

TEST REPORT

Report Number : 14982490-E16V2

Applicant : APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

Model : A3289 (Parent Model)
A3290, A3291 (Variant Models)

Brand : APPLE

FCC ID : BCG-E8693A (Parent Model)
BCG-E8694A, BCG-E8695A (Variant Models)

IC : 579C-E8693A (Parent Model)
579C-E8694A, 579C-E8695A (Variant Models)

EUT Description : SMARTPHONE

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

Date Of Issue:
AUGUST 07, 2024

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/7/2024	Initial Issue	---
V2	8/7/2024	Addressed TCB's Questions in Section 8, 9	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	A3289 (Parent Model) A3290, A3291 (Variant Models)
Brand	APPLE
FCC ID	BCG-E8693A (Parent Model) BCG-E8694A, BCG-E8695A (Variant Models)
IC	579C-E8693A (Parent Model) 579C-E8694A, E8695A (Variants Models)
EUT Description	SMARTPHONE
SERIAL NUMBER	XCF906M6GP, QQY3VY3XQ1 KJXQXJ0M9H, L36YXWL4W6, MK2PHL6Y1V
SAMPLE RECEIPT DATE	JUNE 14, 2024; FEBRUARY 12, 2024 JUNE 24, 2024; JULY 2, 2024
DATE TESTED	MARCH 25, 2024 TO AUGUST 06, 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

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			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{LAB}
Conducted Antenna Port Emission Measurement	1.940 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Final Voltage (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{LISN Insertion Loss (dB)} + \text{Cable Loss (dB)} \\ &\quad + \text{Limiter Factor (dB)} \\ &= 42.19 \text{ dBuV} + 0.1 \text{ dB} + 0 \text{ dB} + 9.4 \text{ (dB)} \\ &= 51.69 \text{ dBuV}\end{aligned}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5G NR1, 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.

All ANT1 data is reused based on reference FCC ID: BCG-E8692A / IC: 579C-E8692A to cover variant models FCC ID: BCG-E8693A / IC: 579C-E8693A, FCC ID: BCG-E8694A / IC: 579C-E8694A, and FCC ID: BCG-E8695A / IC: 579C-E8695A per manufacturer KDB inquiry approved by FCC/ISED.

ANT2 was retested for the variant models due to having different antenna gains from the reference model.

6.2. MAXIMUM OUTPUT POWER

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

ANT	CH	CONFIG	Average Power (dBm EIRP)
1	9	705	-42.35
2	5	804	-42.30
2	9	812	-42.37

6.3. MODULATION

The UWB signal is BPSK pulsed modulated signal.

6.4. SOFTWARE AND FIRMWARE

The Software and Firmware version used at test is FT: 2219.0.0.100.1~40.74.46

7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

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

I/O CABLES

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

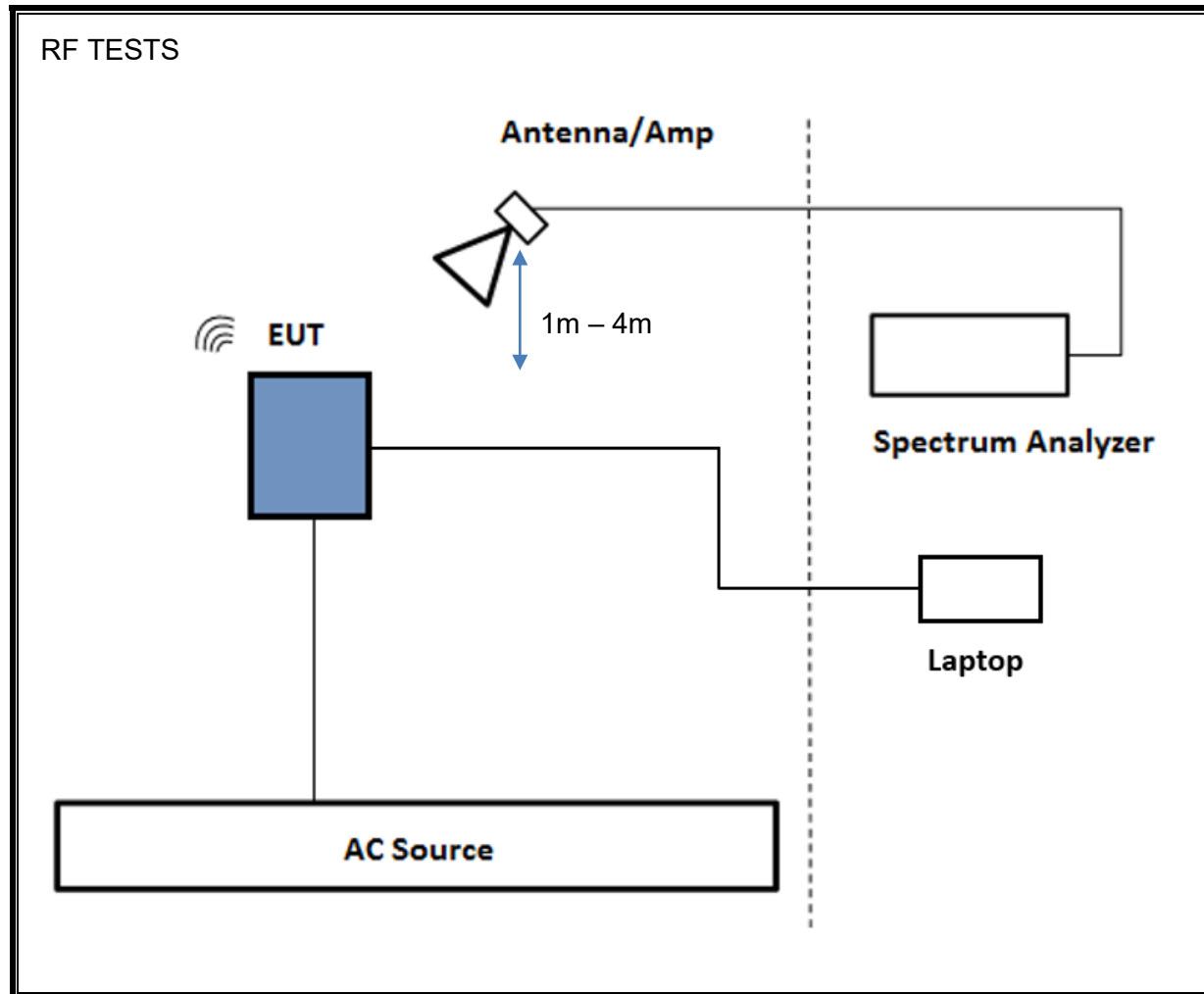
TEST SETUP

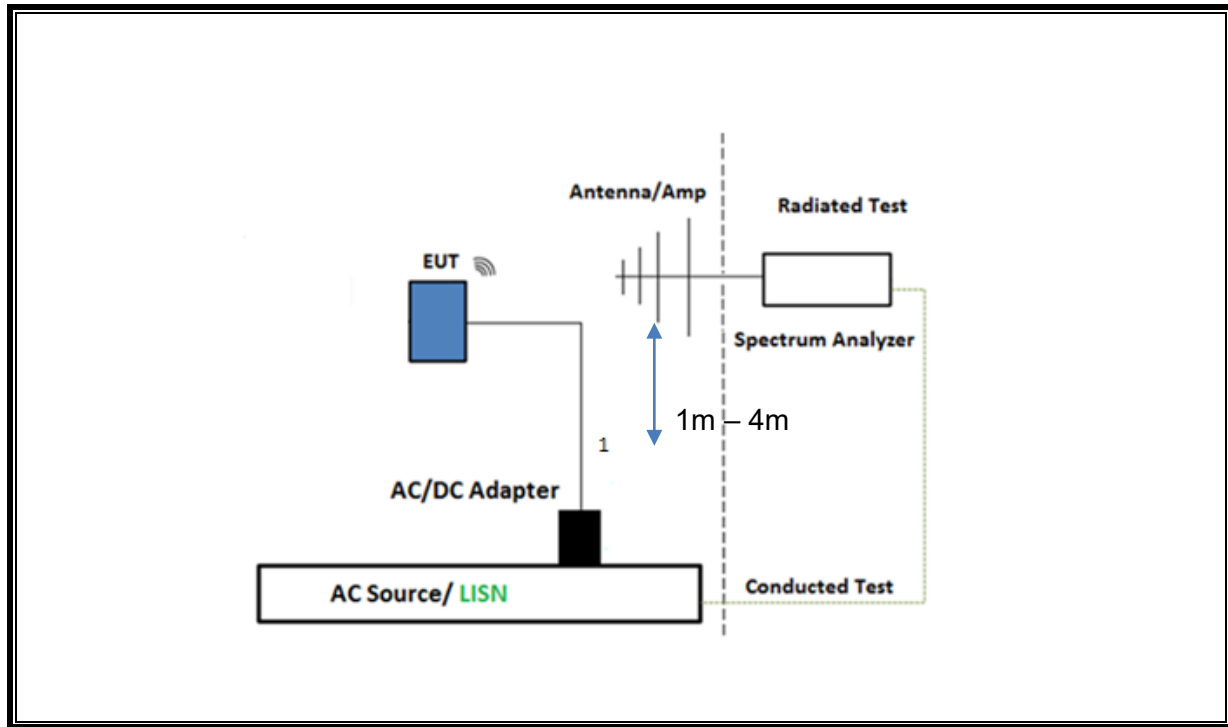
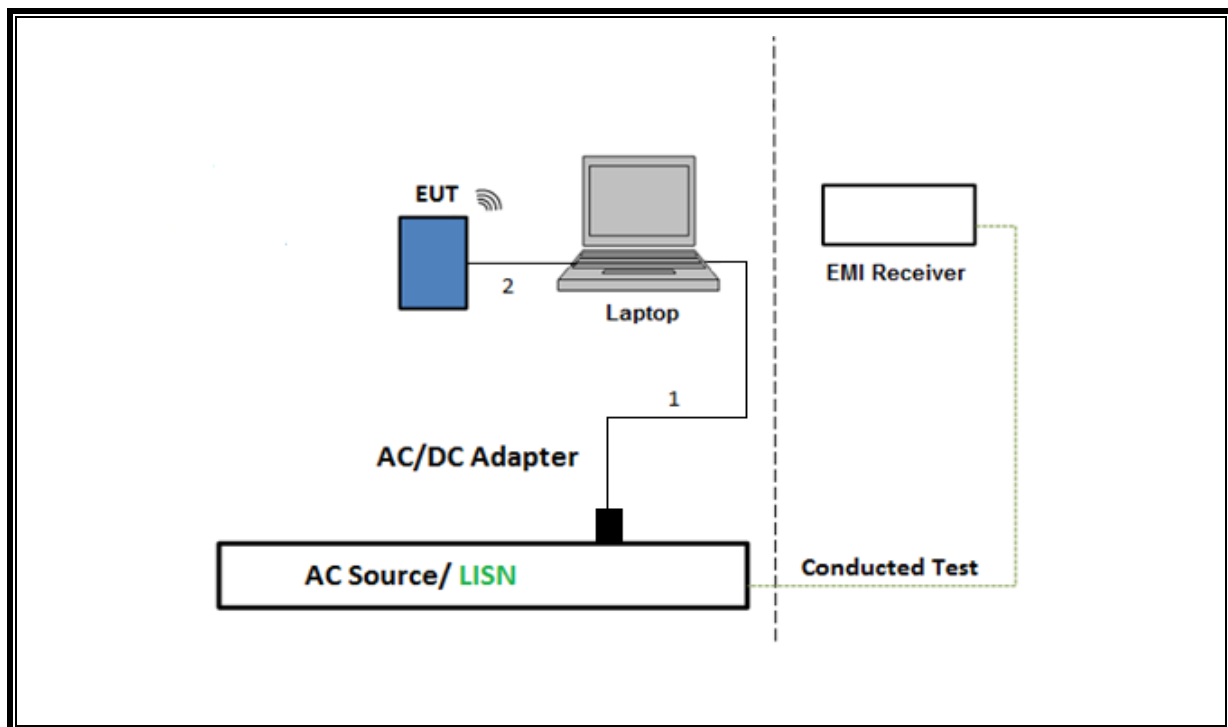
The EUT was examined at pre-scan test using a fundamental frequency in the portrait (z), landscape (y), and flatbed (x) position and the worst-case orientation of individual ANT/CH/CONFIG setting was determined for final spurious emission measurement. All selected configs are used for the Ant/Ch settings that were tested at default power (0 dBm), and Config 9 Payload 125 was chose for unwanted emission test with CH9 on Ant 1 and both CH5 and CH9 on Ant 2 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 Due
EMI Test Receiver	Rohde & Schwarz	ESW44	169937	2025-02-18
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	200896	2025-04-30
EMI Test Receiver	Rohde & Schwarz	ESW44	235266	2025-02-28
Antenna, Broadband Hybrid, 30 MHz to 3GHz	Sunol Sciences Corp	JB3	230634	2025-01-31
Amplifier, 9kHz to 1 GHz, 32dB	Sonoma Instrumnet	310N	79584	2024-12-31
EMI Test Receiver	Rohde & Schwarz	ESW44	223460	2025-02-28
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	236726	2024-10-30
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	80403	2025-06-30
Antenna, Broadband Hybrid, 30 MHz to 3GHz	Sunol Sciences Corp	JB3	80508	2025-06-30
Amplifier, 9kHz to 1 GHz, 32dB	Sonoma Instrumnet	310N	224489	2025-05-31
EMI Test Receiver	Rohde & Schwarz	ESW44	201502	2025-02-28
RF Filter Box, 1-18GHz	UL-FR1 (CTECH)	N/A	225474	2025-04-30
Horn Antenna, 1-18GHz	ETS-Lindgren	3117	81887	2025-03-31
Antenna, Passive Loop 100kHz - 30MHz	Electro-Metrics	EM-6872	219910	2025-05-31
Antenna, Passive Loop 30Hz - 1MHz	Electro-Metrics	EM-6871	219908	2024-09-30
Antenna, Passive Loop 100kHz - 30MHz	Electro-Metrics	EM-6872	170015	2024-07-31
Antenna, Passive Loop 30Hz - 1MHz	Electro-Metrics	EM-6871	170013	2024-07-31
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	81139	2024-08-31
RF Amplifier 18-26.5GHz	Ampical	AMP18G26.5-60	220194	2024-08-31
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	172354	2024-10-31
RF Amplifier 18-26.5GHz	Ampical	AMP18G26.5-60	221832	2025-03-31
Antenna, Horn 26.5-40GHz	ARA	MWH-2640/B	81105	2024-08-31
RF Amplifier 26.5-40GHz	Ampical	AMP26G40-60	220193	2024-08-31
Antenna, Horn 26.5-40GHz	ARA	MWH-2640/B	172369	2025-11-30
RF Amplifier 26.5-40GHz	Ampical	AMP26G40-60	221834	2025-03-31
EMI TEST RECEIVER	Rohde & Schwarz	ESR	171646	2025-02-28
Transient Limiter	TE	TBFL1	175765	2024-08-31
LISN for Conducted Emissions CISPR-16	Fischer Custom Communications, Ince	FCC-LISN-50/250/-25-2-01-480V	207996	2025-01-31
Radiated Software	UL	UL EMC	Version 9.5 May 1, 2023	
AC Line Conducted Software	UL	UL EMC	Version 9.5 March 3, 2023	

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

9. APPLICABLE LIMITS AND TEST RESULTS

9.1. 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

ANSI C63.10 Section 6.9.3

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

Tabulated data provides the test results of all available test configurations. 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: 32440, 28499, 105892, 106020, 28499

