TEST REPORT

Report Number : 14982436-E16V2

Applicant	:	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A3083 (Parent Model) A3292, A3293, A3294 (Variant Models)
Brand	:	APPLE
FCC ID	:	BCG-E8666A (Parent Model) BCG-E8667A, BCG-E8668A, BCG-E8683A (Variant Models)
IC	:	579C-E8666A (Parent Model) 579C-E8667A, 579C-E8668A, 579C-E8683A (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:
JUNE 27, 2024

Prepared by:

UL VERIFICATION SERVICES
INC. 47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	6/27/2024	Initial Issue	---
V2	7/02/2024	Updated Test Diagram, Test and Measurement Equipment	Benjamin D.

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A3083 (Parent Model) A3292, A3293, A3294 (Variant Models)
Brand	APPLE
FCC ID	BCG-E8666A (Parent Model) BCG-E8667A, BCG-E8668A, BCG-E8683A
IC	579C-E8666A (Parent Model) 579C-E8667A, 579C-E8668A, 579C-E8683A
EUT Description	SMARTPHONE
SERIAL NUMBER	GKY3J575D9, XK3DWHQHQW, K7GTH6PG9T
SAMPLE RECEIPT DATE	JANUARY 11, 2024, APRIL 03, 2024, JUNE 04, 2024
DATE TESTED	MARCH 04, 2024 TO JUNE 18, 2024
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

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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 Ct, Fremont, CA 94538, USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

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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:

EIRP (dBm) = Meter Reading (dBm) + Antenna Factor (dB/m) + Pre-Amp Gain/Cbl Loss (dB)
+ dBm-to-dBm Unit Conversion Factor @ 3m
= -60 dBm + 28 dB/m + (-27) dB + 11.8
= -47.2 dBm

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + LISN Insertion Loss (dB) + Cable Loss (dB)
+ Limiter Factor (dB)
= 42.19 dBuV + 0.1 dB + 0 dB + 9.4 (dB)
= 51.69 dBuV

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

The EUT has a UWB transceiver with two integral antennas (ANT1 = ANT8/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.

6.2. MAXIMUM OUTPUT POWER

Highest Average Powers based on ANT/CH are listed as follows:

ANT	CH	CONFIG	PL	Average Power (dBm EIRP)
1	9	1	45	-42.30
2	5	801	0Gap0	-42.31
2	9	807	0Gap64	-42.32

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 2219.0.0.100.1~40.74.46

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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

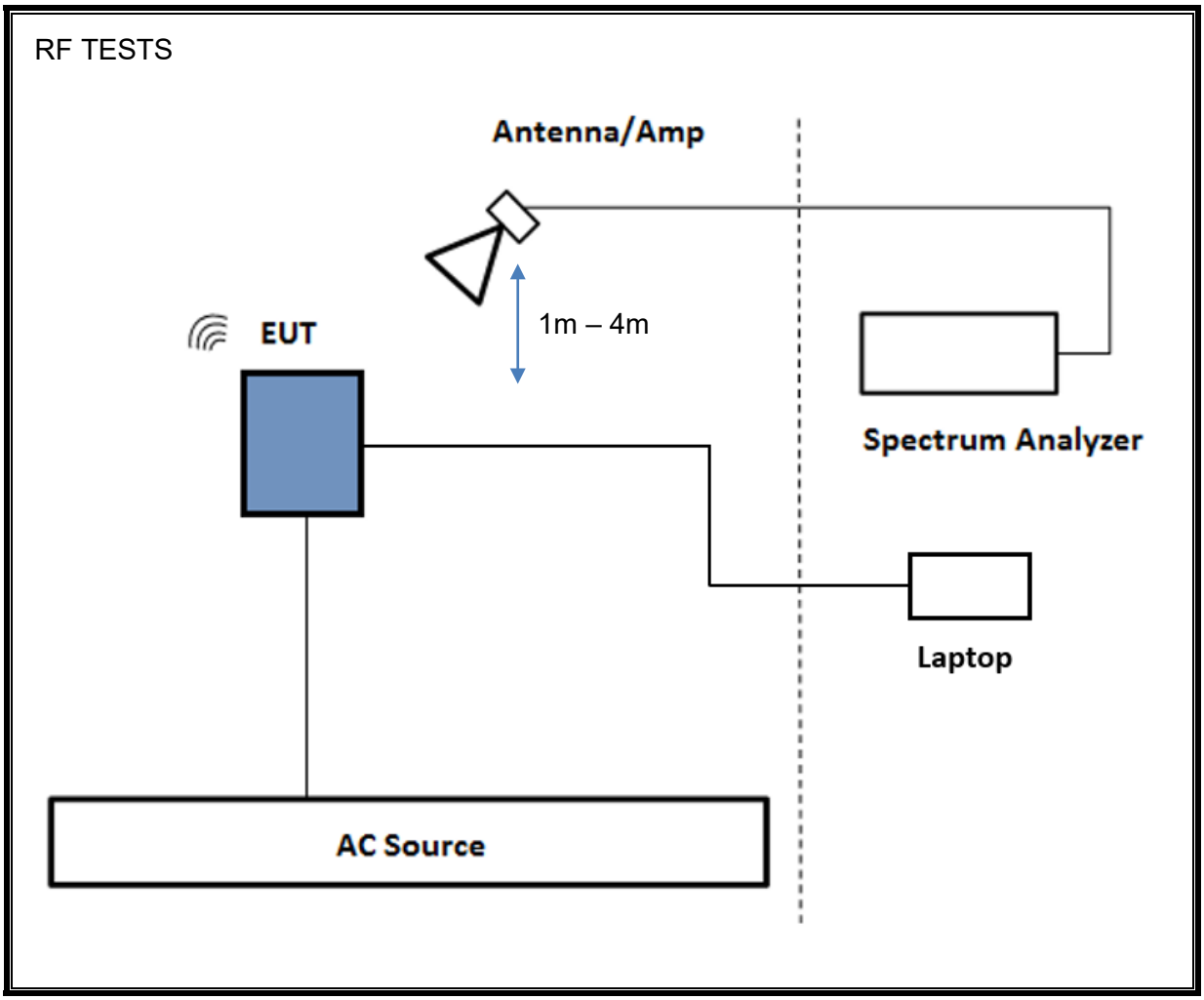
The EUT was examined at pre-scan test using a fundamental frequency in the portrait (z), landscape (y), and flatbed (x) position and the worst-case orientation of individual ANT/CH/CONFIG setting was determined for final spurious emission measurement. All selected configs are used for the Ant/Ch settings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

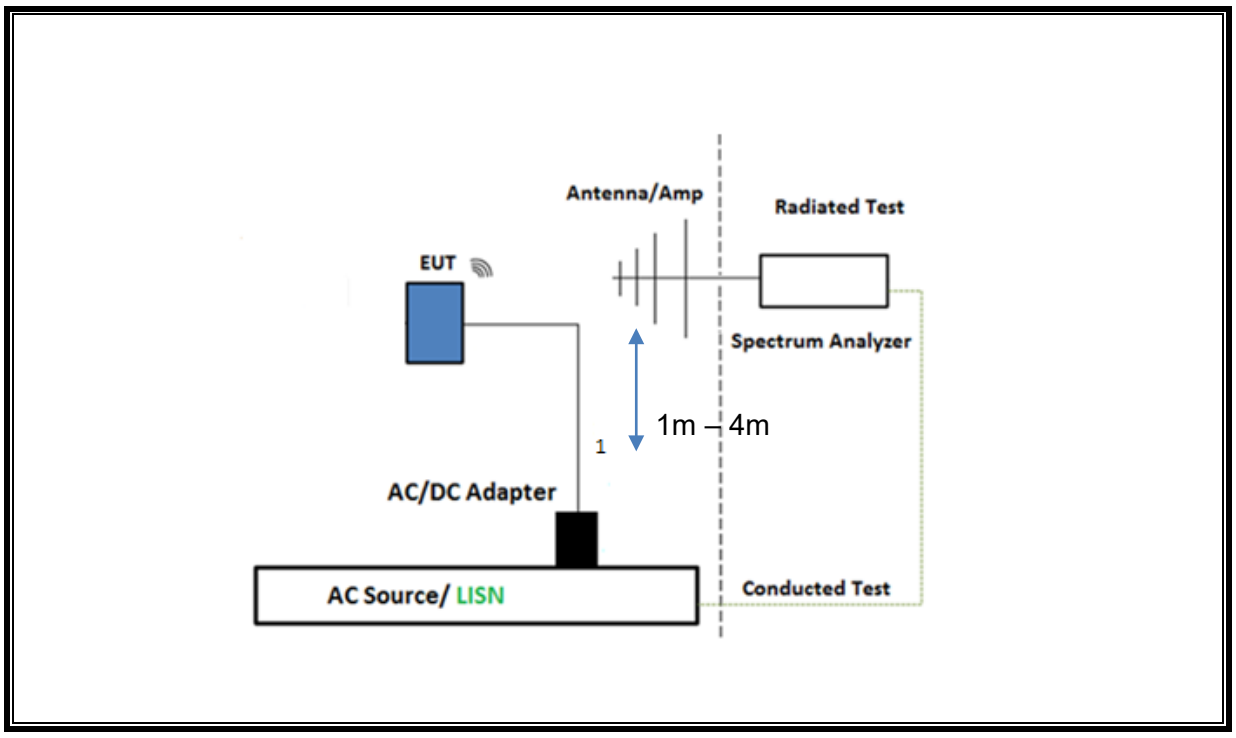
EUT was connected to AC power adapter in all test cases except 0.96 – 6 GHz, 1164 – 1240 MHz, and 1559 – 1610 MHz due to noise unrelated to the UWB signal from the device.

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

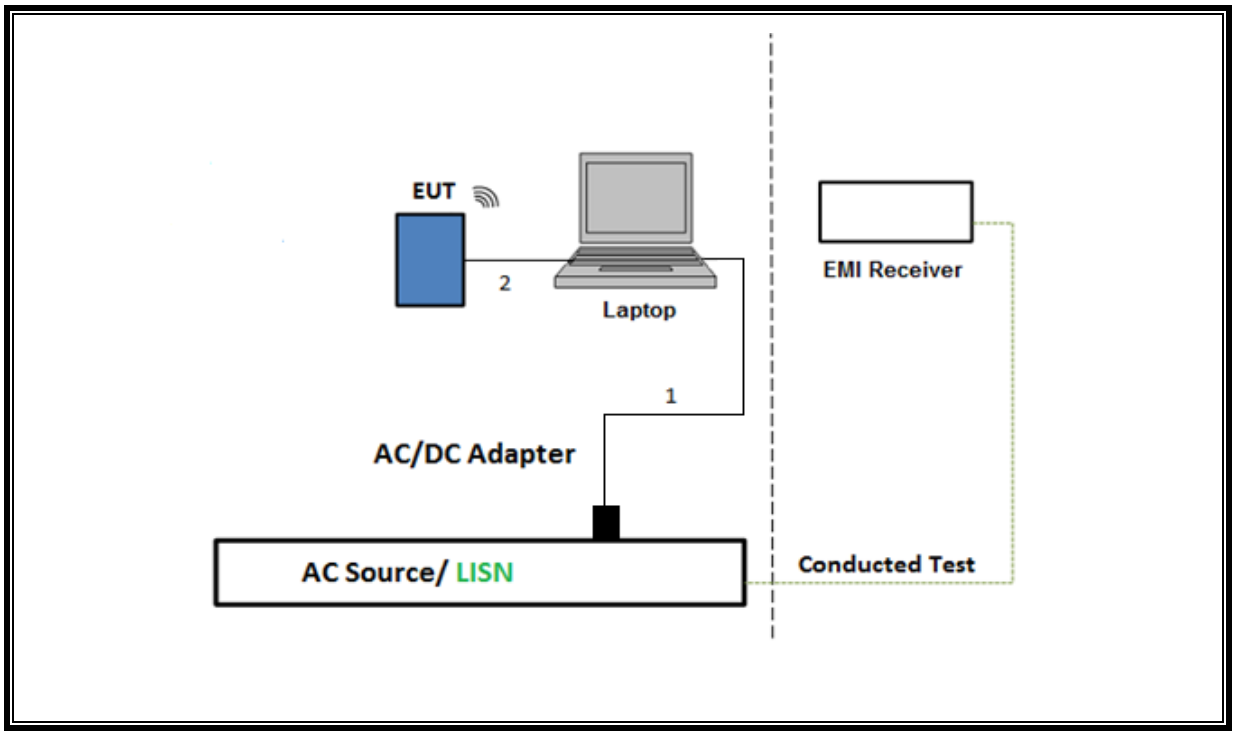
SETUP DIAGRAM FOR Above 1GHz TESTS



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 Reciever	Rohde & Schwarz	ESW44	223459	2024-02-19	2025-02-28
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	226672	2024-02-09	2025-02-28
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	231876	2024-04-18	2025-04-30
EMI Test Reciever	Rohde & Schwarz	ESW44	201502	2024-02-19	2025-02-28
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	81887	2023-03-20	2025-03-31
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	225474	2023-03-13	2024-03-31
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	225474	2024-04-20	2025-04-30
Antenna, Broadband Hybrid, 30 MHz to 3GHz	Sunol Sciences Corp	JB3	224378	2022-10-27	2024-10-31
Amplifier, 9kHz to 1 GHz, 32dB	Sonoma Instrumnet	310N	224490	2023-02-08	2025-02-28
Amplifier, 9kHz to 1 GHz, 32dB	Sonoma Instrumnet	310N	224490	2024-04-22	2025-04-30
Antenna, Passive Loop 30Hz - 1MHz	Electro-Metrics	EM-6871	219908	2023-09-13	2024-09-30
Antenna, Passive Loop 100kHz - 30MHz	Electro-Metrics	EM-6872	219910	2023-05-31	2024-05-31
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	172353	2023-06-28	2024-06-30
RF Amplifier 18-26.5GHz	Amplical	AMP18G26.5-60	171583	2024-03-13	2025-03-31
Antenna, Horn 26.5-40GHz	ARA	MWH-2640/B	81105	2023-08-08	2024-08-31
RF Amplifier 26.5-40GHz	Amplical	AMP26G40-60	220193	2023-08-14	2024-08-31
EMI Test Reciever	Rohde & Schwarz	ESR	171646	2024-02-27	2025-02-28
LISN	Fischer Custom Communications, Inc.	FCC-LISN-50/250-25-2-01-480V	175765	2024-01-26	2025-01-31
Transient Limiter	TE	TBFL1	207996	2023-08-10	2024-08-31
Radiated Software	UL	UL EMC	Rev 9.5 2023-05-01		
AC Line Conducted Software	UL	UL EMC	Rev 9.5 2023-03-03		

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

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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 ≥ 3*RBW. The sweep time is coupled.

Tabulated data provides the test results of all available test configurations. The plots for ANT1, CONFIG 9, Payload 125 on CH9 and ANT2, 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

Employee IDs: 28737, 32305, 28499
Location: Chamber 05-RDE-B
Test Date: 2024-05-15 – 2024-06-08

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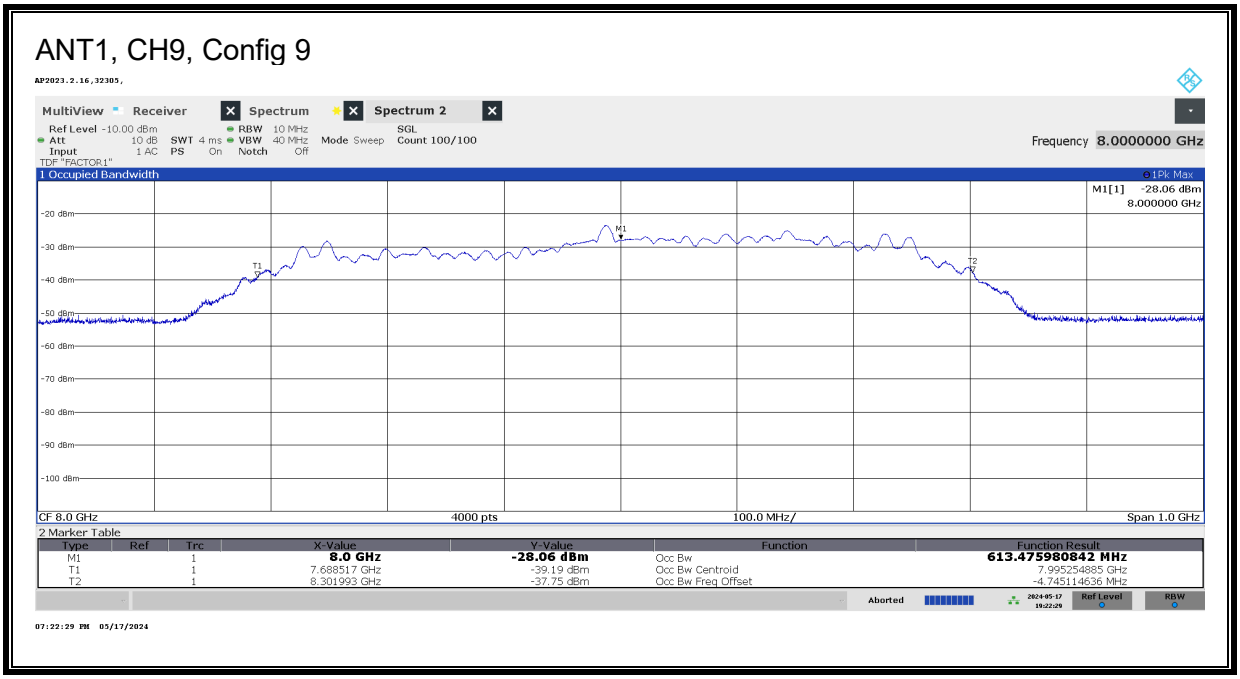
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
1	9	0	25	Landscape	V	599.3368
1	9	1	45	Landscape	V	598.1963
1	9	6	125	Landscape	V	609.8616
1	9	9	125	Landscape	V	613.4759
1	9	10	25	Landscape	V	598.6634
1	9	11	25	Landscape	V	598..3002
1	9	11	65	Landscape	V	598.8972
1	9	101	25	Landscape	V	598.8172
1	9	101	65	Landscape	V	599.2352
1	9	102	25	Landscape	V	598.3541
1	9	102	65	Landscape	V	599.0925
1	9	103	25	Landscape	V	598.9701
1	9	103	125	Landscape	V	603.4959
1	9	202	625	Landscape	V	788.6385
1	9	402	445	Landscape	V	700.5492
1	9	501	0	Landscape	V	592.282
1	9	503	0	Landscape	V	592.7846
1	9	601	0	Landscape	V	599.5007
1	9	605	0	Landscape	V	597.0291
1	9	607	0	Landscape	V	597.794
1	9	701	0	Landscape	V	594.273
1	9	702	0	Landscape	V	592.773
1	9	703	0	Landscape	V	593.5085
1	9	704	0	Landscape	V	622.5252
1	9	705	0	Landscape	V	614.9969
1	9	706	0	Landscape	V	611.9305
1	9	405	4093	Landscape	V	708.2044
1	9	407	4093	Landscape	V	707.5204
1	9	409	4093	Landscape	V	734.301
1	9	801	0Gap0	Landscape	V	605.4204
1	9	801	0Gap64	Landscape	V	604.3839
1	9	802	0	Landscape	V	604.7235
1	9	803	0	Landscape	V	605.7627
1	9	804	0Gap0	Landscape	V	612.7646
1	9	804	0Gap64	Landscape	V	615.5961
1	9	805	0	Landscape	V	616.2731
1	9	806	0	Landscape	V	610.9989
1	9	807	0Gap0	Landscape	V	606.7508
1	9	807	0Gap64	Landscape	V	607.3309
1	9	808	0	Landscape	V	606.6321
1	9	809	0	Landscape	V	608.6327
1	9	810	0Gap0	Landscape	V	614.4994
1	9	810	0Gap64	Landscape	V	611.334
1	9	811	0	Landscape	V	609.3265
1	9	812	0	Landscape	V	609.393

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	5	0	25	Landscape	V	600.654
2	5	1	45	Landscape	V	602.242
2	5	6	125	Landscape	V	608.2494
2	5	9	125	Landscape	V	616.822
2	5	10	25	Landscape	V	604.2036
2	5	11	25	Landscape	V	602.408
2	5	11	65	Landscape	V	603.769
2	5	101	25	Landscape	V	602.855
2	5	101	65	Landscape	V	603.159
2	5	102	25	Landscape	V	602.606
2	5	102	65	Landscape	V	603.116
2	5	103	25	Landscape	V	605.7143
2	5	103	125	Landscape	V	608.3295
2	5	202	625	Landscape	V	696.821
2	5	402	445	Landscape	V	651.7795
2	5	501	0	Landscape	V	592.6226
2	5	503	0	Landscape	V	592.7976
2	5	601	0	Landscape	V	605.9722
2	5	605	0	Landscape	V	604.8347
2	5	607	0	Landscape	V	604.791
2	5	701	0	Landscape	V	594.9441
2	5	702	0	Landscape	V	593.7255
2	5	703	0	Landscape	V	593.8365
2	5	704	0	Landscape	V	622.3422
2	5	705	0	Landscape	V	614.982
2	5	706	0	Landscape	V	616.9249
2	5	405	4093	Landscape	V	668.177
2	5	407	4093	Landscape	V	655.448
2	5	409	4093	Landscape	V	671.774
2	5	801	0Gap0	Landscape	V	609.699
2	5	801	0Gap64	Landscape	V	610.2635
2	5	802	0	Landscape	V	609.699
2	5	803	0	Landscape	V	607.445
2	5	804	0Gap0	Landscape	V	617.143
2	5	804	0Gap64	Landscape	V	616.0077
2	5	805	0	Landscape	V	616.27
2	5	806	0	Landscape	V	613.4991
2	5	807	0Gap0	Landscape	V	610.6804
2	5	807	0Gap64	Landscape	V	607.5859
2	5	808	0	Landscape	V	609.1938
2	5	809	0	Landscape	V	609.233
2	5	810	0Gap0	Landscape	V	615.4165
2	5	810	0Gap64	Landscape	V	612.6725
2	5	811	0	Landscape	V	610.9932
2	5	812	0	Landscape	V	611.2515

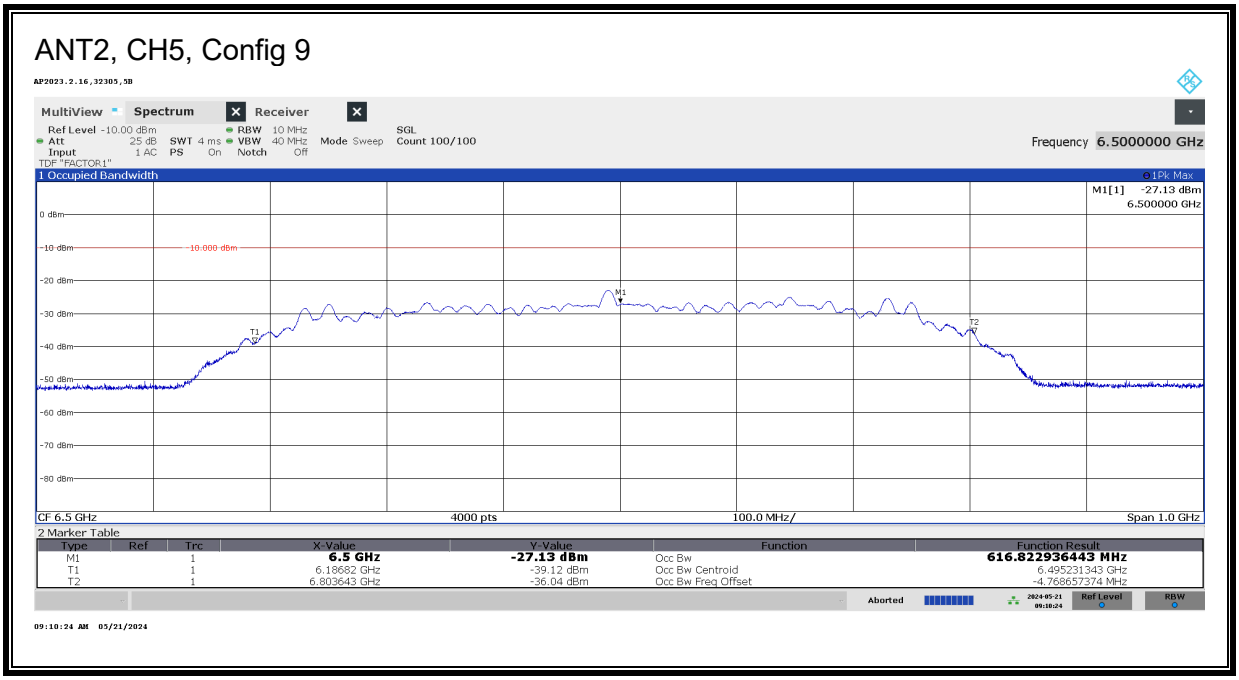
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	9	0	25	Portrait	H	606.6344
2	9	1	45	Portrait	H	606.3104
2	9	6	125	Portrait	H	619.3614
2	9	9	125	Portrait	H	621.9293
2	9	10	25	Portrait	H	608.998
2	9	11	25	Portrait	H	607.2118
2	9	11	65	Portrait	H	608.4259
2	9	101	25	Portrait	H	607.5904
2	9	101	65	Portrait	H	604.6529
2	9	102	25	Portrait	H	603.3567
2	9	102	65	Portrait	H	604.5224
2	9	103	25	Portrait	H	603.9634
2	9	103	125	Portrait	H	608.647
2	9	202	625	Portrait	H	699.5581
2	9	402	445	Portrait	H	643.6533
2	9	501	0	Portrait	H	589.3125
2	9	503	0	Portrait	H	589.0027
2	9	601	0	Portrait	H	608.0867
2	9	605	0	Portrait	H	606.487
2	9	607	0	Portrait	H	606.7447
2	9	701	0	Portrait	H	594.8996
2	9	702	0	Portrait	H	592.8872
2	9	703	0	Portrait	H	624.9205
2	9	704	0	Portrait	H	624.0901
2	9	705	0	Portrait	H	618.8311
2	9	706	0	Portrait	H	620.2519
2	9	405	4093	Portrait	H	714.8748
2	9	407	4093	Portrait	H	701.6832
2	9	409	4093	Portrait	H	727.0406
2	9	801	0Gap0	Portrait	H	615.8467
2	9	801	0Gap64	Portrait	H	616.4583
2	9	802	0	Portrait	H	616.1978
2	9	803	0	Portrait	H	615.2193
2	9	804	0Gap0	Portrait	H	622.254
2	9	804	0Gap64	Portrait	H	621.63
2	9	805	0	Portrait	H	622.1818
2	9	806	0	Portrait	H	620.7975
2	9	807	0Gap0	Portrait	H	615.8158
2	9	807	0Gap64	Portrait	H	614.7604
2	9	808	0	Portrait	H	615.9738
2	9	809	0	Portrait	H	614.3657
2	9	810	0Gap0	Portrait	H	620.723
2	9	810	0Gap64	Portrait	H	619.0874
2	9	811	0	Portrait	H	620.2254
2	9	812	0	Portrait	H	621.2611

99% BW

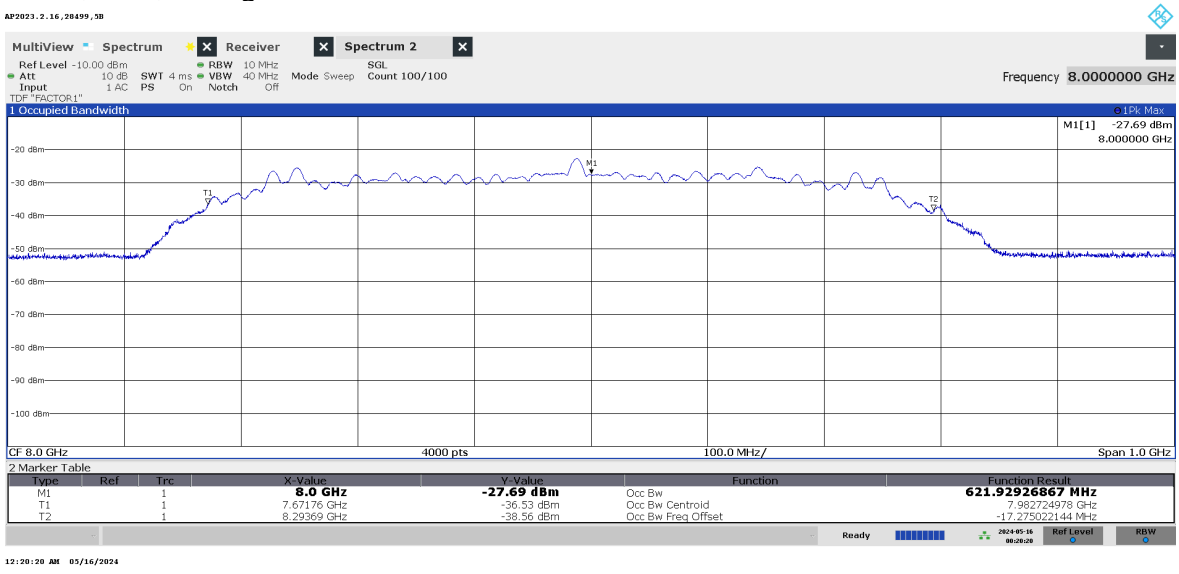
ANT1, CH9, Config 9



ANT2, CH5, Config 9



ANT2, CH9, Config 9



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 fH and the lower boundary is designated fL. The frequency at which the highest radiated emission occurs is designated fM.

