



TEST REPORT

Report Number. : 13802763-E1V1

Applicant : Sidewalk Labs LLC
10 Hudson Yards
New York, NY, 10001
US

Model : PS-001

FCC ID : 2AWDXPS001

IC : 26205-PS001

EUT Description : Parking Lot Sensor

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date Of Issue:
May 25, 2021

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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	5/25/2021	Initial Issue	---

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Sidewalk Labs LLC
10 Hudson Yards
New York, NY, 10001
US

EUT DESCRIPTION: Parking Lot Sensor

MODEL: PS-001

SERIAL NUMBER: Proto 1

DATE TESTED: May 4 – May 5, 2021

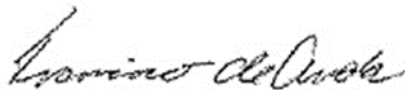
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
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Project Engineer
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2. TEST RESULTS SUMMARY

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

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 11.6.
See Comment	RSS-GEN 6.7	20dB BW/99% OBW	Not Performed	ANSI C63.10 Sections 6.9.2 and 6.9.3
15.247 (a)(1)	RSS-247 (5.1) (b)	Hopping Frequency Separation	Not Performed	None.
15.247 (a)(1)(i)	RSS-247 (5.1) (c)	Number of Hopping Channels	Not Performed	None.
15.247 (f)	RSS-247 (5.3) (a)	Average Time of Occupancy	Not Performed	None.
15.247 (b)(2)	RSS-247 (5.4) (a)	Output Power	Not Performed	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (b)(3)	RSS-247 (5.4) (d)			
15.247 (e)	RSS-247 5.2 (b)	PSD	Not Performed	None.
15.247 (f)	RSS-247 (5.3) (b)			
15.247 (d)	RSS-247 (5.5)	Conducted Spurious Emissions	Not Performed	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Compliant	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Not Applicable	None.

3. REFERENCE DOCUMENTS

Measurements of original parameters as referenced in this report are documented in UL Verification Services report number 13317290 -E1.

4. 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,
KDB 558074 D01 15.247 Meas Guidance v05r02,
RSS-GEN Issue 5, and
RSS-247 Issue 2.

5. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0, 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 1: 47173 Benicia Street Fremont, CA 94538, U.S.A	US0104	2324A	208313
☐	Building 2: 47266 Benicia Street Fremont, CA 94538, U.S.A	US0104	22541	208313
☒	Building 4: 47658 Kato Rd Fremont, CA 94538, U.S.A	US0104	2324B	208313

6. DECISION RULES AND MEASUREMENT UNCERTAINTY

6.1. 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.

6.2. 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.)

6.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.4 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.84 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

6.4. 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.
 $36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

7. EQUIPMENT UNDER TEST

7.1. EUT DESCRIPTION

The EUT is a battery powered Parking Lot Sensor.

7.2. PERMISSIVE CHANGE SCOPE

Purpose for this permissive change is to update the antenna design to a dipole antenna type. The new antenna has lower maximum antenna gain. Verification for radiated spurious and harmonic emissions was performed. Refer to original UL report 13317290-E1 for conducted data and UL report 13317290-E3 for maximum RF exposure results.

7.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna gain(s) and type, as provided by the manufacturer, are as follows:

The radio utilizes a dipole type antenna, with a maximum gain of 0.22 dBi.

7.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v1.1.0.0c-tx-continuous.bin.

7.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 30MHz was performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emissions below 1GHz and above 1Ghz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The EUT has one intended orientations, X (flatbed); therefore, all final radiated testing was performed with the EUT in X(flatbed) orientation.

During normal operation, at worst case, the transmitter transmits every 30 seconds as declared by manufacturer.

For radiated tests, duty cycle has been set to 100%.

Worst-case data rates as provided by manufacturer: GFSK mode: 54000 symbols/sec

As per manufacturer declaration, the EUT only frequency hops across 4 channels. For any given system, the channels are pseudo-randomly chosen and ordered from list of 255 possible frequencies in the 904.000 – 927.533MHz range.

The list of channels (MHz) for all possible 63 systems:

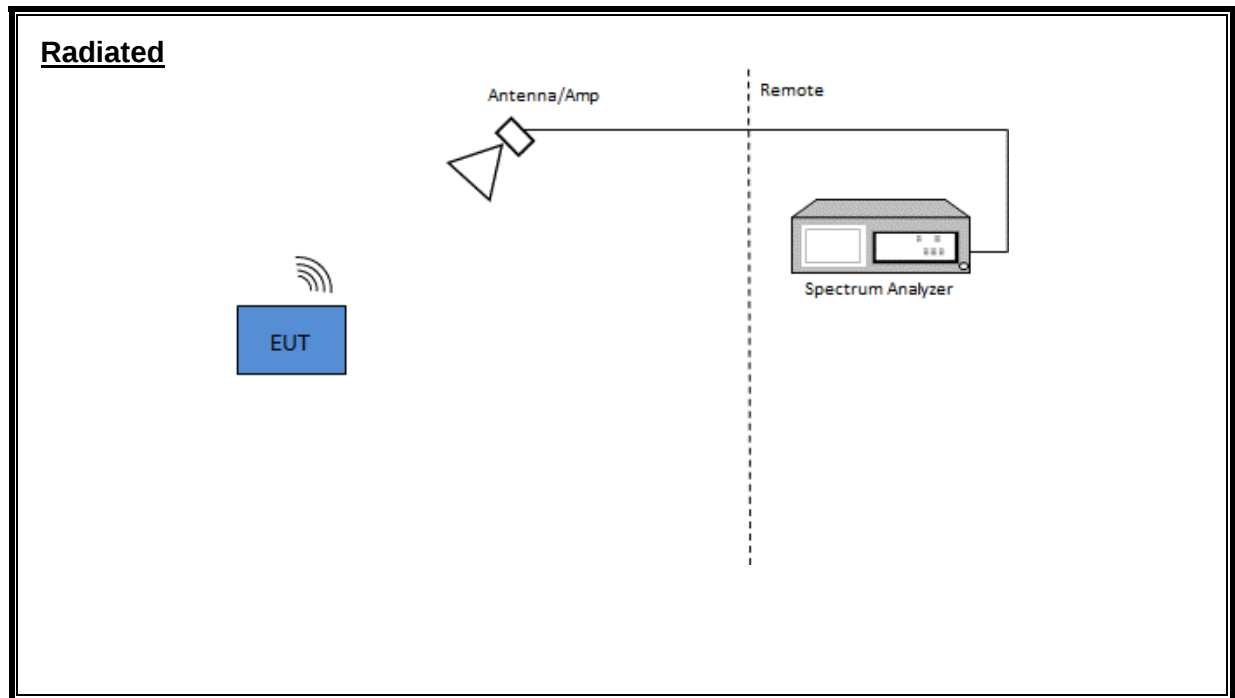
0: [919.965	905.661	921.626	907.322]	40: [906.953	918.673	908.614	919.596]
1: [916.643	908.983	918.304	910.645]	41: [904.369	921.257	906.030	922.180]
2: [925.133	912.306	926.794	913.967]	42: [913.598	923.841	915.259	924.764]
3: [921.811	915.628	923.472	917.289]	43: [911.014	926.425	912.675	906.676]
4: [909.629	915.997	908.337	920.611]	44: [920.242	905.384	918.950	909.260]
5: [906.307	919.319	905.015	923.934]	45: [917.658	907.968	916.366	911.844]
6: [914.797	922.642	913.505	927.256]	46: [926.887	910.552	925.595	914.428]
7: [911.475	925.964	910.183	907.784]	47: [924.303	913.136	923.011	926.702]
8: [916.182	909.445	917.843	905.200]	48: [912.398	925.041	910.737	923.380]
9: [918.766	906.861	920.427	912.952]	50: [905.753	919.873	904.092	918.212]
10: [922.826	914.613	924.487	910.368]	51: [909.076	916.551	907.415	913.413]
11: [925.410	912.029	927.071	921.073]	52: [922.734	914.705	924.026	910.091]
12: [905.846	919.781	904.554	918.489]	53: [926.056	911.383	927.348	908.245]
13: [908.430	917.197	907.138	926.241]	54: [916.089	909.537	917.381	904.923]
14: [912.490	924.949	911.198	923.657]	55: [919.412	906.215	920.704	924.580]
15: [915.074	922.365	913.782	911.567]	56: [914.521	922.918	912.859	927.164]
16: [927.533	909.906	925.872	914.890]	57: [911.937	925.502	910.275	917.935]
17: [924.210	913.229	922.549	906.399]	58: [909.353	916.274	907.691	920.519]
18: [920.888	904.738	919.227	909.722]	59: [906.769	918.858	905.107	911.291]
19: [917.566	908.061	915.905	921.903]	60: [924.856	912.583	926.148	913.875]
20: [914.244	923.195	915.536	925.226]	61: [922.272	915.167	923.564	904.646]
21: [910.921	926.518	912.213	916.735]	62: [919.688	905.938	920.980	907.230]
22: [907.599	918.027	908.891	920.058]	63: [917.104	908.522	918.396	904.000]
23: [904.277	921.350	905.569	915.351]				
24: [923.749	913.690	922.088	912.767]				
25: [926.333	911.106	924.672	908.707]				
26: [918.581	907.045	916.920	906.123]				
27: [921.165	904.461	919.504	925.687]				
28: [910.460	926.979	911.752	923.103]				
29: [913.044	924.395	914.336	919.042]				
30: [905.292	920.334	906.584	916.459]				
31: [907.876	917.750	909.168	919.135]				
32: [904.831	920.796	906.492	915.813]				
33: [908.153	917.474	909.814	925.779]				
34: [909.999	927.440	911.660	922.457]				
35: [913.321	924.118	914.982	908.799]				
36: [918.120	907.507	916.828	905.477]				
37: [921.442	904.185	920.150	915.443]				
38: [923.288	914.151	921.996	912.121]				
39: [926.610	910.829	925.318	917.012]				