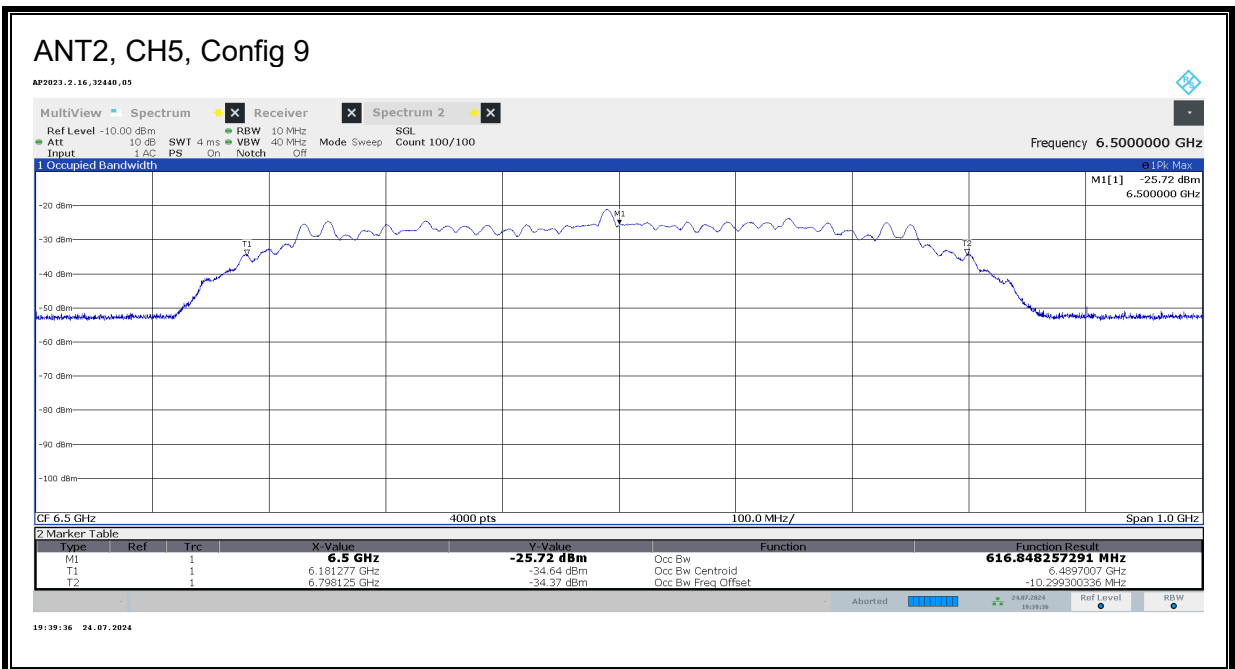
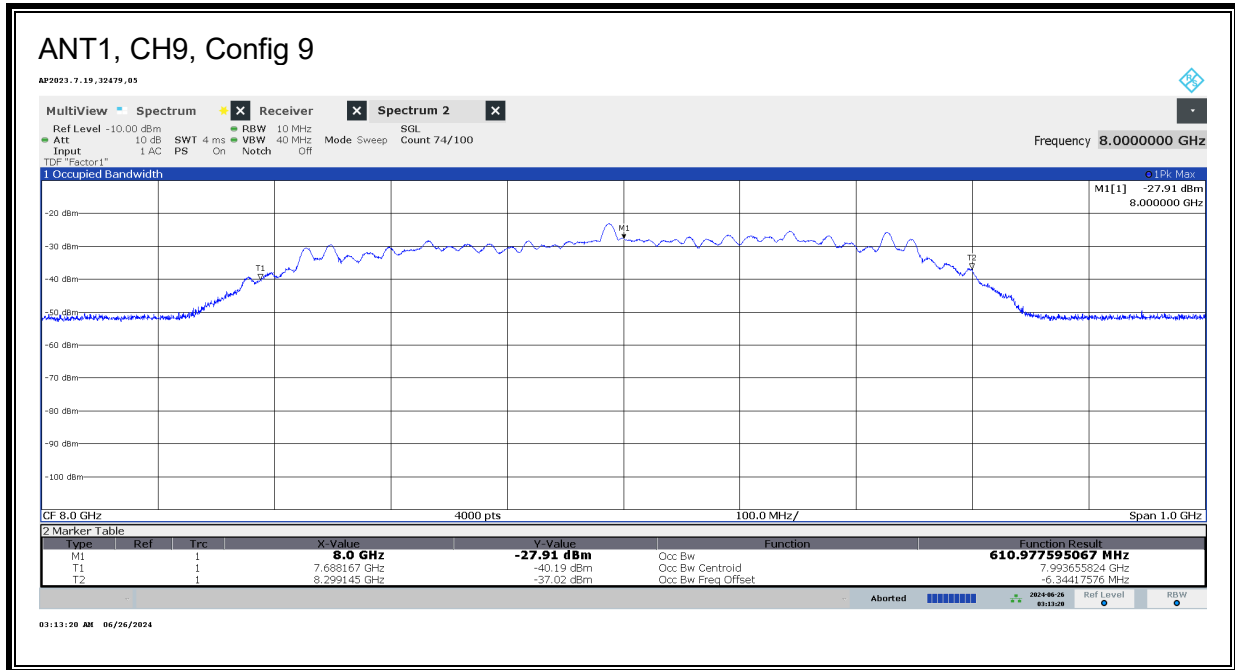
Location: Chamber 05-RDE-C

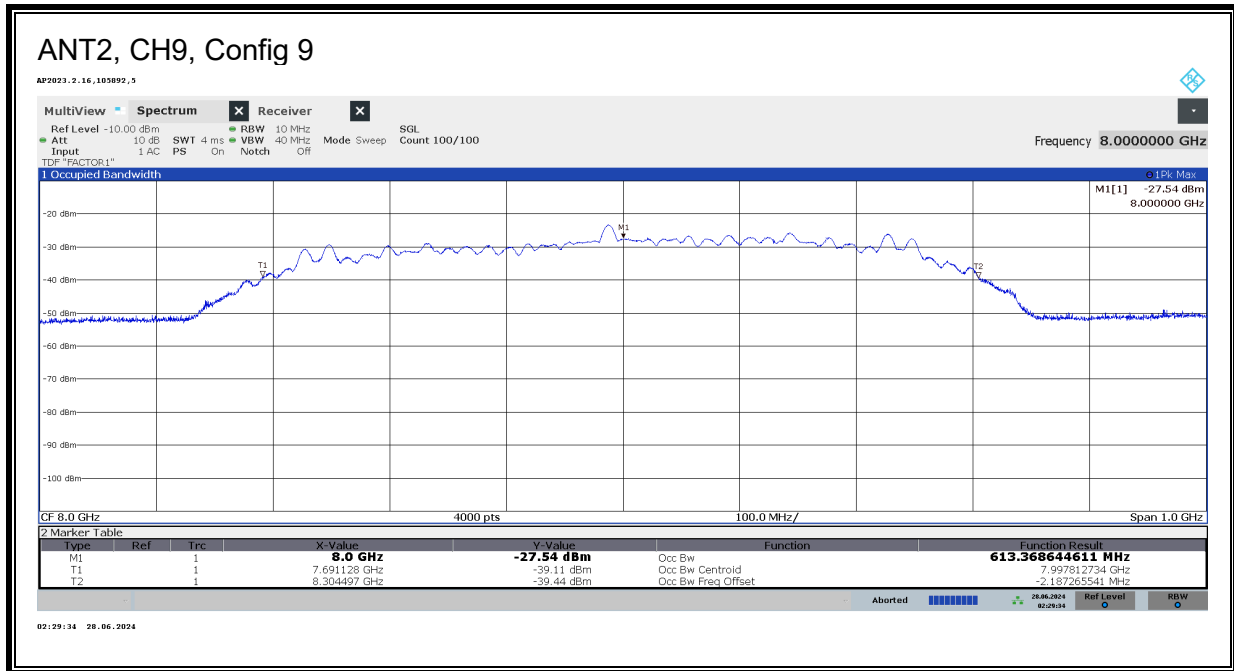
Test Date: 2024-06-26 – 2024-07-30

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
1	9	0	25	Flatbed	H	598.7061
1	9	1	45	Flatbed	H	598.8753
1	9	6	125	Flatbed	H	608.8782
1	9	9	125	Flatbed	H	610.9776
1	9	10	25	Flatbed	H	597.0264
1	9	11	25	Flatbed	H	590.688
1	9	11	65	Flatbed	H	592.1449
1	9	101	25	Flatbed	H	592.1687
1	9	101	65	Flatbed	H	592.5198
1	9	102	25	Flatbed	H	592.2782
1	9	102	65	Flatbed	H	592.002
1	9	103	25	Flatbed	H	591.455
1	9	103	125	Flatbed	H	594.7288
1	9	202	625	Flatbed	H	836.8934
1	9	402	445	Flatbed	H	737.3915
1	9	405	4093	Flatbed	H	749.7492
1	9	407	4093	Flatbed	H	711.741
1	9	409	4093	Flatbed	H	736.8236
1	9	501	0	Flatbed	H	603.9504
1	9	503	0	Flatbed	H	601.8531
1	9	601	0	Flatbed	H	595.141
1	9	605	0	Flatbed	H	594.2965
1	9	607	0	Flatbed	H	592.8513
1	9	701	0	Flatbed	H	592.9626
1	9	702	0	Flatbed	H	589.2825
1	9	703	0	Flatbed	H	593.4703
1	9	704	0	Flatbed	H	622.043
1	9	705	0	Flatbed	H	610.8239
1	9	706	0	Flatbed	H	612.4134
1	9	801	0Gap0	Flatbed	H	610.2148
1	9	801	0Gap64	Flatbed	H	610.5309
1	9	802	0	Flatbed	H	609.8728
1	9	803	0	Flatbed	H	610.7021
1	9	804	0Gap0	Flatbed	H	613.243
1	9	804	0Gap64	Flatbed	H	614.6029
1	9	805	0	Flatbed	H	614.4468
1	9	806	0	Flatbed	H	608.4764
1	9	807	0Gap0	Flatbed	H	606.8083
1	9	807	0Gap64	Flatbed	H	602.7023
1	9	808	0	Flatbed	H	603.3407
1	9	809	0	Flatbed	H	602.7082
1	9	810	0Gap0	Flatbed	H	606.4712
1	9	810	0Gap64	Flatbed	H	610.1286
1	9	811	0	Flatbed	H	609.8914
1	9	812	0	Flatbed	H	610.0081

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	5	0	25	Portrait	H	603.96
2	5	1	45	Portrait	H	604.27
2	5	6	125	Portrait	H	614.66
2	5	9	125	Portrait	H	616.85
2	5	10	25	Portrait	H	606.76
2	5	11	25	Portrait	H	604.85
2	5	11	65	Portrait	H	605.75
2	5	101	25	Portrait	H	603.96
2	5	101	65	Portrait	H	606.56
2	5	102	25	Portrait	H	605.99
2	5	102	65	Portrait	H	606.94
2	5	103	25	Portrait	H	610.28
2	5	103	125	Portrait	H	614.09
2	5	202	625	Portrait	H	704.98
2	5	402	445	Portrait	H	656.46
2	5	501	0	Portrait	H	591.75
2	5	503	0	Portrait	H	591.34
2	5	601	0	Portrait	H	613.80
2	5	605	0	Portrait	H	610.87
2	5	607	0	Portrait	H	610.51
2	5	701	0	Portrait	H	598.29
2	5	702	0	Portrait	H	596.72
2	5	703	0	Portrait	H	595.12
2	5	704	0	Portrait	H	630.89
2	5	705	0	Portrait	H	621.64
2	5	706	0	Portrait	H	623.18
2	5	405	4093	Portrait	H	669.42
2	5	407	4093	Portrait	H	662.49
2	5	409	4093	Portrait	H	677.60
2	5	801	0Gap0	Portrait	H	618.93
2	5	801	0Gap64	Portrait	H	617.89
2	5	802	0	Portrait	H	618.15
2	5	803	0	Portrait	H	615.81
2	5	804	0Gap0	Portrait	H	621.66
2	5	804	0Gap64	Portrait	H	625.96
2	5	805	0	Portrait	H	621.34
2	5	806	0	Portrait	H	619.43
2	5	807	0Gap0	Portrait	H	615.28
2	5	807	0Gap64	Portrait	H	614.10
2	5	808	0	Portrait	H	614.73
2	5	809	0	Portrait	H	614.99
2	5	810	0Gap0	Portrait	H	622.19
2	5	810	0Gap64	Portrait	H	619.16
2	5	811	0	Portrait	H	618.96
2	5	812	0	Portrait	H	619.34

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	99% BW (MHz)
2	9	0	25	Portrait	V	596.98
2	9	1	45	Portrait	V	596.83
2	9	6	125	Portrait	V	609.10
2	9	9	125	Portrait	V	613.37
2	9	10	25	Portrait	V	598.30
2	9	11	25	Portrait	V	598.20
2	9	11	65	Portrait	V	598.12
2	9	101	25	Portrait	V	597.24
2	9	101	65	Portrait	V	590.94
2	9	102	25	Portrait	V	592.64
2	9	102	65	Portrait	V	590.97
2	9	103	25	Portrait	V	592.02
2	9	103	125	Portrait	V	612.08
2	9	202	625	Portrait	V	816.14
2	9	402	445	Portrait	V	745.03
2	9	501	0	Portrait	V	595.84
2	9	503	0	Portrait	V	595.10
2	9	601	0	Portrait	V	594.03
2	9	605	0	Portrait	V	593.61
2	9	607	0	Portrait	V	593.69
2	9	701	0	Portrait	V	598.04
2	9	702	0	Portrait	V	596.83
2	9	703	0	Portrait	V	600.28
2	9	704	0	Portrait	V	617.67
2	9	705	0	Portrait	V	594.55
2	9	706	0	Portrait	V	601.80
2	9	405	4093	Portrait	V	785.47
2	9	407	4093	Portrait	V	762.83
2	9	409	4093	Portrait	V	765.07
2	9	801	0Gap0	Portrait	V	591.47
2	9	801	0Gap64	Portrait	V	592.64
2	9	802	0	Portrait	V	592.65
2	9	803	0	Portrait	V	590.58
2	9	804	0Gap0	Portrait	V	609.61
2	9	804	0Gap64	Portrait	V	615.32
2	9	805	0	Portrait	V	615.52
2	9	806	0	Portrait	V	609.34
2	9	807	0Gap0	Portrait	V	597.51
2	9	807	0Gap64	Portrait	V	595.15
2	9	808	0	Portrait	V	595.90
2	9	809	0	Portrait	V	595.08
2	9	810	0Gap0	Portrait	V	611.36
2	9	810	0Gap64	Portrait	V	601.05
2	9	811	0	Portrait	V	602.40
2	9	812	0	Portrait	V	601.81

99% BW



9.2. OPERATING BANDWIDTH

LIMITS

FCC

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

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

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

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

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

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

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

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

$$B_{-10} = f_H - f_L$$

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

where:

f_M is the frequency of maximum UWB transmission;

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

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

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

TEST PROCEDURE

ANSI C63.10 Clause 10.1

RSS-220 Section 2 of the Annex

Tabulated data provides the test results of all available test configurations. 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: 32440, 28499, 105892, 106020, 28499

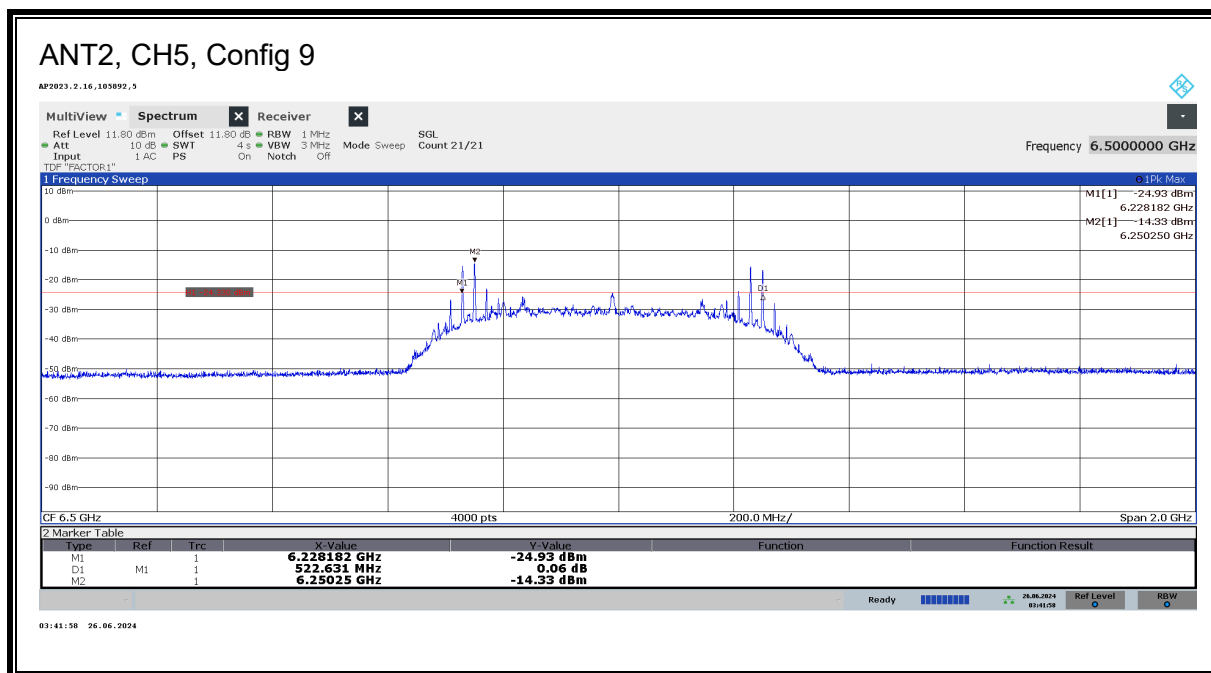
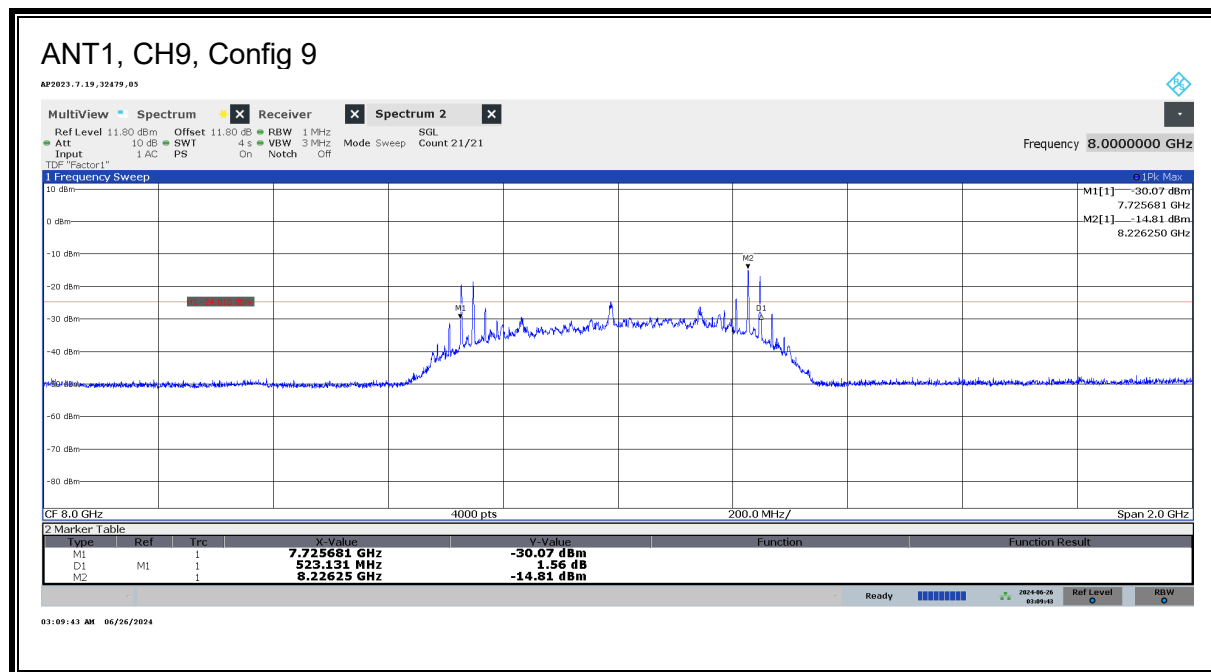
Location: Chamber 05-RDE-C