§15.503 (b)*Center frequency.* The center frequency, FC, equals (FH + FL)/2.

§15.503 (c)*Fractional bandwidth.* The fractional bandwidth equals 2(FH−FL)/ (FH+ FL).

§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.

RSS-220

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.

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

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 for ANT1, CONFIG 9, Payload 125 on CH9 and ANT2, 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

Employee IDs: 28737, 32305, 28499
Location: Chamber 05-RDE-B
Test Date: 2024-05-15 – 2024-06-08

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

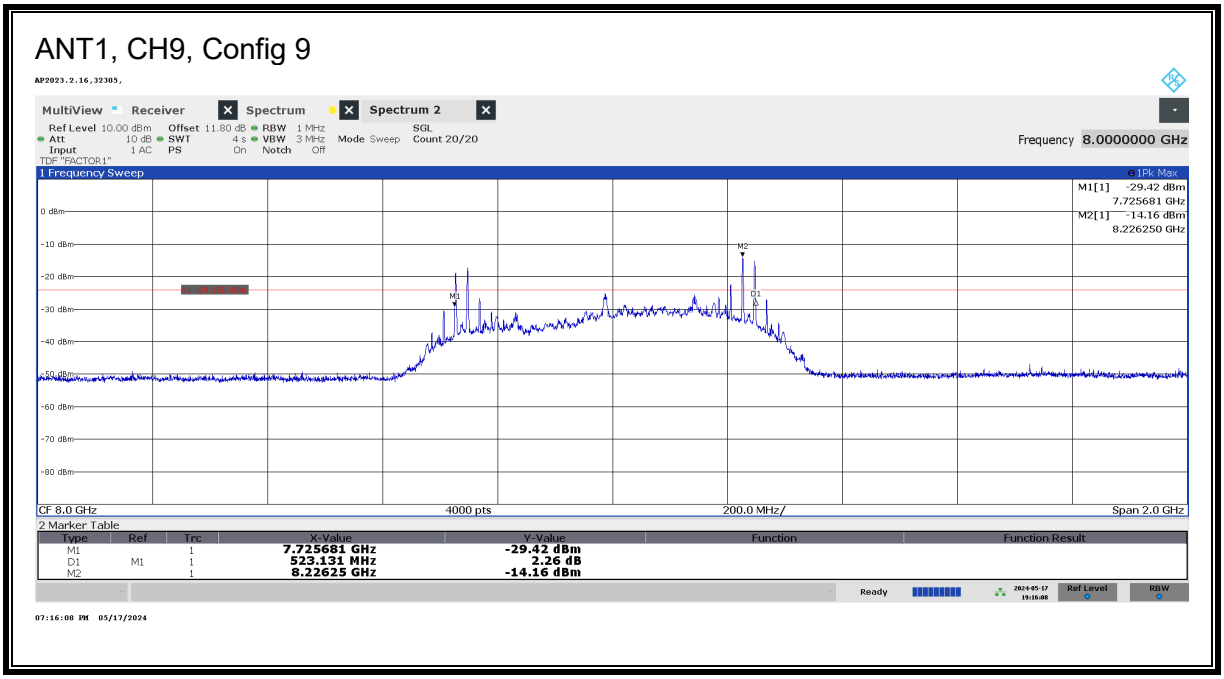
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
1	9	0	25	Landscape	V	8.22625	7.724681	8.250312	7.9874965	525.63	500	25.631	P
1	9	1	45	Landscape	V	8.22625	7.724681	8.250813	7.987747	526.13	500	26.132	P
1	9	6	125	Landscape	V	8.2263	7.7257	8.249312	7.9874965	523.63	500	23.631	P
1	9	9	125	Landscape	V	8.2263	7.7257	8.248812	7.9872465	523.13	500	23.131	P
1	9	10	25	Landscape	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	11	25	Landscape	V	8.2263	7.7247	8.250813	7.987747	526.13	500	26.132	P
1	9	11	65	Landscape	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	101	25	Landscape	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	101	65	Landscape	V	8.2268	7.7244	8.25025	7.98731	525.88	500	25.88	P
1	9	102	25	Landscape	V	8.2268	7.7249	8.25033	7.98761	525.44	500	25.44	P
1	9	102	65	Landscape	V	8.2263	7.7249	8.25022	7.987545	525.35	500	25.35	P
1	9	103	25	Landscape	V	8.2263	7.7243	8.25034	7.987295	526.09	500	26.09	P
1	9	103	125	Landscape	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	202	625	Landscape	V	8.2263	7.7247	8.25031	7.987495	525.63	500	25.63	P
1	9	402	445	Landscape	V	8.2263	7.7247	8.250813	7.987747	526.13	500	26.132	P
1	9	501	0	Landscape	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	503	0	Landscape	V	8.2268	7.7247	8.25031	7.987495	525.63	500	25.63	P
1	9	601	0	Landscape	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	605	0	Landscape	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	607	0	Landscape	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	701	0	Landscape	V	8.2263	7.7237	8.251813	7.987747	528.13	500	28.132	P
1	9	702	0	Landscape	V	8.2263	7.7237	8.251313	7.987497	527.63	500	27.632	P
1	9	703	0	Landscape	V	8.2263	7.7237	8.251313	7.987497	527.63	500	27.632	P
1	9	704	0	Landscape	V	8.2263	7.7237	8.265817	7.994749	542.14	500	42.136	P
1	9	705	0	Landscape	V	8.2263	7.7237	8.261315	7.992498	537.63	500	37.634	P
1	9	706	0	Landscape	V	8.2263	7.7237	8.27182	7.99775	548.14	500	48.14	P
1	9	405	4093	Landscape	V	8.2263	7.7247	8.26432	7.9945	539.64	500	39.64	P
1	9	407	4093	Landscape	V	8.2263	7.7247	8.265815	7.9952475	541.14	500	41.135	P
1	9	409	4093	Landscape	V	8.2263	7.7249	8.24983	7.987355	524.95	500	24.95	P
1	9	801	0Gap0	Landscape	V	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	801	0Gap64	Landscape	V	8.2258	7.7237	8.270818	7.9972495	547.14	500	47.137	P
1	9	802	0	Landscape	V	8.2263	7.7237	8.271318	7.9974995	547.64	500	47.637	P
1	9	803	0	Landscape	V	8.2258	7.7237	8.27832	8.0010005	554.64	500	54.639	P
1	9	804	0Gap0	Landscape	V	8.2263	7.7242	8.282821	8.003501	558.64	500	58.64	P
1	9	804	0Gap64	Landscape	V	8.2263	7.7237	8.271318	7.9974995	547.64	500	47.637	P
1	9	805	0	Landscape	V	8.2263	7.7242	8.274319	7.99925	550.14	500	50.138	P
1	9	806	0	Landscape	V	8.2263	7.7237	8.274319	7.999	550.64	500	50.638	P
1	9	807	0Gap0	Landscape	V	8.2263	7.7242	8.282821	8.003501	558.64	500	58.64	P
1	9	807	0Gap64	Landscape	V	8.22625	7.723681	8.282821	8.003251	559.14	500	59.14	P
1	9	808	0	Landscape	V	8.22625	7.723681	8.282821	8.003251	559.14	500	59.14	P
1	9	809	0	Landscape	V	8.22625	7.723681	8.282821	8.003251	559.14	500	59.14	P
1	9	810	0Gap0	Landscape	V	8.22625	7.723681	8.282321	8.003001	558.64	500	58.64	P
1	9	810	0Gap64	Landscape	V	8.22625	7.723681	8.282821	8.003251	559.14	500	59.14	P
1	9	811	0	Landscape	V	8.22625	7.72368	8.28332	8.0035	559.64	500	59.64	P
1	9	812	0	Landscape	V	8.2262	7.7236	8.28274	8.00317	559.14	500	59.14	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	Landscape	V	6.7287	6.2266	6.75273	6.489665	526.13	500	26.13	P
2	5	1	45	Landscape	V	6.7287	6.2260	6.752132	6.489066	526.13	500	26.132	P
2	5	6	125	Landscape	V	6.7287	6.2279	6.751531	6.4897155	523.63	500	23.631	P
2	5	9	125	Landscape	V	6.7287	6.2281	6.75073	6.489415	522.63	500	22.63	P
2	5	10	25	Landscape	V	6.7288	6.2267	6.75281	6.489745	526.13	500	26.13	P
2	5	11	25	Landscape	V	6.7287	6.2260	6.75213	6.489065	526.13	500	26.13	P
2	5	11	65	Landscape	V	6.7287	6.2266	6.75273	6.489665	526.13	500	26.13	P
2	5	101	25	Landscape	V	6.7287	6.2268	6.75252	6.48966	525.72	500	25.72	P
2	5	101	65	Landscape	V	6.7287	6.2266	6.75272	6.48966	526.12	500	26.12	P
2	5	102	25	Landscape	V	6.7287	6.2266	6.75273	6.489665	526.13	500	26.13	P
2	5	102	65	Landscape	V	6.7287	6.2266	6.752728	6.489664	526.13	500	26.128	P
2	5	103	25	Landscape	V	6.7288	6.2268	6.75269	6.48972	525.94	500	25.94	P
2	5	103	125	Landscape	V	6.7288	6.2265	6.75257	6.48954	526.06	500	26.06	P
2	5	202	625	Landscape	V	6.7288	6.2269	6.77298	6.49993	546.10	500	46.1	P
2	5	402	445	Landscape	V	6.7293	6.2266	6.75271	6.48967	526.08	500	26.08	P
2	5	501	0	Landscape	V	6.7288	6.2266	6.75258	6.48961	525.94	500	25.94	P
2	5	503	0	Landscape	V	6.7288	6.2267	6.75257	6.48965	525.84	500	25.84	P
2	5	601	0	Landscape	V	6.7288	6.2266	6.75258	6.489605	525.95	500	25.95	P
2	5	605	0	Landscape	V	6.7288	6.2266	6.75243	6.48952	525.82	500	25.82	P
2	5	607	0	Landscape	V	6.7288	6.2269	6.75311	6.49	526.22	500	26.22	P
2	5	701	0	Landscape	V	6.7288	6.2262	6.753814	6.489998	527.63	500	27.632	P
2	5	702	0	Landscape	V	6.7283	6.2262	6.753814	6.489998	527.63	500	27.632	P
2	5	703	0	Landscape	V	6.7288	6.2262	6.753814	6.489998	527.63	500	27.632	P
2	5	704	0	Landscape	V	6.7288	6.2262	6.768318	6.49725	542.14	500	42.136	P
2	5	705	0	Landscape	V	6.7283	6.2257	6.75631	6.490995	530.63	500	30.63	P
2	5	706	0	Landscape	V	6.7288	6.2257	6.774281	6.499981	548.60	500	48.6	P
2	5	405	4093	Landscape	V	6.7287	6.2237	6.75282	6.4882505	529.14	500	29.139	P
2	5	407	4093	Landscape	V	6.7287	6.2266	6.776738	6.501669	550.14	500	50.138	P
2	5	409	4093	Landscape	V	6.7287	6.2266	6.74573	6.486165	519.13	500	19.13	P
2	5	801	0Gap0	Landscape	V	6.7283	6.2257	6.78532	6.5055	559.64	500	59.64	P
2	5	801	0Gap64	Landscape	V	6.7283	6.2257	6.75932	6.4925	533.64	500	33.64	P
2	5	802	0	Landscape	V	6.7287	6.2256	6.776739	6.5011695	551.14	500	51.139	P
2	5	803	0	Landscape	V	6.7283	6.2257	6.776819	6.50125	551.14	500	51.138	P
2	5	804	0Gap0	Landscape	V	6.7283	6.2257	6.784821	6.505251	559.14	500	59.14	P
2	5	804	0Gap64	Landscape	V	6.7288	6.2257	6.776819	6.50125	551.14	500	51.138	P
2	5	805	0	Landscape	V	6.7283	6.2257	6.776819	6.50125	551.14	500	51.138	P
2	5	806	0	Landscape	V	6.7283	6.2257	6.776819	6.50125	551.14	500	51.138	P
2	5	807	0Gap0	Landscape	V	6.7283	6.2257	6.785321	6.505501	559.64	500	59.64	P
2	5	807	0Gap64	Landscape	V	6.72875	6.2256	6.78524	6.50542	559.64	500	59.64	P
2	5	808	0	Landscape	V	6.72825	6.22568	6.78482	6.50525	559.14	500	59.14	P
2	5	809	0	Landscape	V	6.72875	6.22568	6.78482	6.50525	559.14	500	59.14	P
2	5	810	0Gap0	Landscape	V	6.72825	6.22568	6.785321	6.505501	559.64	500	59.64	P
2	5	810	0Gap64	Landscape	V	6.72875	6.22568	6.785321	6.505501	559.64	500	59.64	P
2	5	811	0	Landscape	V	6.72825	6.22568	6.784821	6.505251	559.14	500	59.14	P
2	5	812	0	Landscape	V	6.72825	6.22568	6.784821	6.505251	559.14	500	59.14	P

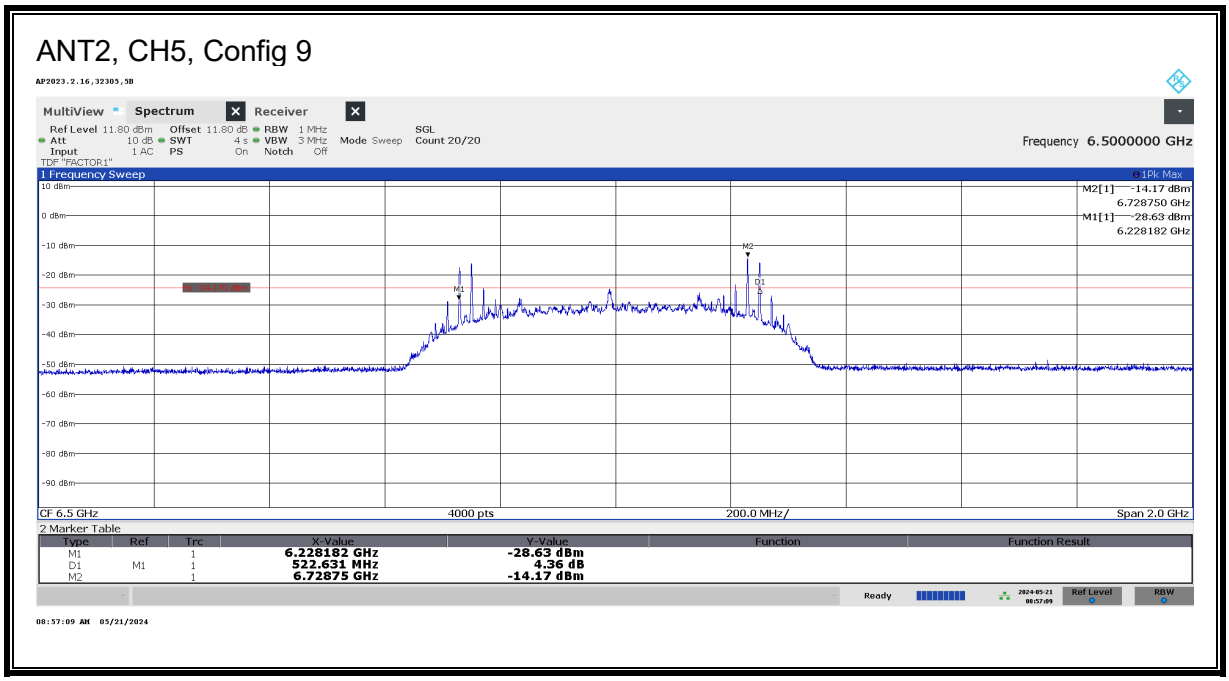
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
2	9	0	25	Portrait	H	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	1	45	Portrait	H	7.7478	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	6	125	Portrait	H	7.7478	7.7252	8.249312	7.9872465	524.13	500	24.131	P
2	9	9	125	Portrait	H	7.7478	7.7257	8.248812	7.9872465	523.13	500	23.131	P
2	9	10	25	Portrait	H	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	11	25	Portrait	H	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	11	65	Portrait	H	7.7483	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	101	25	Portrait	H	8.2263	7.7342	8.26031	7.997245	526.13	500	26.13	P
2	9	101	65	Portrait	H	7.7483	7.7237	8.24981	7.986745	526.13	500	26.13	P
2	9	102	25	Portrait	H	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	102	65	Portrait	H	7.7478	7.7243	8.24994	7.987095	525.69	500	25.69	P
2	9	103	25	Portrait	H	7.7483	7.7237	8.25031	7.986995	526.63	500	26.63	P
2	9	103	125	Portrait	H	7.7478	7.7242	8.24981	7.986995	525.63	500	25.63	P
2	9	202	625	Portrait	H	7.7478	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	402	445	Portrait	H	7.7483	7.7242	8.24981	7.986995	525.63	500	25.63	P
2	9	501	0	Portrait	H	7.7483	7.7252	8.25131	7.988245	526.13	500	26.13	P
2	9	503	0	Portrait	H	7.7478	7.7242	8.24981	7.9869955	525.63	500	25.629	P
2	9	601	0	Portrait	H	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	605	0	Portrait	H	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	607	0	Portrait	H	7.7483	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	701	0	Portrait	H	8.2258	7.7232	8.251313	7.987247	528.13	500	28.132	P
2	9	702	0	Portrait	H	8.2263	7.7232	8.251313	7.987247	528.13	500	28.132	P
2	9	703	0	Portrait	H	8.2263	7.7232	8.251313	7.987247	528.13	500	28.132	P
2	9	704	0	Portrait	H	8.2263	7.7232	8.265817	7.994499	542.64	500	42.636	P
2	9	705	0	Portrait	H	8.2263	7.7212	8.261315	7.9912475	540.14	500	40.135	P
2	9	706	0	Portrait	H	8.2263	7.7222	8.271318	7.9967495	549.14	500	49.137	P
2	9	405	4093	Portrait	H	8.2268	7.7176	8.26498	7.991305	547.35	500	47.35	P
2	9	407	4093	Portrait	H	8.2263	7.7242	8.265816	7.9949985	541.64	500	41.635	P
2	9	409	4093	Portrait	H	8.2268	7.7242	8.25031	7.987245	526.13	500	26.13	P
2	9	801	0Gap0	Portrait	H	8.2263	7.6917	8.282821	7.987247	591.15	500	91.148	P
2	9	801	0Gap64	Portrait	H	7.7483	7.7032	8.270818	7.986997	567.64	500	67.642	P
2	9	802	0	Portrait	H	7.7483	7.7032	8.270818	7.986997	567.64	500	67.642	P
2	9	803	0	Portrait	H	7.7483	7.7032	8.27132	7.987248	568.14	500	68.144	P
2	9	804	0Gap0	Portrait	H	7.7483	7.6917	8.269818	7.9807455	578.15	500	78.145	P
2	9	804	0Gap64	Portrait	H	7.7488	7.7207	8.25382	7.98725	533.14	500	33.14	P
2	9	805	0	Portrait	H	7.7483	7.7032	8.27132	7.987248	568.14	500	68.144	P
2	9	806	0	Portrait	H	7.7483	7.7057	8.271318	7.988499	565.64	500	65.638	P
2	9	807	0Gap0	Portrait	H	7.7483	7.7032	8.282821	7.9929985	579.65	500	79.645	P
2	9	807	0Gap64	Portrait	H	7.74825	7.69167	8.268317	7.979995	576.644	500	76.644	P
2	9	808	0	Portrait	H	7.74825	7.70468	8.282821	7.9937485	578.145	500	78.145	P
2	9	809	0	Portrait	H	7.74825	7.70768	8.266817	7.987247	559.14	500	59.14	P
2	9	810	0Gap0	Portrait	H	7.74825	7.69167	8.269818	7.9807455	578.145	500	78.145	P
2	9	810	0Gap64	Portrait	H	7.74875	7.70418	8.282821	7.9934985	578.645	500	78.645	P
2	9	811	0	Portrait	H	7.74825	7.70368	8.282821	7.9932485	579.145	500	79.145	P
2	9	812	0	Portrait	H	7.74825	7.70368	8.282821	7.9932485	579.145	500	79.145	P

OPERATING BANDWIDTH

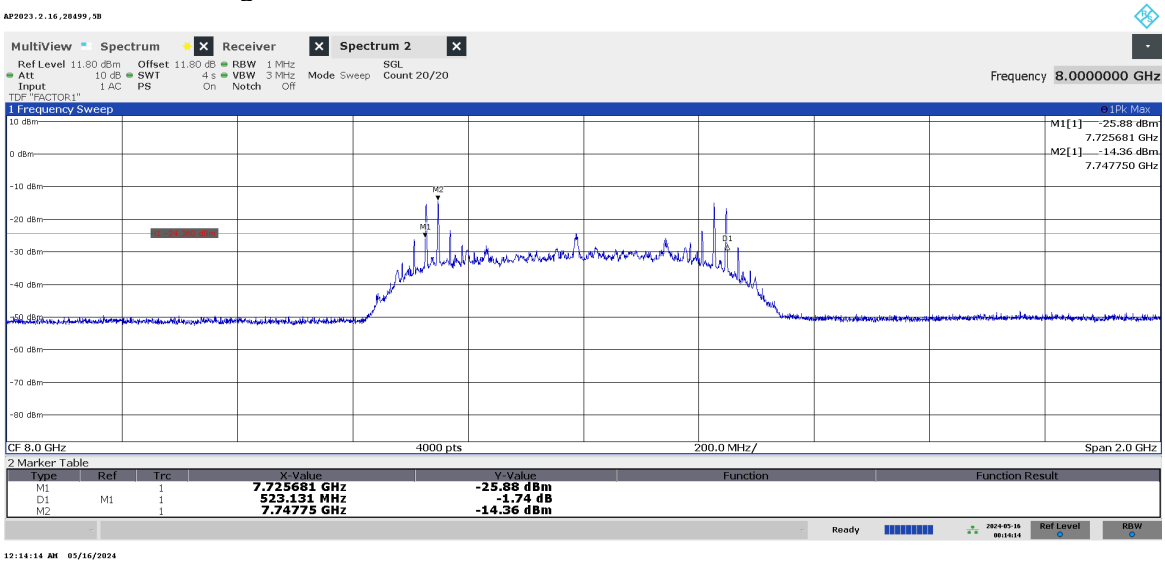
ANT1, CH9, Config 9



ANT2, CH5, Config 9



ANT2, CH9, Config 9



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

RSS-220

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

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. Plots for ANT1, CONFIG 9, Payload 125 on CH9 and ANT2, 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

Employee IDs: 28737, 32305, 28499
Location: Chamber 05-RDE-B
Test Date: 2024-05-15 – 2024-06-08

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

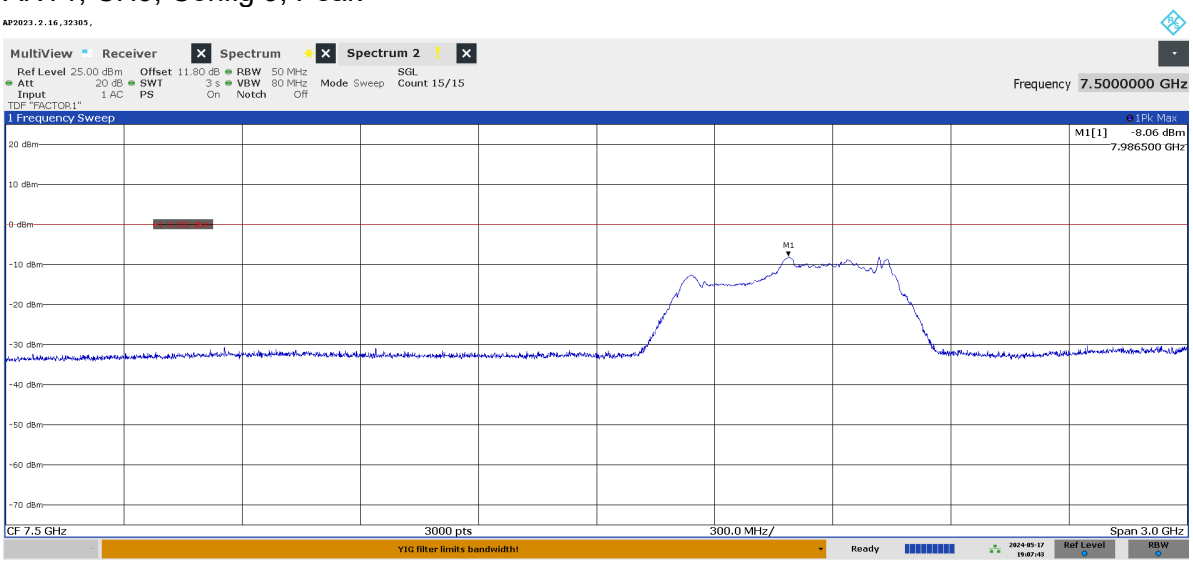
							Peak EIRP Power					Average EIRP Power			
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity		FM (GHz)	Adj Pk	Pk Limit	Margin (dB)		FM (GHz)	Adj Av	Avg Limit	Margin (dB)
1	9	0	25	Landscape	V		8.2375	-1.85	0	-1.85		8.1275	-42.34	-41.3	-1.04
1	9	1	45	Landscape	V		8.2375	-1.31	0	-1.31		8.1275	-42.30	-41.3	-1.00
1	9	6	125	Landscape	V		8.2165	-6.93	0	-6.93		8.0885	-42.34	-41.3	-1.04
1	9	9	125	Landscape	V		7.9865	-8.06	0	-8.06		8.1405	-42.45	-41.3	-1.15
1	9	10	25	Landscape	V		8.2175	-2.03	0	-2.03		8.0765	-42.48	-41.3	-1.18
1	9	11	25	Landscape	V		8.2165	-1.29	0	-1.29		8.0805	-43.19	-41.3	-1.89
1	9	11	65	Landscape	V		8.2165	-2.53	0	-2.53		8.0805	-42.48	-41.3	-1.18
1	9	101	25	Landscape	V		8.2175	-1.33	0	-1.33		8.0805	-43.29	-41.3	-1.99
1	9	101	65	Landscape	V		8.2175	-2.70	0	-2.70		8.0805	-42.56	-41.3	-1.26
1	9	102	25	Landscape	V		8.2165	-1.40	0	-1.40		8.0885	-43.24	-41.3	-1.94
1	9	102	65	Landscape	V		8.2175	-2.73	0	-2.73		8.0805	-42.55	-41.3	-1.25
1	9	103	25	Landscape	V		8.2165	-2.33	0	-2.33		8.0765	-42.61	-41.3	-1.31
1	9	103	125	Landscape	V		8.2175	-5.49	0	-5.49		8.0965	-42.63	-41.3	-1.33
1	9	202	625	Landscape	V		8.2355	-11.66	0	-11.66		8.1415	-42.77	-41.3	-1.47
1	9	402	445	Landscape	V		8.2365	-9.96	0	-9.96		8.0985	-42.67	-41.3	-1.37
1	9	501	0	Landscape	V		8.2385	-1.29	0	-1.29		8.1535	-44.48	-41.3	-3.18
1	9	503	0	Landscape	V		8.2375	-1.36	0	-1.36		8.0915	-44.79	-41.3	-3.49
1	9	601	0	Landscape	V		8.2375	-2.15	0	-2.15		8.0945	-42.63	-41.3	-1.33
1	9	605	0	Landscape	V		8.2385	-1.22	0	-1.22		8.0955	-44.13	-41.3	-2.83
1	9	607	0	Landscape	V		8.2375	-1.33	0	-1.33		8.0805	-44.35	-41.3	-3.05
1	9	701	0	Landscape	V		8.2375	-1.87	0	-1.87		8.1055	-42.66	-41.3	-1.36
1	9	702	0	Landscape	V		8.2165	-1.17	0	-1.17		8.0855	-43.98	-41.3	-2.68
1	9	703	0	Landscape	V		8.2175	-1.28	0	-1.28		8.0865	-44.26	-41.3	-2.96
1	9	704	0	Landscape	V		8.2165	-6.72	0	-6.72		8.0835	-42.60	-41.3	-1.30
1	9	705	0	Landscape	V		8.1145	-4.39	0	-4.39		8.1035	-42.63	-41.3	-1.33
1	9	706	0	Landscape	V		8.1145	-4.52	0	-4.52		8.1315	-42.37	-41.3	-1.07
1	9	405	4093	Landscape	V		8.2165	-13.27	0	-13.27		8.0825	-42.46	-41.3	-1.16
1	9	407	4093	Landscape	V		8.2165	-12.04	0	-12.04		8.0985	-42.49	-41.3	-1.19
1	9	409	4093	Landscape	V		8.2165	-12.59	0	-12.59		8.0965	-42.69	-41.3	-1.39
1	9	801	0Gap0	Landscape	V		8.2165	-2.93	0	-2.93		8.1115	-42.78	-41.3	-1.48
1	9	801	0Gap64	Landscape	V		8.2165	-2.93	0	-2.93		8.0905	-42.72	-41.3	-1.42
1	9	802	0	Landscape	V		8.2175	-3.13	0	-3.13		8.0905	-42.75	-41.3	-1.45
1	9	803	0	Landscape	V		8.2355	-2.68	0	-2.68		8.0905	-42.50	-41.3	-1.20
1	9	804	0Gap0	Landscape	V		8.2165	-4.24	0	-4.24		8.1425	-42.39	-41.3	-1.09
1	9	804	0Gap64	Landscape	V		8.2165	-4.64	0	-4.64		8.1435	-42.37	-41.3	-1.07
1	9	805	0	Landscape	V		8.2165	-5.18	0	-5.18		8.1435	-42.70	-41.3	-1.40
1	9	806	0	Landscape	V		8.2185	-4.29	0	-4.29		8.1435	-42.57	-41.3	-1.27
1	9	807	0Gap0	Landscape	V		8.2165	-1.80	0	-1.80		8.1535	-42.39	-41.3	-1.09
1	9	807	0Gap64	Landscape	V		8.2165	-1.94	0	-1.94		8.1415	-42.68	-41.3	-1.38
1	9	808	0	Landscape	V		8.2175	-1.85	0	-1.85		8.1415	-42.7	-41.3	-1.4
1	9	809	0	Landscape	V		8.2165	-2.14	0	-2.14		8.1415	-42.35	-41.3	-1.05
1	9	810	0Gap0	Landscape	V		8.2175	-5.04	0	-5.04		8.1535	-42.55	-41.3	-1.25
1	9	810	0Gap64	Landscape	V		8.2175	-4.01	0	-4.01		8.1485	-42.59	-41.3	-1.29
1	9	811	0	Landscape	V		8.2365	-4.21	0	-4.214		8.0845	-42.743	-41.3	-1.443
1	9	812	0	Landscape	V		8.2385	-4.12	0	-4.117		8.1485	-42.623	-41.3	-1.323