7.6. DESCRIPTION OF TEST SETUP

TEST SETUP

EUT tested standalone with batteries. Test software exercised the radio card.

SETUP DIAGRAMS



8. 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	ID Num	Cal Due	Last Cal
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179367	2/21/2022	2/21/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	8/31/2021	8/31/2020
Amplifier, 100MHz-18GHz	AMPLICAL	AMP0.1G18-47-20	PRE0197319	04/08/2022	04/08/2021
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	T477	9/24/2021	9/24/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	175953	1/21/2022	1/21/2021
Antenna, Passive Loop 30Hz to 1MHz	ELETRO METRICS	EM-6871	PRE0179466	05/27/2021	05/27/2020
Antenna, Passive Loop 100kHz to 30MHz	ELETRO METRICS	EM-6872	PRE0179468	05/27/2021	05/27/2020
Filter, BRF 902 to 928MHz	MICRO-TRONICS	BRC50722	T1847	1/21/2022	1/21/2021
1GHz High Pass Filter	MICRO-TRONICS	HPM50115	PRE0182588	4/23/2022	4/23/2021
TEST SOFTWARE LIST					
Radiated Software	UL	UL EMC	Ver 9.5, Apr 30, 2020		

9. MEASUREMENT METHODS

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

Radiated Spurious Emissions 30-1000MHz: ANSI C63.10-2013 Section 6.3 and 6.5

Radiated Spurious Emissions above 1GHz: ANSI C63.10-2013 Section 6.3 and 6.6

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

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 80 cm above the ground plane for measurement below 1GHz; 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 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 pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements.

The spectrum from 30MHz to 1GHz and 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 30MHz emissions, the channel with the highest output power was tested.

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.

2D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table), using the free space impedance of 377 Ohms. For example the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to $Y - 51.5 = Z$ dBuA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

KDB 558074 D01 15.247 Meas Guidance v05r02

Use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

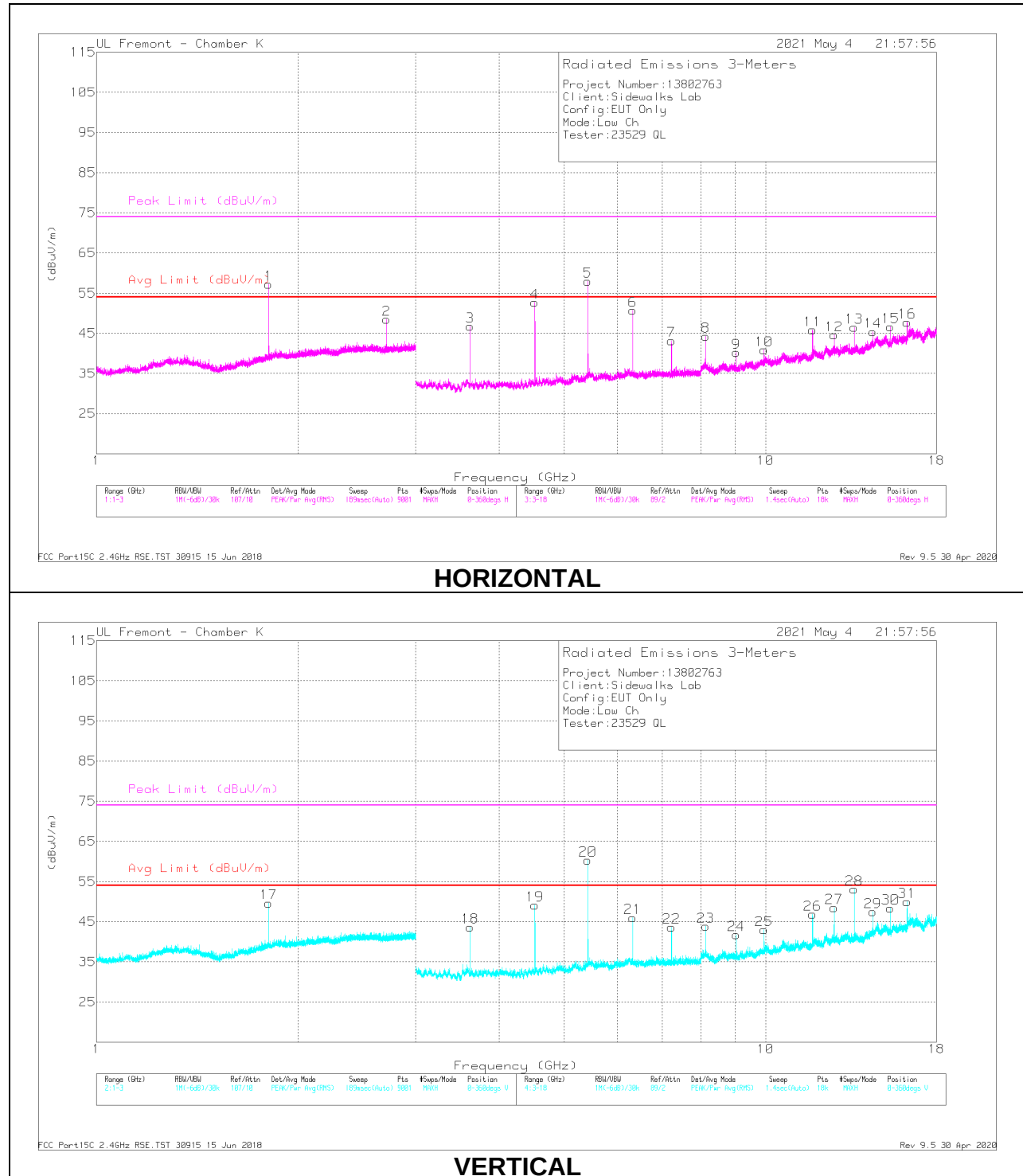
Note – For this test program, Peak detection was used. The DCCF was then subtracted from the peak value. The DCCF was calculated based on the worst case on-time when the device transmits packets and operates on 4 channels (4.22ms per channel). In this mode, the device will have a maximum of 1 hops on a channel in 100ms or $1 \times 4.22 \text{ ms} = 4.22 \text{ ms}$ on any channel. Therefore, $20\log(4.22 / 100) = -27.49 \text{ dB}$.

For below 1Ghz Harmonics and Spurious emissions notch filters were used for the fundamental. For above 1GHz a high pass filter was used.