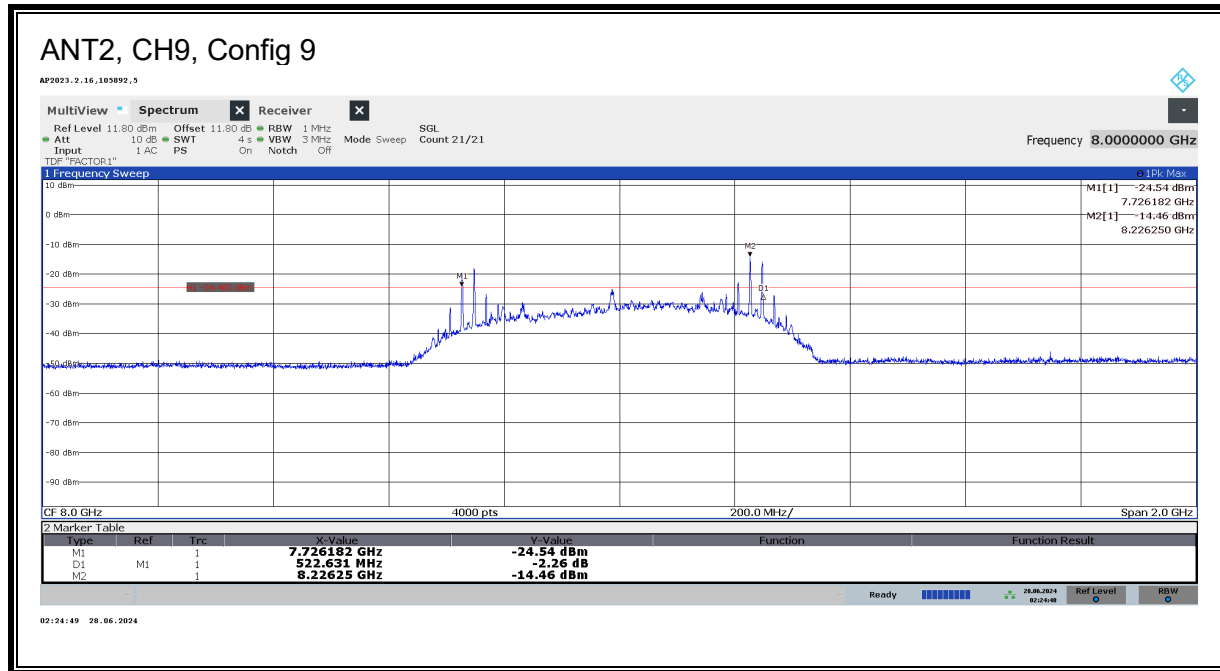
Test Date: 2024-06-26 – 2024-07-30

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	Flatbed	H	8.22625	7.724681	8.250312	7.9874965	525.63	500	25.631	P
1	9	1	45	Flatbed	H	8.22625	7.724681	8.250312	7.9874965	525.63	500	25.631	P
1	9	6	125	Flatbed	H	8.2263	7.7257	8.249312	7.9874965	523.63	500	23.631	P
1	9	9	125	Flatbed	H	8.2263	7.7257	8.248812	7.9872465	523.13	500	23.131	P
1	9	10	25	Flatbed	H	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	11	65	Flatbed	H	8.2263	7.7249	8.25025	7.98757	525.36	500	25.36	P
1	9	11	25	Flatbed	H	8.2263	7.7249	8.25025	7.98757	525.36	500	25.36	P
1	9	101	65	Flatbed	H	8.2263	7.7249	8.2502	7.987545	525.31	500	25.31	P
1	9	101	25	Flatbed	H	8.2268	7.7245	8.25033	7.98742	525.82	500	25.82	P
1	9	102	65	Flatbed	H	8.2268	7.7245	8.25032	7.98743	525.78	500	25.78	P
1	9	102	25	Flatbed	H	8.2263	7.7247	8.25032	7.987495	525.65	500	25.65	P
1	9	103	125	Flatbed	H	8.2263	7.7246	8.25025	7.98744	525.62	500	25.62	P
1	9	103	25	Flatbed	H	8.2268	7.7254	8.25007	7.98773	524.68	500	24.68	P
1	9	202	625	Flatbed	H	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	402	445	Flatbed	H	8.2263	7.7247	8.249312	7.9869965	524.63	500	24.631	P
1	9	405	4093	Flatbed	H	8.2263	7.7247	8.264316	7.9944985	539.64	500	39.635	P
1	9	407	4093	Flatbed	H	8.2263	7.7247	8.253813	7.989247	529.13	500	29.132	P
1	9	409	4093	Flatbed	H	8.2268	7.7247	8.249812	7.9872465	525.13	500	25.131	P
1	9	501	0	Flatbed	H	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
1	9	503	0	Flatbed	H	8.2263	7.7252	8.249312	7.9872465	524.13	500	24.131	P
1	9	601	0	Flatbed	H	8.2268	7.7257	8.250312	7.9879965	524.63	500	24.631	P
1	9	605	0	Flatbed	H	8.2263	7.7247	8.249312	7.9869965	524.63	500	24.631	P
1	9	607	0	Flatbed	H	8.2268	7.7257	8.250312	7.9879965	524.63	500	24.631	P
1	9	701	0	Flatbed	H	8.2263	7.7242	8.251313	7.987747	527.13	500	27.132	P
1	9	702	0	Flatbed	H	8.2263	7.7242	8.251313	7.987747	527.13	500	27.132	P
1	9	703	0	Flatbed	H	8.2263	7.7242	8.251313	7.987747	527.13	500	27.132	P
1	9	704	0	Flatbed	H	8.2263	7.7237	8.265817	7.994749	542.14	500	42.136	P
1	9	705	0	Flatbed	H	8.2263	7.7237	8.253313	7.988497	529.63	500	29.632	P
1	9	706	0	Flatbed	H	8.2263	7.7237	8.271818	7.9977495	548.14	500	48.137	P
1	9	801	0Gap64	Flatbed	H	8.2263	7.7237	8.274319	7.999	550.64	500	50.638	P
1	9	801	0Gap0	Flatbed	H	8.2258	7.7237	8.274819	7.99925	551.14	500	51.138	P
1	9	802	0	Flatbed	H	8.2263	7.7237	8.274319	7.999	550.64	500	50.638	P
1	9	803	0	Flatbed	H	8.2263	7.7237	8.274319	7.999	550.64	500	50.638	P
1	9	804	0Gap0	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	804	0Gap64	Flatbed	H	8.2258	7.7237	8.274319	7.999	550.64	500	50.638	P
1	9	805	0	Flatbed	H	8.2263	7.7237	8.27832	8.0010005	554.64	500	54.639	P
1	9	806	0	Flatbed	H	8.2258	7.7237	8.27832	8.0010005	554.64	500	54.639	P
1	9	807	0Gap0	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	807	0Gap64	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	808	0	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	809	0	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	810	0Gap0	Flatbed	H	8.2258	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	810	0Gap64	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	811	0	Flatbed	H	8.2263	7.7237	8.282821	8.003251	559.14	500	59.14	P
1	9	812	0	Flatbed	H	8.2263	7.7237	8.274319	7.999	550.64	500	50.638	P

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	FM (GHz)	FL (GHz)	FH (GHz)	FC (GHz)	OBW (MHz)	Min. OBW (MHz)	OBW Margin (MHz)	OBW Pass/Fail
2	5	0	25	Portrait	H	6.72905	6.22618	6.75281	6.489495	526.63	500	26.63	P
2	5	1	45	Portrait	H	6.25025	6.226182	6.752814	6.489498	526.63	500	26.632	P
2	5	6	125	Portrait	H	6.2503	6.2277	6.754313	6.4909975	526.63	500	26.631	P
2	5	9	125	Portrait	H	6.2503	6.2282	6.750813	6.4894975	522.63	500	22.631	P
2	5	10	25	Portrait	H	6.2503	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	11	25	Portrait	H	6.2508	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	11	65	Portrait	H	6.2503	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	101	25	Portrait	H	6.2503	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	101	65	Portrait	H	6.2508	6.2262	6.75281	6.489495	526.63	500	26.63	P
2	5	102	25	Portrait	H	6.2508	6.2266	6.752764	6.489698	526.13	500	26.132	P
2	5	102	65	Portrait	H	6.2503	6.2262	6.752814	6.489498	526.63	500	26.632	P
2	5	103	25	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	103	125	Portrait	H	6.7288	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	202	625	Portrait	H	6.7288	6.2262	6.755814	6.490998	529.63	500	29.632	P
2	5	402	445	Portrait	H	6.2508	6.2262	6.752814	6.489498	526.63	500	26.632	P
2	5	501	0	Portrait	H	6.2503	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	503	0	Portrait	H	6.2503	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	601	0	Portrait	H	6.2503	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	605	0	Portrait	H	6.2508	6.2262	6.752814	6.489498	526.63	500	26.632	P
2	5	607	0	Portrait	H	6.2503	6.2267	6.752814	6.489748	526.13	500	26.132	P
2	5	701	0	Portrait	H	6.2508	6.2252	6.753813	6.489497	528.63	500	28.632	P
2	5	702	0	Portrait	H	6.2508	6.2252	6.753813	6.489497	528.63	500	28.632	P
2	5	703	0	Portrait	H	6.2508	6.2252	6.753813	6.489497	528.63	500	28.632	P
2	5	704	0	Portrait	H	6.2508	6.2167	6.775319	6.495999	558.64	500	58.64	P
2	5	705	0	Portrait	H	6.7288	6.2237	6.768317	6.495999	544.64	500	44.636	P
2	5	706	0	Portrait	H	6.2513	6.2242	6.76582	6.495	541.64	500	41.64	P
2	5	405	4093	Portrait	H	6.2052	6.2052	6.767316	6.486246	562.14	500	62.14	P
2	5	407	4093	Portrait	H	6.2503	6.2057	6.790322	6.497999	584.65	500	84.646	P
2	5	409	4093	Portrait	H	6.2503	6.2262	6.75331	6.489745	527.13	500	27.13	P
2	5	801	0Gap0	Portrait	H	6.2508	6.1937	6.784818	6.489244	591.15	500	91.148	P
2	5	801	0Gap64	Portrait	H	6.2508	6.2027	6.77682	6.489748	574.14	500	74.144	P
2	5	802	0	Portrait	H	6.2513	6.2027	6.77682	6.489748	574.14	500	74.144	P
2	5	803	0	Portrait	H	6.2508	6.2032	6.776819	6.4899975	573.64	500	73.643	P
2	5	804	0Gap0	Portrait	H	6.2508	6.2158	6.77373	6.494745	557.97	500	57.97	P
2	5	804	0Gap64	Portrait	H	6.2508	6.2027	6.77682	6.489748	574.14	500	74.144	P
2	5	805	0	Portrait	H	6.2508	6.2022	6.77682	6.489498	574.64	500	74.644	P
2	5	806	0	Portrait	H	6.2508	6.2022	6.77682	6.489498	574.64	500	74.644	P
2	5	807	0Gap0	Portrait	H	6.2508	6.2027	6.785322	6.493999	582.65	500	82.646	P
2	5	807	0Gap64	Portrait	H	6.25075	6.202676	6.785322	6.493999	582.646	500	82.646	P
2	5	808	0	Portrait	H	6.25075	6.194174	6.784822	6.489498	590.648	500	90.648	P
2	5	809	0	Portrait	H	6.25075	6.194174	6.785322	6.489748	591.148	500	91.148	P
2	5	810	0Gap0	Portrait	H	6.25075	6.202676	6.785322	6.493999	582.646	500	82.646	P
2	5	810	0Gap64	Portrait	H	6.25075	6.194174	6.785322	6.489748	591.148	500	91.148	P
2	5	811	0	Portrait	H	6.25075	6.194174	6.785322	6.489748	591.148	500	91.148	P
2	5	812	0	Portrait	H	6.25075	6.193673	6.785321	6.489497	591.648	500	91.648	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	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	1	45	Portrait	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	6	125	Portrait	V	8.2268	7.7257	8.249312	7.9874965	523.63	500	23.631	P
2	9	9	125	Portrait	V	8.2263	7.7262	8.248813	7.9874975	522.63	500	22.631	P
2	9	10	25	Portrait	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	11	25	Portrait	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	11	65	Portrait	V	8.2263	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	101	25	Portrait	V	8.2268	7.7247	8.250312	7.9874965	525.63	500	25.631	P
2	9	101	65	Portrait	V	8.2263	7.7252	8.249811	7.9874955	524.63	500	24.631	P
2	9	102	25	Portrait	V	8.2268	7.7257	8.250312	7.9879965	524.63	500	24.631	P
2	9	102	65	Portrait	V	8.2263	7.7252	8.250311	7.9877455	525.13	500	25.131	P
2	9	103	25	Portrait	V	8.2263	7.7252	8.250312	7.9877465	525.13	500	25.131	P
2	9	103	125	Portrait	V	8.2263	7.7252	8.250311	7.9877455	525.13	500	25.131	P
2	9	202	625	Portrait	V	8.2263	7.7257	8.250312	7.9879965	524.63	500	24.631	P
2	9	402	445	Portrait	V	8.2263	7.7242	8.250313	7.987247	526.13	500	26.132	P
2	9	501	0	Portrait	V	8.2263	7.7257	8.250312	7.9879965	524.63	500	24.631	P
2	9	503	0	Portrait	V	8.2268	7.7257	8.250312	7.9879965	524.63	500	24.631	P
2	9	601	0	Portrait	V	8.2268	7.7252	8.250312	7.9877465	525.13	500	25.131	P
2	9	605	0	Portrait	V	8.2263	7.7252	8.250312	7.9877465	525.13	500	25.131	P
2	9	607	0	Portrait	V	8.2263	7.7257	8.250312	7.9879965	524.63	500	24.631	P
2	9	701	0	Portrait	V	8.2263	7.7247	8.251313	7.987997	526.63	500	26.632	P
2	9	702	0	Portrait	V	8.2263	7.7247	8.251313	7.987997	526.63	500	26.632	P
2	9	703	0	Portrait	V	8.2258	7.7247	8.251313	7.987997	526.63	500	26.632	P
2	9	704	0	Portrait	V	8.2263	7.7247	8.265816	7.9952485	541.14	500	41.135	P
2	9	705	0	Portrait	V	8.2263	7.7247	8.261315	7.992998	536.63	500	36.634	P
2	9	706	0	Portrait	V	8.2258	7.7247	8.272318	7.9984995	547.64	500	47.637	P
2	9	405	4093	Portrait	V	8.2263	7.7252	8.264316	7.9947485	539.14	500	39.135	P
2	9	407	4093	Portrait	V	8.2263	7.7252	8.273818	7.9994995	548.64	500	48.637	P
2	9	409	4093	Portrait	V	8.2263	7.7251	8.250262	7.9876965	525.13	500	25.131	P
2	9	801	0Gap0	Portrait	V	8.2263	7.7247	8.275319	8	550.64	500	50.638	P
2	9	801	0Gap64	Portrait	V	8.2263	7.7247	8.274819	7.99975	550.14	500	50.138	P
2	9	802	0	Portrait	V	8.2258	7.7247	8.274819	7.99975	550.14	500	50.138	P
2	9	803	0	Portrait	V	8.2263	7.7247	8.274318	7.9994995	549.64	500	49.637	P
2	9	804	0Gap0	Portrait	V	8.2258	7.7168	8.29194	8.00437	575.14	500	75.14	P
2	9	804	0Gap64	Portrait	V	8.2263	7.7237	8.274319	7.9989995	550.64	500	50.639	P
2	9	805	0	Portrait	V	8.2258	7.7237	8.274319	7.9989995	550.64	500	50.639	P
2	9	806	0	Portrait	V	8.2258	7.7237	8.274819	7.9992495	551.14	500	51.139	P
2	9	807	0Gap0	Portrait	V	8.2263	7.7247	8.28232	8.0035005	557.64	500	57.639	P
2	9	807	0Gap64	Portrait	V	8.22625	7.72468	8.282821	8.003751	558.14	500	58.14	P
2	9	808	0	Portrait	V	8.22625	7.72418	8.28282	8.0035	558.64	500	58.64	P
2	9	809	0	Portrait	V	8.22625	7.72468	8.282821	8.003751	558.14	500	58.14	P
2	9	810	0Gap0	Portrait	V	7.74875	7.70918	8.250812	7.9799945	541.635	500	41.635	P
2	9	810	0Gap64	Portrait	V	7.86225	7.70468	8.254814	7.979745	550.138	500	50.138	P
2	9	811	0	Portrait	V	7.86225	7.70768	8.256814	7.9822455	549.137	500	49.137	P
2	9	812	0	Portrait	V	7.86275	7.70468	8.254814	7.979745	550.138	500	50.138	P

OPERATING BANDWIDTH



9.3. PEAK POWER AND MAXIMUM AVERAGE EMISSIONS

LIMITS

FCC

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

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

Frequency in MHz	EIRP in dBm
3100 - 10600	-41.3

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

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

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

TEST PROCEDURE

ANSI C63.10 Clause 10.3

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Peak EIPR power is measured using RBW of 50 MHz.

