



FCC CFR 47 PART 15 SUBPART F §15.519

ISED RSS-220 ISSUE 1 AMENDMENT 1

CERTIFICATION TEST REPORT

FOR

SMART PHONE

MODEL NUMBERS: A2403, A2404, A2405

REPORT NUMBER: 13259310-E21V4

ISSUE DATE: SEPTEMBER 25, 2020

FCC ID: BCG-E3544A

IC: 579C-E3544A

Prepared for

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NVLAP LAB CODE 200065-0 (FREMONT)

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	08/20/2020	Initial Issue	Thu Chan
V2	09/11/2020	Addressed TCB's questions	Thu Chan
V3	09/15/2020	Addressed TCB's questions	Thu Chan
V4	09/25/2020	Section 5.1: Updated Information of Ant. UWB3 Section 5.5: Naming changed on Ant 2	Thu Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
ONE APPLE PARK WAY
CUPERTINO, CA 95014, USA

EUT DESCRIPTION: SMART PHONE

MODELS: A2403, A2404, A2405

SERIAL NUMBERS: G6TD203Y04HT
G6TCM01PQ5LL

DATE TESTED: JUNE 04 – AUGUST 04, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC §15 Subpart F	Complies
ISED RSS-220 Issue 1 Amendment 1	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
UL Verification Services Inc. By:

Tested By:



THU CHAN
STAFF ENGINEER
UL Verification Services Inc.



GIA-PIAO CHIN
TEST ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with CFR Title 47 Part 15 Subpart F, KDB 393764 D01 UWB FAQ v02, ISED RSS-220 Issue 1 Amendment 1 and ANSI C63.10-2013 and RSS GEN Issue 5.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA and at 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies the locations of the facilities that were utilized for radiated emission measurements documented in this report. The specific facilities used are identified in the test results sections.

47173 Benicia Street ISED 2324A	47266 Benicia Street ISED 22541	47658 Kato Rd ISED 2324B
☐ Chamber A	☒ Chamber D	☐ Chamber I
☐ Chamber B	☐ Chamber E	☐ Chamber J
☐ Chamber C	☒ Chamber F	☐ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313 and covered under ISED Canada company numbers 2324A, 2324B and 22541 as listed in the table.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. 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.

4.2. 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.)

4.3. 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	3.39 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

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

5. INTRODUCTION OF TEST DATA REUSE

5.1. DESCRIPTION OF EUT

The EUT is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC and WPT. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

This test report addresses the UWB operational mode.

The EUT has a UWB transceiver with four integral antennas (ANT 0 = UWB1, ANT 1 = UWB2, ANT 2 = ANT6/shared UWB & UWB3) and operates on 6.5 GHz (Channel 5) and 8 GHz (Channel 9). The antennas are not user accessible and UWB3 is disable on device. Six signal configurations (CONFIG 0,1,2,3,4 & 5) are available for each ANT/CH setting.

ANT	CH	CONFIG
0	5	0
0	5	1
0	5	2
0	5	3
0	5	4
0	5	5
0	9	0
0	9	1
0	9	2
0	9	3
0	9	4
0	9	5
1	5	0
1	5	1
1	5	2
1	5	3
1	5	4
1	5	5
1	9	0
1	9	1
1	9	2
1	9	3
1	9	4
1	9	5
2	5	0
2	5	1
2	5	2
2	5	3
2	5	4
2	5	5
2	9	0
2	9	1
2	9	2
2	9	3
2	9	4
2	9	5

5.2. INTRODUCTION

This application for certification is leveraging the data reuse procedures from KDB 484596 D01 based on reference FCC ID BCG-E3542A & IC: 579C-E3542A to cover variant model BCG-E3544A & IC: 579C-E3544A. The major difference between the parent/reference model and the variant model is the depopulation in the variant model of the mmWave transmitter. All other circuitry and features are identical. The data reuse test plan was approved via manufacturer KDB inquiry.

5.3. INFORMATION OF PARENT MODEL

FCC ID BCG-E3542A
IC: 579C-E3542A
Report No.: 13179116-E21V2

5.4. DIFFERENCE IN MODEL NUMBERS

Models A2403, A2404 and A2405 (FCC ID: BCG-E3544A & IC: 579C-E3544A) are electrically identical are allocated for marketing and logistic purposes only. A2403 was used to perform spot check testing described in this report.

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

Three integral antennas are employed and the antenna gains are listed as follow:

CH	Freq. Band (GHz)	Gain (dBi)		
		ANT 0 (UWB1)	ANT 1 (UWB2)	ANT 2 (ANT6/shared UWB)
5	6.5	-2.1	-2.8	-2.1
9	8.0	0.2	0.7	-1.9

5.6. MODULATION

The UWB signal is BPSK pulsed modulated signal.

5.7. SOFTWARE AND FIRMWARE

The Software and Firmware version used at test is 18A23120m.

5.8. SPOT CHECK VERIFICATIONS

Spot check verifications have been performed on device model A2403 for in-band Peak Power and Maximum Average Emissions on all the configurations listed on Section 5.1 operating at the same production power settings as model A2172. For the verification of unwanted emissions from 9 kHz to 40 GHz, Config 3, Payload 125 of both CH5 and CH9 on Ant 2 were selected to test, using a higher power than production power to ensure compliance.

Tabulated data provides the test results of all available test configurations. The plots of Ant 0, CONFIG 0, Payload 125 power measurement on CH5 and CH9 are presented and same measurement settings apply to the rest of test configurations.

The differences between the spot check measurements on this variant model compared to the measurements for the parent model were within expected tolerances, and therefore, the test data for the parent model is submitted to demonstrate compliance for the variant model. The parent model data is included in this report, starting at Section 8.

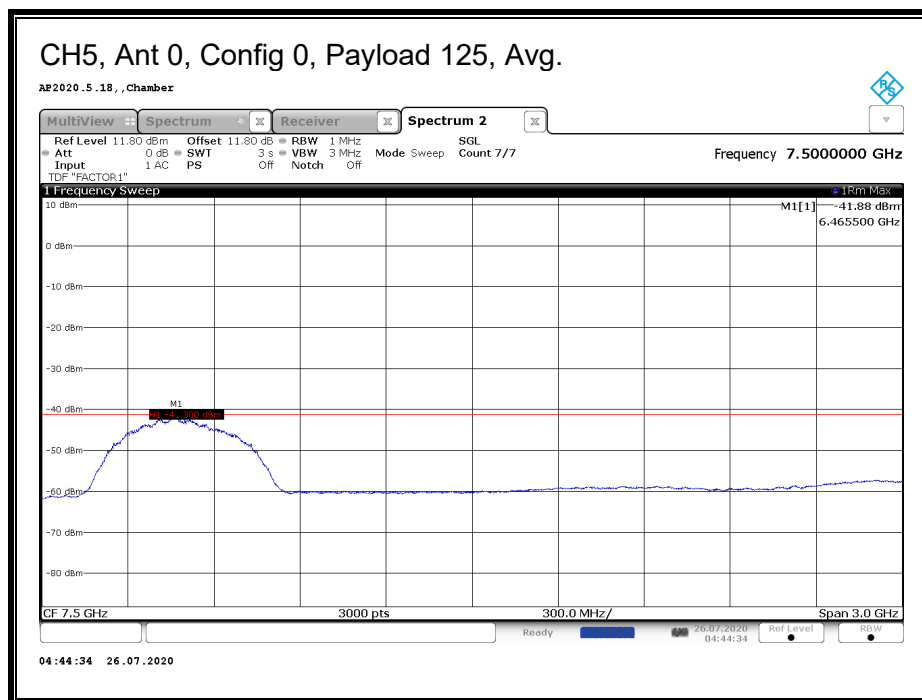
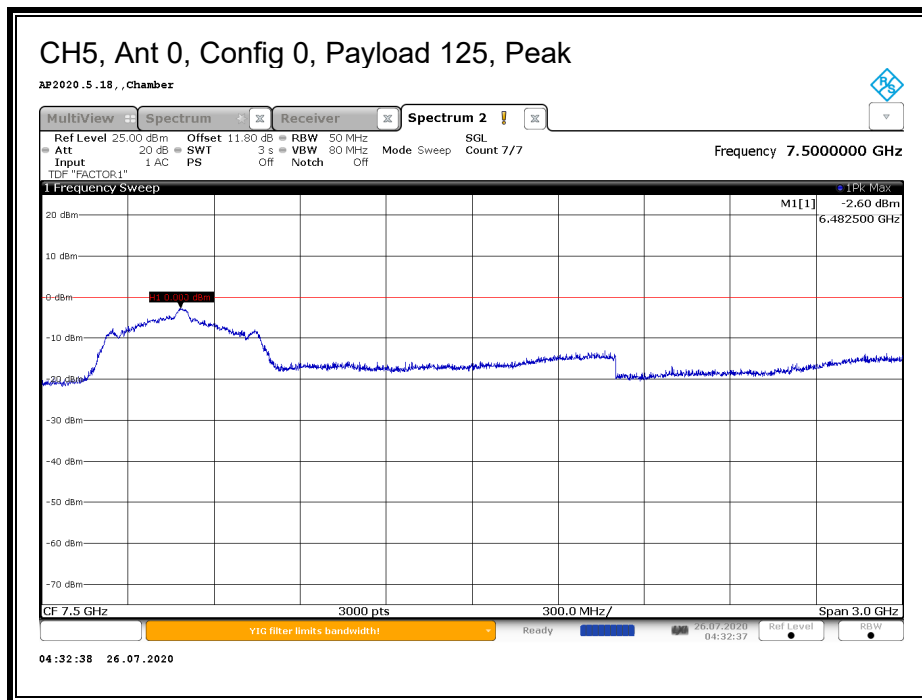
5.8.1. PEAK POWER AND MAXIMUM AVERAGE EMISSIONS

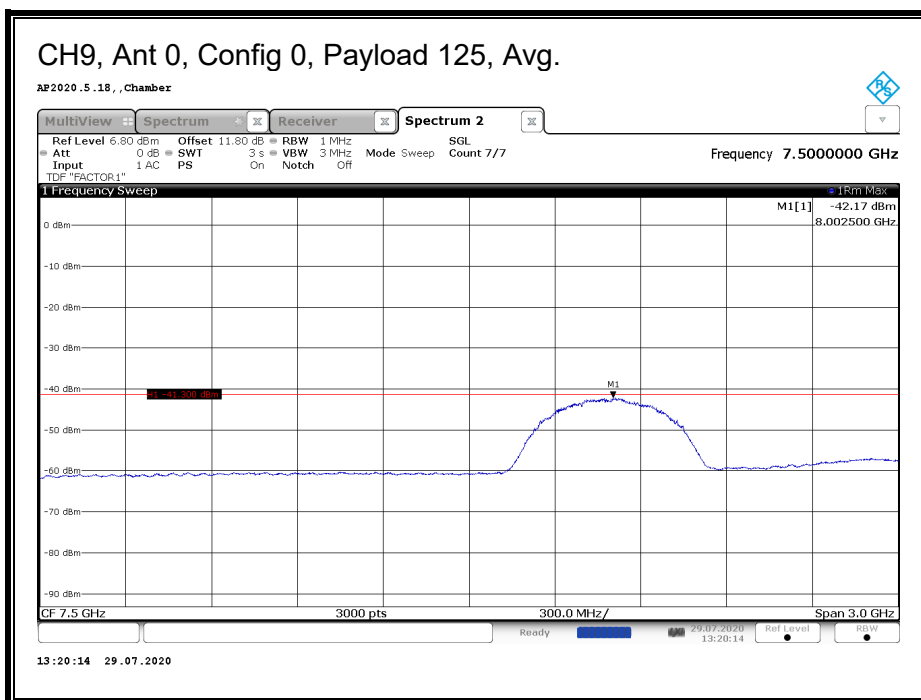
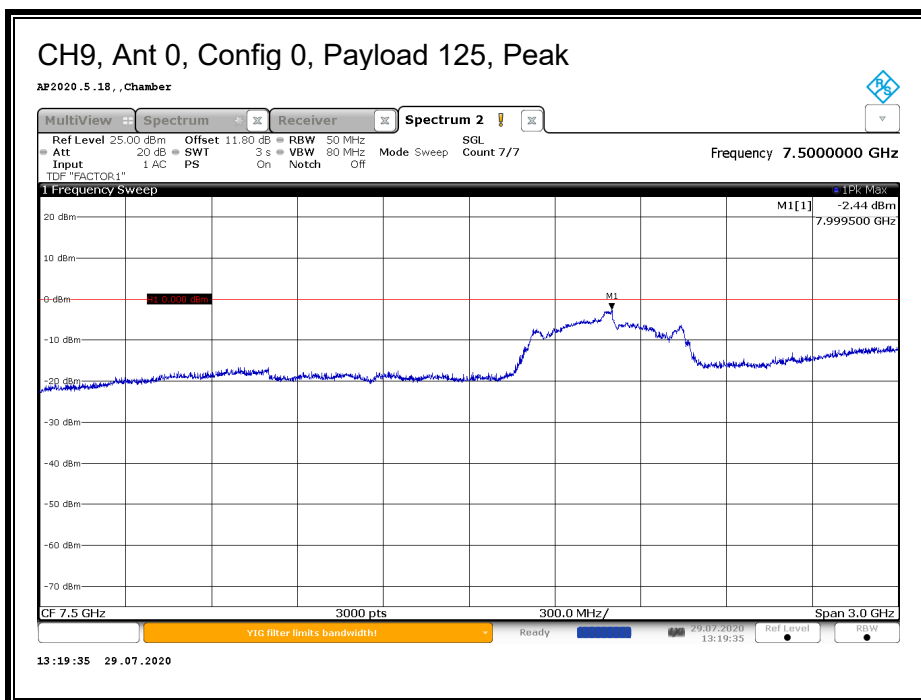
RESULTS

Tested By: 19419, 12501, 12485, 12472, 20737

ANT	CH	CONFIG	Payload	EUT Orientation	Meas. Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Peak Power (dBm/50MHz)	Peak Limit (0 dBm/50 MHz)	Margin (dB)	FM (GHz)	Avg Power (dBm/MHz)	Avg Limit (dBm/MHz)	Margin (dB)
0	5	0	125	Portrait	H	6.4825	-2.60	0	-2.60	6.4655	-41.88	-41.3	-0.58
0	5	1	125	Portrait	H	6.4895	-2.26	0	-2.26	6.4655	-42.21	-41.3	-0.91
0	5	2	125	Portrait	H	6.48885	-6.10	0	-6.10	6.4655	-42.01	-41.3	-0.71
0	5	3	125	Portrait	H	6.4905	-5.65	0	-5.65	6.4645	-41.92	-41.3	-0.62
0	5	4	0	Portrait	H	6.7475	-7.64	0	-7.64	6.4695	-42.23	-41.3	-0.93
0	5	5	0	Portrait	H	6.4905	-5.91	0	-5.91	6.4615	-42.50	-41.3	-1.20
0	9	0	125	Portrait	H	7.9995	-2.44	0	-2.44	8.0025	-42.17	-41.3	-0.87
0	9	1	125	Portrait	H	7.9985	-1.97	0	-1.97	8.0115	-42.16	-41.3	-0.86
0	9	2	125	Portrait	H	7.9915	-5.1	0	-5.10	8.1005	-41.82	-41.3	-0.52
0	9	3	125	Portrait	H	7.9915	-5.18	0	-5.18	8.0255	-42.26	-41.3	-0.96
0	9	4	0	Portrait	H	8.2395	-6.46	0	-6.46	8.0285	-41.82	-41.3	-0.52
0	9	5	0	Portrait	H	8.2405	-4.75	0	-4.75	8.0285	-42.32	-41.3	-1.02
1	5	0	125	Portrait	H	6.4875	-3.75	0	-3.75	6.4505	-42.18	-41.3	-0.88
1	5	1	125	Portrait	H	6.4795	-2.96	0	-2.96	6.4505	-42.20	-41.3	-0.90
1	5	2	125	Portrait	H	6.4855	-7.21	0	-7.21	6.4575	-42.50	-41.3	-1.20
1	5	3	125	Portrait	H	6.4925	-6.42	0	-6.42	6.4515	-41.62	-41.3	-0.32
1	5	4	0	Portrait	H	6.4315	-8.41	0	-8.41	6.4475	-42.70	-41.3	-1.40
1	5	5	0	Portrait	H	6.4265	-6.94	0	-6.94	6.4495	-42.81	-41.3	-1.51
1	9	0	125	Portrait	H	7.9955	-2.96	0	-2.96	7.9045	-42.11	-41.3	-0.81
1	9	1	125	Portrait	H	7.9865	-2.65	0	-2.65	8.0125	-42.58	-41.3	-1.28
1	9	2	125	Portrait	H	7.9925	-5.86	0	-5.86	7.8635	-42.12	-41.3	-0.82
1	9	3	125	Portrait	H	8.0005	-5.97	0	-5.97	7.8635	-42.38	-41.3	-1.08
1	9	4	0	Portrait	H	7.7385	-5.55	0	-5.55	8.0285	-42.36	-41.3	-1.06
1	9	5	0	Portrait	H	7.7365	-3.50	0	-3.50	8.8015	-42.29	-41.3	-0.99
2	5	0	125	Flatbed	H	6.7405	-3.43	0	-3.43	6.6725	-42.94	-41.3	-1.64
2	5	1	125	Flatbed	H	6.7365	-2.66	0	-2.66	6.6725	-42.80	-41.3	-1.50
2	5	2	125	Flatbed	H	6.4925	-7.58	0	-7.58	6.6765	-42.24	-41.3	-0.94
2	5	3	125	Flatbed	H	6.4905	-7.39	0	-7.39	6.6785	-42.21	-41.3	-0.91
2	5	4	0	Flatbed	H	6.7385	-3.66	0	-3.66	6.6685	-42.72	-41.3	-1.42
2	5	5	0	Flatbed	H	6.7425	-1.53	0	-1.53	6.6725	-42.63	-41.3	-1.33
2	9	0	125	Landscape	H	7.9895	-5.36	0	-5.36	8.0265	-44.53	-41.3	-3.23
2	9	1	125	Landscape	H	7.9935	-4.97	0	-4.97	8.0255	-44.53	-41.3	-3.23
2	9	2	125	Landscape	H	7.9925	-8.12	0	-8.12	8.0265	-44.13	-41.3	-2.83
2	9	3	125	Landscape	H	7.9885	-8.08	0	-8.08	8.0255	-44.72	-41.3	-3.42
2	9	4	0	Landscape	H	8.2375	-6.54	0	-6.54	8.0295	-44.51	-41.3	-3.21
2	9	5	0	Landscape	H	8.2365	-5.11	0	-5.11	8.0275	-44.36	-41.3	-3.06