10.1. TRANSMITTER ABOVE 1 GHz

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

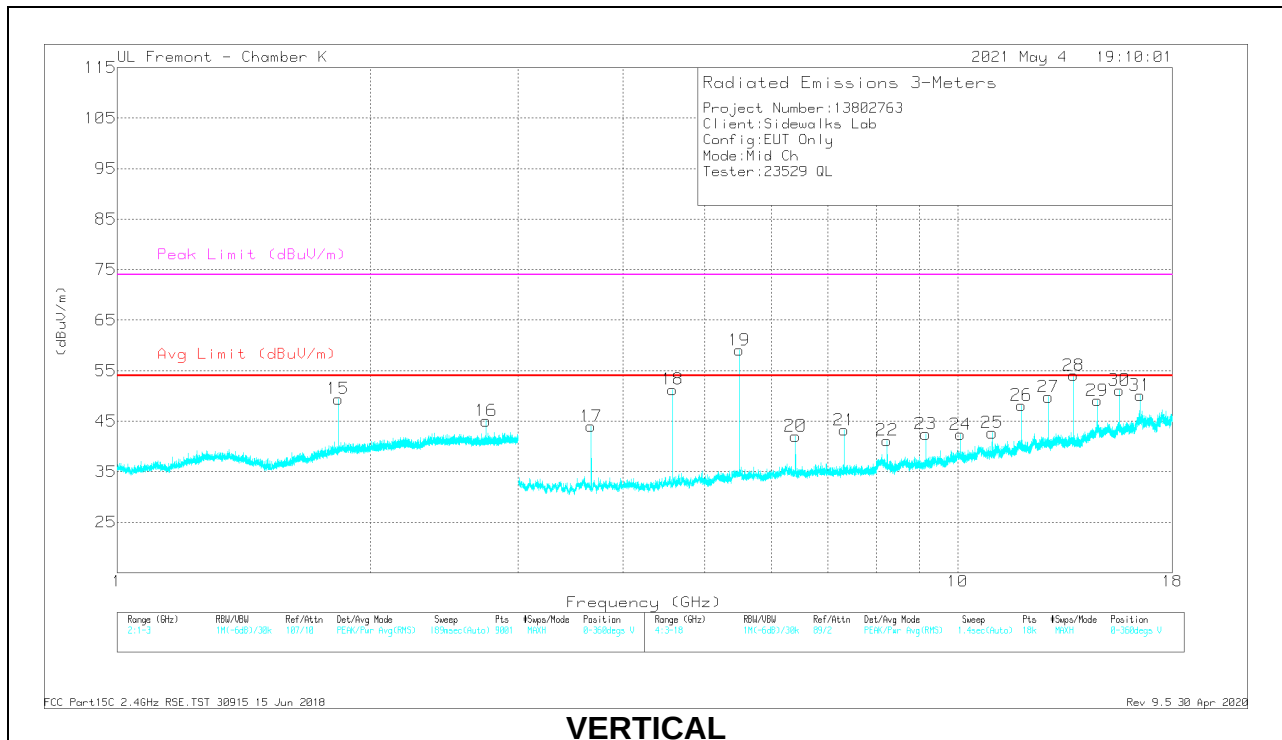
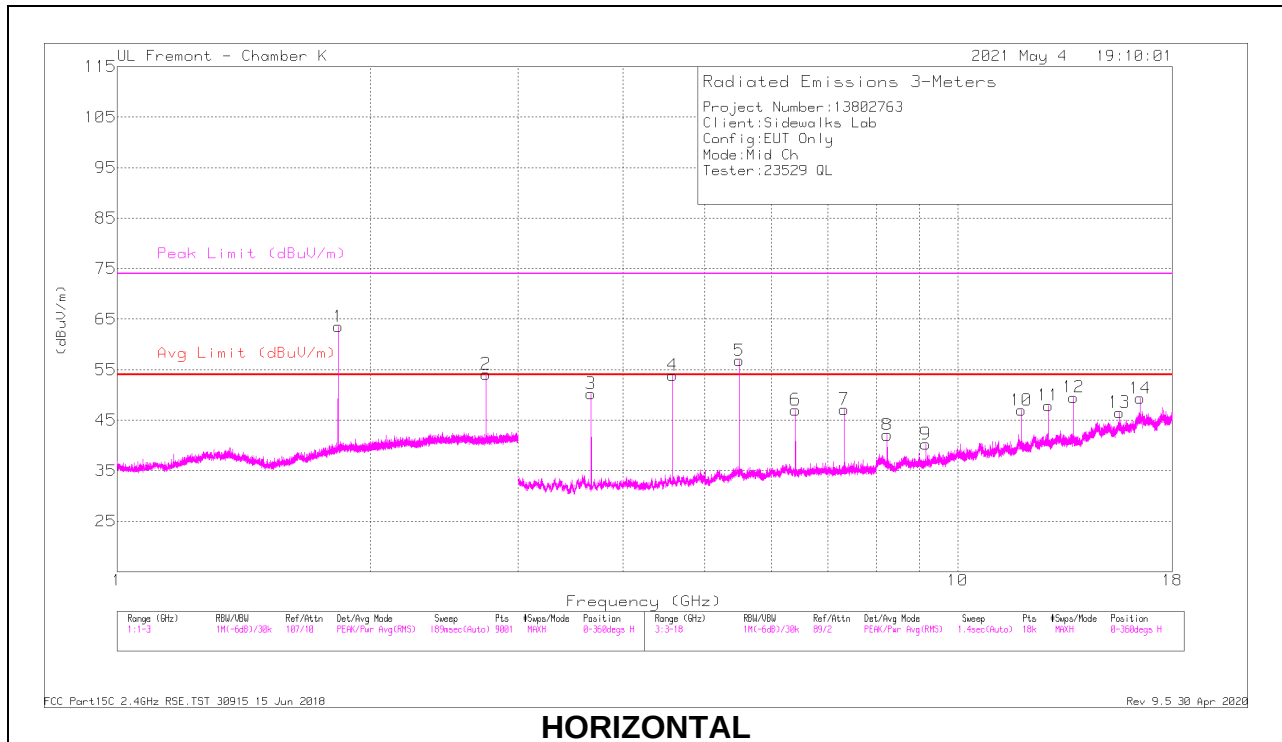
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pa d (dB)	Filter (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.808	62.85	Pk	30.3	-35.9	0.56		57.81	-	-	-	-	0-360	100	H
2	* 2.71216	54.12	PK2	32.5	-33.5	0.75		53.87	-	-	74	-20.13	273	338	H
	* 2.71216	54.12	PK2	32.5	-33.5	0.75	-27.49	26.38	54	-27.62	-	-	273	338	H
17	1.808	55.27	Pk	30.3	-35.9	0.56		50.23	-	-	-	-	0-360	199	V
3	* 3.61587	54.45	Pk	33.2	-40.9	0.52		47.27	-	-	74	-26.73	0-360	100	H
4	* 4.52023	60.96	PK2	34.2	-40.8	0.42		54.78	-	-	74	-19.22	26	116	H
	* 4.52023	60.96	PK2	34.2	-40.8	0.42	-27.49	27.29	54	-26.71	-	-	26	116	H
5	* 5.42409	64.93	PK2	35.5	-39.3	0.64		61.77	-	-	74	-12.23	45	349	H
	* 5.42409	64.93	PK2	35.5	-39.3	0.64	-27.49	34.28	54	-19.72	-	-	45	349	H
6	6.32769	53.12	Pk	35.8	-38.2	0.53		51.25	-	-	-	-	0-360	100	H
7	7.2319	44.89	Pk	36.1	-37.8	0.5		43.69	-	-	-	-	0-360	100	H
8	* 8.13612	45.09	Pk	36	-36.8	0.48		44.77	-	-	74	-29.23	0-360	100	H
9	* 9.04034	39.67	Pk	36.5	-35.9	0.66		40.93	-	-	74	-33.07	0-360	100	H
10	9.94456	39.28	Pk	37.1	-35.5	0.63		41.51	-	-	-	-	0-360	100	H
11	* 11.75216	41.25	Pk	38.5	-33.9	0.7		46.55	-	-	74	-27.45	0-360	100	H
12	* 12.65721	38.41	Pk	39.4	-33.2	1.12		45.73	-	-	74	-28.27	0-360	100	H
13	13.56059	40.64	Pk	39.4	-33.5	0.95		47.49	-	-	-	-	0-360	100	H
14	14.46398	38.74	Pk	40.1	-33.4	0.72		46.16	-	-	-	-	0-360	100	H
15	* 15.36903	38.46	Pk	40.8	-32.6	0.79		47.45	-	-	74	-26.55	0-360	100	H
16	16.27241	37.98	Pk	41.4	-31.6	0.83		48.61	-	-	-	-	0-360	100	H
18	* 3.61587	51.38	Pk	33.2	-40.9	0.52		44.2	-	-	74	-29.8	0-360	100	V
19	* 4.5201	57.15	PK2	34.2	-40.8	0.42		50.97	-	-	74	-23.03	216	254	V
	* 4.5201	57.15	PK2	34.2	-40.8	0.42	-27.49	23.48	54	-30.52	-	-	216	254	V
20	* 5.42414	66.02	PK2	35.5	-39.3	0.64		62.86	-	-	74	-11.14	84	261	V
	* 5.42414	66.02	PK2	35.5	-39.3	0.64	-27.49	35.37	54	-18.63	-	-	84	261	V
21	6.32769	48.43	Pk	35.8	-38.2	0.53		46.56	-	-	-	-	0-360	100	V
22	7.2319	45.34	Pk	36.1	-37.8	0.5		44.14	-	-	-	-	0-360	200	V
23	* 8.13612	44.68	Pk	36	-36.8	0.48		44.36	-	-	74	-29.64	0-360	100	V
24	* 9.0395	41.17	Pk	36.5	-35.9	0.66		42.43	-	-	74	-31.57	0-360	200	V
25	9.94456	41.38	Pk	37.1	-35.5	0.63		43.61	-	-	-	-	0-360	100	V
26	* 11.75216	42.25	Pk	38.5	-33.9	0.7		47.55	-	-	74	-26.45	0-360	100	V
27	* 12.65631	45.51	PK2	39.4	-33.1	1.12		52.93	-	-	74	-21.07	47	121	V
	* 12.65631	45.51	PK2	39.4	-33.1	1.12	-27.49	25.44	54	-28.56	-	-	47	121	V
28	13.56059	47.2	Pk	39.4	-33.5	0.95		54.05	-	-	-	-	0-360	100	V
29	14.46481	40.77	Pk	40.1	-33.4	0.72		48.19	-	-	-	-	0-360	100	V
30	* 15.36903	40.2	Pk	40.8	-32.6	0.79		49.19	-	-	74	-24.81	0-360	100	V
31	16.27241	40.21	Pk	41.4	-31.6	0.83		50.84	-	-	-	-	0-360	100	V