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

Tabulated data provides the test results of all available test configurations. 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: 32440, 28499, 105892, 106020, 28499

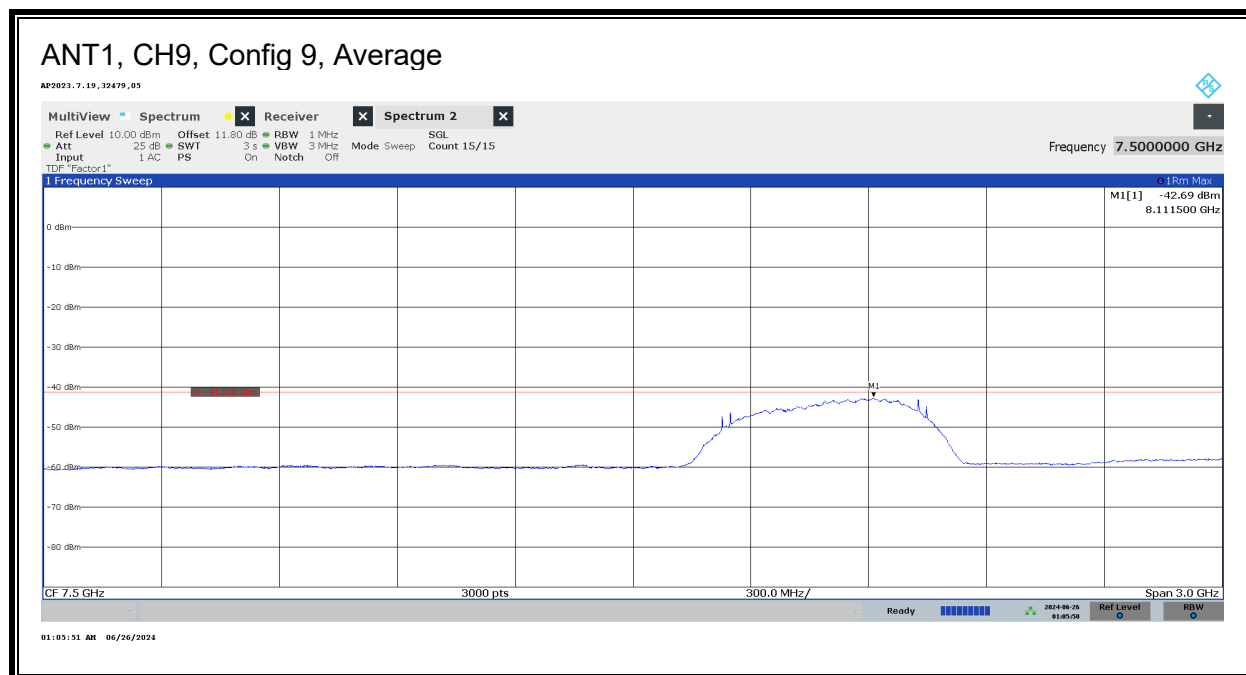
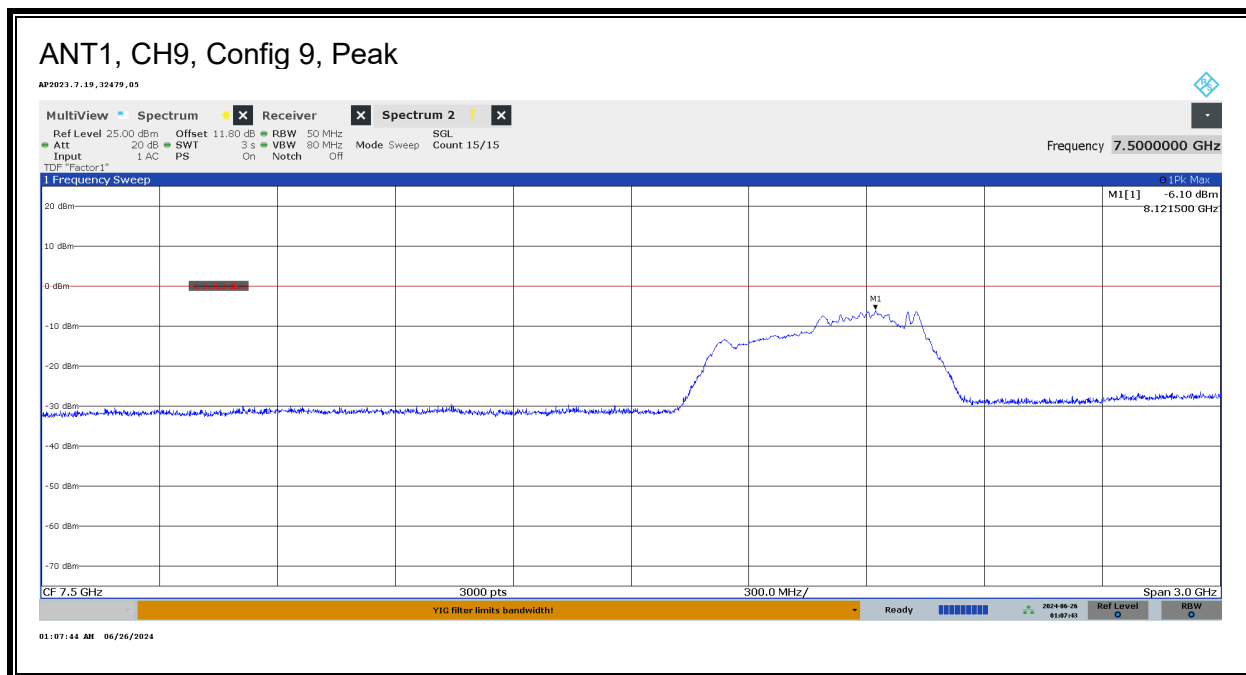
Location: Chamber 05-RDE-C

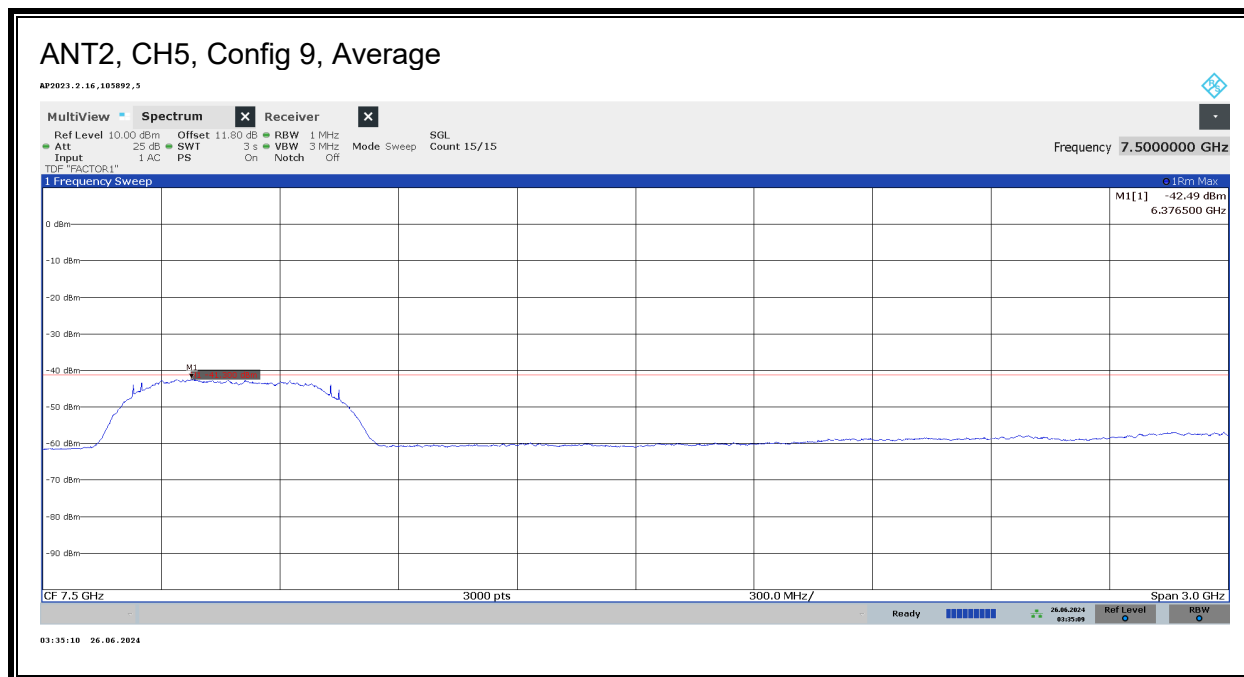
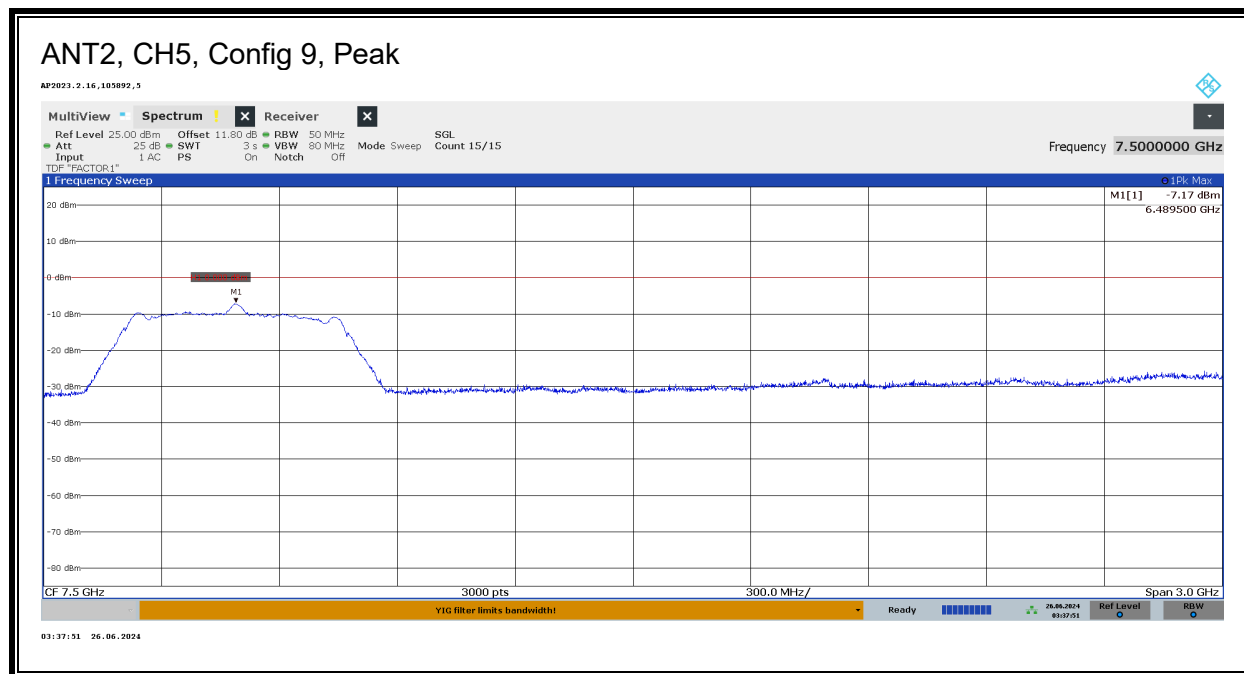
Test Date: 2024-06-26 – 2024-07-26

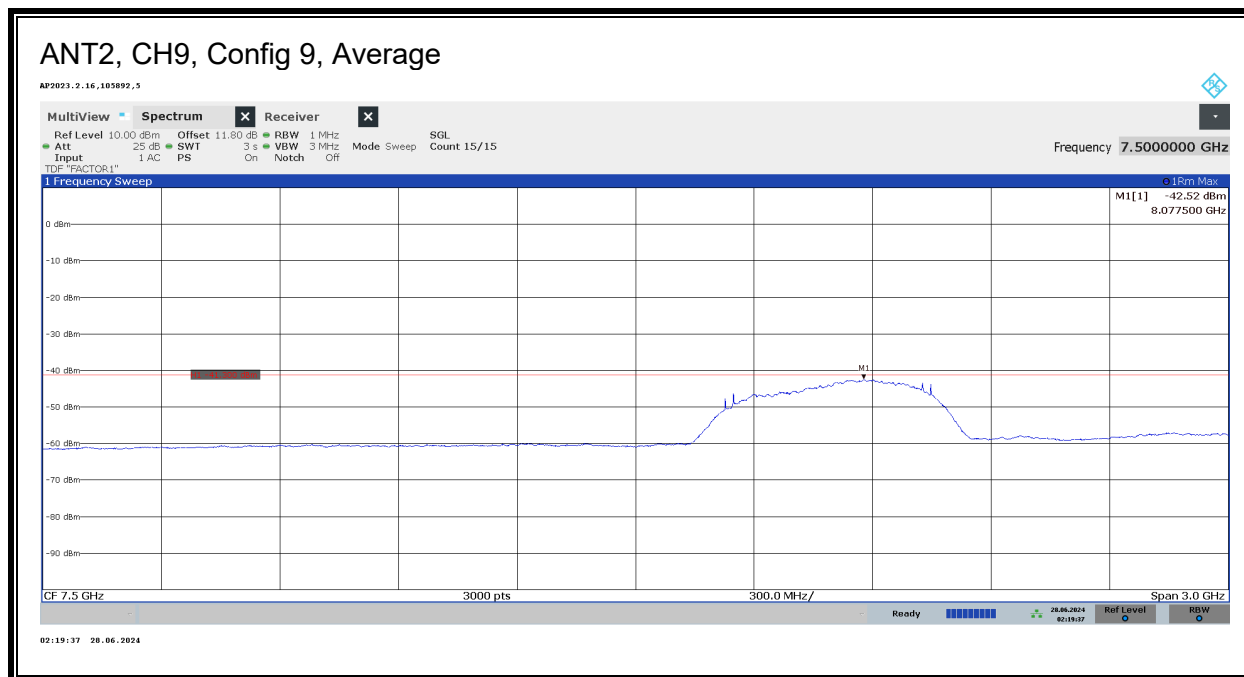
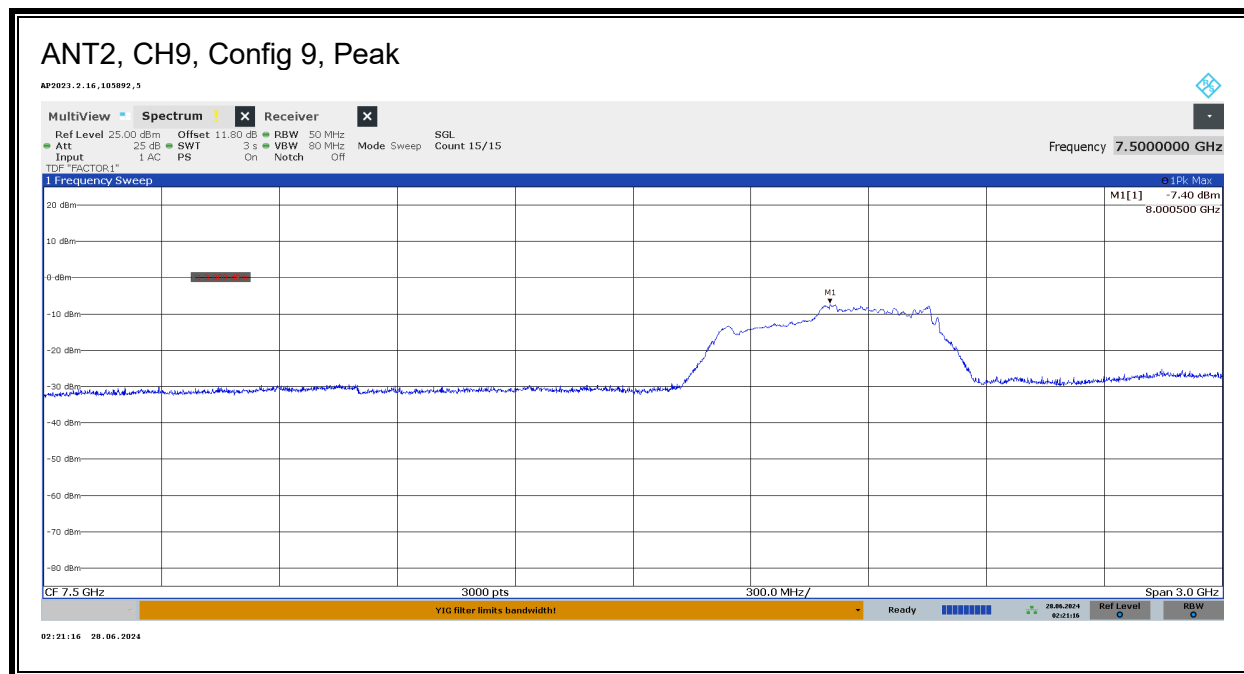
ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
1	9	0	25	Flatbed	H	8.2255	-1.34	0	-1.34	8.1185	-44.8	-41.3	-3.50
1	9	1	45	Flatbed	H	8.2255	-1.45	0	-1.45	8.0805	-45.31	-41.3	-4.01
1	9	6	125	Flatbed	H	8.1005	-5.03	0	-5.03	8.1075	-42.58	-41.3	-1.28
1	9	9	125	Flatbed	H	8.1215	-6.01	0	-6.01	8.1115	-42.69	-41.3	-1.39
1	9	10	25	Flatbed	H	8.2265	-1.27	0	-1.27	8.0835	-43.83	-41.3	-2.53
1	9	11	25	Flatbed	H	8.2045	-1.05	0	-1.05	8.0765	-44.99	-41.3	-3.69
1	9	11	65	Flatbed	H	8.2255	-1.21	0	-1.21	8.0765	-43.88	-41.3	-2.58
1	9	101	25	Flatbed	H	8.2255	-1.12	0	-1.12	8.0765	-45.54	-41.3	-4.24
1	9	101	65	Flatbed	H	8.2035	-1.35	0	-1.35	8.0805	-44.17	-41.3	-2.87
1	9	102	25	Flatbed	H	8.2035	-1.09	0	-1.09	8.0765	-45.51	-41.3	-4.21
1	9	102	65	Flatbed	H	8.2255	-1.13	0	-1.13	8.0765	-43.94	-41.3	-2.64
1	9	103	25	Flatbed	H	8.2255	-1.42	0	-1.42	8.0645	-44.38	-41.3	-3.08
1	9	103	125	Flatbed	H	8.2035	-2.09	0	-2.09	8.0965	-42.49	-41.3	-1.19
1	9	202	625	Flatbed	H	8.2235	-9.90	0	-9.90	7.9875	-42.71	-41.3	-1.41
1	9	402	445	Flatbed	H	8.2035	-7.48	0	-7.48	7.9865	-42.51	-41.3	-1.21
1	9	405	4093	Flatbed	H	8.2265	-9.79	0	-9.79	8.0825	-42.43	-41.3	-1.13
1	9	407	4093	Flatbed	H	8.2265	-9.11	0	-9.11	8.0915	-42.51	-41.3	-1.21
1	9	409	4093	Flatbed	H	8.2245	-8.82	0	-8.82	8.0810	-42.51	-41.3	-1.21
1	9	501	0	Flatbed	H	8.2255	-1.18	0	-1.18	7.9885	-46.67	-41.3	-5.37
1	9	503	0	Flatbed	H	8.2035	-1.15	0	-1.15	8.1035	-46.85	-41.3	-5.55
1	9	601	0	Flatbed	H	8.2255	-1.34	0	-1.34	8.0725	-43.85	-41.3	-2.55
1	9	605	0	Flatbed	H	8.2265	-1.42	0	-1.42	8.0805	-46.16	-41.3	-4.86
1	9	607	0	Flatbed	H	8.2265	-1.35	0	-1.35	8.0725	-45.92	-41.3	-4.62
1	9	701	0	Flatbed	H	8.2265	-1.34	0	-1.34	8.0495	-43.04	-41.3	-1.74
1	9	702	0	Flatbed	H	8.2275	-1.06	0	-1.06	8.0705	-44.69	-41.3	-3.39
1	9	703	0	Flatbed	H	8.2275	-1.18	0	-1.18	7.9845	-44.90	-41.3	-3.60
1	9	704	0	Flatbed	H	8.2255	-3.88	0	-3.88	8.0535	-42.55	-41.3	-1.25
1	9	705	0	Flatbed	H	8.2265	-1.32	0	-1.32	8.0885	-42.35	-41.3	-1.05
1	9	706	0	Flatbed	H	8.1035	-1.96	0	-1.96	8.0450	-42.54	-41.3	-1.24
1	9	801	0Gap0	Flatbed	H	8.2255	-1.36	0	-1.36	8.0295	-45.01	-41.3	-3.71
1	9	801	0Gap64	Flatbed	H	8.2245	-1.21	0	-1.21	8.0905	-44.51	-41.3	-3.21
1	9	802	0	Flatbed	H	8.2255	-1.21	0	-1.21	8.0905	-44.30	-41.3	-3.00
1	9	803	0	Flatbed	H	8.2245	-1.32	0	-1.32	8.0905	-45.80	-41.3	-4.50
1	9	804	0Gap0	Flatbed	H	8.2245	-1.49	0	-1.49	8.1115	-42.41	-41.3	-1.11
1	9	804	0Gap64	Flatbed	H	8.2245	-1.73	0	-1.73	8.0905	-42.43	-41.3	-1.13
1	9	805	0	Flatbed	H	8.2245	-2.73	0	-2.73	8.0905	-42.61	-41.3	-1.31
1	9	806	0	Flatbed	H	8.2255	-1.47	0	-1.47	8.0905	-42.73	-41.3	-1.43
1	9	807	0Gap0	Flatbed	H	8.2235	-1.49	0	-1.49	8.0905	-44.91	-41.3	-3.61
1	9	807	0Gap64	Flatbed	H	8.2245	-1.30	0	-1.30	8.0495	-45.09	-41.3	-3.79
1	9	808	0	Flatbed	H	8.2245	-1.34	0	-1.34	8.0825	-44.70	-41.3	-3.40
1	9	809	0	Flatbed	H	8.2245	-1.17	0	-1.17	8.0495	-44.98	-41.3	-3.68
1	9	810	0Gap0	Flatbed	H	8.2255	-2.02	0	-2.02	8.0905	-42.52	-41.3	-1.22
1	9	810	0Gap64	Flatbed	H	8.2245	-1.29	0	-1.29	8.0505	-42.98	-41.3	-1.68
1	9	811	0	Flatbed	H	8.2255	-1.21	0	-1.21	8.0495	-42.74	-41.3	-1.44
1	9	812	0	Flatbed	H	8.2255	-1.30	0	-1.30	8.0495	-42.77	-41.3	-1.47

