

TEST REPORT

Report Number : 14523758-E12V4

Applicant : APPLE INC
1 APPLE PARK WAY
CUPERTINO, CA 95104, U.S.A.

Model : A2846 (Parent Model)
A3089, A3090, A3092 (Variant Models)

Brand : APPLE

FCC ID : BCG-E8427A (Parent Model)
BCG-E8428A, BCG-E8429A, BCG-E8430A (Variant Models)

IC : 579C-E8427A (Parent model)
579C-E8428A, 579C-E8429A, 579C-E8430A (Variant Models)

EUT Description : SMARTPHONE

Test Standard(s) : FCC CFR 47 PART 15 SUBPART F §15.519
ISED RSS-220 ISSUE 1 AMENDMENT 1

Date Of Issue:
AUGUST 02, 2023

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/7/2023	Initial Issue	---
V2	7/10/2023	Revised Letterhead, Sections 5.3, 8 & 9.7	Benjamin D.
V3	7/17/2023	Revised Sections 7, 9.1, 9.2 & 9.3	Benjamin D.
V4	8/2/2023	Revised Sections 3, 7	Benjamin D.

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE INC 1 APPLE PARK WAY CUPERTINO, CA 95104, U.S.A.
Model	A2846 (Parent Model, Full Test) A3089, A3090, A3092 (Variant Models)
Brand	APPLE
FCC ID	BCG-E8427A (Parent Model) BCG-E8428A, BCG-E8429A, BCG-E8430A (Variant Models)
IC	579C-E8427A (Parent model) 579C-E8428A, 579C-E8429A, 579C-E8430A (Variant Models)
EUT Description	SMARTPHONE
Serial Number	HFQP17C6FF; YGDCGQHL03; K942WGQWRY; VKM73JDWVC
Sample Receipt Date	JANUARY 03, 2023
Date Tested	JANUARY 03, 2023 TO JULY 05, 2023
Applicable Standards	FCC CFR 47 PART 15 SUBPART F §15.519 ISED RSS-220 ISSUE 1 AMENDMENT 1
Test Results	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.	
Approved & Released By:	Prepared & Reviewed By:
	
Thu Chan Staff Engineer UL Verification Services Inc.	Benjamin Dobbins Senior Test Engineer UL Verification Services Inc.

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	ANSI C63.10 Section 11.6
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.4
15.503 & 15.519 (b)	RSS-220 Sect. 2	-10 dB BW	Complies	ANSI C63.10 Section 10.1
15.519 (c) & (e)	RSS-220 Sect. 4 (c) & 5.3.1 (d)	Pk Power & Max Avg Emissions	Complies	ANSI C63.10 Section 10.3
15.519 (a)(1)	RSS-220 Sect. 5.3.1 (b)	Cessation Time	Complies	None
15.519 (c) & 15.209 (a)	RSS-220 Sect. 3.4	Emissions Below 960 MHz	Complies	ANSI C63.10 Section 10.2
15.519 (c) & (d)	RSS-220 Sect. 5.3.1 (d) & (e)	Emissions Above 960 MHz	Complies	ANSI C63.10 Section 10.3
15.207 (a)	RSS-Gen 8.8	AC Power Line Conducted Emissions	Complies	ANSI C63.10 Section 6.2

3. 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 v02r01
- ANSI C63.10:2013
- ISED RSS-220 Issue 1 Amendment 1
- ISED RSS GEN Issue 5 Amendment 2

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, 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, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☐	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{LAB}
Conducted Antenna Port Emission Measurement	1.940 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 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%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned}
 \text{EIRP (dBm)} &= \text{Meter Reading (dBm)} + \text{Antenna Factor (dB/m)} + \text{Pre-Amp Gain/Cbl Loss (dB)} \\
 &\quad + \text{dBm-to-dBm Unit Conversion Factor @ 3m} \\
 &= -60 \text{ dBm} + 28 \text{ dB/m} + (-27) \text{ dB} + 11.8 \\
 &= -47.2 \text{ dBm}
 \end{aligned}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Final Voltage (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{LISN Insertion Loss (dB)} + \text{Cable Loss (dB)} \\ &\quad + \text{Limiter Factor (dB)} \\ &= 38.32 \text{ dBuV} + 0.1 \text{ dB} + 0 \text{ dB} + 9.4 \text{ (dB)} \\ &= 47.82 \text{ dBuV}\end{aligned}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax, Bluetooth (BT), Ultra-Wideband (UWB), GPS, NFC, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

The EUT has a UWB transceiver with two integral antennas (ANT1 = UWB1, ANT2 = ANT6/UWB0). ANT1 only operates on 8 GHz (Channel 9). ANT2 operates on 6.5 GHz (Channel 5) and 8 GHz (Channel 9). The antennas are not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

Parent Model: A2846, FCC ID: BCG-E8427A, IC: 579C-E8427A

Variant Models: A3089, FCC ID: BCG-E8428A, IC: 579C-E8428A
A3090, FCC ID: BCG-E8429A, IC: 579C-E8429A
A3092, FCC ID: BCG-E8430A, IC: 579C-E8430A

6.2. MAXIMUM OUTPUT POWER

Highest Average Powers based on ANT/CH for the parent model are listed as follow:

Parent Model (A2846)			
ANT	CH	CONFIG	Average Power (dBm EIRP)
1	9	11	-42.36
2	5	0	-42.32
2	9	402	-42.35

6.3. MODULATION

The UWB signal is BPSK pulsed modulated signal.

6.4. SOFTWARE AND FIRMWARE

The Software and Firmware version used at test is FT: 1868.0.30.0.1~1432.4601.33.

7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

SUPPORT EQUIPMENT LIST			
Description	Manufacturer	Model	Serial Number
Laptop + Adapter	Apple	MacBook Pro	FVF1CBUHV29
Brisket – USB Adapter	Apple	Brisket UART Cable Pigtail	F2010M00004786
USB-C Power Adapter	Apple	A2305	C4H9516000APF4F4P
USB-C Ethernet Adapter	Ugreen	CM475	60600
USB-A to USB-C adapter	Anker	A8731	X002NCP6GR
USB-A Cable with Repeater	Ugreen	10321	X000TT2OLL

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

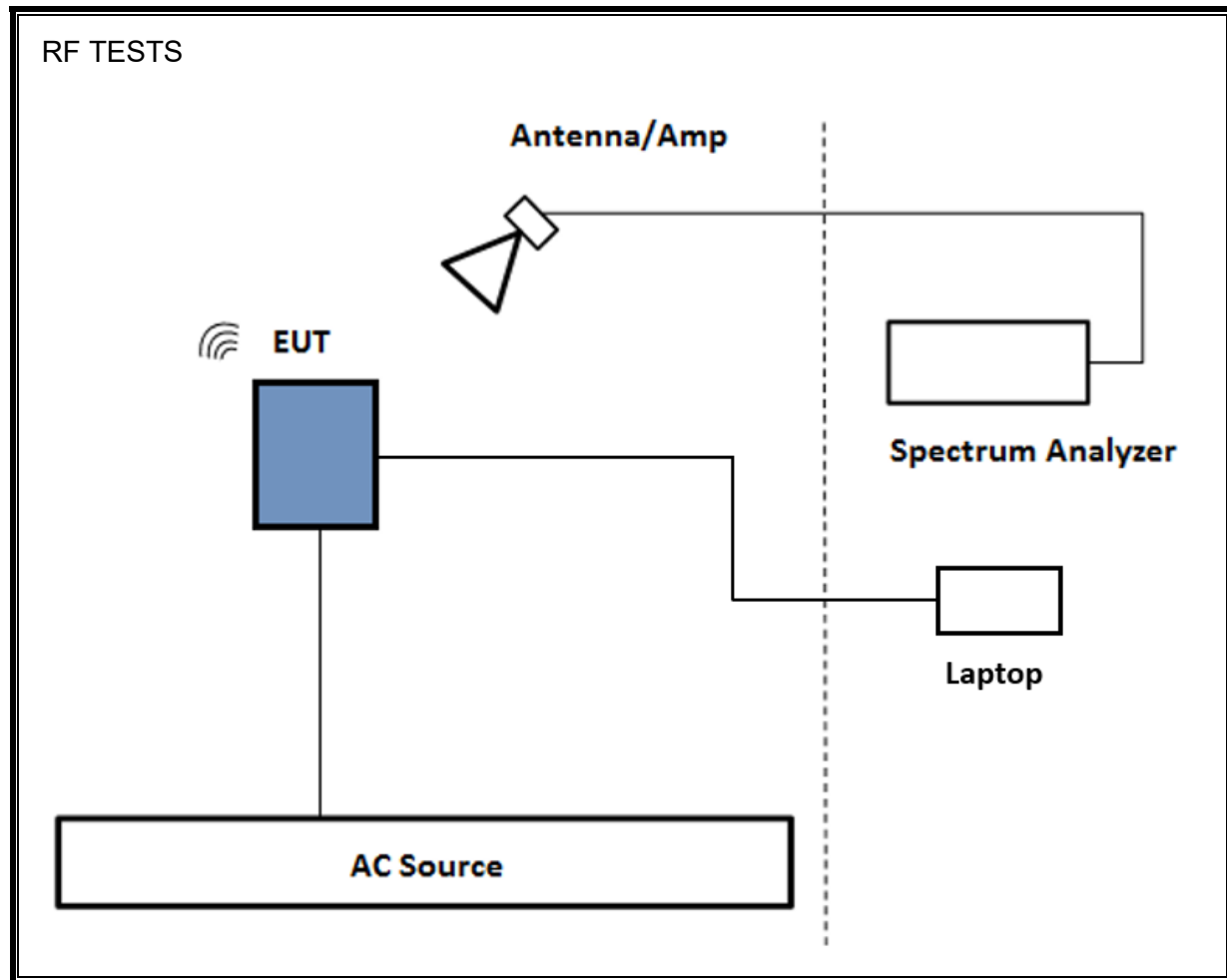
TEST SETUP

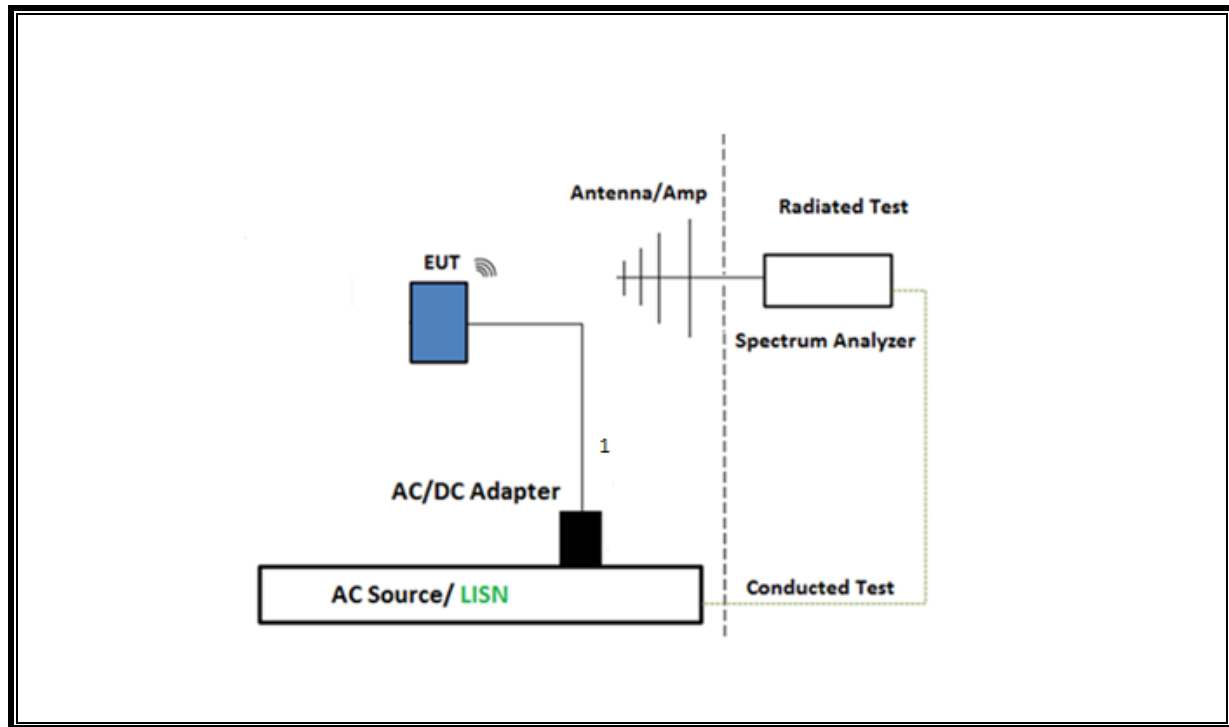
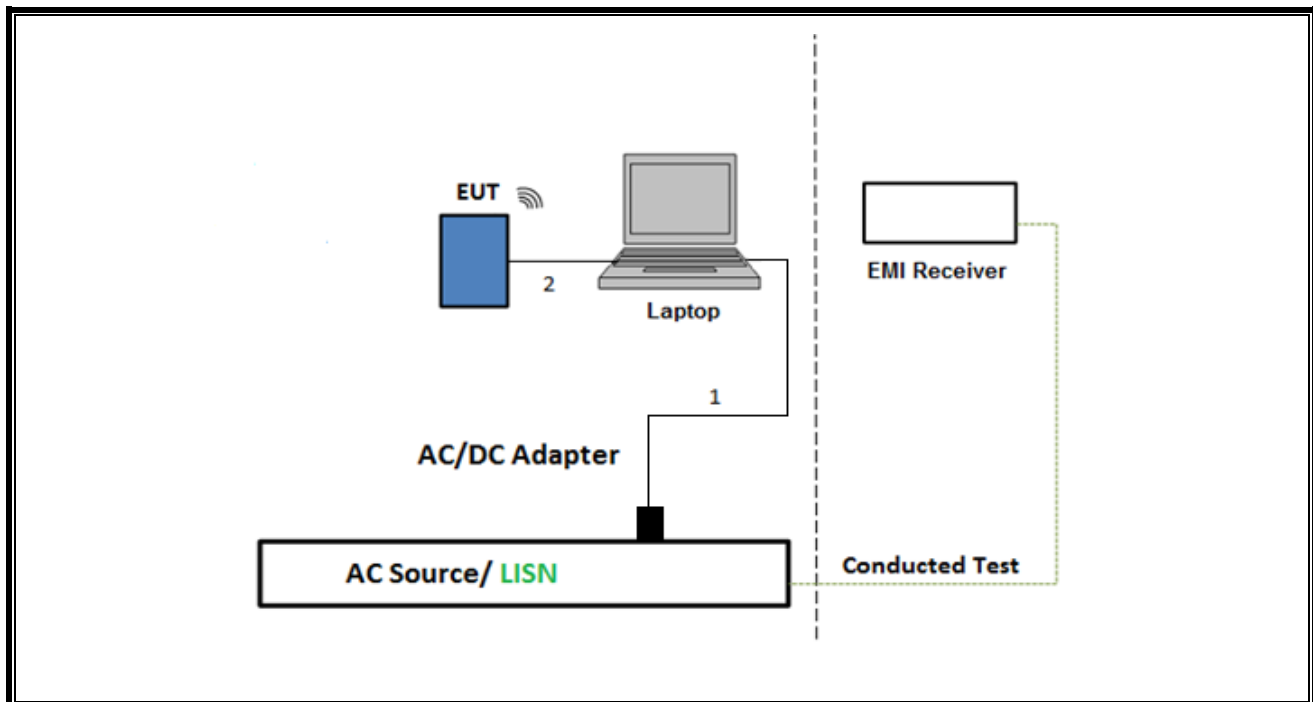
The EUT was examined at pre-scan test using a fundamental frequency in the portrait (z), landscape (y), and flatbed (x) position and the worst-case orientation of individual ANT/CH/CONFIG setting was determined for final spurious emission measurement. All selected configs are used for the Ant/Ch settings that were tested at default power (0 dBm), and Config 9 Payload 125 was chose for unwanted emission test with CH9 on Ant 1 and both CH5 and CH9 on Ant 2 on the parent model by setting at maximum output power higher than 0 dBm.

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 except 0.96-6GHz, 1164-1240MHz, and 1559-1610MHz due to noise unrelated to the UWB signal from the device.

For simultaneous transmission on the same antenna of multiple channels in the UWB and WiFi, no noticeable new emission was found.

SETUP DIAGRAM FOR Above 1GHz TESTS

SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST**TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION**

8. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment					
Description	Manufacturer	Model	Local ID	Cal Date	Cal Due
EMI Test Receiver	Rohde & Schwarz	ESW44	223460	2/18/2023	2/29/2024
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	206805	7/5/2022	7/5/2023*
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	224478	10/26/2022	10/26/2023
EMI Test Receiver	Rohde & Schwarz	ESW44	226078	2/22/2023	2/29/2024
Antenna, Horn 26.5-40GHz	ARA	MWH-2640/B	172366	1/27/2023	1/31/2024
RF Amplifier 26.5-40GHz	Ampical	AMP26G40-60	172345	5/19/2023	5/31/2024
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	226779	3/5/2023	3/5/2024
EMI Test Receiver	Rohde & Schwarz	ESW44	235266	2/20/2022	2/20/2023*
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	206808	2/18/2022	2/18/2023*
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	173233	3/28/2022	3/28/2023*
Antenna, Broadband Hybrid, 30 MHz to 3GHz	Sunol Sciences Corp	JB3	230634	1/15/2022	1/31/2023*
EMI Test Receiver	Rohde & Schwarz	ESW44	235266	3/30/2023	3/31/2024
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	206808	3/7/2023	3/31/2024
Amplifier, 9kHz to 1 GHz, 32dB	Sonoma Instrument	310N	79584	12/12/2022	12/12/2023
Antenna, Passive Loop 100kHz - 30MHz	Electro-Metrics	EM-6872	170015	7/28/2022	7/28/2023
Antenna, Passive Loop 30Hz - 1MHz	Electro-Metrics	EM-6871	170013	7/28/2022	7/28/2023
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	81139	7/11/2022	7/11/2023
RF Amplifier 18-26.5GHz	Ampical	AMP18G26.5-60	220194	7/13/2022	7/13/2023
Antenna, Horn 26.5-40GHz	ARA	MWH-2640/B	81105	7/11/2022	7/11/2023
RF Amplifier 26.5-40GHz	Ampical	AMP26G40-60	220193	7/15/2022	7/15/2023
Filter, LPF 0-5400MHz Ch5/9 5.4G LPF	Wainwright Instruments GmbH	WLKX12-5400-5913-18000-60ST	204843	11/10/2022	11/10/2023
Filter, HPF, 9-18GHz	RF-Lambda	RHPF23G09G18	206078	11/10/2022	11/10/2023
Filter, HPF 11.2GHz, Ch9 11.5G HPF	Wainwright Instruments GmbH	WHW2-8165-11500-21000-40CD	176234	12/28/2022	12/28/2023
EMI TEST RECEIVER	Rohde & Schwarz	ESR	171646	2/20/2023	2/20/2024
Cable, RG223 Coax, double shield, BNC	Pasternack Enterprises	RG233/U	202322	7/15/2022	7/31/2023
Cable, RG223 Coax, double shield, BNC	Pasternack Enterprises	RG233/U	202326	7/15/2022	7/31/2023
Transient Limiter	TE	TBFL1	207996	7/15/2022	7/15/2023
LISN for Conducted Emissions CISPR-16	Fischer Custom Communications, Inc	FCC-LISN-50/250/-25-2-01-480V	175765	1/27/2023	1/27/2024
Radiated Software	UL	UL EMC	Version 9.5 May 1, 2023		
AC Line Conducted Software	UL	UL EMC	Version 9.5 March 3, 2023		

*Tests were performed prior to the calibration date to ensure accurate measurements were recorded.

9. APPLICABLE LIMITS AND TEST RESULTS

9.1. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

ANSI C63.10 Section 6.9.3

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 for the parent model. The plots for the parent model of Ant 1, CONFIG 9, Payload 125 on CH9 and Ant 2, CONFIG 9, Payload 125 on CH5 and CH9 bandwidth measurement on are presented and same measurement settings apply to the rest of the test configurations.

RESULTS

Parent Model

Employee IDs: 32188, 28499, 32479

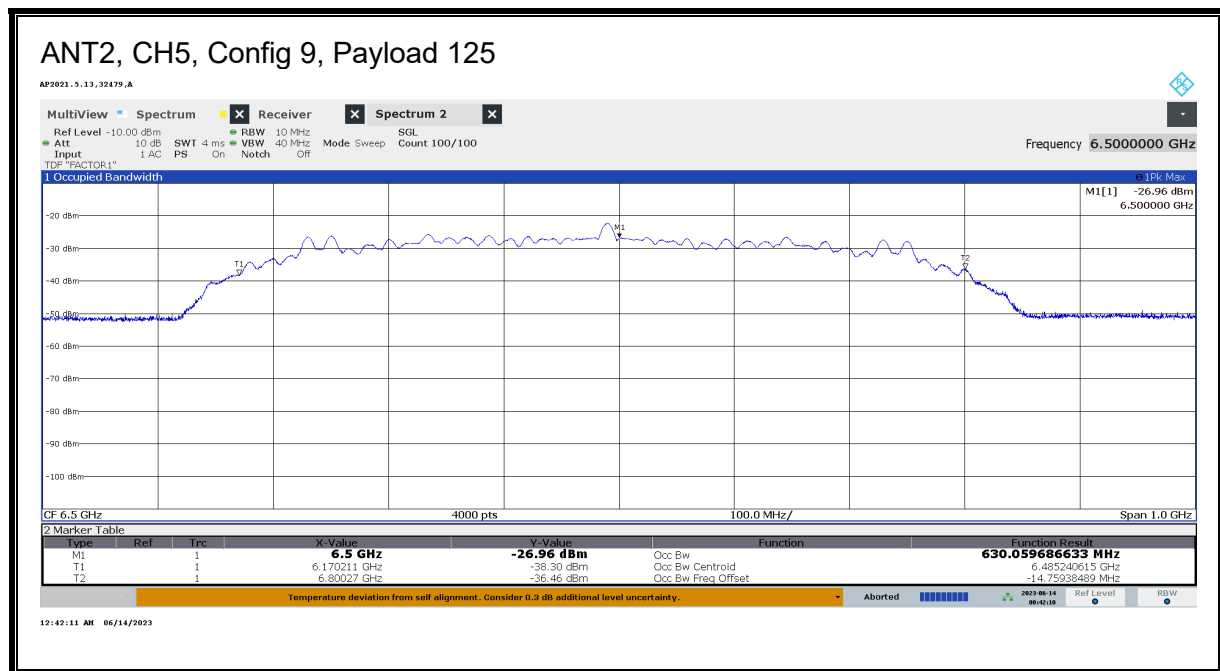
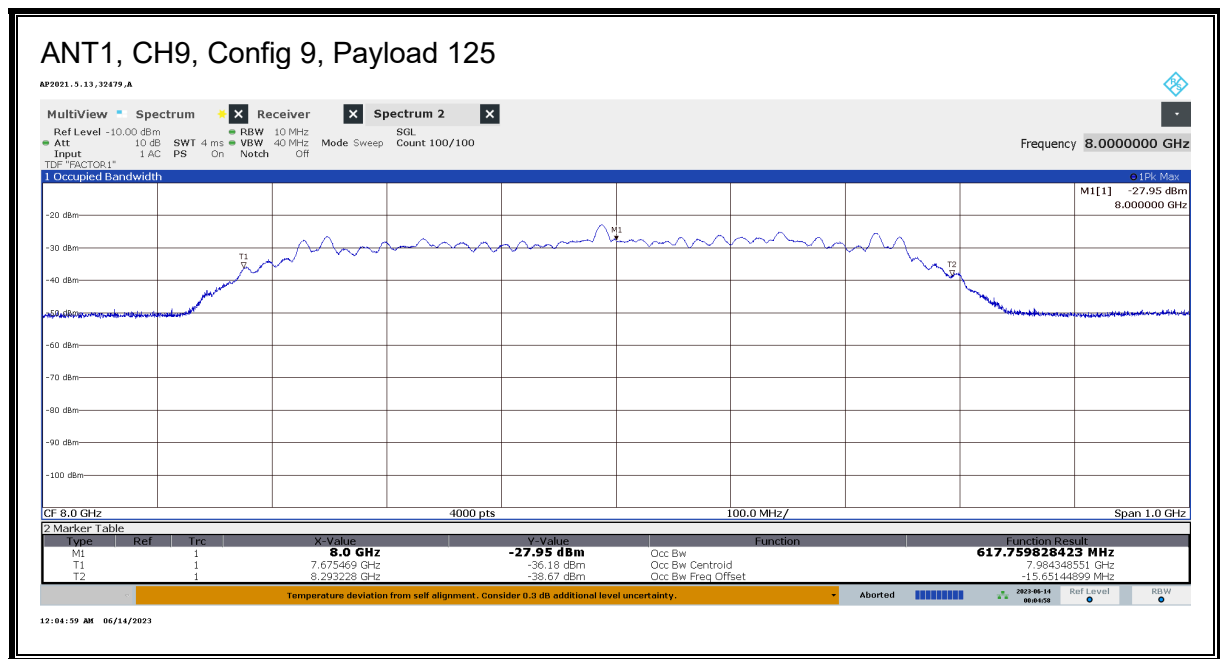
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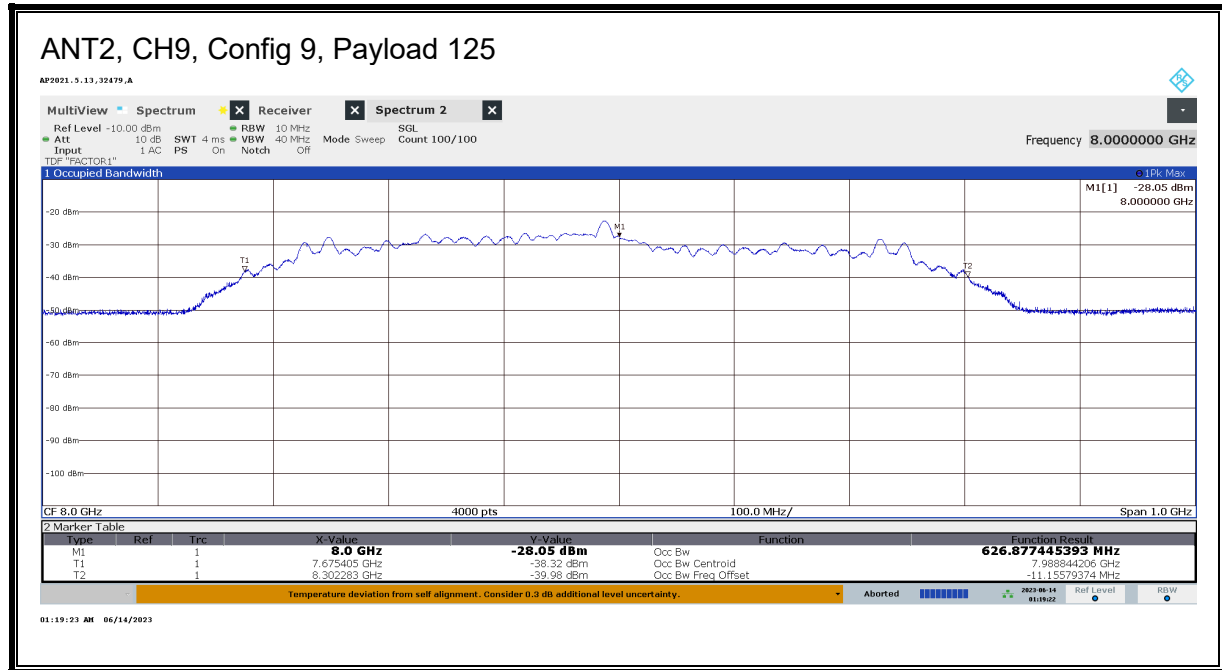
Test Date: 5/22/23 – 6/7/23

