk	35.4	-36.1	47.12	54	-6.88	74	-26.88	0-360	150	V

Pk - Peak detector



**RADIATED EMISSIONS 26,000 TO 30,000 MHz – PC Peripheral**

**Radiated Emissions Graph**



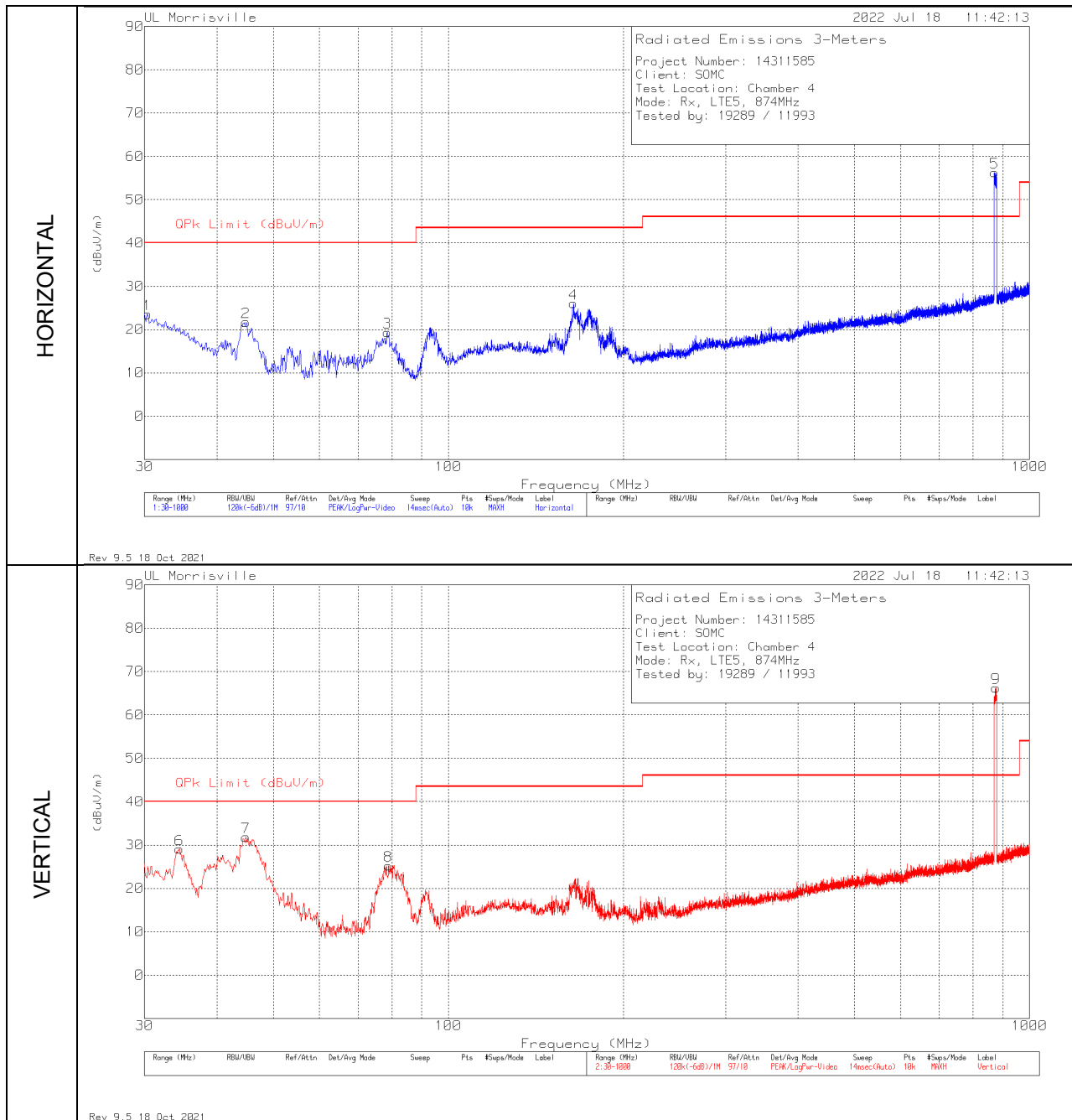
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0061 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Class B Avg Limit (dBuV/m)	Margin (dB)	Class B Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	28.41188	46.07	Pk	36.3	-35.3	47.07	54	-6.93	74	-26.93	0-360	101	V
1	28.62188	45.64	Pk	36.3	-34.9	47.04	54	-6.96	74	-26.96	0-360	199	H
2	28.81534	40.42	Pk	36.3	-34.7	42.02	-	-	74	-31.98	1	242	H
	28.81534	35.61	Av	36.3	-34.7	37.21	54	-16.79	-	-	1	242	H
5	29.07513	45.9	Pk	36.2	-34.6	47.5	54	-6.5	74	-26.5	0-360	101	V
3	29.34463	45.73	Pk	36.2	-34.1	47.83	54	-6.17	74	-26.17	0-360	101	H
6	29.55375	45.57	Pk	36.2	-34.4	47.37	54	-6.63	74	-26.63	0-360	101	V

Pk - Peak detector  
 Av - Average detection

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 874MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

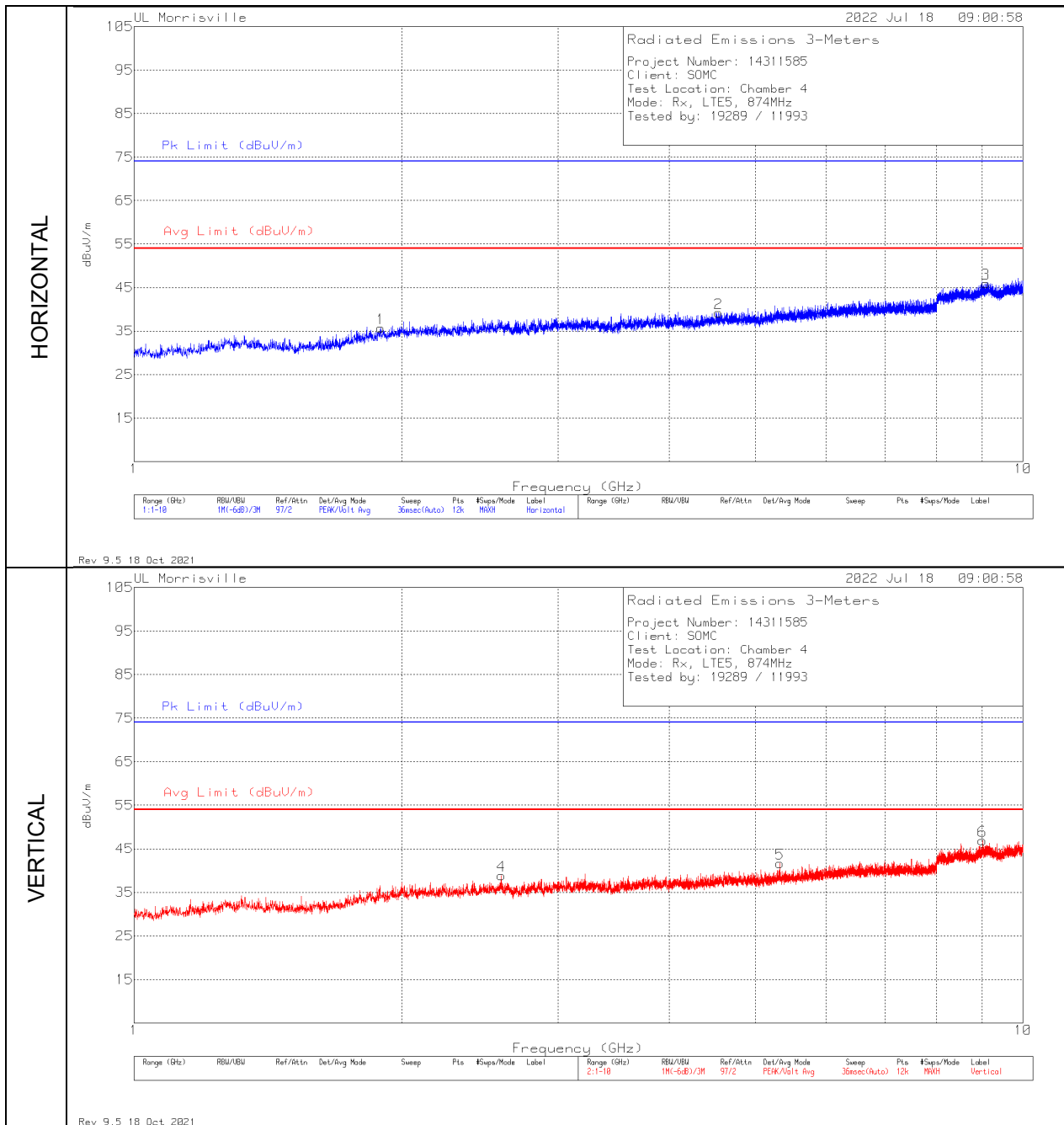
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.388	28.35	Pk	26.9	-31.7	23.55	40	-16.45	0-360	200	H
6	34.462	36.58	Pk	24.1	-31.6	29.08	40	-10.92	0-360	100	V
2	44.841	36.72	Pk	16.5	-31.5	21.72	40	-18.28	0-360	300	H
7	44.841	46.83	Pk	16.5	-31.5	31.83	40	-8.17	0-360	100	V
3	78.5	36.28	Pk	14	-30.9	19.38	40	-20.62	0-360	100	H
8	78.888	42.23	Pk	13.9	-30.9	25.23	40	-14.77	0-360	100	V
4	164.151	37.63	Pk	18.4	-30	26.03	43.52	-17.49	0-360	100	H
5 DL	871.087	53.57	Pk	28.5	-25.8	56.27	-	-	0-360	300	H
9 DL	875.549	63.35	Pk	28.5	-25.6	66.25	-	-	0-360	100	V