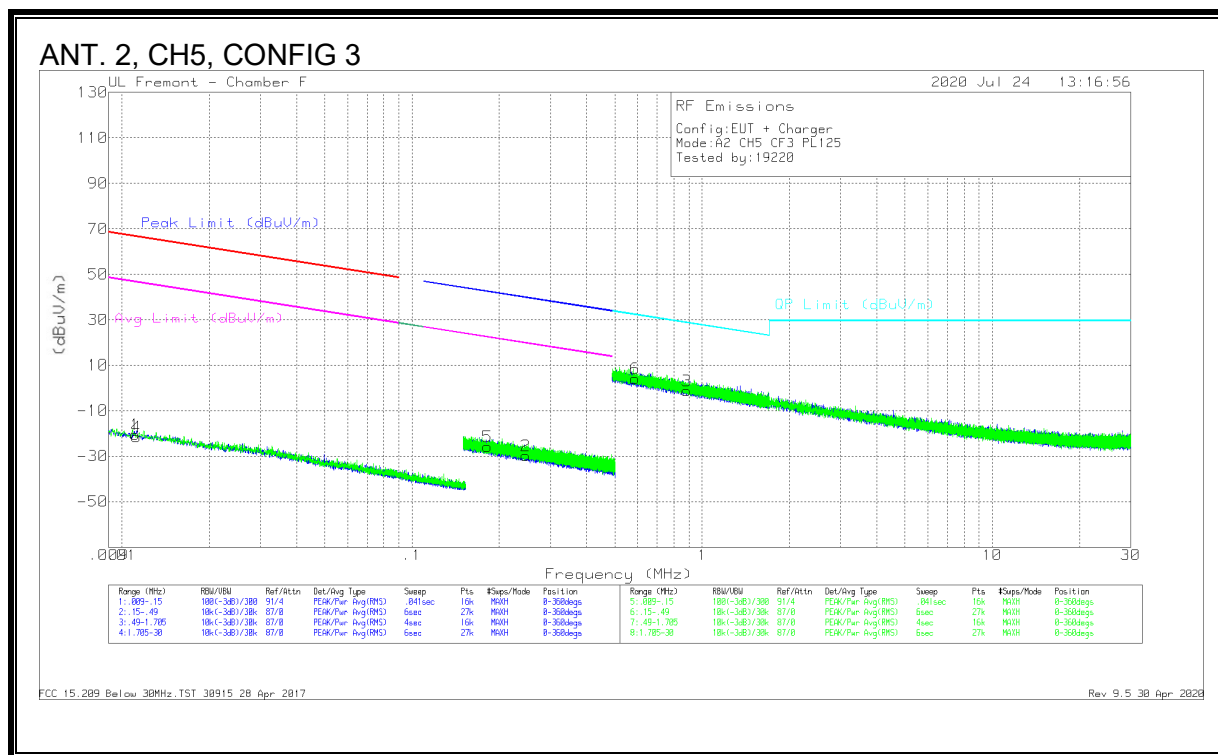
RESULTS





5.8.2. EMISSIONS BELOW 960 MHz

5.8.2.1. EMISSIONS, 9 kHz – 30 MHz



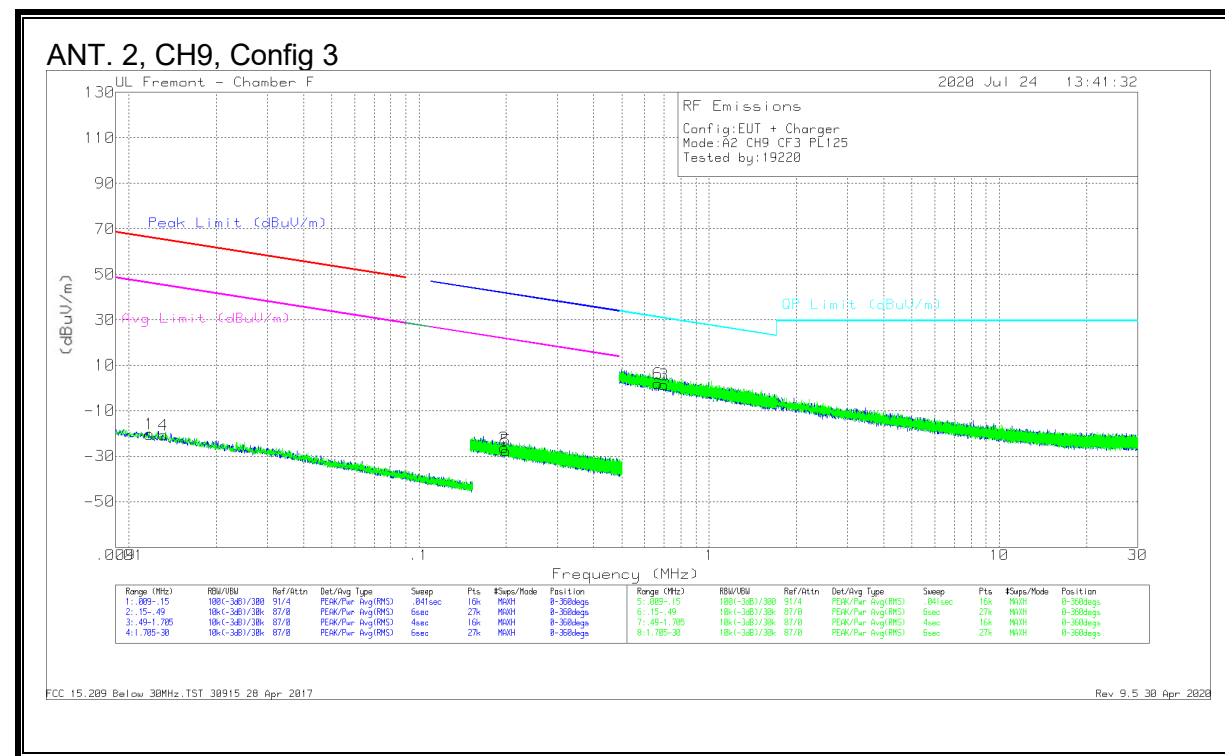
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01112	40.96	Pk	18.6	0	-80	-20.44	66.66	-87.1	46.66	-67.1	-	-	-	-	0-360
2	24669	39.18	Pk	11	-1	-80	-29.72	-	-	39.77	-69.49	-	-	19.77	-49.49	0-360
4	.01123	40.03	Pk	18.5	0	-80	-21.47	66.58	-88.05	46.58	-68.05	-	-	-	-	0-360
5	.18208	43.05	Pk	11.1	-1	-80	-25.75	-	-	-	-	42.41	-68.16	22.41	-48.16	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.88482	27.73	Pk	11	.1	-40	-1.17	28.68	-29.85	0-360
6	.58743	32.98	Pk	11	.1	-40	4.08	32.23	-28.15	0-360

Pk - Peak detector



Trace Markers

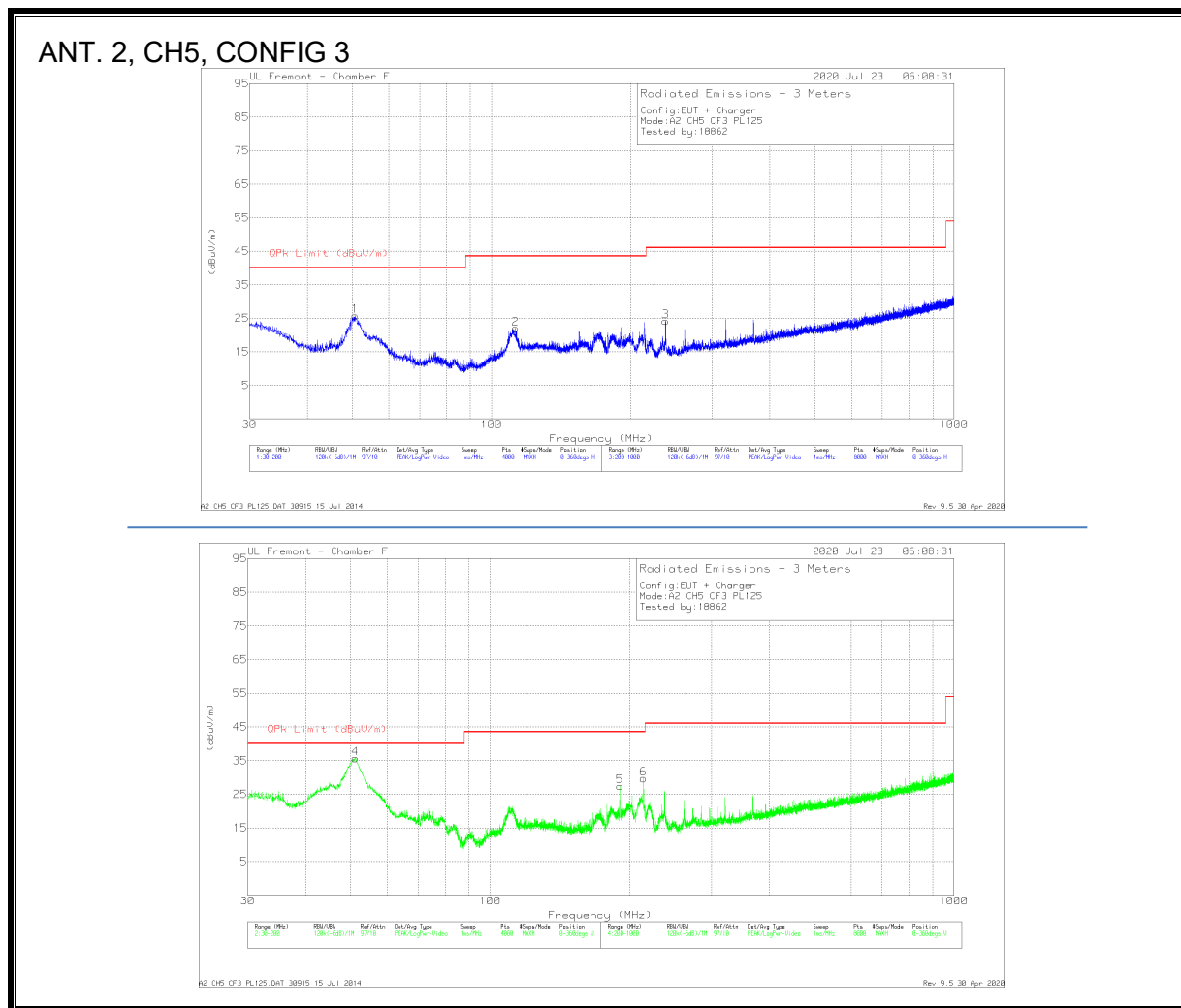
Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01178	41.41	Pk	18.3	0	-80	-20.29	66.16	-86.45	46.16	-66.45	-	-	41.74	-68.11	-
2	.19658	42.53	Pk	11	.1	-80	-26.57	-	-	-	-	-	-	-	-	-
4	.01317	41.49	Pk	17.7	0	-80	-20.81	65.2	-86.01	45.2	-66.01	-	-	-	-	-
5	.19956	41.4	Pk	11	.1	-80	-27.5	-	-	-	-	41.62	-69.12	21.62	-49.12	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.6987	30.27	Pk	11	.1	-40	1.37	30.73	-29.36	0-360
6	.66586	30.93	Pk	11	.1	-40	2.03	31.14	-29.11	0-360

Pk - Peak detector

5.8.2.2. EMISSIONS, 30 - 960 MHz



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
1	50.7454	43.18	Pk	14.2	-31.6	25.78	40	-14.22	0-360	401	H
2	112.8114	33.95	Pk	19.1	-31.1	21.95	43.52	-21.57	0-360	301	H
4	51.1705	53.2	Pk	14.1	-31.6	35.7	40	-4.3	0-360	100	V
5	190.309	40.28	Pk	17.7	-30.6	27.38	43.52	-16.14	0-360	100	V
3	237.9049	36.35	Pk	18	-30.2	24.15	46.02	-21.87	0-360	99	H
6	214.1018	42.98	Pk	17.1	-30.4	29.68	43.52	-13.84	0-360	99	V

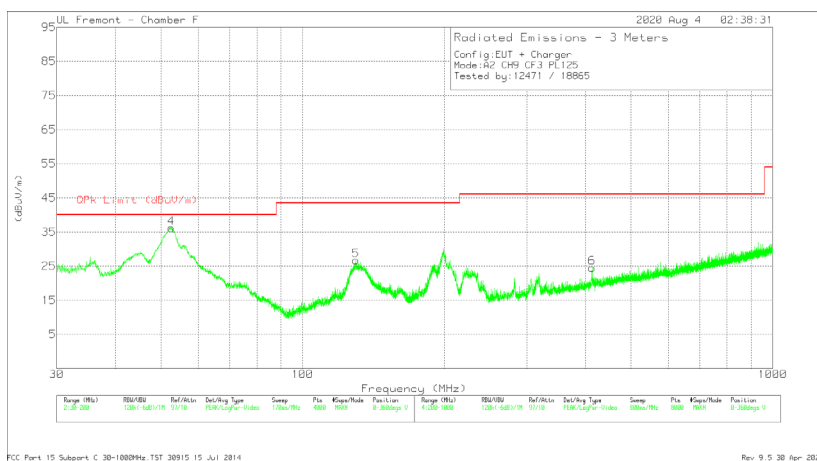
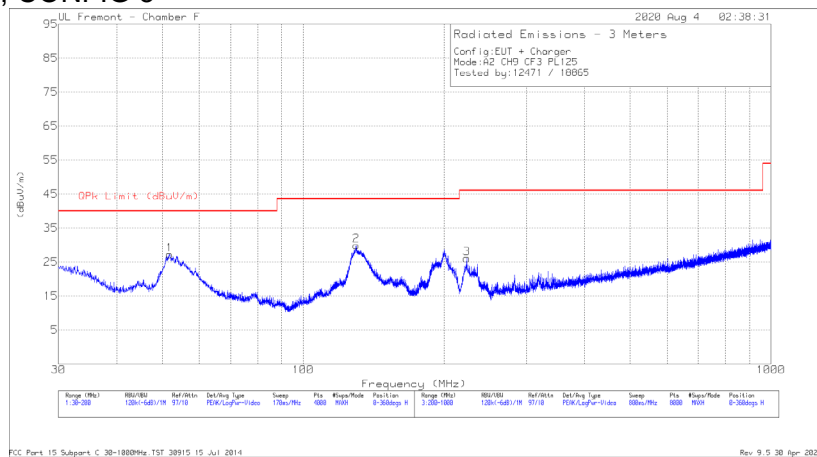
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
4	51.1561	48.15	Qp	14.1	-31.6	30.65	40	-9.35	23	106	V

Qp - Quasi-Peak detector

ANT. 2, CH9, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.8081	44.89	Pk	13.9	-31.6	27.19	40	-12.81	0-360	401	H
2	129.9859	40.8	Pk	20.1	-31	29.9	43.52	-13.62	0-360	201	H
4	52.5733	54.09	Pk	13.8	-31.7	36.19	40	-3.81	0-360	100	V
5	129.8583	37.6	Pk	20.1	-31	26.7	43.52	-16.82	0-360	100	V
3	223.9031	38.96	Pk	17.4	-30.3	26.06	46.02	-19.96	0-360	99	H
6	412.8277	31.44	Pk	22.5	-29.4	24.54	46.02	-21.48	0-360	99	V

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	52.5641	48.58	Qp	14.1	-31.6	31.08	40	-8.92	19	112	V

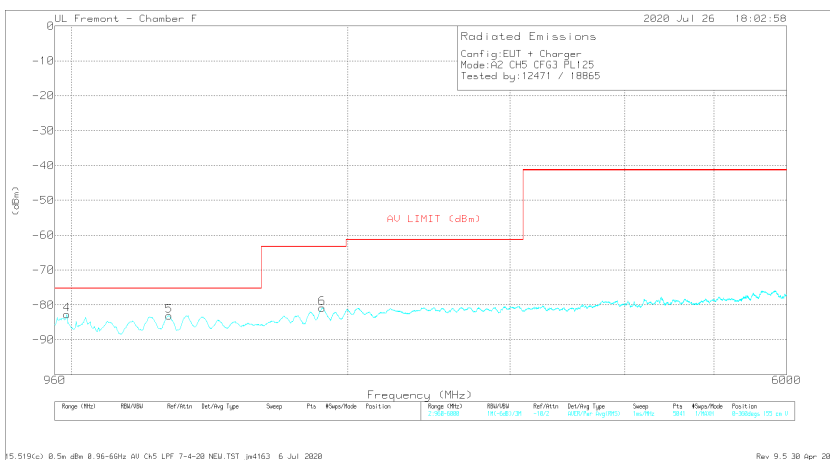
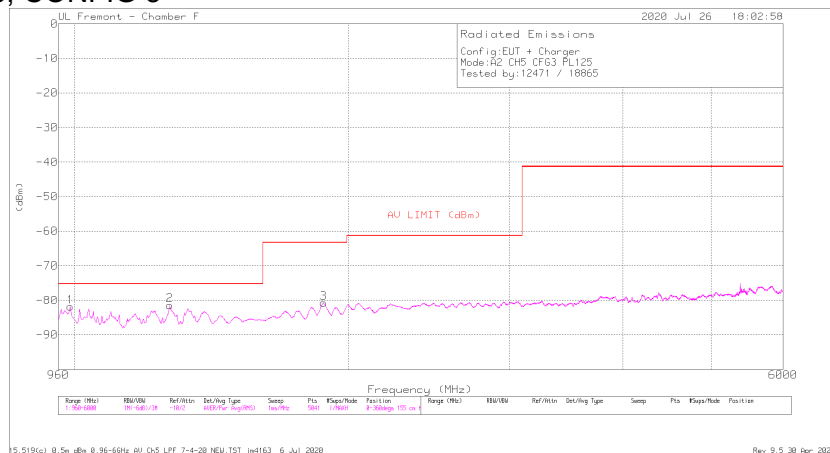
Qp - Quasi-Peak detector

5.8.3. EMISSIONS ABOVE 960 MHz

5.8.3.1. AVERAGE EMISSIONS, 0.96 – 6 GHz

5.8.3.1.1. FCC15.519 (C)

ANT. 2, CH5, CONFIG 3



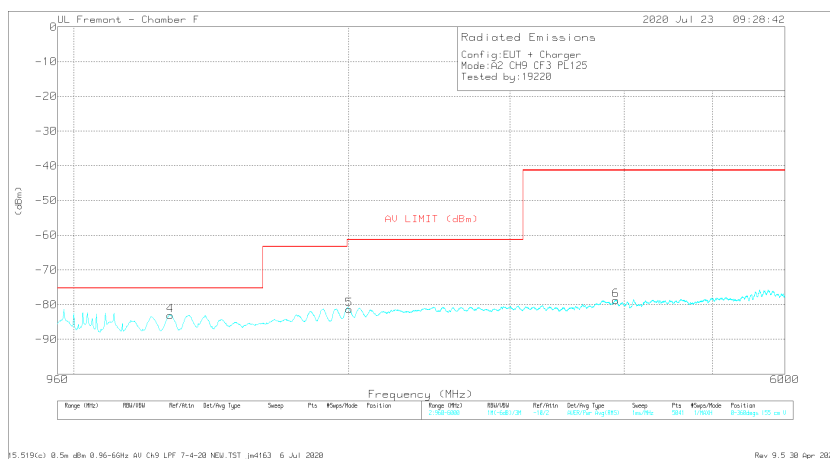
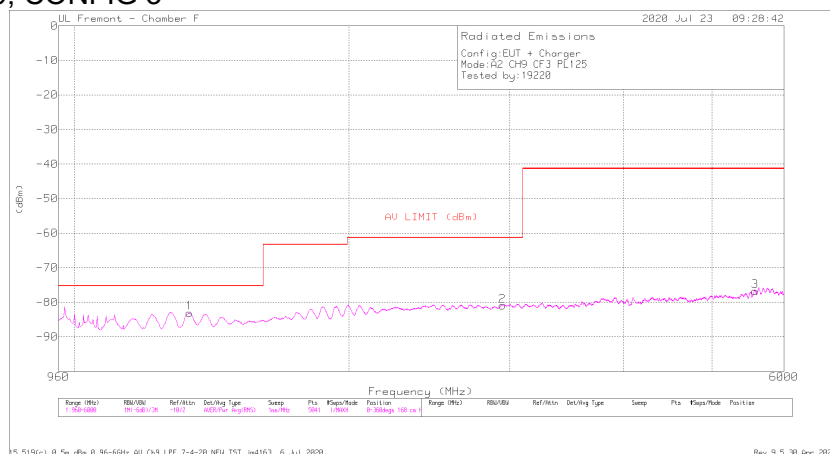
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH5_LPF (dB)	EIRP (dBm)	FCC15.519(c) EIRP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	990	-60.95	RMS	27.8	-45.1	-15.6	11.8	.2	-81.85	-75.3	-6.55	119	155	H
2	1273	-61.41	RMS	29	-45.3	-15.6	11.8	.1	-81.41	-75.3	-6.11	97	155	H
3	1878	-62.96	RMS	30.7	-45	-15.6	11.8	.3	-80.76	-63.3	-17.46	119	155	H
4	990	-61.8	RMS	27.8	-45.1	-15.6	11.8	.2	-82.7	-75.3	-7.4	110	155	V
5	1278	-63.11	RMS	29.1	-45.4	-15.6	11.8	.1	-83.11	-75.3	-7.81	242	155	V
6	1875	-63.04	RMS	30.8	-45.1	-15.6	11.8	.3	-80.84	-63.3	-17.54	176	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH5 fundamental signal.

ANT. 2, CH9, CONFIG 3



Trace Markers

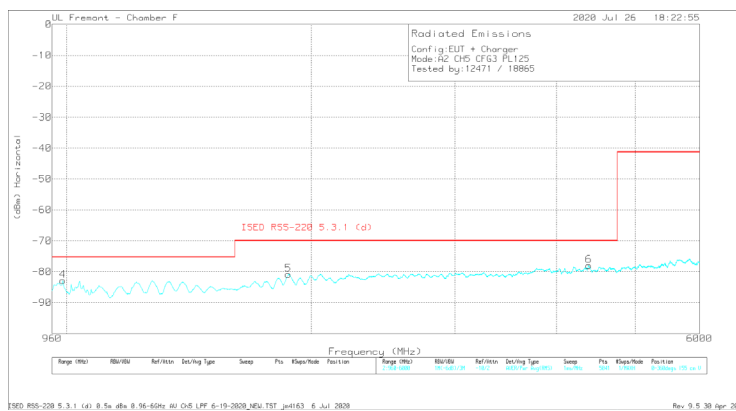
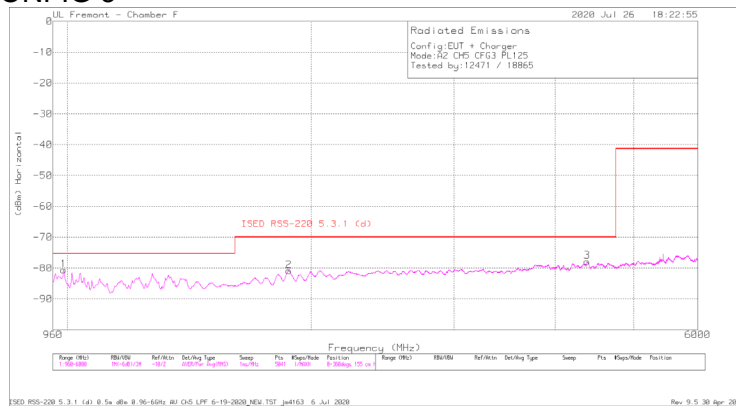
Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH9_LPF (dB)	EIRP (dBm)	FCC15.519(c) EIRP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1337	-63.03	RMS	29	-45.3	-15.6	11.8	.1	-83.03	-75.3	-7.73	96	168	H
2	2947	-65.85	RMS	32.6	-44.1	-15.6	11.8	.2	-80.95	-61.3	-19.65	185	168	H
3	5578	-67.78	RMS	34.8	-41.9	-15.6	11.8	1.9	-76.78	-41.3	-35.48	339	168	H
4	1275	-63.06	RMS	29	-45.3	-15.6	11.8	.1	-83.06	-75.3	-7.76	1	155	V
5	2002	-63.73	RMS	31.3	-45.4	-15.6	11.8	.3	-81.33	-61.3	-20.03	176	155	V
6	3919	-66.2	RMS	33.7	-43	-15.6	11.8	.6	-78.7	-41.3	-37.4	242	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH9 fundamental signal.