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

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL RESULTS



RADIATED EMISSIONS

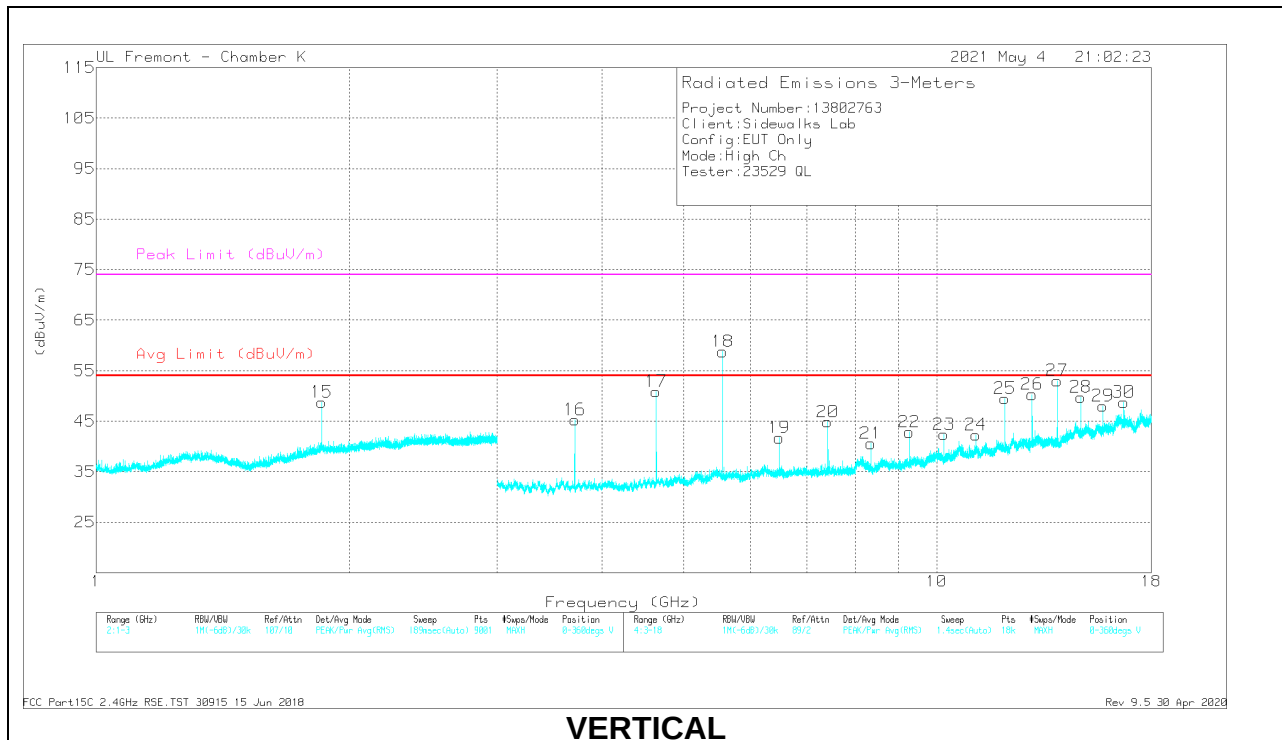
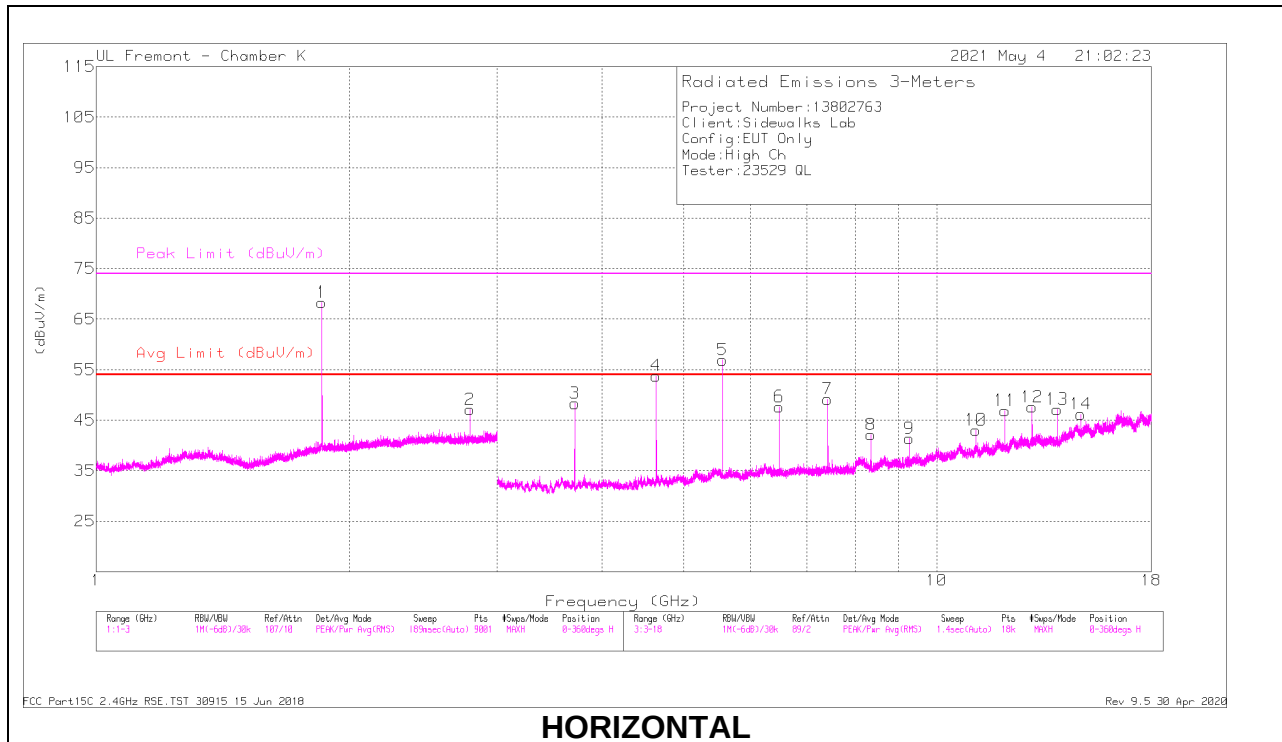
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pa d (dB)	Filter (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.83178	68.75	Pk	30.6	-35.8	0.56		64.11	-	-	-	-	0-360	100	H
2	* 2.74751	59.17	PK2	32.5	-33.4	0.75		59.02	-	-	74	-14.98	98	173	H
	* 2.74751	59.17	PK2	32.5	-33.4	0.75	-27.49	31.53	54	-22.47	-	-	98	173	H
15	1.83155	54.62	Pk	30.6	-35.8	0.56		49.98	-	-	-	-	0-360	100	V
16	* 2.74759	54.75	PK2	32.5	-33.4	0.75		54.6	-	-	74	-19.4	74	401	V
	* 2.74759	54.75	PK2	32.5	-33.4	0.75	-27.49	27.11	54	-26.89	-	-	74	401	V
3	* 3.6633	55.47	PK2	33.4	-40.7	0.52		48.69	-	-	74	-25.31	290	134	H
	* 3.6633	55.47	PK2	33.4	-40.7	0.52	-27.49	21.2	54	-32.8	-	-	290	134	H
4	* 4.57903	60.96	PK2	34.3	-40.8	0.42		54.88	-	-	74	-19.12	208	103	H
	* 4.57903	60.96	PK2	34.3	-40.8	0.42	-27.49	27.39	54	-26.61	-	-	208	103	H
5	5.49431	60.5	Pk	35.7	-39.4	0.64		57.44	-	-	-	-	0-360	100	H
6	6.41102	49.74	Pk	35.8	-38.5	0.53		47.57	-	-	-	-	0-360	100	H
7	* 7.3268	50.5	PK2	36.1	-37.3	0.5		49.8	-	-	74	-24.2	342	96	H
	* 7.3268	50.5	PK2	36.1	-37.3	0.5	-27.49	22.31	54	-31.69	-	-	342	96	H
8	* 8.24279	42.8	Pk	36	-36.7	0.48		42.58	-	-	74	-31.42	0-360	100	H
9	* 9.15868	39.68	Pk	36.5	-35.9	0.66		40.94	-	-	74	-33.06	0-360	100	H
10	* 11.9055	42.28	Pk	38.8	-34.1	0.7		47.68	-	-	74	-26.32	0-360	100	H
11	12.82138	41.93	Pk	39.4	-33.4	1.12		49.05	-	-	-	-	0-360	100	H
12	13.73727	43.94	Pk	39	-33.4	0.95		50.49	-	-	-	-	0-360	100	H
13	* 15.56904	37.83	Pk	40.9	-32.2	0.79		47.32	-	-	74	-26.68	0-360	100	H
14	16.48576	39.34	Pk	41.9	-31.9	0.83		50.17	-	-	-	-	0-360	100	H
17	* 3.66337	51.28	Pk	33.4	-40.7	0.52		44.5	-	-	74	-29.5	0-360	200	V
18	* 4.57903	62.27	PK2	34.3	-40.8	0.42		56.19	-	-	74	-17.81	237	355	V
	* 4.57903	62.27	PK2	34.3	-40.8	0.42	-27.49	28.7	54	-25.3	-	-	237	355	V
19	5.49431	62.76	Pk	35.7	-39.4	0.64		59.7	-	-	-	-	0-360	200	V
20	6.41102	44.76	Pk	35.8	-38.5	0.53		42.59	-	-	-	-	0-360	100	V
21	* 7.32691	44.43	Pk	36.1	-37.3	0.5		43.73	-	-	74	-30.27	0-360	100	V
22	* 8.24196	41.9	Pk	36	-36.7	0.48		41.68	-	-	74	-32.32	0-360	100	V
23	* 9.15868	41.87	Pk	36.5	-35.9	0.66		43.13	-	-	74	-30.87	0-360	200	V
24	10.07373	40.87	Pk	37.2	-35.7	0.63		43	-	-	-	-	0-360	100	V
25	* 10.98961	39.82	Pk	37.8	-34.9	0.72		43.44	-	-	74	-30.56	0-360	100	V
26	* 11.90551	48.24	PK2	38.8	-34.1	0.7		53.64	-	-	74	-20.36	164	108	V
	* 11.90551	48.24	PK2	38.8	-34.1	0.7	-27.49	26.15	54	-27.85	-	-	164	108	V
27	12.82222	43.81	Pk	39.4	-33.4	1.12		50.93	-	-	-	-	0-360	100	V
28	13.73727	48.48	Pk	39	-33.4	0.95		55.03	-	-	-	-	0-360	100	V
29	14.65399	40.78	Pk	40.6	-32.3	0.72		49.8	-	-	-	-	0-360	100	V
30	* 15.56962	46.24	PK2	40.9	-32.2	0.79		55.73	-	-	74	-18.27	320	103	V
	* 15.56962	46.24	PK2	40.9	-32.2	0.79	-27.49	28.24	54	-25.76	-	-	320	103	V
31	16.48576	40.13	Pk	41.9	-31.9	0.83		50.96	-	-	-	-	0-360	100	V