Pk - Peak detector

DL - Downlink from Callbox

**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 874.0MHz**

**Radiated Emissions Graph**



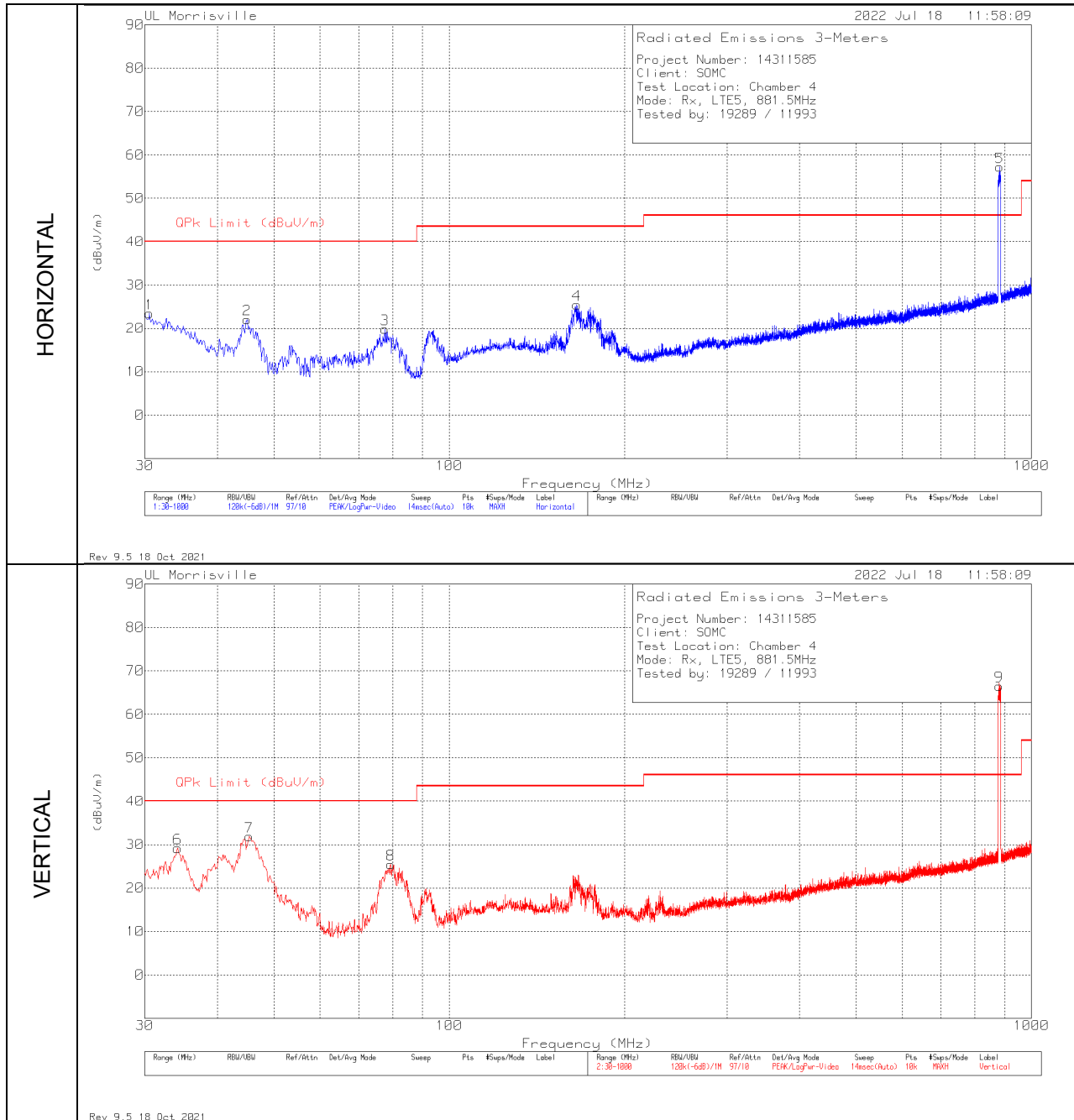
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.894	40.79	Pk	31.2	-36.3	35.69	54	-18.31	74	-38.31	0-360	100	H
4	2.59075	42.59	Pk	32.6	-36.3	38.89	54	-15.11	74	-35.11	0-360	200	V
2	4.54225	37.51	Pk	34	-32.3	39.21	54	-14.79	74	-34.79	0-360	100	H
5	5.326	39.27	Pk	34.4	-32	41.67	54	-12.33	74	-32.33	0-360	200	V
6	9.004	36.99	Pk	36.1	-26.2	46.89	54	-7.11	74	-27.11	0-360	200	V
3	9.088	36.35	Pk	36.2	-26.6	45.95	54	-8.05	74	-28.05	0-360	100	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 881.5MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.582	28.44	Pk	26.7	-31.7	23.44	40	-16.56	0-360	200	H
6	34.171	36.46	Pk	24.4	-31.7	29.16	40	-10.84	0-360	100	V
2	44.938	37.17	Pk	16.4	-31.5	22.07	40	-17.93	0-360	200	H
7	45.326	47.18	Pk	16.2	-31.5	31.88	40	-8.12	0-360	100	V
3	77.53	37.03	Pk	14	-31.2	19.83	40	-20.17	0-360	100	H
8	79.373	42.64	Pk	13.9	-31.1	25.44	40	-14.56	0-360	100	V
4	165.703	37.47	Pk	18.3	-30.3	25.47	43.52	-18.05	0-360	100	H
9 DL	880.205	63.52	Pk	28.6	-25.6	66.52	-	-	0-360	100	V
5 DL	881.757	54.32	Pk	28.6	-25.7	57.22	-	-	0-360	100	H