5.8.3.1.2. RSS-220 5.3.1 (d)

ANT. 2, CH5, CONFIG 3



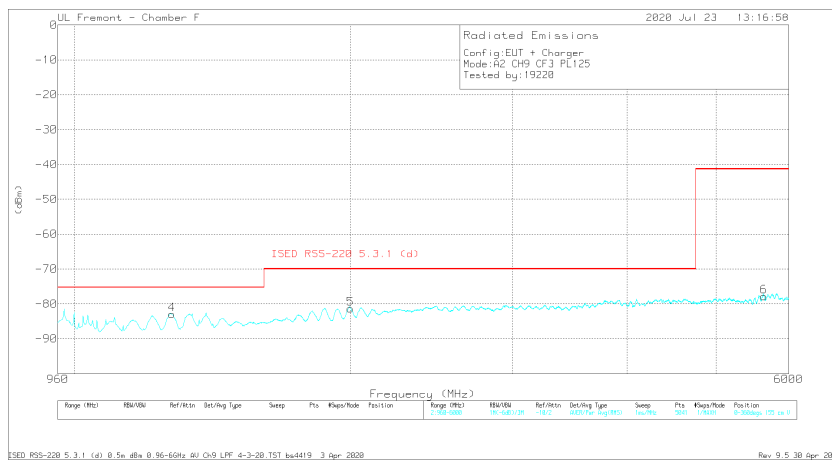
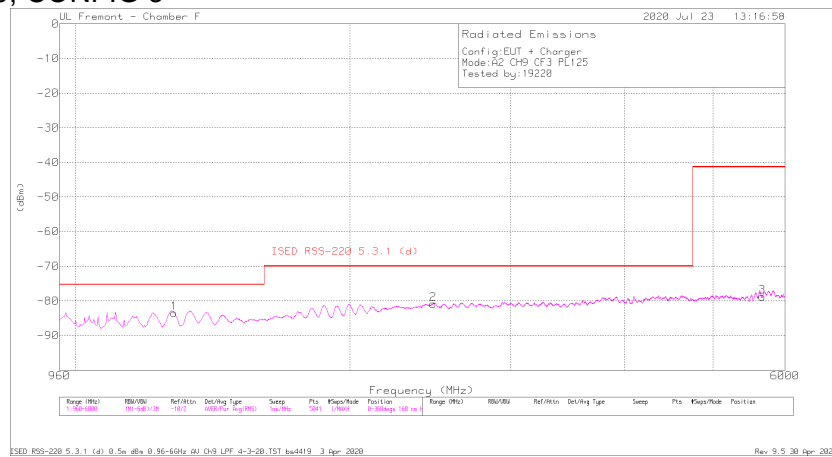
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH5_LPF (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (d)	Margin (dB)	Azimuth (Degree)	Height (cm)	Polarity
1	990	-59.75	RMS	27.8	-45.1	-15.6	11.8	.2	-80.65	-75.3	-5.35	87	155	H
2	1876.5	-63.15	RMS	30.8	-45	-15.6	11.8	.3	-80.85	-70	-10.85	44	155	H
3	4380	-64.9	RMS	33.9	-43.3	-15.6	11.8	.3	-77.8	-70	-7.8	220	155	H
4	990	-61.92	RMS	27.8	-45.1	-15.6	11.8	.2	-82.82	-75.3	-7.52	97	155	V
5	1874	-63.07	RMS	30.8	-45.1	-15.6	11.8	.3	-80.87	-70	-10.87	273	155	V
6	4383	-65.14	RMS	33.9	-43.2	-15.6	11.8	.3	-77.94	-70	-7.94	294	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH5 fundamental signal.

ANT. 2, CH9, CONFIG 3



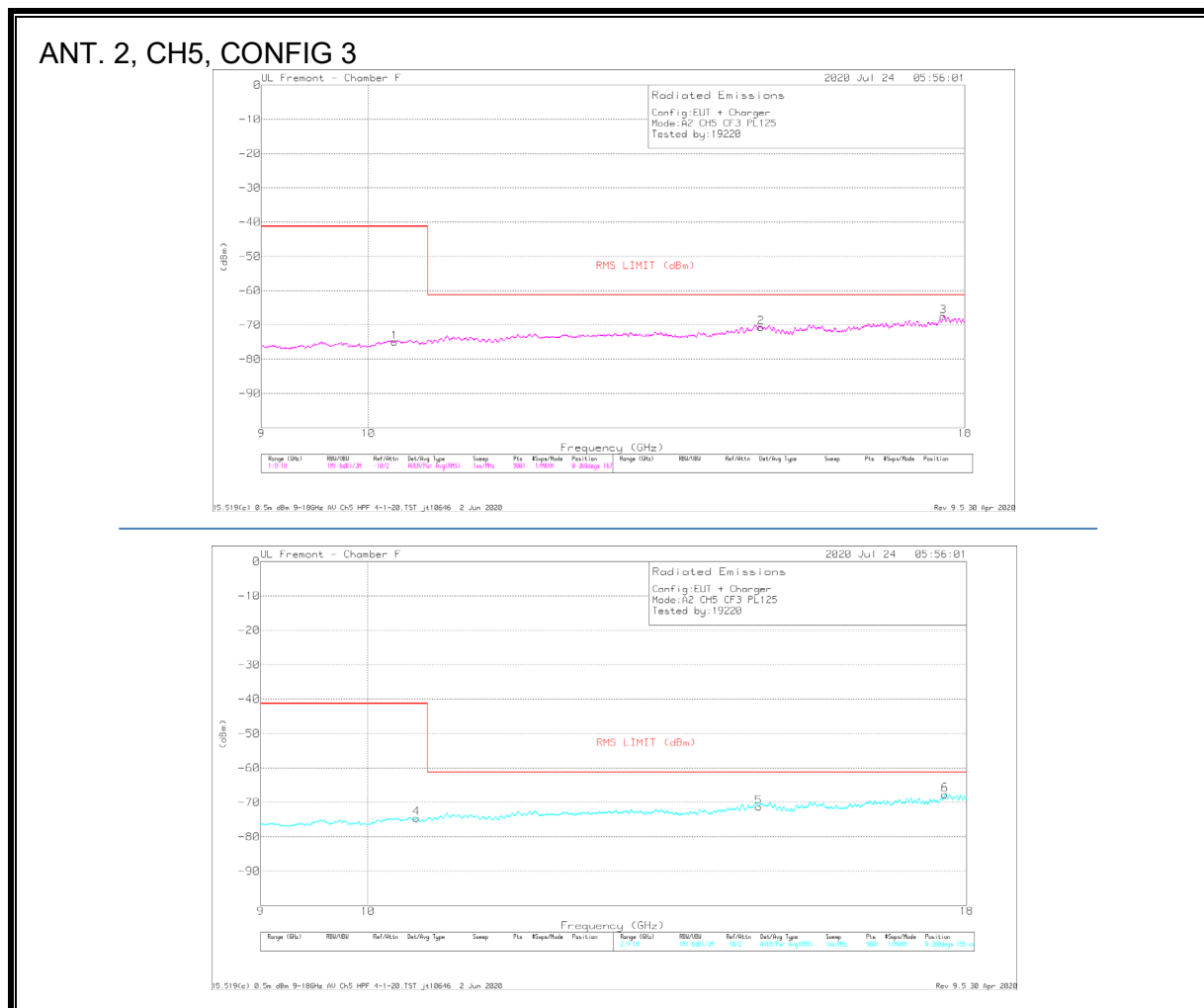
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH9_LFF (dB)	Corrected Reading (dBm)	ISSED RSS-228 5.3.1 (d)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1282	-63.44	RMS	29	-45.4	-15.6	11.8	.2	-83.44	-75.3	-8.14	229	168	H
2	2467	-64.81	RMS	32.4	-45.1	-15.6	11.8	.4	-80.91	-70	-10.91	31	168	H
3	5663	-68.79	RMS	34.9	-41.7	-15.6	11.8	.6	-78.79	-41.3	-37.49	359	168	H
4	1278	-63.09	RMS	29.1	-45.4	-15.6	11.8	.2	-82.99	-75.3	-7.69	286	155	V
5	2000	-63.62	RMS	31.3	-45.4	-15.6	11.8	.2	-81.32	-70	-11.32	1	155	V
6	5639	-68.21	RMS	34.9	-41.3	-15.6	11.8	.6	-77.81	-41.3	-36.51	110	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH9 fundamental signal.

5.8.3.2. AVERAGE EMISSIONS, 9 – 18 GHz



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH5 HPF (dB)	EIRP (dBm)	FCC15.519(c) EIRP RMS (dBm)	Margin (dB)	Altitude (m)	Height (cm)	Polarity
1	10.262	-70.66	RMS	37.2	-38.4	-15.6	11.8	.7	-74.96	-41.3	-33.66	65	167	H
2	14.727	-70.71	RMS	40.1	-37	-15.6	11.8	.7	-70.71	-61.3	-9.41	308	167	H
3	17.624	-71.01	RMS	41.4	-34.7	-15.6	11.8	.6	-67.51	-61.3	-6.21	198	167	H
4	10.489	-70.87	RMS	37.7	-38.3	-15.6	11.8	.7	-74.57	-41.3	-33.27	360	155	V
5	14.678	-71	RMS	40.2	-37.3	-15.6	11.8	.6	-71.3	-61.3	-10	360	155	V
6	17.624	-71.21	RMS	41.4	-34.7	-15.6	11.8	.6	-67.71	-61.3	-6.41	119	155	V

RMS - RMS detection

*Note: Test was performed with a high-pass filter with pass-band frequency starting at 9 GHz to suppress CH5 fundamental signal.

ANT. 2, CH9, CONFIG 3



Trace Markers

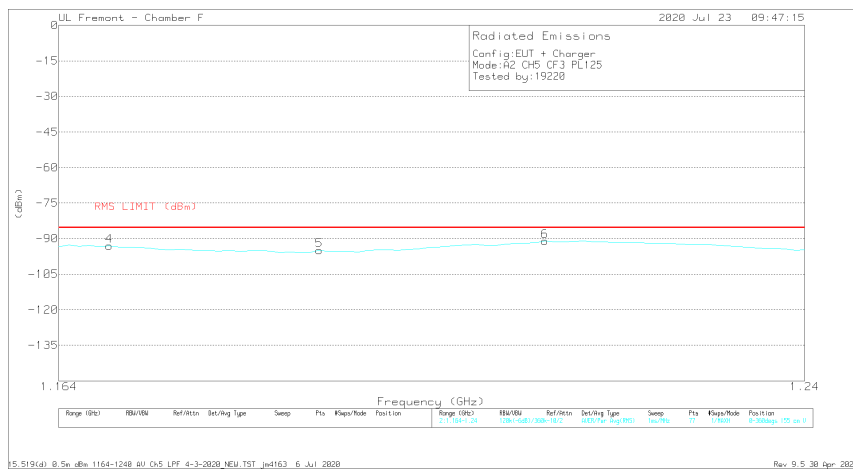
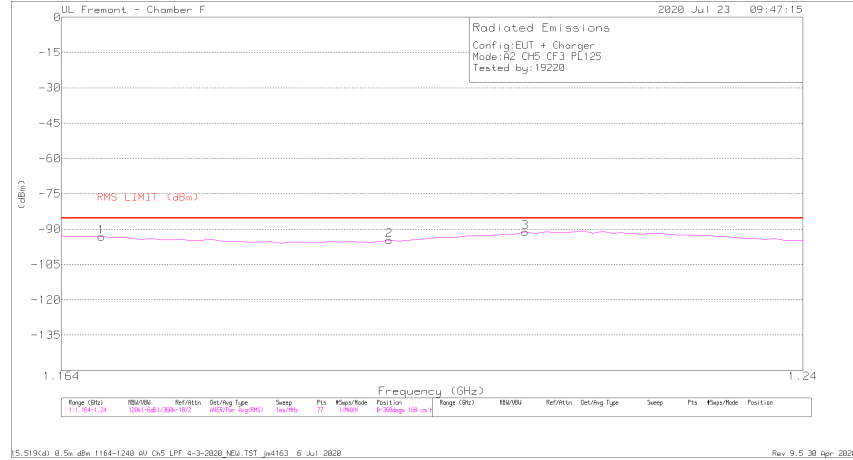
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH9_HPF (dB)	EIRP (dBm)	FCC15.519(c) ERP RMS (dBm)	Margin (dB)	Altitude (Dega)	Height (cm)	Polarity
1	10.154	-69.48	RMS	37	-38.8	-15.6	11.8	0	-75.08	-41.3	-33.78	317	156	H
2	12.947	-71.37	RMS	39.2	-37	-15.6	11.8	.4	-72.57	-61.3	-11.27	229	156	H
3	14.832	-70.76	RMS	40	-36.4	-15.6	11.8	.7	-70.26	-61.3	-8.96	317	156	H
4	10.881	-69.65	RMS	37.8	-37.7	-15.6	11.8	0	-73.35	-61.3	-12.05	75	156	V
5	13.353	-71.98	RMS	39.1	-36.6	-15.6	11.8	.4	-72.88	-61.3	-11.58	317	156	V
6	16.366	-70.58	RMS	40.7	-36.9	-15.6	11.8	.7	-69.88	-61.3	-8.58	272	156	V

RMS - RMS detection

*Note: Test was performed with a high-pass filter with pass-band frequency starting at 9 GHz to suppress CH9 fundamental signal.

5.8.3.3. AVERAGE EMISSIONS, 1.164 – 1.240 GHz

ANT. 2, CH5, CONFIG 3



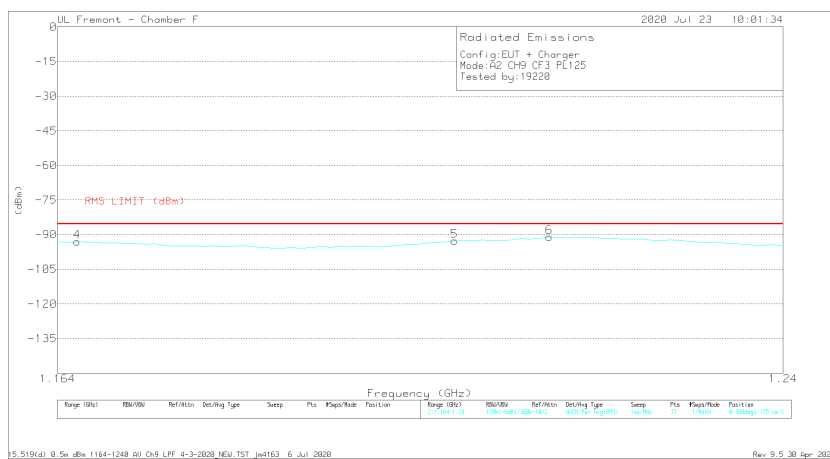
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF 1711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH5 LP Filter	EIRP (dBm)	FCC15.119(d) ERP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.168	-72.7	RMS	28.6	-45.4	-15.6	11.8	.1	-93.2	-85.3	-7.9	141	168	H
2	1.197	-75.38	RMS	29.5	-45.1	-15.6	11.8	.1	-94.68	-85.3	-9.38	184	168	H
3	1.211	-72.06	RMS	29.6	-45.2	-15.6	11.8	.2	-91.26	-85.3	-5.96	97	168	H
4	1.169	-72.5	RMS	28.6	-45.4	-15.6	11.8	.1	-93	-85.3	-7.7	110	155	V
5	1.19	-75.14	RMS	29.1	-45.2	-15.6	11.8	.1	-94.94	-85.3	-9.64	197	155	V
6	1.213	-71.84	RMS	29.7	-45.2	-15.6	11.8	.2	-90.94	-85.3	-5.64	176	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH5 fundamental signal.

ANT. 2, CH9, CONFIG 3



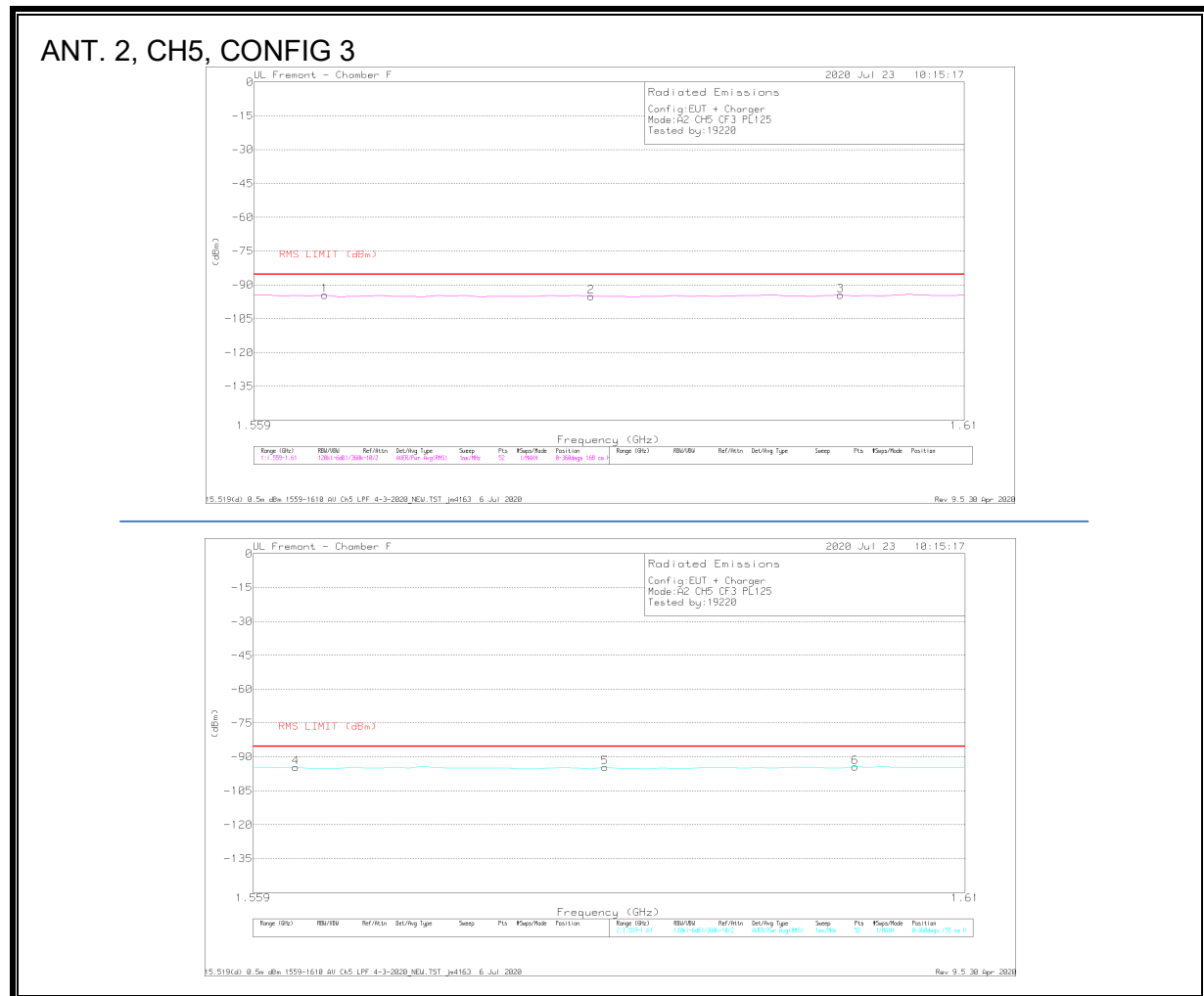
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH9 LP Filter	EIRP (dBm)	FCC15.519(d) ERP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.166	-72.21	RMS	28.5	-45.4	-15.6	11.8	.1	-92.81	-85.3	-7.51	119	168	H
2	1.207	-73.03	RMS	29.5	-45.3	-15.6	11.8	.2	-92.43	-85.3	-7.13	31	168	H
3	1.226	-72.34	RMS	29.8	-45.4	-15.6	11.8	.2	-91.54	-85.3	-6.24	31	168	H
4	1.166	-72.36	RMS	28.5	-45.4	-15.6	11.8	.1	-92.96	-85.3	-7.66	330	155	V
5	1.205	-73.54	RMS	29.6	-45.2	-15.6	11.8	.2	-92.74	-85.3	-7.44	242	155	V
6	1.215	-72.04	RMS	29.8	-45.2	-15.6	11.8	.2	-91.04	-85.3	-5.74	219	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH9 fundamental signal.