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

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pa d (dB)	Filter (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	1.85511	73.1	Pk	30.9	-35.7	0.56		68.86	-	-	-	-	0-360	100	H
2	* 2.7828	52.52	PK2	32.5	-33.3	0.75		52.47	-	-	74	-21.53	125	203	H
	* 2.7828	52.52	PK2	32.5	-33.3	0.75	-27.49	24.98	54	-29.02	-	-	125	203	H
15	1.85511	53.56	Pk	30.9	-35.7	0.56		49.32	-	-	-	-	0-360	200	V
3	* 3.71011	56.78	PK2	33.6	-40.9	0.52		50	-	-	74	-24	97	114	H
	* 3.71011	56.78	PK2	33.6	-40.9	0.52	-27.49	22.51	54	-31.49	-	-	97	114	H
4	* 4.63762	61.25	PK2	34.4	-40.7	0.42		55.37	-	-	74	-18.63	319	124	H
	* 4.63762	61.25	PK2	34.4	-40.7	0.42	-27.49	27.88	54	-26.12	-	-	319	124	H
5	5.56514	60.92	Pk	35.5	-39.5	0.64		57.56	-	-	-	-	0-360	200	H
6	6.4927	50.05	Pk	35.8	-38.2	0.53		48.18	-	-	-	-	0-360	100	H
7	* 7.42022	51.76	PK2	36.1	-37.2	0.5		51.16	-	-	74	-22.84	159	102	H
	* 7.42022	51.76	PK2	36.1	-37.2	0.5	-27.49	23.67	54	-30.33	-	-	159	102	H
8	* 8.3478	42.72	Pk	36.1	-36.7	0.48		42.6	-	-	74	-31.4	0-360	100	H
9	9.27535	40.87	Pk	36.6	-36.1	0.66		42.03	-	-	-	-	0-360	100	H
10	* 11.13046	40.53	Pk	37.8	-35.3	0.72		43.75	-	-	74	-30.25	0-360	100	H
11	* 12.05884	41.61	Pk	39	-33.7	0.7		47.61	-	-	74	-26.39	0-360	100	H
12	12.98639	41.2	Pk	39.6	-33.2	1.12		48.72	-	-	-	-	0-360	100	H
13	13.91311	41.83	Pk	39	-33.7	0.95		48.08	-	-	-	-	0-360	100	H
14	14.8415	38.99	Pk	40.7	-33.5	0.72		46.91	-	-	-	-	0-360	100	H
16	* 3.71004	52.59	Pk	33.6	-40.9	0.52		45.81	-	-	74	-28.19	0-360	200	V
17	* 4.63764	63.14	PK2	34.4	-40.7	0.42		57.26	-	-	74	-16.74	82	386	V
	* 4.63764	63.14	PK2	34.4	-40.7	0.42	-27.49	29.77	54	-24.23	-	-	82	386	V
18	5.56514	62.78	Pk	35.5	-39.5	0.64		59.42	-	-	-	-	0-360	200	V
19	6.4927	44.11	Pk	35.8	-38.2	0.53		42.24	-	-	-	-	0-360	100	V
20	* 7.42025	45.95	Pk	36.1	-37.2	0.5		45.35	-	-	74	-28.65	0-360	100	V
21	* 8.3478	41.19	Pk	36.1	-36.7	0.48		41.07	-	-	74	-32.93	0-360	100	V
22	9.27535	42.35	Pk	36.6	-36.1	0.66		43.51	-	-	-	-	0-360	200	V
23	10.2029	40.87	Pk	37.3	-35.8	0.63		43	-	-	-	-	0-360	100	V
24	* 11.13129	39.8	Pk	37.8	-35.3	0.72		43.02	-	-	74	-30.98	0-360	100	V
25	* 12.05855	47.69	PK2	39	-33.7	0.86		53.85	-	-	74	-20.15	347	98	V
	* 12.05855	47.69	PK2	39	-33.7	0.86	-27.49	26.36	54	-27.64	-	-	347	98	V
26	12.98639	43.9	Pk	39.6	-33.2	1.12		51.42	-	-	-	-	0-360	100	V
27	13.91311	47.73	Pk	39	-33.7	0.95		53.98	-	-	-	-	0-360	100	V
28	14.84066	42.55	Pk	40.7	-33.5	0.72		50.47	-	-	-	-	0-360	100	V
29	* 15.76807	45.39	PK2	40.8	-32	0.79		54.98	-	-	74	-19.02	139	102	V
	* 15.76807	45.39	PK2	40.8	-32	0.79	-27.49	27.49	54	-26.51	-	-	139	102	V
30	16.6966	38.28	Pk	42.3	-31.8	0.83		49.61	-	-	-	-	0-360	100	V