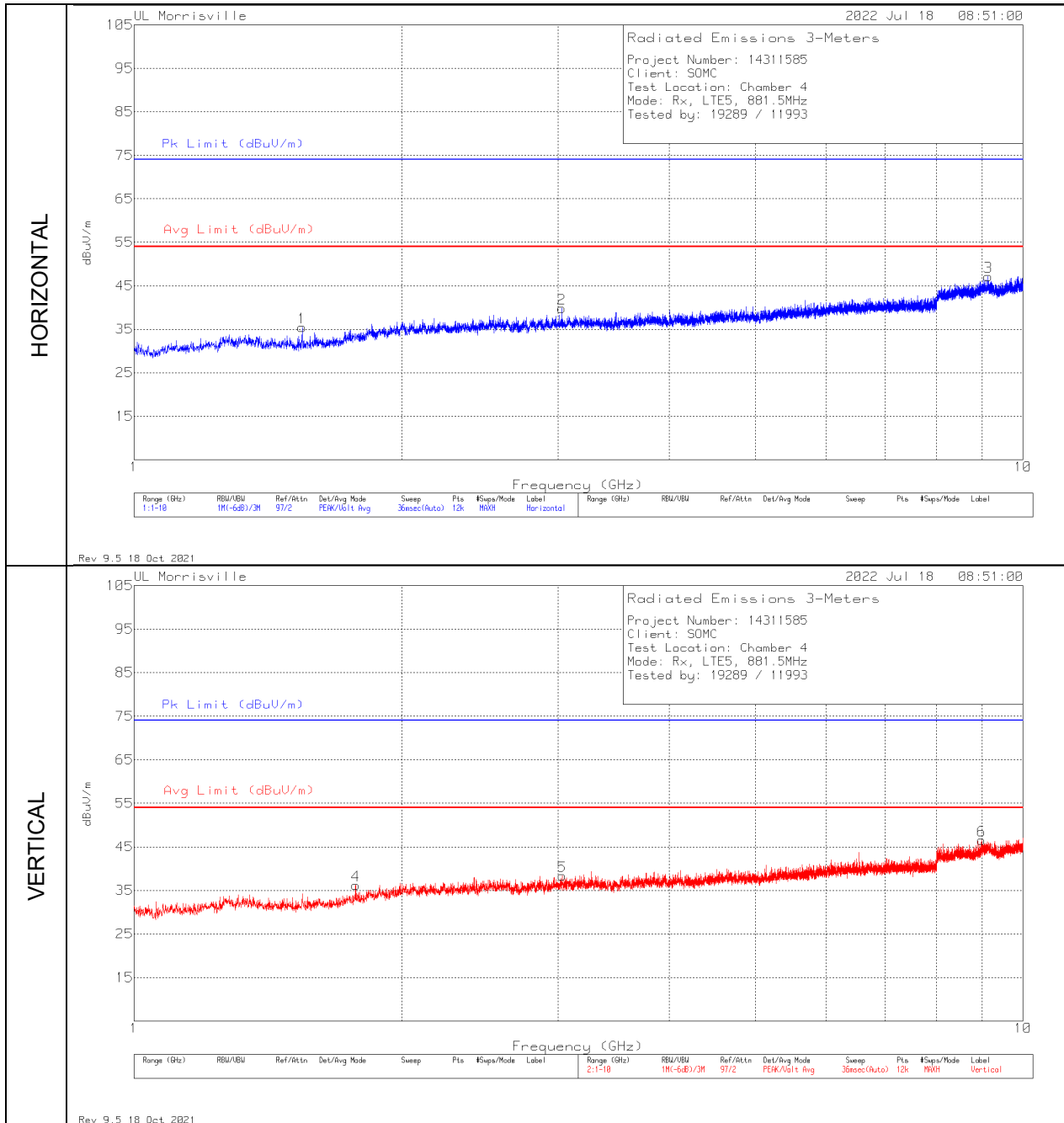
Pk - Peak detector

DL -Downlink from Callbox



**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 881.5MHz**

**Radiated Emissions Graph**



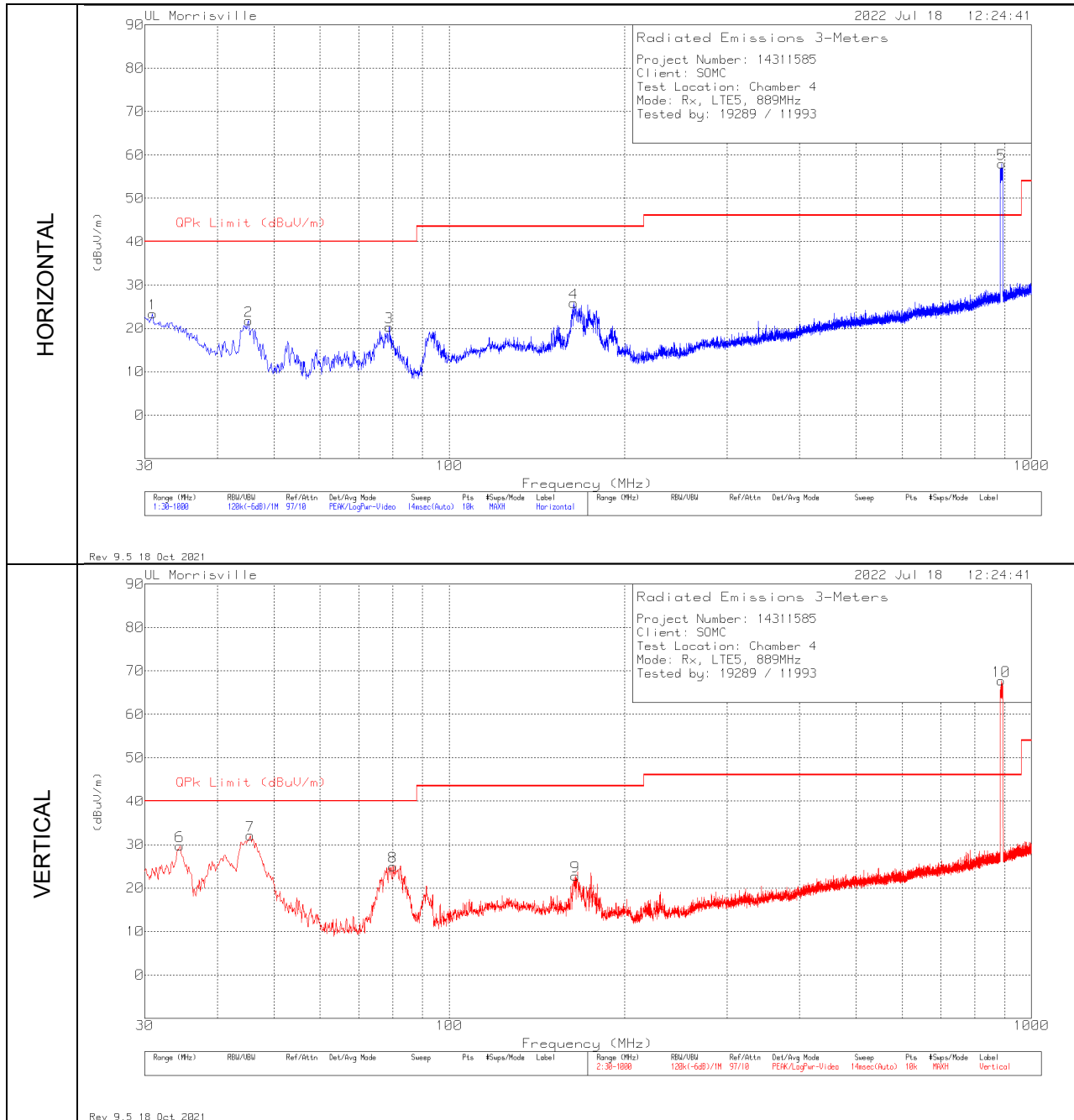
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.54525	43.34	Pk	28.3	-36.2	35.44	54	-18.56	74	-38.56	0-360	100	H
4	1.7755	42.28	Pk	30.1	-36.2	36.18	54	-17.82	74	-37.82	0-360	100	V
2	3.02725	42.39	Pk	33.1	-35.7	39.79	54	-14.21	74	-34.21	0-360	100	H
5	3.03325	40.94	Pk	33.1	-35.7	38.34	54	-15.66	74	-35.66	0-360	100	V
6	8.98675	36.39	Pk	36.1	-26	46.49	54	-7.51	74	-27.51	0-360	100	V
3	9.139	37.34	Pk	36.2	-26.4	47.14	54	-6.86	74	-26.86	0-360	100	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B5 Rx 889.0MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

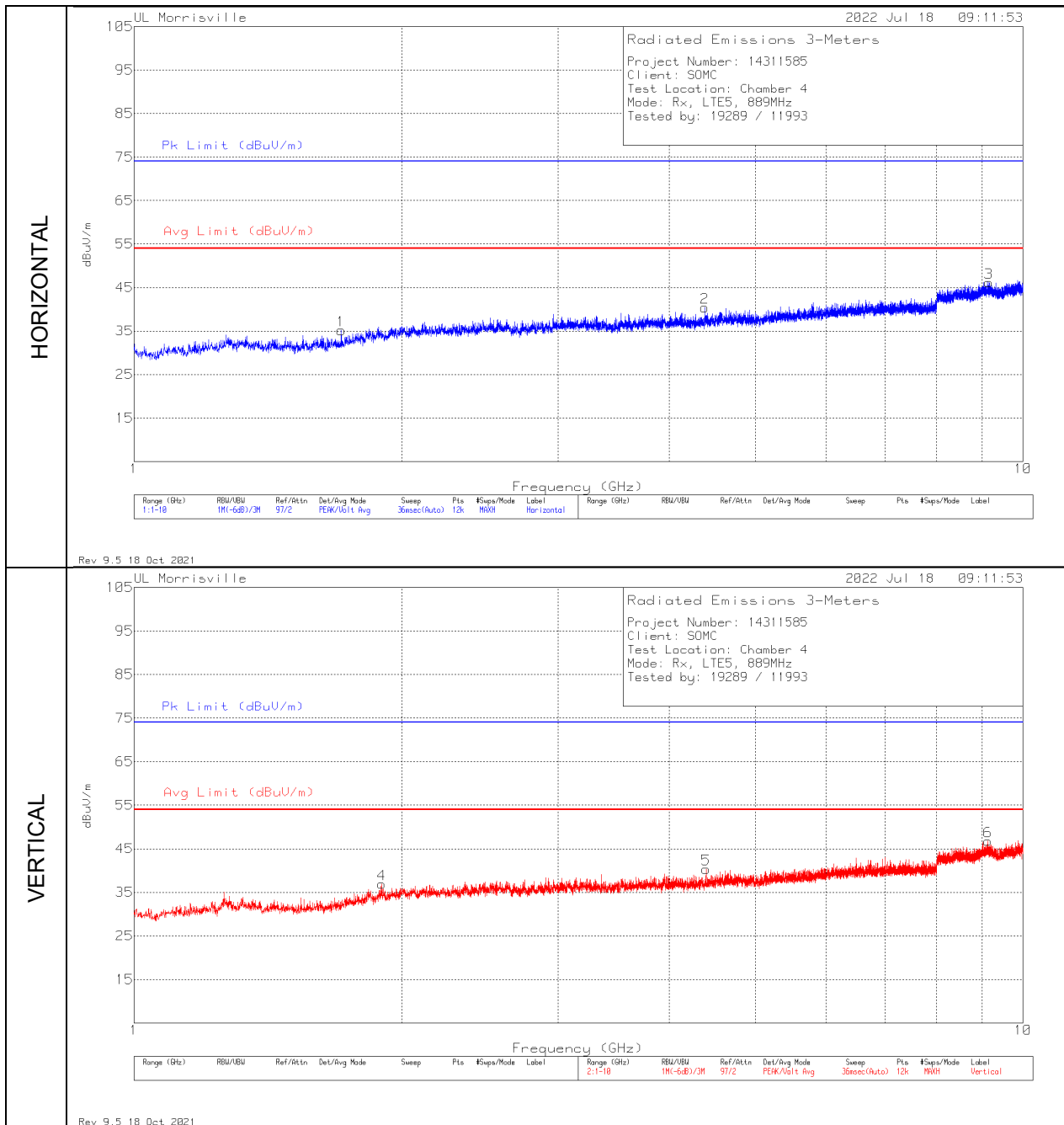
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.97	28.92	Pk	26.3	-31.8	23.42	40	-16.58	0-360	300	H
6	34.462	37.23	Pk	24.1	-31.6	29.73	40	-10.27	0-360	100	V
2	45.229	36.95	Pk	16.3	-31.5	21.75	40	-18.25	0-360	300	H
7	45.52	47.59	Pk	16.1	-31.6	32.09	40	-7.91	0-360	100	V
3	78.888	37.33	Pk	13.9	-30.9	20.33	40	-19.67	0-360	200	H
8	80.052	42.16	Pk	13.8	-31	24.96	40	-15.04	0-360	100	V
4	163.666	37.56	Pk	18.4	-30.1	25.86	43.52	-17.66	0-360	100	H
9	164.733	34.46	Pk	18.4	-30.1	22.76	43.52	-20.76	0-360	100	V
10 DL	887.674	64.62	Pk	28.6	-25.5	67.72	-	-	0-360	100	V
5 DL	888.935	54.67	Pk	28.7	-25.4	57.97	-	-	0-360	100	H