							Peak EIRP Power					Average EIRP Power			
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity		FM (GHz)	Adj Pk	Pk Limit	Margin (dB)		FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	5	0	25	Landscape	V		6.7375	-2.24	0	-2.24		6.6305	-42.52	-41.3	-1.22
2	5	1	45	Landscape	V		6.4905	-1.96	0	-1.96		6.6305	-42.70	-41.3	-1.40
2	5	6	125	Landscape	V		6.5005	-1.89	0	-1.89		6.6305	-42.71	-41.3	-1.41
2	5	9	125	Landscape	V		6.4905	-7.35	0	-7.35		6.7285	-42.51	-41.3	-1.21
2	5	10	25	Landscape	V		6.5015	-2.03	0	-2.03		6.6295	-42.59	-41.3	-1.29
2	5	11	25	Landscape	V		6.5005	-1.06	0	-1.06		6.6295	-42.69	-41.3	-1.39
2	5	11	65	Landscape	V		6.5025	-2.06	0	-2.06		6.6305	-42.50	-41.3	-1.20
2	5	101	25	Landscape	V		6.5005	-1.32	0	-1.32		6.6295	-43.57	-41.3	-2.27
2	5	101	65	Landscape	V		6.5025	-1.96	0	-1.96		6.6295	-42.68	-41.3	-1.38
2	5	102	25	Landscape	V		6.5025	-1.48	0	-1.48		6.6295	-43.55	-41.3	-2.25
2	5	102	65	Landscape	V		6.4915	-2.23	0	-2.23		6.4585	-42.74	-41.3	-1.44
2	5	103	25	Landscape	V		6.4915	-1.78	0	-1.78		6.6305	-42.53	-41.3	-1.23
2	5	103	125	Landscape	V		6.4875	-4.42	0	-4.42		6.4585	-42.51	-41.3	-1.21
2	5	202	625	Landscape	V		6.7365	-11.36	0	-11.36		6.6145	-42.49	-41.3	-1.19
2	5	402	445	Landscape	V		6.7740	-9.66	0	-9.66		6.6225	-42.36	-41.3	-1.06
2	5	501	0	Landscape	V		6.7355	-1.18	0	-1.18		6.6605	-44.06	-41.3	-2.76
2	5	503	0	Landscape	V		6.7365	-1.17	0	-1.17		6.7295	-44.20	-41.3	-2.90
2	5	601	0	Landscape	V		6.7375	-1.92	0	-1.92		6.6285	-42.32	-41.3	-1.02
2	5	605	0	Landscape	V		6.7385	-1.12	0	-1.12		6.7295	-43.67	-41.3	-2.37
2	5	607	0	Landscape	V		6.7355	-1.24	0	-1.24		6.7295	-43.74	-41.3	-2.44
2	5	701	0	Landscape	V		6.7375	-1.67	0	-1.67		6.6215	-42.41	-41.3	-1.11
2	5	702	0	Landscape	V		6.7385	-1.07	0	-1.07		6.6555	-43.76	-41.3	-2.46
2	5	703	0	Landscape	V		6.7355	-1.45	0	-1.45		6.6275	-43.86	-41.3	-2.56
2	5	704	0	Landscape	V		6.7365	-6.36	0	-6.36		6.6145	-42.35	-41.3	-1.05
2	5	705	0	Landscape	V		6.6125	-3.01	0	-3.01		6.6365	-42.44	-41.3	-1.14
2	5	706	0	Landscape	V		6.6145	-4.50	0	-4.50		6.6255	-42.42	-41.3	-1.12
2	5	405	4093	Landscape	V		6.7365	-13.23	0	-13.23		6.6385	-42.41	-41.3	-1.11
2	5	407	4093	Landscape	V		6.7355	-12.67	0	-12.67		6.6285	-42.41	-41.3	-1.11
2	5	409	4093	Landscape	V		6.7375	-12.56	0	-12.56		6.5225	-42.35	-41.3	-1.05
2	5	801	0Gap0	Landscape	V		6.7365	-2.61	0	-2.61		6.6145	-42.31	-41.3	-1.01
2	5	801	0Gap64	Landscape	V		6.7365	-2.82	0	-2.82		6.6355	-42.44	-41.3	-1.14
2	5	802	0	Landscape	V		6.7355	-2.91	0	-2.91		6.6355	-42.42	-41.3	-1.12
2	5	803	0	Landscape	V		6.7385	-1.61	0	-1.61		6.6355	-42.58	-41.3	-1.28
2	5	804	0Gap0	Landscape	V		6.7365	-5.97	0	-5.97		6.5725	-42.70	-41.3	-1.40
2	5	804	0Gap64	Landscape	V		6.7405	-5.75	0	-5.75		6.6455	-42.49	-41.3	-1.19
2	5	805	0	Landscape	V		6.7385	-5.74	0	-5.74		6.6355	-42.48	-41.3	-1.18
2	5	806	0	Landscape	V		6.7375	-4.59	0	-4.59		6.6355	-42.46	-41.3	-1.16
2	5	807	0Gap0	Landscape	V		6.7385	-2.94	0	-2.94		6.6145	-42.43	-41.3	-1.13
2	5	807	0Gap64	Landscape	V		6.7375	-1.7	0	-1.7		6.5185	-42.342	-41.3	-1.042
2	5	808	0	Landscape	V		6.7365	-2.21	0	-2.207		6.5185	-42.504	-41.3	-1.204
2	5	809	0	Landscape	V		6.7355	-2.21	0	-2.21		6.6245	-42.435	-41.3	-1.135
2	5	810	0Gap0	Landscape	V		6.7365	-5.77	0	-5.774		6.6565	-42.475	-41.3	-1.175
2	5	810	0Gap64	Landscape	V		6.7365	-4.63	0	-4.629		6.6245	-42.515	-41.3	-1.215
2	5	811	0	Landscape	V		6.7375	-3.91	0	-3.909		6.6515	-42.358	-41.3	-1.058
2	5	812	0	Landscape	V		6.7365	-3.91	0	-3.905		6.6245	-42.323	-41.3	-1.023

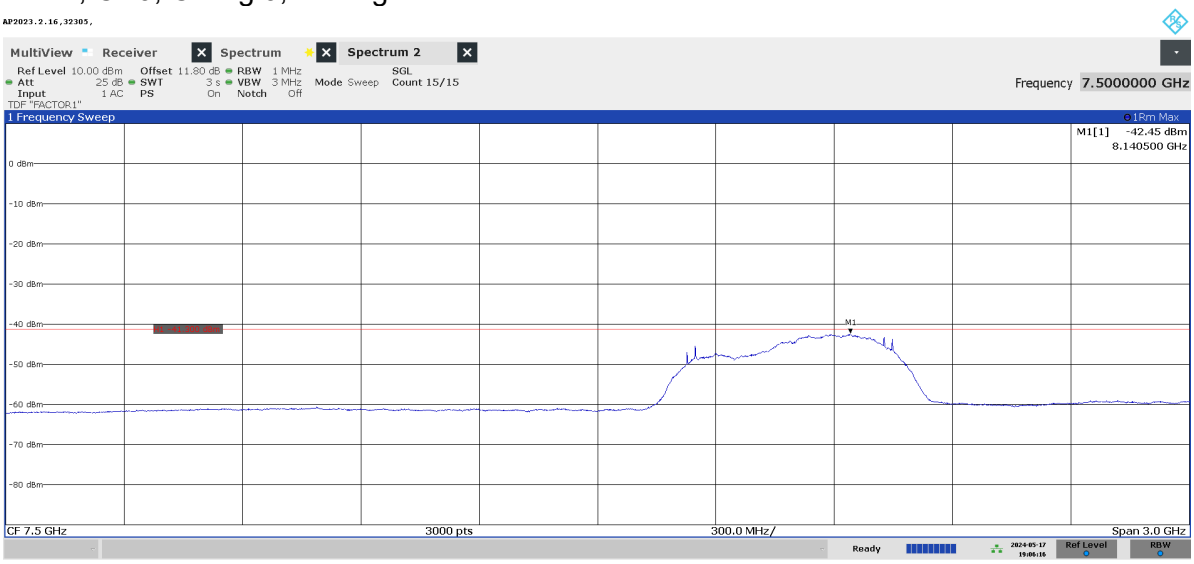
							Peak EIRP Power					Average EIRP Power			
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity		FM (GHz)	Adj Pk	Pk Limit	Margin (dB)		FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	9	0	25	Portrait	H		8.2165	-2.21	0	-2.21		8.0765	-42.55	-41.3	-1.25
2	9	1	45	Portrait	H		7.9885	-1.71	0	-1.71		8.0805	-42.55	-41.3	-1.25
2	9	6	125	Portrait	H		7.9885	-6.14	0	-6.14		8.0295	-42.66	-41.3	-1.36
2	9	9	125	Portrait	H		7.9875	-7.41	0	-7.41		7.7475	-42.58	-41.3	-1.28
2	9	10	25	Portrait	H		7.9755	-1.96	0	-1.96		8.0765	-42.36	-41.3	-1.06
2	9	11	25	Portrait	H		7.9875	-1.04	0	-1.04		8.0805	-42.99	-41.3	-1.69
2	9	11	65	Portrait	H		7.9755	-2.14	0	-2.14		8.0805	-42.45	-41.3	-1.15
2	9	101	25	Portrait	H		7.9885	-1.39	0	-1.39		8.0805	-43.40	-41.3	-2.10
2	9	101	65	Portrait	H		7.9765	-2.03	0	-2.03		7.9555	-42.37	-41.3	-1.07
2	9	102	25	Portrait	H		7.7405	-1.44	0	-1.44		7.7485	-43.45	-41.3	-2.15
2	9	102	65	Portrait	H		7.9755	-2.09	0	-2.09		7.9555	-42.66	-41.3	-1.36
2	9	103	25	Portrait	H		7.7385	-1.65	0	-1.65		7.8155	-42.33	-41.3	-1.03
2	9	103	125	Portrait	H		7.9865	-4.82	0	-4.82		7.9555	-42.62	-41.3	-1.32
2	9	202	625	Portrait	H		7.7425	-10.49	0	-10.49		7.9545	-42.57	-41.3	-1.27
2	9	402	445	Portrait	H		7.7395	-8.36	0	-8.36		7.9505	-42.35	-41.3	-1.05
2	9	501	0	Portrait	H		7.7395	-1.39	0	-1.39		7.7475	-44.63	-41.3	-3.33
2	9	503	0	Portrait	H		7.7145	-1.21	0	-1.21		7.7485	-44.51	-41.3	-3.21
2	9	601	0	Portrait	H		7.7385	-1.44	0	-1.44		7.7475	-42.97	-41.3	-1.67
2	9	605	0	Portrait	H		7.7405	-1.22	0	-1.22		7.7475	-44.11	-41.3	-2.81
2	9	607	0	Portrait	H		7.7405	-1.17	0	-1.17		7.7475	-44.16	-41.3	-2.86
2	9	701	0	Portrait	H		8.2175	-1.79	0	-1.79		8.0775	-42.32	-41.3	-1.02
2	9	702	0	Portrait	H		8.2165	-1.34	0	-1.34		8.0855	-43.42	-41.3	-2.12
2	9	703	0	Portrait	H		8.2175	-1.12	0	-1.12		8.0865	-43.31	-41.3	-2.01
2	9	704	0	Portrait	H		8.2165	-7.20	0	-7.20		8.0835	-42.48	-41.3	-1.18
2	9	705	0	Portrait	H		8.1135	-2.83	0	-2.83		8.0805	-42.46	-41.3	-1.16
2	9	706	0	Portrait	H		8.1145	-4.32	0	-4.32		8.0805	-42.66	-41.3	-1.36
2	9	405	4093	Portrait	H		8.2175	-13.15	0	-13.15		8.1365	-42.41	-41.3	-1.11
2	9	407	4093	Portrait	H		8.2165	-12.88	0	-12.88		8.1375	-42.69	-41.3	-1.39
2	9	409	4093	Portrait	H		8.2165	-12.98	0	-12.98		8.1445	-42.68	-41.3	-1.38
2	9	801	0Gap0	Portrait	H		8.2165	-2.85	0	-2.85		8.1425	-42.61	-41.3	-1.31
2	9	801	0Gap64	Portrait	H		8.2385	-3.56	0	-3.56		8.0905	-42.46	-41.3	-1.16
2	9	802	0	Portrait	H		8.2375	-3.63	0	-3.63		8.0905	-42.51	-41.3	-1.21
2	9	803	0	Portrait	H		8.2375	-2.51	0	-2.51		8.0905	-42.45	-41.3	-1.15
2	9	804	0Gap0	Portrait	H		8.2375	-6.10	0	-6.10		8.1115	-42.47	-41.3	-1.17
2	9	804	0Gap64	Portrait	H		8.2375	-6.18	0	-6.18		8.0905	-42.47	-41.3	-1.17
2	9	805	0	Portrait	H		8.2375	-6.11	0	-6.11		8.0905	-42.40	-41.3	-1.10
2	9	806	0	Portrait	H		8.2375	-5.23	0	-5.23		8.0905	-42.43	-41.3	-1.13
2	9	807	0Gap0	Portrait	H		8.2385	-3.41	0	-3.41		8.1125	-42.67	-41.3	-1.37
2	9	807	0Gap64	Portrait	H		8.2375	-2.99	0	-2.99		8.0825	-42.32	-41.3	-1.018
2	9	808	0	Portrait	H		8.2385	-2.76	0	-2.762		8.1015	-42.68	-41.3	-1.38
2	9	809	0	Portrait	H		8.2385	-2.71	0	-2.706		8.1415	-42.53	-41.3	-1.229
2	9	810	0Gap0	Portrait	H		8.2375	-5.99	0	-5.991		8.1115	-42.43	-41.3	-1.134
2	9	810	0Gap64	Portrait	H		8.2385	-4.95	0	-4.952		8.0825	-42.44	-41.3	-1.142
2	9	811	0	Portrait	H		8.2395	-4.92	0	-4.923		8.1495	-42.49	-41.3	-1.186
2	9	812	0	Portrait	H		8.2385	-4.86	0	-4.859		8.1485	-42.39	-41.3	-1.086

PEAK POWER AND MAXIMUM AVERAGE EMISSIONS

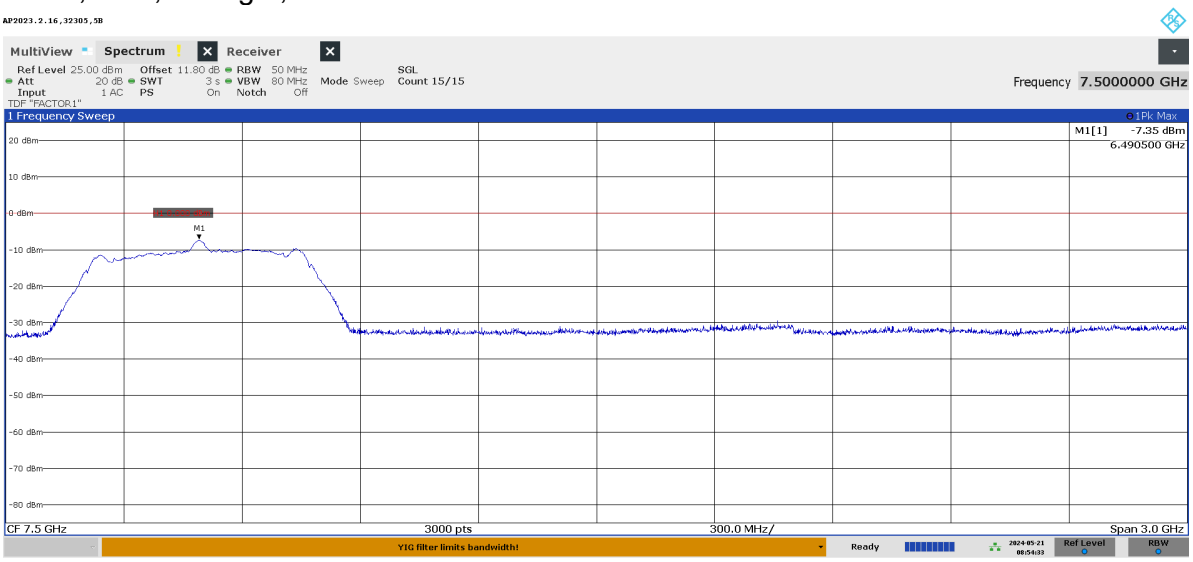
ANT1, CH9, Config 9, Peak



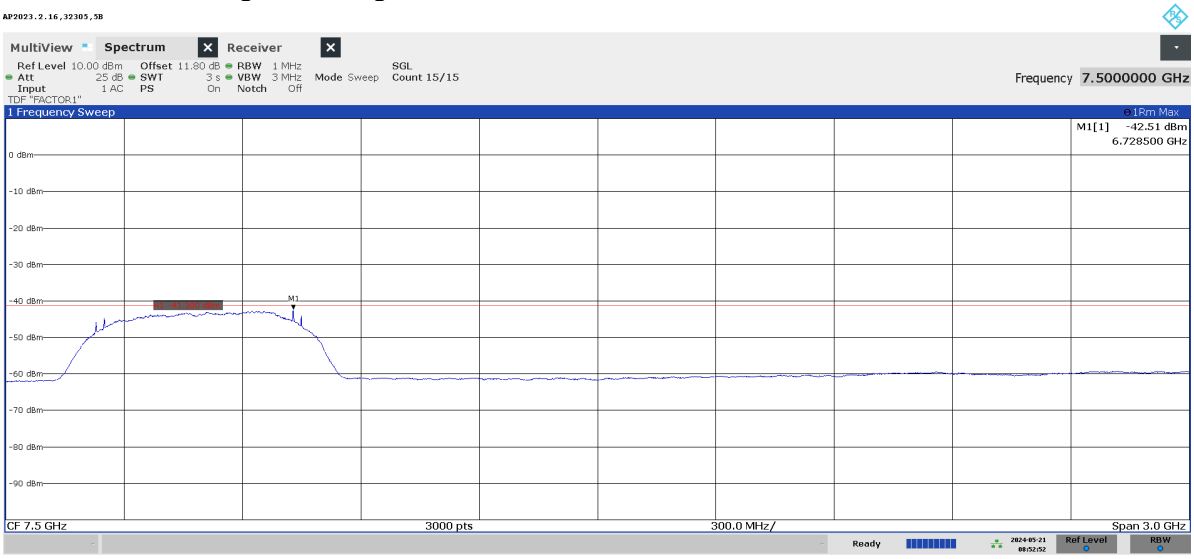
ANT1, CH9, Config 9, Average



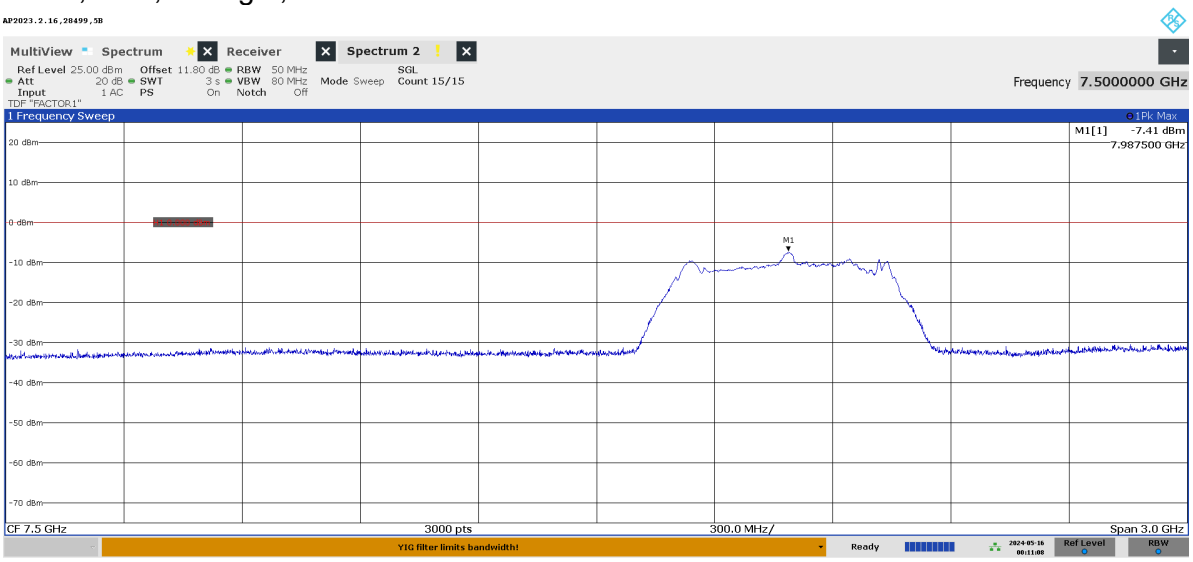
ANT2, CH5, Config 9, Peak



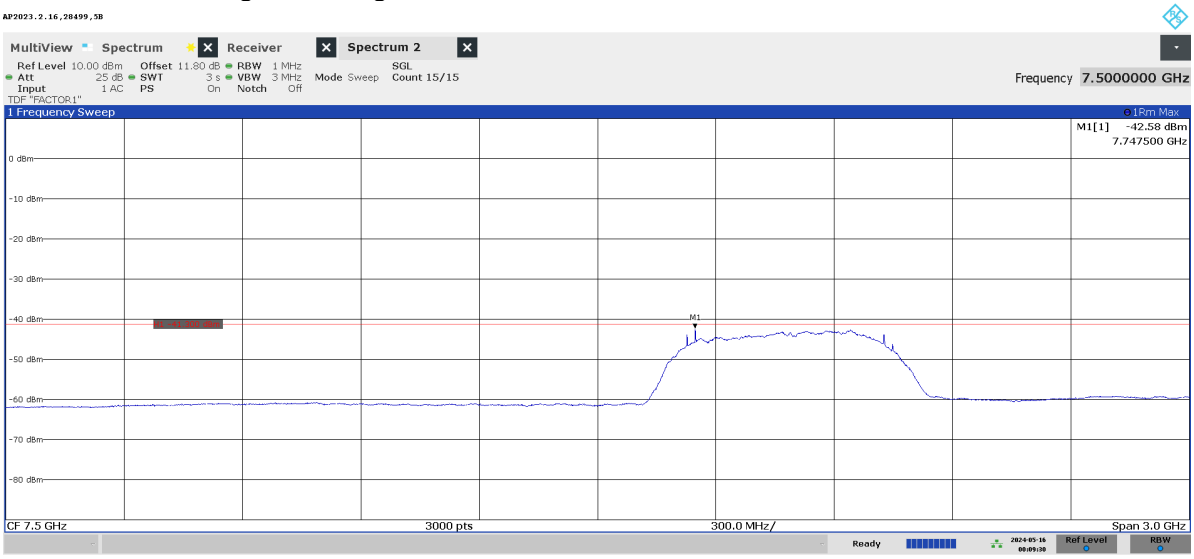
ANT2, CH5, Config 9, Average



ANT2, CH9, Config 9, Peak



ANT2, CH9, Config 9, Average



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.

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

* 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.