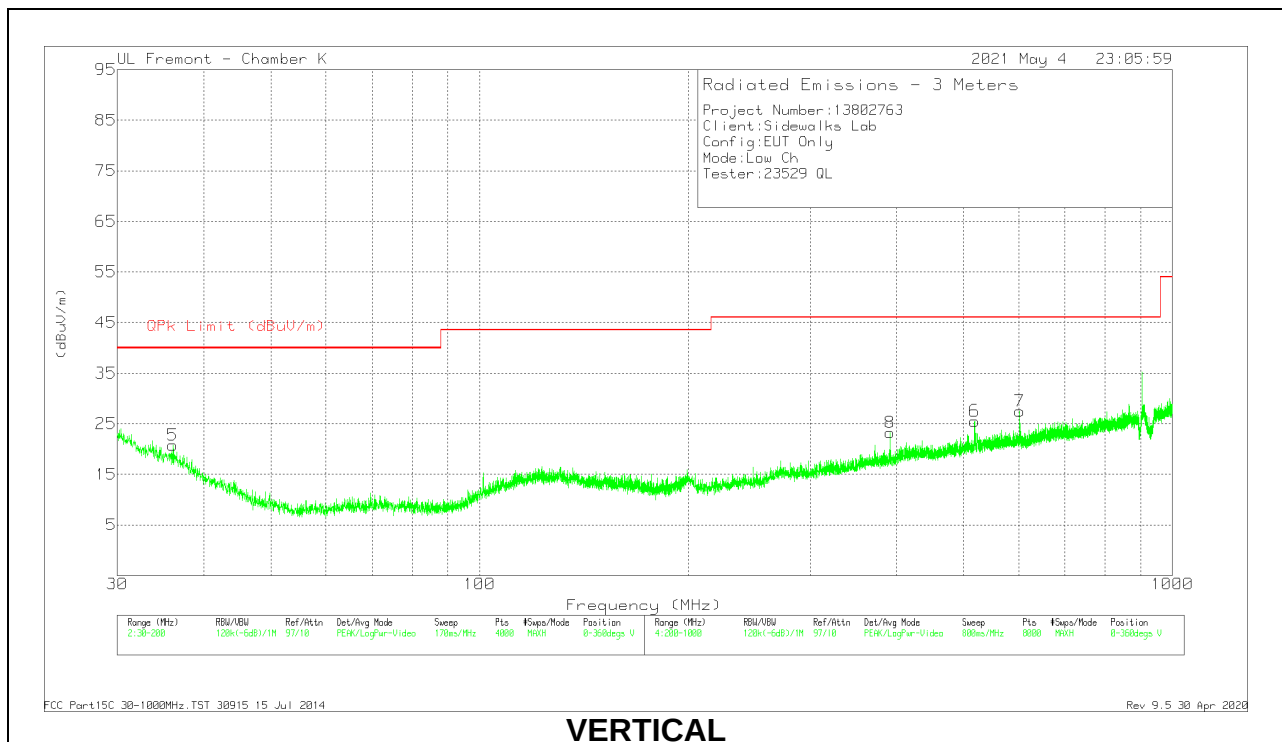
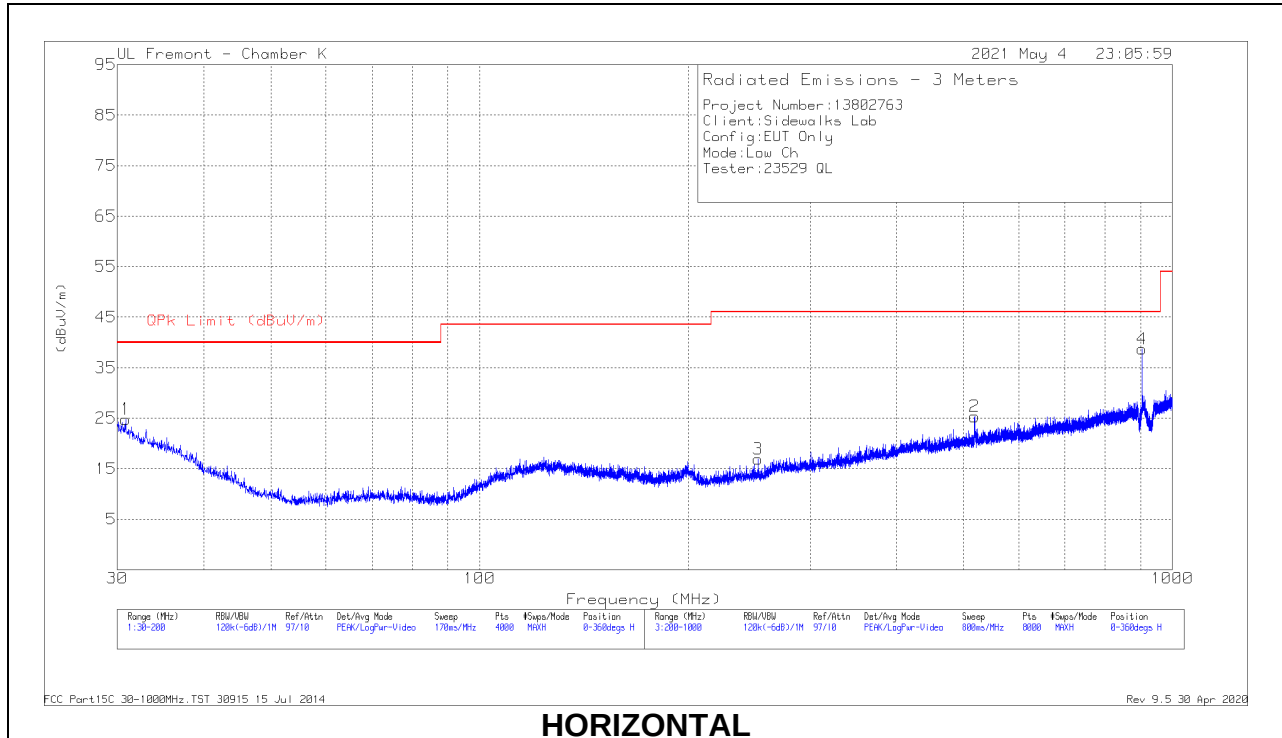
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

PK2 - KDB558074 Method: Maximum Peak

10.2. TRANSMITTER BELOW 1 GHz

LOW CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 81560 (dB/m)	Amp/Cbl (dB)	Filter (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.8186	28.84	Pk	27.3	-31.6	0.04	24.58	40	-15.42	335	345	H
	30.9802	21.49	Qp	27.2	-31.6	0.04	17.13	40	-22.87	335	345	H
5	36.0791	28.95	Pk	23.3	-31.5	0.04	20.79	40	-19.21	0-360	95	V
2	518.3414	30.64	Pk	24	-29.3	0.21	25.55	46.02	-20.47	0-360	99	H
3	* 252.5068	28.9	Pk	18	-30	0.13	17.03	46.02	-28.99	0-360	399	H
4**	904.0915	37.09	Pk	28.7	-27.1	-	38.69	-	-	0-360	99	H
6	518.3414	30.82	Pk	24	-29.3	0.21	25.73	46.02	-20.29	0-360	98	V
7	602.3523	31.27	Pk	25.2	-29	0.27	27.74	46.02	-18.28	0-360	98	V
8	391.2249	31.03	Pk	21.7	-29.5	0.22	23.45	46.02	-22.57	0-360	98	V