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
1	9	0	25	Portrait	H	602.96
1	9	1	45	Portrait	H	603.04
1	9	9	125	Portrait	H	617.76
1	9	10	25	Portrait	H	602.92
1	9	11	25	Portrait	H	602.82
1	9	11	65	Portrait	H	603.65
1	9	101	25	Portrait	H	602.32
1	9	101	65	Portrait	H	602.77
1	9	102	25	Portrait	H	601.97
1	9	102	65	Portrait	H	602.82
1	9	103	25	Portrait	H	602.94
1	9	103	125	Portrait	H	606.48
1	9	202	625	Portrait	H	800.31
1	9	402	445	Portrait	H	605.01
1	9	501	0	Portrait	H	593.20
1	9	503	0	Portrait	H	593.11
1	9	601	0	Portrait	H	607.25
1	9	605	0	Portrait	H	604.17
1	9	607	0	Portrait	H	604.56
1	9	701	0	Portrait	H	616.38
1	9	702	0	Portrait	H	612.20
1	9	703	0	Portrait	H	617.40
1	9	704	0	Portrait	H	623.71
1	9	705	0	Portrait	H	615.34
1	9	706	0	Portrait	H	616.61
1	9	405	4093	Portrait	H	756.84
1	9	407	4093	Portrait	H	735.66
1	9	801	0	Portrait	H	607.32
1	9	802	0	Portrait	H	607.06
1	9	803	0	Portrait	H	606.74
1	9	804	0	Portrait	H	617.94
1	9	805	0	Portrait	H	618.03
1	9	806	0	Portrait	H	615.12
1	9	807	0	Portrait	H	604.96
1	9	808	0	Portrait	H	601.70
1	9	809	0	Portrait	H	602.30
1	9	80A	0	Portrait	H	616.30
1	9	80B	0	Portrait	H	610.16
1	9	80C	0	Portrait	H	610.64

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	5	0	25	Portrait	H	614.22
2	5	1	45	Portrait	H	613.62
2	5	9	125	Portrait	H	630.06
2	5	10	25	Portrait	H	619.01
2	5	11	25	Portrait	H	618.19
2	5	11	65	Portrait	H	619.11
2	5	101	25	Portrait	H	619.38
2	5	101	65	Portrait	H	608.00
2	5	102	25	Portrait	H	606.85
2	5	102	65	Portrait	H	606.62
2	5	103	25	Portrait	H	606.72
2	5	103	125	Portrait	H	610.87
2	5	202	625	Portrait	H	764.50
2	5	402	445	Portrait	H	690.68
2	5	501	0	Portrait	H	592.61
2	5	503	0	Portrait	H	592.21
2	5	601	0	Portrait	H	613.65
2	5	605	0	Portrait	H	608.17
2	5	607	0	Portrait	H	608.48
2	5	701	0	Portrait	H	624.76
2	5	702	0	Portrait	H	623.29
2	5	703	0	Portrait	H	625.04
2	5	704	0	Portrait	H	633.44
2	5	705	0	Portrait	H	622.98
2	5	706	0	Portrait	H	626.32
2	5	405	4093	Portrait	H	701.01
2	5	407	4093	Portrait	H	696.44
2	5	801	0	Portrait	H	623.49
2	5	802	0	Portrait	H	624.27
2	5	803	0	Portrait	H	622.83
2	5	804	0	Portrait	H	629.74
2	5	805	0	Portrait	H	630.13
2	5	806	0	Portrait	H	626.39
2	5	807	0	Portrait	H	624.19
2	5	808	0	Portrait	H	621.57
2	5	809	0	Portrait	H	622.03
2	5	80A	0	Portrait	H	628.40
2	5	80B	0	Portrait	H	625.05
2	5	80C	0	Portrait	H	625.96

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	9	0	25	Landscape	V	595.52
2	9	1	45	Landscape	V	595.32
2	9	9	125	Landscape	V	626.88
2	9	10	25	Landscape	V	595.48
2	9	11	25	Landscape	V	594.57
2	9	11	65	Landscape	V	595.77
2	9	101	25	Landscape	V	594.71
2	9	101	65	Landscape	V	596.39
2	9	102	25	Landscape	V	595.22
2	9	102	65	Landscape	V	596.17
2	9	103	25	Landscape	V	595.31
2	9	103	125	Landscape	V	610.35
2	9	202	625	Landscape	V	854.21
2	9	402	445	Landscape	V	771.96
2	9	501	0	Landscape	V	593.87
2	9	503	0	Landscape	V	594.22
2	9	601	0	Landscape	V	615.58
2	9	605	0	Landscape	V	607.94
2	9	607	0	Landscape	V	607.78
2	9	701	0	Landscape	V	633.04
2	9	702	0	Landscape	V	628.59
2	9	703	0	Landscape	V	635.37
2	9	704	0	Landscape	V	637.33
2	9	705	0	Landscape	V	623.94
2	9	706	0	Landscape	V	628.75
2	9	405	4093	Landscape	V	820.12
2	9	407	4093	Landscape	V	804.39
2	9	801	0	Landscape	V	616.19
2	9	802	0	Landscape	V	619.57
2	9	803	0	Landscape	V	615.88
2	9	804	0	Landscape	V	631.35
2	9	805	0	Landscape	V	631.08
2	9	806	0	Landscape	V	624.48
2	9	807	0	Landscape	V	618.81
2	9	808	0	Landscape	V	616.51
2	9	809	0	Landscape	V	616.34
2	9	80A	0	Landscape	V	631.73
2	9	80B	0	Landscape	V	623.56
2	9	80C	0	Landscape	V	623.22

99% BW**Parent Model**



9.2. 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 for the parent model. The plots for the parent model of Ant 1, CONFIG 9, Payload 125 on CH9 and Ant 2, CONFIG 9, Payload 125 on CH5 and CH9 bandwidth measurement on are presented and same measurement settings apply to the rest of the test configurations.

RESULTS**Parent Model**

Employee IDs: 32188, 28499, 32479

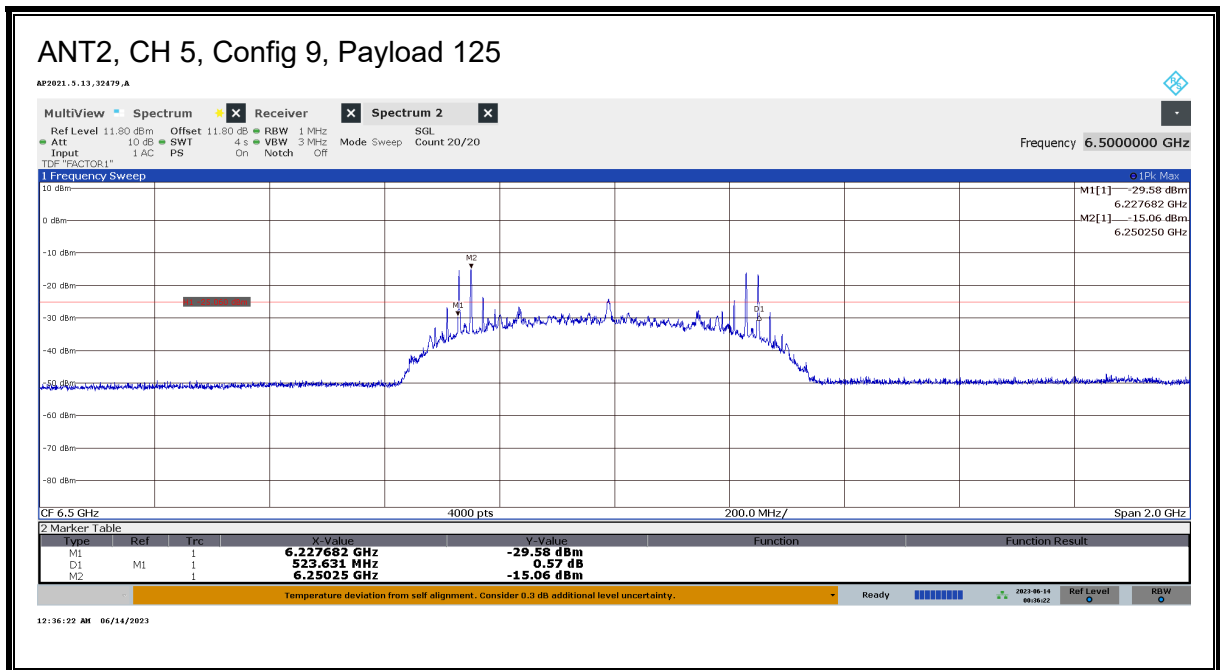
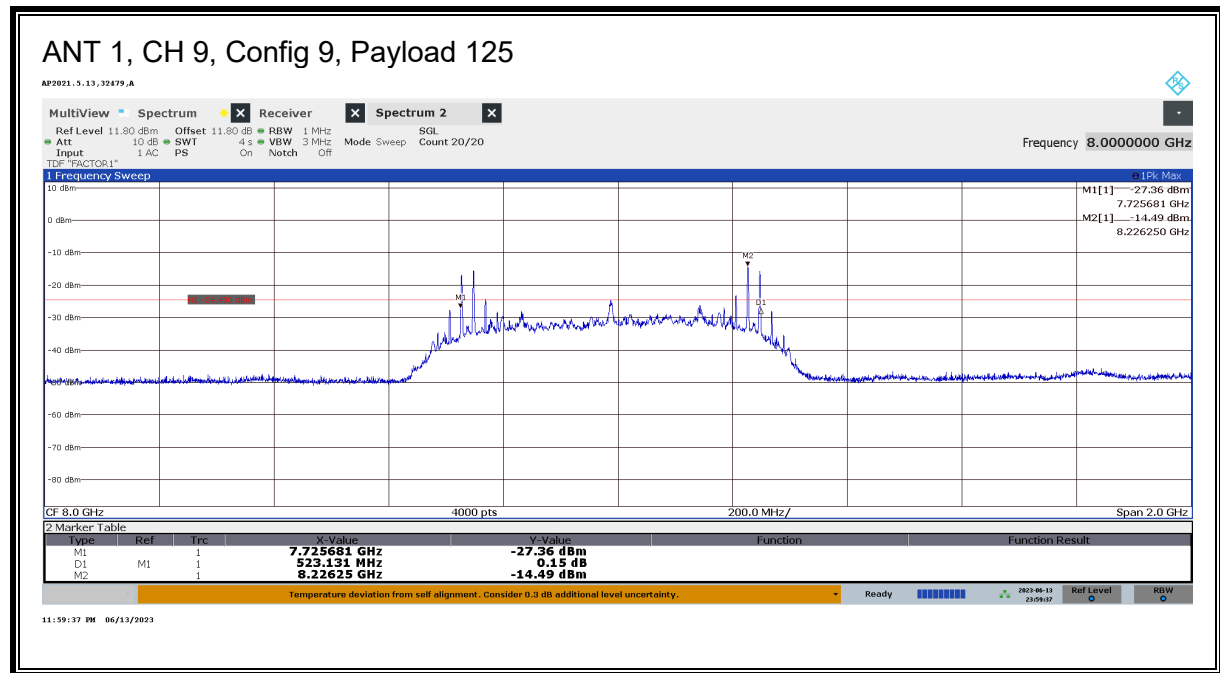
Location: Chamber 5A

Test Date: 5/22/23 – 6/7/23

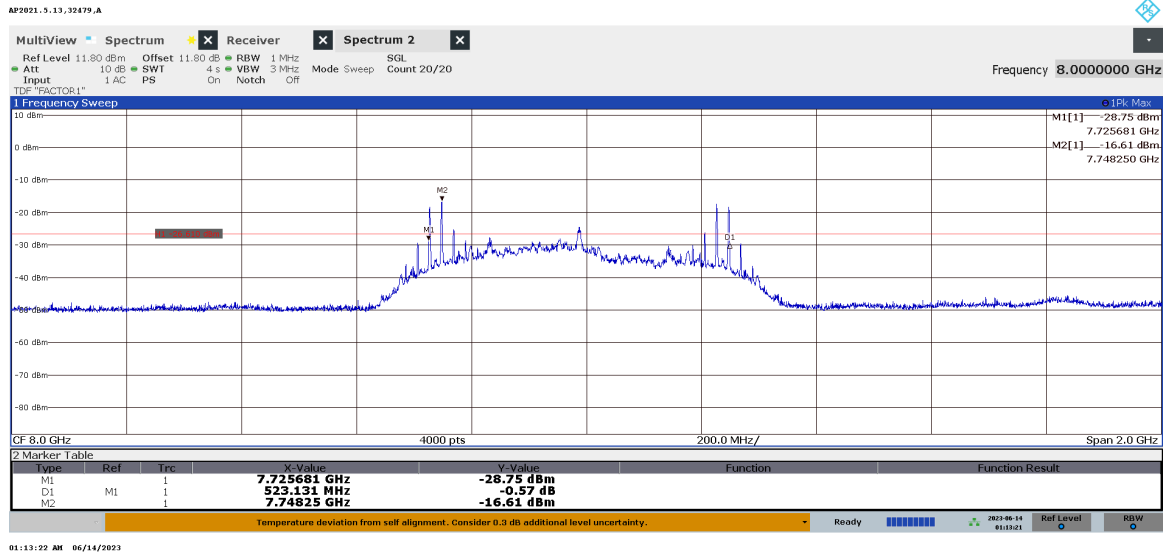
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
1	9	0	25	Portrait	H	8.22625	7.724181	8.250313	7.987247	526.13	500	26.132	P
1	9	1	45	Portrait	H	8.22675	7.724181	8.250313	7.987247	526.13	500	26.132	P
1	9	9	125	Portrait	H	8.2263	7.7257	8.248812	7.9872465	523.13	500	23.131	P
1	9	10	25	Portrait	H	8.2268	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	11	25	Portrait	H	8.2263	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	11	65	Portrait	H	8.2268	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	101	25	Portrait	H	8.2268	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	101	65	Portrait	H	8.2268	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	102	25	Portrait	H	8.2268	7.7242	8.250313	7.987247	526.13	500	26.132	P
1	9	102	65	Portrait	H	8.2263	7.7242	8.24981	7.986995	525.63	500	25.63	P
1	9	103	25	Portrait	H	8.2258	7.7242	8.250312	7.987246	526.13	500	26.132	P
1	9	103	125	Portrait	H	8.2263	7.7242	8.25031	7.987245	526.13	500	26.13	P
1	9	202	625	Portrait	H	8.2263	7.7242	8.249812	7.9869965	525.63	500	25.631	P
1	9	402	445	Portrait	H	8.2263	7.7243	8.249381	7.9868155	525.13	500	25.131	P
1	9	501	0	Portrait	H	8.2268	7.7243	8.25025	7.98725	526.00	500	26	P
1	9	503	0	Portrait	H	8.2263	7.7242	8.25031	7.987245	526.13	500	26.13	P
1	9	601	0	Portrait	H	8.2273	7.7232	8.25031	7.986745	527.13	500	27.13	P
1	9	605	0	Portrait	H	8.2263	7.7242	8.25031	7.987245	526.13	500	26.13	P
1	9	607	0	Portrait	H	8.2253	7.7232	8.25031	7.986745	527.13	500	27.13	P
1	9	701	0	Portrait	H	8.2263	7.7232	8.251313	7.987247	528.13	500	28.132	P
1	9	702	0	Portrait	H	8.2263	7.7232	8.251313	7.987247	528.13	500	28.132	P
1	9	703	0	Portrait	H	8.2258	7.7232	8.258815	7.990998	535.63	500	35.634	P
1	9	704	0	Portrait	H	8.2263	7.7147	8.265817	7.990248	551.14	500	51.138	P
1	9	705	0	Portrait	H	8.2263	7.7232	8.253814	7.9884975	530.63	500	30.633	P
1	9	706	0	Portrait	H	8.2268	7.7232	8.271818	7.9974995	548.64	500	48.637	P
1	9	405	4093	Portrait	H	8.2263	7.7102	8.264317	7.9872475	554.14	500	54.139	P
1	9	407	4093	Portrait	H	8.2268	7.7002	8.271318	7.9857465	571.14	500	71.143	P
1	9	801	0	Portrait	H	8.2258	7.7047	8.266316	7.985496	561.64	500	61.64	P
1	9	802	0	Portrait	H	8.2263	7.7037	8.271318	7.987497	567.64	500	67.642	P
1	9	803	0	Portrait	H	8.2263	7.7032	8.274319	7.9887475	571.14	500	71.143	P
1	9	804	0	Portrait	H	8.2263	7.7047	8.269817	7.9872465	565.14	500	65.141	P
1	9	805	0	Portrait	H	8.2263	7.7032	8.271318	7.987247	568.14	500	68.142	P
1	9	806	0	Portrait	H	8.2263	7.7032	8.274319	7.9887475	571.14	500	71.143	P
1	9	807	0	Portrait	H	7.7483	7.6917	8.268817	7.980245	577.14	500	77.144	P
1	9	808	0	Portrait	H	7.7483	7.6992	8.266317	7.982746	567.14	500	67.142	P
1	9	809	0	Portrait	H	7.7483	7.6917	8.269317	7.980495	577.64	500	77.644	P
1	9	80A	0	Portrait	H	7.7483	7.7032	8.269818	7.986497	566.64	500	66.642	P
1	9	80B	0	Portrait	H	7.7483	7.6917	8.282821	7.987247	591.15	500	91.148	P
1	9	80C	0	Portrait	H	7.7483	7.6917	8.270818	7.9812455	579.15	500	79.145	P

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
2	5	0	25	Portrait	H	6.2508	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	1	45	Portrait	H	6.2503	6.2262	6.75331	6.489745	527.13	500	27.13	P
2	5	9	125	Portrait	H	6.2503	6.2277	6.751313	6.4894975	523.63	500	23.631	P
2	5	10	25	Portrait	H	6.2508	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	11	25	Portrait	H	6.2503	6.2262	6.75231	6.489245	526.13	500	26.13	P
2	5	11	65	Portrait	H	6.25025	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	101	25	Portrait	H	6.2508	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	101	65	Portrait	H	6.2503	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	102	25	Portrait	H	6.2503	6.2268	6.752952	6.489886	526.13	500	26.132	P
2	5	102	65	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	103	25	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	103	125	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	202	625	Portrait	H	6.7288	6.2262	6.755814	6.490998	529.63	500	29.632	P
2	5	402	445	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	501	0	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	503	0	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	601	0	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	605	0	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	607	0	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	701	0	Portrait	H	6.7278	6.2252	6.75381	6.489495	528.63	500	28.63	P
2	5	702	0	Portrait	H	6.7288	6.2247	6.76382	6.49425	539.14	500	39.14	P
2	5	703	0	Portrait	H	6.7288	6.2162	6.76632	6.49125	550.14	500	50.14	P
2	5	704	0	Portrait	H	6.7288	6.2162	6.77532	6.49575	559.14	500	59.14	P
2	5	705	0	Portrait	H	6.2508	6.2132	6.77432	6.49375	561.14	500	61.14	P
2	5	706	0	Portrait	H	6.7288	6.2007	6.78582	6.49325	585.14	500	85.14	P
2	5	405	4093	Portrait	H	6.7288	6.2112	6.77382	6.4925	562.64	500	62.64	P
2	5	407	4093	Portrait	H	6.7288	6.2022	6.77682	6.4895	574.64	500	74.64	P
2	5	801	0	Portrait	H	6.2508	6.1942	6.767817	6.4809955	573.64	500	73.643	P
2	5	802	0	Portrait	H	6.2508	6.2017	6.76232	6.482	560.64	500	60.64	P
2	5	803	0	Portrait	H	6.2508	6.2012	6.76232	6.48175	561.14	500	61.14	P
2	5	804	0	Portrait	H	6.2508	6.1937	6.77032	6.481995	576.65	500	76.65	P
2	5	805	0	Portrait	H	6.2513	6.1977	6.77082	6.484245	573.15	500	73.15	P
2	5	806	0	Portrait	H	6.2513	6.2017	6.77032	6.486	568.64	500	68.64	P
2	5	807	0	Portrait	H	6.2508	6.1937	6.76832	6.480995	574.65	500	74.65	P
2	5	808	0	Portrait	H	6.2508	6.1942	6.76882	6.481497	574.65	500	74.646	P
2	5	809	0	Portrait	H	6.2503	6.1942	6.76832	6.481245	574.15	500	74.15	P
2	5	80A	0	Portrait	H	6.2508	6.1937	6.78432	6.488995	590.65	500	90.65	P
2	5	80B	0	Portrait	H	6.2508	6.1937	6.77032	6.481995	576.65	500	76.65	P
2	5	80C	0	Portrait	H	6.2508	6.1932	6.76782	6.480495	574.65	500	74.65	P

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
2	9	0	25	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	1	45	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	9	125	Landscape	V	7.7483	7.7257	8.248812	7.9872465	523.13	500	23.131	P
2	9	10	25	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	11	25	Landscape	V	7.7478	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	11	65	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	101	25	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	101	65	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	102	25	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	102	65	Landscape	V	7.7478	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	103	25	Landscape	V	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	103	125	Landscape	V	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	202	625	Landscape	V	7.7483	7.7237	8.24981	7.986745	526.13	500	26.13	P
2	9	402	445	Landscape	V	7.7483	7.7242	8.250313	7.9872465	526.13	500	26.133	P
2	9	501	0	Landscape	V	7.7488	7.7242	8.24981	7.986995	525.63	500	25.63	P
2	9	503	0	Landscape	V	7.7483	7.7242	8.24981	7.986995	525.63	500	25.63	P
2	9	601	0	Landscape	V	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	605	0	Landscape	V	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	607	0	Landscape	V	7.7483	7.7242	8.24981	7.986995	525.63	500	25.63	P
2	9	701	0	Landscape	V	7.7483	7.7222	8.25131	7.986745	529.13	500	29.13	P
2	9	702	0	Landscape	V	7.7488	7.7197	8.25131	7.985495	531.63	500	31.63	P
2	9	703	0	Landscape	V	7.7483	7.7127	8.25581	7.984245	543.13	500	43.13	P
2	9	704	0	Landscape	V	7.7483	7.7137	8.26532	7.9895	551.64	500	51.64	P
2	9	705	0	Landscape	V	7.7483	7.7112	8.26082	7.986	549.64	500	49.64	P
2	9	706	0	Landscape	V	7.7483	7.7007	8.27132	7.986	570.64	500	70.64	P
2	9	405	4093	Landscape	V	7.7483	7.7102	8.256317	7.9832485	546.14	500	46.137	P
2	9	407	4093	Landscape	V	7.9558	7.7032	8.249813	7.9764945	546.64	500	46.637	P
2	9	801	0	Landscape	V	7.9078	7.7077	8.266817	7.987247	559.14	500	59.14	P
2	9	802	0	Landscape	V	7.9873	7.7002	8.270818	7.9854965	570.64	500	70.643	P
2	9	803	0	Landscape	V	7.9873	7.7002	8.260315	7.980245	560.14	500	60.14	P
2	9	804	0	Landscape	V	7.9873	7.7087	8.262816	7.9857465	554.14	500	54.139	P
2	9	805	0	Landscape	V	7.9873	7.7002	8.260815	7.980495	560.64	500	60.64	P
2	9	806	0	Landscape	V	7.7483	7.7002	8.268817	7.984496	568.64	500	68.642	P
2	9	807	0	Landscape	V	7.9423	7.7057	8.28282	7.994248	577.14	500	77.144	P
2	9	808	0	Landscape	V	7.9418	7.7087	8.258314	7.9834955	549.64	500	49.637	P
2	9	809	0	Landscape	V	7.9248	7.6917	8.265817	7.978745	574.14	500	74.144	P
2	9	80A	0	Landscape	V	7.9873	7.7077	8.258815	7.983246	551.14	500	51.138	P
2	9	80B	0	Landscape	V	7.9873	7.7082	8.258815	7.983496	550.64	500	50.638	P
2	9	80C	0	Landscape	V	7.9928	7.7047	8.265316	7.984996	560.64	500	60.64	P

OPERATING BANDWIDTH**Parent Model**

ANT2, CH 9, Config 9, Payload 125



9.3. 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

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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 for the parent model. Plots for the parent model of Ant 1, CONFIG 9, Payload 125 on CH9 and Ant 2, CONFIG 9, Payload 125 on CH5 and CH9 peak and maximum average power measurements are presented and same measurement settings apply to the rest of test configurations.