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	5	0	25	Portrait	H	6.4885	-1.73	0	-1.73	6.5105	-42.52	-41.3	-1.22
2	5	1	45	Portrait	H	6.4895	-1.84	0	-1.84	6.3495	-42.71	-41.3	-1.41
2	5	6	125	Portrait	H	6.4875	-6.23	0	-6.23	6.3885	-42.63	-41.3	-1.33
2	5	9	125	Portrait	H	6.4895	-7.17	0	-7.17	6.3765	-42.49	-41.3	-1.19
2	5	10	25	Portrait	H	6.4875	-2.10	0	-2.10	6.6215	-42.57	-41.3	-1.27
2	5	11	25	Portrait	H	6.4875	-1.05	0	-1.05	6.5835	-43.05	-41.3	-1.75
2	5	11	65	Portrait	H	6.4885	-2.45	0	-2.45	6.5205	-42.71	-41.3	-1.41
2	5	101	25	Portrait	H	6.4875	-1.16	0	-1.16	6.5835	-43.37	-41.3	-2.07
2	5	101	65	Portrait	H	6.4895	-2.23	0	-2.23	6.5205	-42.49	-41.3	-1.19
2	5	102	25	Portrait	H	6.4895	-1.18	0	-1.18	6.5675	-43.15	-41.3	-1.85
2	5	102	65	Portrait	H	6.4885	-2.50	0	-2.50	6.5205	-42.61	-41.3	-1.31
2	5	103	25	Portrait	H	6.4895	-2.50	0	-2.50	6.5795	-42.65	-41.3	-1.35
2	5	103	125	Portrait	H	6.4895	-5.18	0	-5.18	6.5205	-42.62	-41.3	-1.32
2	5	202	625	Portrait	H	6.7365	-12.27	0	-12.27	6.6255	-42.35	-41.3	-1.05
2	5	402	445	Portrait	H	6.7445	-10.74	0	-10.74	6.6225	-42.40	-41.3	-1.10
2	5	501	0	Portrait	H	6.7395	-1.11	0	-1.11	6.6225	-43.48	-41.3	-2.18
2	5	503	0	Portrait	H	6.7385	-1.14	0	-1.14	6.6225	-43.52	-41.3	-2.22
2	5	601	0	Portrait	H	6.7415	-2.85	0	-2.85	6.6285	-42.43	-41.3	-1.13
2	5	605	0	Portrait	H	6.7425	-1.08	0	-1.08	6.6245	-43.14	-41.3	-1.84
2	5	607	0	Portrait	H	6.7425	-1.12	0	-1.12	6.5205	-43.11	-41.3	-1.81
2	5	701	0	Portrait	H	6.7405	-2.61	0	-2.61	6.6215	-42.38	-41.3	-1.08
2	5	702	0	Portrait	H	6.7415	-1.25	0	-1.25	6.5315	-43.04	-41.3	-1.74
2	5	703	0	Portrait	H	6.7405	-1.19	0	-1.19	6.6265	-42.75	-41.3	-1.45
2	5	704	0	Portrait	H	6.7415	-7.51	0	-7.51	6.5865	-42.75	-41.3	-1.45
2	5	705	0	Portrait	H	6.6135	-3.25	0	-3.25	6.6255	-42.55	-41.3	-1.25
2	5	706	0	Portrait	H	6.5575	-4.83	0	-4.83	6.6235	-42.72	-41.3	-1.42
2	5	405	4093	Portrait	H	6.7445	-13.68	0	-13.68	6.5195	-42.40	-41.3	-1.10
2	5	407	4093	Portrait	H	6.7365	-13.54	0	-13.54	6.5215	-42.69	-41.3	-1.39
2	5	409	4093	Portrait	H	6.2465	-13.45	0	-13.45	6.5815	-42.44	-41.3	-1.14
2	5	801	0Gap0	Portrait	H	6.7395	-3.64	0	-3.64	6.6145	-42.36	-41.3	-1.06
2	5	801	0Gap64	Portrait	H	6.7395	-3.80	0	-3.80	6.5215	-42.50	-41.3	-1.20
2	5	802	0	Portrait	H	6.2405	-3.80	0	-3.80	6.5215	-42.44	-41.3	-1.14
2	5	803	0	Portrait	H	6.7395	-2.42	0	-2.42	6.5215	-42.60	-41.3	-1.30
2	5	804	0Gap0	Portrait	H	6.7395	-6.05	0	-6.05	6.6145	-42.35	-41.3	-1.05
2	5	804	0Gap64	Portrait	H	6.7385	-6.46	0	-6.46	6.5825	-42.30	-41.3	-1.00
2	5	805	0	Portrait	H	6.2425	-6.35	0	-6.35	6.5825	-42.41	-41.3	-1.11
2	5	806	0	Portrait	H	6.2425	-5.23	0	-5.23	6.5825	-42.38	-41.3	-1.08
2	5	807	0Gap0	Portrait	H	6.2445	-3.66	0	-3.66	6.6145	-42.67	-41.3	-1.37
2	5	807	0Gap64	Portrait	H	6.2445	-2.74	0	-2.74	6.6245	-42.32	-41.3	-1.02
2	5	808	0	Portrait	H	6.2425	-3.23	0	-3.23	6.5855	-42.67	-41.3	-1.37
2	5	809	0	Portrait	H	6.7415	-3.22	0	-3.22	6.5855	-42.68	-41.3	-1.38
2	5	810	0Gap0	Portrait	H	6.2425	-6.7	0	-6.7	6.6145	-42.54	-41.3	-1.24
2	5	810	0Gap64	Portrait	H	6.7405	-5.55	0	-5.55	6.5265	-42.58	-41.3	-1.28
2	5	811	0	Portrait	H	6.7415	-5.48	0	-5.48	6.5265	-42.51	-41.3	-1.21
2	5	812	0	Portrait	H	6.2405	-5.5	0	-5.5	6.5265	-42.55	-41.3	-1.25

ANT	CH	CF	PL	EUT Orientation	Ant. Polarity	Peak EIRP Power				Average EIRP Power			
						FM (GHz)	Adj Pk	Pk Limit	Margin (dB)	FM (GHz)	Adj Av	Avg Limit	Margin (dB)
2	9	0	25	Portrait	V	8.2525	-1.12	0	-1.12	8.0765	-42.40	-41.3	-1.10
2	9	1	45	Portrait	V	8.2525	-1.13	0	-1.13	8.0805	-42.92	-41.3	-1.62
2	9	6	125	Portrait	V	8.0005	-6.40	0	-6.40	8.1035	-42.44	-41.3	-1.14
2	9	9	125	Portrait	V	8.0005	-7.40	0	-7.40	8.0775	-42.52	-41.3	-1.22
2	9	10	25	Portrait	V	8.0795	-1.67	0	-1.67	8.0765	-42.70	-41.3	-1.40
2	9	11	25	Portrait	V	8.0805	-1.46	0	-1.46	8.0765	-44.03	-41.3	-2.73
2	9	11	65	Portrait	V	8.0805	-1.53	0	-1.53	8.0805	-42.63	-41.3	-1.33
2	9	101	25	Portrait	V	8.0805	-1.17	0	-1.17	8.0765	-43.87	-41.3	-2.57
2	9	101	65	Portrait	V	8.2175	-1.26	0	-1.26	8.0805	-42.68	-41.3	-1.38
2	9	102	25	Portrait	V	8.2175	-1.42	0	-1.42	8.0885	-44.54	-41.3	-3.24
2	9	102	65	Portrait	V	8.2175	-1.21	0	-1.21	8.0805	-42.45	-41.3	-1.15
2	9	103	25	Portrait	V	8.2175	-1.44	0	-1.44	8.0925	-42.83	-41.3	-1.53
2	9	103	125	Portrait	V	8.2175	-3.77	0	-3.77	8.0805	-42.62	-41.3	-1.32
2	9	202	625	Portrait	V	8.2165	-9.73	0	-9.73	8.1415	-42.49	-41.3	-1.19
2	9	402	445	Portrait	V	8.2185	-8.21	0	-8.21	8.0805	-42.43	-41.3	-1.13
2	9	501	0	Portrait	V	8.2175	-1.16	0	-1.16	8.0875	-45.41	-41.3	-4.11
2	9	503	0	Portrait	V	8.2165	-1.05	0	-1.05	8.1065	-45.58	-41.3	-4.28
2	9	601	0	Portrait	V	8.2175	-1.26	0	-1.26	8.0985	-42.91	-41.3	-1.61
2	9	605	0	Portrait	V	8.2175	-1.26	0	-1.26	8.0805	-45.26	-41.3	-3.96
2	9	607	0	Portrait	V	8.2175	-1.30	0	-1.30	8.0805	-45.16	-41.3	-3.86
2	9	701	0	Portrait	V	8.2165	-1.28	0	-1.28	8.1055	-43.19	-41.3	-1.89
2	9	702	0	Portrait	V	8.2175	-1.37	0	-1.37	8.0855	-44.91	-41.3	-3.61
2	9	703	0	Portrait	V	8.2175	-1.32	0	-1.32	8.0995	-44.83	-41.3	-3.53
2	9	704	0	Portrait	V	8.2175	-6.04	0	-6.04	8.0835	-42.40	-41.3	-1.10
2	9	705	0	Portrait	V	8.1145	-1.25	0	-1.25	8.0805	-42.46	-41.3	-1.16
2	9	706	0	Portrait	V	8.1145	-4.06	0	-4.06	8.0845	-42.92	-41.3	-1.62
2	9	405	4093	Portrait	V	8.2185	-12.46	0	-12.46	8.0875	-42.67	-41.3	-1.37
2	9	407	4093	Portrait	V	8.2185	-11.77	0	-11.77	8.0825	-42.51	-41.3	-1.21
2	9	409	4093	Portrait	V	8.2175	-11.57	0	-11.57	8.0885	-42.38	-41.3	-1.08
2	9	801	0Gap0	Portrait	V	8.2165	-2.54	0	-2.54	8.0605	-42.76	-41.3	-1.46
2	9	801	0Gap64	Portrait	V	8.2175	-2.51	0	-2.51	8.0745	-42.65	-41.3	-1.35
2	9	802	0	Portrait	V	8.2165	-2.52	0	-2.52	8.0805	-42.52	-41.3	-1.22
2	9	803	0	Portrait	V	8.2175	-1.29	0	-1.29	8.0745	-42.91	-41.3	-1.61
2	9	804	0Gap0	Portrait	V	8.2165	-3.52	0	-3.52	8.0705	-42.55	-41.3	-1.25
2	9	804	0Gap64	Portrait	V	8.2165	-3.67	0	-3.67	8.0805	-42.65	-41.3	-1.35
2	9	805	0	Portrait	V	8.2165	-3.57	0	-3.57	8.0805	-42.71	-41.3	-1.41
2	9	806	0	Portrait	V	8.2165	-2.97	0	-2.97	8.0805	-42.69	-41.3	-1.39
2	9	807	0Gap0	Portrait	V	8.2175	-1.49	0	-1.49	8.1455	-43.24	-41.3	-1.94
2	9	807	0Gap64	Portrait	V	8.2175	-1.05	0	-1.05	8.1015	-43.24	-41.3	-1.94
2	9	808	0	Portrait	V	8.2175	-1.34	0	-1.34	8.1415	-43.99	-41.3	-2.69
2	9	809	0	Portrait	V	8.2175	-1.1	0	-1.1	8.1405	-43.08	-41.3	-1.78
2	9	810	0Gap0	Portrait	V	7.7465	-7.4	0	-7.4	7.8625	-42.84	-41.3	-1.54
2	9	810	0Gap64	Portrait	V	7.7425	-6.12	0	-6.12	7.8535	-42.54	-41.3	-1.24
2	9	811	0	Portrait	V	7.7425	-6.3	0	-6.3	7.8535	-42.57	-41.3	-1.27
2	9	812	0	Portrait	V	7.7385	-6.04	0	-6.04	7.8595	-42.37	-41.3	-1.07