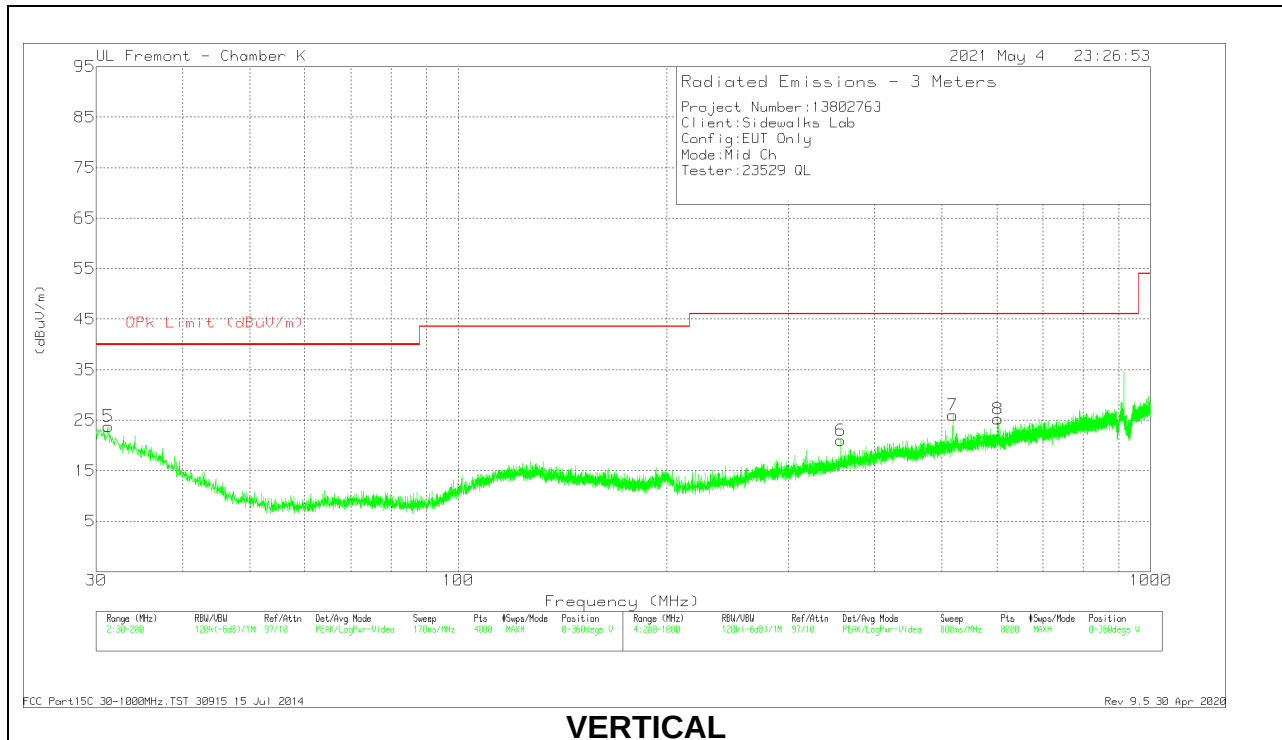
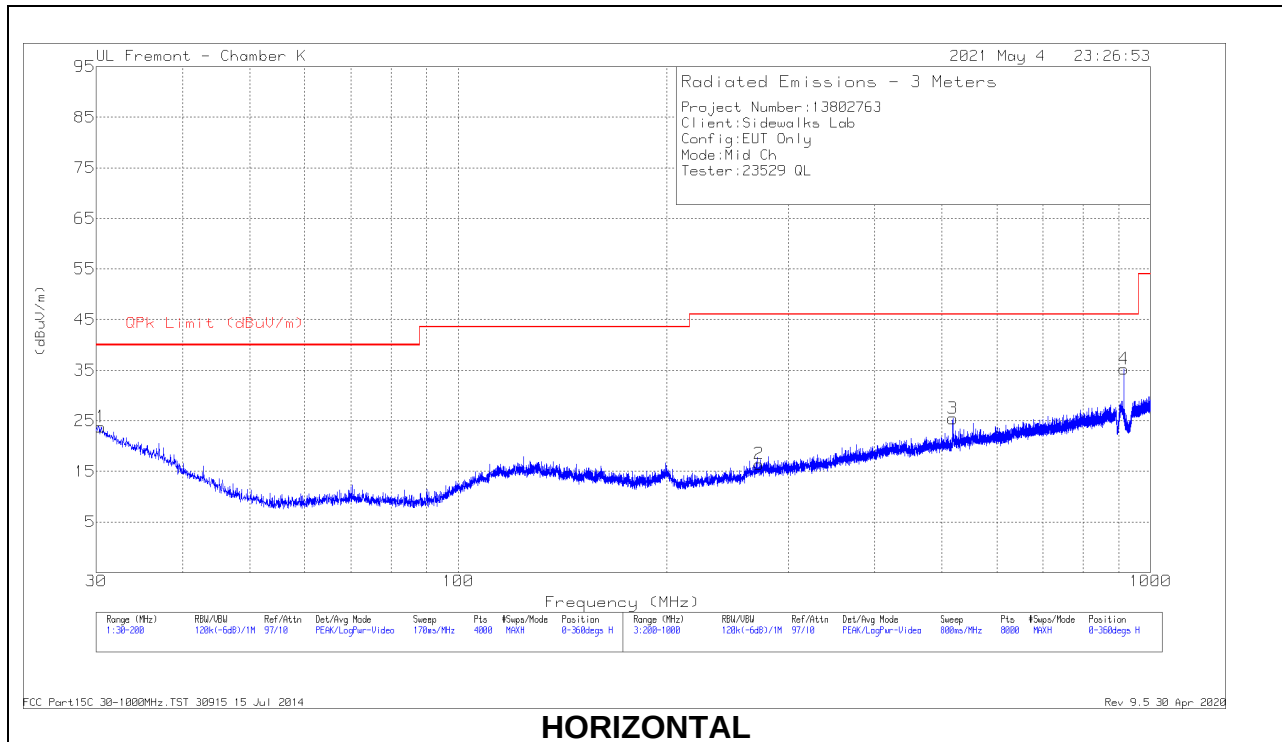
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

**Marker 4 is fundamental signal from EUT.

Pk - Peak detector

Qp - Quasi-Peak detector

MID CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 81560 (dB/m)	Amp/Cbl (dB)	Filter (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.4615	29.11	Pk	27.6	-31.6	0.04	25.15	40	-14.85	122	145	H
	30.6297	21.69	Qp	27.5	-31.6	0.04	17.63	40	-22.37	122	145	H
5	31.2328	28.36	Pk	27	-31.6	0.04	23.8	40	-16.2	0-360	95	V
2	* 272.2094	26.87	Pk	19.6	-30	0.13	16.6	46.02	-29.42	0-360	399	H
3	518.3414	30.75	Pk	24	-29.3	0.21	25.66	46.02	-20.36	0-360	199	H
4**	915.8931	33.53	Pk	28.8	-27.1	-	35.23	-	-	0-360	99	H
6	357.2204	29.31	Pk	21.3	-29.6	0.22	21.23	46.02	-24.79	0-360	199	V
7	518.3414	31.29	Pk	24	-29.3	0.21	26.2	46.02	-19.82	0-360	199	V
8	602.3523	29.04	Pk	25.2	-29	0.27	25.51	46.02	-20.51	0-360	99	V