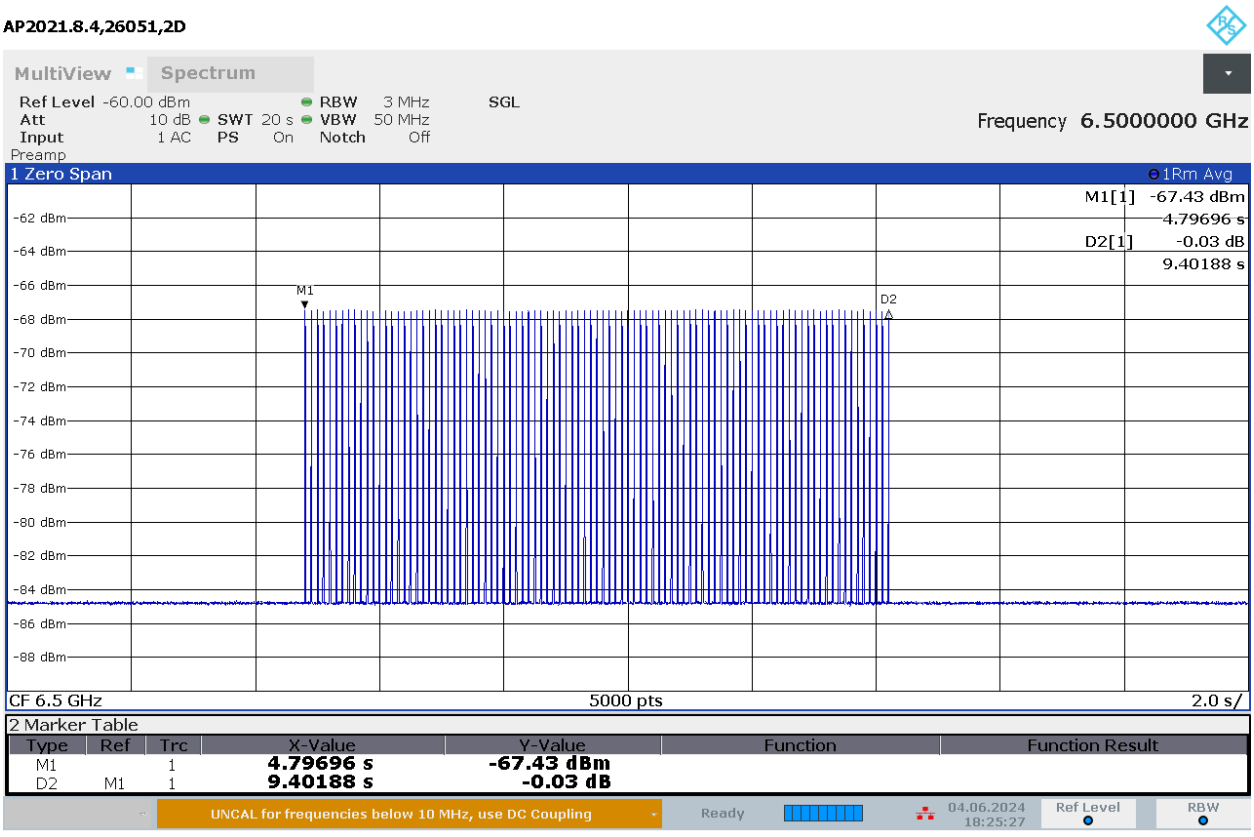
RESULTS

Employee ID: 26051
Location: Chamber D
Test Date: 2024/06/04

Signal Levels on all Plots

- Initiator is Low Amplitude
- Responder is High Amplitude

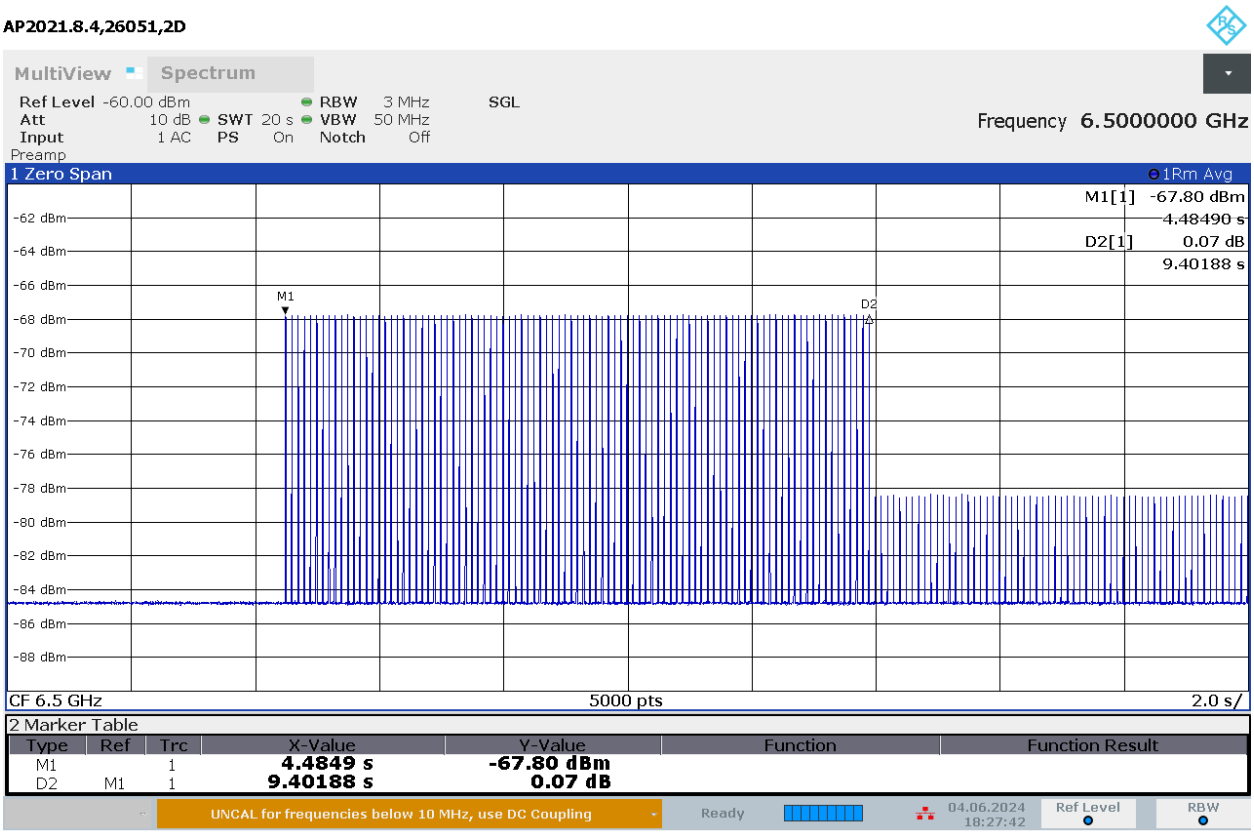
Case 1: Initiator ends the UWB link



RESULT

- M1: The Iniator receives an Acknowledgement from the Responder and starts transmitting.
- D2: The Iniator ceases transmission and polling.

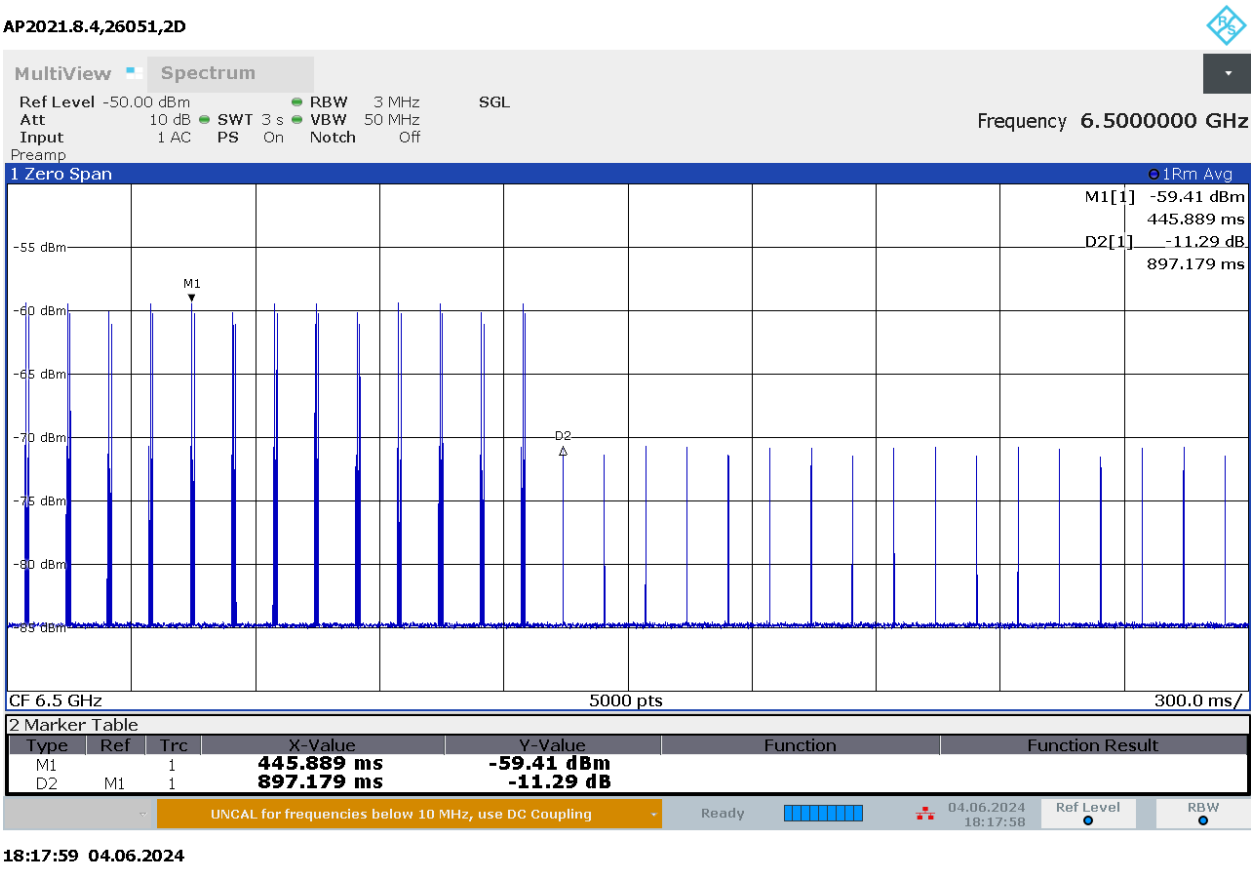
Case 2: Responder ends the UWB link



RESULT

- M1: The Iniator receives an acknowledgement from the Responder and starts transmitting.
- D2: The Responder stops sending acknowledgments and the Iniator continues polling.

Zoom-in Plot during On-Off Transition



RESULT

- M1: Shows Link Traffic, Acknowledgements and Polling Signals while Link is established
- D2: 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

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

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

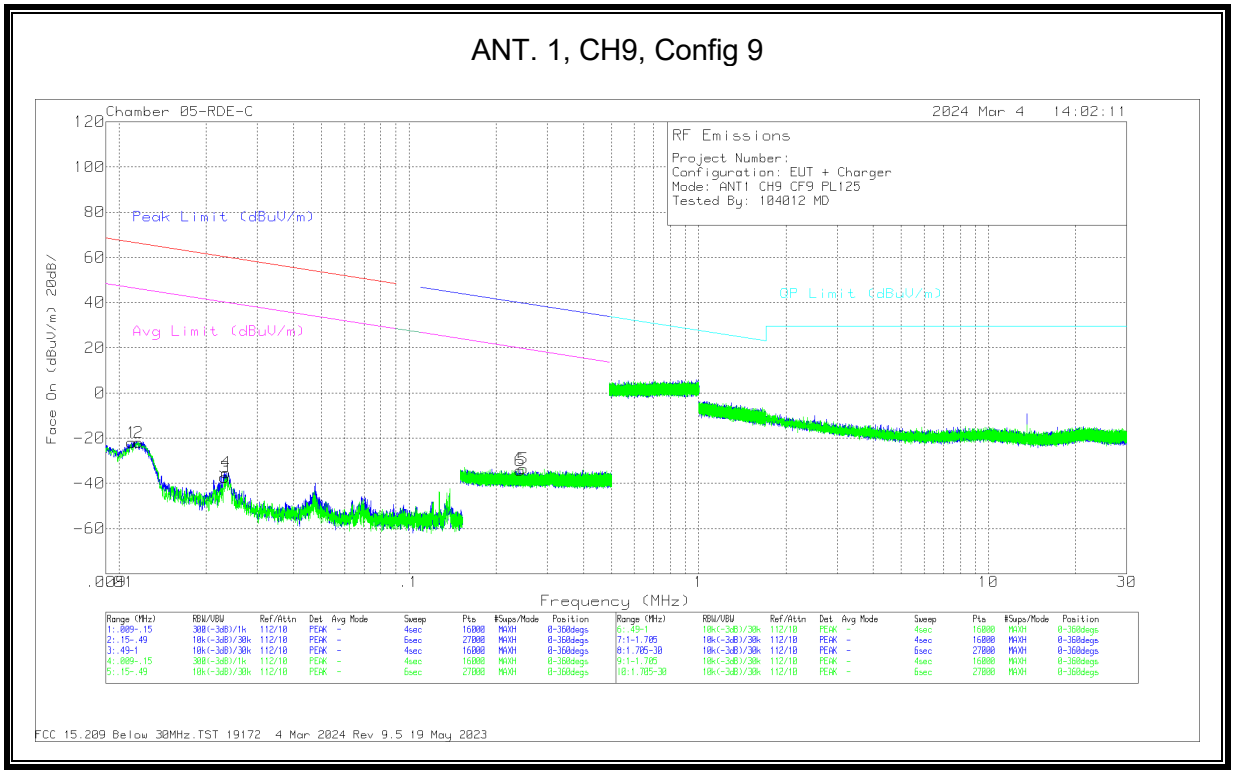
Emissions Summary

Employee IDs: 32440, 104012
Location: Chamber 5C
Test Date: 3/4/24 – 3/5/24

					Frequency Range	
Ant	CH	Config	Payload	Power Setting	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

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888

9.5.1. EMISSIONS, 9 kHz – 30 MHz

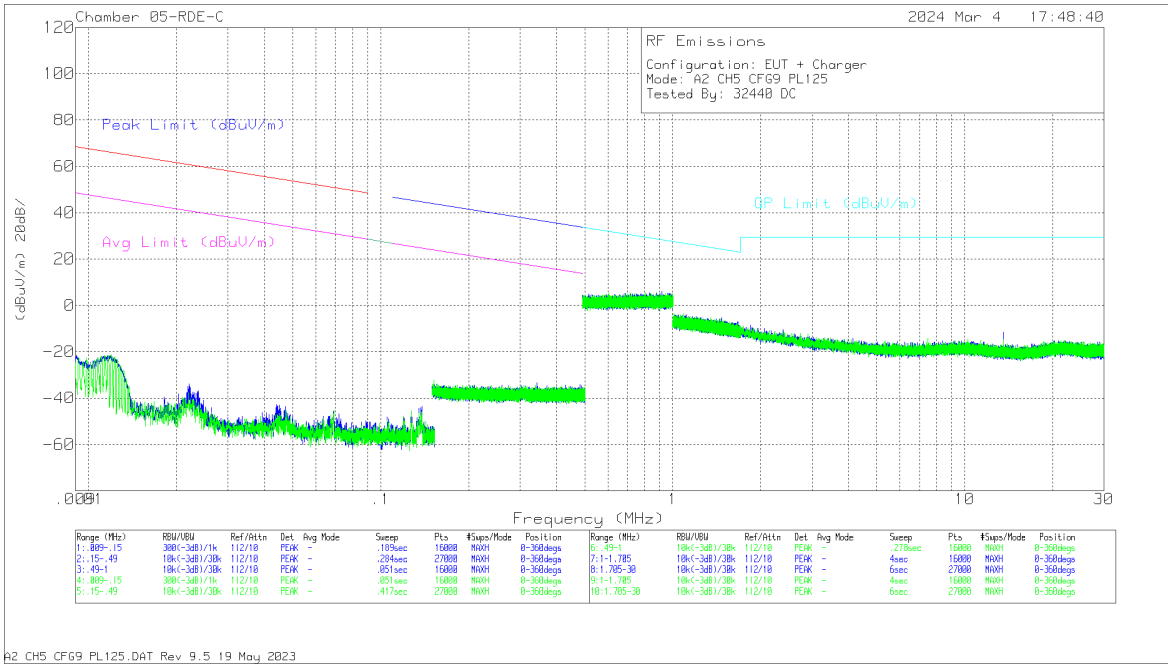


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(dB/m)	CBL AMP (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.011	28.22	Pk	60.3	-30.4	-80	-21.88	66.72	-88.6	46.72	-68.6	0-360
2	.0117	28.42	Pk	60.2	-30.5	-80	-21.88	66.23	-88.11	46.23	-68.11	0-360
3	.0231	15.8	Pk	58.8	-31.9	-80	-37.3	60.3	-97.6	40.3	-77.6	0-360
4	.0234	17.99	Pk	58.7	-31.9	-80	-35.21	60.21	-95.42	40.21	-75.42	0-360
6	.2419	21.55	Pk	56.3	-32.1	-80	-34.25	39.94	-74.19	19.94	-54.19	0-360
5	.2478	22.31	Pk	56.3	-32.1	-80	-33.49	39.73	-73.22	19.73	-53.22	0-360

Pk - Peak detector

ANT. 2, CH5, Config 9



Trace Markers

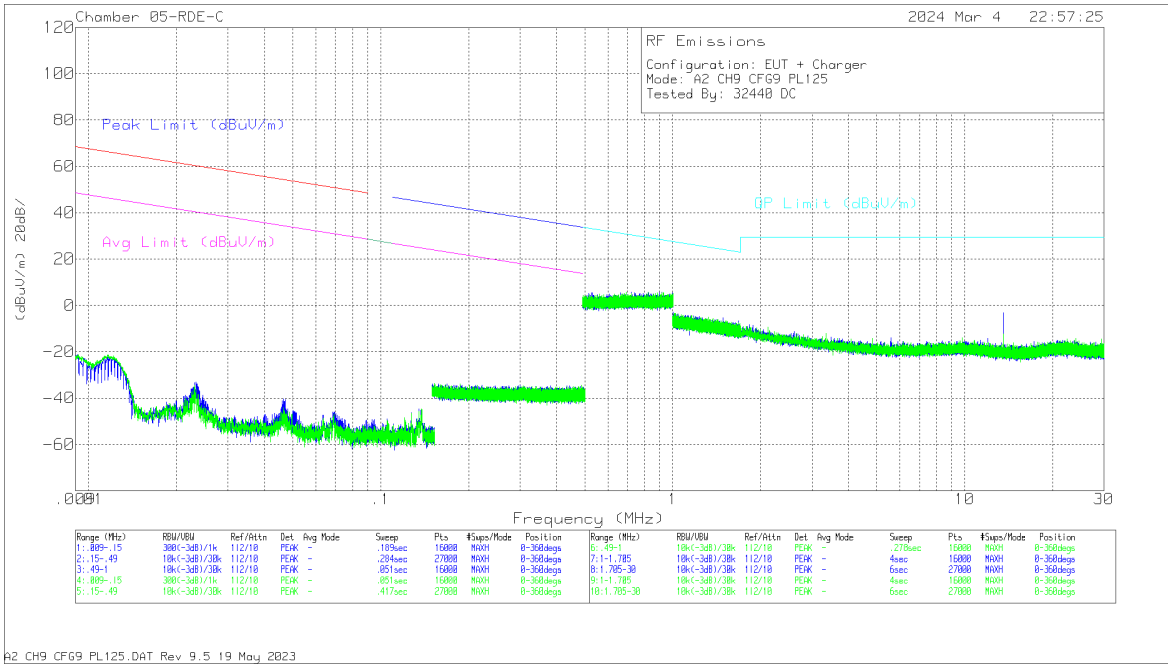
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	CBL AMP (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
4	.0119	29.09	Pk	60.1	-30.5	-80	-21.31	66.06	-87.37	46.06	-67.37	0-360
1	.012	28.15	Pk	60.1	-30.5	-80	-22.25	65.98	-88.23	45.98	-68.23	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	CBL AMP (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.7259	20.22	Pk	56.4	-31.9	-40	4.72	30.4	-25.68	0-360
5	.8444	19.73	Pk	56.5	-32	-40	4.23	29.09	-24.86	0-360
3	13.5589	25.74	Pk	34.2	-31.5	-40	-11.56	29.5	-41.06	0-360
6	13.561	22.57	Pk	34.2	-31.5	-40	-14.73	29.5	-44.23	0-360

Pk - Peak detector

ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	CBL AMP (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0116	27.89	Pk	60.2	-30.5	-80	-22.41	66.29	-88.7	46.29	-68.7	0-360
4	.0117	29.01	Pk	60.2	-30.5	-80	-21.29	66.25	-87.54	46.25	-67.54	0-360

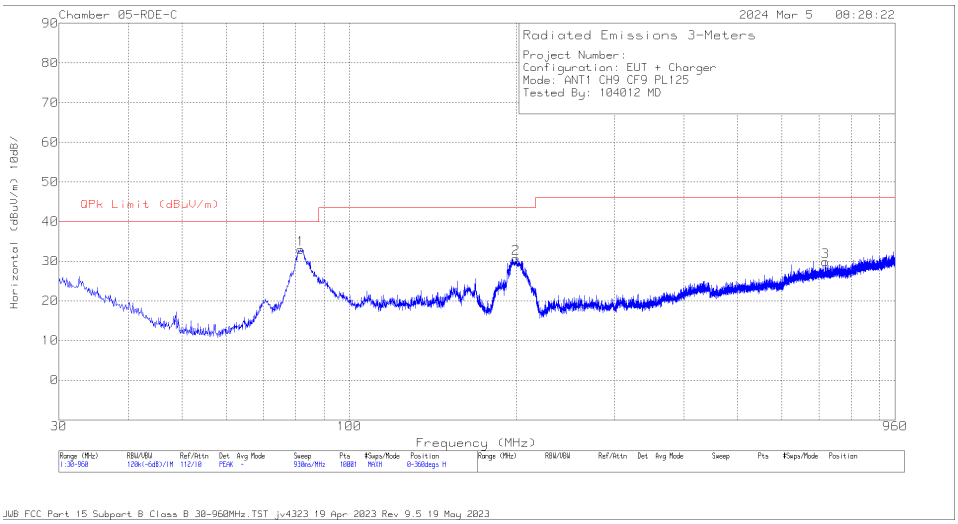
Pk - Peak detector

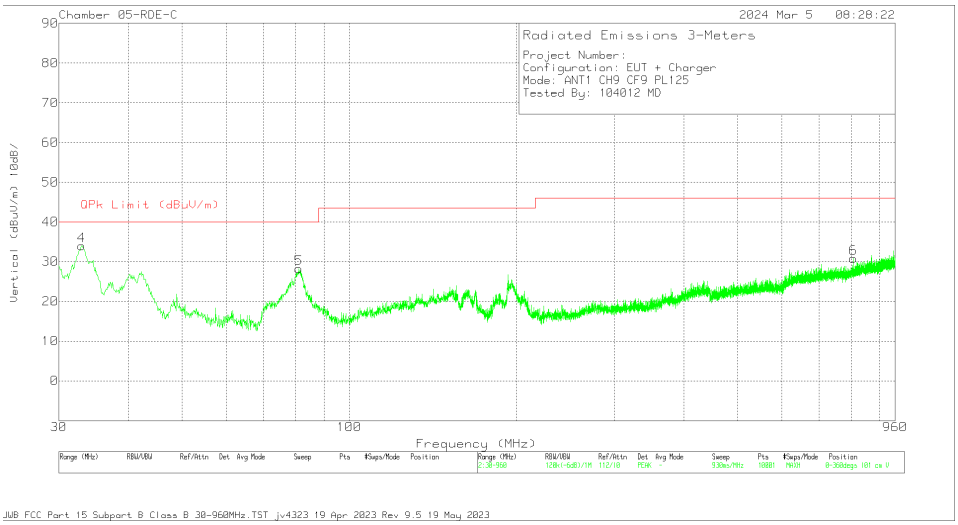
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	CBL AMP (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.6825	20.74	Pk	56.4	-31.9	-40	5.24	30.93	-25.69	0-360
2	.8145	20.31	Pk	56.5	-31.9	-40	4.91	29.4	-24.49	0-360
3	13.5589	34.07	Pk	34.2	-31.5	-40	-3.23	29.5	-32.73	0-360
6	13.561	24.9	Pk	34.2	-31.5	-40	-12.4	29.5	-41.9	0-360

Pk - Peak detector

9.5.2. EMISSIONS, 30 - 960 MHz

ANT. 1, CH9, Config 9



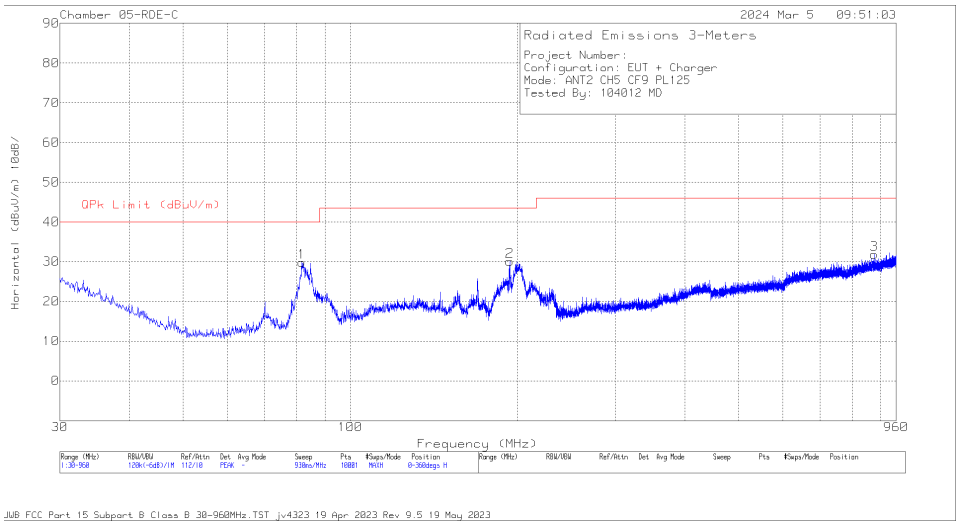


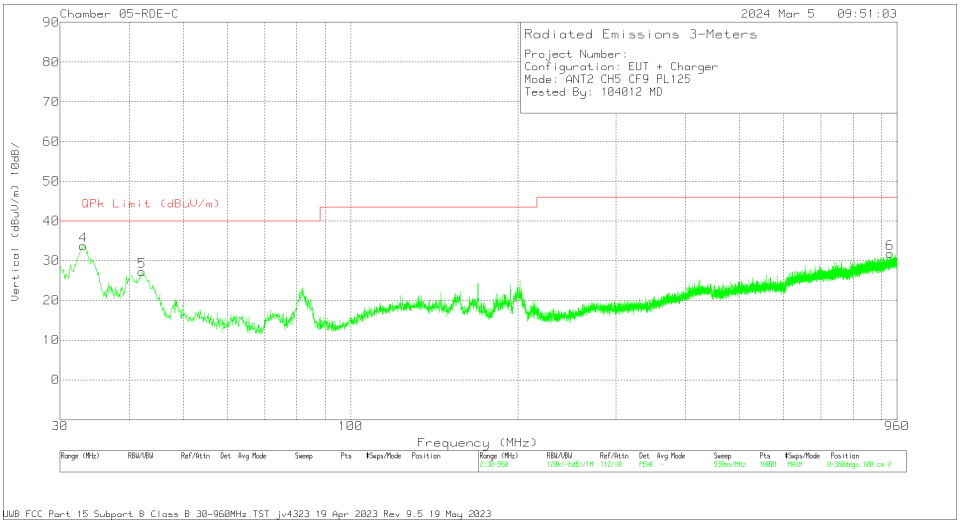
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB/m)	CBL AMP (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	32.976	40.33	Pk	24.7	-31	34.03	40	-5.97	0-360	101	V
5	81.15	45.27	Pk	13.4	-30.4	28.27	40	-11.73	0-360	101	V
1	81.708	49.92	Pk	13.4	-30.3	33.02	40	-6.98	0-360	198	H
2	199.539	42.39	Pk	18.1	-29.8	30.69	43.52	-12.83	0-360	100	H
3	718.944	32.42	Pk	26.3	-28.9	29.82	46.02	-16.2	0-360	398	H
6	807.387	31.97	Pk	27.2	-28.3	30.87	46.02	-15.15	0-360	101	V

Pk - Peak detector

ANT. 2, CH5, Config 9



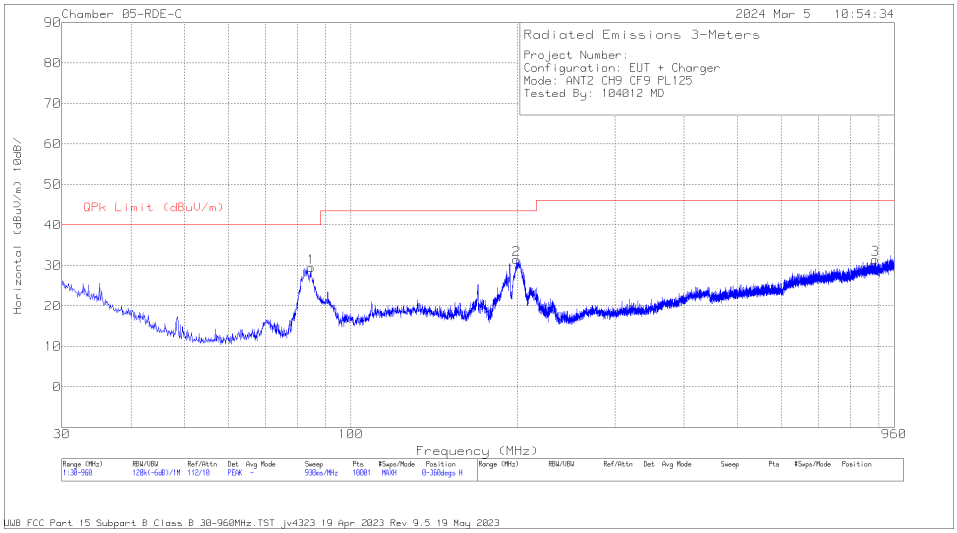


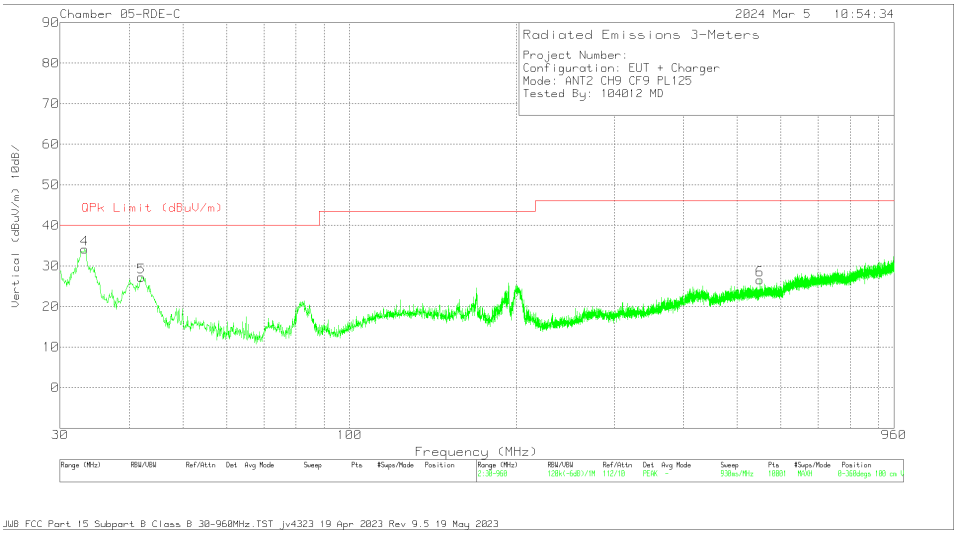
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB/m)	CBL AMP (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	33.069	40	Pk	24.7	-31	33.7	40	-6.3	0-360	100	V
5	42.09	40.09	Pk	18	-30.8	27.29	40	-12.71	0-360	100	V
1	81.708	46.77	Pk	13.4	-30.3	29.87	40	-10.13	0-360	199	H
2	193.587	42.12	Pk	17.9	-29.9	30.12	43.52	-13.4	0-360	199	H
3	876.3	32.09	Pk	27.8	-28	31.89	46.02	-14.13	0-360	100	H
6	932.193	31.11	Pk	28.3	-27.6	31.81	46.02	-14.21	0-360	100	V