Pk - Peak detector

DL - Downlink from Callbox

**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B5 Rx 889.0MHz**

**Radiated Emissions Graph**



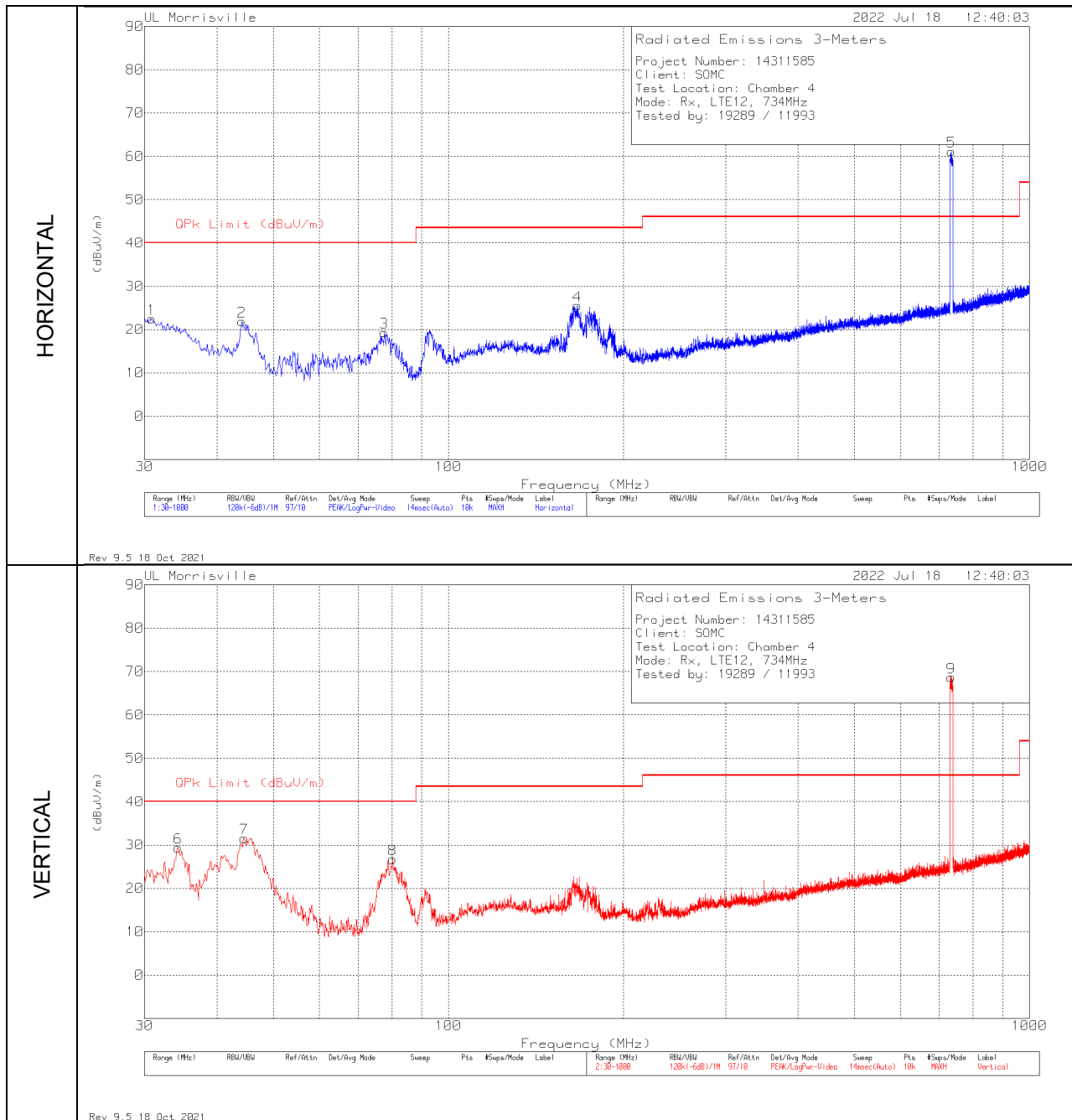
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.71025	42.15	Pk	29.3	-36.3	35.15	54	-18.85	74	-38.85	0-360	100	H
4	1.9	42	Pk	31.2	-36.3	36.9	54	-17.1	74	-37.1	0-360	200	V
2	4.38475	39.19	Pk	33.6	-32.4	40.39	54	-13.61	74	-33.61	0-360	100	H
5	4.4005	38.95	Pk	33.6	-32.2	40.35	54	-13.65	74	-33.65	0-360	200	V
6	9.133	37.04	Pk	36.2	-26.5	46.74	54	-7.26	74	-27.26	0-360	200	V
3	9.15175	36.55	Pk	36.2	-26.6	46.15	54	-7.85	74	-27.85	0-360	100	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 734.0MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.873	27.94	Pk	26.4	-31.8	22.54	40	-17.46	0-360	200	H
6	34.268	36.81	Pk	24.3	-31.7	29.41	40	-10.59	0-360	100	V
2	44.162	36.41	Pk	17	-31.5	21.91	40	-18.09	0-360	300	H
7	44.55	46.37	Pk	16.7	-31.5	31.57	40	-8.43	0-360	100	V
3	77.53	36.55	Pk	14	-31.2	19.35	40	-20.65	0-360	100	H
8	80.149	43.93	Pk	13.8	-31	26.73	40	-13.27	0-360	100	V
4	166.77	37.45	Pk	18.2	-30.1	25.55	43.52	-17.97	0-360	100	H
9 DL	733.347	68.47	Pk	27.2	-27	68.67	-	-	0-360	100	V
5 DL	733.929	60.95	Pk	27.2	-27	61.15	-	-	0-360	100	H