5.8.3.4. AVERAGE EMISSIONS, 1.559 – 1.610 GHz



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH5 LP Filter	EIRP (dBm)	FCC15.519(d) EIRP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.564	-73.65	RMS	27.9	-45.2	-15.6	11.8	.2	-94.55	-85.3	-9.25	31	168	H
2	1.583	-74.14	RMS	27.9	-45.2	-15.6	11.8	.2	-95.04	-85.3	-9.74	31	168	H
3	1.601	-73.6	RMS	28	-45.3	-15.6	11.8	.2	-94.5	-85.3	-9.2	316	168	H
4	1.562	-73.69	RMS	27.9	-45.2	-15.6	11.8	.2	-94.59	-85.3	-9.29	44	155	V
5	1.584	-73.65	RMS	27.9	-45.2	-15.6	11.8	.2	-94.55	-85.3	-9.25	176	155	V
6	1.602	-73.46	RMS	28	-45.3	-15.6	11.8	.2	-94.36	-85.3	-9.06	242	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH5 fundamental signal.

ANT. 2, CH9, CONFIG 3



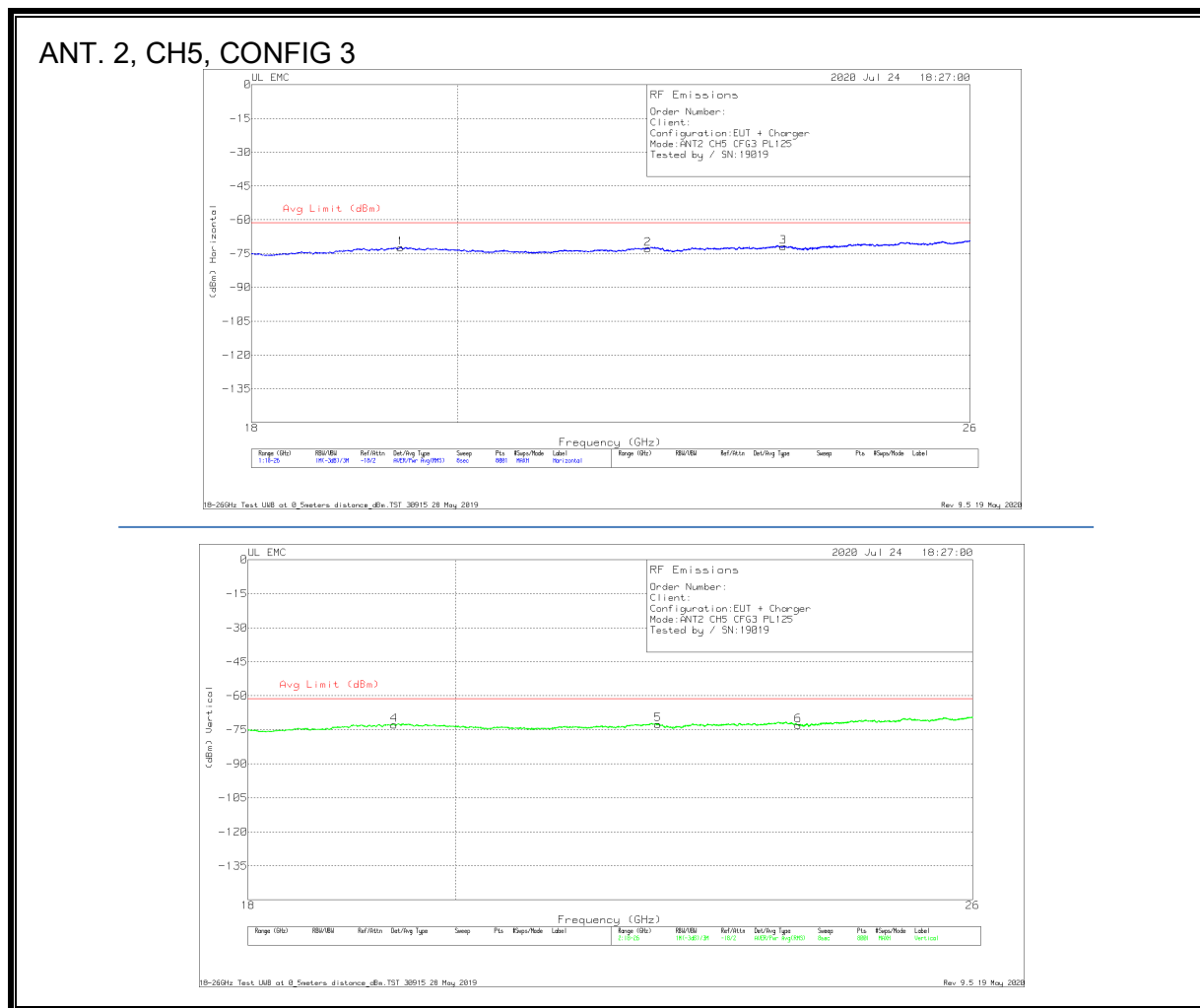
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T711 (dBm)	Amp/Cbl (dB)	Dist Correction (dB)	Conversion Factor (dB)	CH9 LP Filter	EIRP (dBm)	FCC15.519(d) EIRP RMS (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.566	-73.42	RMS	27.9	-45.2	-15.6	11.8	.2	-94.32	-85.3	-9.02	295	167	H
2	1.584	-74.06	RMS	27.9	-45.2	-15.6	11.8	.2	-94.96	-85.3	-9.66	119	167	H
3	1.603	-73.59	RMS	28	-45.3	-15.6	11.8	.2	-94.49	-85.3	-9.19	295	167	H
4	1.568	-73.9	RMS	27.9	-45.2	-15.6	11.8	.2	-94.8	-85.3	-9.5	176	155	V
5	1.583	-73.99	RMS	27.9	-45.2	-15.6	11.8	.2	-94.89	-85.3	-9.59	308	155	V
6	1.607	-73.31	RMS	28	-45.3	-15.6	11.8	.2	-94.21	-85.3	-8.91	154	155	V

RMS - RMS detection

*Note: Test was performed with a low-pass filter with cutoff frequency at 6 GHz to suppress CH9 fundamental signal.

5.8.3.5. AVERAGE EMISSIONS, 18 – 26 GHz

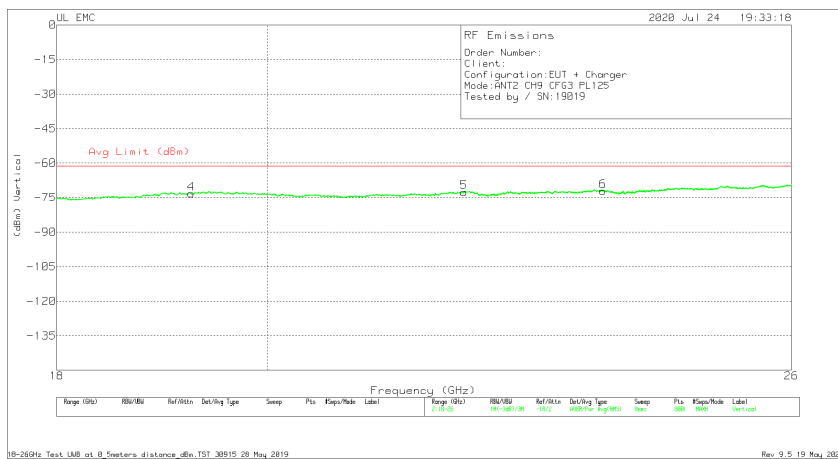
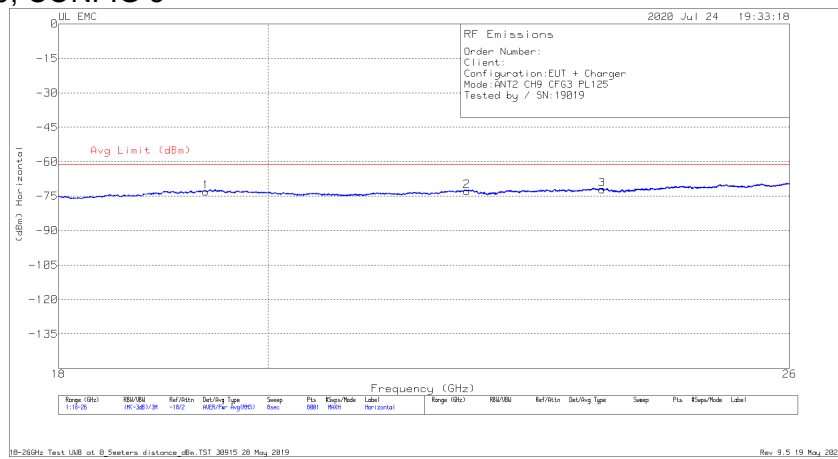


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	PRE0079 280 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	EIRP (dBm)	Avg Limit (dBm)	Margin (dB)
1	19.427	-82.74	RMS	32.7	-18.6	-15.6	11.8	-72.44	-61.3	-11.14
2	22.047	-82.12	RMS	33.4	-20.3	-15.6	11.8	-72.82	-61.3	-11.52
3	23.629	-81.97	RMS	33.7	-19.9	-15.6	11.8	-71.97	-61.3	-10.67
4	19.386	-82.64	RMS	32.6	-19	-15.6	11.8	-72.84	-61.3	-11.54
5	22.163	-82.21	RMS	33.4	-20	-15.6	11.8	-72.61	-61.3	-11.31
6	23.797	-83.18	RMS	33.7	-19.7	-15.6	11.8	-72.98	-61.3	-11.68

RMS - RMS detection

ANT. 2, CH9, CONFIG 3



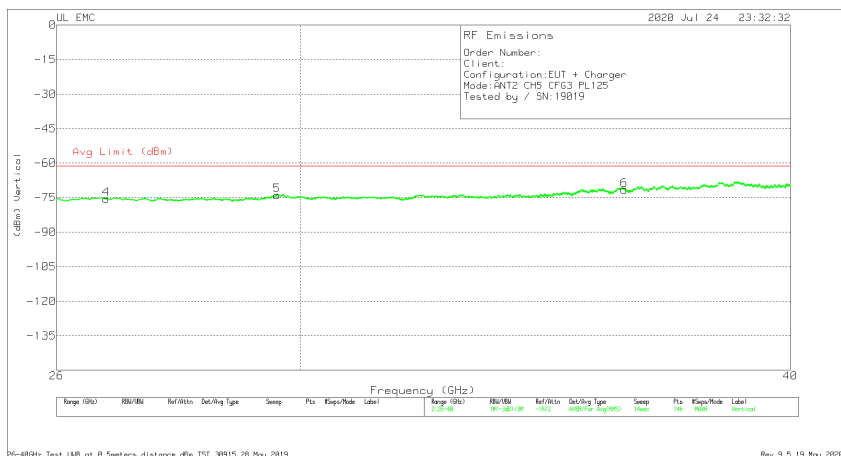
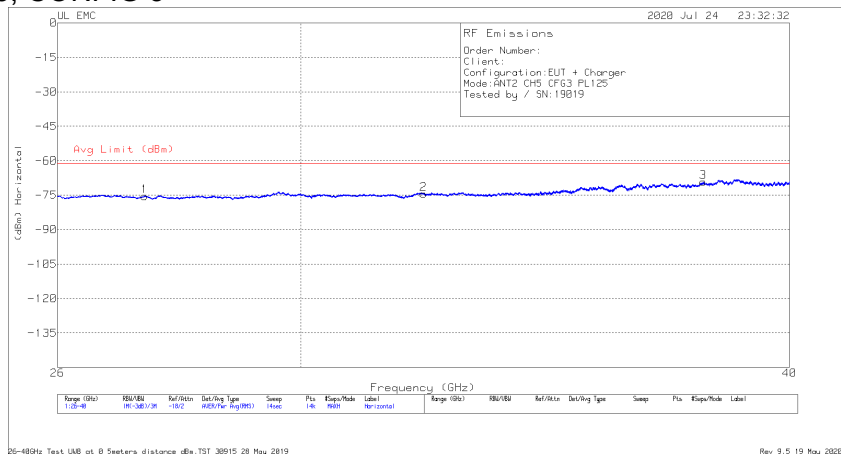
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	PRE00792 80 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	EIRP (dBm)	Avg Limit (dBm)	Margin (dB)
1	19.386	-82.81	RMS	32.6	-19	-15.6	11.8	-73.01	-61.3	-11.71
2	22.105	-82.35	RMS	33.4	-20	-15.6	11.8	-72.75	-61.3	-11.45
3	23.66	-82.24	RMS	33.8	-19.8	-15.6	11.8	-72.04	-61.3	-10.74
4	19.255	-82.93	RMS	32.7	-19.2	-15.6	11.8	-73.23	-61.3	-11.93
5	22.07	-82.04	RMS	33.4	-20.2	-15.6	11.8	-72.64	-61.3	-11.34
6	23.66	-82.26	RMS	33.8	-19.8	-15.6	11.8	-72.06	-61.3	-10.76

RMS - RMS detection

5.8.3.6. AVERAGE EMISSIONS, 26 – 40 GHz

ANT. 2, CH5, CONFIG 3

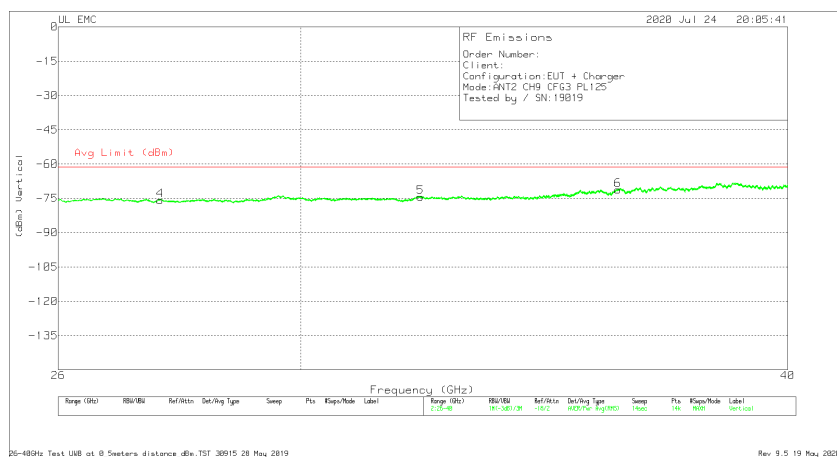
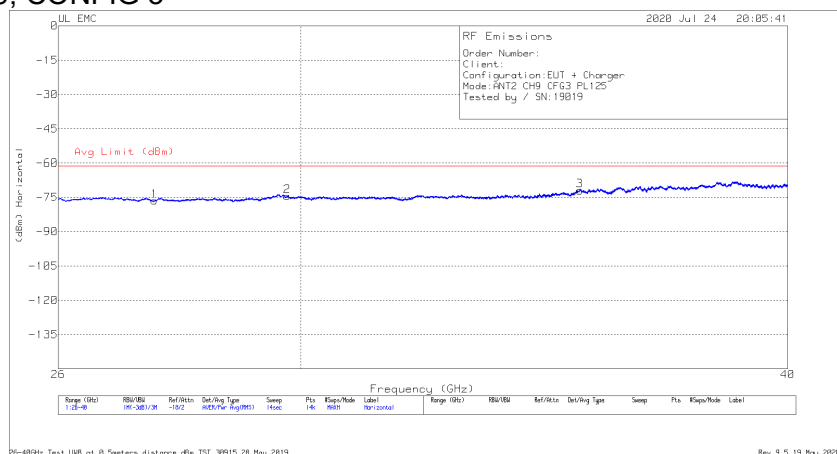


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	PRE00792 80 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	EIRP (dBm)	Avg Limit (dBm)	Margin (dB)
1	27.368	-77.51	RMS	35.7	-29.8	-15.6	11.8	-75.41	-61.3	-14.11
2	32.251	-79.74	RMS	37	-27.9	-15.6	11.8	-74.44	-61.3	-13.14
3	38.017	-78.25	RMS	38	-25.2	-15.6	11.8	-69.25	-61.3	-7.95
4	26.768	-76.96	RMS	35.9	-30.7	-15.6	11.8	-75.56	-61.3	-14.26
5	29.591	-80.21	RMS	37.2	-27.2	-15.6	11.8	-74.01	-61.3	-12.71
6	36.281	-79.29	RMS	37.6	-26.1	-15.6	11.8	-71.59	-61.3	-10.29

RMS - RMS detection

ANT. 2, CH9, CONFIG 3



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	PRE0182 203 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	EIRP (dBm)	Avg Limit (dBm)	Margin (dB)
1	27.519	-78.86	RMS	35.7	-29.5	-15.6	11.8	-76.46	-61.3	-15.16
2	29.764	-80.68	RMS	37.2	-27.2	-15.6	11.8	-74.48	-61.3	-13.18
3	35.378	-79.61	RMS	37.7	-26.3	-15.6	11.8	-72.01	-61.3	-10.71
4	27.613	-78.59	RMS	35.8	-29.2	-15.6	11.8	-75.79	-61.3	-14.49
5	32.201	-79.59	RMS	37	-28	-15.6	11.8	-74.39	-61.3	-13.09
6	36.181	-78.8	RMS	37.6	-26.3	-15.6	11.8	-71.3	-61.3	-10

RMS - RMS detection

6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	Manufacturer	Model	Serial Number
Laptop + Adapter	Apple	Mac Book Air	C02TK02YJ10C
Kanzi – USB Adapter	Apple	--	325D59
Laptop + Adapter	Apple	Mac Book Air	C02YL5TNJHC8
Kanzi – USB Adapter	Apple	--	316FAS
Smart Phone	Apple	A2341	G6TD201104P9-CRB-P3A16DL-025438

I/O CABLES

I/O CABLES					
Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
AC	1	AC	Un-shielded	2	N/A
USB	1	USB	Un-shielded	1	N/A

TEST SETUP

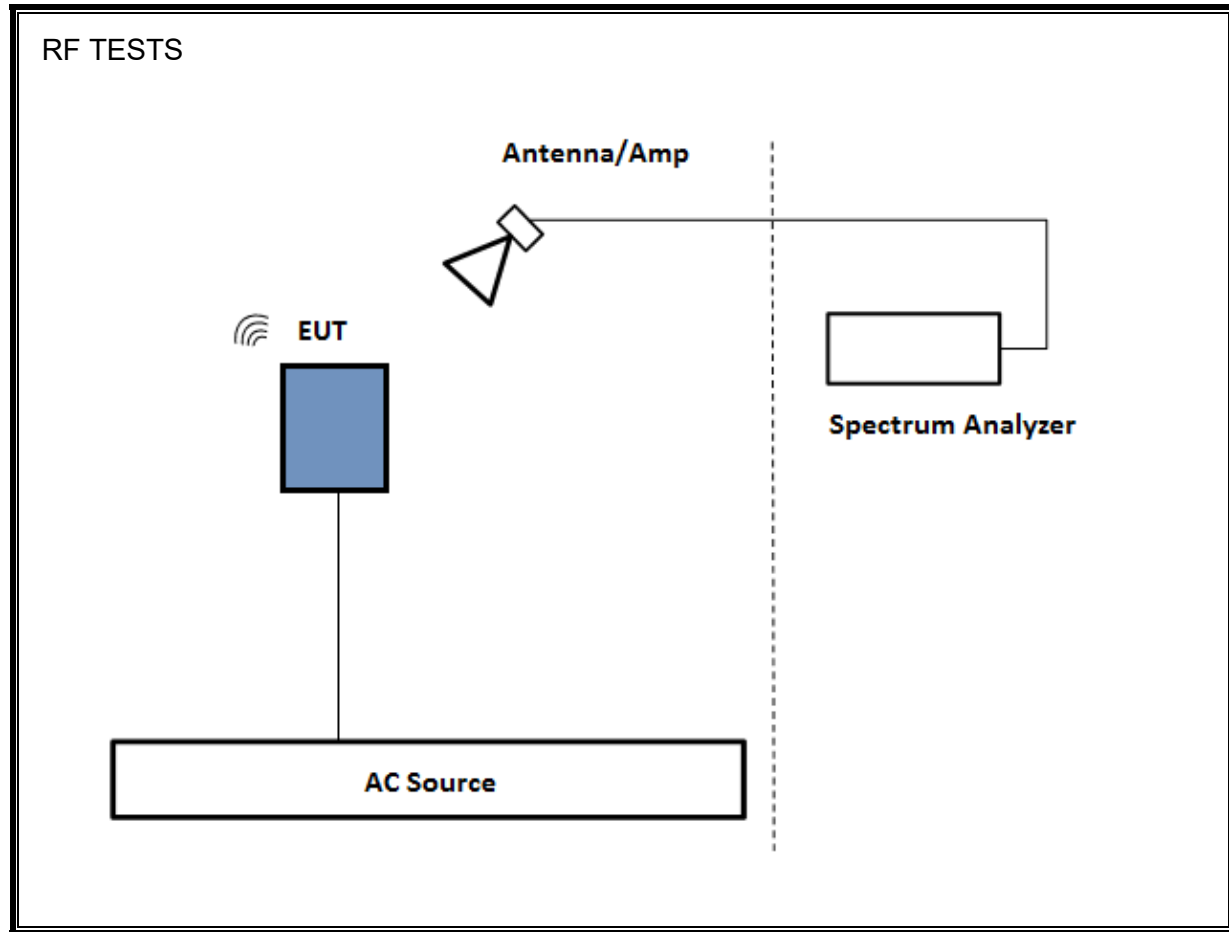
The EUT was examined at pre-scan test using a fundamental frequency in the portrait (z), landscape (y), and flatbed (x) position and the worst case orientation of individual ANT/CH/CONFIG setting was determined for final spurious emission measurement. Configuration 3 of both CH5 and CH9 on all 3 antennas were selected to test for unwanted emissions as the worst case after pre-scan.