RESULTS

Parent Model

Employee IDs: 32188, 28499, 32479

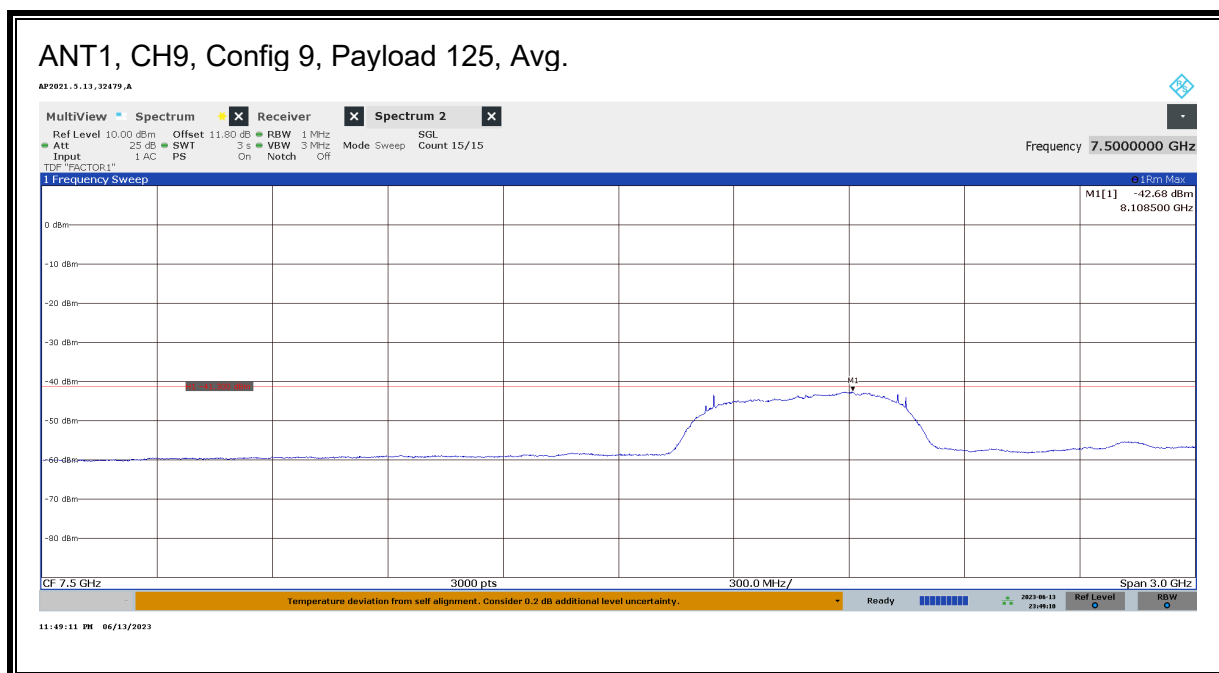
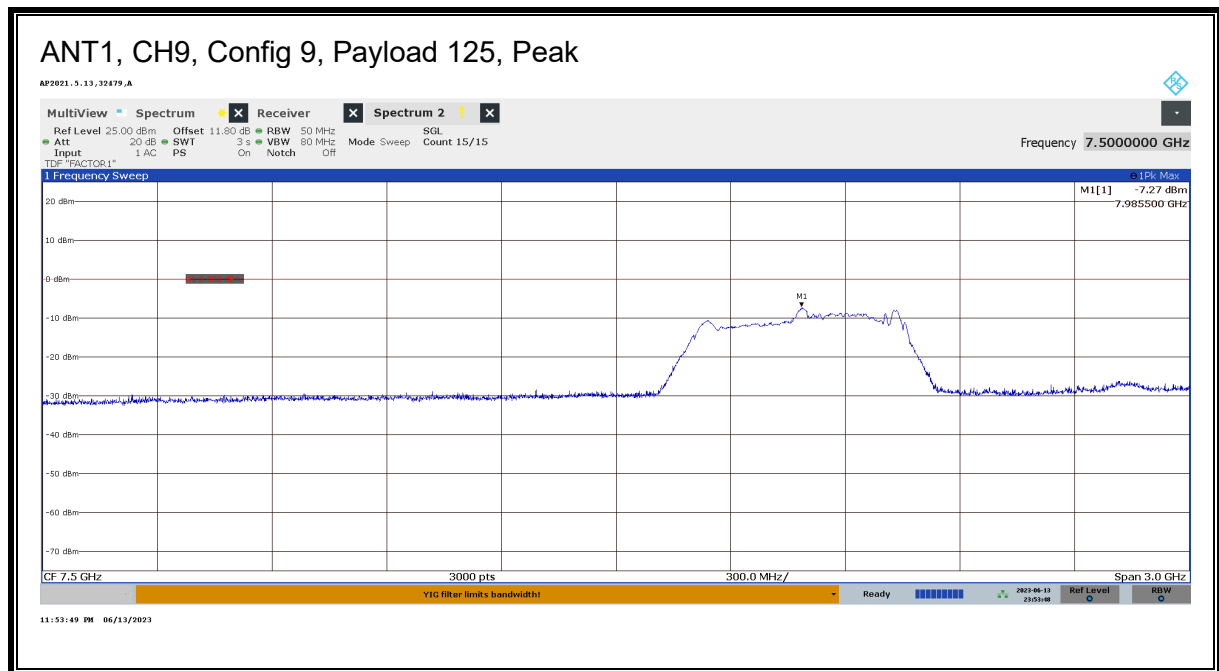
Location: Chamber 5A

Test Date: 5/22/23 – 6/7/23

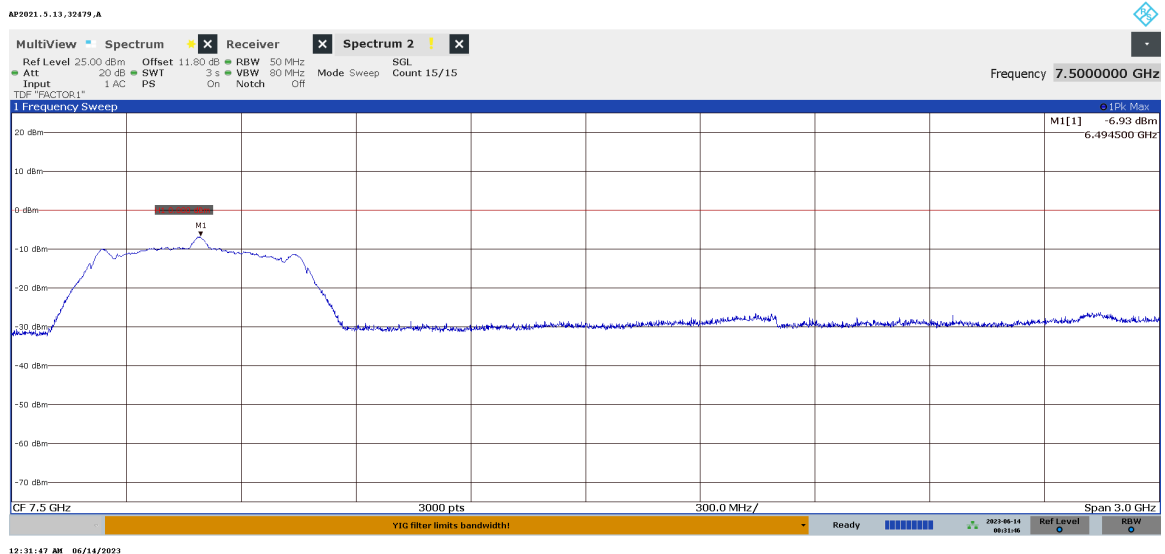
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
1	9	0	25	Portrait	H	8.2255	-1.07	0	-1.07	8.0925	-43.09	-41.3	-1.79
1	9	1	45	Portrait	H	8.2265	-1.11	0	-1.11	8.1275	-43.64	-41.3	-2.34
1	9	9	125	Portrait	H	7.9855	-7.27	0	-7.27	8.1085	-42.68	-41.3	-1.38
1	9	10	25	Portrait	H	8.2265	-1.33	0	-1.33	8.0965	-42.50	-41.3	-1.20
1	9	11	25	Portrait	H	8.2265	-1.36	0	-1.36	8.0885	-43.99	-41.3	-2.69
1	9	11	65	Portrait	H	8.2255	-1.42	0	-1.42	8.0805	-42.36	-41.3	-1.06
1	9	101	25	Portrait	H	8.2255	-1.00	0	-1.00	8.0885	-43.68	-41.3	-2.38
1	9	101	65	Portrait	H	8.2325	-1.76	0	-1.76	8.0805	-42.40	-41.3	-1.10
1	9	102	25	Portrait	H	8.2265	-1.13	0	-1.13	8.0885	-43.60	-41.3	-2.30
1	9	102	65	Portrait	H	7.9865	-2.41	0	-2.41	8.0965	-42.62	-41.3	-1.32
1	9	103	25	Portrait	H	7.9885	-2.39	0	-2.39	8.0925	-42.68	-41.3	-1.38
1	9	103	125	Portrait	H	8.2355	-5.02	0	-5.02	8.0805	-42.54	-41.3	-1.24
1	9	202	625	Portrait	H	8.2355	-10.90	0	-10.90	8.1125	-42.53	-41.3	-1.23
1	9	402	445	Portrait	H	8.2335	-9.32	0	-9.32	8.0985	-42.62	-41.3	-1.32
1	9	501	0	Portrait	H	8.2345	-1.27	0	-1.27	8.0965	-45.01	-41.3	-3.71
1	9	503	0	Portrait	H	8.2345	-1.45	0	-1.45	8.0915	-45.13	-41.3	-3.83
1	9	601	0	Portrait	H	8.2335	-1.96	0	-1.96	8.0945	-42.67	-41.3	-1.37
1	9	605	0	Portrait	H	8.2275	-1.10	0	-1.10	8.0945	-44.39	-41.3	-3.09
1	9	607	0	Portrait	H	8.2275	-1.10	0	-1.10	8.0955	-44.38	-41.3	-3.08
1	9	701	0	Portrait	H	8.2245	-2.89	0	-2.89	8.0875	-42.48	-41.3	-1.18
1	9	702	0	Portrait	H	8.2255	-3.05	0	-3.05	8.0855	-42.62	-41.3	-1.32
1	9	703	0	Portrait	H	8.2275	-3.43	0	-3.43	8.0935	-42.65	-41.3	-1.35
1	9	704	0	Portrait	H	8.2255	-5.56	0	-5.56	8.0835	-42.69	-41.3	-1.39
1	9	705	0	Portrait	H	8.1075	-2.36	0	-2.36	8.0885	-42.63	-41.3	-1.33
1	9	706	0	Portrait	H	8.1035	-3.09	0	-3.09	8.0875	-42.62	-41.3	-1.32
1	9	405	4093	Portrait	H	8.2325	-11.65	0	-11.65	8.0815	-42.48	-41.3	-1.18
1	9	407	4093	Portrait	H	8.2255	-11.57	0	-11.57	8.0915	-42.64	-41.3	-1.34
1	9	801	0	Portrait	H	8.2345	-1.52	0	-1.52	8.1115	-42.64	-41.3	-1.34
1	9	802	0	Portrait	H	8.2345	-1.55	0	-1.55	8.0805	-42.59	-41.3	-1.29
1	9	803	0	Portrait	H	8.2345	-1.26	0	-1.26	8.0805	-43.25	-41.3	-1.95
1	9	804	0	Portrait	H	8.2335	-4.62	0	-4.62	8.1125	-42.62	-41.3	-1.32
1	9	805	0	Portrait	H	8.2345	-4.47	0	-4.47	8.0805	-42.63	-41.3	-1.33
1	9	806	0	Portrait	H	8.2335	-3.68	0	-3.68	8.0805	-42.57	-41.3	-1.27
1	9	807	0	Portrait	H	8.2345	-2.51	0	-2.51	7.9875	-42.70	-41.3	-1.40
1	9	808	0	Portrait	H	8.2345	-1.43	0	-1.43	7.8915	-42.68	-41.3	-1.38
1	9	809	0	Portrait	H	8.2355	-1.46	0	-1.46	7.9575	-42.57	-41.3	-1.27
1	9	80A	0	Portrait	H	8.2335	-5.52	0	-5.52	7.9875	-42.68	-41.3	-1.38
1	9	80B	0	Portrait	H	8.2345	-3.99	0	-3.99	7.8995	-42.68	-41.3	-1.38
1	9	80C	0	Portrait	H	8.2325	-4.04	0	-4.04	7.9875	-42.66	-41.3	-1.36

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	5	0	25	Portrait	H	6.5025	-1.70	0	-1.70	6.4005	-42.32	-41.3	-1.02
2	5	1	45	Portrait	H	6.5025	-1.45	0	-1.45	6.3965	-42.58	-41.3	-1.28
2	5	9	125	Portrait	H	6.4945	-6.93	0	-6.93	6.4345	-42.53	-41.3	-1.23
2	5	10	25	Portrait	H	6.4895	-1.87	0	-1.87	6.4435	-42.37	-41.3	-1.07
2	5	11	25	Portrait	H	6.4885	-1.33	0	-1.33	6.3965	-43.40	-41.3	-2.10
2	5	11	65	Portrait	H	6.5025	-2.15	0	-2.15	6.3955	-42.44	-41.3	-1.14
2	5	101	25	Portrait	H	6.5015	-1.40	0	-1.40	6.3965	-43.48	-41.3	-2.18
2	5	101	65	Portrait	H	6.4905	-2.49	0	-2.49	6.3955	-42.60	-41.3	-1.30
2	5	102	25	Portrait	H	6.5025	-1.38	0	-1.38	6.3955	-43.37	-41.3	-2.07
2	5	102	65	Portrait	H	6.4995	-2.18	0	-2.18	6.3955	-42.49	-41.3	-1.19
2	5	103	25	Portrait	H	6.5015	-1.91	0	-1.91	6.4005	-42.54	-41.3	-1.24
2	5	103	125	Portrait	H	6.5035	-4.61	0	-4.61	6.4585	-42.47	-41.3	-1.17
2	5	202	625	Portrait	H	6.7365	-13.23	0	-13.23	6.3655	-42.50	-41.3	-1.20
2	5	402	445	Portrait	H	6.7375	-11.55	0	-11.55	6.3965	-42.50	-41.3	-1.20
2	5	501	0	Portrait	H	6.7385	-1.32	0	-1.32	6.4435	-42.77	-41.3	-1.47
2	5	503	0	Portrait	H	6.7415	-1.35	0	-1.35	6.4475	-42.87	-41.3	-1.57
2	5	601	0	Portrait	H	6.7405	-4.01	0	-4.01	6.4505	-42.70	-41.3	-1.40
2	5	605	0	Portrait	H	6.7375	-1.58	0	-1.58	6.3955	-42.56	-41.3	-1.26
2	5	607	0	Portrait	H	6.7385	-1.53	0	-1.53	6.3955	-42.53	-41.3	-1.23
2	5	701	0	Portrait	H	6.7355	-6.26	0	-6.26	6.3715	-42.55	-41.3	-1.25
2	5	702	0	Portrait	H	6.7365	-6.49	0	-6.49	6.3705	-42.74	-41.3	-1.44
2	5	703	0	Portrait	H	6.7355	-6.19	0	-6.19	6.4395	-42.40	-41.3	-1.10
2	5	704	0	Portrait	H	6.4265	-8.23	0	-8.23	6.3645	-42.65	-41.3	-1.35
2	5	705	0	Portrait	H	6.3655	-3.49	0	-3.49	6.3705	-42.67	-41.3	-1.37
2	5	706	0	Portrait	H	6.4335	-5.18	0	-5.18	6.3715	-42.66	-41.3	-1.36
2	5	405	4093	Portrait	H	6.7405	-14.61	0	-14.61	6.3655	-42.32	-41.3	-1.02
2	5	407	4093	Portrait	H	6.7345	-14.61	0	-14.61	6.3705	-42.79	-41.3	-1.49
2	5	801	0	Portrait	H	6.2385	-3.58	0	-3.58	6.4375	-42.62	-41.3	-1.32
2	5	802	0	Portrait	H	6.2345	-3.78	0	-3.78	6.4275	-42.75	-41.3	-1.45
2	5	803	0	Portrait	H	6.2405	-2.82	0	-2.82	6.3865	-42.72	-41.3	-1.42
2	5	804	0	Portrait	H	6.2345	-6.83	0	-6.83	6.4375	-42.45	-41.3	-1.15
2	5	805	0	Portrait	H	6.2375	-6.52	0	-6.52	6.3855	-42.55	-41.3	-1.25
2	5	806	0	Portrait	H	6.2355	-5.19	0	-5.19	6.3865	-42.46	-41.3	-1.16
2	5	807	0	Portrait	H	6.2375	-4.34	0	-4.34	6.4375	-42.79	-41.3	-1.49
2	5	808	0	Portrait	H	6.2345	-3.01	0	-3.01	6.3945	-42.40	-41.3	-1.10
2	5	809	0	Portrait	H	6.2375	-2.99	0	-2.99	6.4605	-42.55	-41.3	-1.25
2	5	80A	0	Portrait	H	6.2345	-6.69	0	-6.69	6.4065	-42.35	-41.3	-1.05
2	5	80B	0	Portrait	H	6.2365	-5.30	0	-5.30	6.3745	-42.41	-41.3	-1.11
2	5	80C	0	Portrait	H	6.2335	-5.29	0	-5.29	6.4095	-42.48	-41.3	-1.18

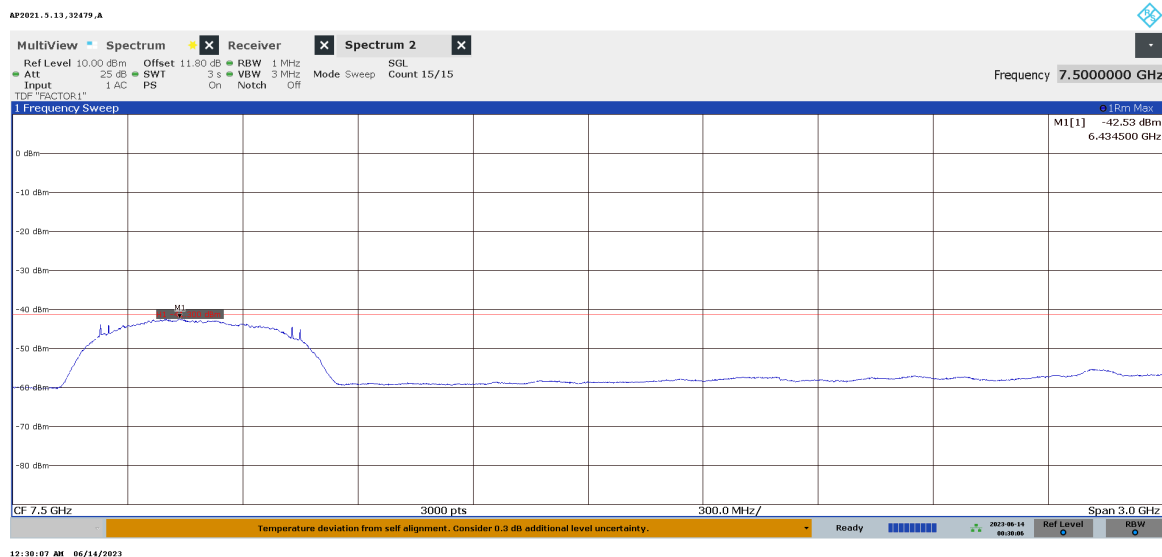
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	9	0	25	Landscape	V	7.9865	-1.42	0	-1.42	8.0075	-42.71	-41.3	-1.41
2	9	1	45	Landscape	V	7.9875	-1.40	0	-1.40	8.0185	-43.03	-41.3	-1.73
2	9	9	125	Landscape	V	7.9875	-7.09	0	-7.09	7.9655	-42.52	-41.3	-1.22
2	9	10	25	Landscape	V	7.9875	-1.49	0	-1.49	7.9965	-42.66	-41.3	-1.36
2	9	11	25	Landscape	V	7.9865	-1.42	0	-1.42	8.0185	-43.95	-41.3	-2.65
2	9	11	65	Landscape	V	7.9865	-1.94	0	-1.94	8.0185	-42.59	-41.3	-1.29
2	9	101	25	Landscape	V	7.9885	-1.34	0	-1.34	8.0185	-44.06	-41.3	-2.76
2	9	101	65	Landscape	V	7.9865	-1.75	0	-1.75	8.0185	-42.51	-41.3	-1.21
2	9	102	25	Landscape	V	7.9875	-1.37	0	-1.37	8.0185	-44.07	-41.3	-2.77
2	9	102	65	Landscape	V	7.9885	-1.96	0	-1.96	8.0185	-42.63	-41.3	-1.33
2	9	103	25	Landscape	V	7.9885	-1.44	0	-1.44	8.0155	-42.60	-41.3	-1.30
2	9	103	125	Landscape	V	7.9875	-4.46	0	-4.46	7.9405	-42.51	-41.3	-1.21
2	9	202	625	Landscape	V	8.2335	-13.64	0	-13.64	7.9195	-42.69	-41.3	-1.39
2	9	402	445	Landscape	V	8.2335	-11.69	0	-11.69	7.9505	-42.35	-41.3	-1.05
2	9	501	0	Landscape	V	8.2265	-1.63	0	-1.63	7.9445	-42.45	-41.3	-1.15
2	9	503	0	Landscape	V	8.2315	-1.54	0	-1.54	7.9445	-42.47	-41.3	-1.17
2	9	601	0	Landscape	V	8.2335	-4.45	0	-4.45	7.9475	-42.55	-41.3	-1.25
2	9	605	0	Landscape	V	8.2335	-1.86	0	-1.86	7.9475	-42.40	-41.3	-1.10
2	9	607	0	Landscape	V	8.2335	-1.83	0	-1.83	7.9475	-42.47	-41.3	-1.17
2	9	701	0	Landscape	V	8.2315	-6.79	0	-6.79	7.9105	-42.51	-41.3	-1.21
2	9	702	0	Landscape	V	8.2345	-6.83	0	-6.83	7.9035	-42.52	-41.3	-1.22
2	9	703	0	Landscape	V	8.2355	-7.07	0	-7.07	7.9055	-42.50	-41.3	-1.20
2	9	704	0	Landscape	V	7.9265	-7.74	0	-7.74	7.9645	-42.45	-41.3	-1.15
2	9	705	0	Landscape	V	7.9295	-3.68	0	-3.68	7.9055	-42.47	-41.3	-1.17
2	9	706	0	Landscape	V	7.9195	-5.12	0	-5.12	7.9045	-42.65	-41.3	-1.35
2	9	405	4093	Landscape	V	7.9925	-14.83	0	-14.83	7.9085	-42.54	-41.3	-1.24
2	9	407	4093	Landscape	V	7.9845	-14.52	0	-14.52	7.9065	-42.60	-41.3	-1.30
2	9	801	0	Landscape	V	8.2335	-4.95	0	-4.95	7.9455	-42.60	-41.3	-1.30
2	9	802	0	Landscape	V	8.2355	-5.95	0	-5.95	7.9655	-42.54	-41.3	-1.24
2	9	803	0	Landscape	V	8.2335	-4.65	0	-4.65	7.9655	-42.74	-41.3	-1.44
2	9	804	0	Landscape	V	8.2345	-8.71	0	-8.71	7.9875	-42.53	-41.3	-1.23
2	9	805	0	Landscape	V	8.2345	-8.43	0	-8.43	7.9655	-42.59	-41.3	-1.29
2	9	806	0	Landscape	V	8.2345	-7.03	0	-7.03	7.9655	-42.60	-41.3	-1.30
2	9	807	0	Landscape	V	8.2355	-6.02	0	-6.02	7.9875	-42.55	-41.3	-1.25
2	9	808	0	Landscape	V	8.2345	-4.98	0	-4.98	7.9975	-42.66	-41.3	-1.36
2	9	809	0	Landscape	V	8.2345	-5.00	0	-5.00	7.9575	-42.65	-41.3	-1.35
2	9	80A	0	Landscape	V	8.2355	-8.60	0	-8.60	7.9875	-42.60	-41.3	-1.30
2	9	80B	0	Landscape	V	8.2345	-6.98	0	-6.98	7.9975	-42.52	-41.3	-1.22
2	9	80C	0	Landscape	V	8.2335	-6.94	0	-6.94	7.9595	-42.62	-41.3	-1.32

PEAK POWER AND MAXIMUM AVERAGE EMISSIONS**Parent Model**

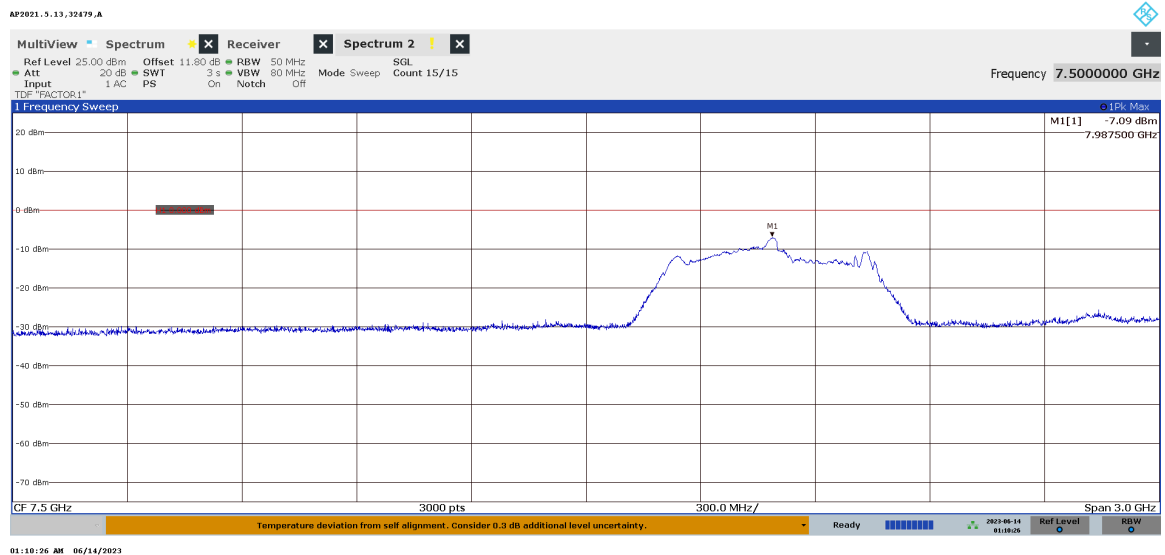
ANT2, CH5, Config 9, Payload 125, Peak



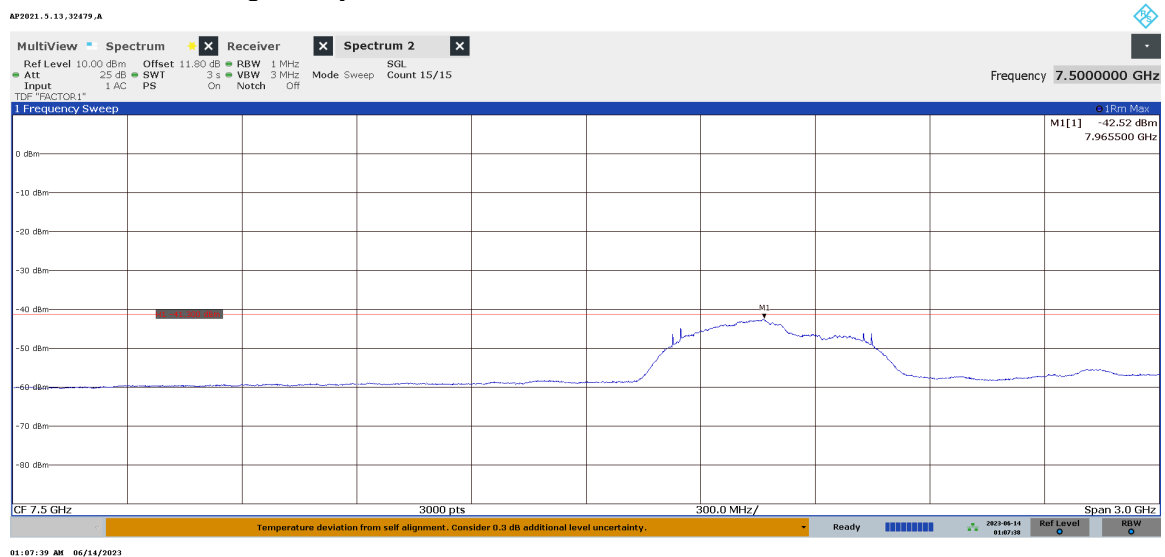
ANT2, CH5, Config 9, Payload 125, Avg.



ANT2, CH9, Config 9, Payload 125, Peak



ANT2, CH9, Config 9, Payload 125, Peak



9.4. 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.

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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

* Initiator = EUT

* Responder = associated receiver

Transmissions are monitored for two cases:

1. The Initiator ends the UWB link.
2. The Responder ends the UWB link.

RESULTS

Results for both the parent and variant A models are shown below.