Pk - Peak detector

ANT. 2, CH9, Config 9





Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB/m)	CBL AMP (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	33.255	40.63	Pk	24.5	-31	34.13	40	-5.87	0-360	100	V
5	42.09	40.03	Pk	18	-30.8	27.23	40	-12.77	0-360	100	V
1	84.684	46.46	Pk	13.4	-30.4	29.46	40	-10.54	0-360	399	H
2	199.26	43.04	Pk	18.1	-29.7	31.44	43.52	-12.08	0-360	98	H
6	549.405	31.75	Pk	24.1	-29.3	26.55	46.02	-19.47	0-360	100	V
3	887.553	31.47	Pk	27.9	-27.9	31.47	46.02	-14.55	0-360	199	H

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB/m)	CBL AMP (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
33.102	36.82	Qp	24.6	-31	30.42	40	-9.58	183	104	V

Qp - Quasi-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 for 18-40GHz and 0.5m for 0.96-6GHz, 1.164-1.240GHz, and 1.559-1.610GHz 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 for 18-40GHz and 0.5m for 0.96-6GHz, 1.164-1.240GHz, and 1.559-1.610GHz 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*log(0.5m/3m) = -15.56 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*log(0.5m/3m) = -15.56 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*log(0.5m/3m) = -15.56 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 = 360 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*log(0.5m/3m) = -15.56 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*log(1m/3m) = -9.54 dB

RESULTS

Average Emissions Summary

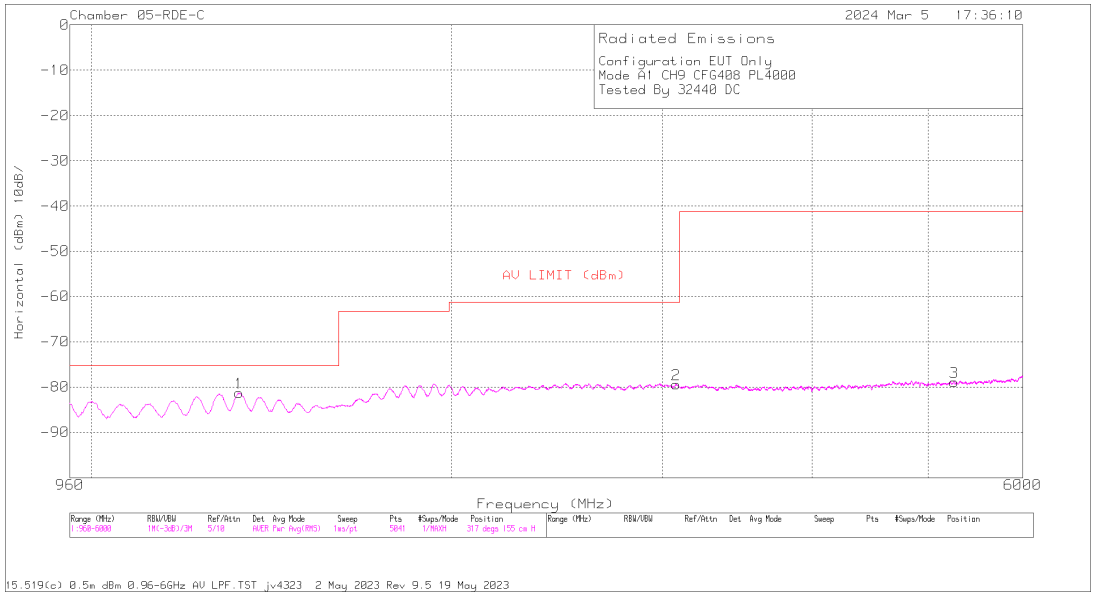
Employee IDs: 32440, 104012
Location: Chamber 5C
Test Date: 2024-03-05 – 2024-06-13

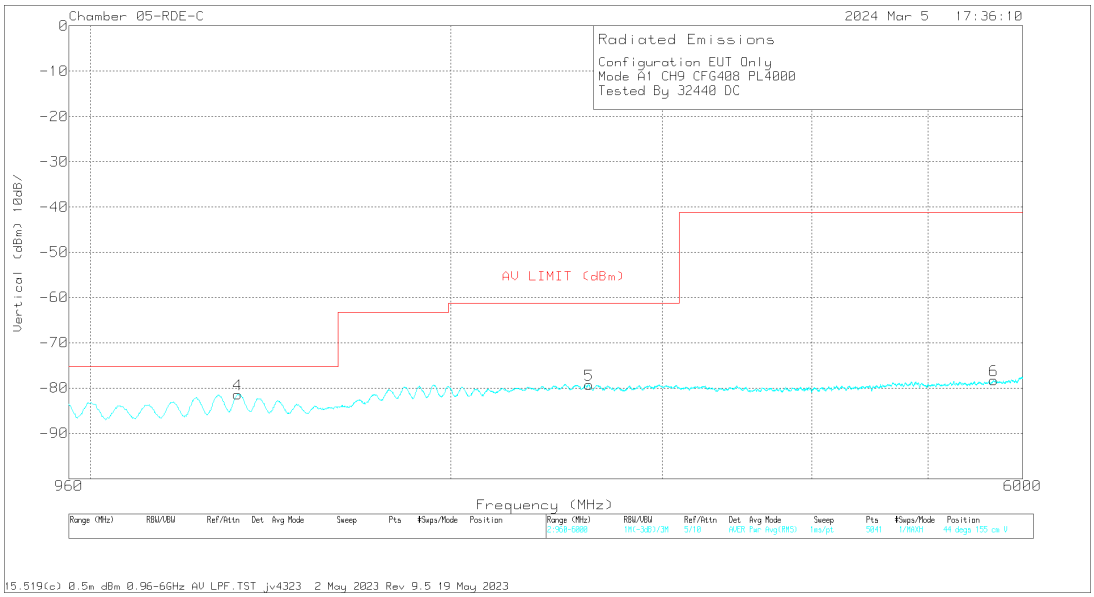
					Frequency Ranges				
Ant	CH	Config	Payload	Power Setting	1164 - 1240 MHz	1559 - 1610 MHz	0.96 - 18 GHz	18 - 26.5 GHz	26.5 - 40 GHz
1	9	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	5	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	9	9	125	Max	PASS	PASS	PASS	PASS	PASS

9.6.1. AVERAGE EMISSIONS, 0.96 – 6 GHz

FCC15.519 (C)

ANT. 1, CH9, Config 9



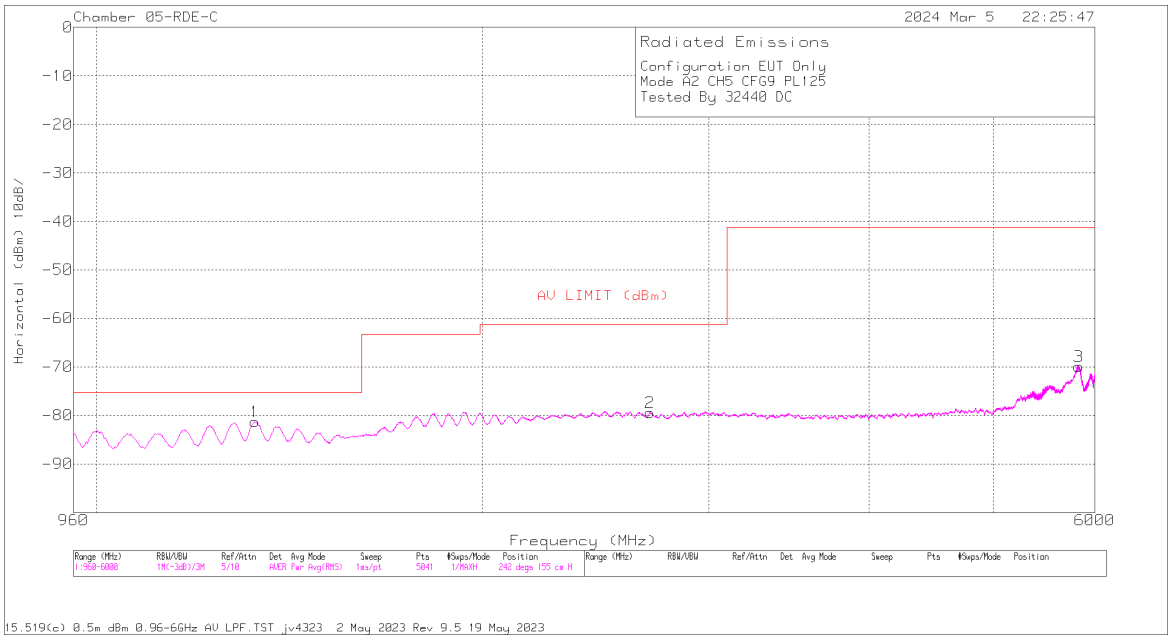


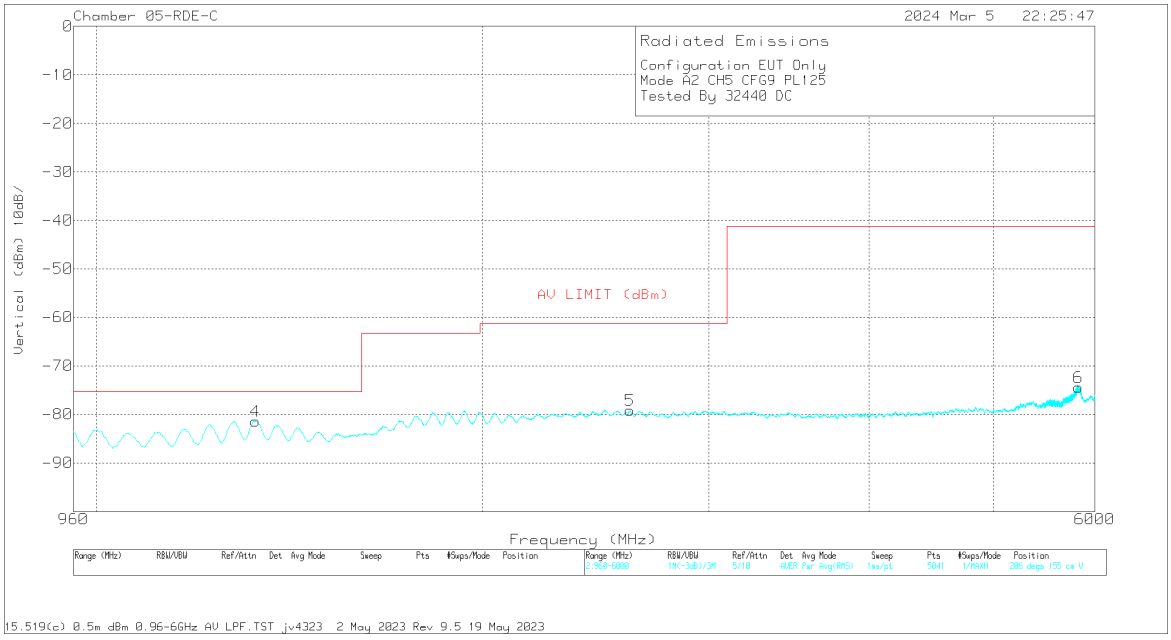
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1328	-58.14	RMS	29.7	-15.6	11.8	-49.15	-81.39	-75.3	-6.09	132	155	V
1	1329	-58.04	RMS	29.6	-15.6	11.8	-49.05	-81.29	-75.3	-5.99	294	155	H
5	2609	-59.84	RMS	33	-15.6	11.8	-48.69	-79.33	-61.3	-18.03	132	155	V
2	3081	-61.19	RMS	33.3	-15.6	11.8	-47.67	-79.36	-61.3	-18.06	317	155	H
3	5260	-61.57	RMS	34.8	-15.6	11.8	-48.39	-78.96	-41.3	-37.66	184	155	H
6	5674	-62.21	RMS	35.1	-15.6	11.8	-47.33	-78.24	-41.3	-36.94	220	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9



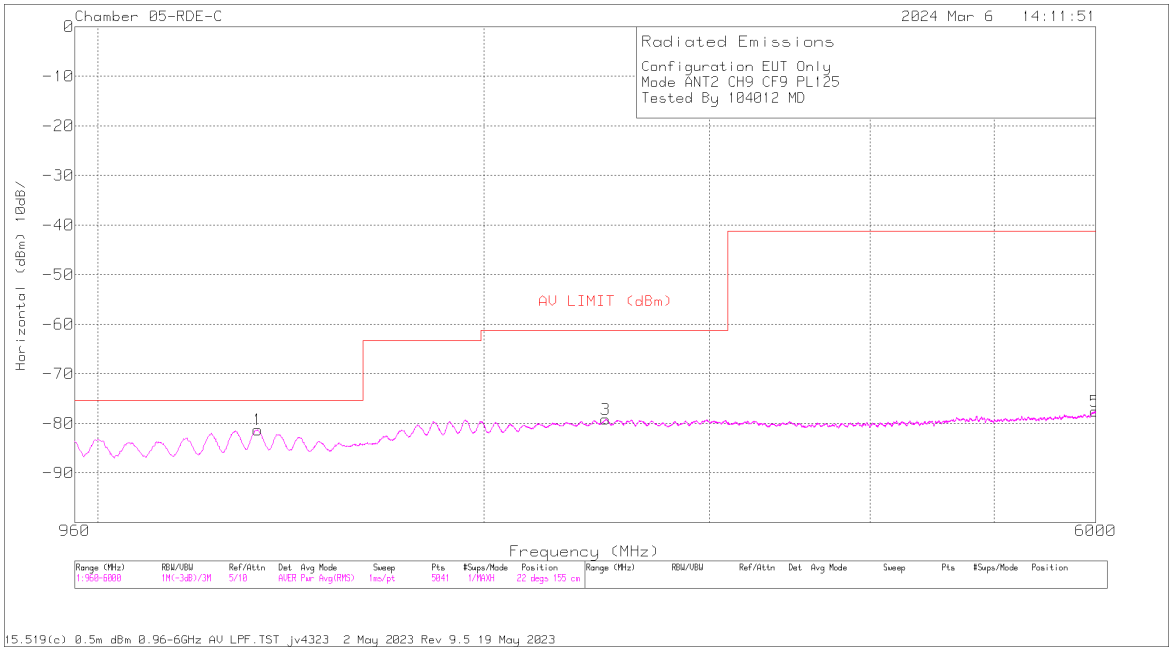


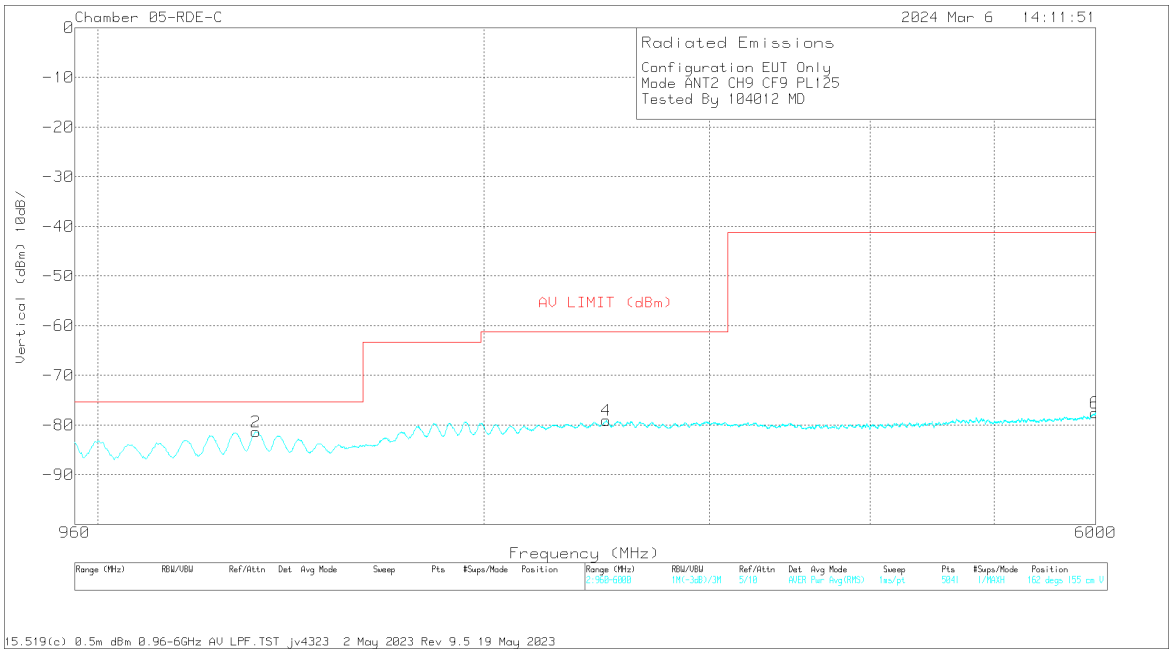
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1329	-58.08	RMS	29.6	-15.6	11.8	-49.05	-81.33	-75.3	-6.03	286	155	H
4	1331	-58.05	RMS	29.6	-15.6	11.8	-49.11	-81.36	-75.3	-6.06	272	155	V
5	2605	-59.63	RMS	33	-15.6	11.8	-48.74	-79.17	-61.3	-17.87	96	155	V
2	2702	-59.93	RMS	32.9	-15.6	11.8	-48.61	-79.44	-61.3	-18.14	22	155	H
6	5827	-58.84	RMS	35.3	-15.6	11.8	-47.07	-74.41	-41.3	-33.11	316	155	V
3	5829	-54.28	RMS	35.3	-15.6	11.8	-47.11	-69.89	-41.3	-28.59	176	155	H

RMS - RMS detection

ANT. 2, CH9, Config 9





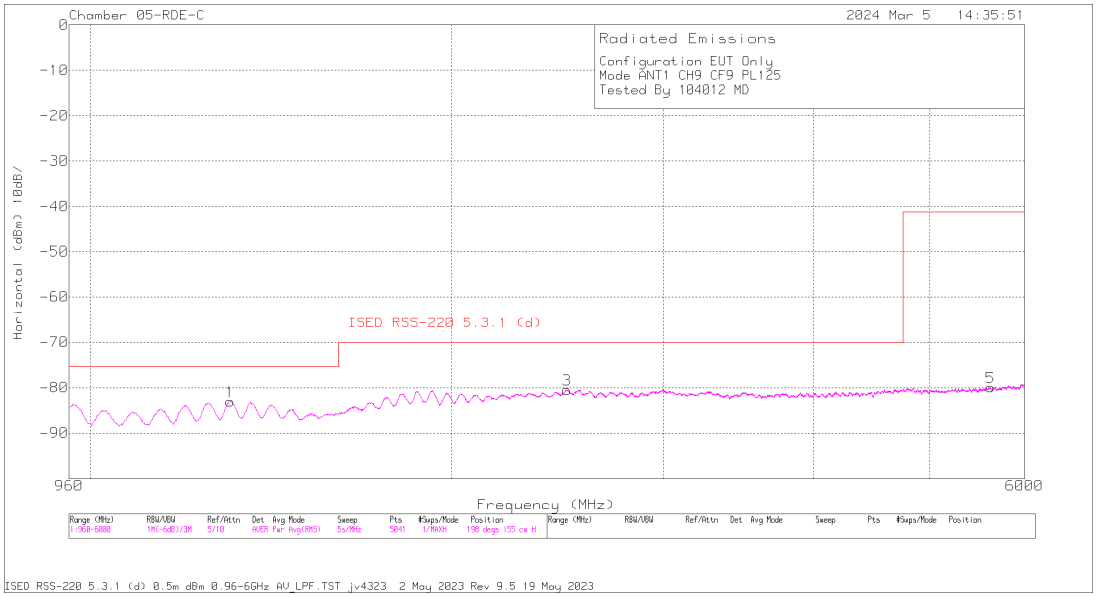
Trace Markers

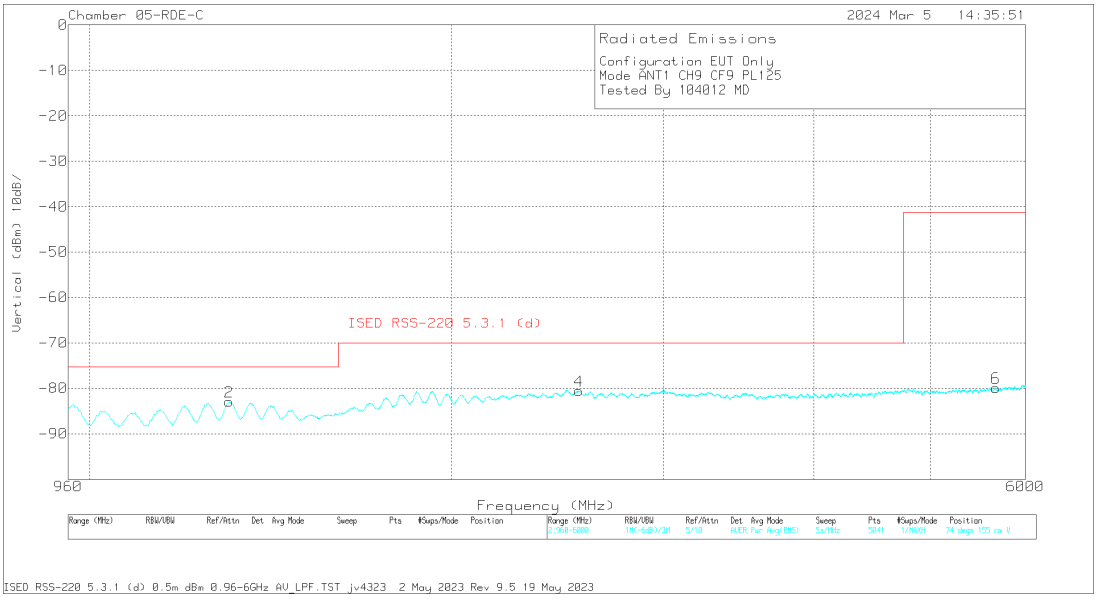
Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1329	-58.15	RMS	29.6	-15.6	11.8	-49.05	-81.4	-75.3	-6.1	294	155	V
1	1333	-58.08	RMS	29.6	-15.6	11.8	-49.02	-81.3	-75.3	-6	110	155	H
3	2489	-59.17	RMS	32.9	-15.6	11.8	-49.11	-79.18	-61.3	-17.88	66	155	H
4	2492	-59.08	RMS	32.9	-15.6	11.8	-49.1	-79.08	-61.3	-17.78	30	155	V
5	5995	-63.14	RMS	35.6	-15.6	11.8	-46.25	-77.59	-41.3	-36.29	154	155	H
6	5996	-63.11	RMS	35.6	-15.6	11.8	-46.24	-77.55	-41.3	-36.25	316	155	V

RMS - RMS detection

RSS-220 5.3.1 (d)

ANT. 1, CH9, Config 9



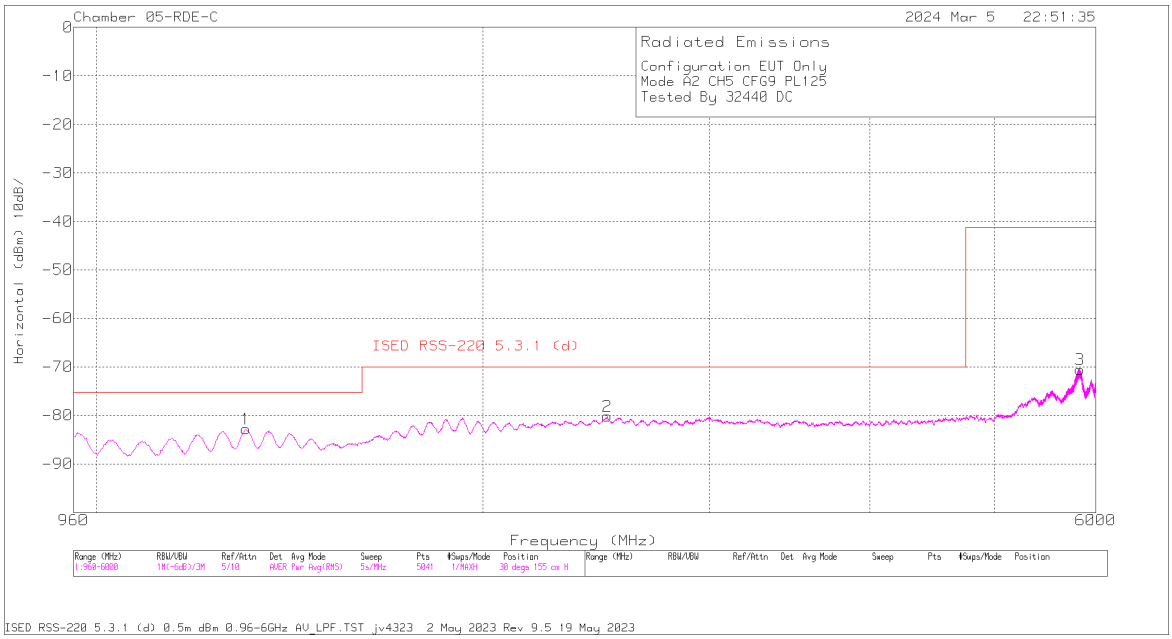


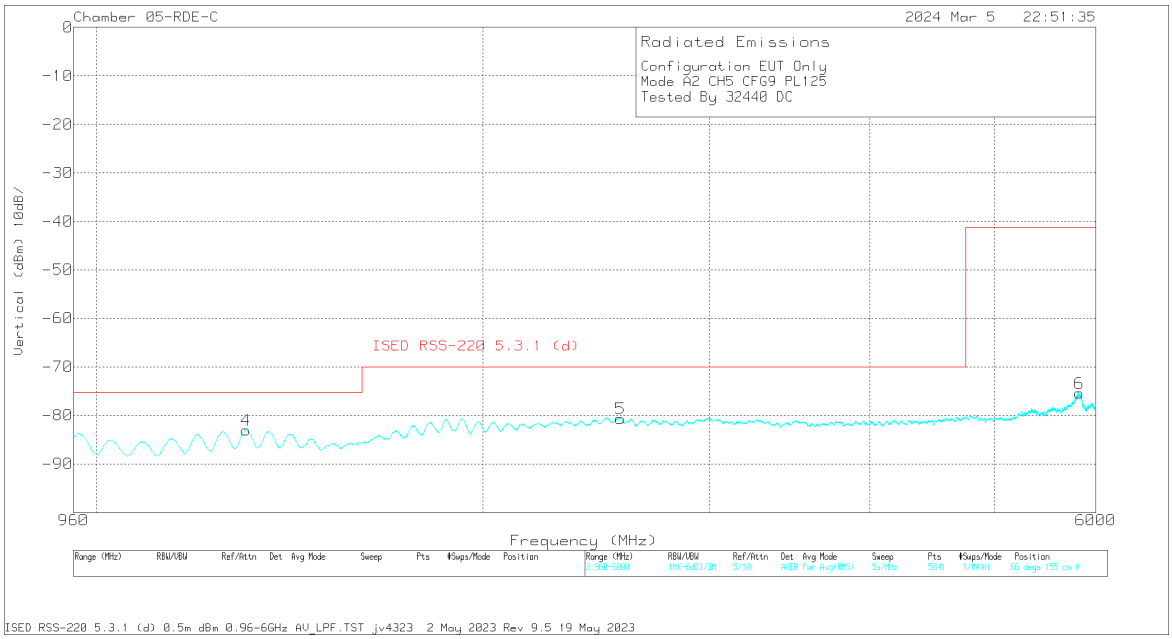
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dB)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1307	-59.73	RMS	29.7	-15.6	11.8	-49.08	-82.91	-75.3	-7.61	228	155	V
1	1308	-59.85	RMS	29.7	-15.6	11.8	-49.06	-83.01	-75.3	-7.71	220	155	H
3	2494	-60.33	RMS	32.9	-15.6	11.8	-49.24	-80.47	-70	-10.47	132	155	H
4	2551	-60.79	RMS	32.9	-15.6	11.8	-48.87	-80.56	-70	-10.56	140	155	V
5	5620	-63.66	RMS	35.1	-15.6	11.8	-47.58	-79.94	-41.3	-38.64	330	155	H
6	5670	-63.89	RMS	35.1	-15.6	11.8	-47.26	-79.85	-41.3	-38.55	119	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9