Measurements of spurious average emissions were made with the device operating at a higher power than production power to ensure compliance. Measurements of the in-band signal (peak and average emissions, 10 dBc bandwidth, 99% bandwidth) were all made at the production power settings.

EUT was connected to AC power adapter in all test cases.

For simultaneous transmission of multiple channels in the UWB, LTE, Sub-6 GHz 5G FR1 band, 2.4 GHz WiFi & 5 GHz WiFi bands, 28 GHz & 39 GHz 5G FR2 bands, no noticeable new emission was found.

SETUP DIAGRAM FOR TESTS



7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	Manufacturer	Model	Local ID	Cal Date	Cal Due
EMI Test Receiver	Rohde & Schwarz	ESW44	PRE0203383	2/18/2020	2/18/2021
Horn Antenna, 1-18 GHz	ETS Lindgren	3117	T119	4/21/2020	4/21/2021
Preamp, 1-18 GHz	Miteq	AFS42-00101800-25-S-42	PRE0183207	6/11/2020	6/11/2021
PXA Signal Analyzer	Agilent	N9030A	T342	1/24/2020	1/24/2021
Hybrid Antenna, 30-2000 MHz	SunAR	JB1	T243	4/15/2020	4/15/2021
Preamp, 0.1-1300 MHz	Sonoma Inst.	310	T173	7/22/2020	7/22/2021
Horn Antenna, 1-18 GHz	ETS Lindgren	3117	T711	2/12/2020	2/12/2021
Preamp, 1-18 GHz	Miteq	AFS42-00101800-25-S-42	PRE0183530	8/31/2019	8/31/2020
EMI Test Receiver	Rohde & Schwarz	ESW44	PRE0203384	2/18/2020	2/18/2021
Antenna, Active Loop 9kHz-30MHz	ETS Lindgren	6502	T1616	10/18/2019	10/18/2020
Spectrum Analyzer, 44GHz	Keysight	N9030A	T905	1/27/2020	1/27/2021
Preamplifier, 1-26.5GHz	Agilent	8449B	T404	4/8/2020	4/8/2021
Horn Antenna, 18-26.5GHz	ARA	MWH-1826/B	PRE0079280	4/17/2020	4/17/2021
Preamplifier, 26-40 GHz	Miteq	NSTTA2640-35-HG	T1864	4/8/2020	4/8/2021
Horn Antenna, 26-40 GHz	ARA	MWH-2640/B	PRE0182203	4/17/2020	4/17/2021
DC Power Supply	Hewlett Packard	E3610A	T502	NCR	--
DC Power Supply	All-Bright Technology Co.	8185D	PRE0129629	NCR	--
Multimeter	Fluke	77	T78	1/21/2020	1/21/2021
Low Pass Filter	Microtronics	LPM20143	PR0199966	11/23/2019	11/23/2020
High Pass Filter, CH5	Wainwright Inst. GMBH	WHW2-7100-10000-18000-40DC	--	NCR	--
High Pass Filter, CH9	Wainwright Inst. GMBH	WHW2-8165-11500-21000-40CD	--	NCR	--
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	2/20/2020	2/20/2021
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2019	10/27/2020
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	T1310	1/23/2020	1/23/2021
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Feb 21, 2020		

8. APPLICABLE LIMITS AND TEST RESULTS

8.1. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is in the range of 1% to 5% of the OBW bandwidth. The VBW is set to $\geq 3 \times \text{RBW}$. The sweep time is coupled.

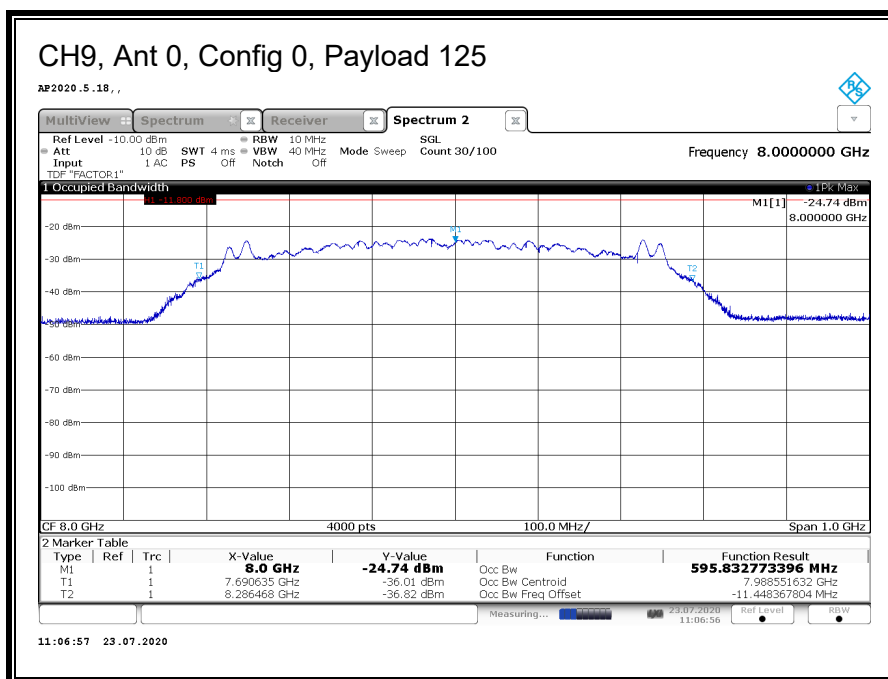
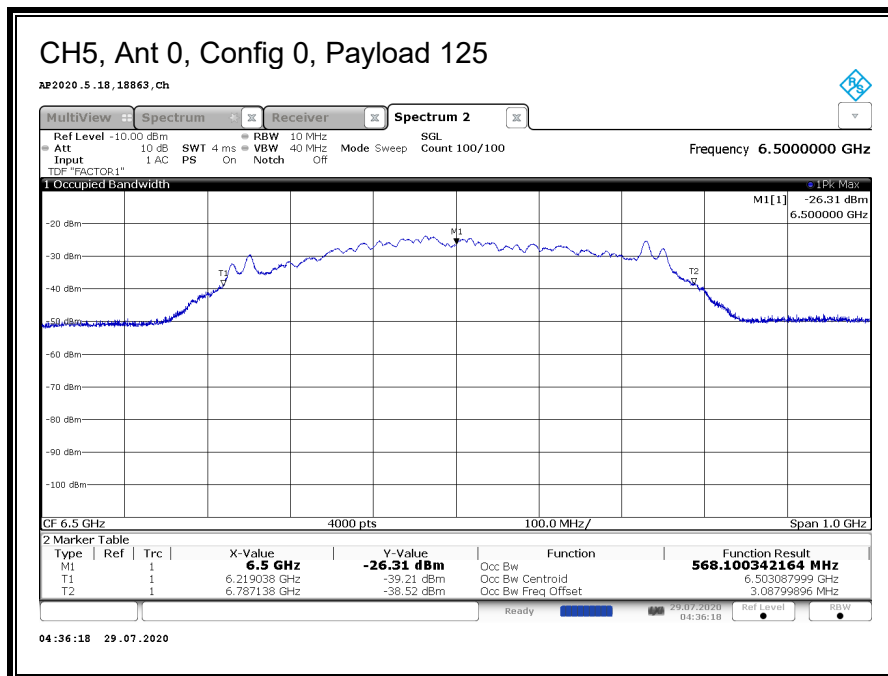
Tabulated data provides the test results of all available test configurations. The plots of Ant 0, CONFIG 0, Payload 125 bandwidth measurement on CH5 and CH9 are presented and same measurement settings apply to the rest of test configurations.

RESULTS

Tested By: 19419, 12501, 12485, 12472, 20737

ANT	CH	CONFIG	Payload	EUT Orientation	Meas. Ant Polarity	99% BW (MHz)
0	5	0	125	Portrait	H	568.10
0	5	1	125	Portrait	H	577.61
0	5	2	125	Portrait	H	606.27
0	5	3	125	Portrait	H	607.36
0	5	4	0	Portrait	H	569.41
0	5	5	0	Portrait	H	588.59
0	9	0	125	Portrait	H	595.83
0	9	1	125	Portrait	H	592.61
0	9	2	125	Portrait	H	627.61
0	9	3	125	Portrait	H	630.93
0	9	4	0	Portrait	H	652.97
0	9	5	0	Portrait	H	615.61
1	5	0	125	Portrait	H	585.69
1	5	1	125	Portrait	H	585.65
1	5	2	125	Portrait	H	629.97
1	5	3	125	Portrait	H	603.89
1	5	4	0	Portrait	H	651.52
1	5	5	0	Portrait	H	598.25
1	9	0	125	Portrait	H	585.20
1	9	1	125	Portrait	H	580.22
1	9	2	125	Portrait	H	524.56
1	9	3	125	Portrait	H	629.98
1	9	4	0	Portrait	H	651.28
1	9	5	0	Portrait	H	604.72
2	5	0	125	Flatbed	H	611.99
2	5	1	125	Flatbed	H	610.42
2	5	2	125	Flatbed	H	629.80
2	5	3	125	Flatbed	H	630.23
2	5	4	0	Flatbed	H	621.47
2	5	5	0	Flatbed	H	612.16
2	9	0	125	Landscape	H	599.00
2	9	1	125	Landscape	H	591.42
2	9	2	125	Landscape	H	633.59
2	9	3	125	Landscape	H	645.89
2	9	4	0	Landscape	H	636.83
2	9	5	0	Landscape	H	603.78

99% BW



8.2. OPERATING BANDWIDTH

LIMITS

FCC

§15.503 (a) *UWB bandwidth*. For the purpose of this subpart, the UWB bandwidth is the frequency band bounded by the points that are 10 dB below the highest radiated emission, as based on the complete transmission system including the antenna. The upper boundary is designated f_H and the lower boundary is designated f_L . The frequency at which the highest radiated emission occurs is designated f_M .

§15.503 (b) *Center frequency*. The center frequency, f_C , equals $(f_H + f_L)/2$.

§15.503 (c) *Fractional bandwidth*. The fractional bandwidth equals $2(f_H - f_L) / (f_H + f_L)$.

§15.503 (d) *Ultra-wideband (UWB) transmitter*. An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

§15.519 (b) The UWB bandwidth of a device operating under the provisions of this section must be contained between 3100 MHz and 10,600 MHz.

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Section 2 A *UWB device* is an intentional radiator that has either a *-10 dB bandwidth* of at least 500 MHz or a *-10 dB fractional bandwidth* greater than 0.2.

Section 5.1 (a) The -10 dB bandwidth of the device shall be totally contained in the band 3.1-10.6 GHz.

“-10 dB bandwidth B_{-10} ” and “-10 dB fractional bandwidth μ_{-10} ” are defined as follows:

$$B_{-10} = f_H - f_L$$
$$\mu_{-10} = B_{-10} / f_C$$

where:

f_M is the frequency of maximum UWB transmission;

f_H is the highest frequency at which the power spectral density of the UWB transmission is -10 dB relative to f_M ;

f_L is the lowest frequency at which the power spectral density of the UWB transmission is -10 dB relative to f_M ; and

$f_C = (f_H + f_L)/2$ is the centre frequency of the -10 dB bandwidth.

TEST PROCEDURE

ANSI C63.10 Clause 10.1.

RSS-220 Section 2 of the Annex

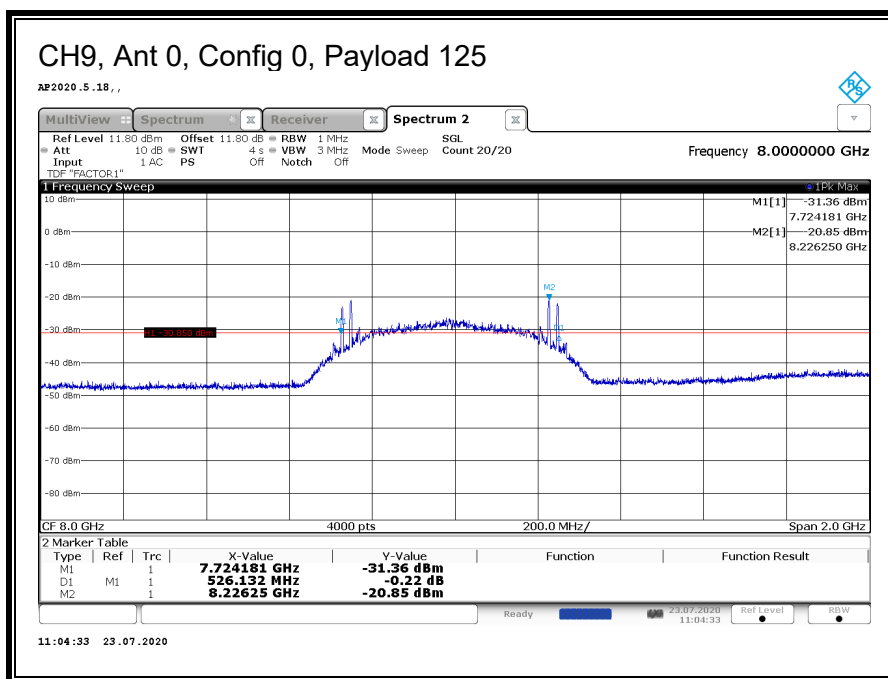
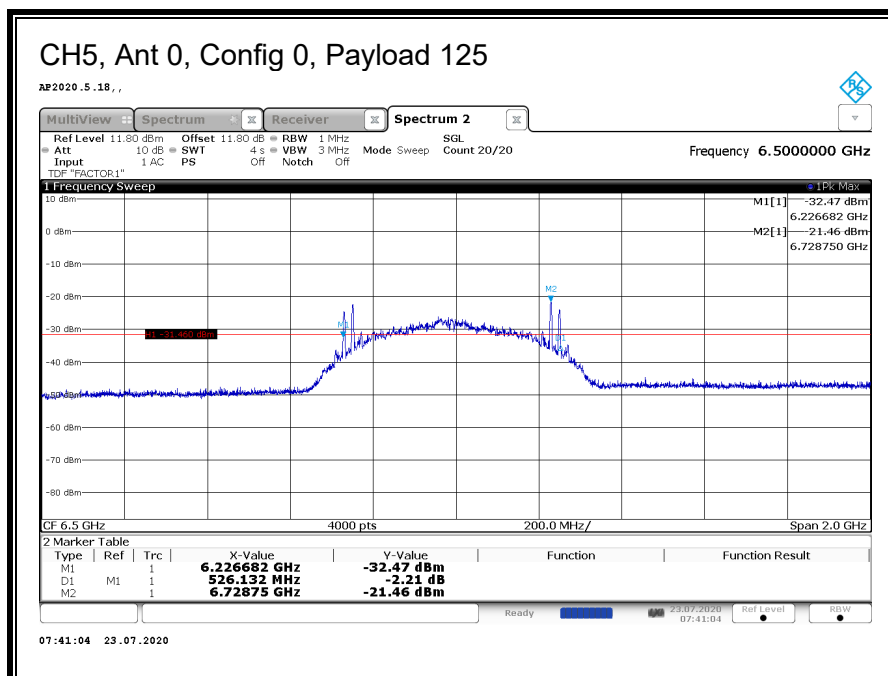
Tabulated data provides the test results of all available test configurations. The plots of Ant 0, CONFIG 0, Payload 125 bandwidth measurement on CH5 and CH9 are presented and same measurement settings apply to the rest of test configurations.

RESULTS

Tested By: 19419, 12501, 12485, 12472, 20737

ANT	CH	CONFIG	Payload	EUT Orientation	Meas. Ant Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
0	5	0	125	Portrait	H	6.729	6.227	6.753	6.490	526.132	500	26.132	P
0	5	1	125	Portrait	H	6.251	6.226	6.753	6.489	526.632	500	26.632	P
0	5	2	125	Portrait	H	6.729	6.228	6.751	6.489	523.631	500	23.631	P
0	5	3	125	Portrait	H	6.729	6.228	6.751	6.490	523.131	500	23.131	P
0	5	4	0	Portrait	H	6.251	6.226	6.753	6.489	526.632	500	26.632	P
0	5	5	0	Portrait	H	6.251	6.225	6.754	6.489	528.632	500	28.632	P
0	9	0	125	Portrait	H	8.226	7.724	8.250	7.987	526.132	500	26.132	P
0	9	1	125	Portrait	H	8.226	7.724	8.250	7.987	526.132	500	26.132	P
0	9	2	125	Portrait	H	8.226	7.725	8.249	7.987	524.131	500	24.131	P
0	9	3	125	Portrait	H	8.227	7.726	8.249	7.987	523.131	500	23.131	P
0	9	4	0	Portrait	H	8.226	7.724	8.250	7.987	526.132	500	26.132	P
0	9	5	0	Portrait	H	8.226	7.723	8.251	7.987	528.132	500	28.132	P
1	5	0	125	Portrait	H	6.729	6.227	6.753	6.490	525.631	500	25.631	P
1	5	1	125	Portrait	H	6.729	6.227	6.753	6.490	525.631	500	25.631	P
1	5	2	125	Portrait	H	6.729	6.228	6.751	6.489	523.631	500	23.631	P
1	5	3	125	Portrait	H	6.729	6.229	6.751	6.490	522.131	500	22.131	P
1	5	4	0	Portrait	H	6.729	6.227	6.753	6.490	525.631	500	25.631	P
1	5	5	0	Portrait	H	6.728	6.227	6.754	6.490	527.132	500	27.132	P
1	9	0	125	Portrait	H	7.748	7.724	8.250	7.987	525.631	500	25.631	P
1	9	1	125	Portrait	H	7.748	7.724	8.250	7.987	525.631	500	25.631	P
1	9	2	125	Portrait	H	7.748	7.725	8.249	7.987	523.631	500	23.631	P
1	9	3	125	Portrait	H	7.748	7.726	8.248	7.987	521.630	500	21.63	P
1	9	4	0	Portrait	H	7.748	7.724	8.250	7.987	525.631	500	25.631	P
1	9	5	0	Portrait	H	7.748	7.723	8.251	7.987	527.632	500	27.632	P
2	5	0	125	Flatbed	H	6.729	6.227	6.753	6.490	526.132	500	26.132	P
2	5	1	125	Flatbed	H	6.729	6.227	6.753	6.490	526.132	500	26.132	P
2	5	2	125	Flatbed	H	6.729	6.228	6.752	6.490	524.131	500	24.131	P
2	5	3	125	Flatbed	H	6.729	6.229	6.751	6.490	522.131	500	22.131	P
2	5	4	0	Flatbed	H	6.729	6.227	6.753	6.490	526.132	500	26.132	P
2	5	5	0	Flatbed	H	6.728	6.226	6.754	6.490	528.132	500	28.132	P
2	9	0	125	Landscape	H	8.226	7.726	8.250	7.988	524.131	500	24.131	P
2	9	1	125	Landscape	H	8.226	7.726	8.250	7.988	524.631	500	24.631	P
2	9	2	125	Landscape	H	8.227	7.727	8.249	7.988	522.631	500	22.631	P
2	9	3	125	Landscape	H	8.226	7.727	8.249	7.988	522.131	500	22.131	P
2	9	4	0	Landscape	H	8.227	7.726	8.251	7.988	525.131	500	25.131	P
2	9	5	0	Landscape	H	8.226	7.725	8.252	7.988	526.632	500	26.632	P

RESULTS



8.3. PEAK POWER AND MAXIMUM AVERAGE EMISSIONS

LIMITS

FCC

15.519 (e) There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M . That limit is 0 dBm EIRP.

15.519 (c) The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency in MHz	EIRP in dBm
3100 - 10600	-41.3

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Annex, Section 4 (c) Peak measurements shall be made in addition to average measurements. Transmissions shall not exceed 0 dBm e.i.r.p. in any 50 MHz bandwidth when the average limit is -41.3 dBm/MHz.

Section 5.3.1 (d) Radiated emissions above 960 MHz from a device shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz.