PEAK POWER AND MAXIMUM AVERAGE EMISSIONS





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

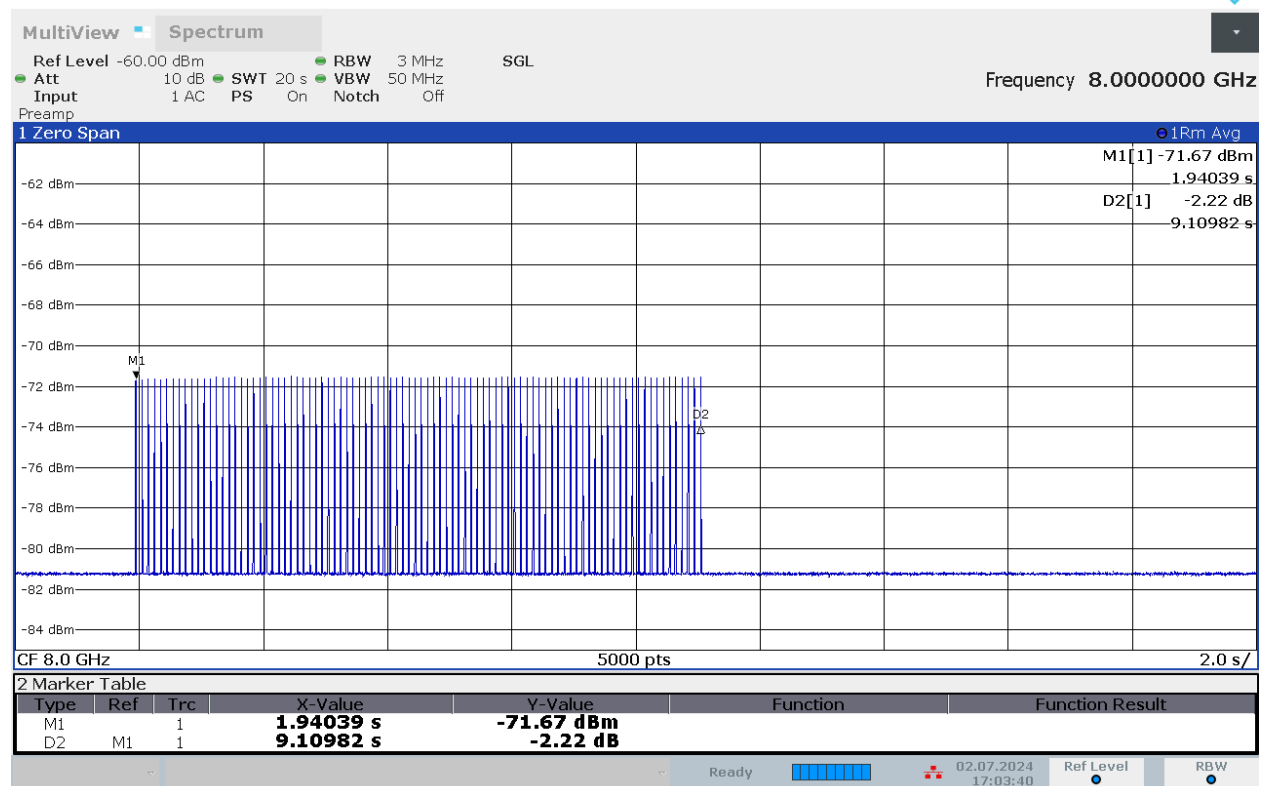
Employee ID: 26051
Location: Chamber D
Test Date: 2024-07-02

Signal Levels on all Plots

- Initiator is Low Amplitude
- Responder is High Amplitude

Case 1: Initiator ends the UWB link

AP2021.8.4,26051,2D



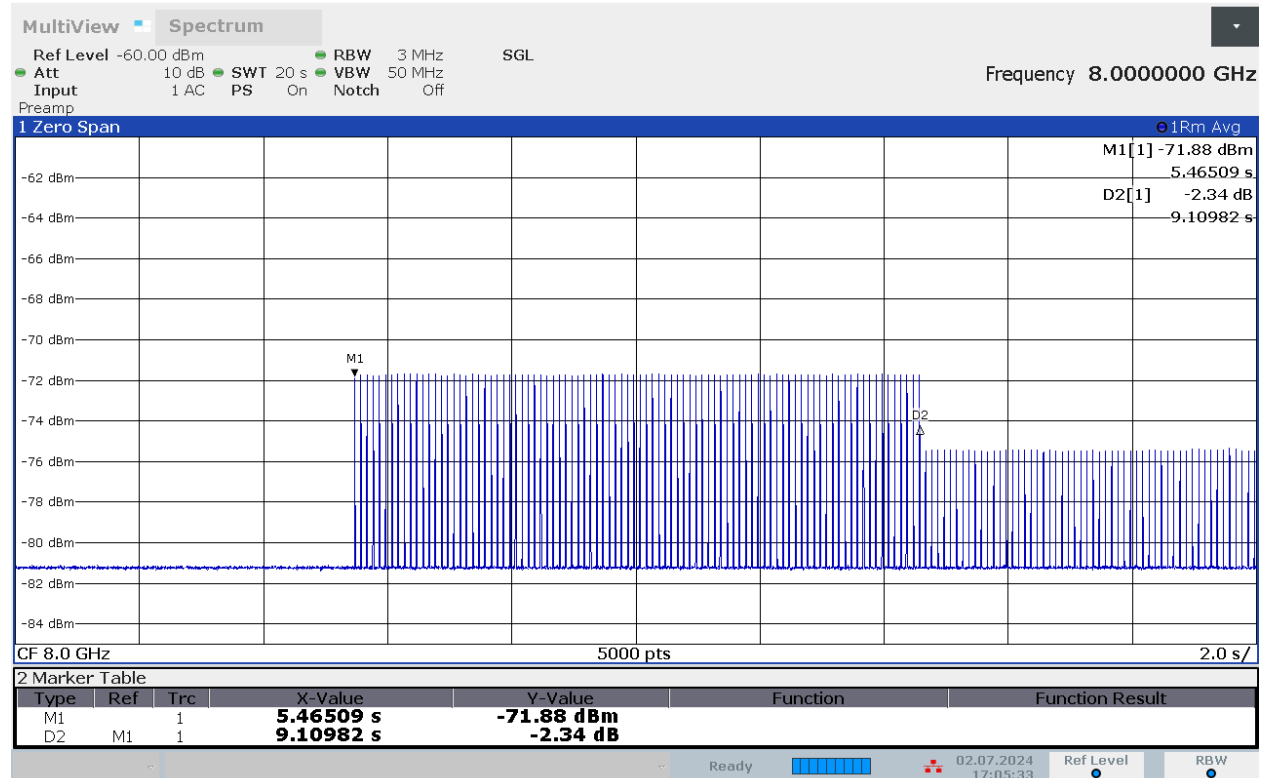
17:03:41 02.07.2024

RESULT

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

Case 2: Responder ends the UWB link

AP2021.8.4,26051,2D



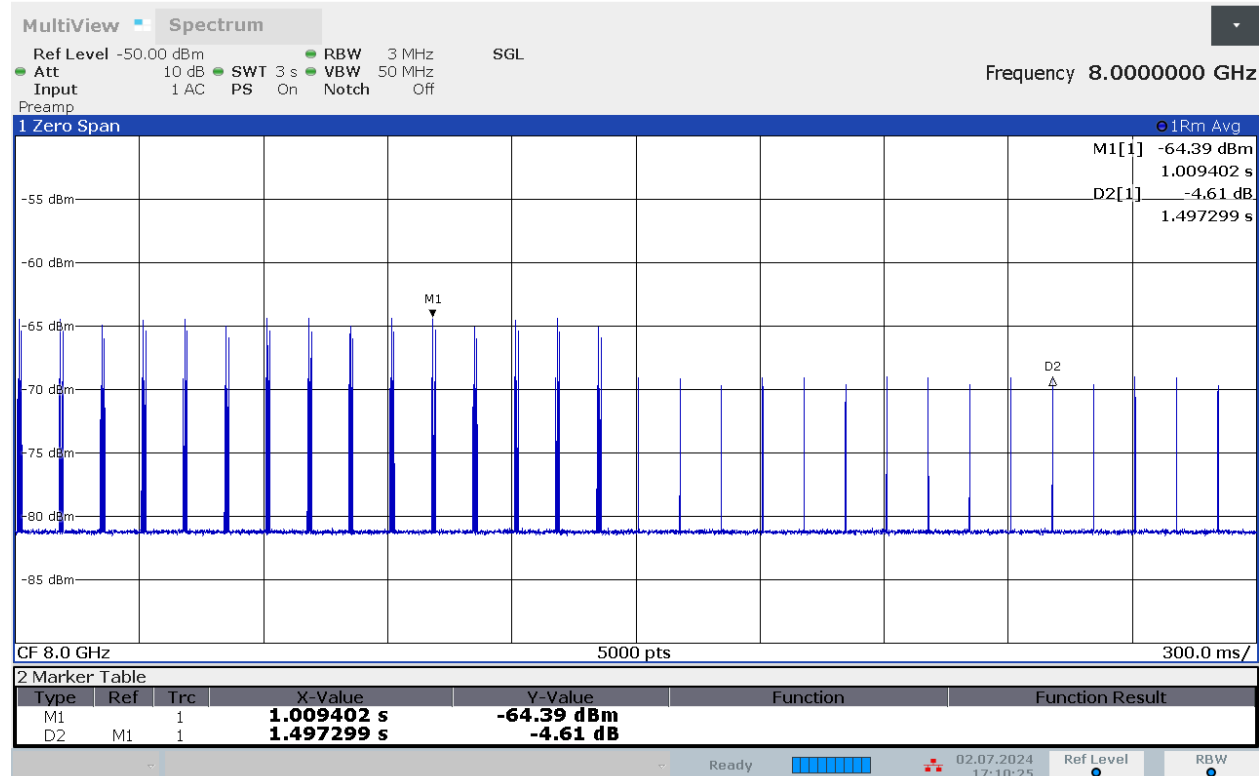
17:05:33 02.07.2024

RESULT

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

Zoom-in Plot during On-Off Transition

AP2021.8.4,26051,2D



17:10:26 02.07.2024

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.

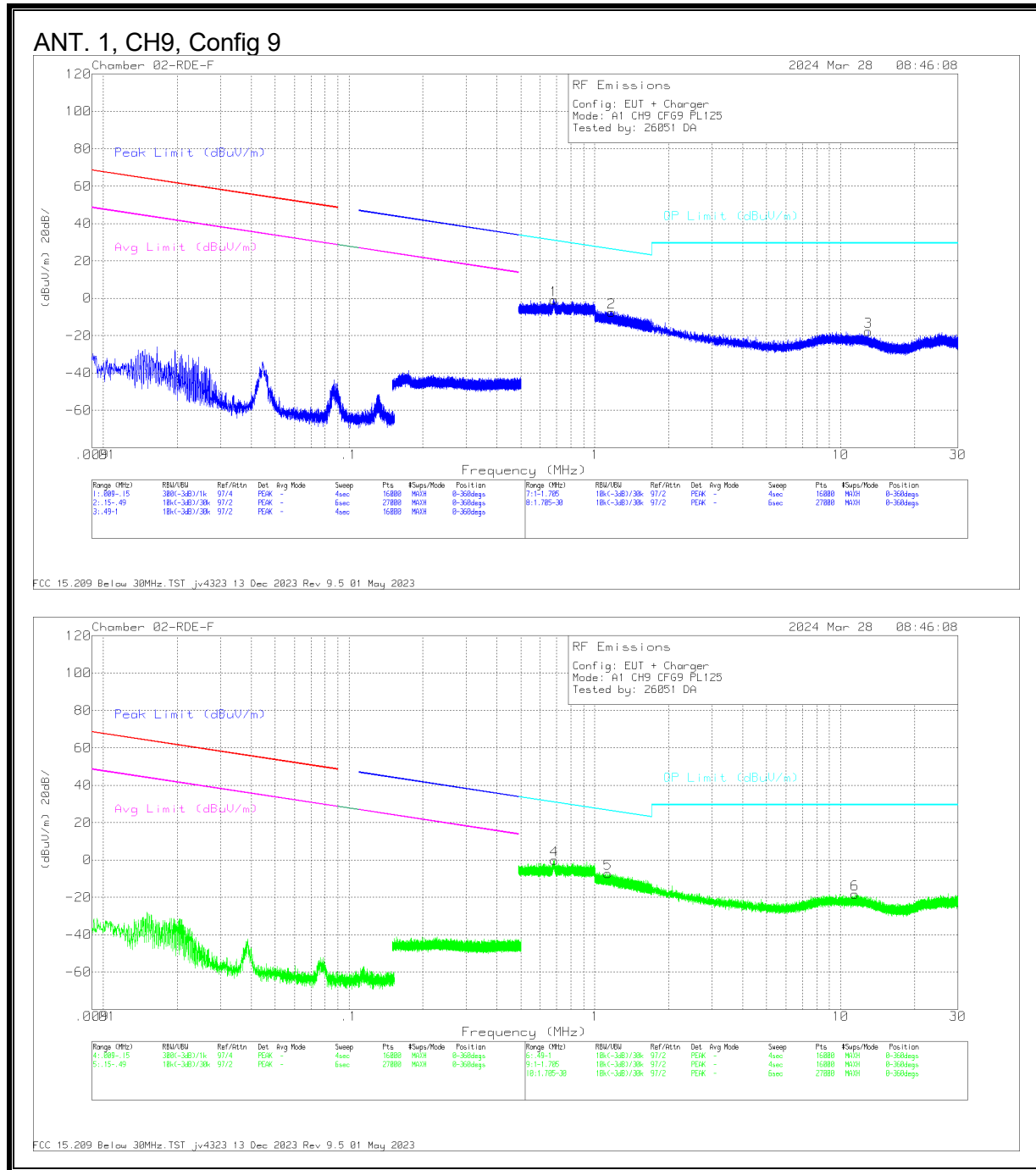
RESULTS**Emissions Summary**

Employee IDs: 32067, 28499

Location: Chamber 2F, 5A

Test Date: 3/25/24 – 7/7/24

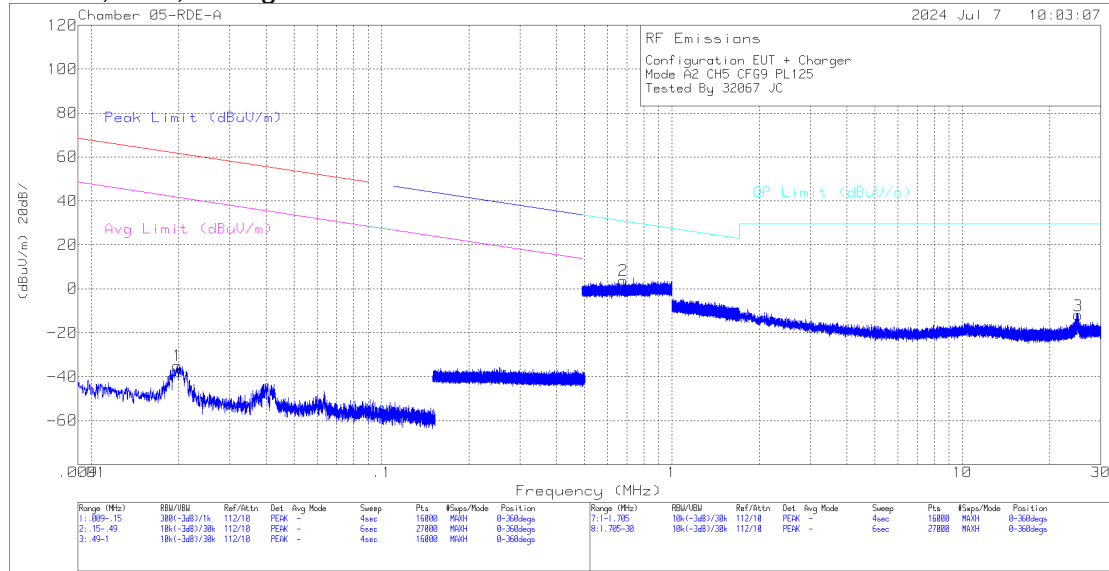
Ant	CH	Config	Payload	Power Setting	Frequency Range	
					9 kHz - 30 MHz	30 - 960 MHz
1	9	9	125	Max	PASS	PASS
2	5	9	125	Max	PASS	PASS
2	9	9	125	Max	PASS	PASS

9.5.1. EMISSIONS, 9 kHz – 30 MHz**Trace Markers**

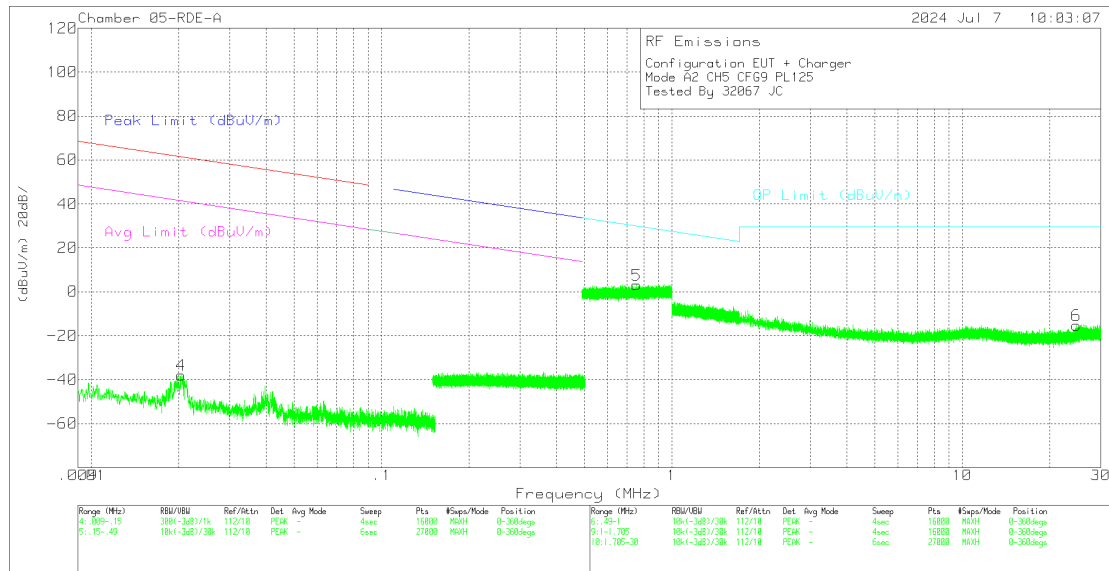
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dBm)	Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	.6816	15.21	Pk	56.3	-32.5	-40	-99	30.94	-31.93	0-360	Face On
4	.6849	16.01	Pk	56.3	-32.5	-40	-19	30.9	-31.09	0-360	Face Off
5	1.1297	19.13	Pk	48.1	-32.4	-40	-7.17	26.57	-33.74	0-360	Face Off
2	1.1719	18.89	Pk	45.9	-32.4	-40	-7.61	26.25	-33.86	0-360	Face On
6	11.4441	19.03	Pk	34.7	-32.1	-40	-18.37	29.5	-47.87	0-360	Face Off
3	12.9616	19.9	Pk	34.3	-32	-40	-17.8	29.5	-47.3	0-360	Face On