Parent Model

Employee ID: 26051, 24943

Location: Chamber F

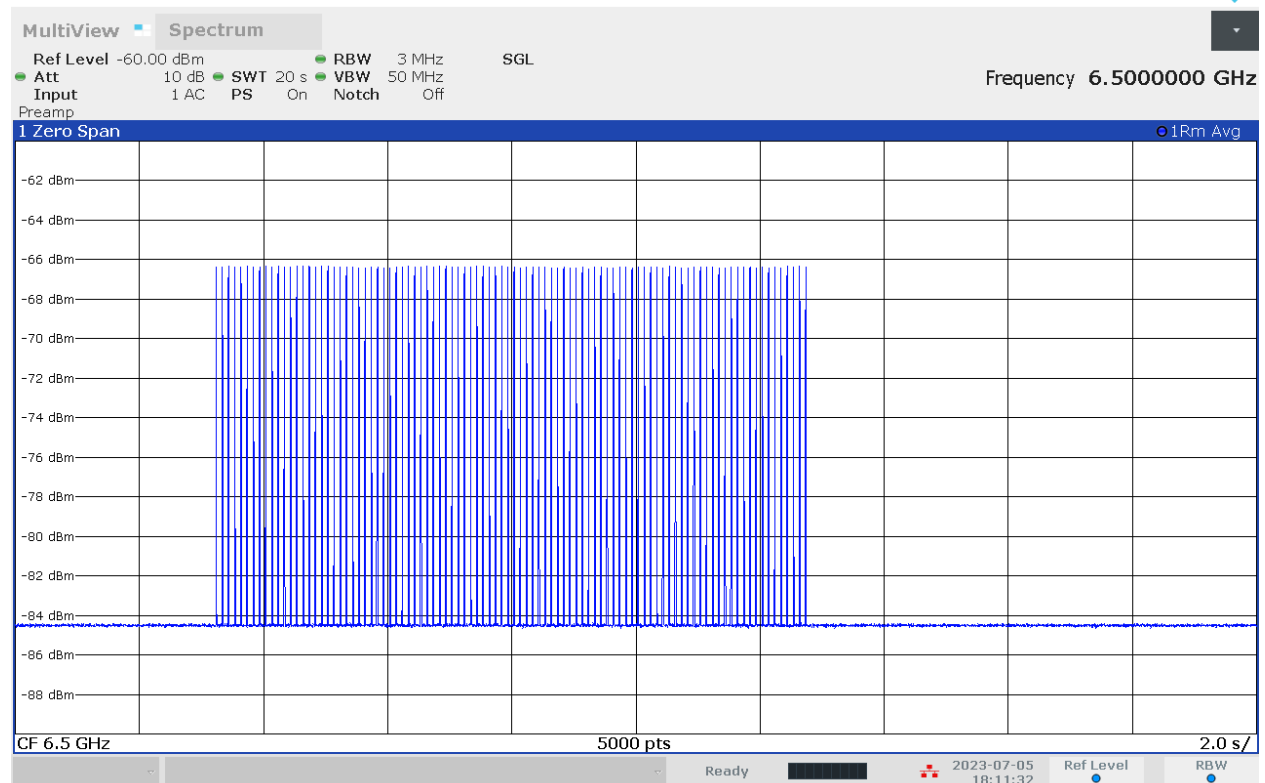
Test Date: 7/5/23

Signal Levels on all Plots

- Initiator is Low Amplitude
- Responder is High Amplitude

Case 1: Initiator ends the UWB link**Parent Model**

AP2021.2.16, 26051, 2F



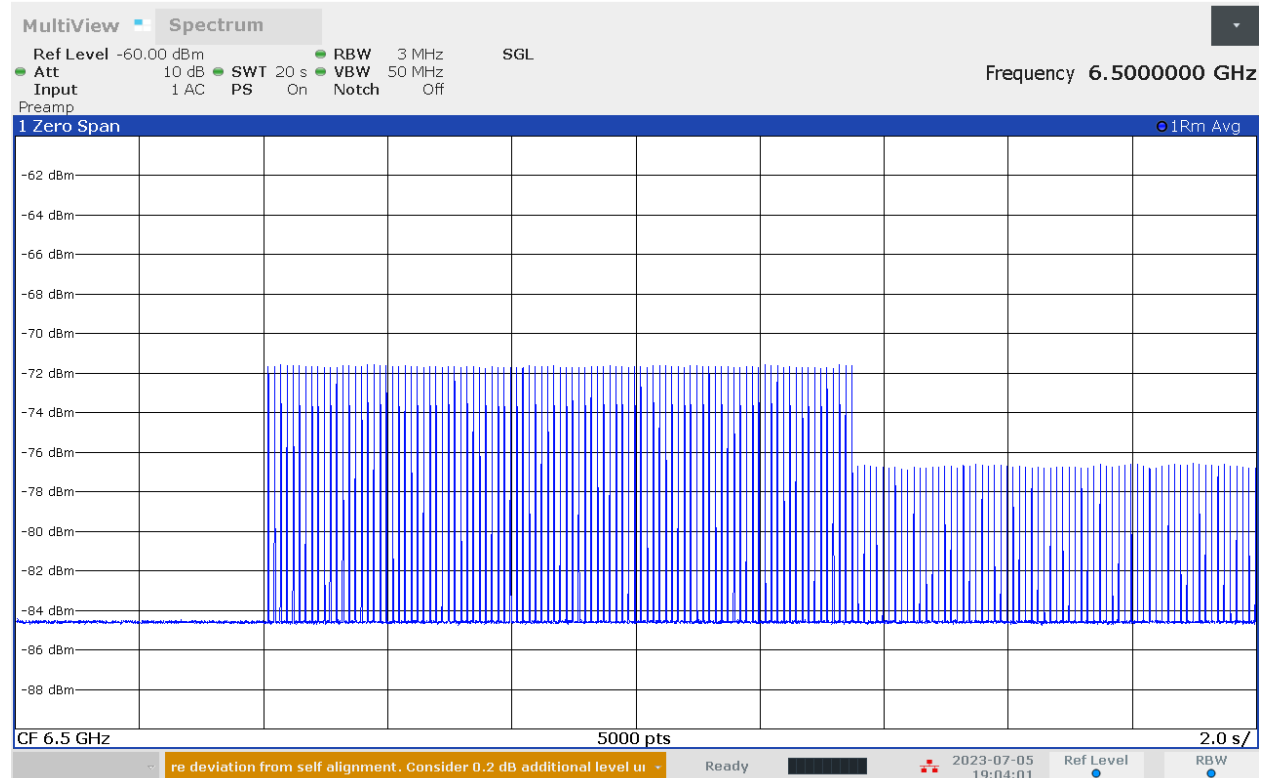
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RESULT

- All devices, including the Responder, cease transmissions

Case 2: Responder ends the UWB link**Parent Model**

AP2021.2.16, 24943, 2F



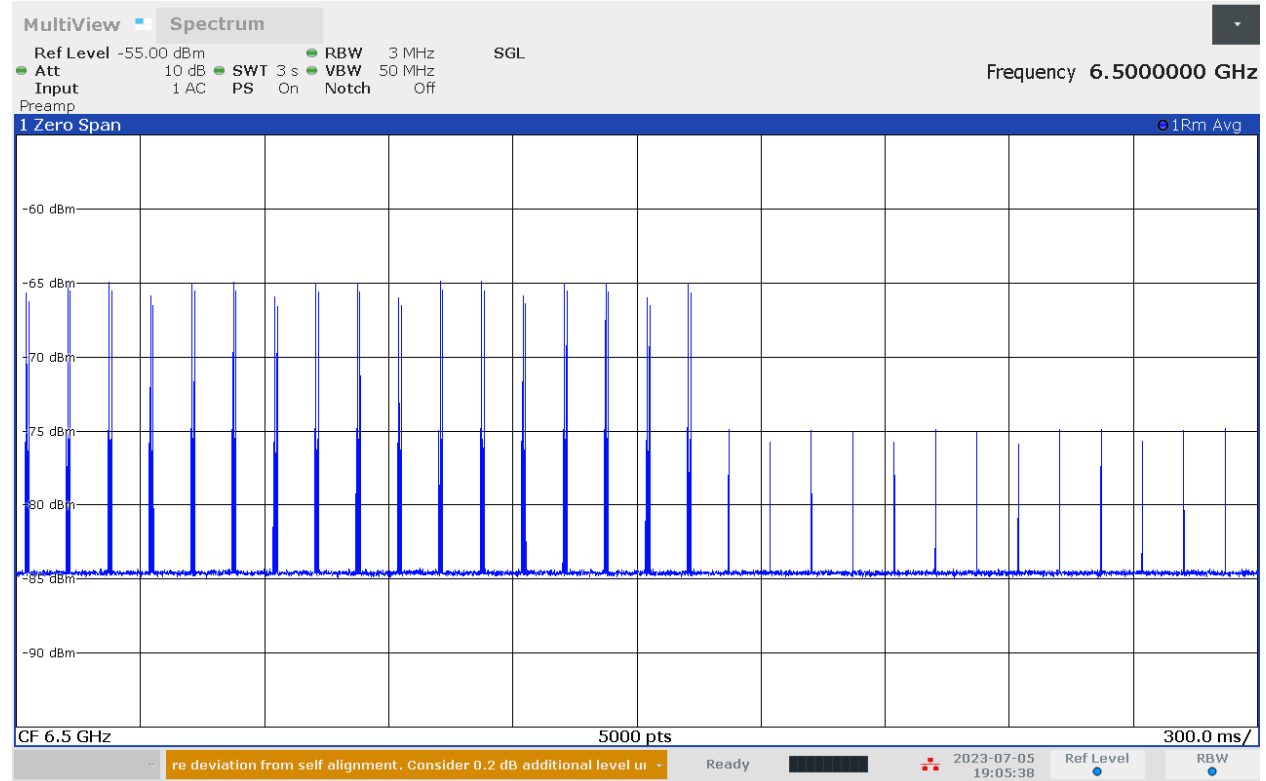
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RESULT

- Responder ends the link; Initiator stops Acknowledgements but continues Polling.
- Responder ceases transmissions, does not respond to Polling Signals.

Zoom-in Plot during On-Off Transition**Parent Model**

AP2021.2.16, 24943, 2F



07:05:38 PM 07/05/2023

RESULT

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

9.5. 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

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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

RSS-220 Annex

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

For below 30 MHz testing, investigation was done on three antenna orientations: RX antenna Face-on, Face-off and horizontal (parallel to ground). The worst-case configurations were determined on RX antenna Face-on and Face-off; therefore, all final tests were performed using these two orientations.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30-meter open area test site. Therefore, sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

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

Results for the parent model are shown below.

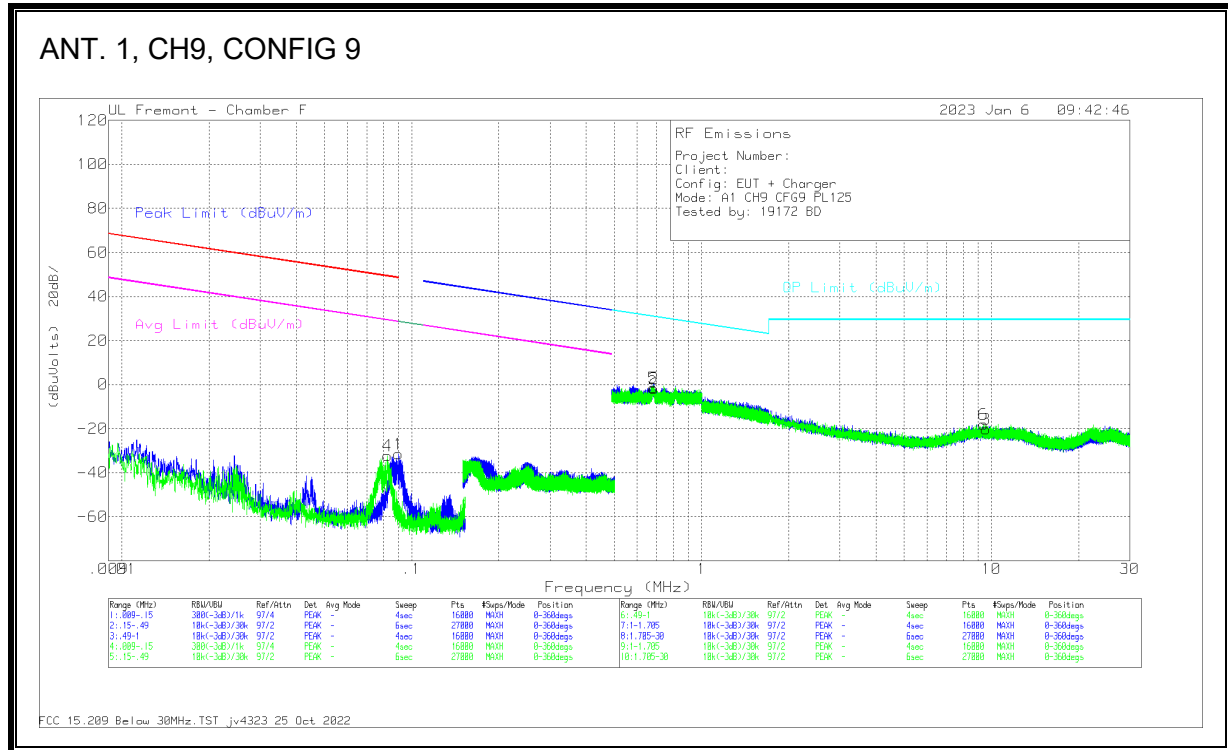
Emissions Summary**Parent Model**

Employee IDs: 26051, 31300, 19172

Location: Chamber F

Test Date: 1/6/23 – 1/18/23

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

9.5.1. EMISSIONS, 9 kHz – 30 MHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

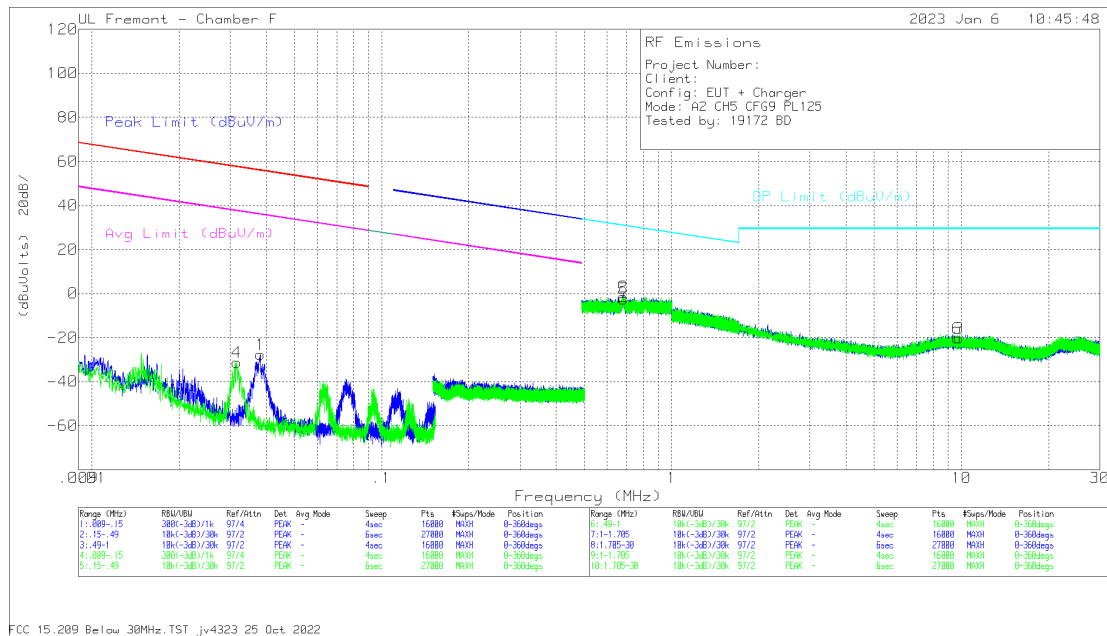
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Face
1	.0901	25.12	Pk	55.8	-32.5	-80	-31.58	-	-	-	-	28.49	-60.07	0-360	On
4	.0827	24.61	Pk	55.7	-32.5	-80	-32.19	49.24	-81.43	29.24	-61.43	-	-	0-360	Off

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Face
2	.6856	14.63	Pk	56.2	-32.5	-40	-1.67	30.89	-32.56	0-360	On
5	.6824	14.89	Pk	56.2	-32.5	-40	-1.41	30.93	-32.34	0-360	Off
3	9.5493	17.19	Pk	34.7	-32.2	-40	-20.31	29.5	-49.81	0-360	On
6	9.3774	19.39	Pk	34.7	-32.2	-40	-18.11	29.5	-47.61	0-360	Off

Pk - Peak detector

ANT. 2, CH5, Config 9



Trace Markers

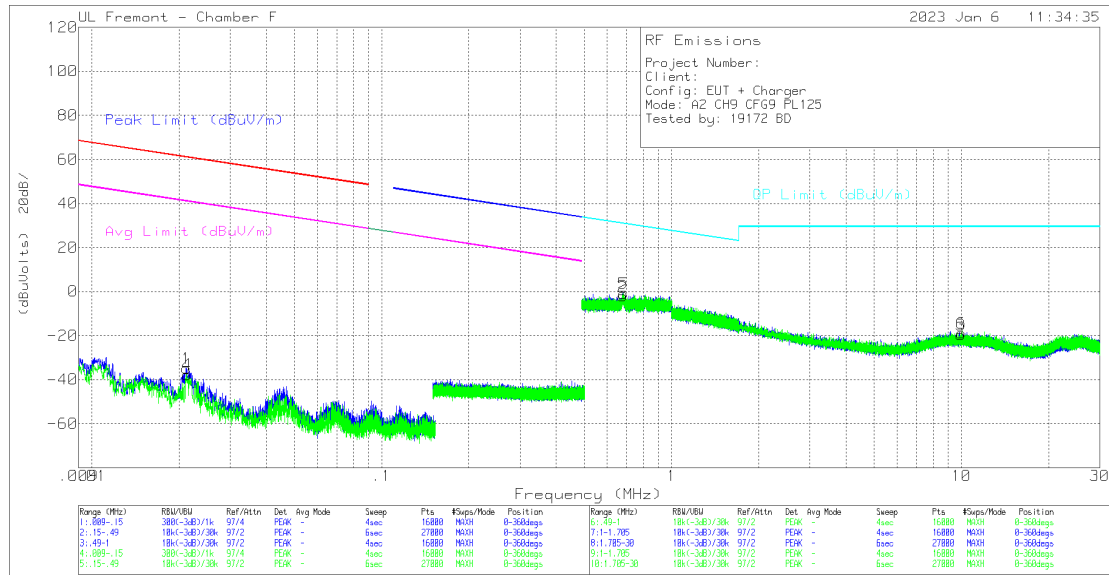
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Antenna Face
1	.0382	27.29	Pk	57.3	-32.3	-80	-27.71	55.95	-83.66	35.95	-63.66	On
4	.0316	23.11	Pk	57.8	-32.2	-80	-31.29	57.58	-88.87	37.58	-68.87	Off

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Antenna Face
2	.6818	14.84	Pk	56.2	-32.5	-40	-1.46	30.94	-32.4	On
5	.6825	13.89	Pk	56.2	-32.5	-40	-2.41	30.93	-33.34	Off
3	9.8165	17.27	Pk	34.8	-32.2	-40	-20.13	29.5	-49.63	On
6	9.6792	17.17	Pk	34.7	-32.1	-40	-20.23	29.5	-49.73	Off

Pk - Peak detector

ANT. 2, CH9, Config 9



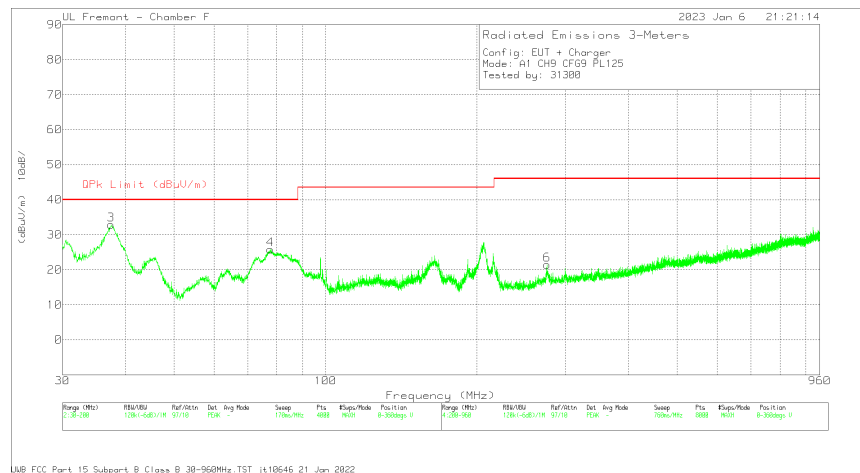
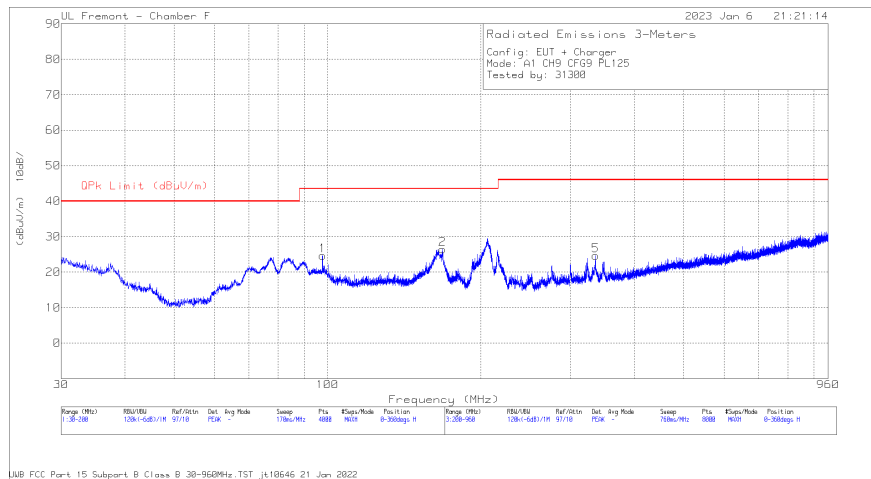
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Face
1	.0212	18.12	Pk	58.9	-31.8	-80	-34.78	61.07	-95.85	41.07	-75.85	0-360	On
4	.0213	15.2	Pk	58.9	-31.8	-80	-37.7	61	-98.7	41	-78.7	0-360	Off

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Chamber F port 0 loss	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Antenna Face
2	.6793	14.39	Pk	56.2	-32.5	-40	-1.91	30.97	-32.88	0-360	On
5	.6813	15.4	Pk	56.2	-32.5	-40	-9	30.95	-31.85	0-360	Off
3	9.9685	17.65	Pk	34.8	-32.2	-40	-19.75	29.5	-49.25	0-360	On
6	9.9769	18.58	Pk	34.8	-32.2	-40	-18.82	29.5	-48.32	0-360	Off

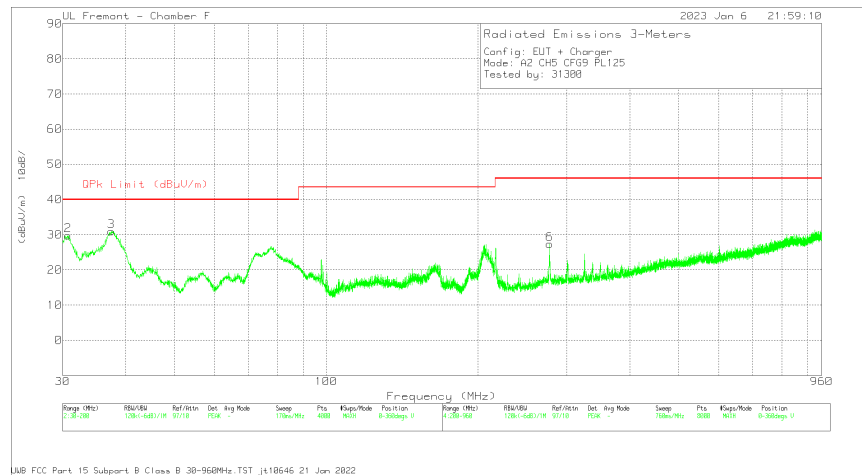
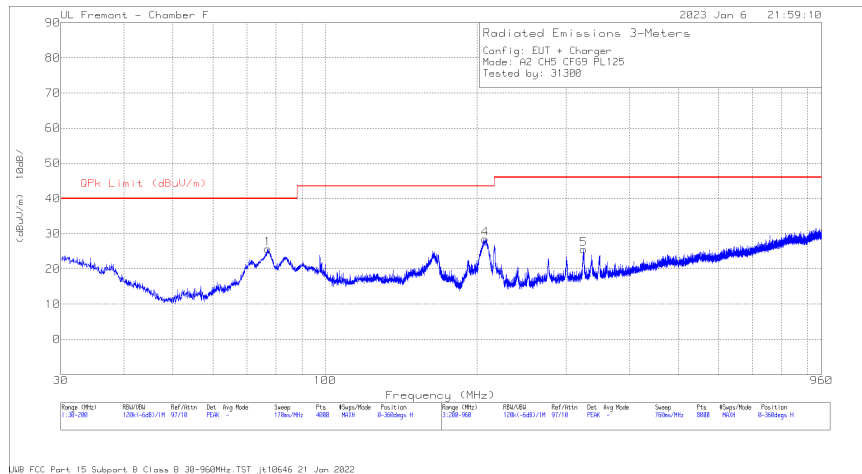
Pk - Peak detector

9.5.2. EMISSIONS, 30 - 960 MHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 204044 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	97.72	39.99	Pk	15.6	-30.9	24.69	43.52	-18.83	0-360	200	H
2	168.203	39.36	Pk	17.6	-30.5	26.46	43.52	-17.06	0-360	200	H
3	37.4819	43.04	Pk	21.1	-31.3	32.84	40	-7.16	0-360	102	V
4	77.6548	43.3	Pk	13.5	-31	25.8	40	-14.2	0-360	102	V
5	335.677	34.63	Pk	19.9	-29.9	24.63	46.02	-21.39	0-360	102	H
6	275.535	32.45	Pk	19.2	-30.2	21.45	46.02	-24.57	0-360	102	V

Pk - Peak detector

ANT. 2, CH5, CONFIG 9

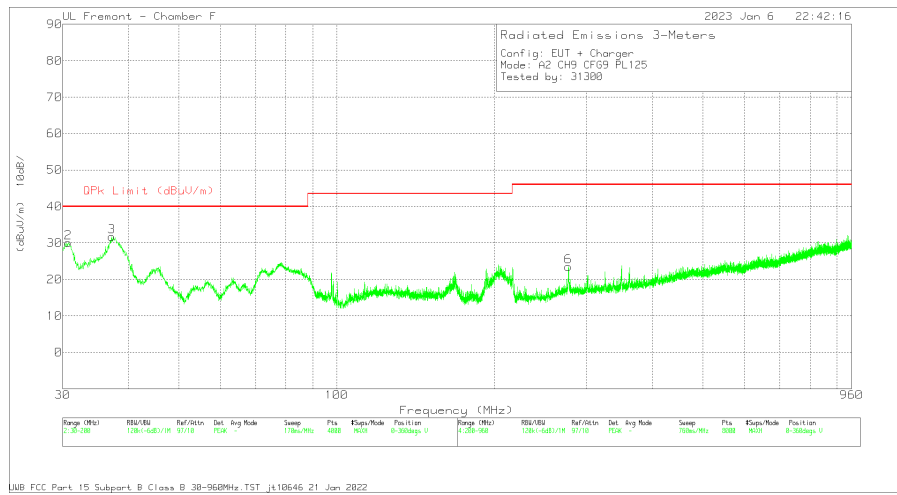
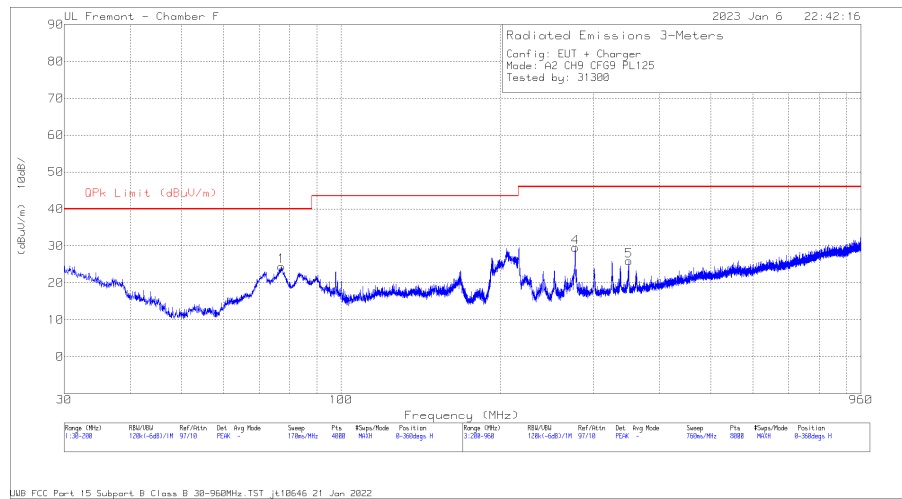


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 204044 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	77.0597	43.22	Pk	13.6	-31.1	25.72	40	-14.28	0-360	200	H
2	30.7227	34.7	Pk	26.4	-31.3	29.8	40	-10.2	0-360	101	V
3	37.4819	41.2	Pk	21.1	-31.3	31	40	-9	0-360	101	V
4	207.506	42.27	Pk	16.7	-30.4	28.57	43.52	-14.95	0-360	101	H
5	324.846	35.61	Pk	19.9	-30	25.51	46.02	-20.51	0-360	101	H
6	277.245	38.33	Pk	19.2	-30.2	27.33	46.02	-18.69	0-360	200	V

Pk - Peak detector

ANT. 2, CH9, CONFIG 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF 204044 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	77.2297	42.07	Pk	13.5	-31.1	24.47	40	-15.53	0-360	200	H
2	30.7227	34.95	Pk	26.4	-31.3	30.05	40	-9.95	0-360	102	V
3	37.2694	41.75	Pk	21.3	-31.3	31.75	40	-8.25	0-360	102	V
4	277.435	40.49	PK	19.2	-30.2	29.49	46.02	-16.53	0-360	102	H
5	349.644	35.59	Pk	20.2	-29.9	25.89	46.02	-20.13	0-360	102	H
6	276.865	34.54	Pk	19.2	-30.2	23.54	46.02	-22.48	0-360	101	V

Pk - Peak detector

9.6. AVERAGE EMISSIONS ABOVE 960 MHz**LIMITS****FCC**

15.519 (c)

Frequency in MHz	EIRP in dBm
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-10600	-41.3
Above 10600	-61.3

§15.519 (d) In addition to the radiated emission limits specified in the table in paragraph (c) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency in MHz	EIRP in dBm
1164-1240	-85.3
1559-1610	-85.3

RSS-220

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.