Frequency	E.I.R.P. in a Resolution Bandwidth of 1 MHz
4.75 – 10.6 GHz	-41.3 dBm

TEST PROCEDURE

ANSI C63.10 Clause 10.3.

RSS-220 Annex

Peak EIPR power is measured using RBW of 50 MHz.

The radiated emissions of 6 - 9 GHz frequency band are performed at 3-meter test distance.

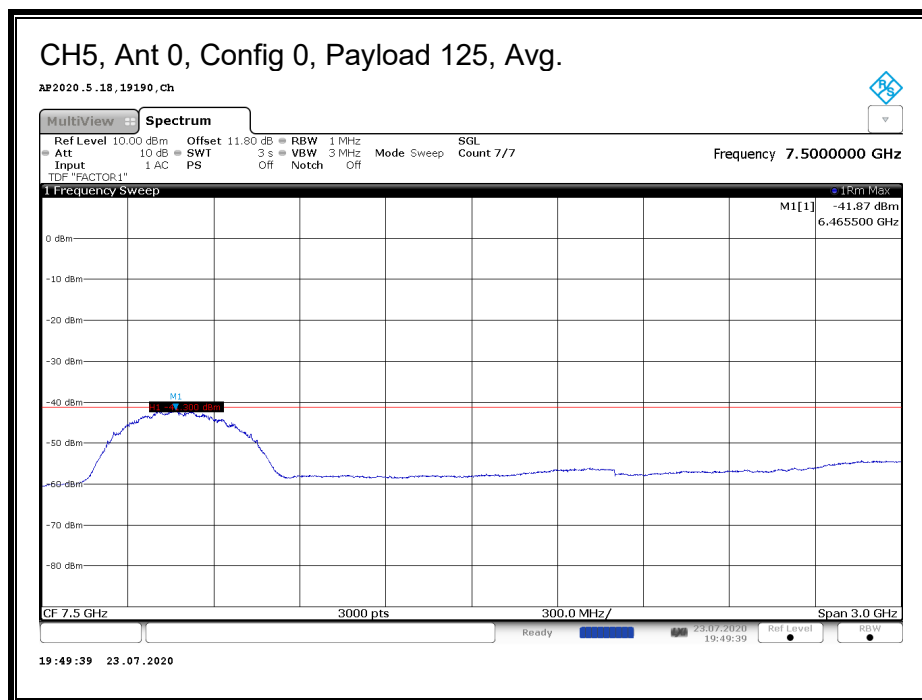
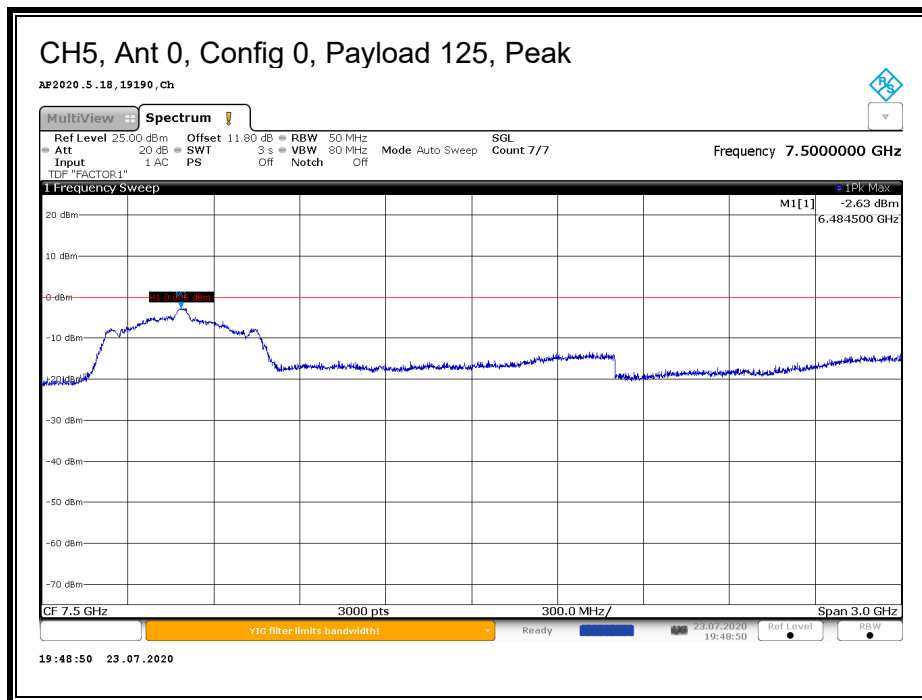
Tabulated data provides the test results of all available test configurations. The plots of Ant 0, CONFIG 0, Payload 125 power measurement on CH5 and CH9 are presented and same measurement settings apply to the rest of test configurations.

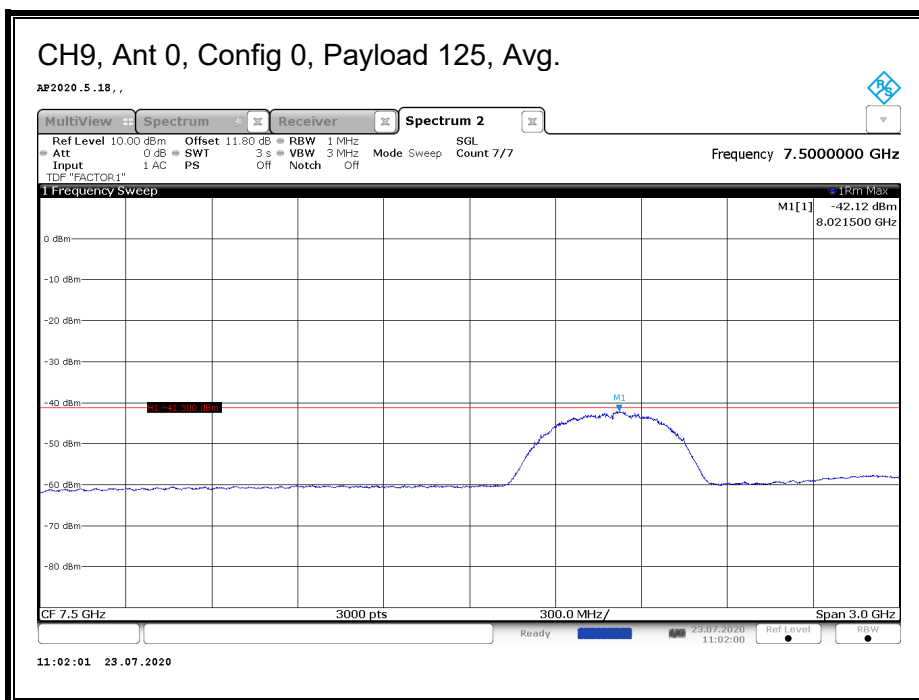
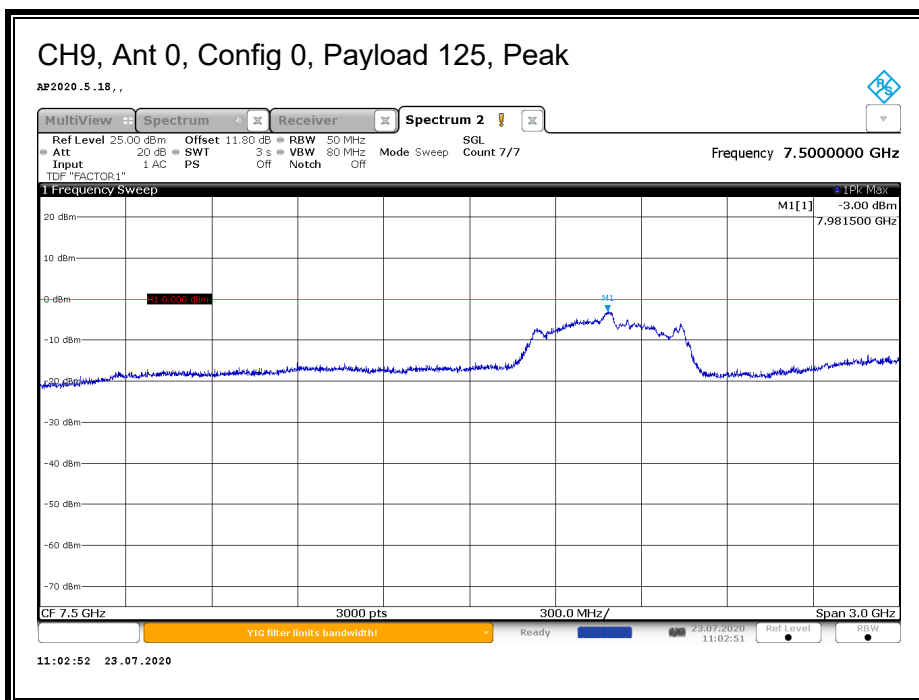
RESULTS

Tested By: 19419, 12501, 12485, 12472, 20737

ANT	CH	CONFIG	Payload	EUT Orientation	Meas. Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Peak Power (dBm/50MHz)	Peak Limit (0 dBm/50 MHz)	Margin (dB)	FM (GHz)	Avg Power (dBm/MHz)	Avg Limit (dBm/MHz)	Margin (dB)
0	5	0	125	Portrait	H	6.4845	-2.63	0	-2.63	6.4655	-41.87	-41.3	-0.57
0	5	1	125	Portrait	H	6.4835	-2.28	0	-2.28	6.4655	-42.10	-41.3	-0.80
0	5	2	125	Portrait	H	6.4785	-6.36	0	-6.36	6.4665	-42.15	-41.3	-0.85
0	5	3	125	Portrait	H	6.4895	-5.57	0	-5.57	6.4645	-42.16	-41.3	-0.86
0	5	4	0	Portrait	H	6.4865	-7.56	0	-7.56	6.4685	-42.10	-41.3	-0.80
0	5	5	0	Portrait	H	6.2435	-5.92	0	-5.92	6.4615	-42.09	-41.3	-0.79
0	9	0	125	Portrait	H	7.9815	-3.00	0	-3.00	8.0215	-42.12	-41.3	-0.82
0	9	1	125	Portrait	H	7.9805	-2.01	0	-2.01	8.0115	-42.03	-41.3	-0.73
0	9	2	125	Portrait	H	7.9885	-5.41	0	-5.41	8.0105	-41.83	-41.3	-0.53
0	9	3	125	Portrait	H	7.9895	-5.44	0	-5.44	8.0155	-42.02	-41.3	-0.72
0	9	4	0	Portrait	H	8.2385	-6.07	0	-6.07	8.0295	-42.03	-41.3	-0.73
0	9	5	0	Portrait	H	8.2385	-4.14	0	-4.14	8.0155	-42.11	-41.3	-0.81
1	5	0	125	Portrait	H	6.4895	-3.06	0	-3.06	6.4655	-42.12	-41.3	-0.82
1	5	1	125	Portrait	H	6.4815	-2.46	0	-2.46	6.4655	-42.12	-41.3	-0.82
1	5	2	125	Portrait	H	6.4965	-6.66	0	-6.66	6.4685	-42.55	-41.3	-1.25
1	5	3	125	Portrait	H	6.4905	-6.06	0	-6.06	6.4645	-42.09	-41.3	-0.79
1	5	4	0	Portrait	H	6.7465	-7.63	0	-7.63	6.4695	-41.93	-41.3	-0.63
1	5	5	0	Portrait	H	6.7335	-5.41	0	-5.41	6.4615	-41.82	-41.3	-0.52
1	9	0	125	Portrait	H	7.9865	-2.68	0	-2.68	8.0215	-41.92	-41.3	-0.62
1	9	1	125	Portrait	H	7.9955	-2.44	0	-2.44	8.0255	-42.04	-41.3	-0.74
1	9	2	125	Portrait	H	7.9865	-5.92	0	-5.92	8.0285	-42.00	-41.3	-0.70
1	9	3	125	Portrait	H	7.9935	-6.13	0	-6.13	8.0255	-42.28	-41.3	-0.98
1	9	4	0	Portrait	H	7.7445	-5.11	0	-5.11	8.0285	-41.89	-41.3	-0.59
1	9	5	0	Portrait	H	7.7395	-4.14	0	-4.14	8.0285	-41.83	-41.3	-0.53
2	5	0	125	Flatbed	H	6.7445	-3.23	0	-3.23	6.6635	-42.24	-41.3	-0.94
2	5	1	125	Flatbed	H	6.7455	-2.16	0	-2.16	6.6715	-42.06	-41.3	-0.76
2	5	2	125	Flatbed	H	6.4855	-6.36	0	-6.36	6.6685	-42.00	-41.3	-0.70
2	5	3	125	Flatbed	H	6.4855	-5.94	0	-5.94	6.6665	-41.81	-41.3	-0.51
2	5	4	0	Flatbed	H	6.7365	-3.37	0	-3.37	6.6685	-41.98	-41.3	-0.68
2	5	5	0	Flatbed	H	6.7465	-1.19	0	-1.19	6.6695	-42.09	-41.3	-0.79
2	9	0	125	Landscape	H	8.2445	-3.40	0	-3.40	8.1325	-42.17	-41.3	-0.87
2	9	1	125	Landscape	H	8.2375	-2.38	0	-2.38	8.1255	-41.99	-41.3	-0.69
2	9	2	125	Landscape	H	7.9815	-7.02	0	-7.02	8.1395	-41.82	-41.3	-0.52
2	9	3	125	Landscape	H	8.0005	-7.32	0	-7.32	8.1275	-42.09	-41.3	-0.79
2	9	4	0	Landscape	H	8.2425	-2.26	0	-2.26	8.1275	-41.84	-41.3	-0.54
2	9	5	0	Landscape	H	8.2405	-1.09	0	-1.09	8.1405	-41.89	-41.3	-0.59

RESULTS





8.4. CESSATION TIME

LIMITS

FCC

§15.519(a)(1) A UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting.

RSS-220

Section 5.3.1 (b) The device is to transmit only when it is sending information to an associated receiver. The device shall cease transmission of information within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB device at least every 10 seconds or the UWB device shall cease transmitting any information other than periodic signals used for the establishment or re-establishment of a communication link with an associated receiver.

TEST PROCEDURES

Transmissions are monitored for two cases:

1. The smart phone ends the UWB link.
2. The EUT ends the UWB link.

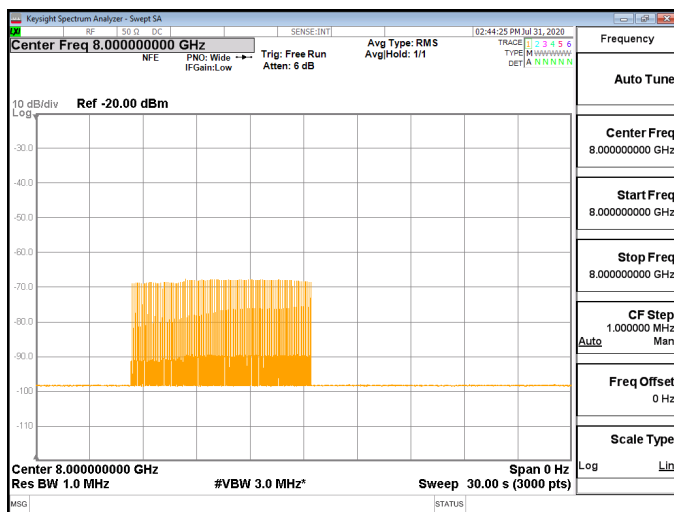
RESULTS

Tested By: 12501

Signal Levels on all Plots

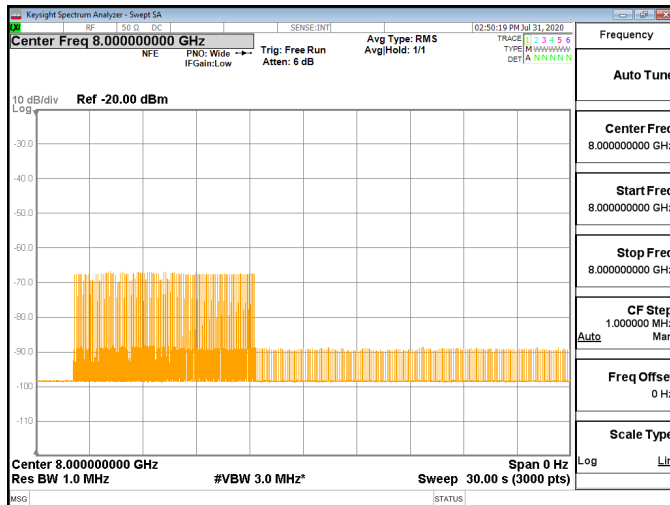
- EUT is High Amplitude
- Smart Phone is Low Amplitude

Case 1: Smart Phone ends the UWB link

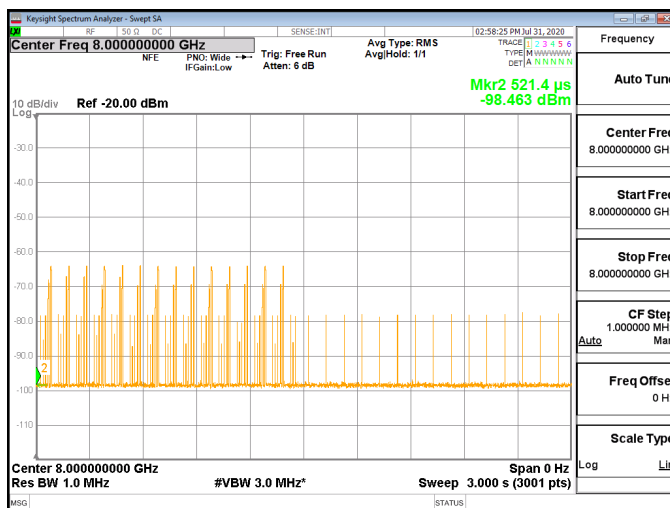


RESULT

- All devices, including the EUT, cease transmissions

Case 2: EUT ends the UWB link**RESULT**

- EUT ends the link, Smart Phone stops Acknowledgements but continues Polling
 - EUT ceases transmissions, does not respond to Polling Signals

Zoom-in Plot during On-Off Transition**RESULT**

- Shows Link Traffic, Acknowledgements and Polling Signals while Link is established
- Shows Polling Signals after Link has ended

8.5. EMISSIONS BELOW 960 MHz

LIMITS

FCC

§15.519 (c) The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209. The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

15.209 (a)

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3

RSS-220

Section 3.4 Radiated emissions at or below 960 MHz for all subclasses of UWB device shall not exceed the following limits. Measurements of radiated emissions at and below 960 MHz are to be made using a CISPR quasi-peak detector. CISPR measurement bandwidth specifications are to be used.

Frequency (MHz)	Field Strength (Microvolts/m)	Measurement Distance (Metres)	E.i.r.p. (dBmW)
0.009-0.490	2,400/F (F in kHz)	300	$10 \log (17.28 / F^2)$ (F in kHz)
0.490-1.705	24,000/F (F in kHz)	30	$10 \log (17.28 / F^2)$ (F in kHz)
1.705-30	30	30	-45.7
30-88	100	3	-55.2
88-216	150	3	-51.7
216-960	200	3	-49.2

Note: The emission limits for the bands 9-90 kHz and 110-490 kHz are based on measurements employing an average emissions detector.

TEST PROCEDURE

ANSI C63.10 Clause 10.2 and 10.3.

RSS-220 Annex

PROCEDURE FOR 9 kHz TO 960 MHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 3m from the EUT.

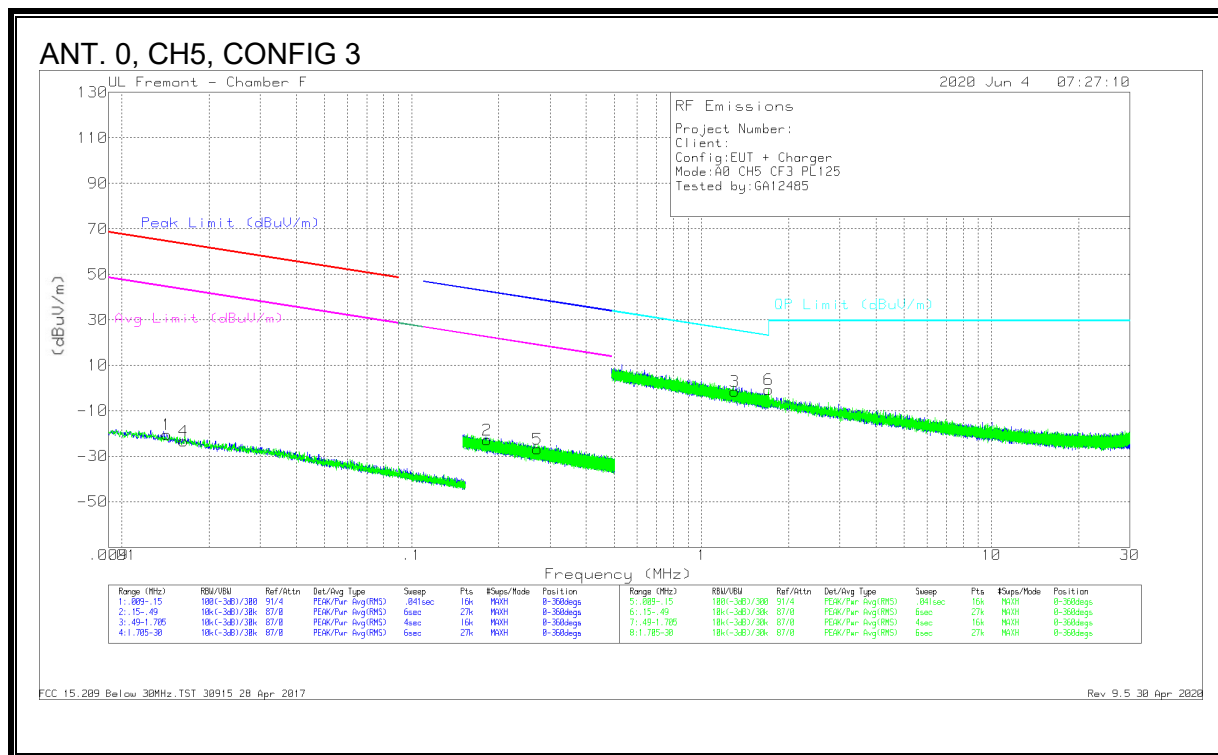
A final test is made at any frequencies at which emissions are found. During this final scan, the antenna is kept no further from the EUT than the maximum distance calculated for each band that yields a minimum system noise floor.