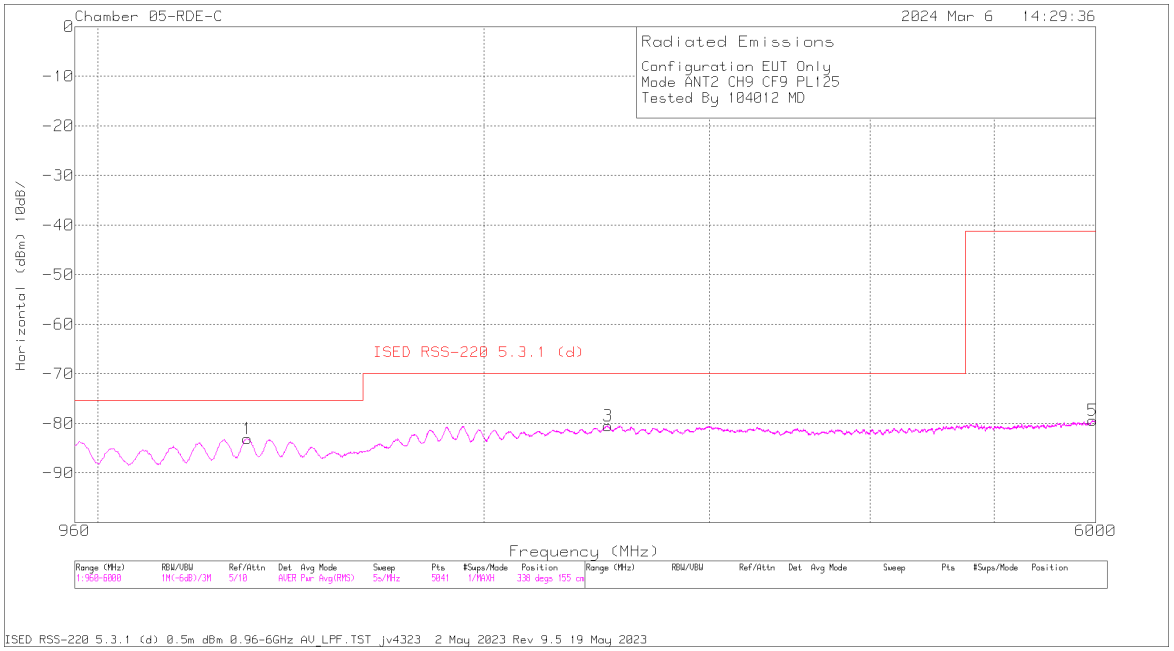


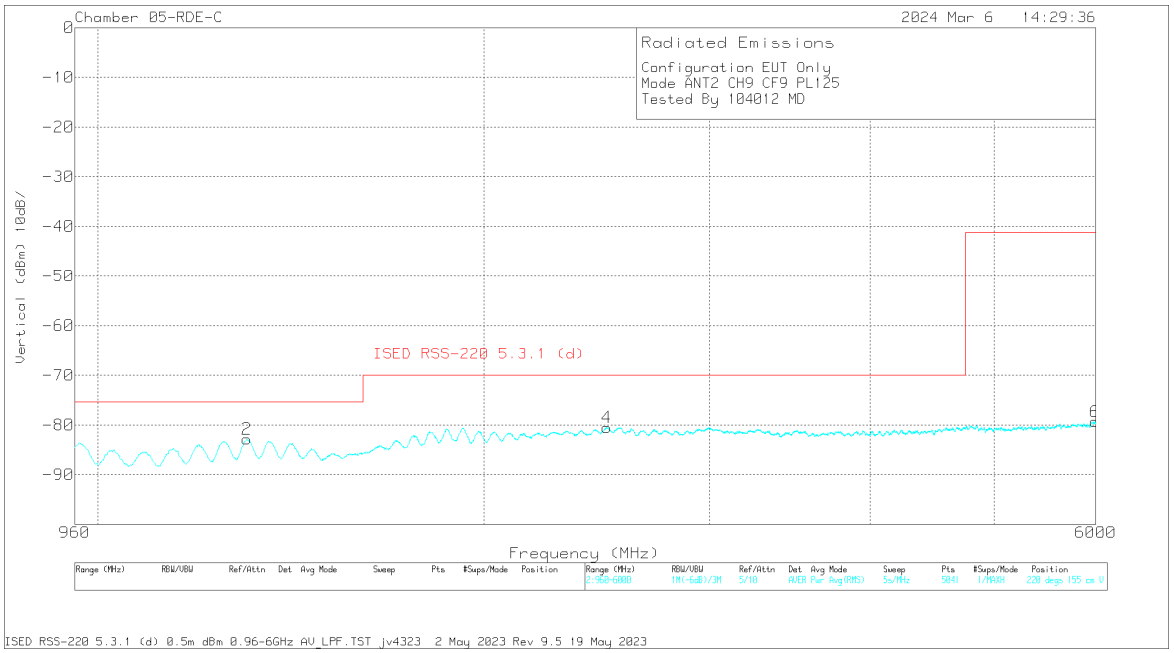
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dB)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1308	-59.58	RMS	29.7	-15.6	11.8	-49.06	-82.74	-75.3	-7.44	162	155	H
4	1308	-59.83	RMS	29.7	-15.6	11.8	-49.06	-82.99	-75.3	-7.69	88	155	V
2	2499	-60.18	RMS	32.9	-15.6	11.8	-49.13	-80.21	-70	-10.21	162	155	H
5	2559	-61.01	RMS	32.9	-15.6	11.8	-48.74	-80.65	-70	-10.65	264	155	V
6	5827	-59.88	RMS	35.3	-15.6	11.8	-47.08	-75.46	-41.3	-34.16	308	155	V
3	5831	-54.87	RMS	35.3	-15.6	11.8	-47.11	-70.48	-41.3	-29.18	162	155	H

RMS - RMS detection

ANT. 2, CH9, Config 9





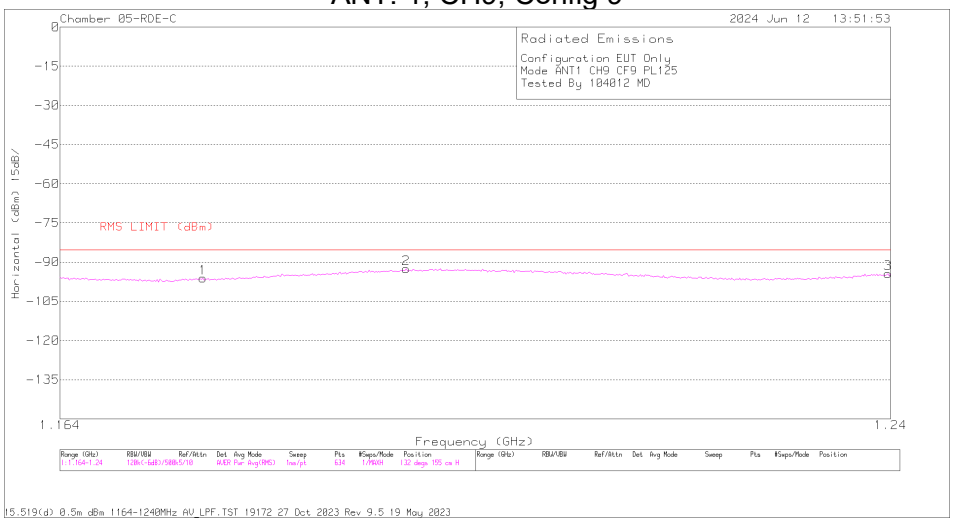
Trace Markers

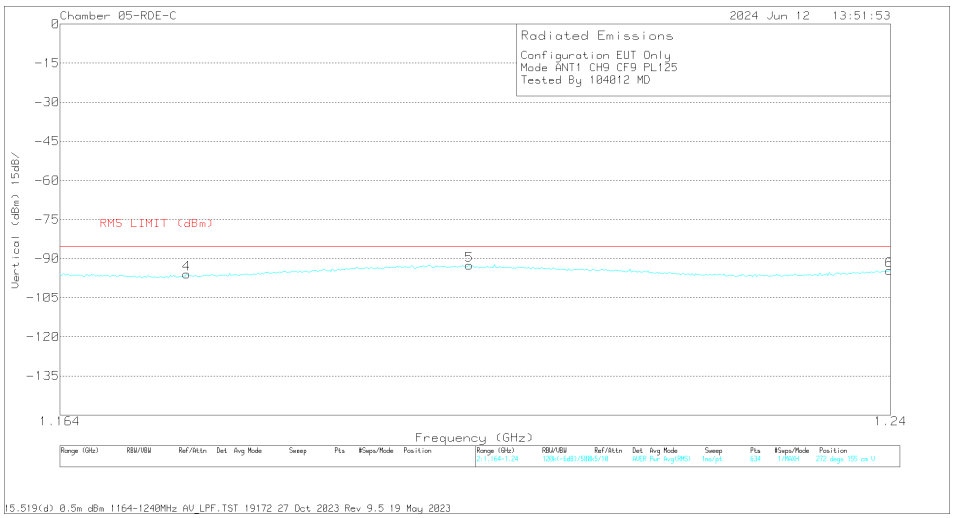
Marker	Frequency (MHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dB)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1307	-59.63	RMS	29.7	-15.6	11.8	-49.08	-82.81	-75.3	-7.51	154	155	V
1	1309	-59.88	RMS	29.7	-15.6	11.8	-49.11	-83.09	-75.3	-7.79	74	155	H
4	2495	-60.45	RMS	32.9	-15.6	11.8	-49.14	-80.49	-70	-10.49	176	155	V
3	2499	-60.44	RMS	32.9	-15.6	11.8	-49.13	-80.47	-70	-10.47	140	155	H
5	5968	-64.54	RMS	35.6	-15.6	11.8	-46.66	-79.4	-41.3	-38.1	52	155	H
6	5992	-64.67	RMS	35.6	-15.6	11.8	-46.44	-79.31	-41.3	-38.01	44	155	V

RMS - RMS detection

9.6.2. AVERAGE EMISSIONS, 1.164 – 1.240 GHz

ANT. 1, CH9, Config 9



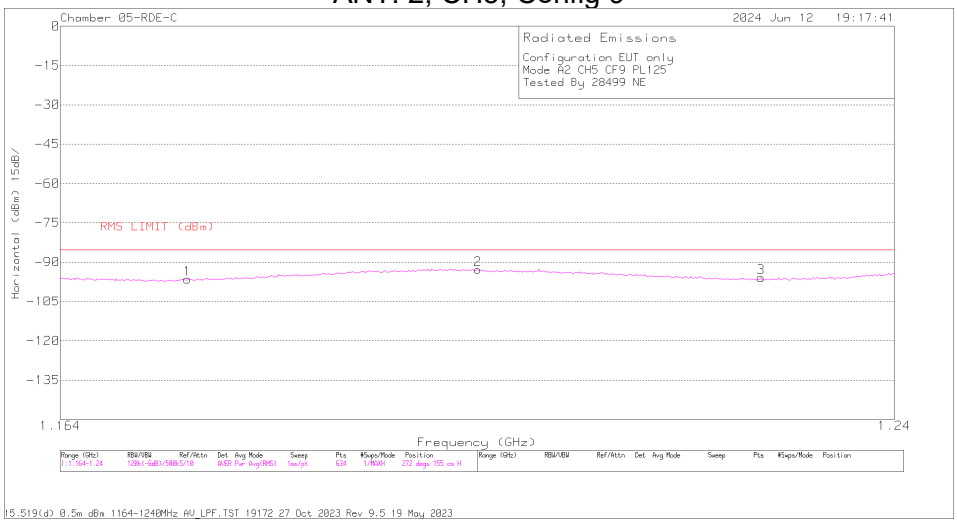


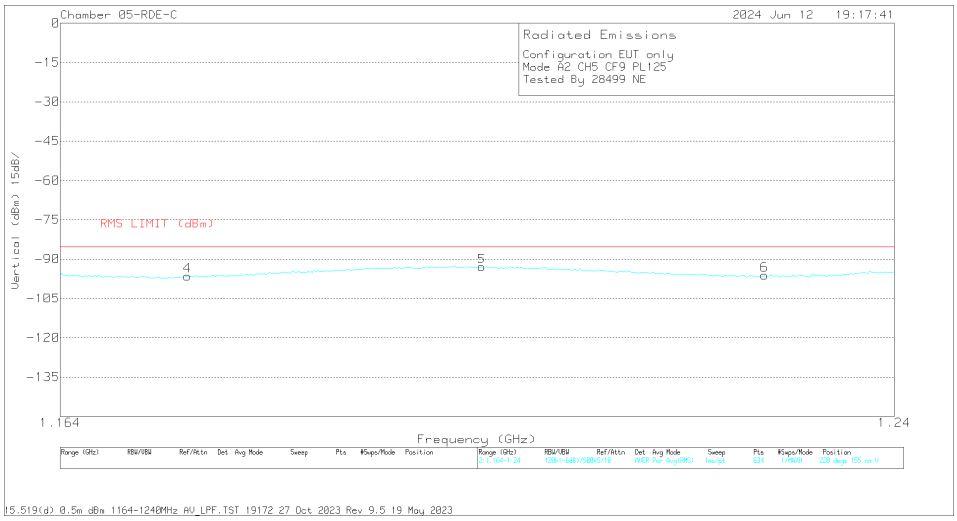
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.175286	-71.3	RMS	28.4	-15.6	11.8	-49.27	-95.97	-85.3	-10.67	184	155	V
1	1.176727	-71.43	RMS	28.4	-15.6	11.8	-49.27	-96.1	-85.3	-10.8	198	155	H
2	1.195096	-67.89	RMS	28.6	-15.6	11.8	-49.41	-92.5	-85.3	-7.2	176	155	H
5	1.200859	-67.98	RMS	28.7	-15.6	11.8	-49.41	-92.49	-85.3	-7.19	162	155	V
3	1.23976	-70.28	RMS	29.1	-15.6	11.8	-49.4	-94.38	-85.3	-9.08	66	155	H
6	1.23988	-70.55	RMS	29.1	-15.6	11.8	-49.4	-94.65	-85.3	-9.35	162	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9



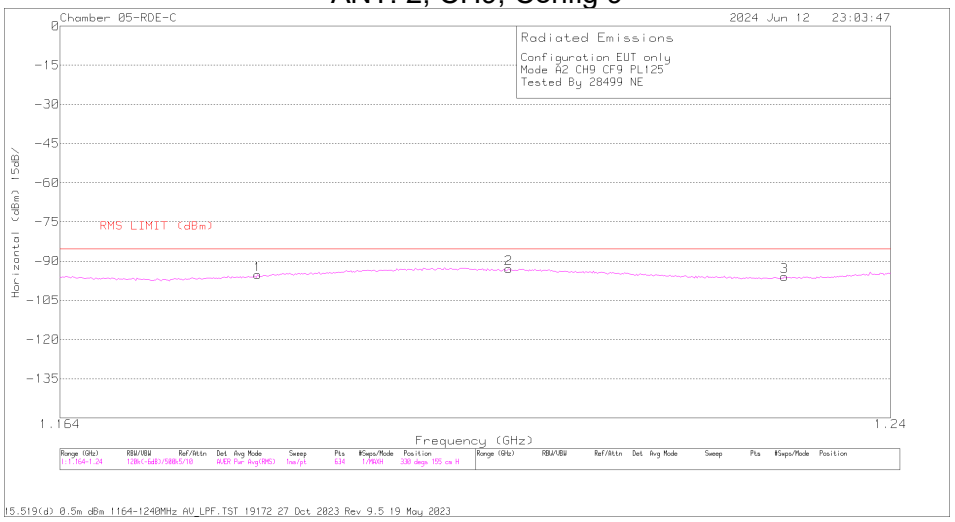


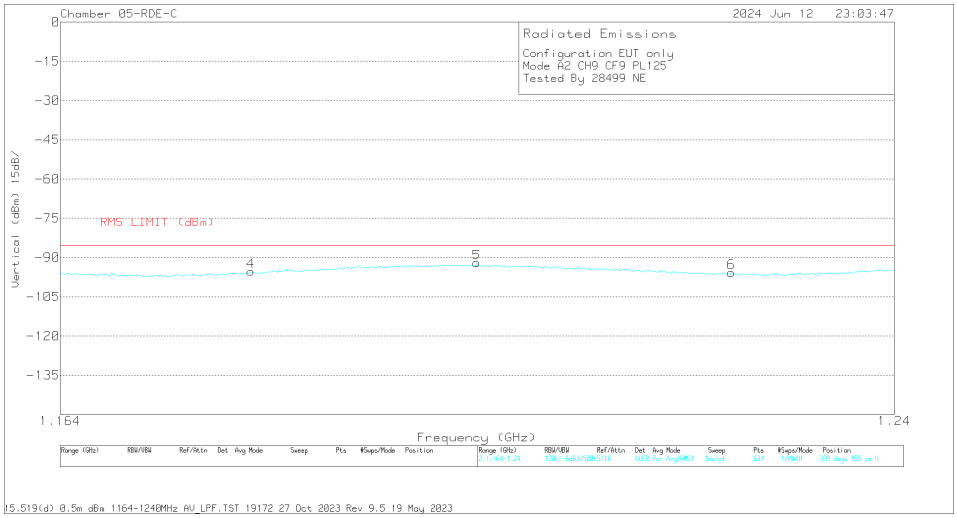
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.175286	-71.83	RMS	28.4	-15.6	11.8	-49.27	-96.5	-85.3	-11.2	52	155	H
4	1.175286	-71.76	RMS	28.4	-15.6	11.8	-49.27	-96.43	-85.3	-11.13	330	155	V
2	1.20146	-68.26	RMS	28.7	-15.6	11.8	-49.45	-92.81	-85.3	-7.51	206	155	H
5	1.20182	-68.4	RMS	28.7	-15.6	11.8	-49.48	-92.98	-85.3	-7.68	286	155	V
3	1.227513	-71.61	RMS	29	-15.6	11.8	-49.5	-95.91	-85.3	-10.61	118	155	H
6	1.227874	-71.88	RMS	29	-15.6	11.8	-49.5	-96.18	-85.3	-10.88	242	155	V

RMS - RMS detection

ANT. 2, CH9, Config 9





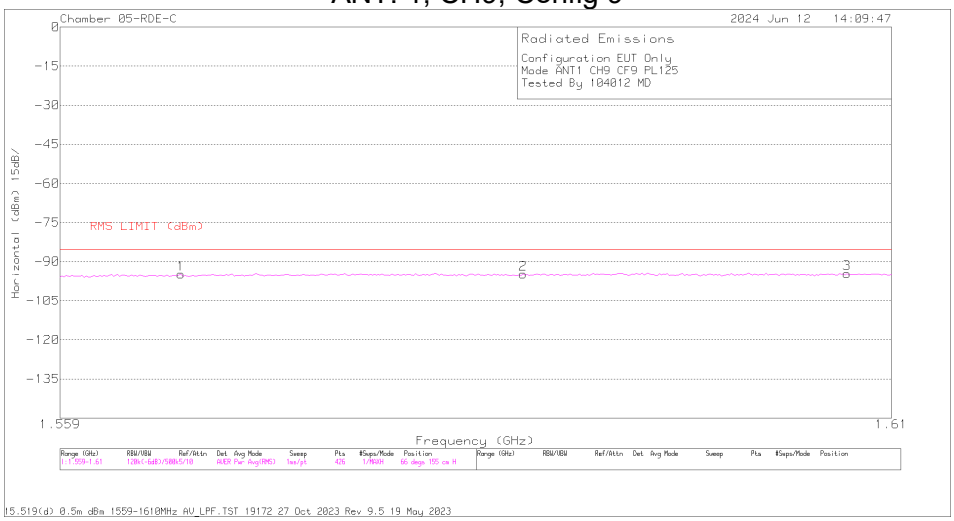
Trace Markers

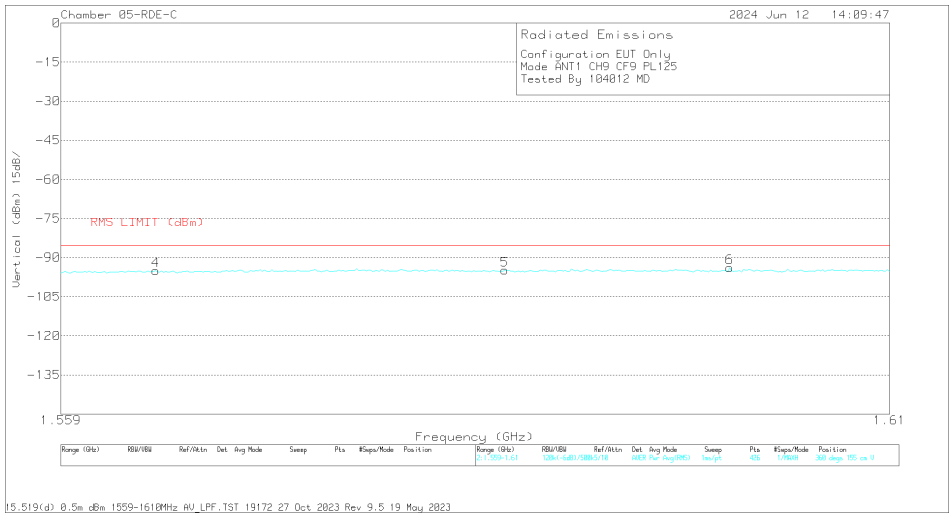
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.180929	-70.47	RMS	28.4	-15.6	11.8	-49.4	-95.27	-85.3	-9.97	206	155	V
1	1.181649	-70.51	RMS	28.4	-15.6	11.8	-49.34	-95.25	-85.3	-9.95	22	155	H
5	1.20134	-67.5	RMS	28.7	-15.6	11.8	-49.43	-92.03	-85.3	-6.73	206	155	V
2	1.204461	-68.45	RMS	28.7	-15.6	11.8	-49.4	-92.95	-85.3	-7.65	286	155	H
6	1.224752	-71.51	RMS	29	-15.6	11.8	-49.48	-95.79	-85.3	-10.49	96	155	V
3	1.230035	-71.78	RMS	29	-15.6	11.8	-49.4	-95.98	-85.3	-10.68	286	155	H

RMS - RMS detection

9.6.3. AVERAGE EMISSIONS, 1.559 – 1.610 GHz

ANT. 1, CH9, Config 9



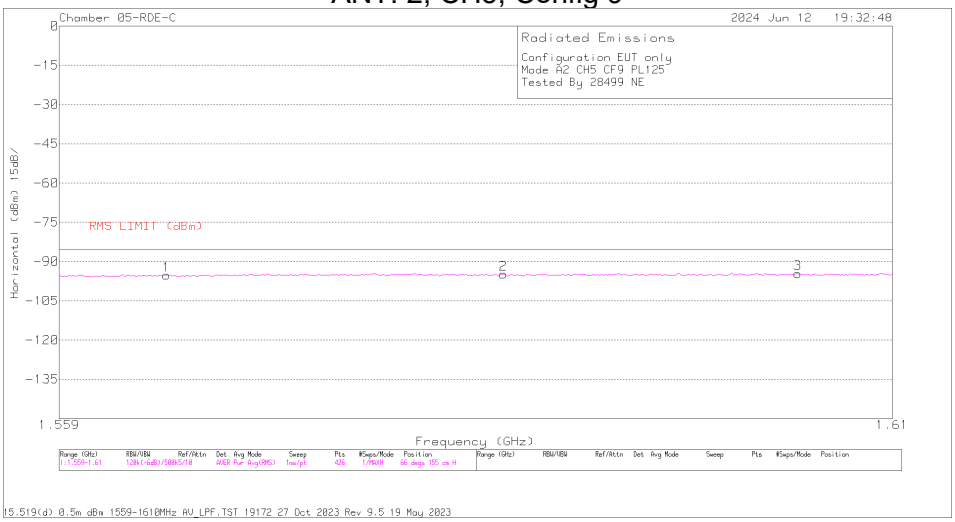


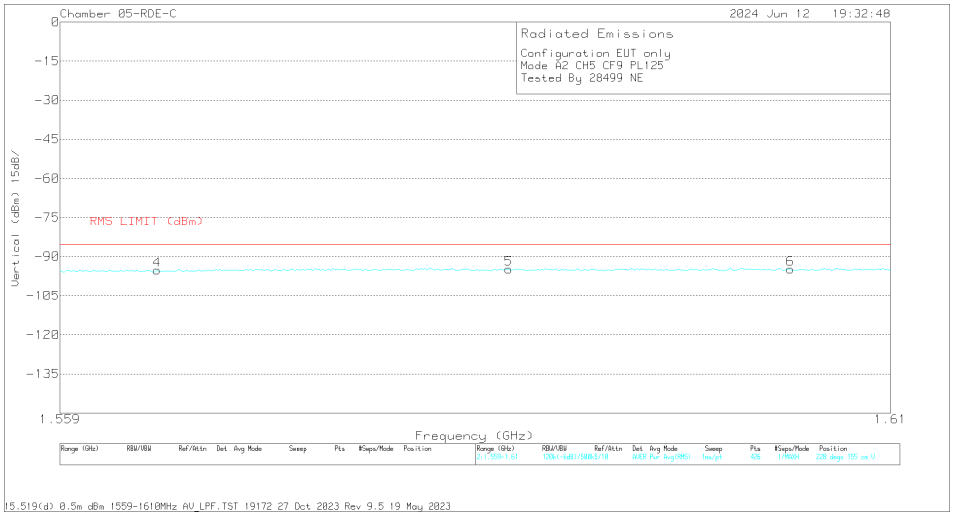
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.56476	-70.09	RMS	28	-15.6	11.8	-49.1	-94.99	-85.3	-9.69	250	155	V
1	1.56632	-69.82	RMS	28	-15.6	11.8	-49.1	-94.72	-85.3	-9.42	44	155	H
5	1.58612	-70.17	RMS	28.2	-15.6	11.8	-49	-94.77	-85.3	-9.47	162	155	V
2	1.5872	-70.13	RMS	28.2	-15.6	11.8	-48.98	-94.71	-85.3	-9.41	220	155	H
6	1.60004	-69.29	RMS	28.3	-15.6	11.8	-49.1	-93.89	-85.3	-8.59	52	155	V
3	1.60724	-70.11	RMS	28.4	-15.6	11.8	-49.08	-94.59	-85.3	-9.29	198	155	H