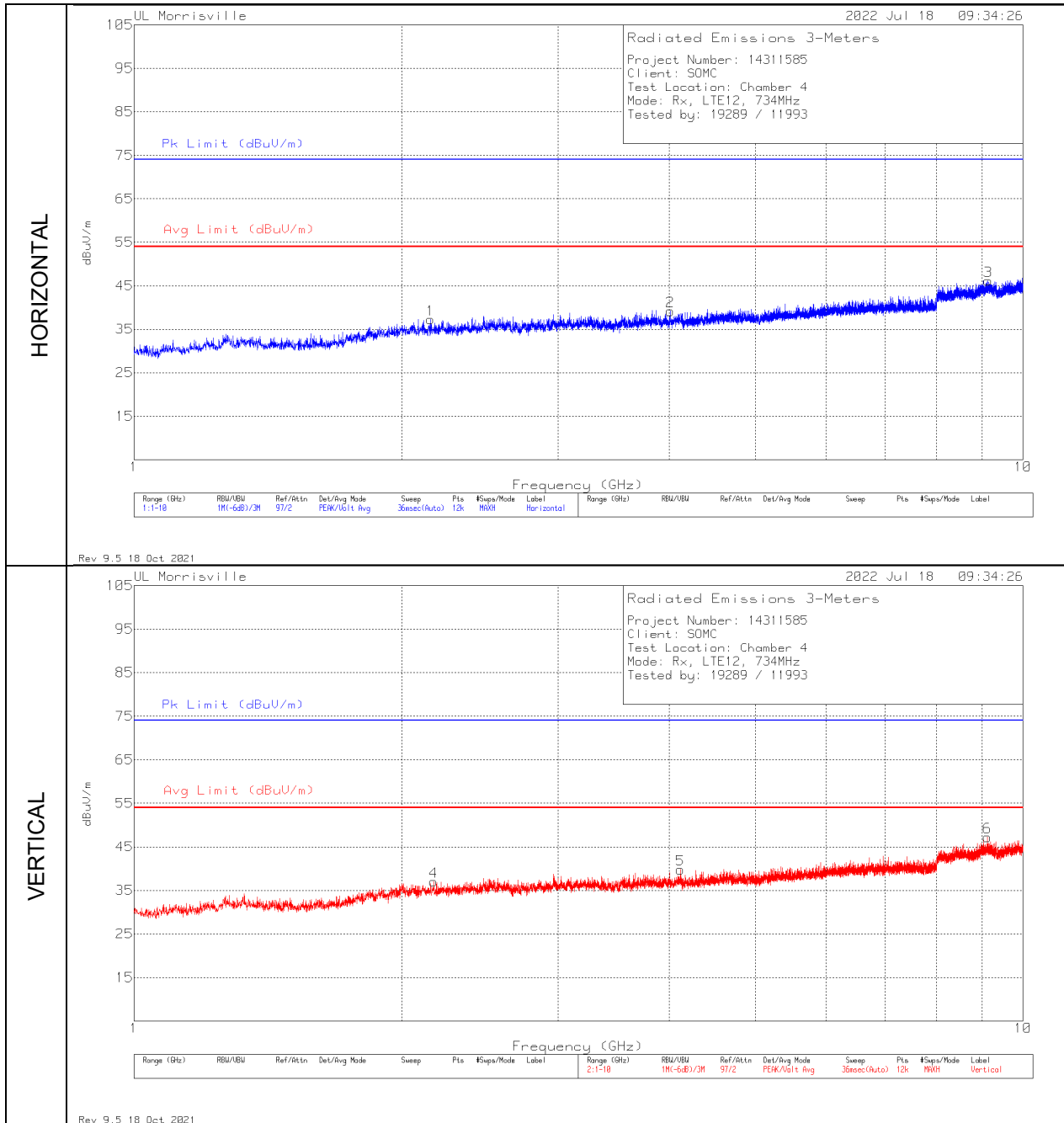
Pk - Peak detector

DL -Downlink from Callbox



**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 734.0MHz**

**Radiated Emissions Graph**



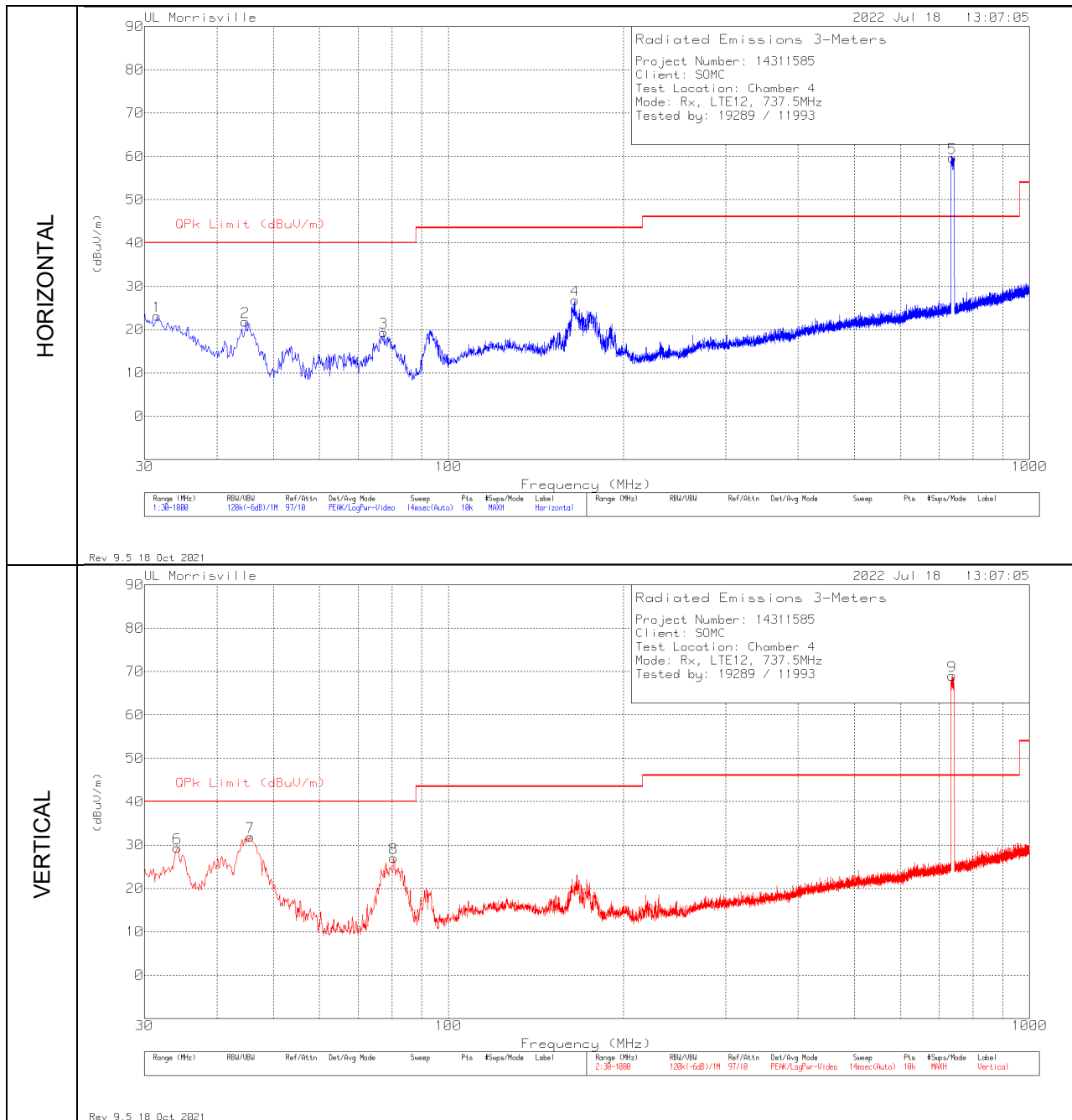
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.15575	41.55	Pk	31.9	-36.2	37.25	54	-16.75	74	-36.75	0-360	200	H
4	2.17225	41.5	Pk	31.8	-36.3	37	54	-17	74	-37	0-360	100	V
2	4.00975	39.07	Pk	33.4	-33.3	39.17	54	-14.83	74	-34.83	0-360	200	H
5	4.11775	39.37	Pk	33.4	-33	39.77	54	-14.23	74	-34.23	0-360	100	V
6	9.11725	37.5	Pk	36.2	-26.5	47.2	54	-6.8	74	-26.8	0-360	100	V
3	9.13825	36.35	Pk	36.2	-26.4	46.15	54	-7.85	74	-27.85	0-360	200	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 737.5MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

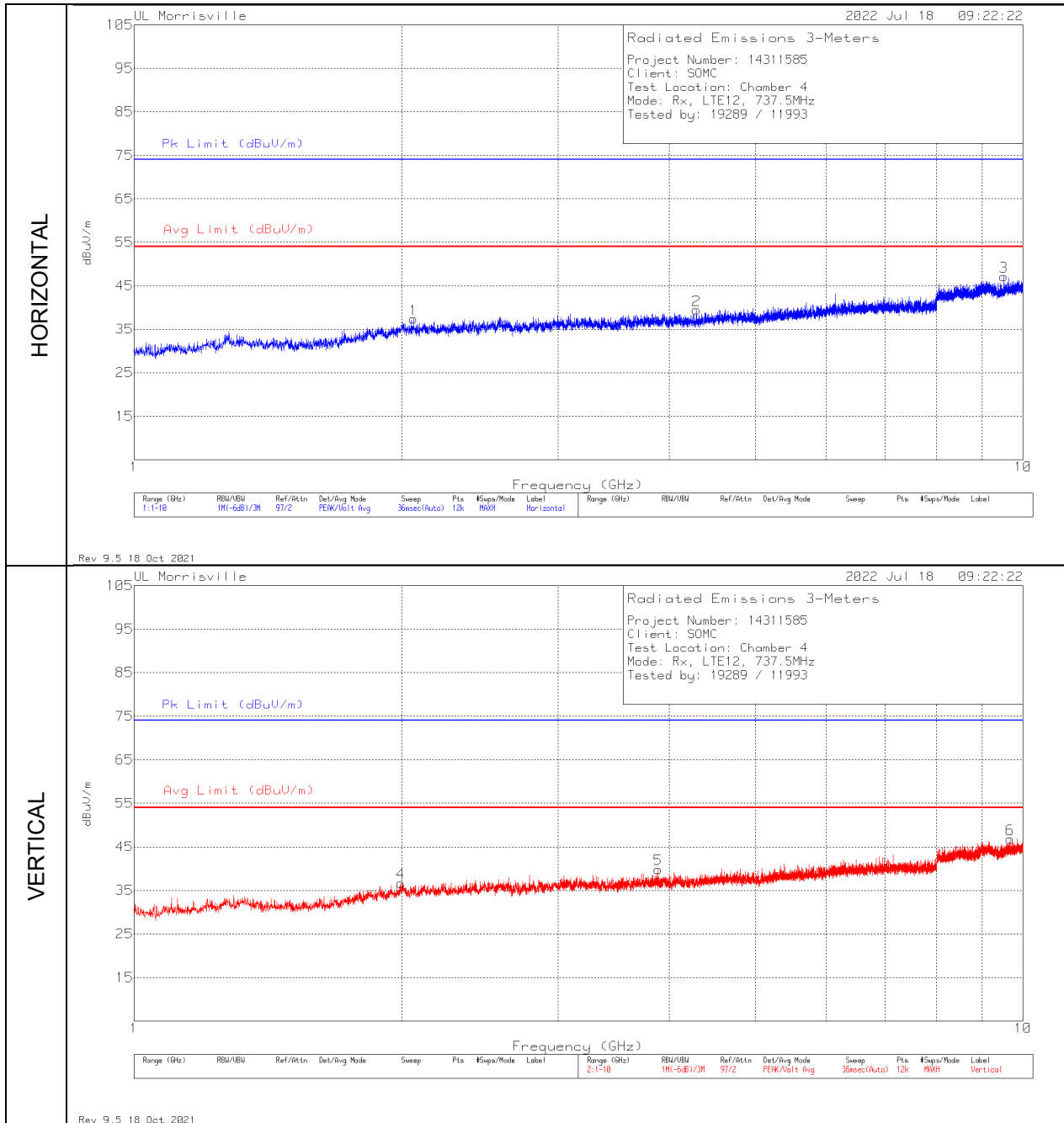
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.552	28.83	Pk	26.1	-31.8	23.13	40	-16.87	0-360	100	H
6	34.171	36.67	Pk	24.4	-31.7	29.37	40	-10.63	0-360	100	V
2	44.744	36.71	Pk	16.6	-31.5	21.81	40	-18.19	0-360	300	H
7	45.617	47.51	Pk	16	-31.6	31.91	40	-8.09	0-360	100	V
3	77.433	36.48	Pk	14.1	-31.2	19.38	40	-20.62	0-360	100	H
8	80.537	44.25	Pk	13.7	-30.9	27.05	40	-12.95	0-360	100	V
4	165.121	38.53	Pk	18.4	-30.1	26.83	43.52	-16.69	0-360	100	H
9	736.257	68.8	Pk	27.2	-27	69	-	-	0-360	100	V
5	736.839	59.48	Pk	27.2	-27	59.68	-	-	0-360	100	H