RESULTS

Emissions Summary

Ant	CH	Config	Payload	Power Setting	Frequency Range	
					9 kHz - 30 MHz	30 - 960 MHz
0	5	3	125	Max	PASS	PASS
0	9	3	125	Max	PASS	PASS
1	5	3	125	Max	PASS	PASS
1	9	3	125	Max	PASS	PASS
2	5	3	125	Max	PASS	PASS
2	9	3	125	Max	PASS	PASS

8.5.1. EMISSIONS, 9 kHz – 30 MHz



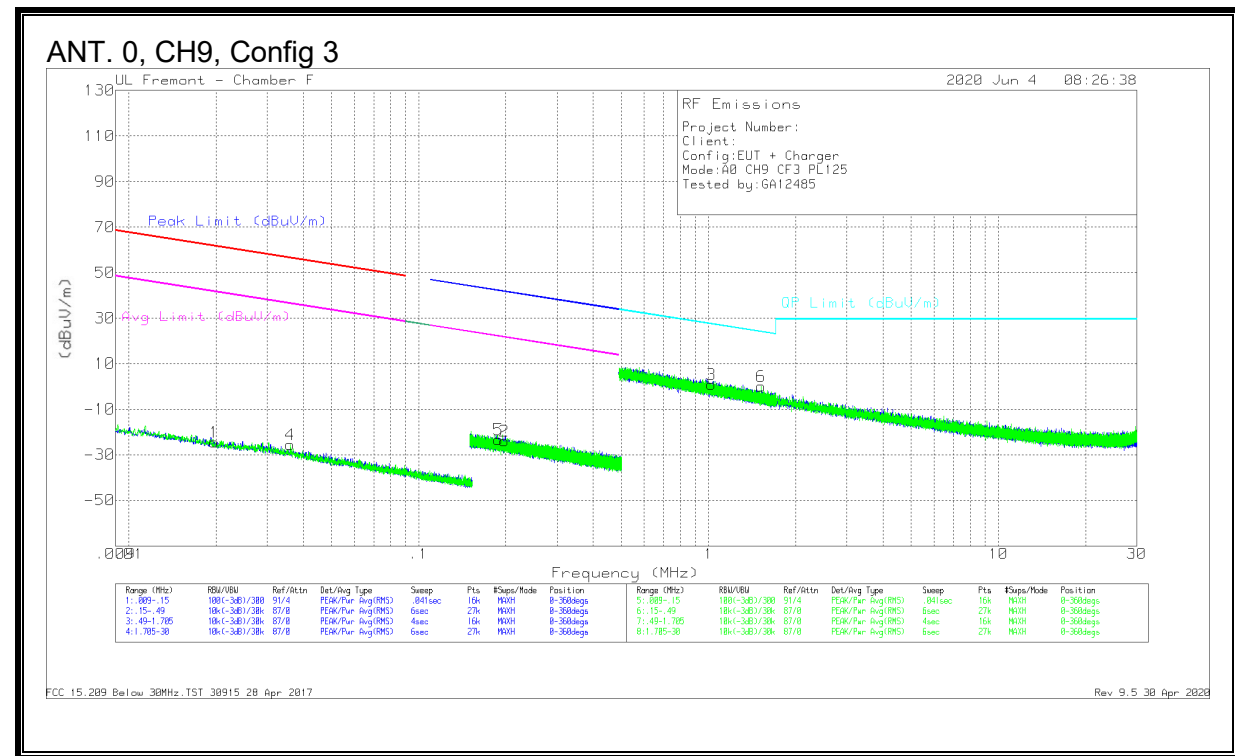
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01429	42.18	Pk	17.3	0	-80	-20.52	64.48	-85	44.48	-65	-	-	-	-	0-360
2	.18227	45.93	Pk	11.1	-1	-80	-22.87	-	-	-	-	42.41	-65.28	22.41	-45.28	0-360
4	.01635	40.1	Pk	16.5	0	-80	-23.4	63.31	-86.71	43.31	-66.71	-	-	-	-	0-360
5	.2719	42.15	Pk	10.9	-1	-80	-26.85	-	-	-	-	38.93	-65.78	18.93	-45.78	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.30214	27.33	Pk	11.2	.1	-40	-1.37	25.33	-26.7	0-360
6	1.70814	27.97	Pk	11.3	.1	-40	-.63	29.5	-30.13	0-360

Pk - Peak detector



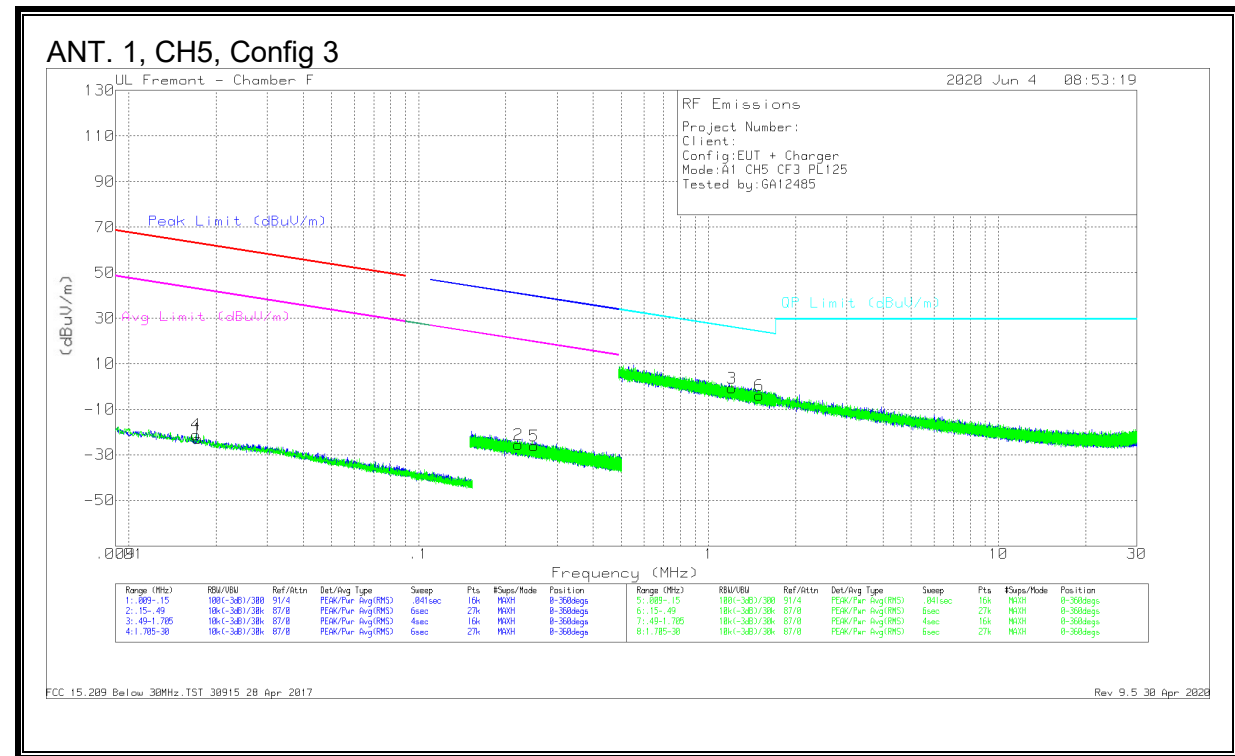
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	01975	40.56	Pk	15.1	0	-80	-24.34	61.68	-86.02	41.68	-66.02	-	-	21.7	-45.68	0-360
2	19776	44.92	Pk	11	-1	-80	-23.98	56.44	-81.85	36.44	-81.85	-	-	22.12	-45.36	0-360
4	03609	40.79	Pk	13.8	0	-80	-25.41	-	-	-	-	-	-	-	-	0-360
5	18842	45.66	Pk	11	-1	-80	-23.24	-	-	-	-	-	-	-	-	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.02238	29.66	Pk	11.2	.1	-40	.96	27.43	-26.47	0-360
6	1.51858	28.65	Pk	11.3	.1	-40	.05	24	-23.95	0-360

Pk - Peak detector



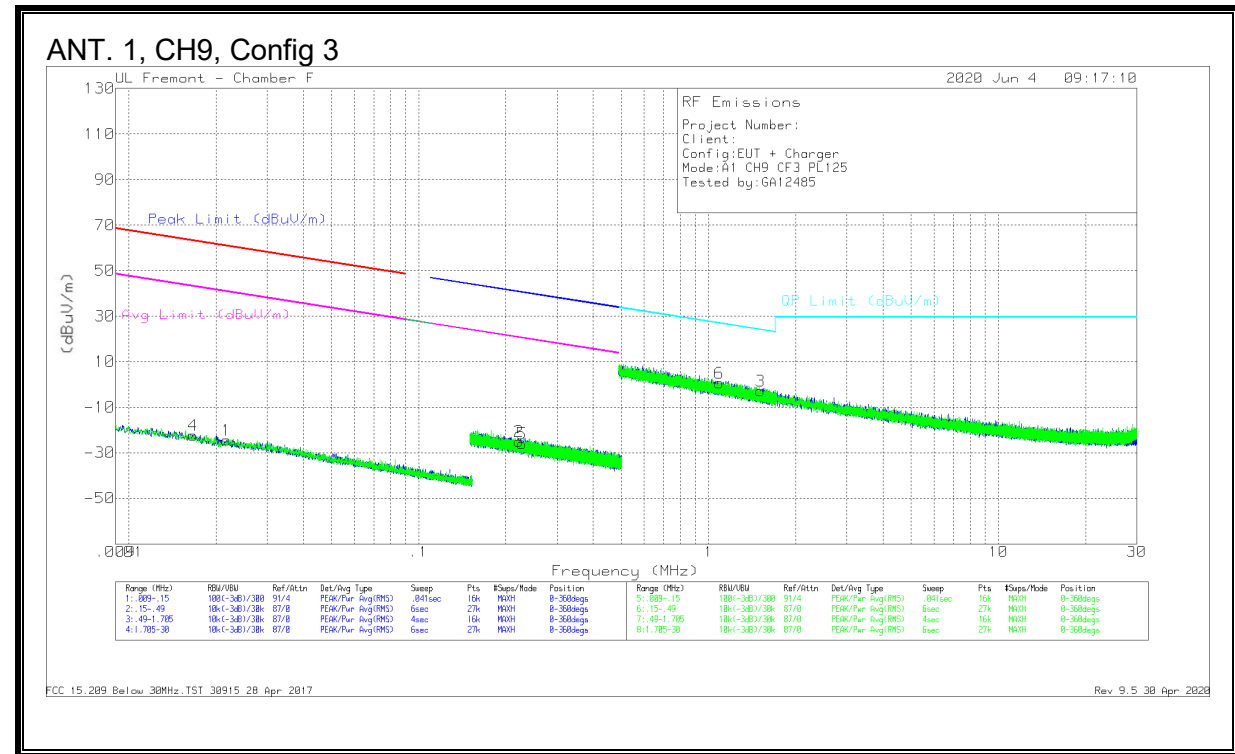
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	01733	41.09	Pk	16.1	0	-80	-22.81	62.61	-85.62	42.81	-65.62	-	-	20.74	-46.28	0-360
2	22084	43.36	Pk	11	-1	-80	-25.54	-	-	-	-	-	-	-	-	0-360
4	01708	42.7	Pk	16.2	0	-80	-21.1	62.95	-84.05	42.95	-64.05	-	-	-	-	0-360
5	25007	42.91	Pk	10.9	-1	-80	-26.09	-	-	-	-	-	-	19.65	-45.74	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.20425	27.92	Pk	11.2	.1	-40	-78	26.01	-26.79	0-360
6	1.49525	24.79	Pk	11.2	.1	-40	-3.91	24.14	-28.05	0-360

Pk - Peak detector



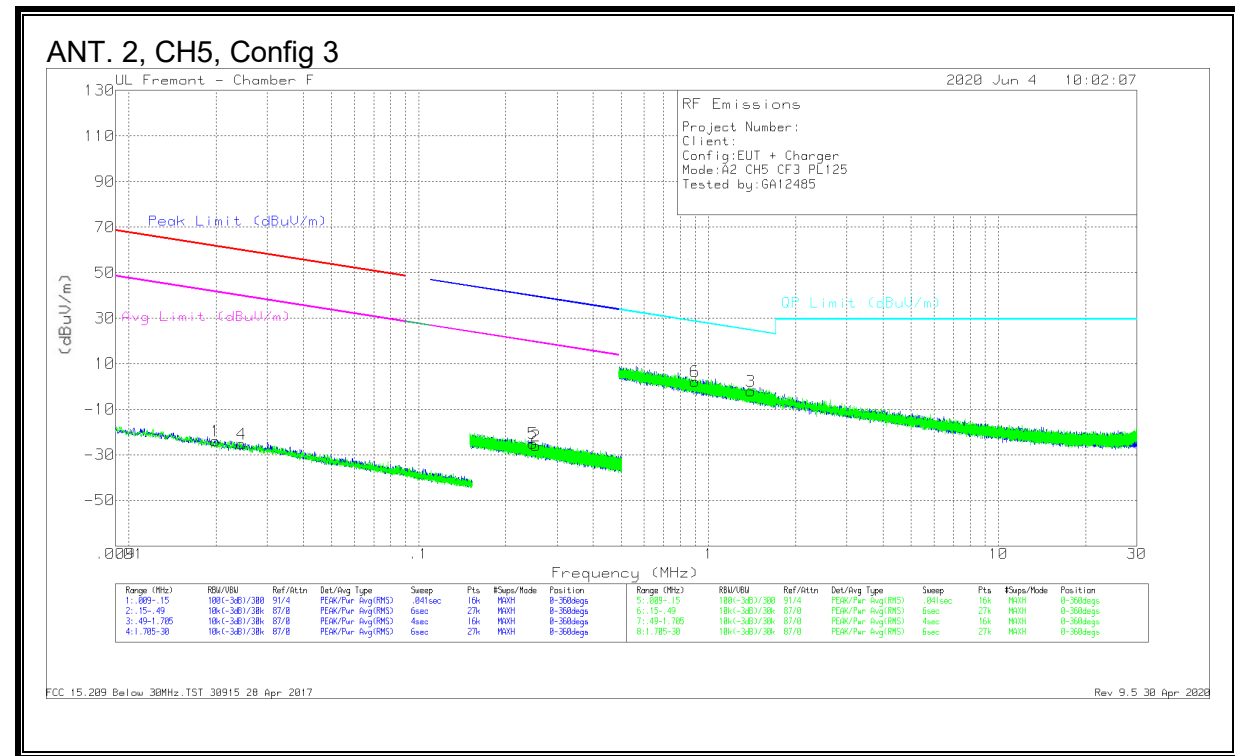
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	02171	40.61	Pk	14.9	0	-80	-24.49	60.85	-85.34	40.85	-65.34	40.7	-65.55	20.7	-45.55	0-360
2	22185	44.05	Pk	11	-1	-80	-24.85	63.13	-85.49	43.13	-65.49	-	-	-	-	0-360
4	0167	41.34	Pk	16.3	0	-80	-22.36	63.13	-85.49	43.13	-65.49	-	-	-	-	0-360
5	2273	42.99	Pk	11	-1	-80	-25.91	-	-	-	-	40.48	-66.39	20.48	-46.39	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.51114	25.74	Pk	11.3	.1	-40	-2.86	24.05	-26.91	0-360
6	1.08751	29.32	Pk	11.2	.1	-40	.62	26.89	-26.27	0-360

Pk - Peak detector



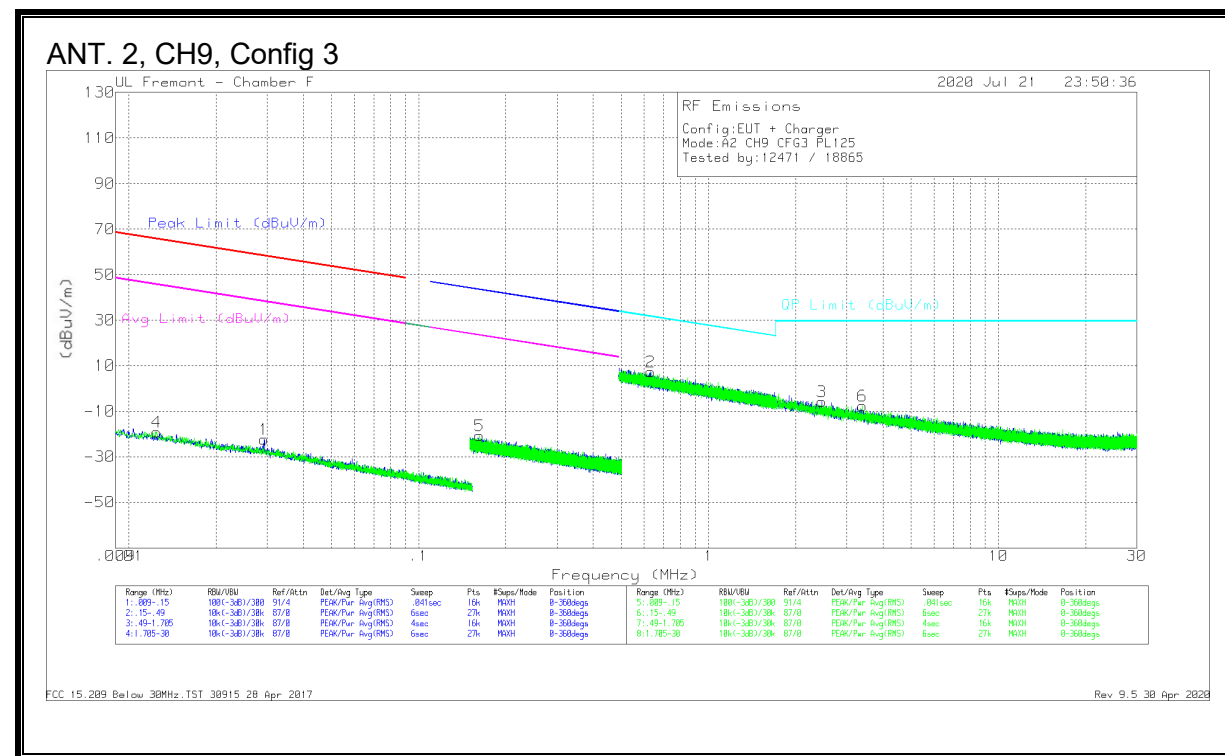
Trace Markers

Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	01992	40.99	Pk	15	0	-80	-24.01	61.6	-85.61	41.6	-85.61	-	-	19.51	-45.56	0-360
2	25426	42.95	Pk	10.9	-1	-80	-25.05	59.8	-85.13	39.8	-85.13	-	-	19.73	-44.68	0-360
4	02452	39.87	Pk	14.8	0	-80	-25.33	-	-	-	-	-	-	-	-	0-360
5	24779	43.95	Pk	11	-1	-80	-24.95	-	-	-	-	-	-	-	-	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	1.39888	26.57	Pk	11.2	.1	-40	-2.13	24.71	-26.84	0-360
6	.89721	31.23	Pk	11	.1	-40	2.33	28.56	-26.23	0-360