Pk - Peak detector

ANT. 2, CH5, Config 9



FCC 15.209 Below 30MHz.TST jv4323 13 Dec 2023 Rev 9.5 01 May 2023



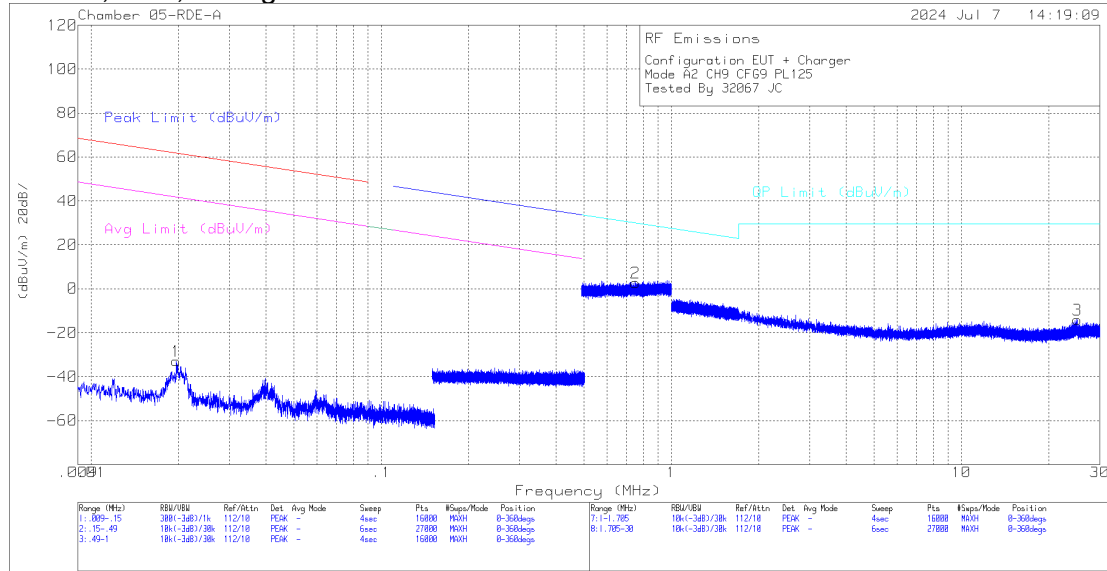
FCC 15.209 Below 30MHz.TST jv4323 13 Dec 2023 Rev 9.5 01 May 2023

Trace Markers

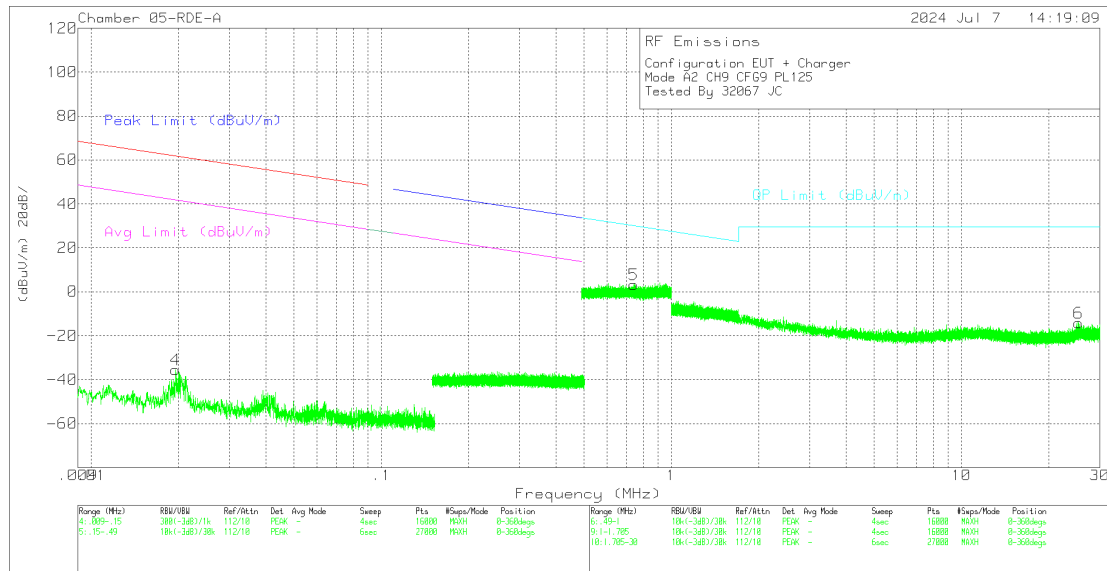
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	Amp/Cbl (dB)	Dist Corr 300m (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
1	0198	18	Pk	59.1	-32	-80	-	-34.9	-	-	61.64	-66.54	41.64	-76.54	0-360	Face On
4	0204	14.95	Pk	59.1	-32	-80	-	-37.95	-	-	61.4	-69.35	41.4	-79.35	0-360	Face Off
2	6814	20.48	Pk	56.4	-33.1	-	-40	3.78	30.94	-27.16	-	-	-	-	0-360	Face On
5	7561	19.5	Pk	56.5	-32.9	-	-40	3.1	30.04	-26.94	-	-	-	-	0-360	Face Off
6	24.7117	23.41	Pk	33.7	-32.4	-	-40	-15.29	29.5	-44.79	-	-	-	-	0-360	Face Off
3	25.1383	26.79	Pk	33.6	-32.5	-	-40	-12.11	29.5	-41.61	-	-	-	-	0-360	Face On

Pk - Peak detector

ANT. 2, CH9, Config 9



FCC 15.209 Below 30MHz.TST jv4323 13 Dec 2023 Rev 9.5 01 May 2023



FCC 15.209 Below 30MHz.TST jv4323 13 Dec 2023 Rev 9.5 01 May 2023

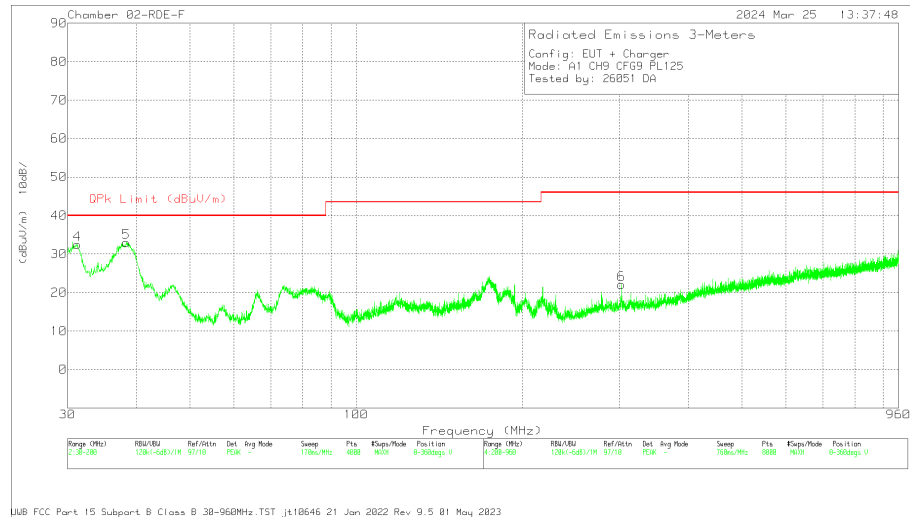
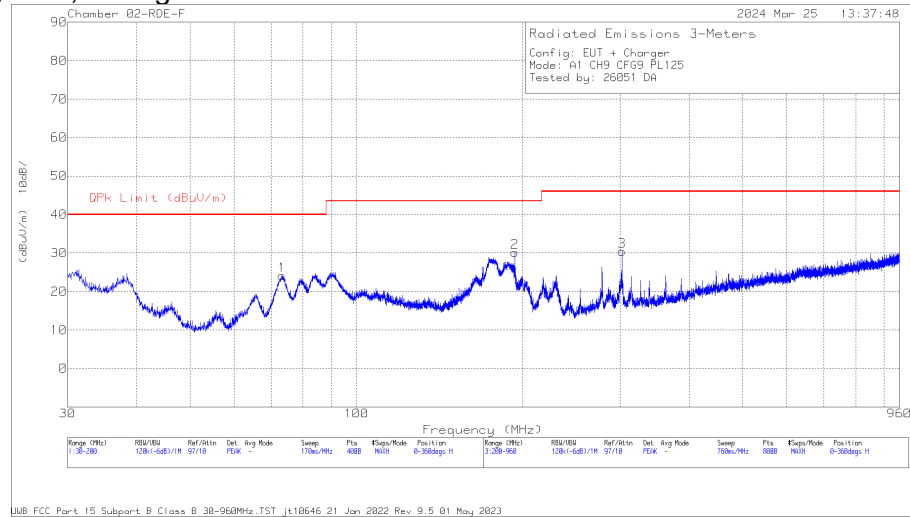
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	Amp/Cbl (dB)	Dist Corr 300m (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Polarity
4	0.195	17.34	Pk	59.2	-32	-80	-	-35.46	-	-	61.76	-97.22	41.76	-77.22	0-360	Face Off
1	0.196	20.02	Pk	59.1	-32	-80	-	-32.88	-	-	61.72	-94.6	41.72	-74.6	0-360	Face On
5	7.408	19.68	Pk	56.4	-32.9	-	-40	3.18	30.22	-27.04	-	-	-	-	0-360	Face Off
2	7508	18.92	Pk	56.5	-32.8	-	-40	2.62	30.1	-27.48	-	-	-	-	0-360	Face On
3	25.0565	25.34	Pk	33.6	-33	-	-40	-14.06	29.5	-43.56	-	-	-	-	0-360	Face On
6	25.3741	25.16	Pk	33.6	-33	-	-40	-14.24	29.5	-43.74	-	-	-	-	0-360	Face Off

Pk - Peak detector

9.5.2. EMISSIONS, 30 - 960 MHz

ANT. 1, CH9, Config 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	230634 ACF (dB/m)	CBL/AMP (dB)	Corrected Reading (dBuV/m)	OPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.2328	38.25	Pk	26	-31.7	32.55	40	-7.45	0-360	103	V
5	38.2897	44.37	Pk	20.6	-31.9	33.07	40	-6.93	0-360	103	V
1	73.2762	41.61	Pk	13.8	-31.3	24.11	40	-15.89	0-360	300	H
2	193.455	43.17	Pk	17.5	-30.5	30.17	43.52	-13.35	0-360	103	H
3	302.233	41.17	Pk	19.3	-30	30.47	46.02	-15.55	0-360	103	H
6	302.328	32.8	Pk	19.3	-30	22.1	46.02	-23.92	0-360	103	V

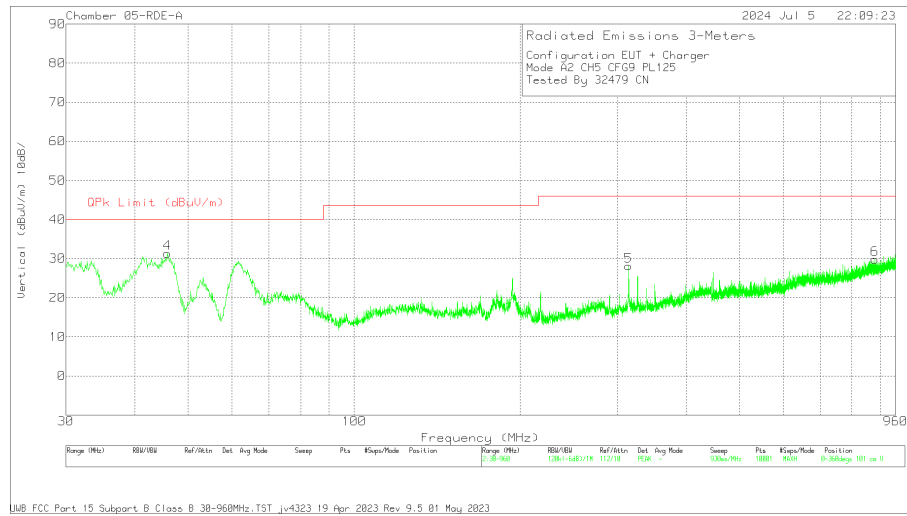
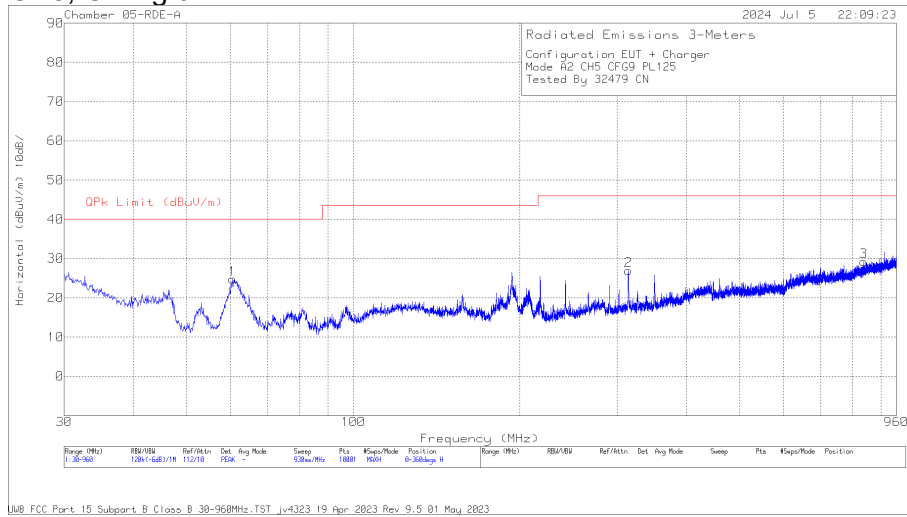
Pk - Peak detector

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	230634 ACF (dB/m)	CBL/AMP (dB)	Corrected Reading (dBuV/m)	OPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	38.6359	41.69	Qp	20.4	-31.8	30.29	40	-9.71	249	102	V

Qp - Quasi-Peak detector

ANT. 2, CH5, Config 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	45.81	48.08	Pk	15.6	-32.3	31.38	40	-8.62	0-360	101	V
1	60.504	43.43	Pk	13.4	-32.1	24.73	40	-15.27	0-360	399	H
2	314.394	38.5	Pk	19.7	-31.3	26.9	46.02	-19.12	0-360	99	H
5	314.673	39.63	Pk	19.7	-31.2	28.13	46.02	-17.89	0-360	101	V
3	838.542	31.36	Pk	27.6	-29.7	29.26	46.02	-16.76	0-360	399	H
6	880.671	31.36	Pk	27.8	-29.3	29.86	46.02	-16.16	0-360	199	V

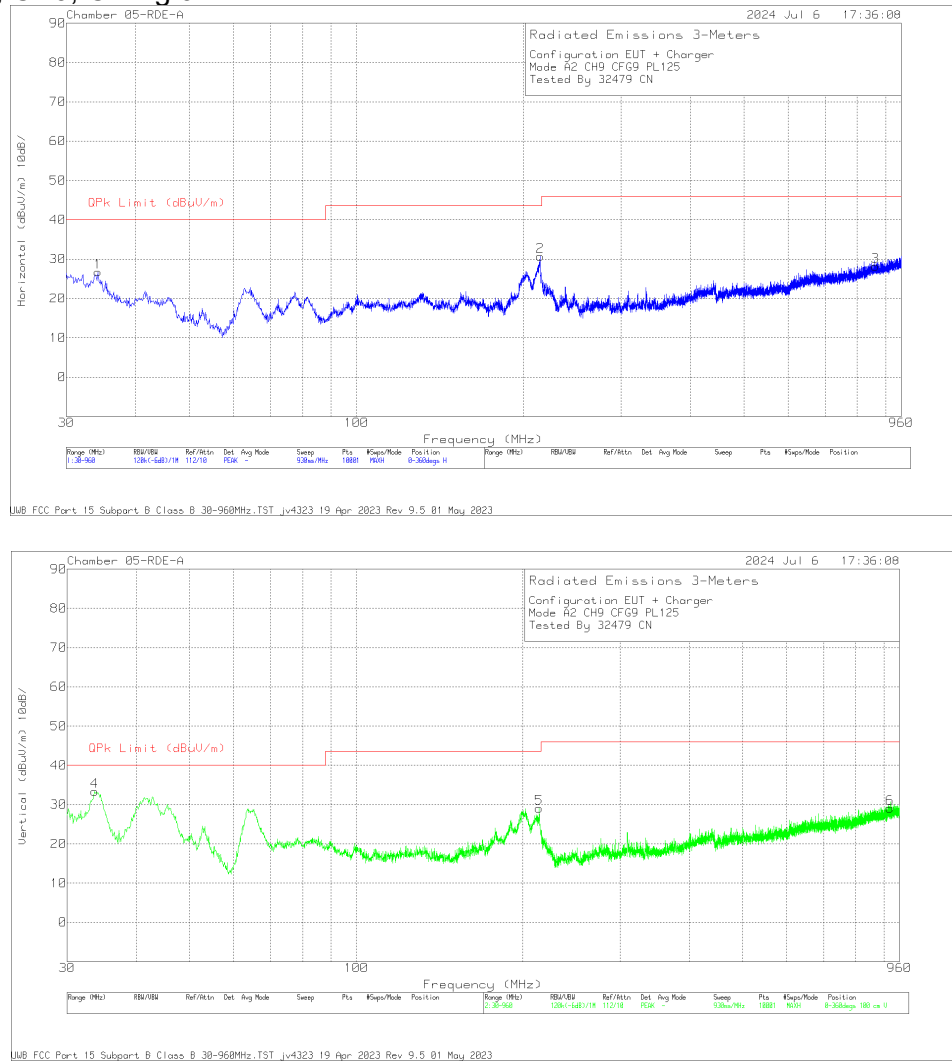
Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
314.709	39.21	Qp	19.7	-31.1	27.81	46.02	-18.21	98	120	V