RMS - RMS detection

ANT. 2, CH5, Config 9



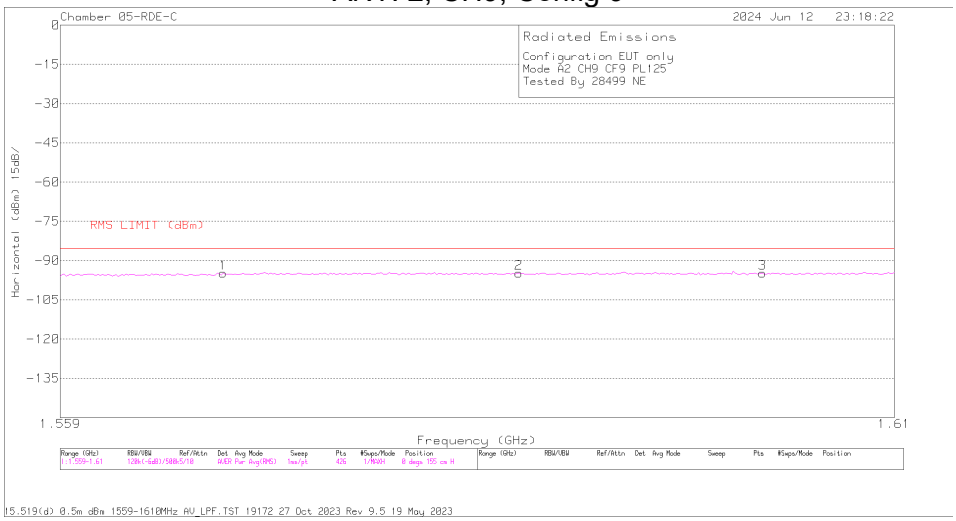


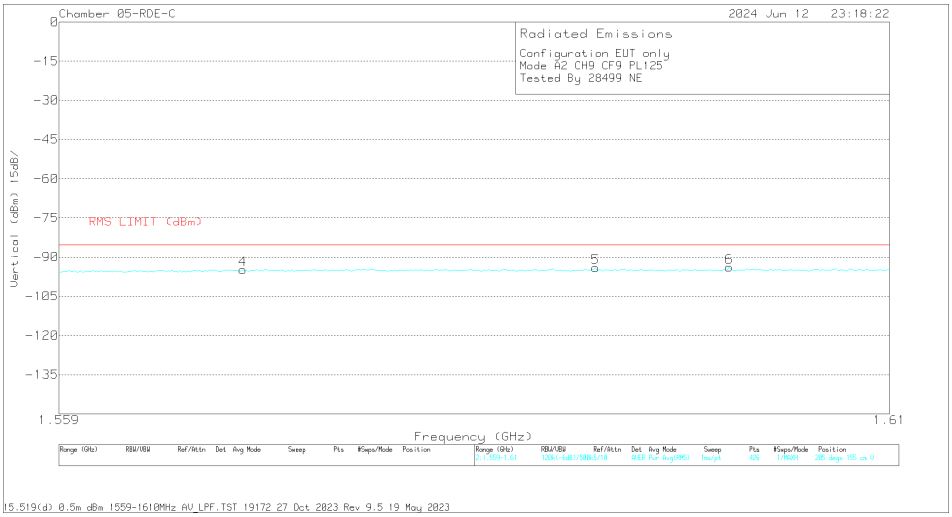
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.56488	-70.34	RMS	28	-15.6	11.8	-49.1	-95.24	-85.3	-9.94	316	155	V
1	1.56548	-70.24	RMS	28	-15.6	11.8	-49.1	-95.14	-85.3	-9.84	220	155	H
2	1.586	-70.17	RMS	28.2	-15.6	11.8	-49	-94.77	-85.3	-9.47	199	155	H
5	1.58636	-70.15	RMS	28.2	-15.6	11.8	-49	-94.75	-85.3	-9.45	118	155	V
6	1.60376	-70.2	RMS	28.3	-15.6	11.8	-49.1	-94.8	-85.3	-9.5	184	155	V
3	1.60412	-69.94	RMS	28.3	-15.6	11.8	-49.1	-94.54	-85.3	-9.24	308	155	H

RMS - RMS detection

ANT. 2, CH9, Config 9





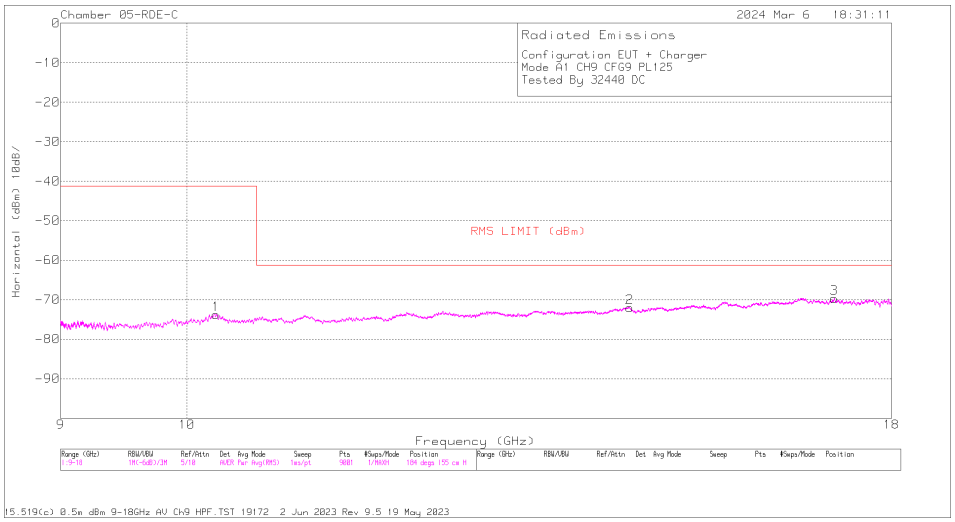
Trace Markers

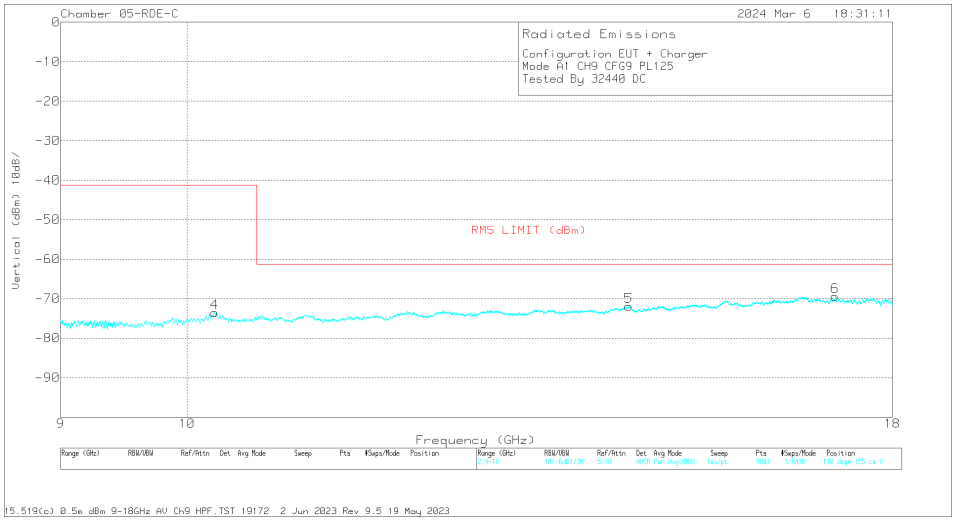
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.56884	-70.14	RMS	28.1	-15.6	11.8	-49.02	-94.86	-85.3	-9.56	154	155	H
4	1.57016	-70.05	RMS	28.1	-15.6	11.8	-49	-94.75	-85.3	-9.45	293	155	V
2	1.58684	-70.22	RMS	28.2	-15.6	11.8	-49	-94.82	-85.3	-9.52	22	155	H
5	1.59176	-69.57	RMS	28.2	-15.6	11.8	-48.8	-93.97	-85.3	-8.67	250	155	V
6	1.60004	-69.25	RMS	28.3	-15.6	11.8	-49.1	-93.85	-85.3	-8.55	162	155	V
3	1.60184	-70.21	RMS	28.3	-15.6	11.8	-49	-94.71	-85.3	-9.41	330	155	H

RMS - RMS detection

9.6.4. AVERAGE EMISSIONS, 9 – 18 GHz

ANT. 1, CH9, Config 9



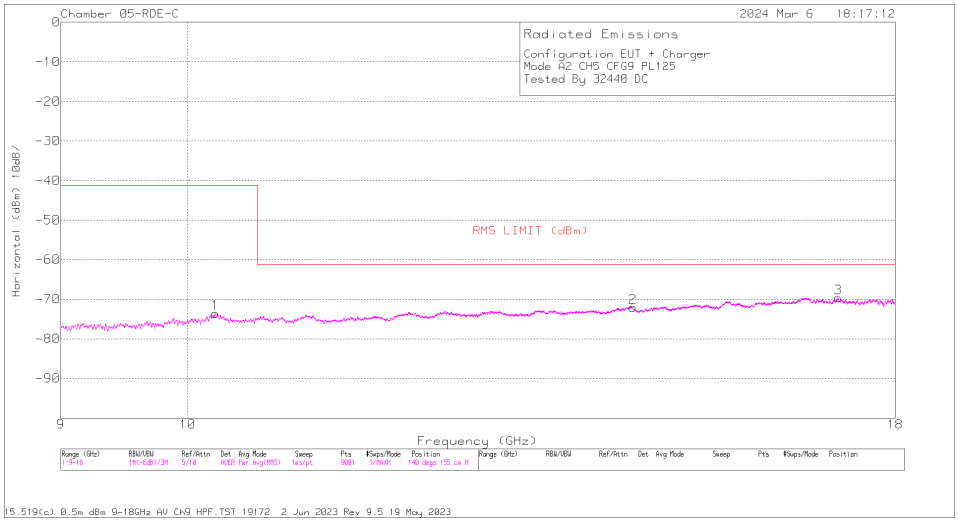


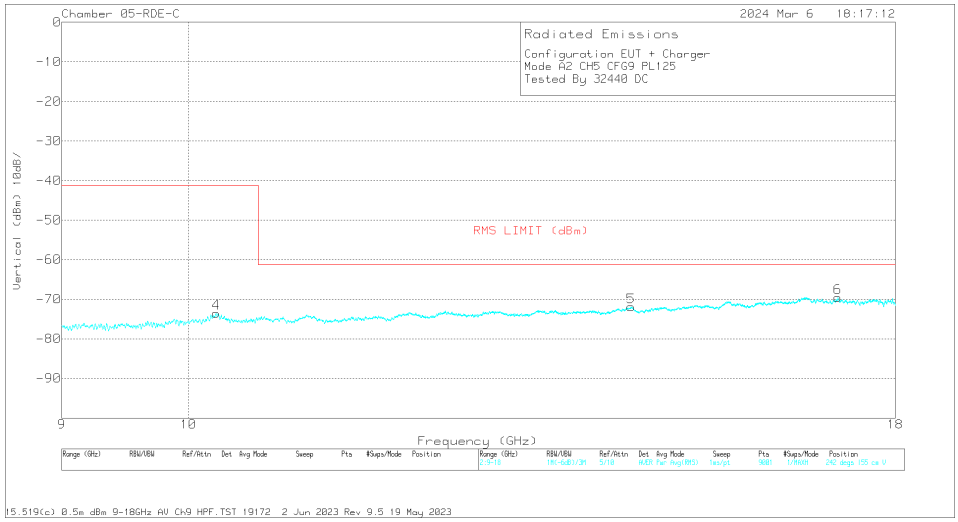
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.235	-62.15	RMS	37.7	-15.6	11.8	-45.31	-73.56	-41.3	-32.26	330	155	V
1	10.247	-62.13	RMS	37.7	-15.6	11.8	-45.58	-73.81	-41.3	-32.51	140	155	H
5	14.449	-64.41	RMS	39.7	-15.6	11.8	-43.38	-71.89	-61.3	-10.59	22	155	V
2	14.467	-64.27	RMS	39.7	-15.6	11.8	-43.62	-71.99	-61.3	-10.69	97	155	H
3	17.163	-65.86	RMS	41.7	-15.6	11.8	-41.65	-69.61	-61.3	-8.31	272	155	H
6	17.163	-65.62	RMS	41.7	-15.6	11.8	-41.65	-69.37	-61.3	-8.07	286	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9



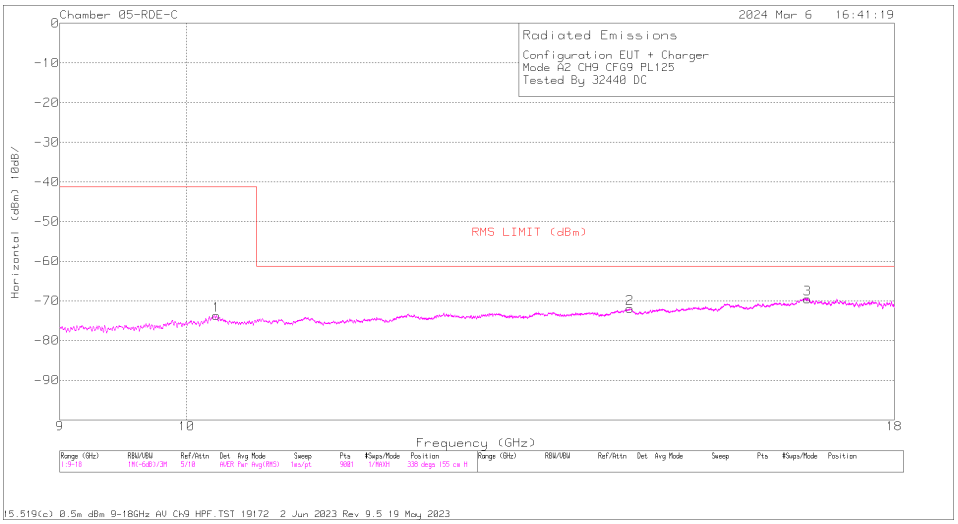


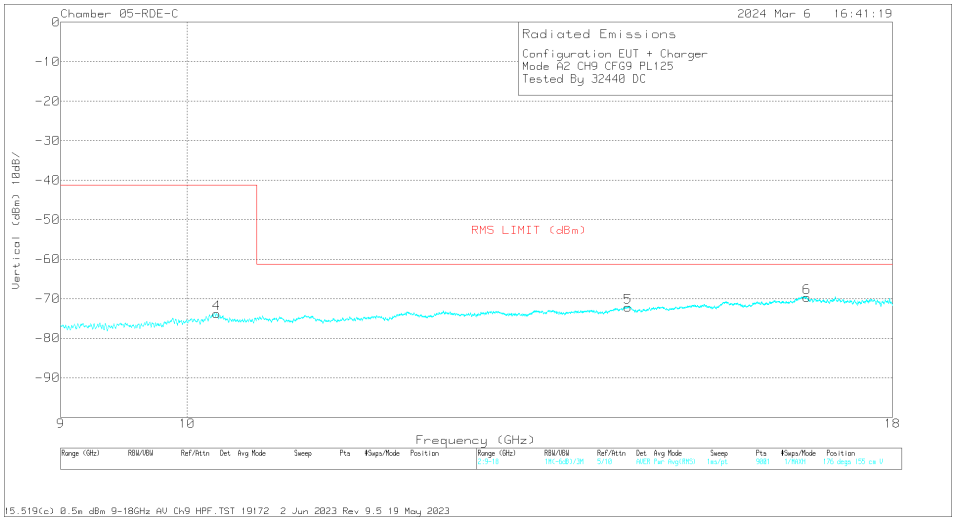
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.233	-62.11	RMS	37.7	-15.6	11.8	-45.26	-73.47	-41.3	-32.17	132	155	V
1	10.235	-62.18	RMS	37.7	-15.6	11.8	-45.31	-73.59	-41.3	-32.29	316	155	H
5	14.449	-64.43	RMS	39.7	-15.6	11.8	-43.38	-71.91	-61.3	-10.61	242	155	V
2	14.473	-64.3	RMS	39.7	-15.6	11.8	-43.66	-72.06	-61.3	-10.76	184	155	H
6	17.163	-65.81	RMS	41.7	-15.6	11.8	-41.65	-69.56	-61.3	-8.26	132	155	V
3	17.165	-65.73	RMS	41.7	-15.6	11.8	-41.81	-69.64	-61.3	-8.34	74	155	H

RMS - RMS detection

ANT. 2, CH9, Config 9





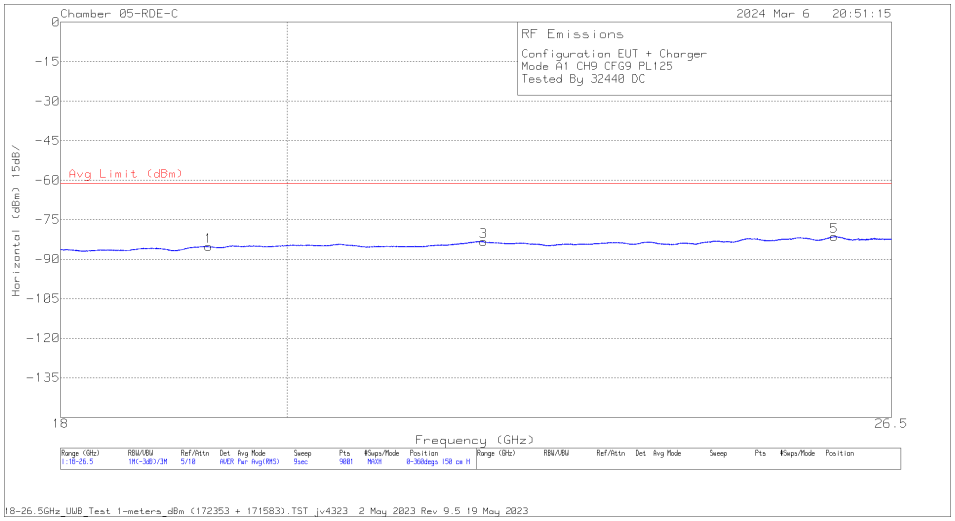
Trace Markers

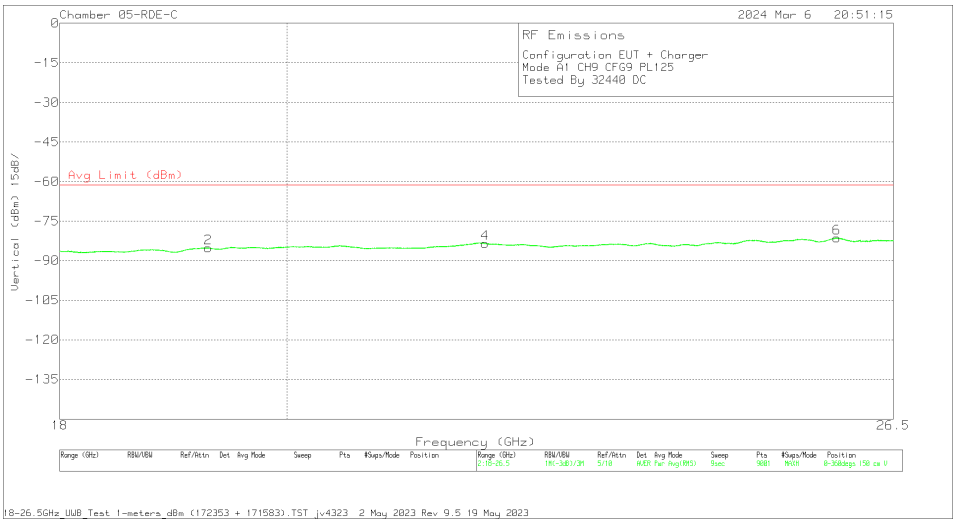
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	10.25	-62.28	RMS	37.7	-15.6	11.8	-45.39	-73.77	-41.3	-32.47	286	155	V
1	10.2505	-62.13	RMS	37.7	-15.6	11.8	-45.4	-73.63	-41.3	-32.33	184	155	H
5	14.438	-64.33	RMS	39.6	-15.6	11.8	-43.59	-72.12	-61.3	-10.82	110	155	V
2	14.45	-64.34	RMS	39.7	-15.6	11.8	-43.46	-71.9	-61.3	-10.6	228	155	H
3	16.745	-64.98	RMS	41.9	-15.6	11.8	-42.69	-69.57	-61.3	-8.27	74	155	H
6	16.759	-65.01	RMS	41.9	-15.6	11.8	-42.79	-69.7	-61.3	-8.4	132	155	V

RMS - RMS detection

9.6.5. AVERAGE EMISSIONS, 18 – 26.5 GHz

ANT. 1, CH9, Config 9



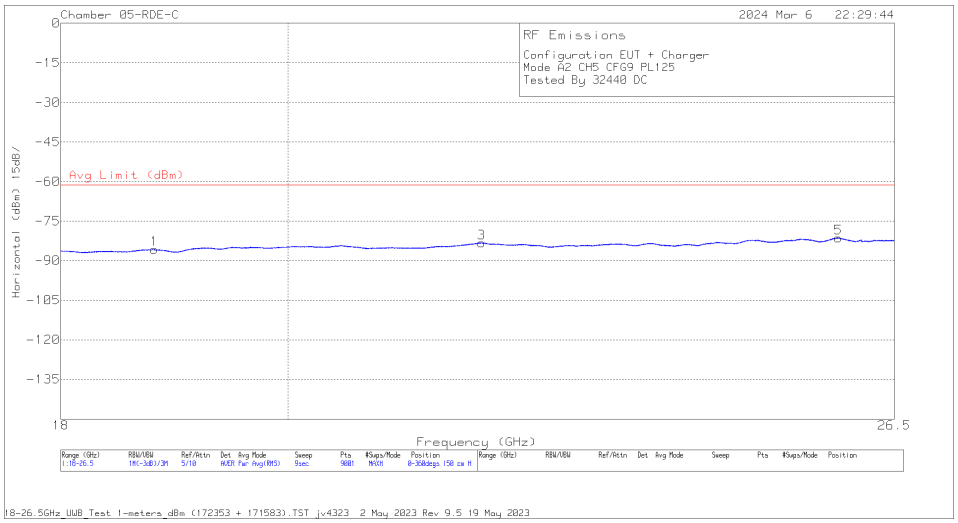


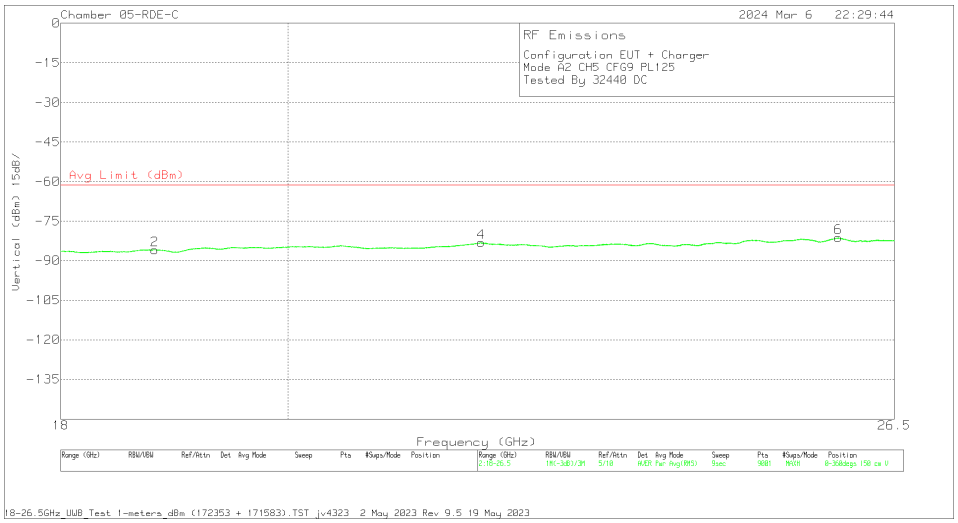
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172353 ACF (dB/m)	171583 Amp Assembly (dB)	Cables (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.283499	-61.68	RMS	33.2	-65.6	12.7	-15.6	11.8	-85.18	-61.3	-23.88	0-360	150	H
2	19.286333	-61.61	RMS	33.2	-65.6	12.7	-15.6	11.8	-85.11	-61.3	-23.81	0-360	150	V
3	21.918498	-61.94	RMS	33.9	-65.2	13.7	-15.6	11.8	-83.34	-61.3	-22.04	0-360	150	H
4	21.926054	-62.04	RMS	33.9	-65.2	13.7	-15.6	11.8	-83.44	-61.3	-22.14	0-360	150	V
5	25.804885	-64.4	RMS	35	-63.1	14.9	-15.6	11.8	-81.4	-61.3	-20.1	0-360	150	H
6	25.813385	-64.57	RMS	35.1	-63.1	14.9	-15.6	11.8	-81.47	-61.3	-20.17	0-360	150	V

RMS - RMS detection

ANT. 2, CH5, Config 9



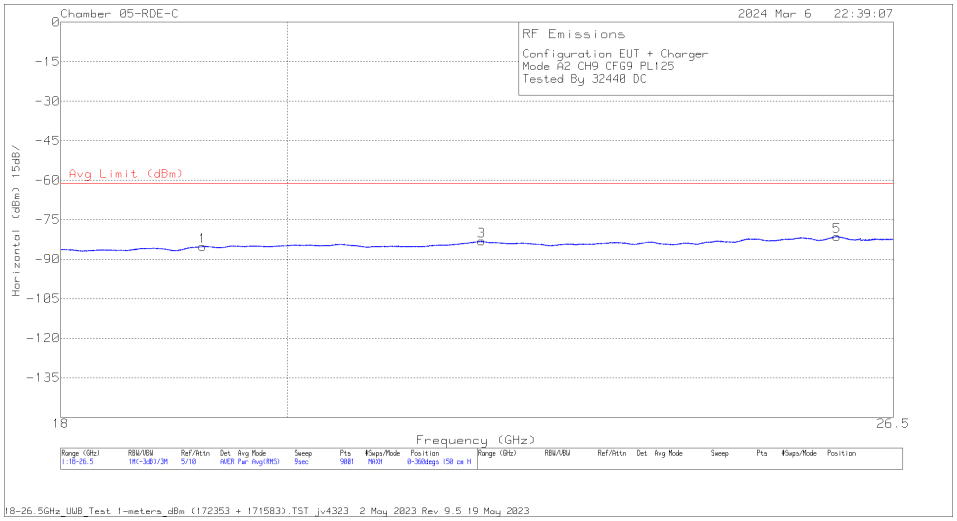


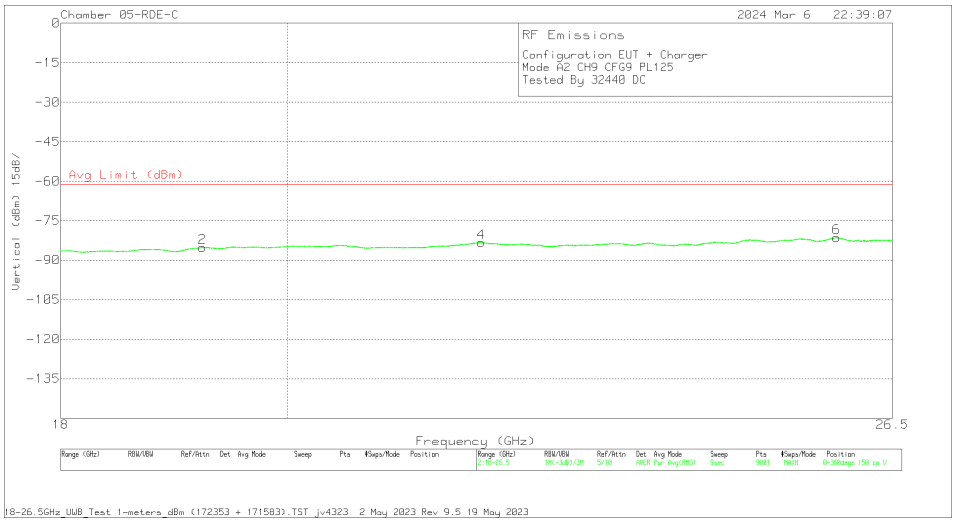
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172353 ACF (dB/m)	171583 Amp Assembly (dB)	Cables (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	18.798055	-62.05	RMS	32.9	-65.5	12.7	-15.6	11.8	-85.75	-61.3	-24.45	0-360	150	H
2	18.801833	-62.12	RMS	32.9	-65.5	12.7	-15.6	11.8	-85.82	-61.3	-24.52	0-360	150	V
4	21.878832	-61.74	RMS	33.8	-65.1	13.7	-15.6	11.8	-83.14	-61.3	-21.84	0-360	150	V
3	21.881665	-61.85	RMS	33.8	-65.1	13.7	-15.6	11.8	-83.25	-61.3	-21.95	0-360	150	H
6	25.819052	-64.39	RMS	35.1	-63.1	14.9	-15.6	11.8	-81.29	-61.3	-19.99	0-360	150	V
5	25.821885	-64.51	RMS	35.1	-63.1	14.9	-15.6	11.8	-81.41	-61.3	-20.11	0-360	150	H