Pk - Peak detector

DL - Downlink from Callbox

**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 737.5MHz**

**Radiated Emissions Graph**



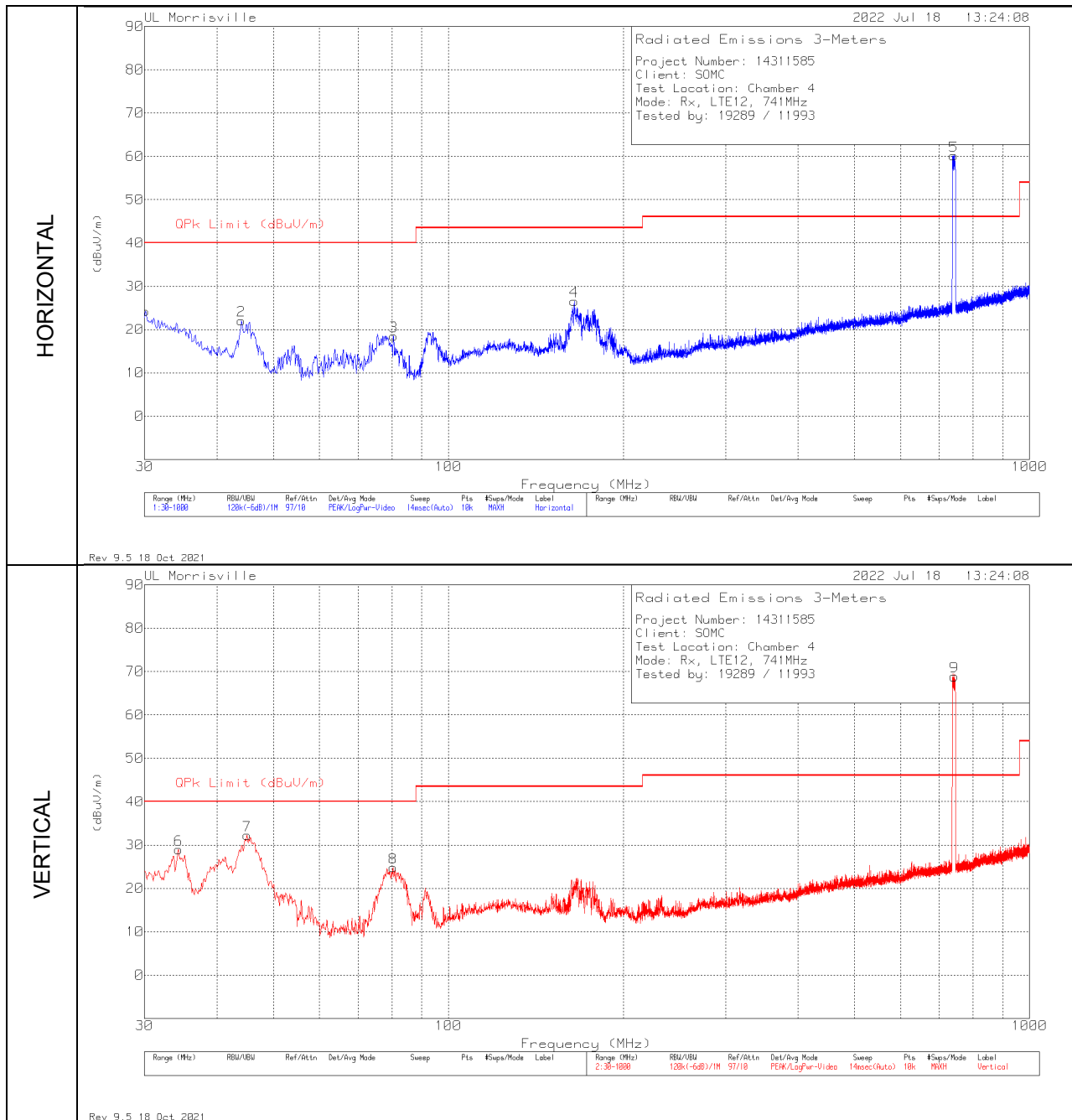
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.996	41.19	Pk	31.8	-36.3	36.69	54	-17.31	74	-37.31	0-360	200	V
1	2.062	41.77	Pk	32	-36.4	37.37	54	-16.63	74	-36.63	0-360	100	H
5	3.88825	39.67	Pk	33.5	-33.3	39.87	54	-14.13	74	-34.13	0-360	200	V
2	4.2925	38.34	Pk	33.4	-32.3	39.44	54	-14.56	74	-34.56	0-360	100	H
3	9.5185	36.95	Pk	36.6	-26.4	47.15	54	-6.85	74	-26.85	0-360	100	H
6	9.67675	36.61	Pk	36.7	-26.5	46.81	54	-7.19	74	-27.19	0-360	200	V

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B12 Rx 741.0MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.097	28.79	Pk	27.2	-31.8	24.19	40	-15.81	0-360	100	H
6	34.365	36.43	Pk	24.2	-31.7	28.93	40	-11.07	0-360	100	V
2	44.065	36.48	Pk	17.1	-31.5	22.08	40	-17.92	0-360	300	H
7	45.035	47.22	Pk	16.4	-31.4	32.22	40	-7.78	0-360	100	V
8	80.343	41.91	Pk	13.8	-30.9	24.81	40	-15.19	0-360	100	V
3	80.537	35.69	Pk	13.7	-30.9	18.49	40	-21.51	0-360	200	H
4	164.733	38.26	Pk	18.4	-30.1	26.56	43.52	-16.96	0-360	100	H
5 DL	741.01	59.74	Pk	27.3	-26.9	60.14	-	-	0-360	100	H
9 DL	742.465	68.48	Pk	27.3	-26.9	68.88	-	-	0-360	100	V