Hand-held (Outdoor) Communication, Measurement, Location Sensing, and Tracking Devices	
Frequency	E.i.r.p. in a Resolution Bandwidth of 1 MHz
960-1 610 MHz	-75.3 dBm
1.61-4.75 GHz	-70.0 dBm
4.75-10.6 GHz	-41.3 dBm
Above 10.6 GHz	-61.3 dBm

Section 5.3.1 (e) In addition to the limits specified in paragraph (d) of this section, radiated emissions shall not exceed the following average limits when measured using a resolution bandwidth greater than or equal to 1 kHz. The measurements shall demonstrate compliance with the stated limits at whatever resolution bandwidth is used.

Frequency	E.i.r.p. in a Resolution Bandwidth of no less than 1 kHz
1 164-1 240 MHz	-85.3 dBm
1 559-1 610 MHz	-85.3 dBm

TEST PROCEDURE

ANSI C63.10 Clause 10.3.

RSS-220 Annex

Exploratory measurements for all frequency ranges are performed with the measurement antenna at close distances to the EUT as described in ANSI C63.10 6.6.4.2. Where emissions are observed the measurement antenna is then positioned at a height of 1.5m and a distance of 1m from the EUT and final measurements are made at the frequencies observed in the exploratory scans using the alternative measurement procedures detailed in ANSI C63.10 section 6.6.5. If no emissions are observed, a plot is made at a test distance of 1m from the EUT to show the measurement system noise floor.

PROCEDURE FOR 0.96 TO 6 GHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 0.5m from the EUT.

A low pass filter with a cut off frequency of 5.4 GHz is used to suppress the fundamental and perform measurement for 0.96 - 6 GHz.

Distance Correction Factor from 3m to 0.5m = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

RESULTS FOR 6 GHz TO 9 GHz

The 6 - 9 GHz frequency band is covered in Section 9.3.

PROCEDURE FOR 9 GHz TO 18 GHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 0.5m from the EUT.

A high pass filter with pass band frequency beyond 9 GHz is used to suppress the fundamental and perform measurement for 9 - 18 GHz.

Distance Correction Factor from 3m to 0.5m = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

PROCEDURE FOR 1.164 TO 1.240 GHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 0.5m from the EUT.

RBW = 120 kHz & VBW = 500 kHz were used at pre-scan.

A low pass filter with a cut off frequency of 6 GHz is used to suppress the fundamental and perform measurement for 1.164 – 1.240 GHz.

Distance Correction Factor from 3m to 0.5m = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

PROCEDURE FOR 1.559 TO 1.610 GHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 0.5m from the EUT.

RBW = 120 kHz & VBW = 500 kHz were used at pre-scan.

A low pass filter with a cut off frequency of 6 GHz is used to suppress the fundamental and perform measurement for 1.559 – 1.610 GHz.

Distance Correction Factor from 3m to 0.5m = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

PROCEDURE FOR 18 GHz TO 40 GHz

Measurements are made with the antenna feeding a spectrum analyzer via a preamplifier and cables, at a maximum distance of 1m 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.

Distance Correction Factor from 3m to 1m = $20 \cdot \log(1\text{m}/3\text{m}) = -9.54 \text{ dB}$

RESULTS

Results for the parent model are shown below.

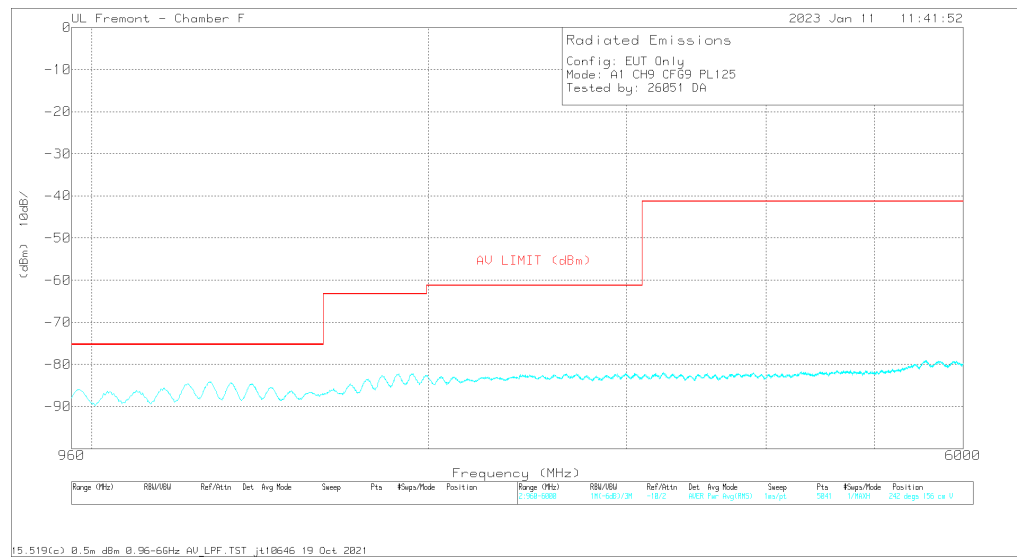
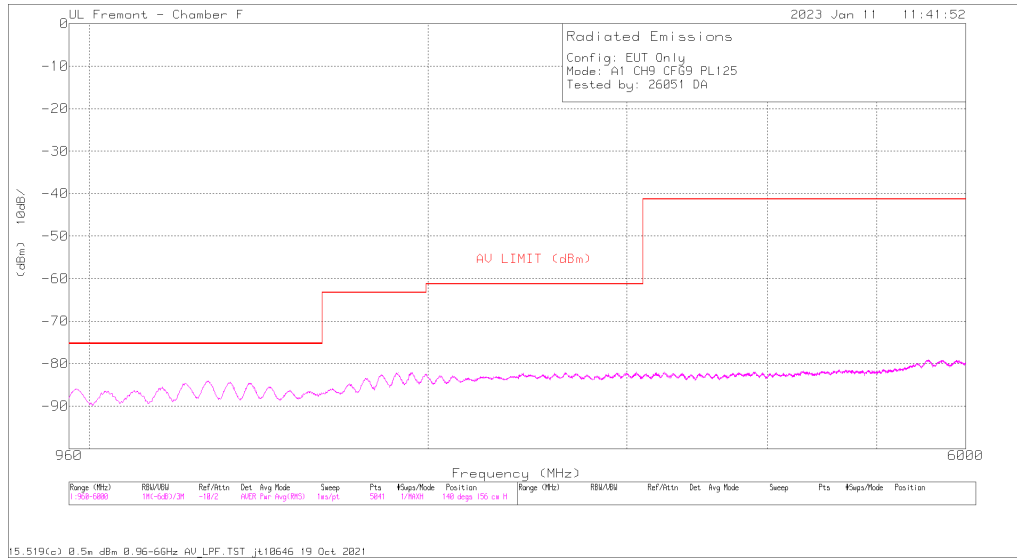
Average Emissions Summary**Parent Model**

Employee IDs: 26051, 31300, 19172, 32312

Location: Chamber F, 5E

Test Date: 1/6/23 – 1/18/23, 6/19/23, 6/20/23

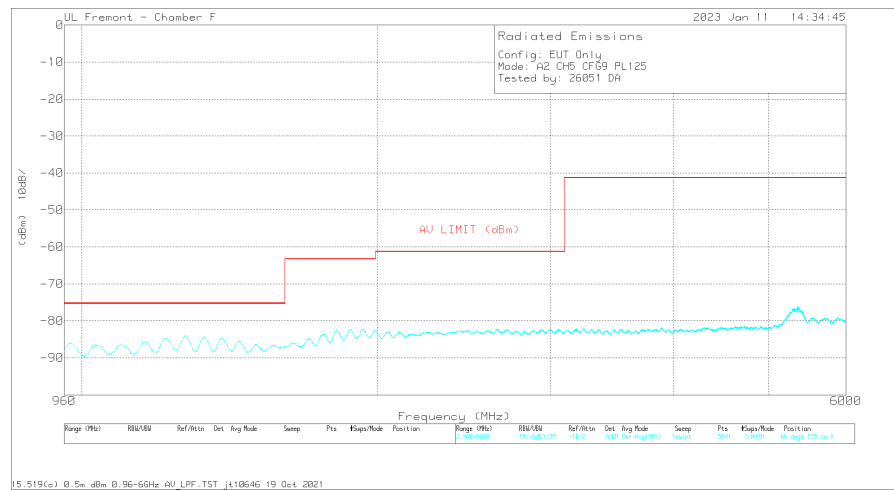
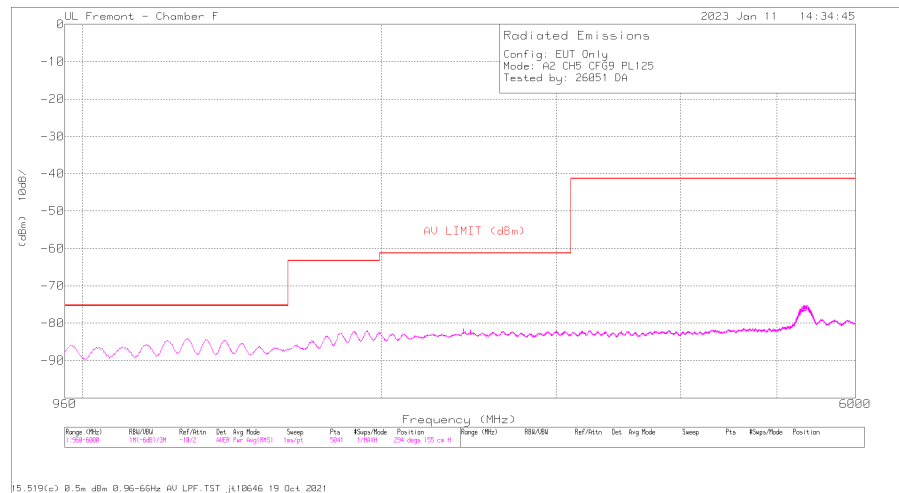
Ant	CH	Config	Payload	Power Setting	Frequency Ranges				
					1164 - 1240 MHz	1559 - 1610 MHz	0.96 - 18 GHz	18 - 26.5 GHz	26.5 - 40 GHz
1	9	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	5	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	9	9	125	Max	PASS	PASS	PASS	PASS	PASS

9.6.1. AVERAGE EMISSIONS, 0.96 – 6 GHz**FCC15.519 (C)****Parent****ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1276.5	-61.23	RMS	29.6	-48.9	-15.6	11.8	.2	-84.13	-75.3	-8.83	162	156	H
2	1874	-61.39	RMS	31.9	-49.1	-15.6	11.8	.2	-82.19	-63.3	-18.89	316	156	H
3	4633	-64.74	RMS	34.6	-48.1	-15.6	11.8	.6	-81.44	-41.3	-40.14	75	156	H
4	1275	-61.16	RMS	29.6	-48.9	-15.6	11.8	.2	-84.06	-75.3	-8.76	132	156	V
5	1881	-61.52	RMS	31.9	-49	-15.6	11.8	.2	-82.22	-63.3	-18.92	286	156	V
6	4633	-64.76	RMS	34.6	-48.1	-15.6	11.8	.6	-81.46	-41.3	-40.16	110	156	V

RMS - RMS detection

ANT. 2, CH5, CONFIG 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1275	-61.18	RMS	29.6	-48.9	-15.6	11.8	2	-84.08	-75.3	-8.78	184	155	H
2	2418	-61.09	RMS	32.6	-49.3	-15.6	11.8	2	-81.39	-81.3	-20.09	75	155	H
3	5345	-59.88	RMS	34.9	-47.7	-15.6	11.8	1.2	-75.28	-41.3	-33.98	97	155	H
4	1274	-61.09	RMS	29.6	-48.9	-15.6	11.8	2	-83.99	-75.3	-8.69	176	155	V
5	2415	-62.02	RMS	32.6	-49.5	-15.6	11.8	2	-82.52	-81.3	-21.22	198	155	V
6	5369	-61.41	RMS	35	-47.5	-15.6	11.8	1.5	-76.21	-41.3	-34.91	198	155	V

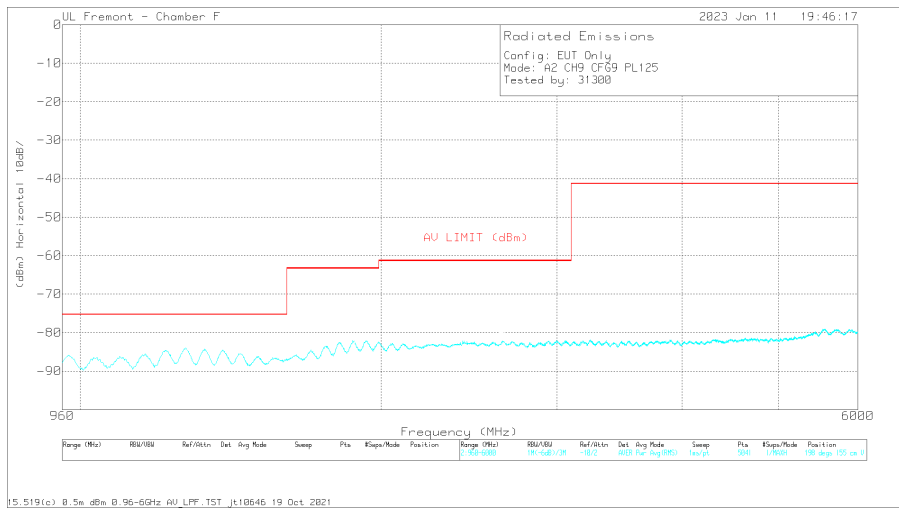
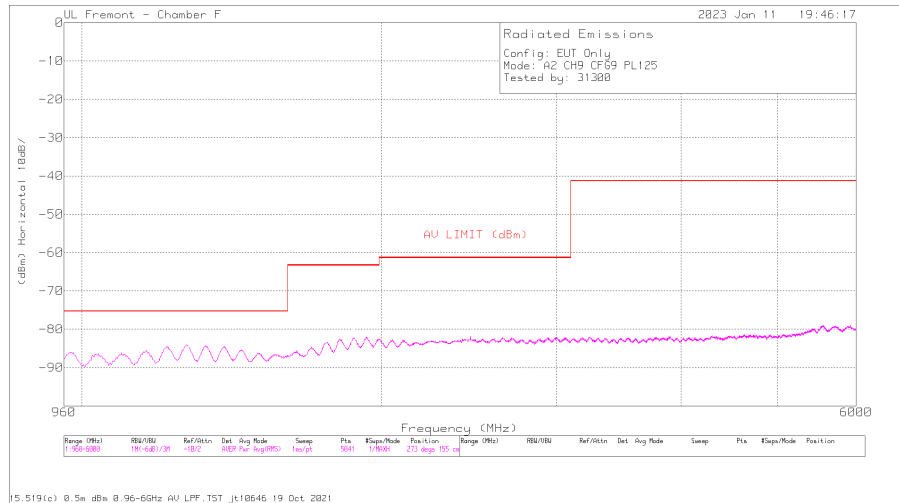
RMS - RMS detection

Radiated Emissions

Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5251.923	-48.91	RMS	34.8	-47.8	-15.6	11.8	1	-64.71	-41.3	-23.41	113	155	H
5252.222	-47.96	RMS	34.8	-47.8	-15.6	11.8	1	-63.76	-41.3	-22.46	197	155	V

RMS - RMS detection

ANT. 2, CH9, CONFIG 9



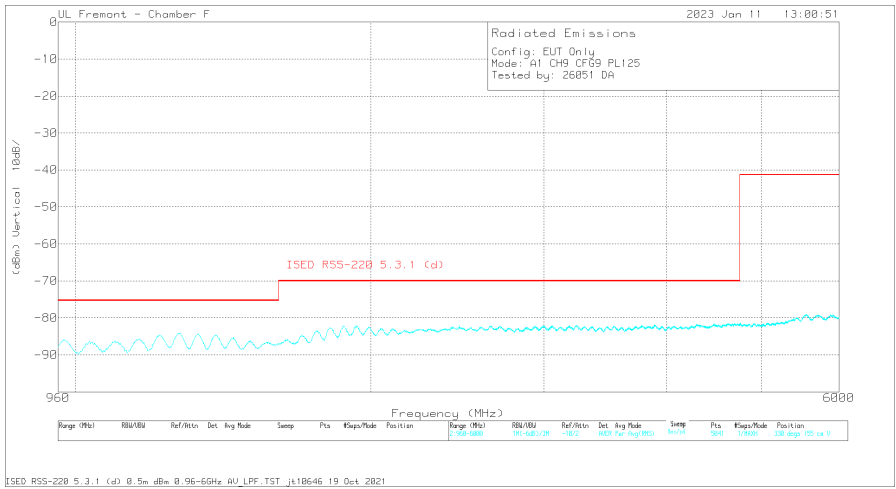
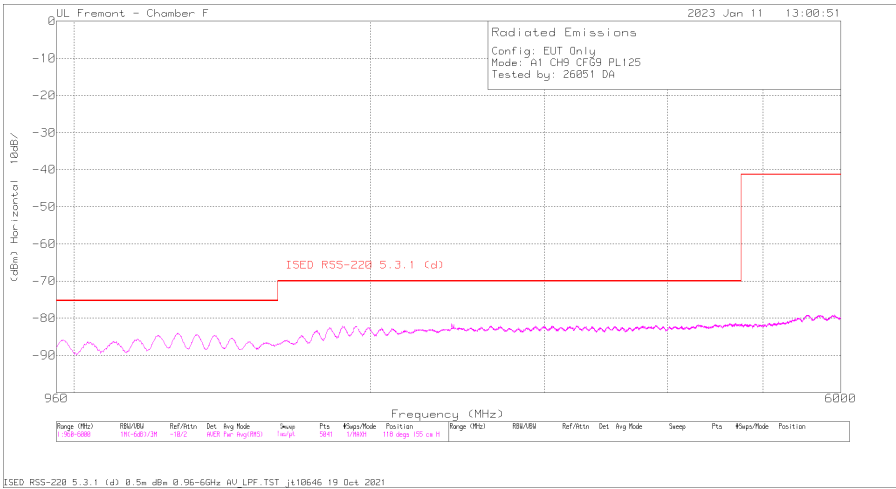
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	#1887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204643 LPF (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Altitude (Dops)	Height (cm)	Polarity
1	1275	-61.11	RMS	29.6	-48.9	-15.6	11.8	2	-84.01	-75.3	-8.71	339	155	H
2	1874	-61.35	RMS	31.9	-49.1	-15.6	11.8	2	-82.15	-63.3	-18.85	250	155	H
3	2458	-61.96	RMS	32.7	-49.1	-15.6	11.8	3	-81.86	-61.3	-20.56	163	155	H
4	1274	-61.2	RMS	29.6	-48.9	-15.6	11.8	2	-84.1	-75.3	-8.8	220	155	V
5	1873	-61.37	RMS	31.9	-49	-15.6	11.8	2	-82.07	-63.3	-18.77	330	155	V
6	2647	-63.13	RMS	33	-48.6	-15.6	11.8	3	-82.23	-61.3	-20.93	66	155	V

RMS - RMS detection

RSS-220 5.3.1 (d)

ANT. 1, CH9, CONFIG 9

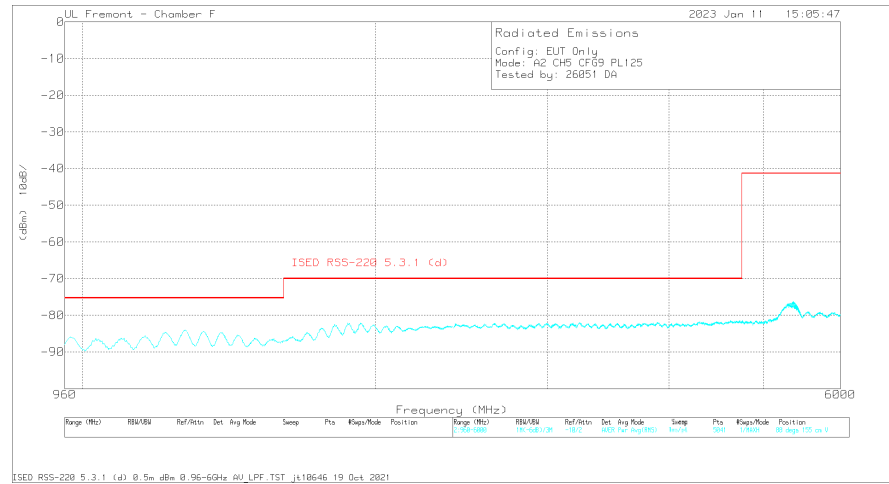
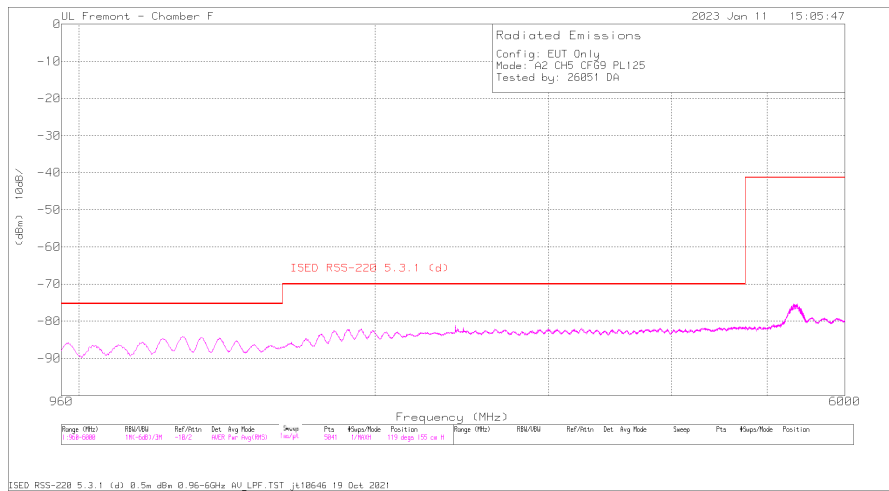


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (d)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1275	-61.06	RMS	29.6	-48.9	-15.6	11.8	.2	-83.96	-75.3	-8.66	338	155	H
2	1931	-61.49	RMS	32.1	-49.2	-15.6	11.8	.2	-82.19	-70	-12.19	338	155	H
3	2418	-61.17	RMS	32.6	-49.3	-15.6	11.8	.2	-81.47	-70	-11.47	74	155	H
4	1275	-61.19	RMS	29.6	-48.9	-15.6	11.8	.2	-84.09	-75.3	-8.79	110	155	V
5	1874	-61.3	RMS	31.9	-49.1	-15.6	11.8	.2	-82.1	-70	-12.1	0	155	V
6	2460	-62.19	RMS	32.7	-49	-15.6	11.8	.3	-81.99	-70	-11.99	0	155	V

RMS - RMS detection

ANT. 2, CH5, CONFIG 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (d)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1275	-61.15	RMS	29.6	-48.9	-15.6	11.8	2	-84.05	-75.3	-8.75	207	155	H
2	2413	-60.54	RMS	32.6	-49.5	-15.6	11.8	2	-81.04	-70	-11.04	141	155	H
3	5357	-60.63	RMS	35	-47.5	-15.6	11.8	1.5	-75.43	-41.3	-34.13	96	155	H
4	1275	-61.13	RMS	29.6	-48.9	-15.6	11.8	2	-84.03	-75.3	-8.73	1	155	V
5	2414	-61.8	RMS	32.6	-49.4	-15.6	11.8	2	-82.2	-70	-12.2	176	155	V
6	5369	-61.41	RMS	35	-47.5	-15.6	11.8	1.5	-76.21	-41.3	-34.91	176	155	V