RMS - RMS detection

ANT. 2, CH9, Config 9





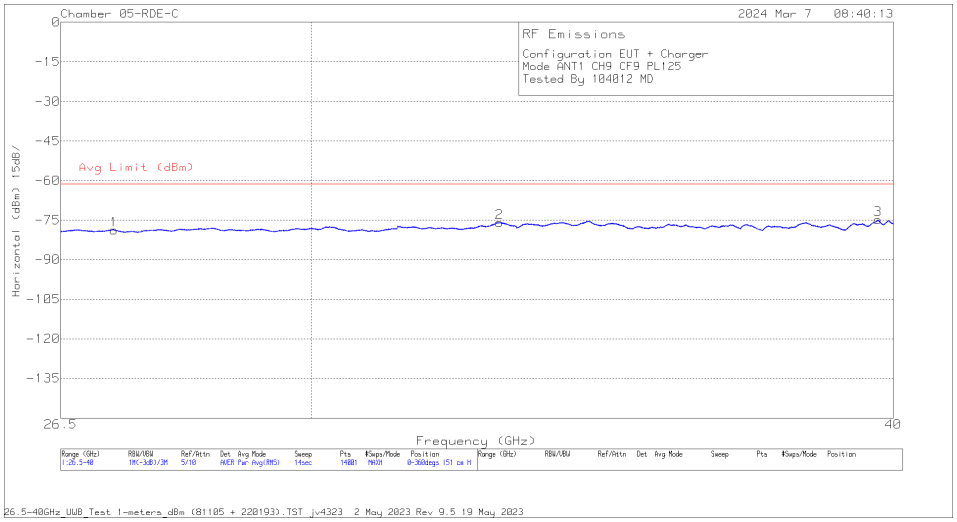
Trace Markers

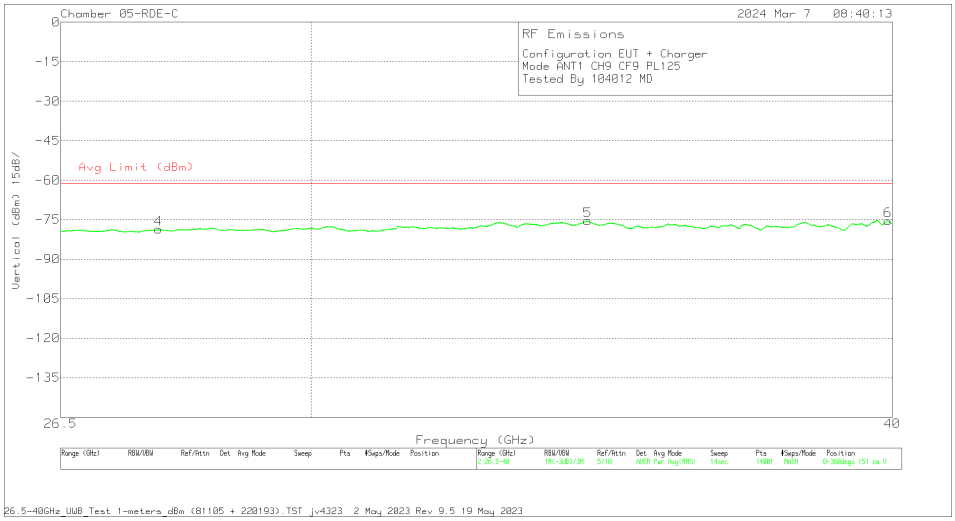
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172353 ACF (dB/m)	171583 Amp Assembly (dB)	Cables (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.227777	-61.58	RMS	33.2	-65.6	12.7	-15.6	11.8	-85.08	-61.3	-23.78	0-360	150	H
2	19.227777	-61.67	RMS	33.2	-65.6	12.7	-15.6	11.8	-85.17	-61.3	-23.87	0-360	150	V
4	21.885443	-61.87	RMS	33.8	-65.1	13.7	-15.6	11.8	-83.27	-61.3	-21.97	0-360	150	V
3	21.888276	-61.73	RMS	33.8	-65.1	13.7	-15.6	11.8	-83.13	-61.3	-21.83	0-360	150	H
5	25.813385	-64.44	RMS	35.1	-63.1	14.9	-15.6	11.8	-81.34	-61.3	-20.04	0-360	150	H
6	25.818107	-64.57	RMS	35.1	-63.1	14.9	-15.6	11.8	-81.47	-61.3	-20.17	0-360	150	V

RMS - RMS detection

9.6.6. AVERAGE EMISSIONS, 26.5 – 40 GHz

ANT. 1, CH9, Config 9



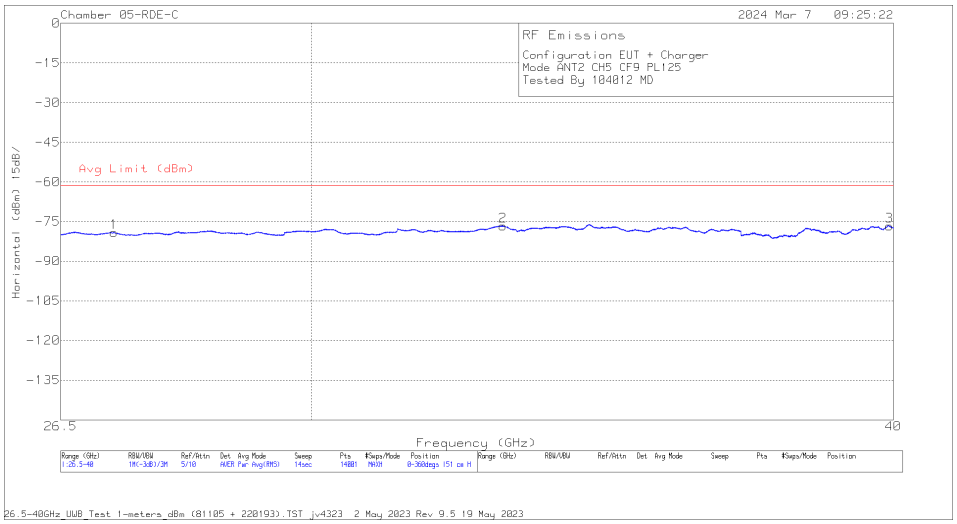


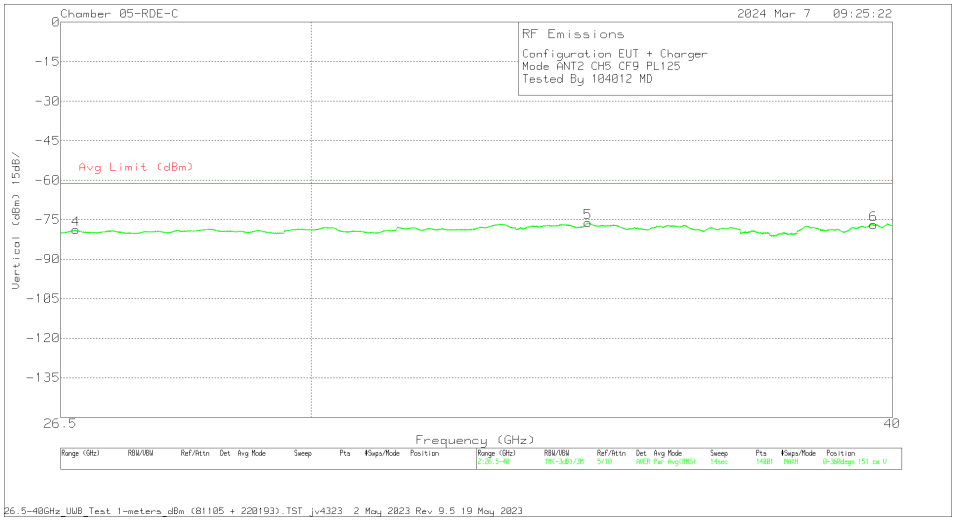
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81105 ACF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	Cables (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.209715	-59.9	RMS	36.3	-66.7	-15.6	11.8	15.4	-78.7	-61.3	-17.4	0-360	151	H
4	27.811429	-61.23	RMS	36.2	-65.5	-15.6	11.8	15.7	-78.63	-61.3	-17.33	0-360	151	V
2	32.918288	-63.78	RMS	38.1	-63.3	-15.6	11.8	16.9	-75.88	-61.3	-14.58	0-360	151	H
5	34.399431	-62.56	RMS	38.3	-64.7	-15.6	11.8	17.3	-75.46	-61.3	-14.16	0-360	151	V
3	39.696254	-63.41	RMS	39.1	-65.7	-15.6	11.8	18.9	-74.91	-61.3	-13.61	0-360	151	H
6	39.910808	-65.21	RMS	39.2	-65	-15.6	11.8	19.4	-75.41	-61.3	-14.11	0-360	151	V

RMS - RMS detection

ANT. 2, CH5, Config 9



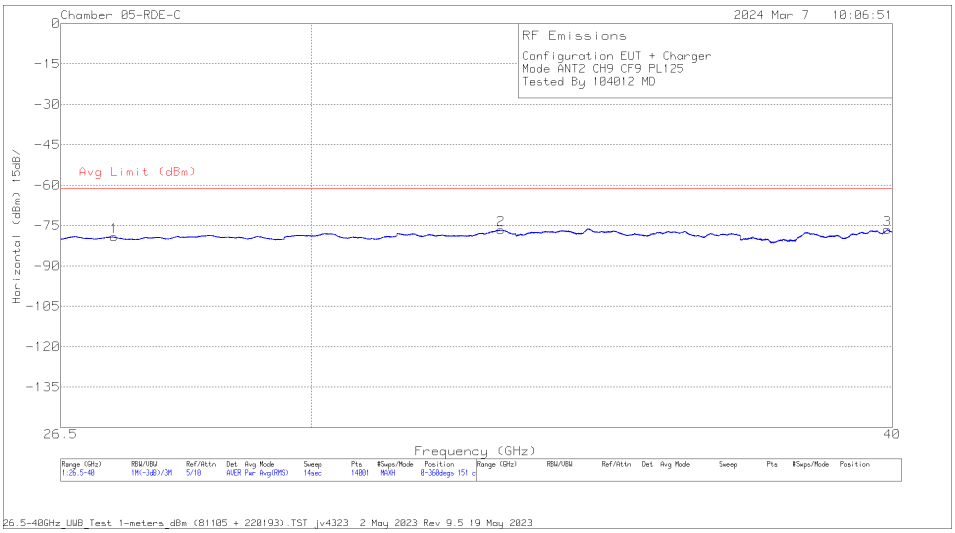


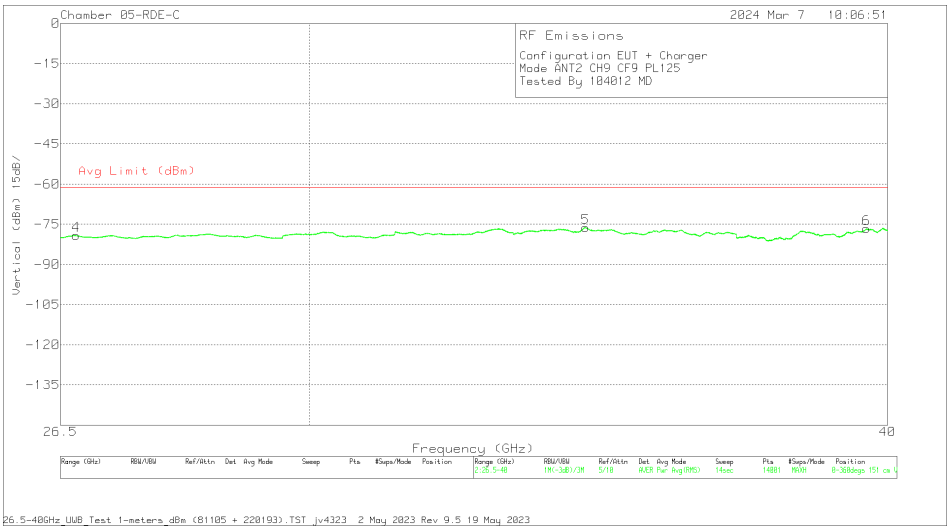
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81105 ACF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	Cables (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	26.700571	-58.6	RMS	36	-67.8	-15.6	11.8	15.4	-78.8	-61.3	-17.5	0-360	151	V
1	27.207786	-60.35	RMS	36.3	-66.7	-15.6	11.8	15.4	-79.15	-61.3	-17.85	0-360	151	H
2	32.978073	-64.45	RMS	38.1	-63.4	-15.6	11.8	16.9	-76.65	-61.3	-15.35	0-360	151	H
5	34.402324	-63.15	RMS	38.3	-64.7	-15.6	11.8	17.3	-76.05	-61.3	-14.75	0-360	151	V
6	39.626825	-65.36	RMS	39	-65.8	-15.6	11.8	19	-76.96	-61.3	-15.66	0-360	151	V
3	39.92479	-66.39	RMS	39.2	-65.1	-15.6	11.8	19.4	-76.69	-61.3	-15.39	0-360	151	H

RMS - RMS detection

ANT. 2, CH9, Config 9





Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81105 ACF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Conversion Factor (dB)	Cables (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	26.706357	-58.83	RMS	36	-67.8	-15.6	11.8	15.3	-79.13	-61.3	-17.83	0-360	151	V
1	27.207786	-60.37	RMS	36.3	-66.7	-15.6	11.8	15.4	-79.17	-61.3	-17.87	0-360	151	H
2	32.955895	-64.34	RMS	38.1	-63.4	-15.6	11.8	16.9	-76.54	-61.3	-15.24	0-360	151	H
5	34.418717	-63.25	RMS	38.3	-64.8	-15.6	11.8	17.3	-76.25	-61.3	-14.95	0-360	151	V
6	39.582468	-64.93	RMS	38.9	-65.9	-15.6	11.8	19.1	-76.63	-61.3	-15.33	0-360	151	V
3	39.902611	-66.31	RMS	39.2	-64.9	-15.6	11.8	19.4	-76.41	-61.3	-15.11	0-360	151	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.

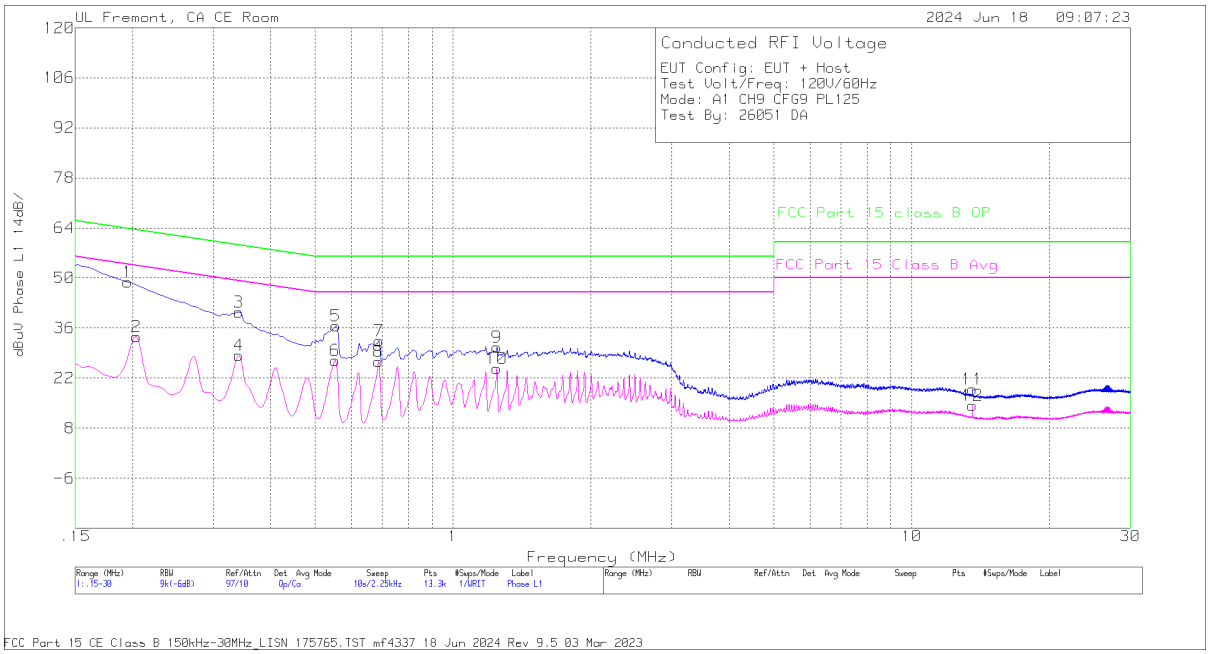
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

Employee IDs: 26051
Location: Immunity Room
Test Date: 2024-06-18

9.7.1. AC Power Line With Laptop

LINE 1 RESULTS

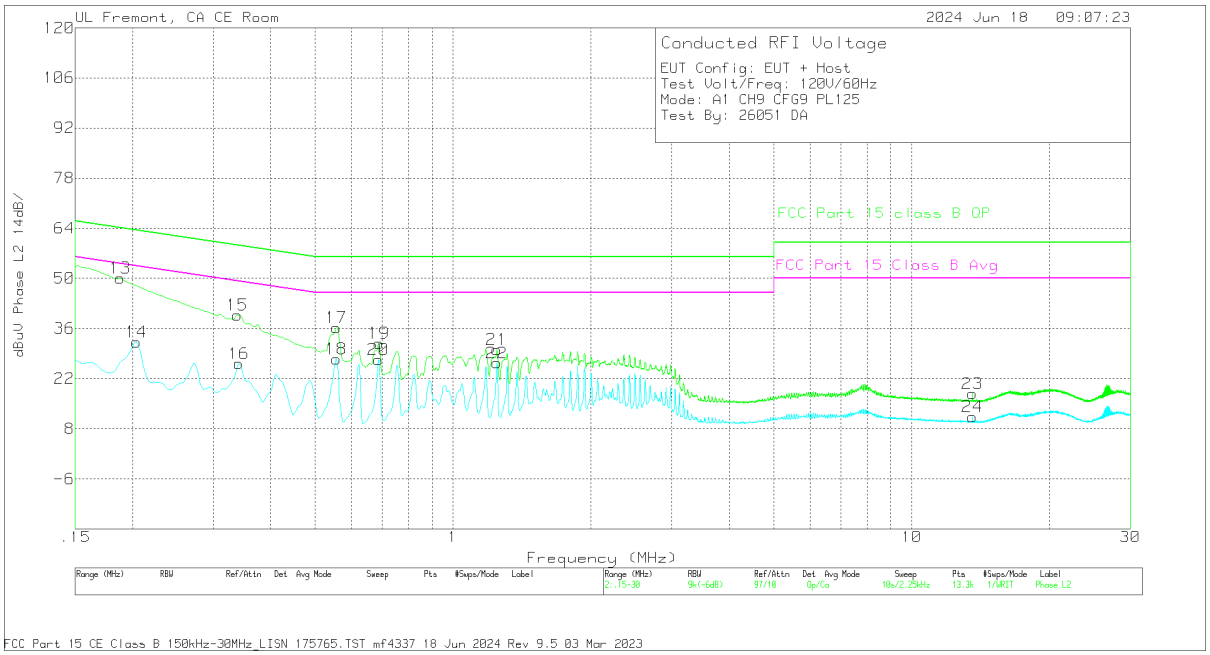


Trace Markers

Range 1: Phase L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
2	.204	14.11	Ca	.1	0	9.4	10	33.61	53.45	-19.84	-	-
4	.3413	8.94	Ca	0	0	9.4	10	28.34	49.17	-20.83	-	-
6	.5539	7.49	Ca	.1	0	9.3	10	26.89	46	-19.11	-	-
8	.6878	7.2	Ca	.1	0	9.3	10	26.6	46	-19.4	-	-
10	1.2458	5.23	Ca	0	0	9.4	10	24.63	46	-21.37	-	-
12	13.56	-5.59	Ca	.3	.1	9.5	10	14.31	50	-35.69	-	-
1	.195	29.24	Qp	.1	.1	9.4	10	48.84	-	-	63.82	-14.98
3	.3413	21.03	Qp	0	0	9.4	10	40.43	-	-	59.17	-18.74
5	.555	17.18	Qp	.1	0	9.3	10	36.58	-	-	56	-19.42
7	.69	13.05	Qp	.1	0	9.3	10	32.45	-	-	56	-23.55
9	1.2458	11.3	Qp	0	0	9.4	10	30.7	-	-	56	-25.3
11	13.56	-.95	Qp	.3	.1	9.5	10	18.95	-	-	60	-41.05

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



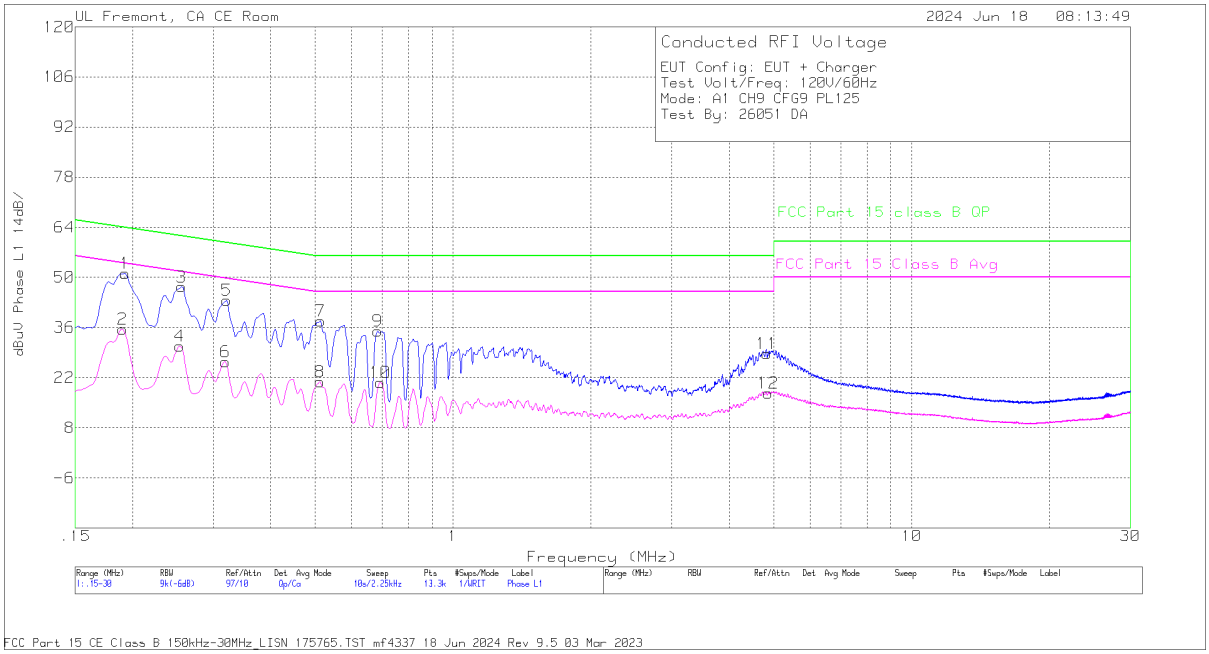
Trace Markers

Range 2: Phase L2 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
14	.204	12.7	Ca	.1	0	9.4	10	32.2	53.45	-21.25	-	-
16	.3413	6.68	Ca	.1	0	9.4	10	26.18	49.17	-22.99	-	-
18	.5573	8.15	Ca	0	0	9.3	10	27.45	46	-18.55	-	-
20	.6878	8.04	Ca	0	0	9.3	10	27.34	46	-18.66	-	-
22	1.2458	6.85	Ca	.1	0	9.4	10	26.35	46	-19.65	-	-
24	13.56	-8.38	Ca	.2	.1	9.5	10	11.42	50	-38.58	-	-
13	.1883	30.63	Qp	.1	0	9.4	10	50.13	-	-	64.11	-13.98
15	.339	20.28	Qp	.1	0	9.4	10	39.78	-	-	59.23	-19.45
17	.5573	16.91	Qp	0	0	9.3	10	36.21	-	-	56	-19.79
19	.69	12.59	Qp	0	0	9.3	10	31.89	-	-	56	-24.11
21	1.2458	10.56	Qp	.1	0	9.4	10	30.06	-	-	56	-25.94
23	13.56	-2.03	Qp	.2	.1	9.5	10	17.77	-	-	60	-42.23

Qp - Quasi-Peak detector
Ca - CISPR average detection

9.7.2. AC Power Line With AC/DC Adapter

LINE 1 RESULTS

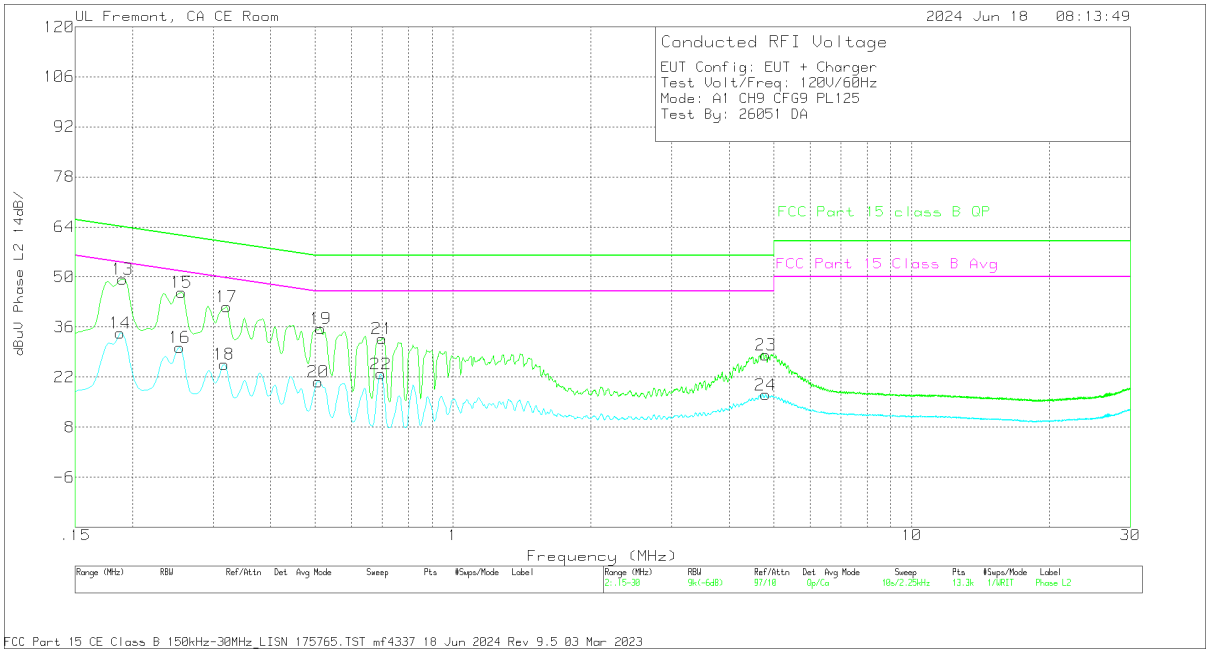


Trace Markers

Range 1: Phase L1 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
2	.1905	15.92	Ca	.1	.1	9.4	10	35.52	54.01	-18.49	-	-
4	.2535	11.48	Ca	0	0	9.4	10	30.88	51.64	-20.76	-	-
6	.3188	6.96	Ca	.1	0	9.4	10	26.46	49.74	-23.28	-	-
8	.5123	1.55	Ca	0	0	9.3	10	20.85	46	-25.15	-	-
10	.6945	1.27	Ca	.1	0	9.3	10	20.67	46	-25.33	-	-
12	4.8683	-1.9	Ca	.2	0	9.4	10	17.7	46	-28.3	-	-
1	.1928	31.58	Qp	.1	.1	9.4	10	51.18	-	-	63.92	-12.74
3	.2558	27.97	Qp	0	0	9.4	10	47.37	-	-	61.57	-14.2
5	.321	24.06	Qp	.1	0	9.4	10	43.56	-	-	59.68	-16.12
7	.5145	18.52	Qp	0	0	9.3	10	37.82	-	-	56	-18.18
9	.6855	15.58	Qp	.1	0	9.3	10	34.98	-	-	56	-21.02
11	4.8323	9.13	Qp	.2	0	9.4	10	28.73	-	-	56	-27.27

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Trace Markers

Range 2: Phase L2 .15 - 30MHz												
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trns Limiter (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
14	.1883	14.88	Ca	.1	0	9.4	10	34.38	54.11	-19.73	-	-
16	.2535	10.9	Ca	0	0	9.4	10	30.3	51.64	-21.34	-	-
18	.3165	6.01	Ca	.1	0	9.4	10	25.51	49.8	-24.29	-	-
20	.5078	1.41	Ca	0	0	9.3	10	20.71	46	-25.29	-	-
22	.6968	3.54	Ca	0	0	9.3	10	22.84	46	-23.16	-	-
24	4.803	-2.45	Ca	.1	0	9.4	10	17.05	46	-28.95	-	-
13	.1905	29.95	Qp	.1	0	9.4	10	49.45	-	-	64.01	-14.56
15	.2558	26.35	Qp	0	0	9.4	10	45.75	-	-	61.57	-15.82
17	.321	22.2	Qp	.1	0	9.4	10	41.7	-	-	59.68	-17.98
19	.5145	16.31	Qp	0	0	9.3	10	35.61	-	-	56	-20.39
21	.7013	13.5	Qp	0	0	9.3	10	32.8	-	-	56	-23.2
23	4.812	8.74	Qp	.1	0	9.4	10	28.24	-	-	56	-27.76

Qp - Quasi-Peak detector
Ca - CISPR average detection

10. SETUP PHOTOS

Please refer to 14982436-EP1V1 for setup photos.

END OF REPORT

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