Pk - Peak detector



Trace Markers

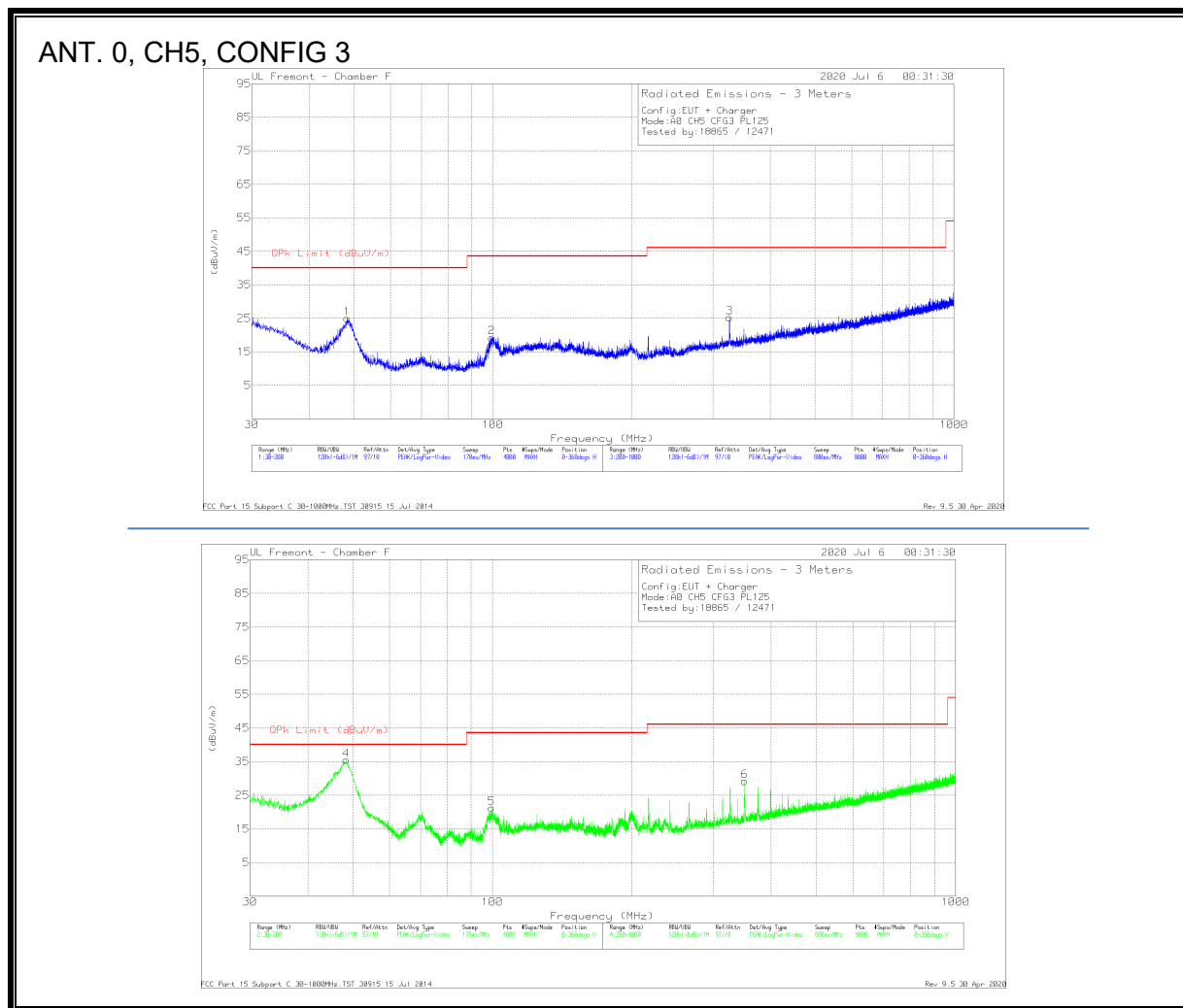
Marker	Freq. (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.02935	43.13	Pk	14.5	0	-80	-22.37	58.23	-80.6	38.23	-80.6	-	-	-	-	0-360
4	.01248	42.97	Pk	18	0	-80	-19.03	65.66	-84.69	45.66	-84.69	-	-	-	-	0-360
5	.16201	48.15	Pk	11.1	.1	-80	-20.65	-	-	-	-	43.43	-64.08	23.43	-44.08	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV/m)	Det	Loop Antenna (dBm)	Cables (dB)	Dist Corr (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.63235	36.23	Pk	11	.1	-40	7.33	31.59	-24.26	0-360
3	2.45327	22.63	Pk	11.3	.2	-40	-5.87	29.5	-35.37	0-360
6	3.39228	20.99	Pk	11.3	.2	-40	-7.51	29.5	-37.01	0-360

Pk - Peak detector

8.5.2. EMISSIONS, 30 - 960 MHz



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.3222	41.55	Pk	15.1	-31.7	24.95	40	-15.05	0-360	400	H
2	99.4205	34.49	Pk	16	-31.2	19.29	43.52	-24.23	0-360	301	H
4	48.3648	52.06	Pk	15.1	-31.7	35.46	40	-4.54	0-360	100	V
5	99.633	36.32	Pk	16.1	-31.2	21.22	43.52	-22.3	0-360	100	V
3	326.1164	34.58	Pk	20.4	-29.7	25.28	46.02	-20.74	0-360	99	H
6	350.3195	37.8	Pk	21	-29.6	29.2	46.02	-16.82	0-360	99	V

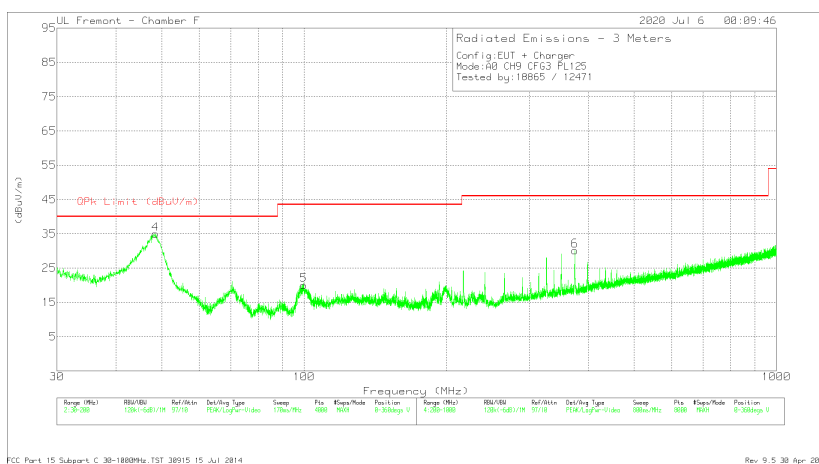
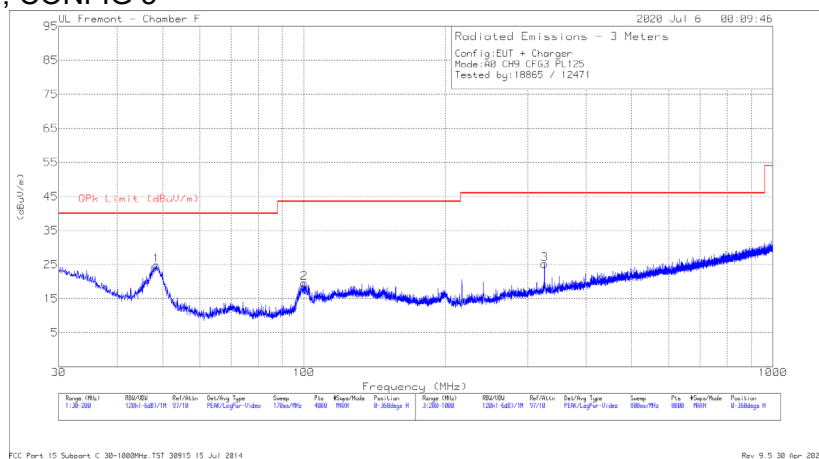
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	48.3955	47.79	Qp	15	-31.7	31.09	40	-8.91	171	100	V

Qp - Quasi-Peak detector

ANT. 0, CH9, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.4498	41.5	Pk	15	-31.7	24.8	40	-15.2	0-360	401	H
2	100.1857	34.45	Pk	16.3	-31.2	19.55	43.52	-23.97	0-360	300	H
4	48.4923	51.68	Pk	15	-31.7	34.98	40	-5.02	0-360	100	V
5	99.8881	35.04	Pk	16.2	-31.2	20.04	43.52	-23.48	0-360	100	V
3	326.1164	34.49	Pk	20.4	-29.7	25.19	46.02	-20.83	0-360	99	H
6	374.4227	38.13	Pk	21.5	-29.5	30.13	46.02	-15.89	0-360	99	V

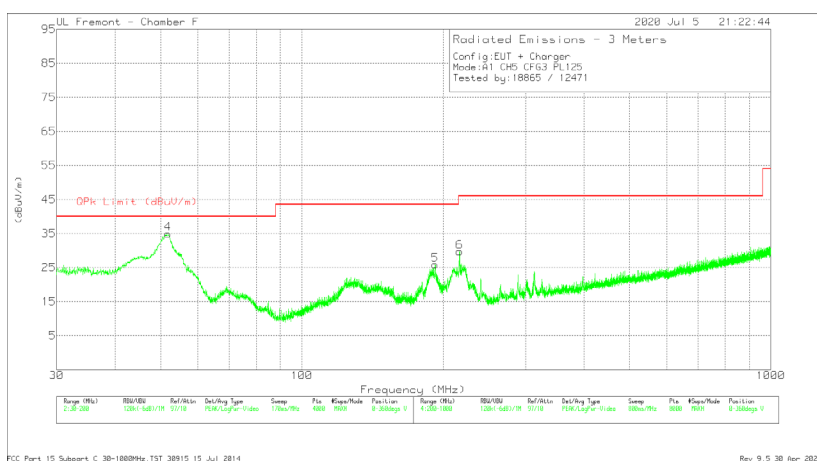
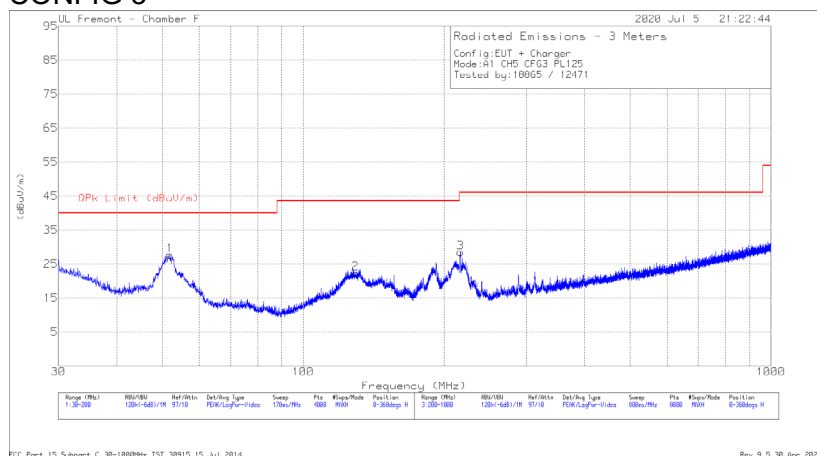
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	48.4549	47.45	Qp	15	-31.7	30.75	40	-9.25	165	115	V

Qp - Quasi-Peak detector

ANT.1, CH5, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	51.8932	45.34	Pk	13.9	-31.6	27.64	40	-12.36	0-360	401	H
2	129.3907	33.07	Pk	20.1	-30.9	22.27	43.52	-21.25	0-360	200	H
4	51.8507	52.62	Pk	13.9	-31.6	34.92	40	-5.08	0-360	100	V
5	192.307	38.33	Pk	17.9	-30.4	25.83	43.52	-17.69	0-360	100	V
3	217.0022	41.57	Pk	17.2	-30.3	28.47	46.02	-17.55	0-360	99	H
6	217.0022	42.83	Pk	17.2	-30.3	29.73	46.02	-16.29	0-360	99	V

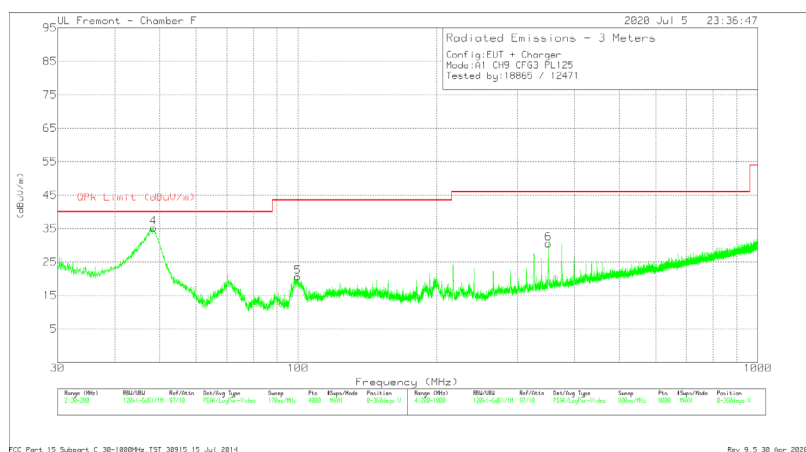
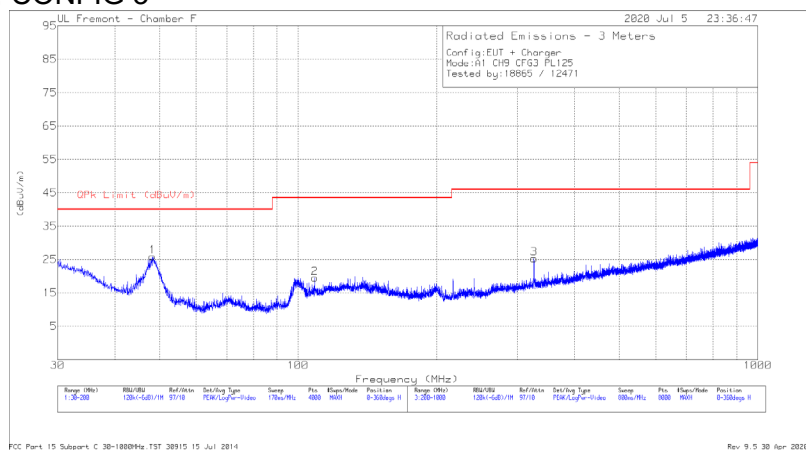
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	51.7259	48.3	Qp	14	-31.6	30.7	40	-9.3	328	101	V

Qp - Quasi-Peak detector

ANT. 1, CH9, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.2372	42.47	Pk	15.1	-31.7	25.87	40	-14.13	0-360	401	H
2	108.7304	32.25	Pk	18.3	-31.1	19.45	43.52	-24.07	0-360	301	H
4	48.4498	51.97	Pk	15	-31.7	35.27	40	-4.73	0-360	100	V
5	99.8031	35.71	Pk	16.1	-31.2	20.61	43.52	-22.91	0-360	100	V
3	326.0164	34.61	Pk	20.4	-29.7	25.31	46.02	-20.71	0-360	99	H
6	350.2195	39.25	Pk	21	-29.7	30.55	46.02	-15.47	0-360	99	V

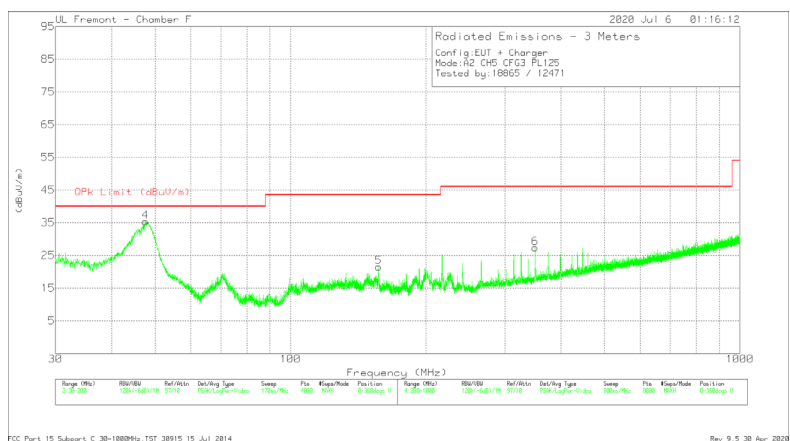
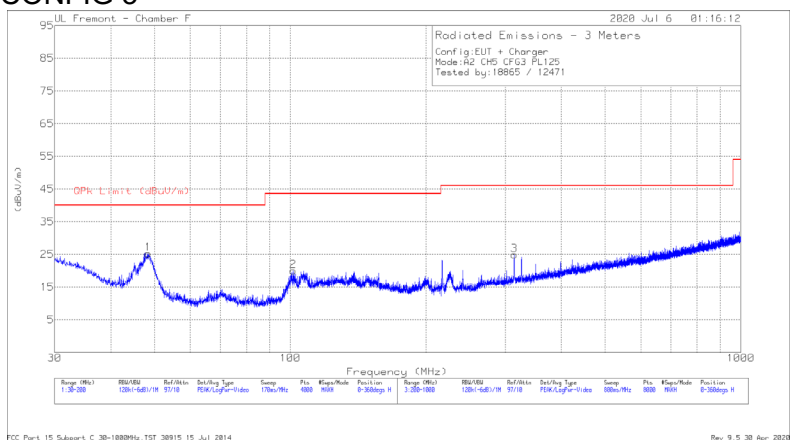
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	48.4056	47.95	Qp	15	-31.7	31.25	40	-8.75	146	100	V

Qp - Quasi-Peak detector

ANT. 2, CH5, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	48.3648	41.78	Pk	15.1	-31.7	25.18	40	-14.82	0-360	401	H
2	101.5885	34.36	Pk	16.7	-31.1	19.96	43.52	-23.56	0-360	301	H
4	47.557	51.66	Pk	15.4	-31.7	35.36	40	-4.64	0-360	100	V
5	157.0654	33.76	Pk	18.5	-30.8	21.46	43.52	-22.06	0-360	100	V
3	314.1148	34.33	Pk	20.3	-29.8	24.83	46.02	-21.19	0-360	99	H
6	350.4196	35.96	Pk	21	-29.6	27.36	46.02	-18.66	0-360	99	V

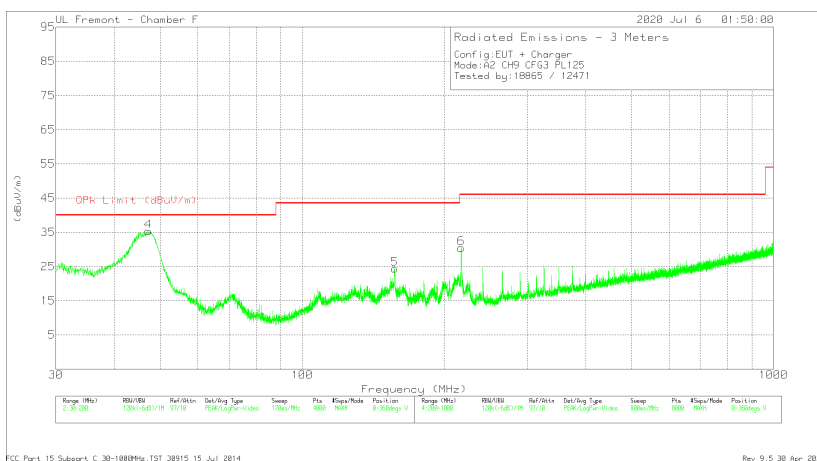
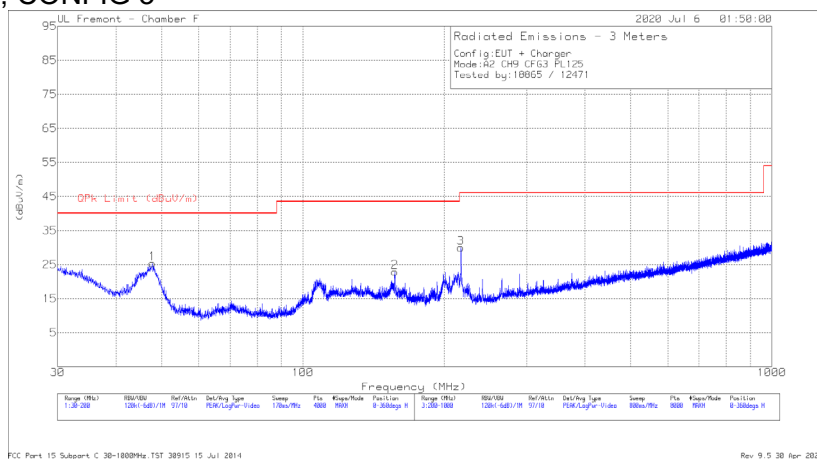
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	47.7154	47.49	Qp	15.3	-31.7	31.09	40	-8.91	121	100	V

Qp - Quasi-Peak detector

ANT. 2, CH9, CONFIG 3



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	47.8121	41.79	Pk	15.3	-31.7	25.39	40	-14.61	0-360	401	H
2	157.0866	35.17	Pk	18.5	-30.8	22.87	43.52	-20.65	0-360	301	H
4	47.1319	51.55	Pk	15.5	-31.7	35.35	40	-4.65	0-360	100	V
5	157.0654	36.65	Pk	18.5	-30.8	24.35	43.52	-19.17	0-360	100	V
3	217.3022	43.05	Pk	17.2	-30.3	29.95	46.02	-16.07	0-360	201	H
6	217.4023	43.54	Pk	17.2	-30.3	30.44	46.02	-15.58	0-360	99	V

Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	47.3589	47.45	Qp	15.5	-31.7	31.25	40	-8.75	288	100	V

Qp - Quasi-Peak detector