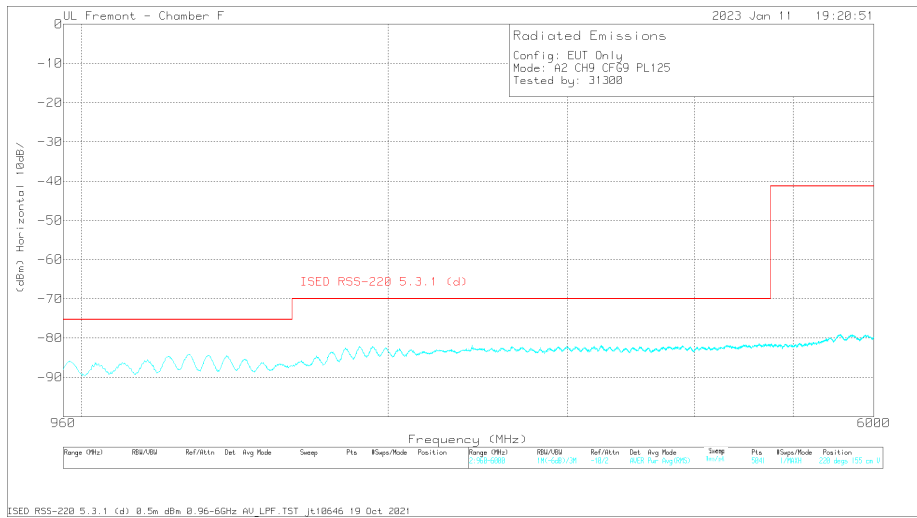
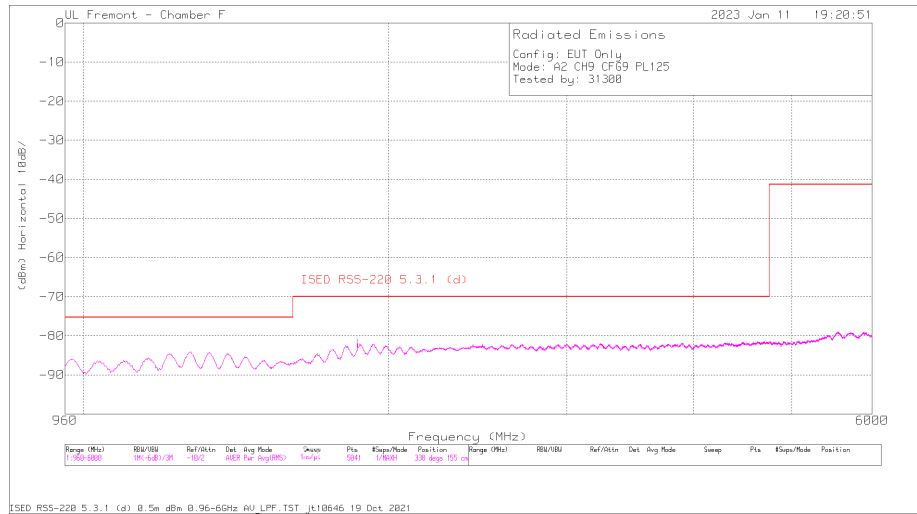
RMS - RMS detection

Radiated Emissions

Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LPF (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (d)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5252.102	-48.53	RMS	34.8	-47.8	-15.6	11.8	1	-64.33	-41.3	-23.03	95	155	H
5231.135	-48.07	RMS	34.8	-47.7	-15.6	11.8	1	-63.77	-41.3	-22.47	205	155	V

RMS - RMS detection

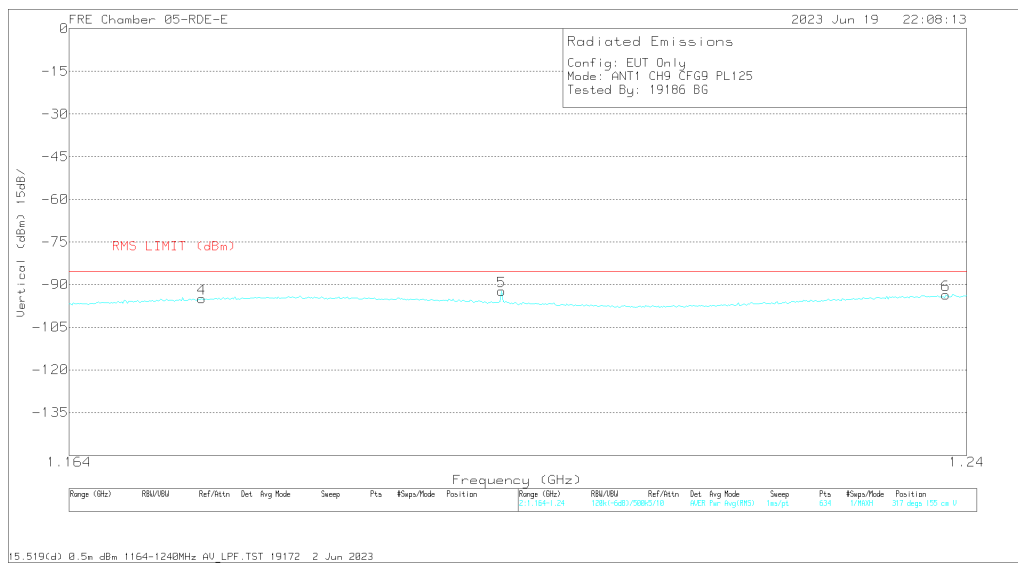
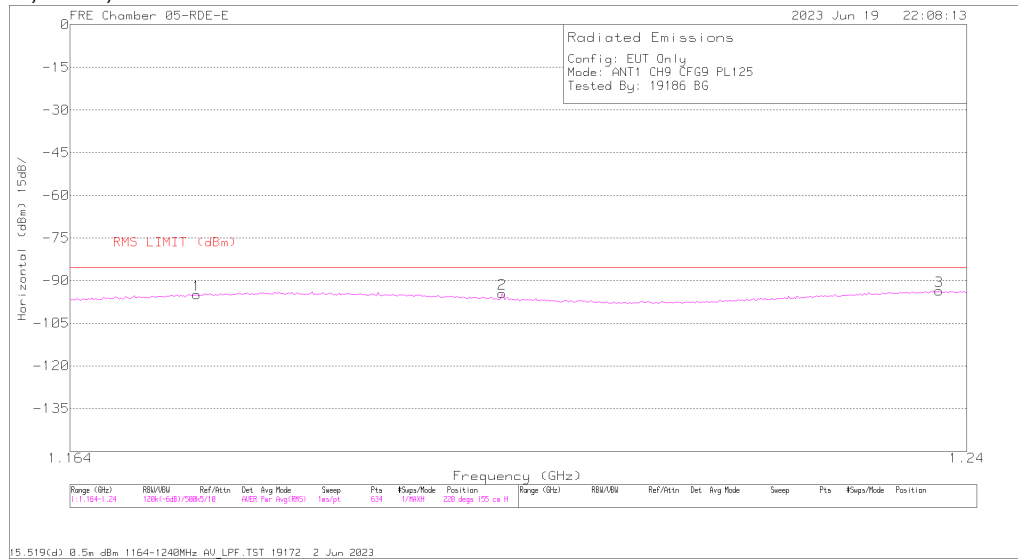
ANT. 2, CH9, CONFIG 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 LFP (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (d)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	1276	-61.18	RMS	29.6	-48.9	-15.6	11.8	2	-84.08	-75.3	-8.78	273	155	H
2	1865	-59.99	RMS	31.9	-49.1	-15.6	11.8	2	-80.79	-70	-10.79	229	155	H
3	3895	-65.55	RMS	33.8	-46.8	-15.6	11.8	4	-81.85	-70	-11.85	317	155	H
4	1275	-61.2	RMS	29.6	-48.9	-15.6	11.8	2	-84.1	-75.3	-8.8	0	155	V
5	2418	-61.56	RMS	32.6	-49.3	-15.6	11.8	2	-81.86	-70	-11.86	330	155	V
6	3895	-65.57	RMS	33.8	-46.8	-15.6	11.8	4	-81.97	-70	-11.97	0	155	V

RMS - RMS detection

9.6.2. AVERAGE EMISSIONS, 1.164 – 1.240 GHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

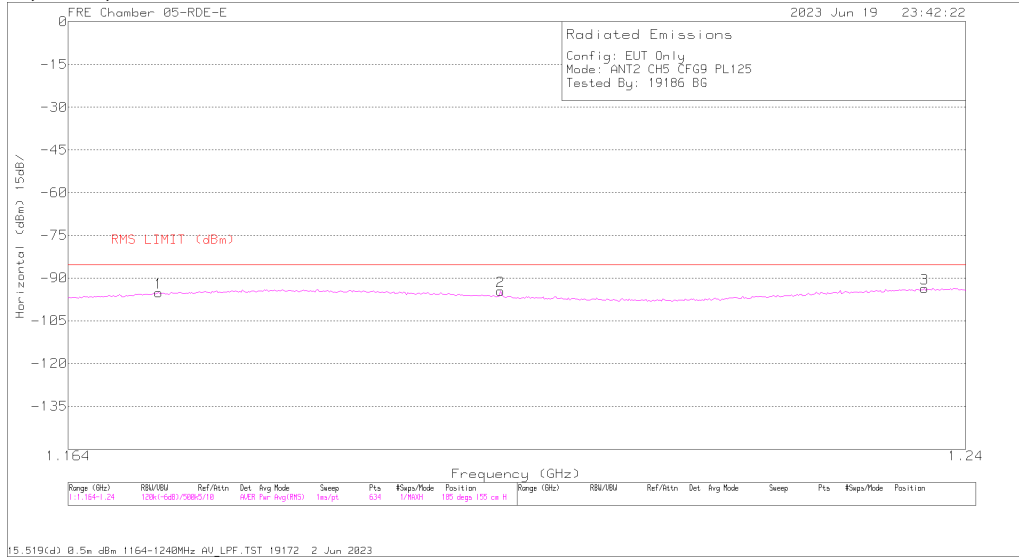
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.174445	-68.61	RMS	28	-15.6	11.8	-50.52	-94.93	-85.3	-9.63	132	155	H
4	1.174926	-68.52	RMS	28	-15.6	11.8	-50.55	-94.87	-85.3	-9.57	229	155	V
2	1.200019	-68.12	RMS	28.1	-15.6	11.8	-50.65	-94.47	-85.3	-9.17	88	155	H
5	1.200019	-65.88	RMS	28.1	-15.6	11.8	-50.65	-92.23	-85.3	-6.93	119	155	V
3	1.237599	-67.68	RMS	28.4	-15.6	11.8	-50.52	-93.6	-85.3	-8.3	88	155	H
6	1.238199	-67.8	RMS	28.5	-15.6	11.8	-50.54	-93.64	-85.3	-8.34	185	155	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.18258	-66.44	RMS	28.1	-15.6	11.8	-50.61	-92.75	-85.3	-7.45	211	155	H
1.20003	-64.98	RMS	28.1	-15.6	11.8	-50.65	-91.33	-85.3	-6.03	115	155	V

RMS - RMS detection

ANT. 2, CH5, CONFIG 9



Trace Markers

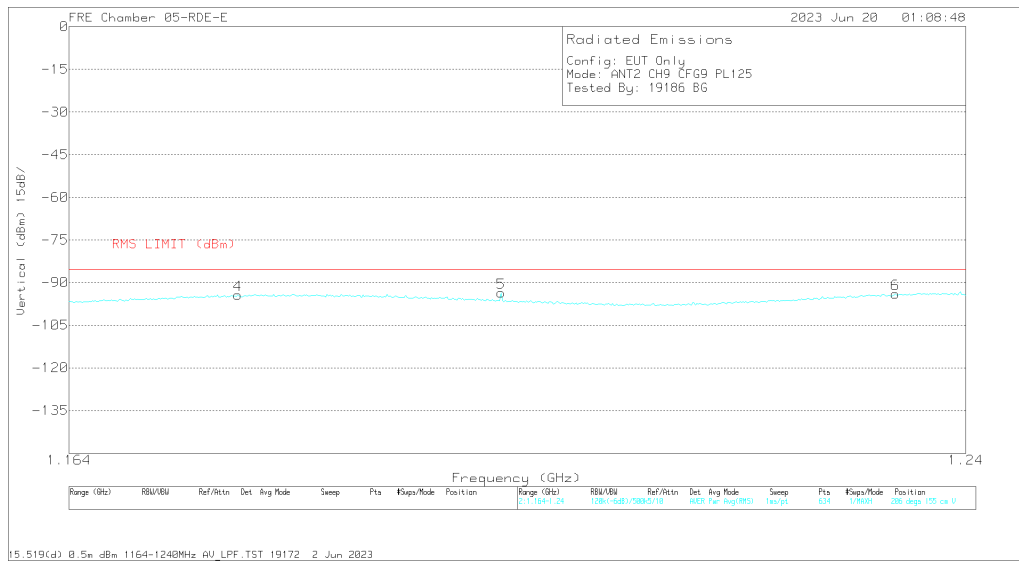
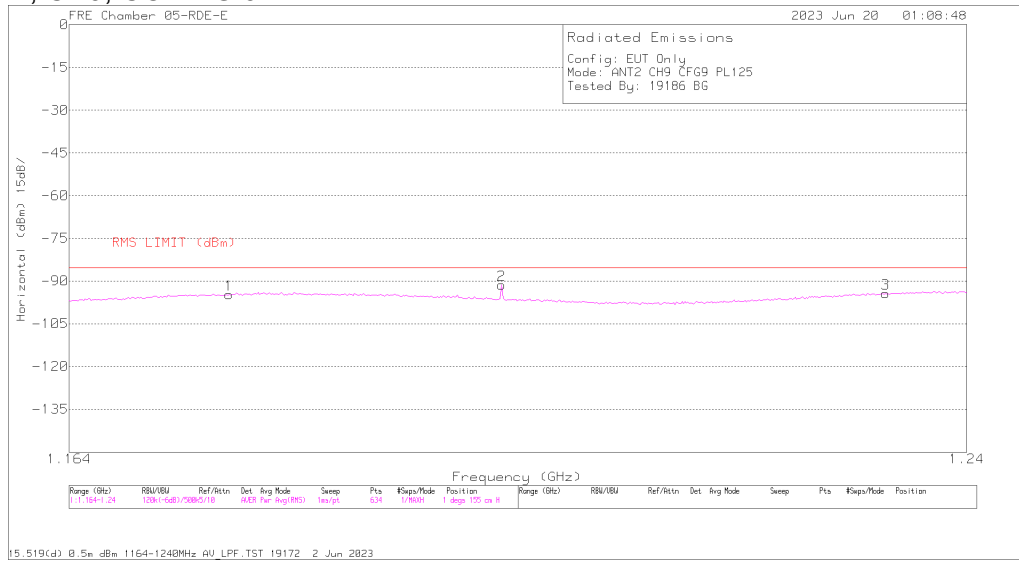
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.171444	-68.85	RMS	28	-15.6	11.8	-50.49	-95.14	-85.3	-9.84	97	155	H
4	1.172284	-68.78	RMS	28	-15.6	11.8	-50.47	-95.05	-85.3	-9.75	176	155	V
2	1.200019	-68.11	RMS	28.1	-15.6	11.8	-50.65	-94.46	-85.3	-9.16	75	155	H
5	1.200019	-65.72	RMS	28.1	-15.6	11.8	-50.65	-92.07	-85.3	-6.77	110	155	V
3	1.236398	-67.76	RMS	28.4	-15.6	11.8	-50.48	-93.64	-85.3	-8.34	272	155	H
6	1.236518	-67.97	RMS	28.4	-15.6	11.8	-50.49	-93.86	-85.3	-8.56	242	155	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.20003	-65.54	RMS	28.1	-15.6	11.8	-50.65	-91.89	-85.3	-6.59	40	155	V
1.23917	-66.53	RMS	28.5	-15.6	11.8	-50.56	-92.39	-85.3	-7.09	173	155	H

RMS - RMS detection

ANT. 2, CH9, CONFIG 9



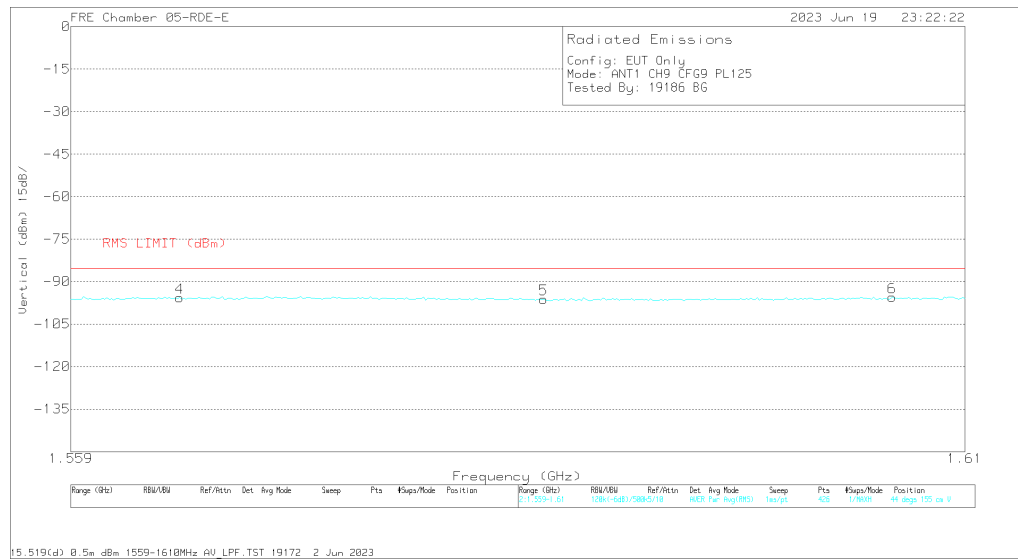
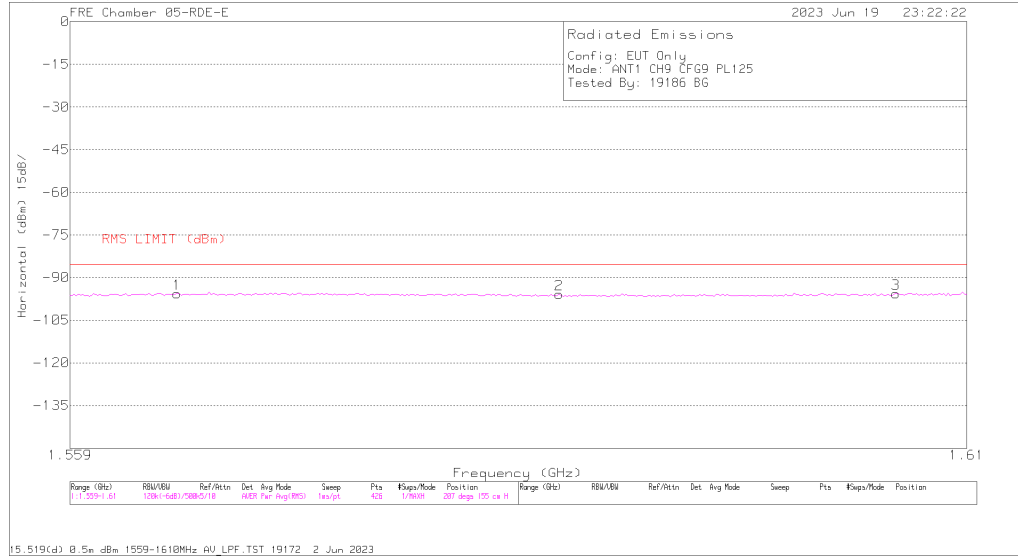
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.177207	-68.35	RMS	28.1	-15.6	11.8	-50.62	-94.67	-85.3	-9.37	264	155	H
4	1.177927	-68.07	RMS	28.1	-15.6	11.8	-50.62	-94.39	-85.3	-9.09	360	155	V
2	1.200019	-65.04	RMS	28.1	-15.6	11.8	-50.65	-91.39	-85.3	-6.09	22	155	H
5	1.200019	-67.28	RMS	28.1	-15.6	11.8	-50.65	-93.63	-85.3	-8.33	141	155	V
3	1.232916	-68.4	RMS	28.4	-15.6	11.8	-50.48	-94.28	-85.3	-8.98	110	155	H
6	1.233877	-68.06	RMS	28.4	-15.6	11.8	-50.47	-93.93	-85.3	-8.63	273	155	V

Radiated Emissions

Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.23932	-66.35	RMS	28.5	-15.6	11.8	-50.56	-92.21	-85.3	-6.91	320	155	H
1.23947	-66.42	RMS	28.5	-15.6	11.8	-50.56	-92.28	-85.3	-6.98	197	155	V

RMS - RMS detection

9.6.3. AVERAGE EMISSIONS, 1.559 – 1.610 GHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.565	-69.55	RMS	27.9	-15.6	11.8	-50.18	-95.63	-85.3	-10.33	185	155	H
4	1.56512	-69.58	RMS	27.9	-15.6	11.8	-50.18	-95.66	-85.3	-10.36	132	155	V
5	1.58576	-69.84	RMS	27.8	-15.6	11.8	-50.29	-96.13	-85.3	-10.83	307	155	V
2	1.5866	-69.5	RMS	27.8	-15.6	11.8	-50.29	-95.79	-85.3	-10.49	207	155	H
6	1.6058	-69.29	RMS	27.9	-15.6	11.8	-50.27	-95.46	-85.3	-10.16	110	155	V
3	1.60592	-69.4	RMS	27.9	-15.6	11.8	-50.27	-95.57	-85.3	-10.27	207	155	H

RMS - RMS detection

FRE Chamber 05-RDE-E

2023 Jun 19 23:33:37

Radiated Emissions
Config: EUT Only
Mode: ANT2 CH5 CF69 PL125
Tested By: 19186 BG

Horizontal (dBm) 15dB/

RMS LIMIT (dBm)

1

2

3

Frequency (GHz)

Range (GHz)	Ref/Retn	Det Avg Mode	Sweep	Pts	#Sweeps/Mode	Position	Range (GHz)	Ref/Retn	Det Avg Mode	Sweep	Pts	#Sweeps/Mode	Position
1.559-1.61	120K(-6dB)/200S/118	AVER Par Avg(BPS)	1s/pts	426	1/760/8	162 degs (75 cc H)	1.559-1.61	120K(-6dB)/200S/118	AVER Par Avg(BPS)	1s/pts	426	1/760/8	162 degs (75 cc H)

1.559 1.61

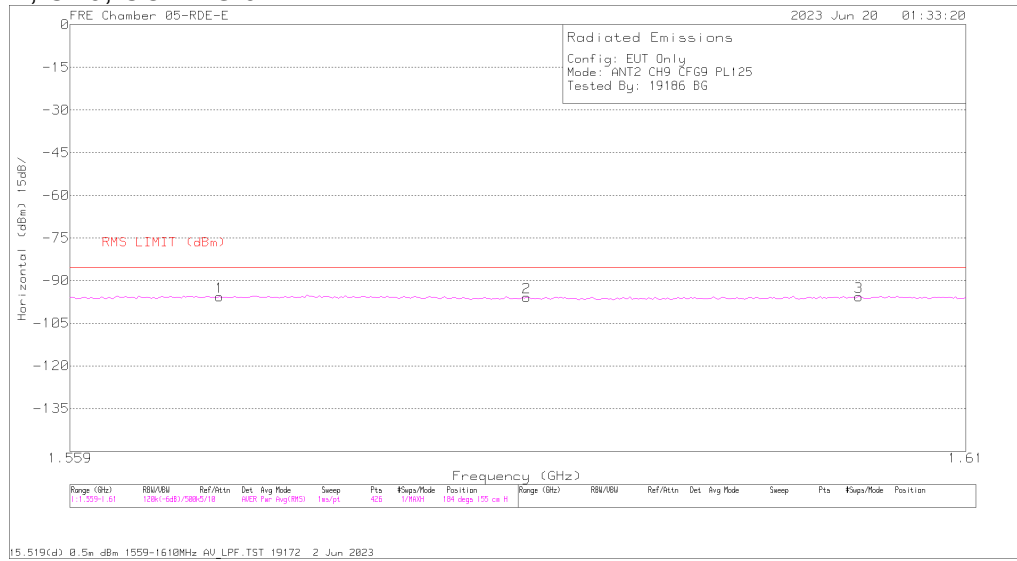
51.519(d) 0.5m dBm 1559-1610MHz AV LFF.TST 19172 2 Jun 2023



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dB)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.56524	-69.61	RMS	27.9	-15.6	11.8	-50.17	-95.68	-85.3	-10.38	250	155	H
4	1.56524	-69.49	RMS	27.9	-15.6	11.8	-50.17	-95.56	-85.3	-10.26	132	155	V
2	1.58372	-69.49	RMS	27.8	-15.6	11.8	-50.25	-95.95	-85.3	-10.65	162	155	H
5	1.59432	-69.77	RMS	27.8	-15.6	11.8	-50.26	-96.03	-85.3	-10.73	220	155	V
6	1.60232	-69.6	RMS	27.9	-15.6	11.8	-50.28	-95.78	-85.3	-10.69	1	155	V
3	1.60244	-69.38	RMS	27.9	-15.6	11.8	-50.28	-95.76	-85.3	-10.26	273	155	H

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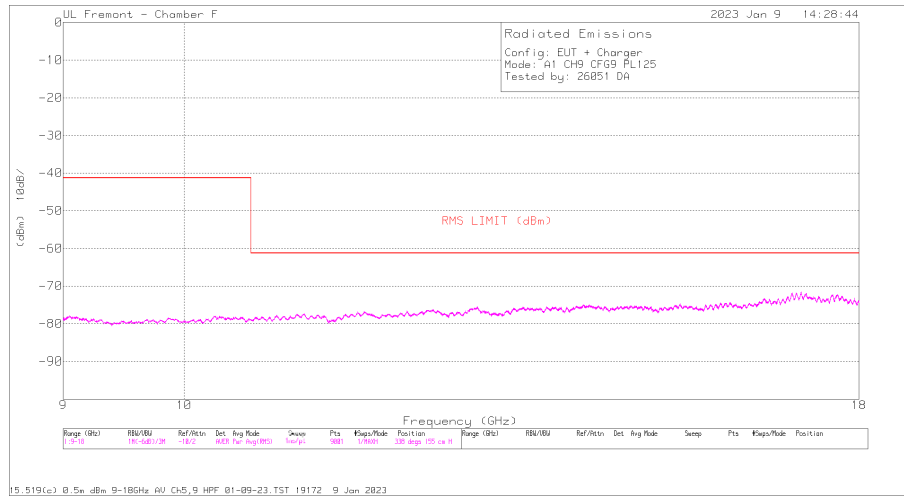
ANT. 2, CH9, CONFIG 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226671 ACF (dB) 3mH	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.5674	-69.52	RMS	27.9	-15.6	11.8	-50.16	-95.58	-85.3	-10.28	228	155	H
4	1.568	-69.41	RMS	27.9	-15.6	11.8	-50.18	-95.49	-85.3	-10.19	66	155	V
5	1.5836	-69.83	RMS	27.8	-15.6	11.8	-50.25	-96.08	-85.3	-10.78	264	155	V
2	1.5848	-69.52	RMS	27.8	-15.6	11.8	-50.27	-95.79	-85.3	-10.49	317	155	H
3	1.60382	-69.51	RMS	27.9	-15.6	11.8	-50.28	-95.69	-85.3	-10.39	272	155	H
6	1.60388	-69.42	RMS	27.9	-15.6	11.8	-50.28	-95.6	-85.3	-10.3	176	155	V