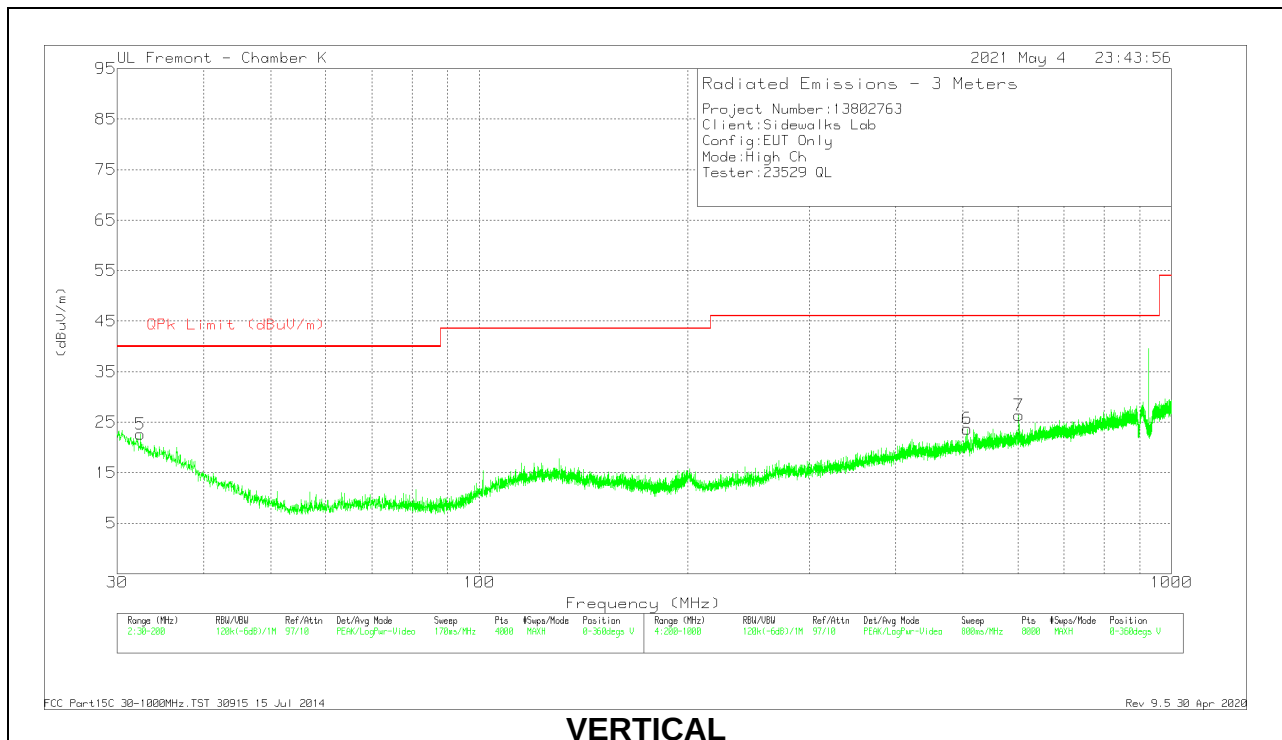
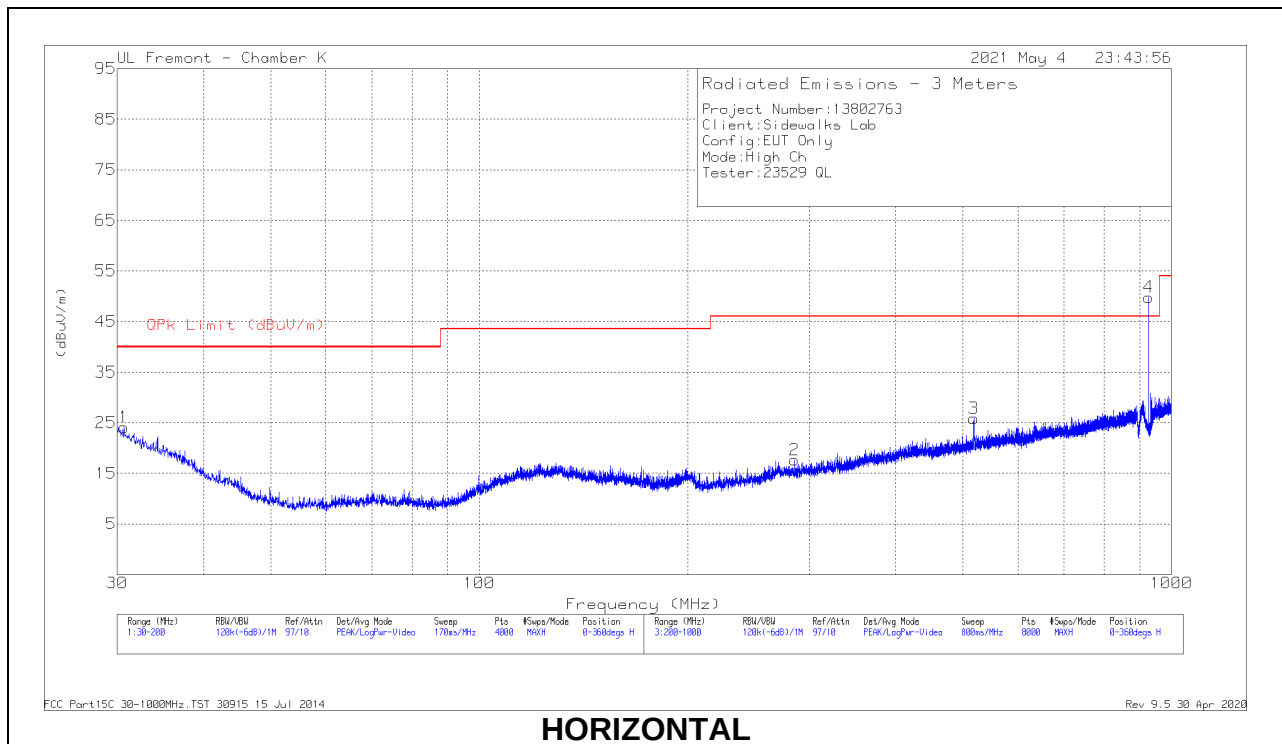
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

**Marker 4 is fundamental signal from EUT.

Pk - Peak detector

Qp - Quasi-Peak detector

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 81560 (dB/m)	Amp/Cbl (dB)	Filter (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.4544	29.22	Pk	27.6	-31.6	0.04	25.26	40	-14.74	212	110	H
	30.8677	21.56	Qp	27.3	-31.6	0.04	17.3	40	-22.7	212	110	H
5	32.4231	28.03	Pk	26.2	-31.6	0.04	22.67	40	-17.33	0-360	95	V
2	285.7111	27.93	Pk	19.6	-29.9	0.13	17.76	46.02	-28.26	0-360	99	H
3	518.3414	31.17	Pk	24	-29.3	0.21	26.08	46.02	-19.94	0-360	99	H
4**	927.5946	47.9	Pk	28.9	-27	-	49.8	-	-	0-360	99	H
6	506.9399	29.1	Pk	23.9	-29.3	0.21	23.91	46.02	-22.11	0-360	199	V
7	602.3523	30.14	Pk	25.2	-29	0.27	26.61	46.02	-19.41	0-360	99	V

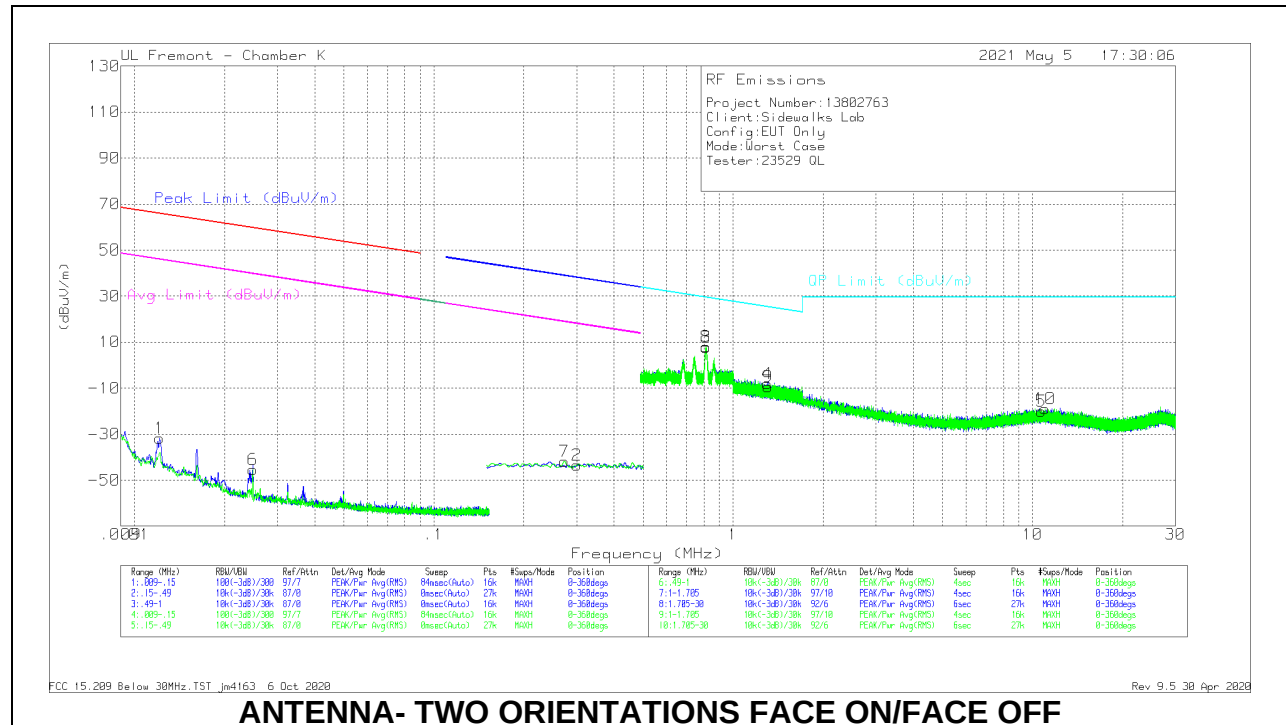
**Marker 4 is fundamental signal from EUT.

Pk - Peak detector

Qp - Quasi-Peak detector

10.3. WORST CASE BELOW 30MHZ

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (E ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01214	19.69	Pk	60	-31.5	-80	-31.81	65.9	-97.71	45.9	-77.71	0-360
2	.30017	12.44	Pk	56.2	-32.2	-80	-43.56	38.06	-81.62	18.06	-61.62	0-360
6	.02487	8.26	Pk	58.5	-32.1	-80	-45.34	59.67	-105.01	39.67	-85.01	0-360
7	.27319	14.09	Pk	56.2	-32.2	-80	-41.91	38.88	-80.79	18.88	-60.79	0-360

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (E ACF)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.81072	23.62	Pk	56.3	-32.2	-40	7.72	29.44	-21.72	0-360
8	.81144	23.9	Pk	56.3	-32.2	-40	8	29.43	-21.43	0-360
4	1.30404	18.71	Pk	45.3	-32.1	-40	-8.09	25.32	-33.41	0-360
5	10.69474	17.27	Pk	34.6	-31.8	-40	-19.93	29.5	-49.43	0-360
9	1.30901	17.34	Pk	45.3	-32.1	-40	-9.46	25.29	-34.75	0-360
10	11.02591	18.25	Pk	34.6	-31.8	-40	-18.95	29.5	-48.45	0-360

Pk - Peak detector