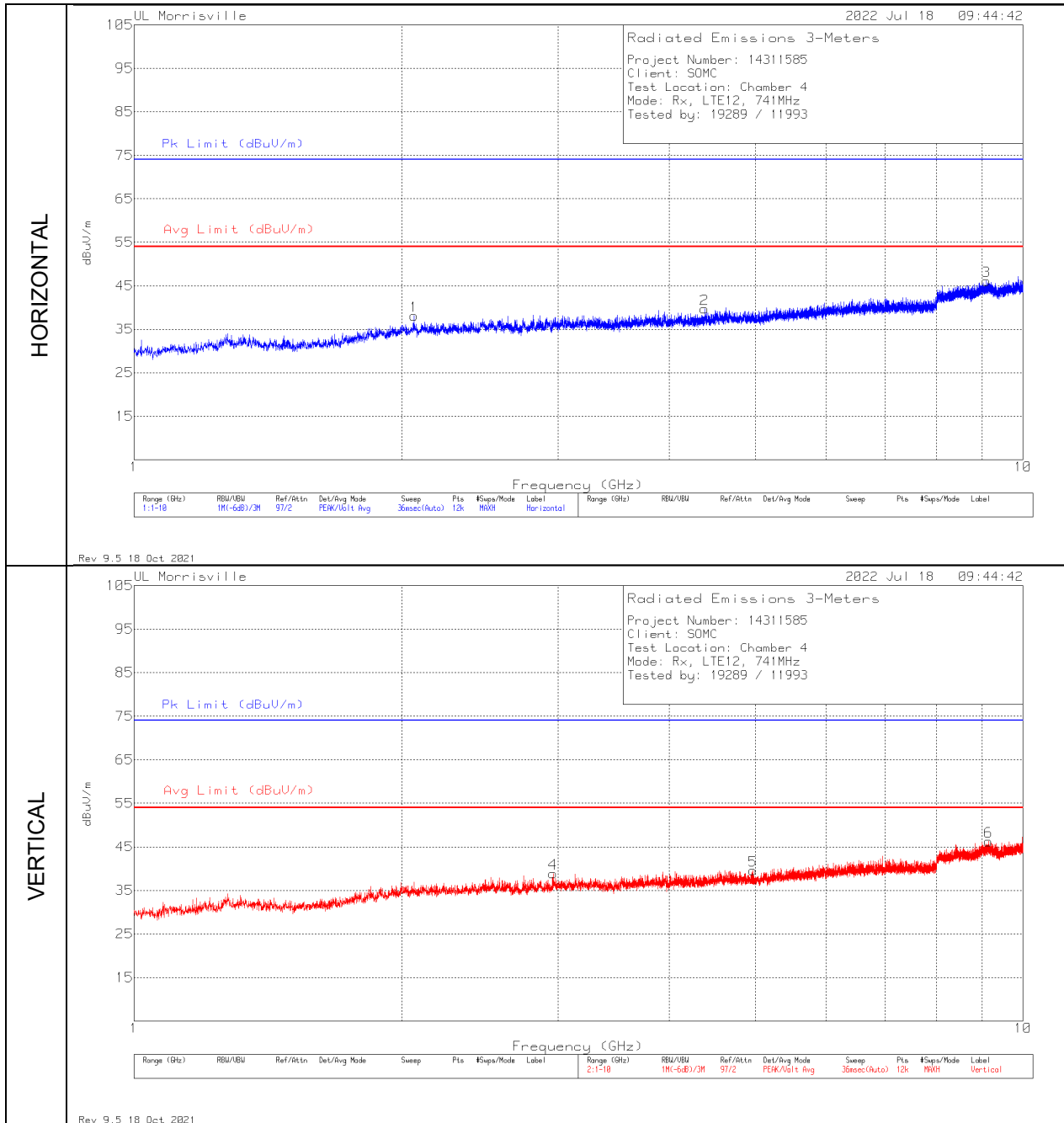
Pk - Peak detector

DL - Downlink from Callbox



**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B12 Rx 741.0MHz**

**Radiated Emissions Graph**



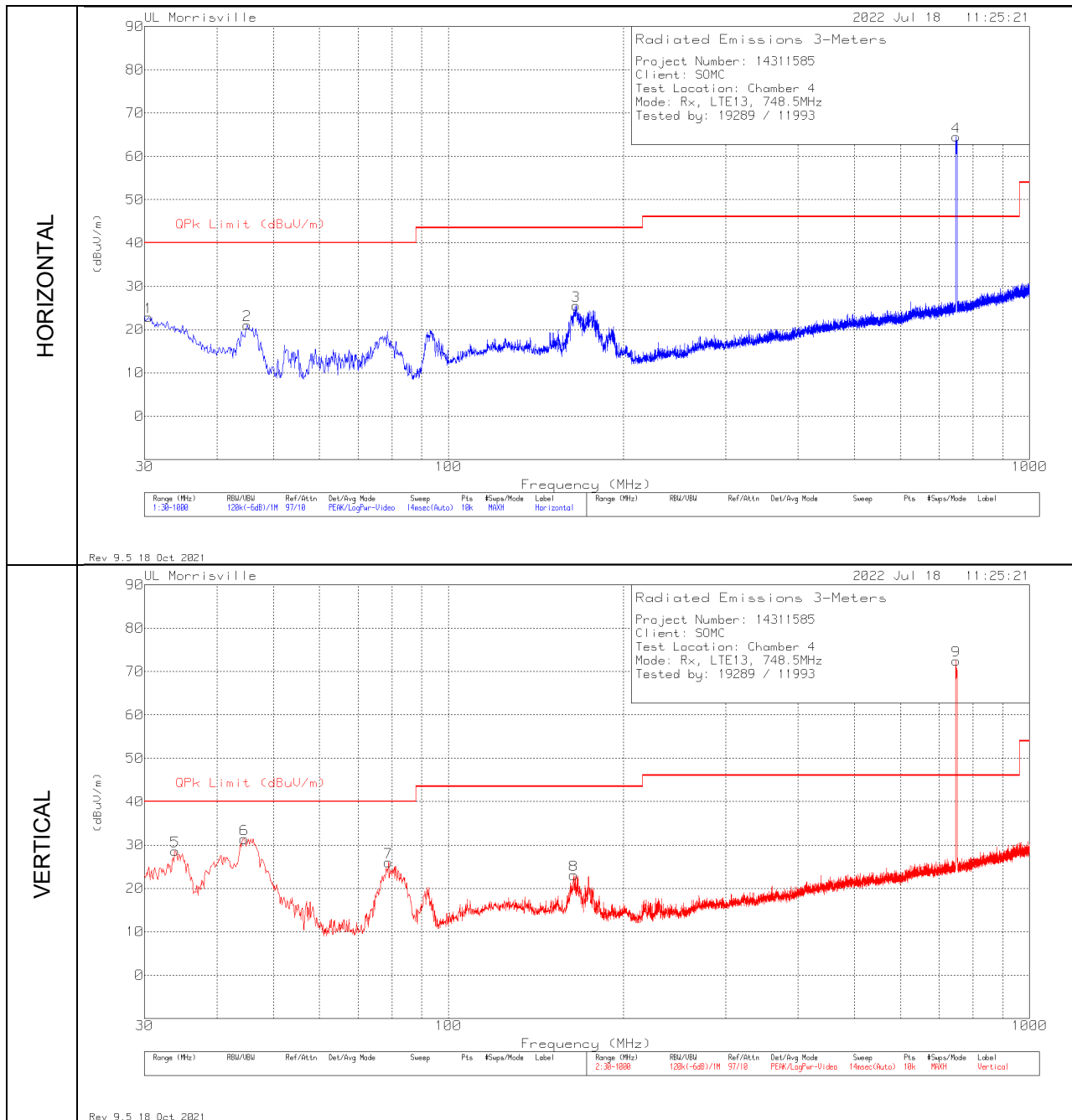
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.06425	42.48	Pk	32	-36.4	38.08	54	-15.92	74	-35.92	0-360	100	H
4	2.9605	41.79	Pk	32.7	-35.6	38.89	54	-15.11	74	-35.11	0-360	200	V
2	4.3825	38.49	Pk	33.6	-32.4	39.69	54	-14.31	74	-34.31	0-360	100	H
5	4.96975	37.85	Pk	34	-32.3	39.55	54	-14.45	74	-34.45	0-360	200	V
3	9.09175	36.51	Pk	36.2	-26.6	46.11	54	-7.89	74	-27.89	0-360	100	H
6	9.14875	36.64	Pk	36.2	-26.6	46.24	54	-7.76	74	-27.76	0-360	200	V

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B13 Rx 748.5MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

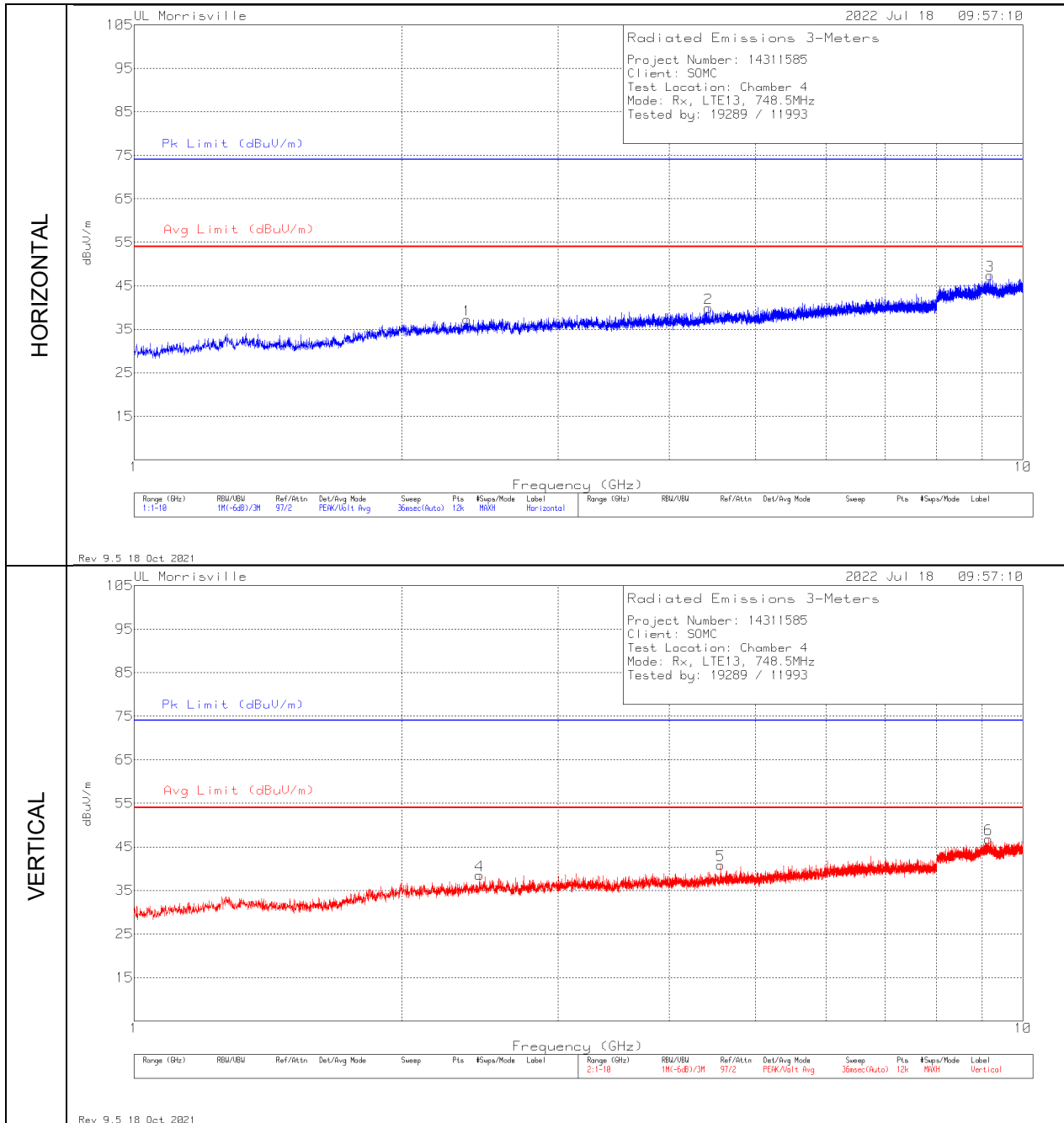
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.485	27.78	Pk	26.8	-31.7	22.88	40	-17.12	0-360	300	H
5	33.88	35.83	Pk	24.6	-31.8	28.63	40	-11.37	0-360	100	V
6	44.55	46.16	Pk	16.7	-31.5	31.36	40	-8.64	0-360	100	V
2	45.035	36.06	Pk	16.4	-31.4	21.06	40	-18.94	0-360	300	H
7	78.888	42.99	Pk	13.9	-30.9	25.99	40	-14.01	0-360	100	V
8	164.345	34.67	Pk	18.4	-30	23.07	43.52	-20.45	0-360	100	V
3	165.994	37.4	Pk	18.3	-30.2	25.5	43.52	-18.02	0-360	100	H
4 DL	747.994	64.21	Pk	27.3	-27	64.51	-	-	0-360	100	H
9 DL	747.994	72.21	Pk	27.3	-27	72.51	-	-	0-360	100	V