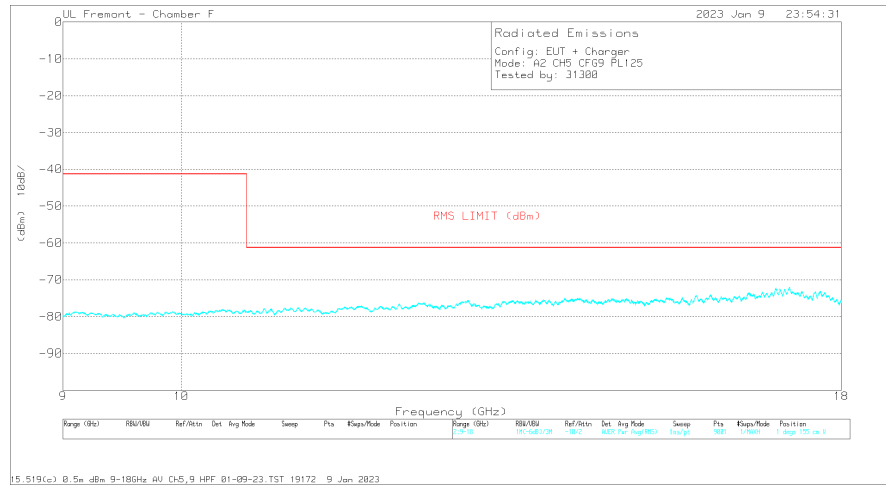
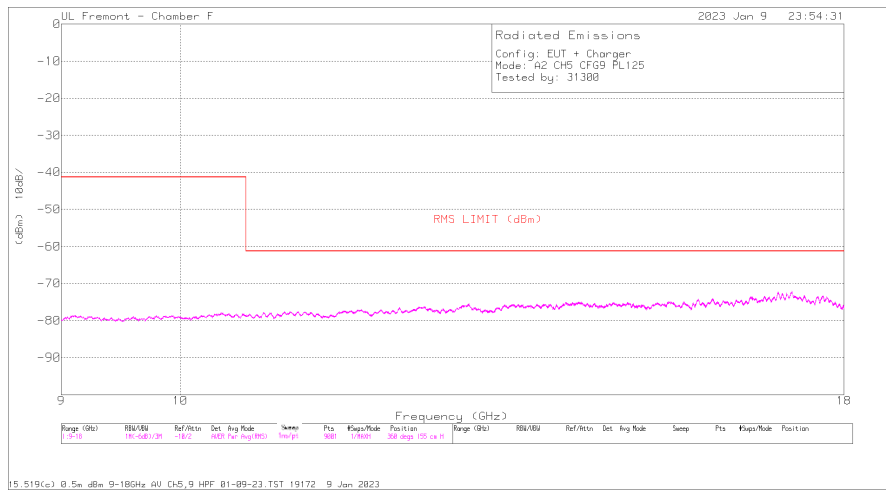
RMS - RMS detection

9.6.4. AVERAGE EMISSIONS, 9 – 18 GHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	High Pass Filter (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	9.107	-66.11	RMS	36.6	-45.3	-15.6	11.8	.5	-78.11	-61.3	-36.81	31	155	H
2	12.911	-65.88	RMS	38.7	-44.8	-15.6	11.8	.3	-75.48	-61.3	-14.18	317	155	H
3	17.115	-65.77	RMS	42.2	-44.5	-15.6	11.8	.3	-71.57	-61.3	-10.27	118	155	H
4	9.114	-66.79	RMS	36.6	-45.2	-15.6	11.8	.5	-78.69	-61.3	-37.39	308	155	V
5	12.911	-66.04	RMS	38.7	-44.8	-15.6	11.8	.3	-75.64	-61.3	-14.34	1	155	V
6	17.112	-65.97	RMS	42.2	-44.5	-15.6	11.8	.3	-71.77	-61.3	-10.47	43	155	V

RMS - RMS detection

ANT. 2, CH5, CONFIG 9

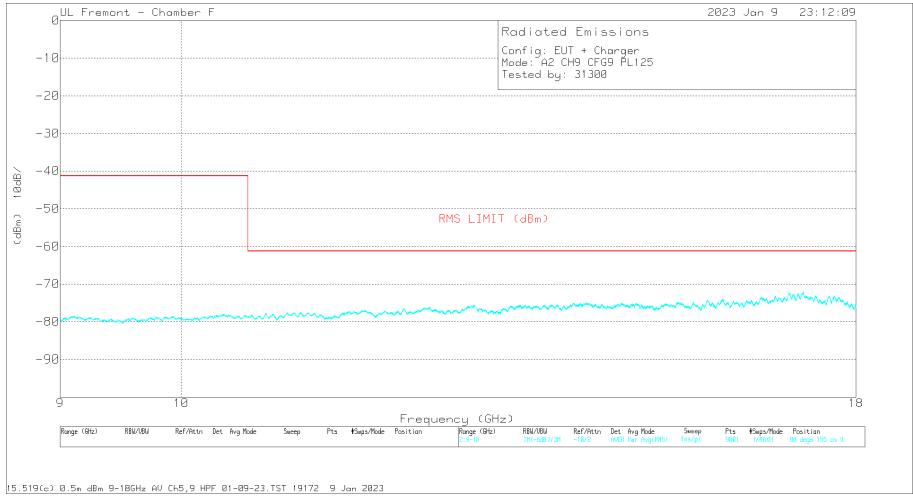
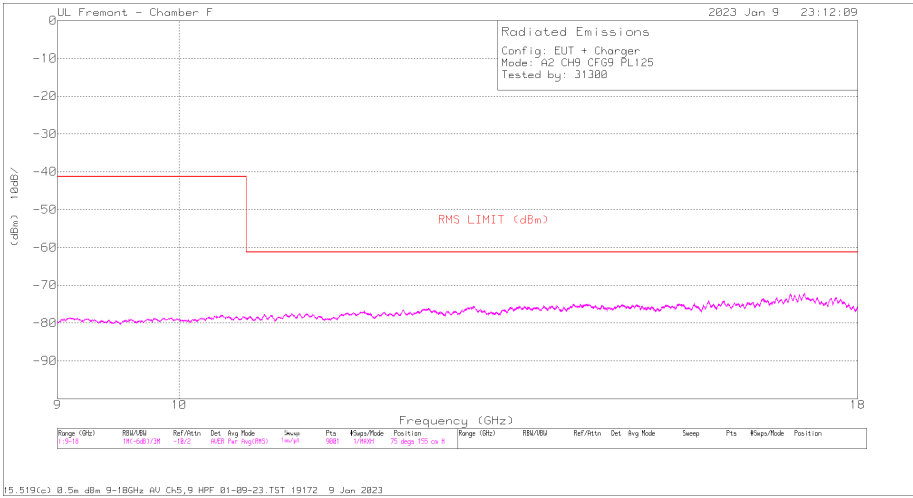


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	High Pass Filter (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	12.141	-66.72	RMS	38.4	-44.9	-15.6	11.8	.6	-76.42	-61.3	-15.12	229	155	H
2	12.914	-65.82	RMS	38.7	-44.8	-15.6	11.8	.3	-75.42	-61.3	-14.12	75	155	H
3	17.174	-65.96	RMS	42.2	-45.1	-15.6	11.8	.2	-72.46	-61.3	-11.16	30	155	H
4	12.141	-66.73	RMS	38.4	-44.9	-15.6	11.8	.6	-76.43	-61.3	-15.13	308	155	V
5	12.914	-65.94	RMS	38.7	-44.8	-15.6	11.8	.3	-75.54	-61.3	-14.24	241	155	V
6	17.183	-65.99	RMS	42.2	-44.9	-15.6	11.8	.3	-72.19	-61.3	-10.89	308	155	V

RMS - RMS detection

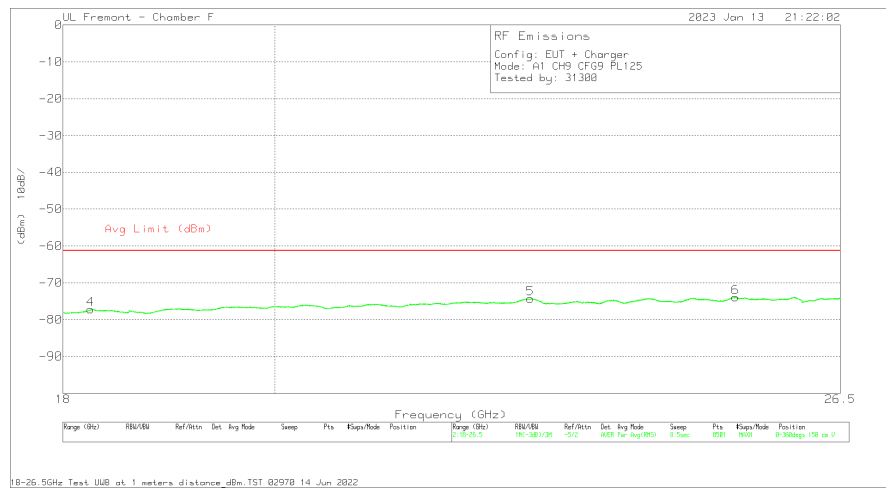
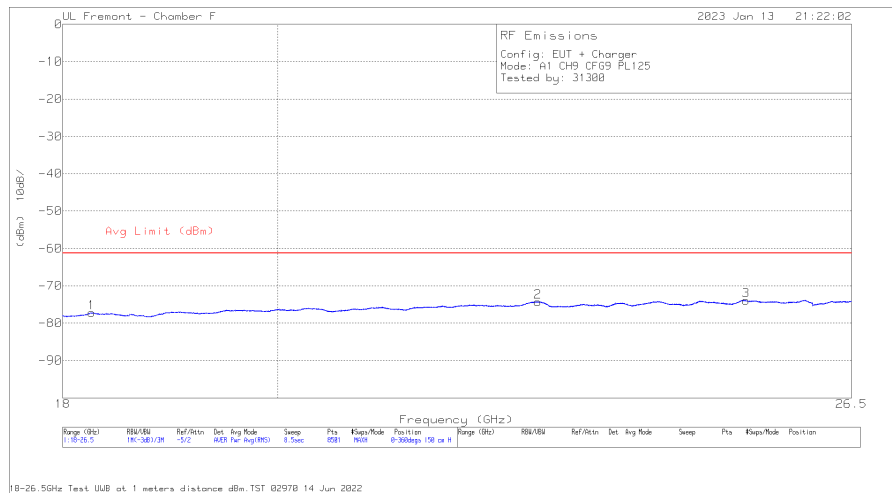
ANT. 2, CH9, CONFIG 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	High Pass Filter (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	10.383	-65.15	RMS	37.3	-46.6	-15.6	11.8	.3	-77.95	-41.3	-36.65	229	155	H
2	12.911	-66	RMS	38.7	-44.8	-15.6	11.8	.3	-75.6	-61.3	-14.3	317	155	H
3	17.192	-65.99	RMS	42.2	-44.8	-15.6	11.8	.3	-72.09	-61.3	-10.79	273	155	H
4	10.762	-66.41	RMS	37.7	-45.6	-15.6	11.8	.3	-77.81	-61.3	-16.51	110	155	V
5	12.9155	-65.96	RMS	38.7	-45.1	-15.6	11.8	.3	-75.86	-61.3	-14.56	132	155	V
6	17.188	-65.89	RMS	42.2	-44.8	-15.6	11.8	.3	-71.99	-61.3	-10.69	110	155	V

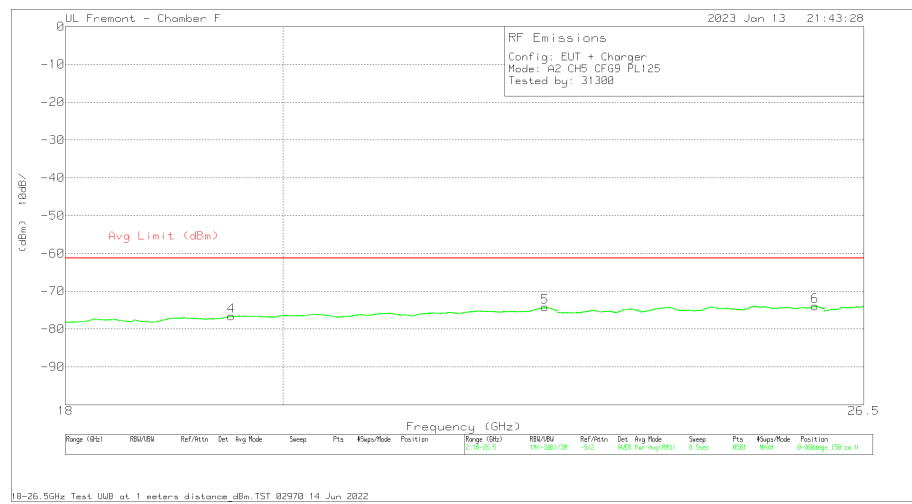
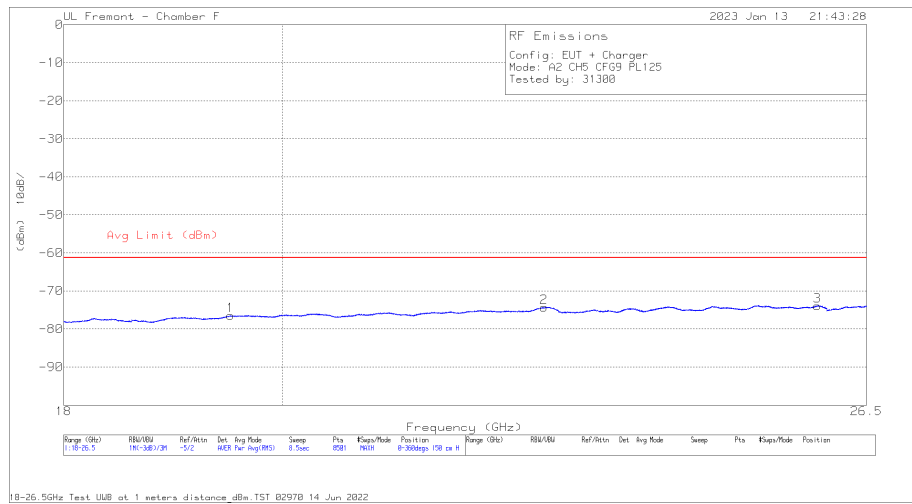
RMS - RMS detection

9.6.5. AVERAGE EMISSIONS, 18 – 26.5 GHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172362 1m AF (dB/m)	171580 Amp (dB)	Cables (dB)	Distance CF (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 18.258	-65.53	RMS	32.2	-63.6	17.4	-9.5	11.8	-77.23	-61.3	-15.93	0-360	150	H
2	* 22.722	-67.68	RMS	34.7	-63.1	19.5	-9.5	11.8	-74.28	-61.3	-12.98	0-360	150	H
3	25.164	-70.1	RMS	35.8	-62.5	20.6	-9.5	11.8	-73.9	-61.3	-12.6	0-360	150	H
4	* 18.251	-65.49	RMS	32.2	-63.6	17.4	-9.5	11.8	-77.19	-61.3	-15.89	0-360	150	V
5	* 22.713	-67.82	RMS	34.8	-63.1	19.5	-9.5	11.8	-74.32	-61.3	-13.02	0-360	150	V
6	25.151	-70.13	RMS	35.8	-62.5	20.6	-9.5	11.8	-73.93	-61.3	-12.63	0-360	150	V

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

ANT. 2, CH5, CONFIG 9

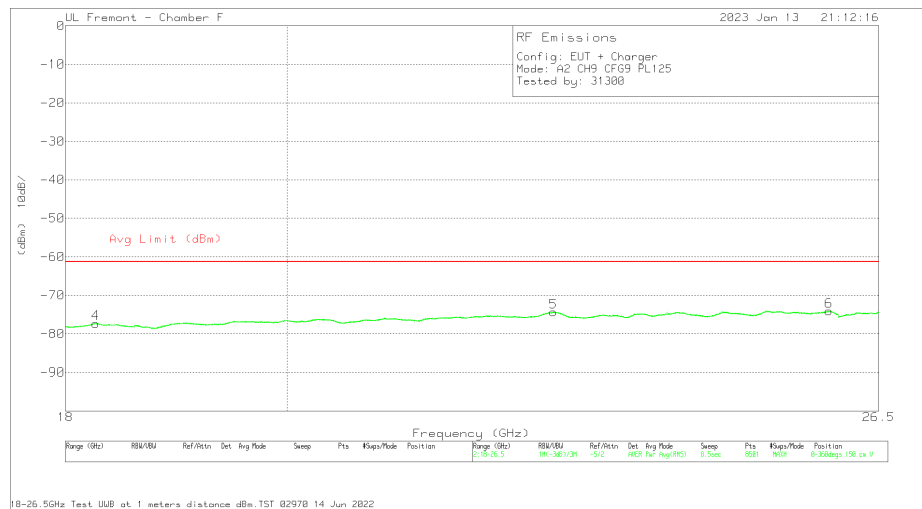
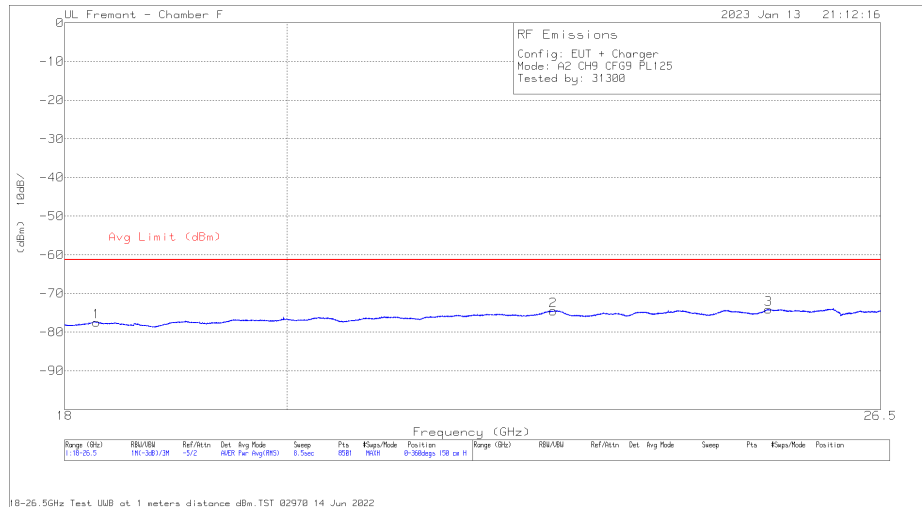


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172362 1m AF (dB/m)	171580 Amp (dB)	Cables (dB)	Distance CF (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 19.507	-67.08	RMS	33	-62.8	18.1	-9.5	11.8	-76.48	-61.3	-15.18	0-360	150	H
2	* 22.686	-67.83	RMS	34.8	-63.1	19.5	-9.5	11.8	-74.33	-61.3	-13.03	0-360	150	H
3	25.879	-71	RMS	35.8	-61.9	20.9	-9.5	11.8	-73.9	-61.3	-12.6	0-360	150	H
4	* 19.508	-67.14	RMS	33	-62.8	18.1	-9.5	11.8	-76.54	-61.3	-15.24	0-360	150	V
5	* 22.707	-67.7	RMS	34.8	-63.1	19.5	-9.5	11.8	-74.2	-61.3	-12.9	0-360	150	V
6	25.881	-71.07	RMS	35.8	-61.9	20.9	-9.5	11.8	-73.97	-61.3	-12.67	0-360	150	V

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

ANT. 2, CH9, CONFIG 9

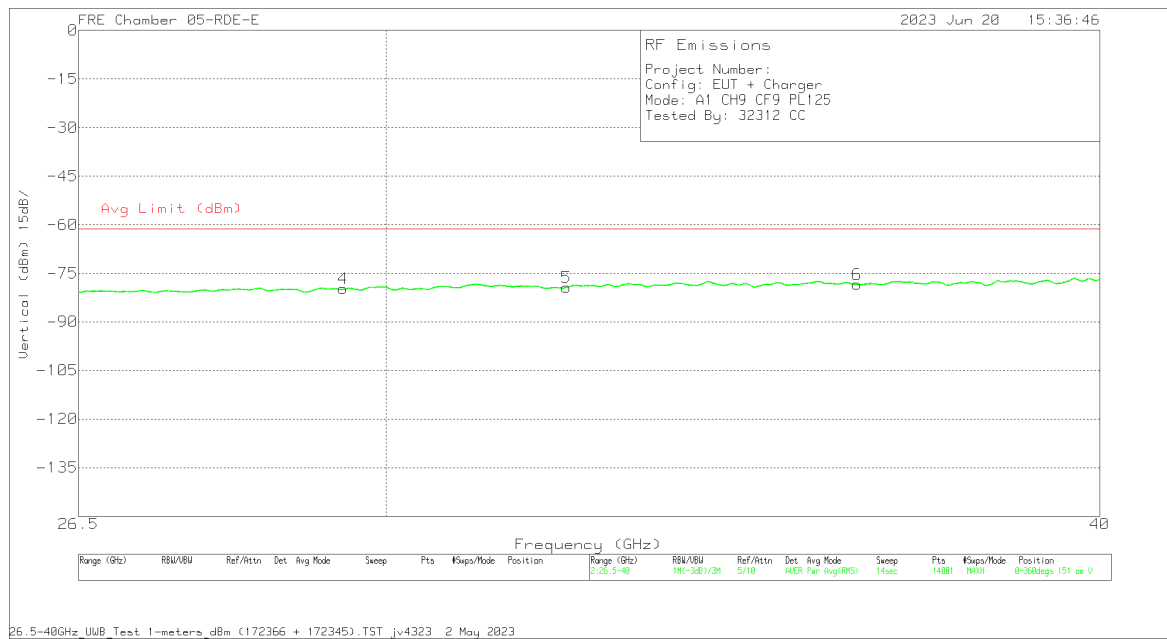
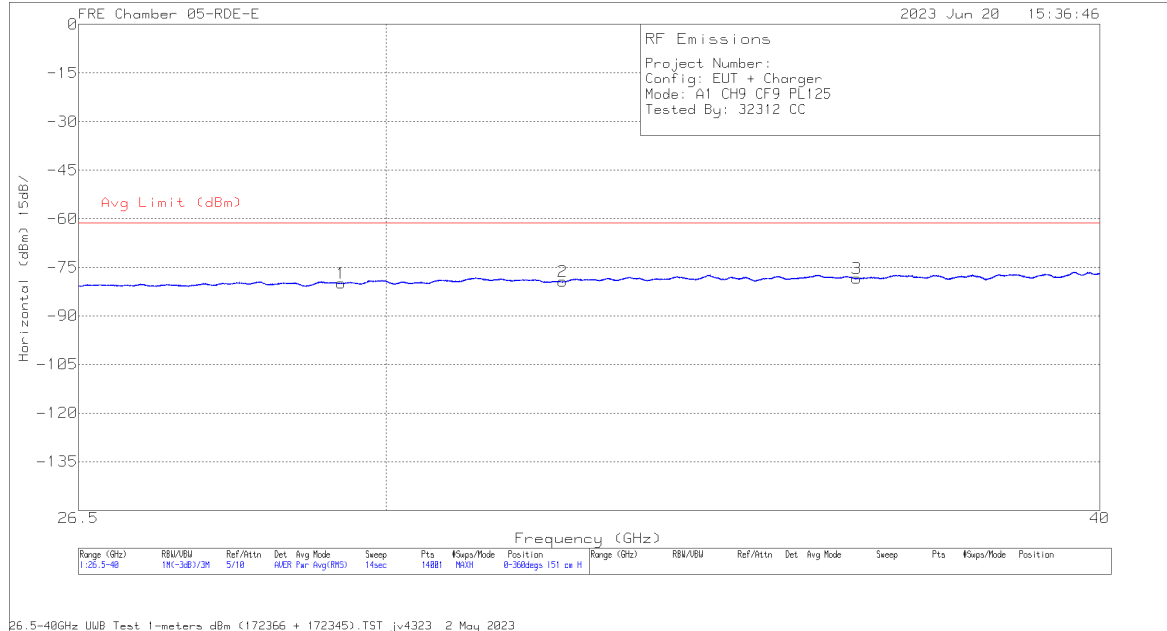


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172362 1m AF (dB/m)	171580 Amp (dB)	Cables (dB)	Distance CF (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 18.275	-65.69	RMS	32.2	-63.6	17.4	-9.5	11.8	-77.39	-61.3	-16.09	0-360	150	H
2	* 22.692	-68	RMS	34.8	-63.1	19.5	-9.5	11.8	-74.5	-61.3	-13.2	0-360	150	H
3	25.131	-70.31	RMS	35.8	-62.5	20.6	-9.5	11.8	-74.11	-61.3	-12.81	0-360	150	H
4	* 18.262	-65.57	RMS	32.2	-63.6	17.4	-9.5	11.8	-77.27	-61.3	-15.97	0-360	150	V
5	* 22.704	-67.86	RMS	34.8	-63.1	19.5	-9.5	11.8	-74.36	-61.3	-13.06	0-360	150	V
6	25.88	-71.22	RMS	35.8	-61.9	20.9	-9.5	11.8	-74.12	-61.3	-12.82	0-360	150	V

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

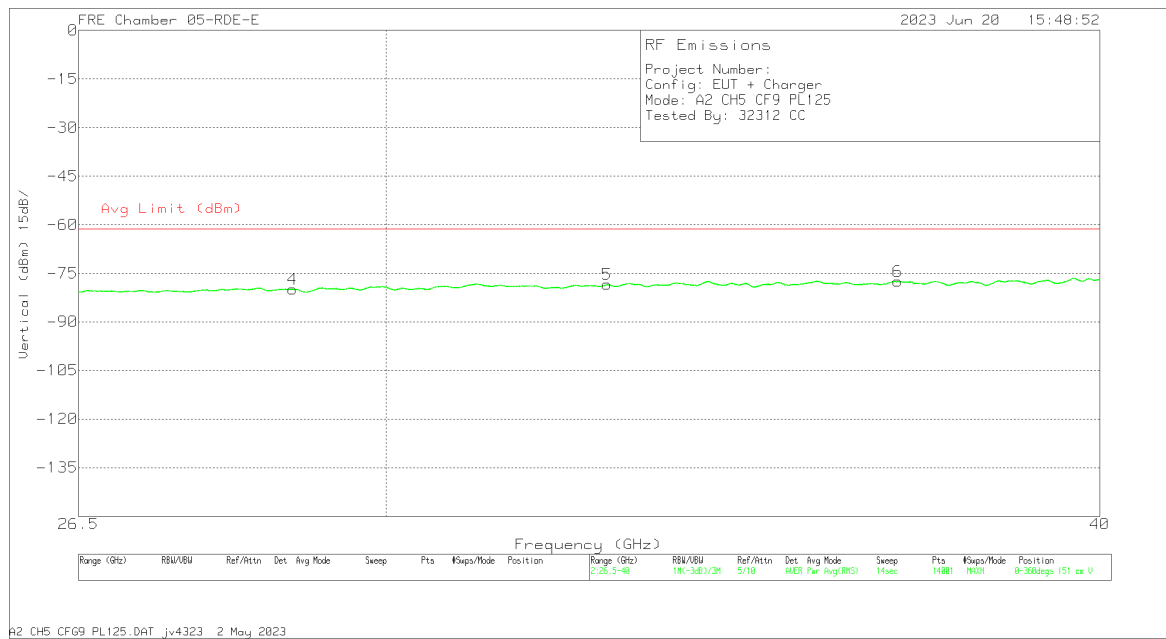
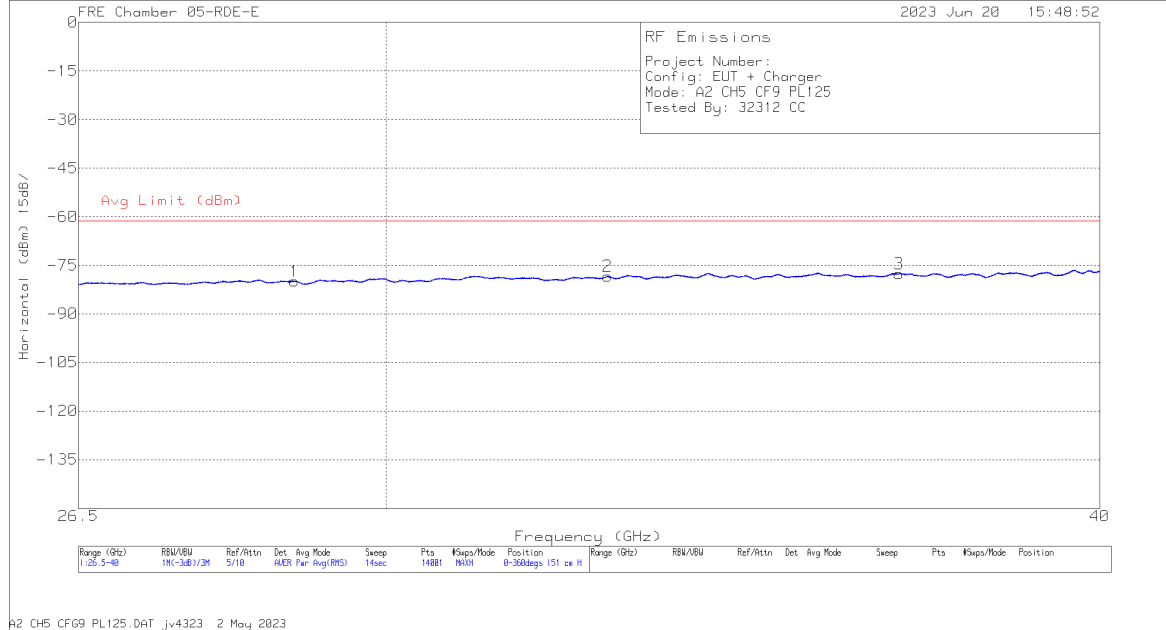
RMS - RMS detection

9.6.6. AVERAGE EMISSIONS, 26.5 – 40 GHz**ANT. 1, CH9, CONFIG 9****Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172366 ACF (dB) 1mH	172345 Amp (dB)	Dist Corr (dB)	Conversion Factor (dB)	CBL/SWITCH	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	29.458429	-57.9	RMS	36.6	-71.6	-15.6	11.8	16.8	-79.9	-61.3	-18.6	0-360	151	H
4	29.484465	-57.76	RMS	36.6	-71.5	-15.6	11.8	16.7	-79.76	-61.3	-18.46	0-360	151	V
2	32.211466	-59.41	RMS	37.1	-70.8	-15.6	11.8	17.5	-79.41	-61.3	-18.11	0-360	151	H
5	32.261609	-59.26	RMS	37.2	-70.9	-15.6	11.8	17.5	-79.26	-61.3	-17.96	0-360	151	V
3	36.266289	-58.27	RMS	38	-73.2	-15.6	11.8	18.9	-78.37	-61.3	-17.07	0-360	151	H
6	36.27111	-58.3	RMS	38	-73.2	-15.6	11.8	18.9	-78.4	-61.3	-17.1	0-360	151	V

RMS - RMS detection

ANT. 2, CH5, CONFIG 9

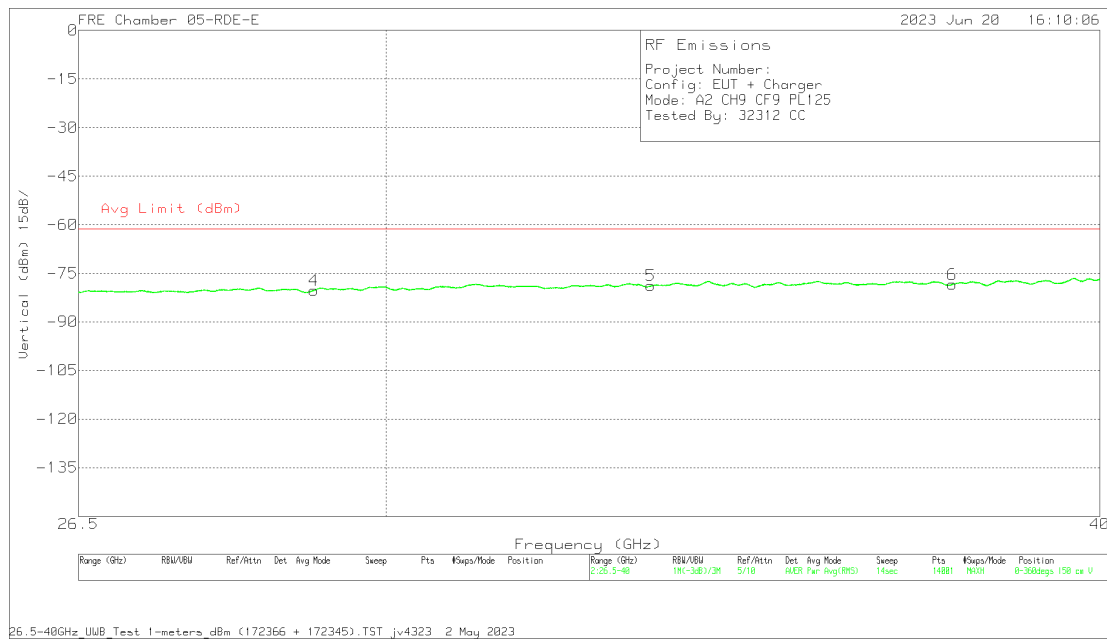
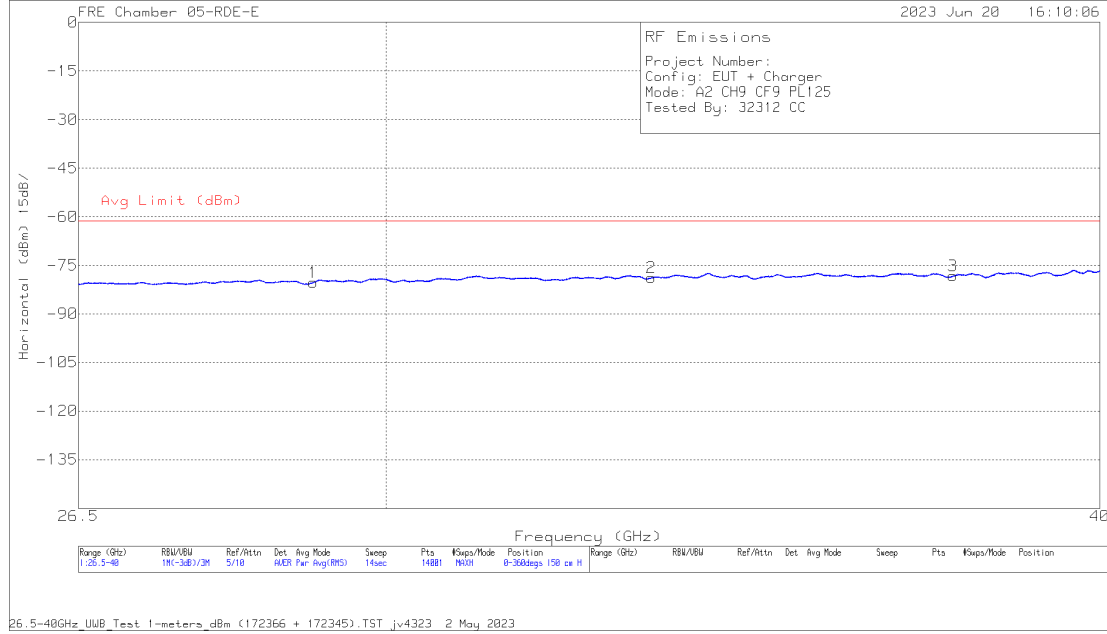


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172386 ACF (dB) 1mH	172345 Amp (dB)	Dist Corr (dB)	Conversion Factor (dB)	CBL/SWITCH	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	28.888536	-56.62	RMS	36.2	-72.2	-15.6	11.8	16.6	-79.82	-61.3	-18.52	0-360	151	V
1	28.911679	-56.62	RMS	36.2	-72.2	-15.6	11.8	16.6	-79.82	-61.3	-18.52	0-360	151	H
5	32.794859	-58.28	RMS	37.3	-71.3	-15.6	11.8	17.7	-78.38	-61.3	-17.08	0-360	151	V
2	32.804502	-58.2	RMS	37.3	-71.3	-15.6	11.8	17.7	-78.3	-61.3	-17	0-360	151	H
6	36.870896	-59.32	RMS	38.4	-72	-15.6	11.8	19.2	-77.52	-61.3	-16.22	0-360	151	V
3	36.887289	-59.55	RMS	38.5	-71.9	-15.6	11.8	19.2	-77.55	-61.3	-16.25	0-360	151	H

RMS - RMS detection

ANT. 2, CH9, CONFIG 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172366 ACF (dB) 1mH	172345 Amp (dB)	Dist Corr (dB)	Conversion Factor (dB)	CBL/SWITCH	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	29.133465	-57.54	RMS	36.3	-71.9	-15.6	11.8	16.7	-80.24	-61.3	-18.94	0-360	150	H
4	29.138287	-57.6	RMS	36.4	-71.9	-15.6	11.8	16.7	-80.2	-61.3	-18.9	0-360	150	V
5	33.377288	-58.05	RMS	37.4	-72.2	-15.6	11.8	17.9	-78.75	-61.3	-17.45	0-360	150	V
2	33.382109	-58.15	RMS	37.4	-72.1	-15.6	11.8	17.9	-78.75	-61.3	-17.45	0-360	150	H
6	37.690539	-62.01	RMS	38.6	-70.6	-15.6	11.8	19.5	-78.31	-61.3	-17.01	0-360	150	V
3	37.696325	-61.97	RMS	38.6	-70.6	-15.6	11.8	19.5	-78.27	-61.3	-16.97	0-360	150	H

RMS - RMS detection

9.7. AC POWER-LINE CONDUCTED EMISSIONS**LIMITS**

FCC §15.207 (a) & RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.**TEST PROCEDURE**

ANSI C63.10 Section 6.2

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

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

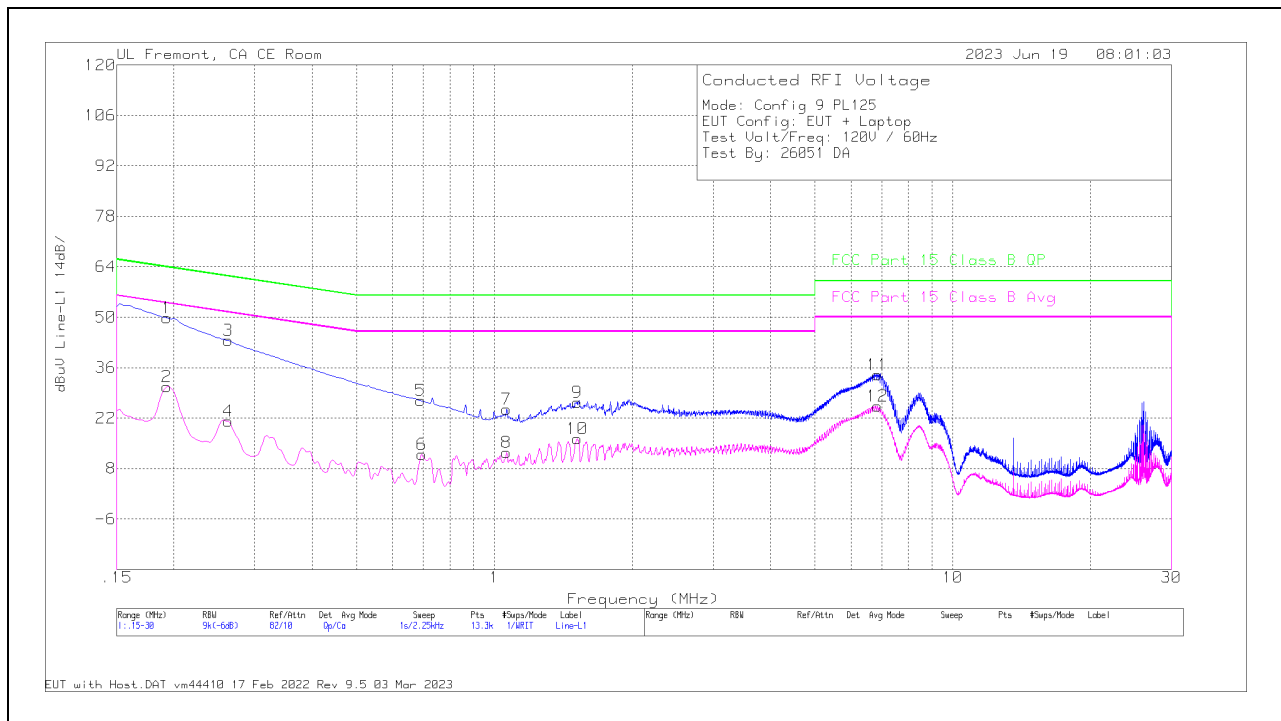
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS**Parent Model**

Employee IDs: 26051

Location: Immunity Test Lab

Test Date: 6/19/2023

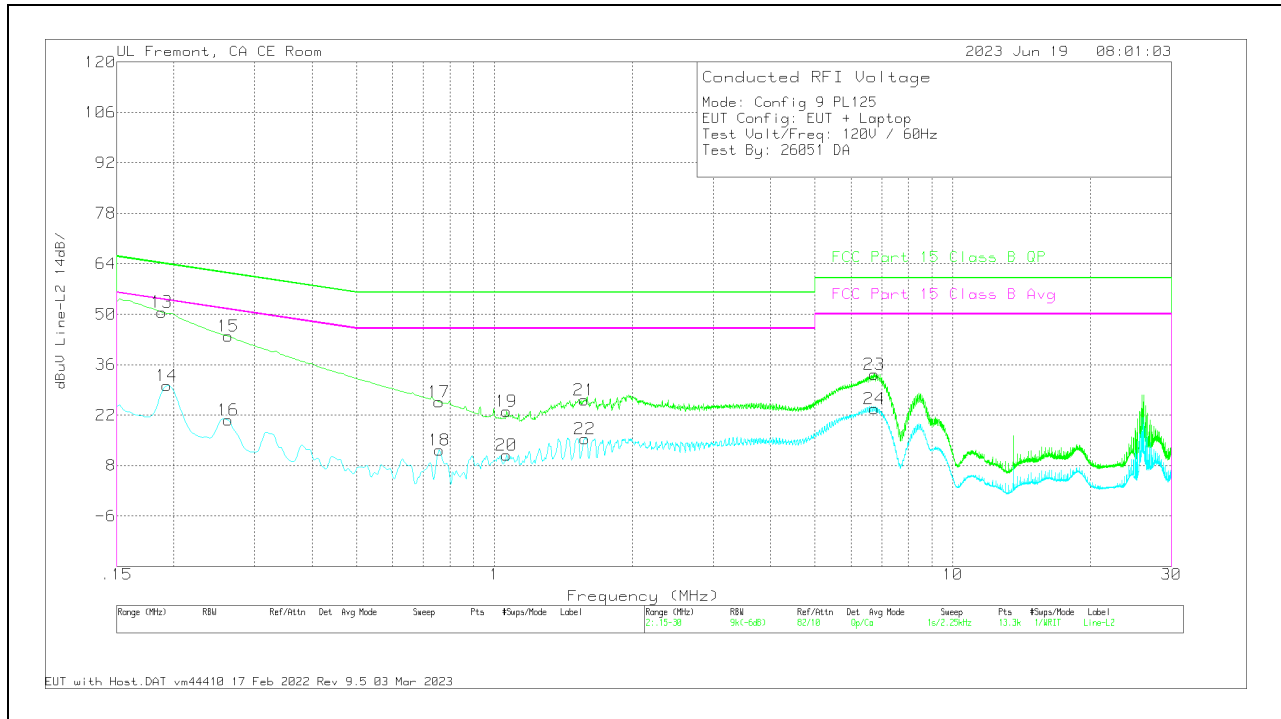
9.7.1. AC Power Line with Laptop**Parent****LINE 1 RESULTS****Trace Markers**

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv (dB)	C1&C3 cable path loss (dB)	207996 Limiter with short cable (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR) Margin (dB)
2	.1928	21.36	Ca	0	0	9.4	30.76	-	-	53.92	-23.16
4	.2625	11.81	Ca	0	0	9.3	21.11	-	-	51.35	-30.24
6	.6945	2.47	Ca	0	.1	9.3	11.87	-	-	46	-34.13
8	1.0635	3.08	Ca	0	.1	9.3	12.48	-	-	46	-33.52
10	1.5158	6.9	Ca	0	.1	9.3	16.3	-	-	46	-29.7
12	6.8528	15.76	Ca	0	.2	9.3	25.26	-	-	50	-24.74
1	.1928	40.41	Qp	0	0	9.4	49.81	63.92	-14.11	-	-
3	.2625	34.25	Qp	0	0	9.3	43.55	61.35	-17.8	-	-
5	.69	17.43	Qp	0	.1	9.3	26.83	56	-29.17	-	-
7	1.0635	15.05	Qp	0	.1	9.3	24.45	56	-31.55	-	-
9	1.5158	17	Qp	0	.1	9.3	26.4	56	-29.6	-	-
11	6.8528	24.47	Qp	0	.2	9.3	33.97	60	-26.03	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS

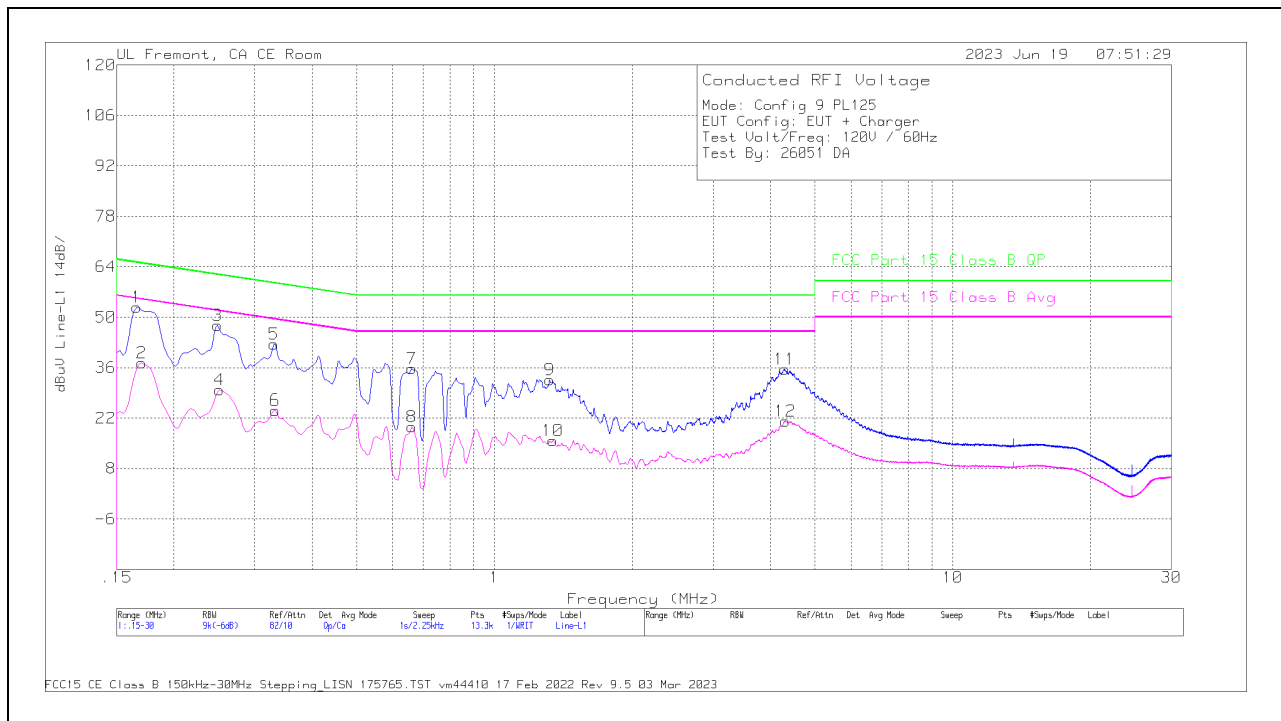


Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN (dB)	C2&C3 cable path loss (dB)	207996 Limiter with short cable (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR) Margin (dB)
14	.1928	20.85	Ca	0	0	9.4	30.25	-	-	53.92	-23.67
16	.2625	11.33	Ca	0	0	9.3	20.63	-	-	51.35	-30.72
18	.7586	2.93	Ca	0	.1	9.3	12.33	-	-	46	-33.67
20	1.0635	1.54	Ca	0	.1	9.3	10.94	-	-	46	-35.06
22	1.5743	6.07	Ca	0	.1	9.3	15.47	-	-	46	-30.53
24	6.7493	14.31	Ca	0	.1	9.3	23.71	-	-	50	-26.29
13	.1883	41.2	Qp	0	0	9.4	50.6	64.11	-13.51	-	-
15	.2625	34.65	Qp	0	0	9.3	43.95	61.35	-17.4	-	-
17	.7575	16.32	Qp	0	.1	9.3	25.72	56	-30.28	-	-
19	1.0635	13.65	Qp	0	.1	9.3	23.05	56	-32.95	-	-
21	1.5698	16.77	Qp	0	.1	9.3	26.17	56	-29.83	-	-
23	6.7425	23.91	Qp	0	.1	9.3	33.31	60	-26.69	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

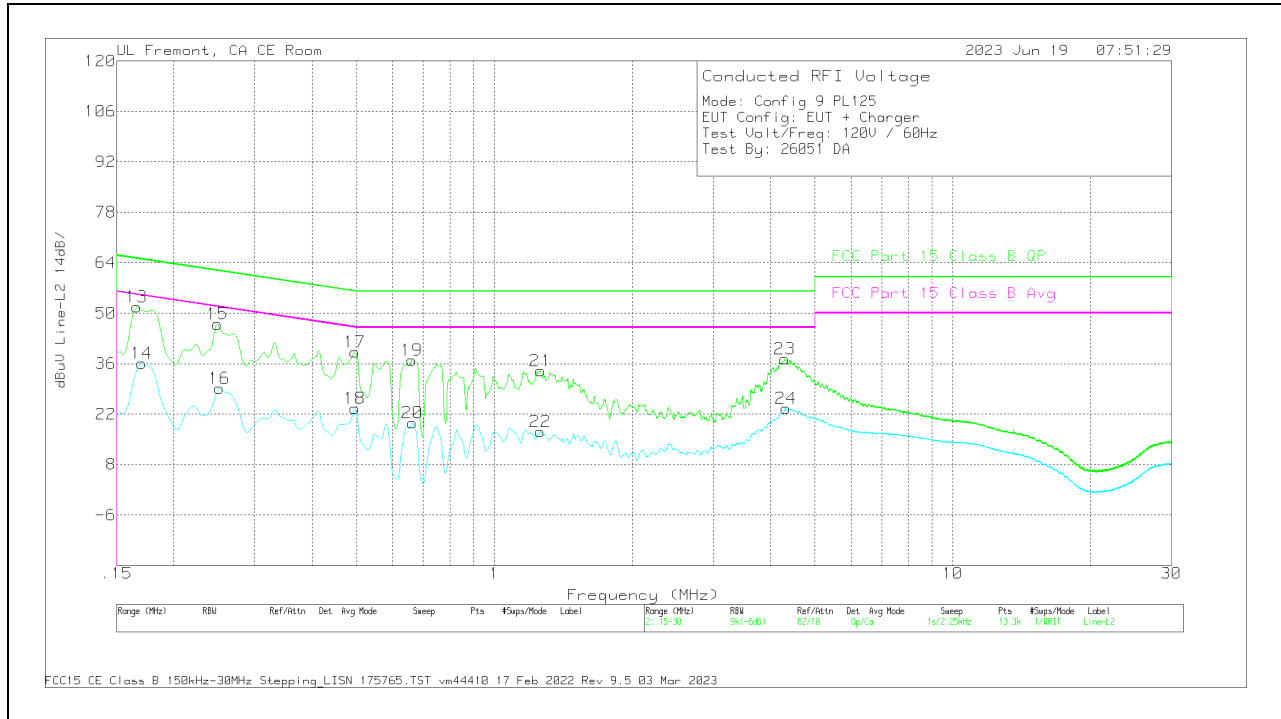
9.7.2. AC Power Line with AC/DC Adapter**Parent****LINE 1 RESULTS**

Range 1: Line-L1 15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv (dB)	C1&C3 cable path loss (dB)	207996 Limiter with short cable (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.1703	27.9	Ca	0	0	9.4	37.3	-	-	54.95	-17.65
4	.2513	20.56	Ca	0	0	9.3	29.86	-	-	51.72	-21.86
6	.3323	14.88	Ca	0	0	9.3	24.18	-	-	49.39	-25.21
8	.6608	10.14	Ca	0	.1	9.3	19.54	-	-	46	-26.46
10	1.3425	6.4	Ca	0	.1	9.3	15.8	-	-	46	-30.2
12	4.3148	11.68	Ca	0	.1	9.3	21.08	-	-	46	-24.92
1	.1658	43.39	Qp	0	0	9.4	52.79	65.17	-12.38	-	-
3	.249	38.47	Qp	0	0	9.3	47.77	61.79	-14.02	-	-
5	.33	33.17	Qp	0	0	9.3	42.47	59.45	-16.98	-	-
7	.6608	26.36	Qp	0	.1	9.3	35.76	56	-20.24	-	-
9	1.32	23.28	Qp	0	.1	9.3	32.68	56	-23.32	-	-
11	4.2968	26.15	Qp	0	.1	9.3	35.55	56	-20.45	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2 LISN (dB)	C2&C3 cable path loss (dB)	207996 Limiter with short cable (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR) Margin (dB)
14	.1703	26.62	Ca	0	0	9.4	36.02	-	-	54.95	-18.93
16	.2513	19.79	Ca	0	0	9.3	29.09	-	-	51.72	-22.63
18	.4965	14.17	Ca	0	.1	9.3	23.57	-	-	46.06	-22.49
20	.6619	10.14	Ca	0	.1	9.3	19.54	-	-	46	-26.46
22	1.2593	7.8	Ca	0	.1	9.3	17.2	-	-	46	-28.8
24	4.3215	14.14	Ca	0	.1	9.3	23.54	-	-	46	-22.46
13	.1658	42.38	Qp	0	0	9.4	51.78	65.17	-13.39	-	-
15	.249	37.66	Qp	0	0	9.3	46.96	61.79	-14.83	-	-
17	.4965	29.85	Qp	0	.1	9.3	39.25	56.06	-16.81	-	-
19	.6608	27.63	Qp	0	.1	9.3	37.03	56	-18.97	-	-
21	1.2615	24.53	Qp	0	.1	9.3	33.93	56	-22.07	-	-
23	4.3058	27.93	Qp	0	.1	9.3	37.33	56	-18.67	-	-

Qp - Quasi-Peak detector

Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 14523785-EP1V1 for setup photos.

END OF REPORT