Pk - Peak detector

DL - Downlink from Callbox

**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B13 Rx 748.5MHz**

**Radiated Emissions Graph**



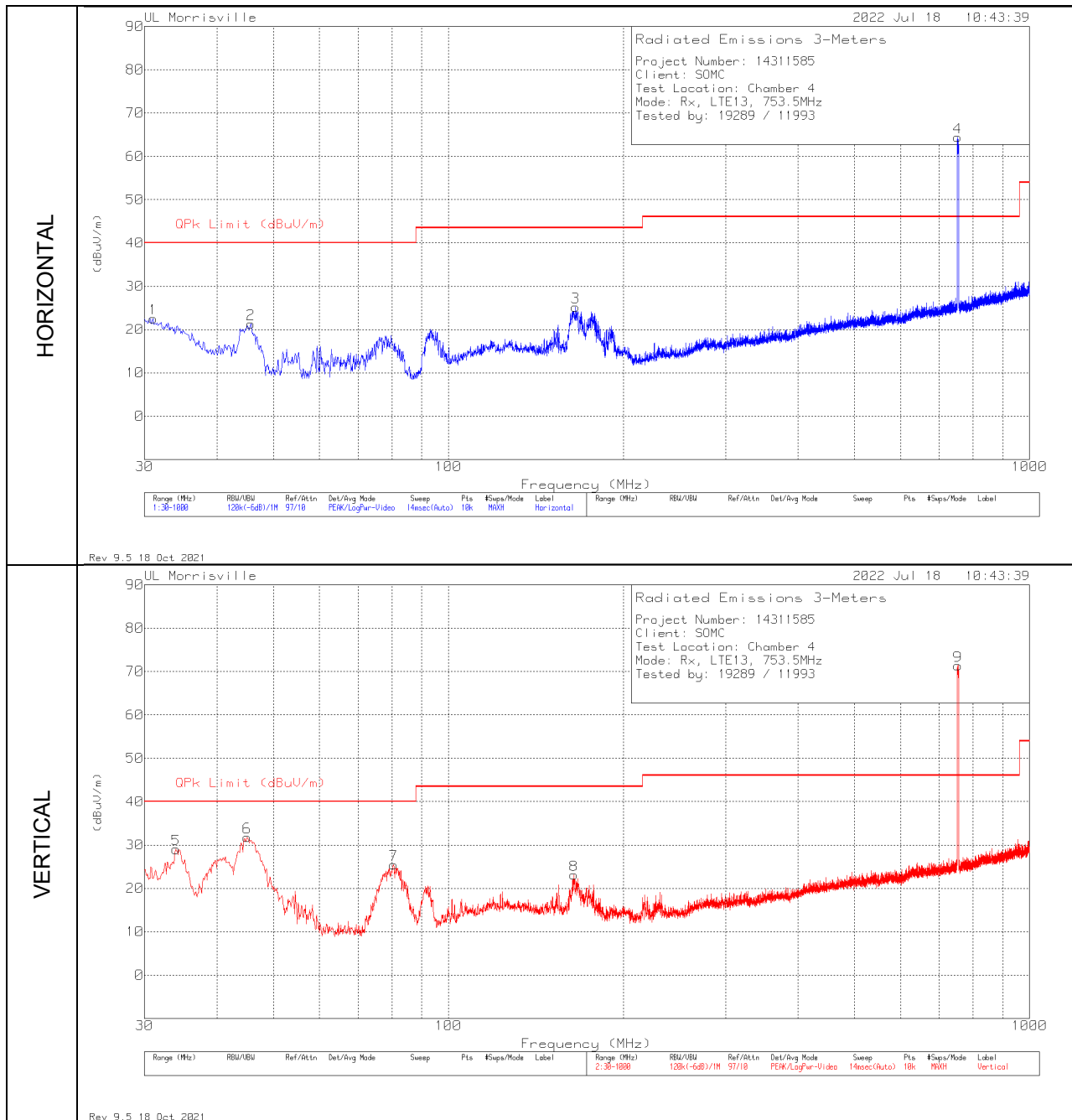
**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.36875	41.25	Pk	32.2	-36.2	37.25	54	-16.75	74	-36.75	0-360	100	H
4	2.44675	42.4	Pk	32.3	-36.2	38.5	54	-15.5	74	-35.5	0-360	200	V
2	4.42675	38.49	Pk	33.7	-32.3	39.89	54	-14.11	74	-34.11	0-360	100	H
5	4.5715	39.12	Pk	34.1	-32.4	40.82	54	-13.18	74	-33.18	0-360	200	V
6	9.15025	37.21	Pk	36.2	-26.6	46.81	54	-7.19	74	-27.19	0-360	200	V
3	9.1825	37.69	Pk	36.2	-26.5	47.39	54	-6.61	74	-26.61	0-360	100	H

Pk - Peak detector

**RADIATED EMISSIONS 30 TO 1000 MHz – LTE B13 Rx 753.5MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AT0081 (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.067	28.06	Pk	26.3	-31.8	22.56	40	-17.44	0-360	200	H
5	33.977	36.24	Pk	24.5	-31.7	29.04	40	-10.96	0-360	100	V
6	45.035	46.78	Pk	16.4	-31.4	31.78	40	-8.22	0-360	100	V
2	45.714	37.03	Pk	16	-31.7	21.33	40	-18.67	0-360	300	H
7	80.537	42.66	Pk	13.7	-30.9	25.46	40	-14.54	0-360	100	V
8	164.442	34.69	Pk	18.4	-30	23.09	43.52	-20.43	0-360	100	V
3	165.606	37.11	Pk	18.3	-30.2	25.21	43.52	-18.31	0-360	100	H
4 DL	752.553	63.78	Pk	27.3	-26.7	64.38	-	-	0-360	100	H
9 DL	753.232	71.04	Pk	27.3	-27	71.34	-	-	0-360	100	V

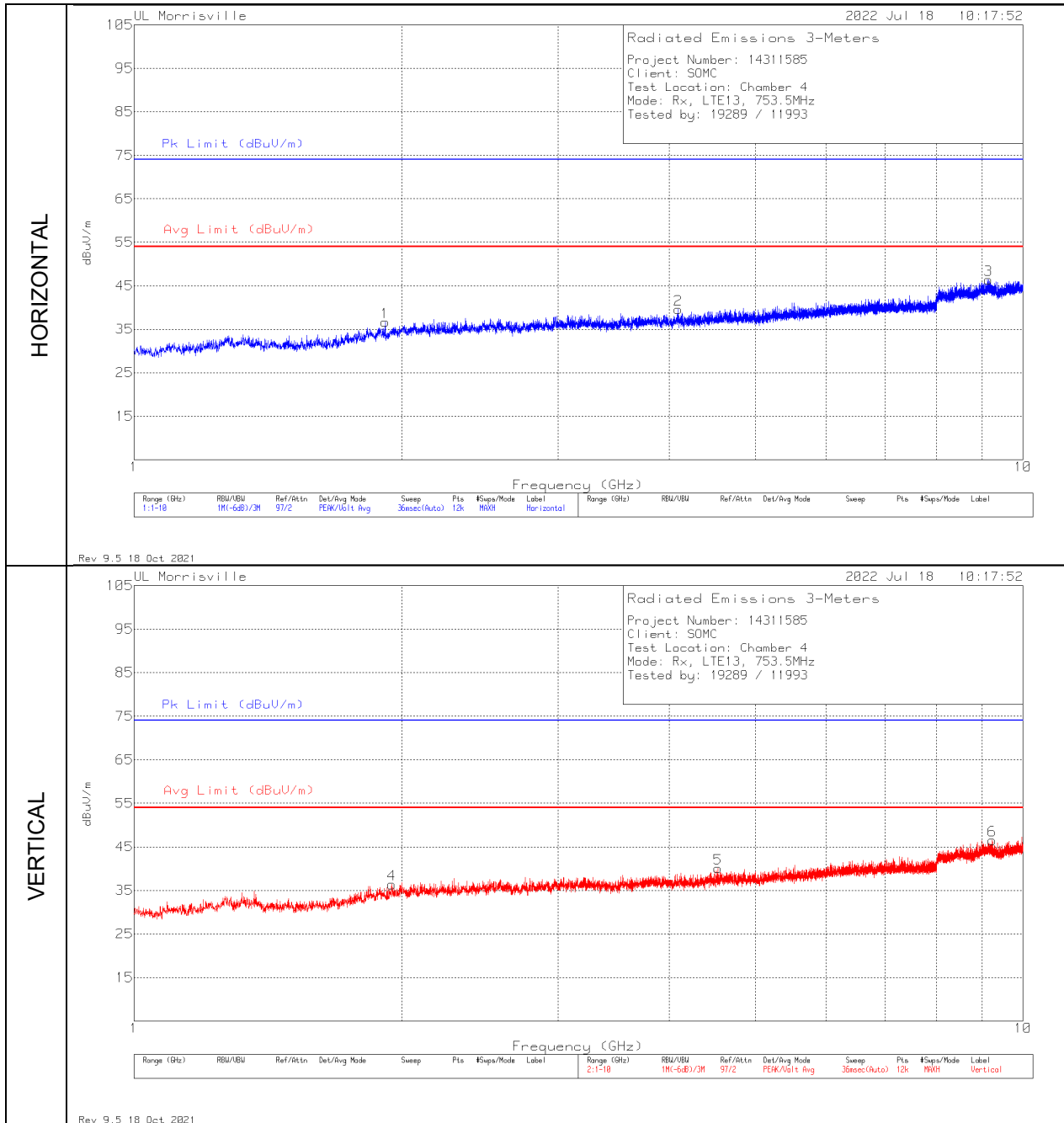
Pk - Peak detector

DL - Downlink from Callbox



**RADIATED EMISSIONS 1000 TO 10,000 MHz – LTE B13 Rx 753.5MHz**

**Radiated Emissions Graph**



**Radiated Emissions Data Points**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AT0067 (dB/m)	Gain/Loss (dB)	Corrected Reading dBuV/m	Avg Limit (dBuV/m)	Margin (dB)	Pk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.9165	41.75	Pk	31.1	-36.2	36.65	54	-17.35	74	-37.35	0-360	100	H
4	1.94875	41.36	Pk	31.3	-36.3	36.36	54	-17.64	74	-37.64	0-360	200	V
2	4.096	39.17	Pk	33.4	-33	39.57	54	-14.43	74	-34.43	0-360	100	H
5	4.54	38.26	Pk	34	-32.2	40.06	54	-13.94	74	-33.94	0-360	200	V
3	9.1495	36.79	Pk	36.2	-26.6	46.39	54	-7.61	74	-27.61	0-360	100	H
6	9.232	36.78	Pk	36.3	-26.6	46.48	54	-7.52	74	-27.52	0-360	200	V

Pk - Peak detector

## Appendix A

### Facilities, Accreditations and Authorizations

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
<input type="checkbox"/>	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
<input checked="" type="checkbox"/>	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A		27265	

**END OF TEST REPORT**