Qp - Quasi-Peak detector

ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	33.627	41.44	Pk	24.6	-32.7	33.34	40	-6.66	0-360	100	V
1	34.185	35.14	Pk	24.2	-32.6	26.74	40	-13.26	0-360	200	H
5	214.14	44.12	Pk	16.3	-31.3	29.12	43.52	-14.4	0-360	100	V
2	214.326	45.85	Pk	16.3	-31.4	30.75	43.52	-12.77	0-360	100	H
3	862.257	29.91	Pk	27.8	-29.5	28.21	46.02	-17.81	0-360	200	H
6	922.335	30.07	Pk	28.1	-29.1	29.07	46.02	-16.95	0-360	199	V

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	80508 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
214.123	41.6	Qp	16.3	-31.3	26.6	43.52	-16.92	140	106	H

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 = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

RESULTS FOR 6 GHz TO 9 GHz

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

PROCEDURE FOR 9 GHz TO 18 GHz

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

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

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

PROCEDURE FOR 1.164 TO 1.240 GHz

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

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

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

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

PROCEDURE FOR 1.559 TO 1.610 GHz

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

RBW = 120 kHz & VBW = 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 = $20 \cdot \log(0.5\text{m}/3\text{m}) = -15.56 \text{ dB}$

PROCEDURE FOR 18 GHz TO 40 GHz

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

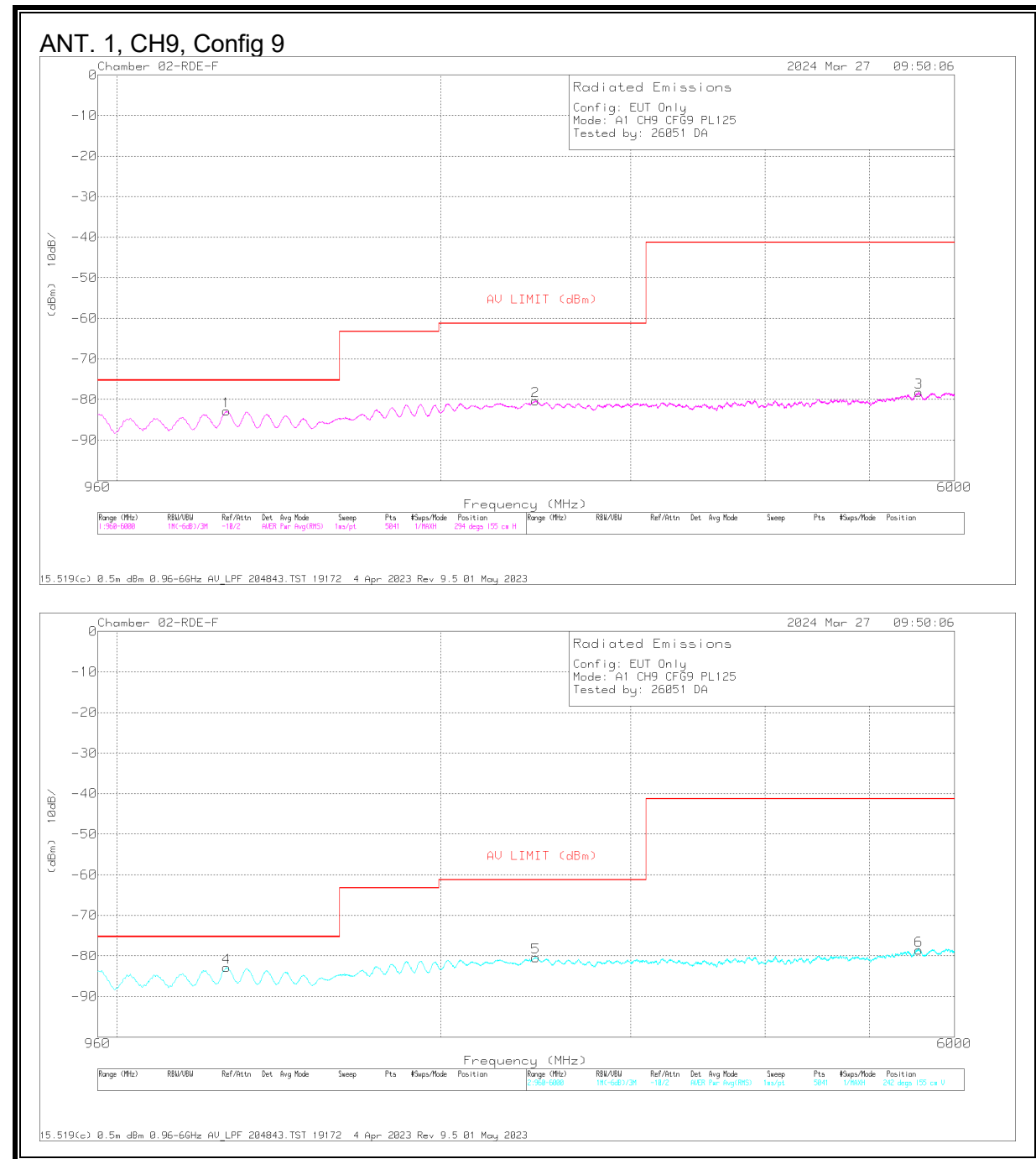
A final test is made at any frequencies at which emissions are found. During this final scan, the antenna is kept no further from the EUT than the maximum distance calculated for each band that yields a minimum system noise floor.

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

RESULTS**Average Emissions Summary**

Employee IDs: 32067, 26051
Location: Chamber 2F, 5A, 5C
Test Date: 2021-03-26 – 2024-07-05

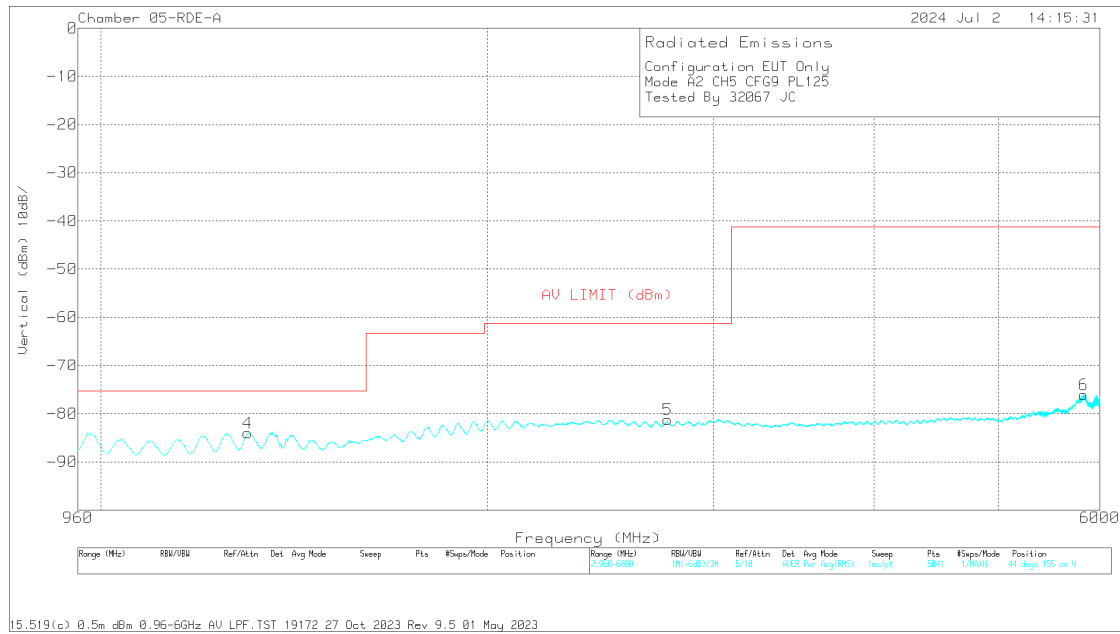
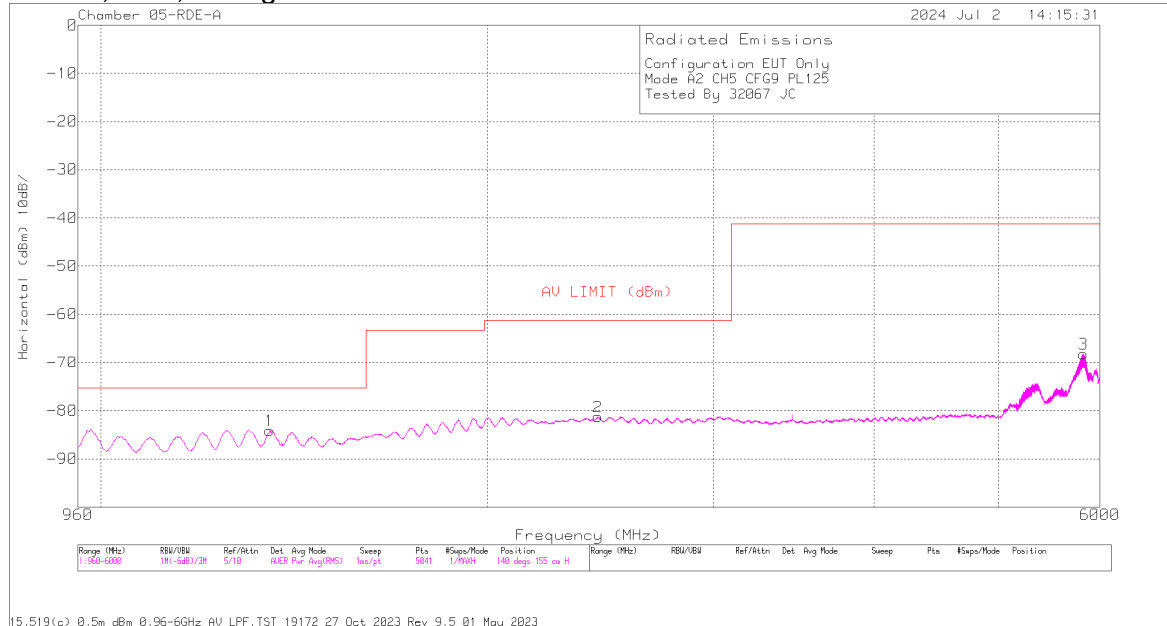
Ant	CH	Config	Payload	Power Setting	Frequency Ranges				
					1164 - 1240 MHz	1559 - 1610 MHz	0.96 - 18 GHz	18 - 26.5 GHz	26.5 - 40 GHz
1	9	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	5	9	125	Max	PASS	PASS	PASS	PASS	PASS
2	9	9	125	Max	PASS	PASS	PASS	PASS	PASS

9.6.1. AVERAGE EMISSIONS, 0.96 – 6 GHz**FCC15.519 (C)****Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	206808 ACF (dBm)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 8.4GHz LPF (dB)	Corrected Reading (dBm)	AV LIMIT (dBm)	Margin (dB)	Altitude (ft)	Height (cm)	Polarity
1	1264	-61.35	RMS	28.8	-46.7	-15.6	11.8	-2	-62.85	-75.3	-7.55	294	155	H
4	1264	-61.37	RMS	28.8	-46.7	-15.6	11.8	-2	-62.87	-75.3	-7.57	242	155	V
2	2448	-62.42	RMS	32.4	-46.7	-15.6	11.8	-2	-80.32	-61.3	-19.02	162	155	H
5	2450	-62.5	RMS	32.4	-46.7	-15.6	11.8	-2	-80.4	-61.3	-19.1	66	155	V
3	5557	-65.15	RMS	34.4	-45.3	-15.6	11.8	1.7	-78.15	-41.3	-36.85	30	155	H
6	5560	-65.47	RMS	34.4	-45.4	-15.6	11.8	1.7	-78.57	-41.3	-37.27	308	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9

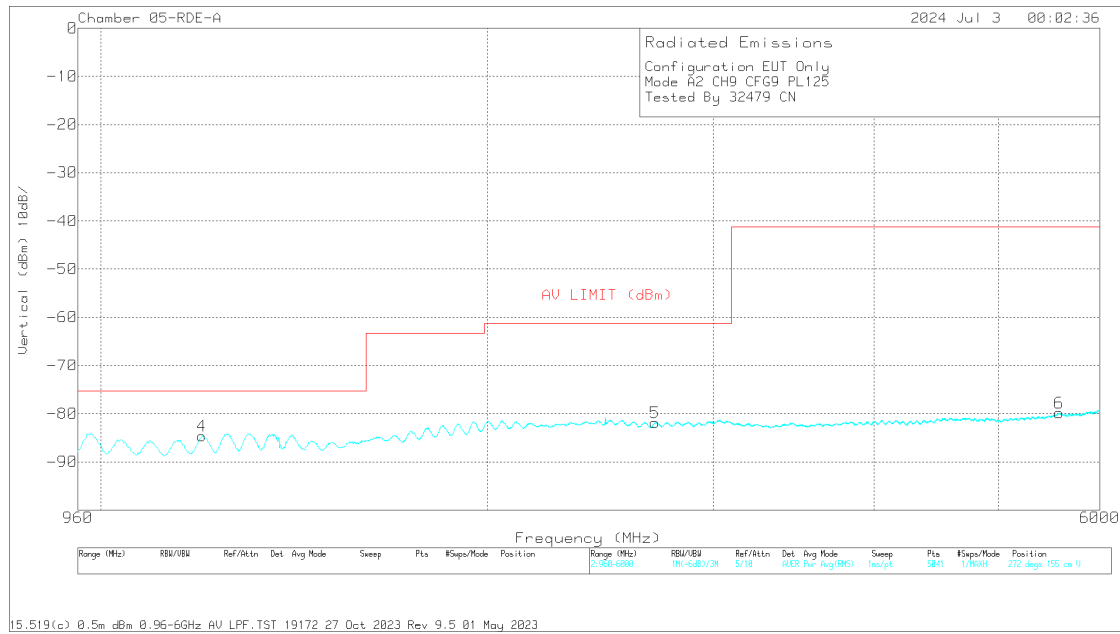
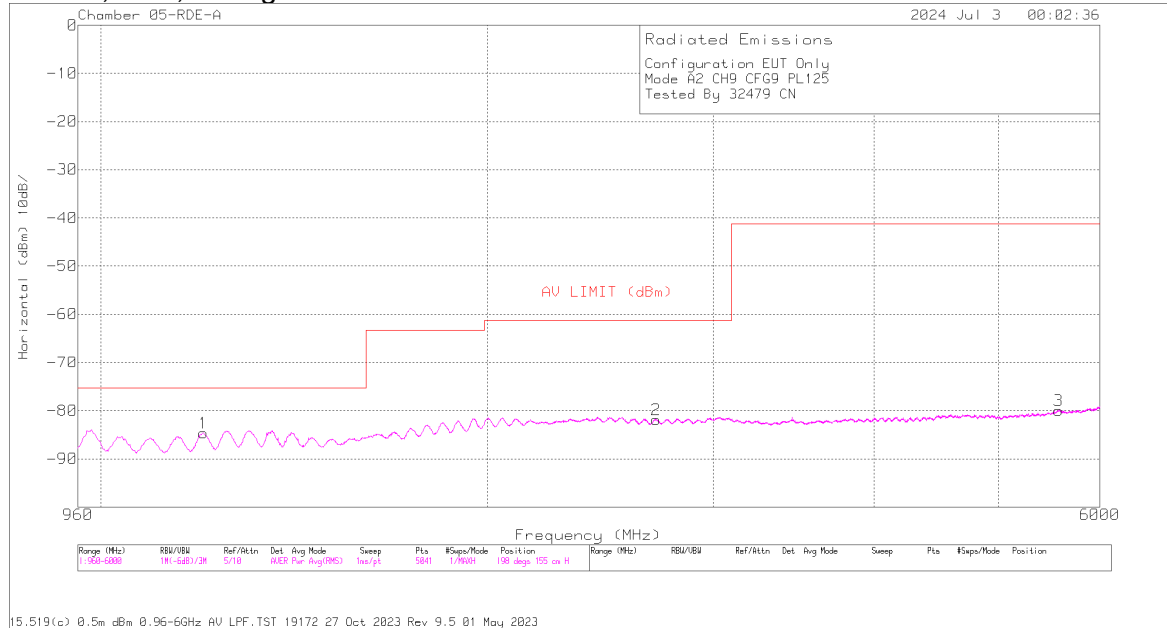


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	80403 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	* 1354	-59.53	RMS	28.8	-15.6	11.8	-49.6	-84.13	-75.3	-8.83	163	155	H
4	* 1302	-59.57	RMS	29.1	-15.6	11.8	-49.7	-83.97	-75.3	-8.67	154	155	V
5	* 2764	-61.38	RMS	32.6	-15.6	11.8	-48.6	-81.18	-61.3	-19.88	66	155	V
2	2438	-61.19	RMS	32.9	-15.6	11.8	-49.2	-81.29	-61.3	-19.99	250	155	H
3	5824	-53.74	RMS	35.5	-15.6	11.8	-46.2	-68.24	-41.3	-26.94	185	155	H
6	5829	-61.52	RMS	35.5	-15.6	11.8	-46.2	-76.02	-41.3	-34.72	110	155	V

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

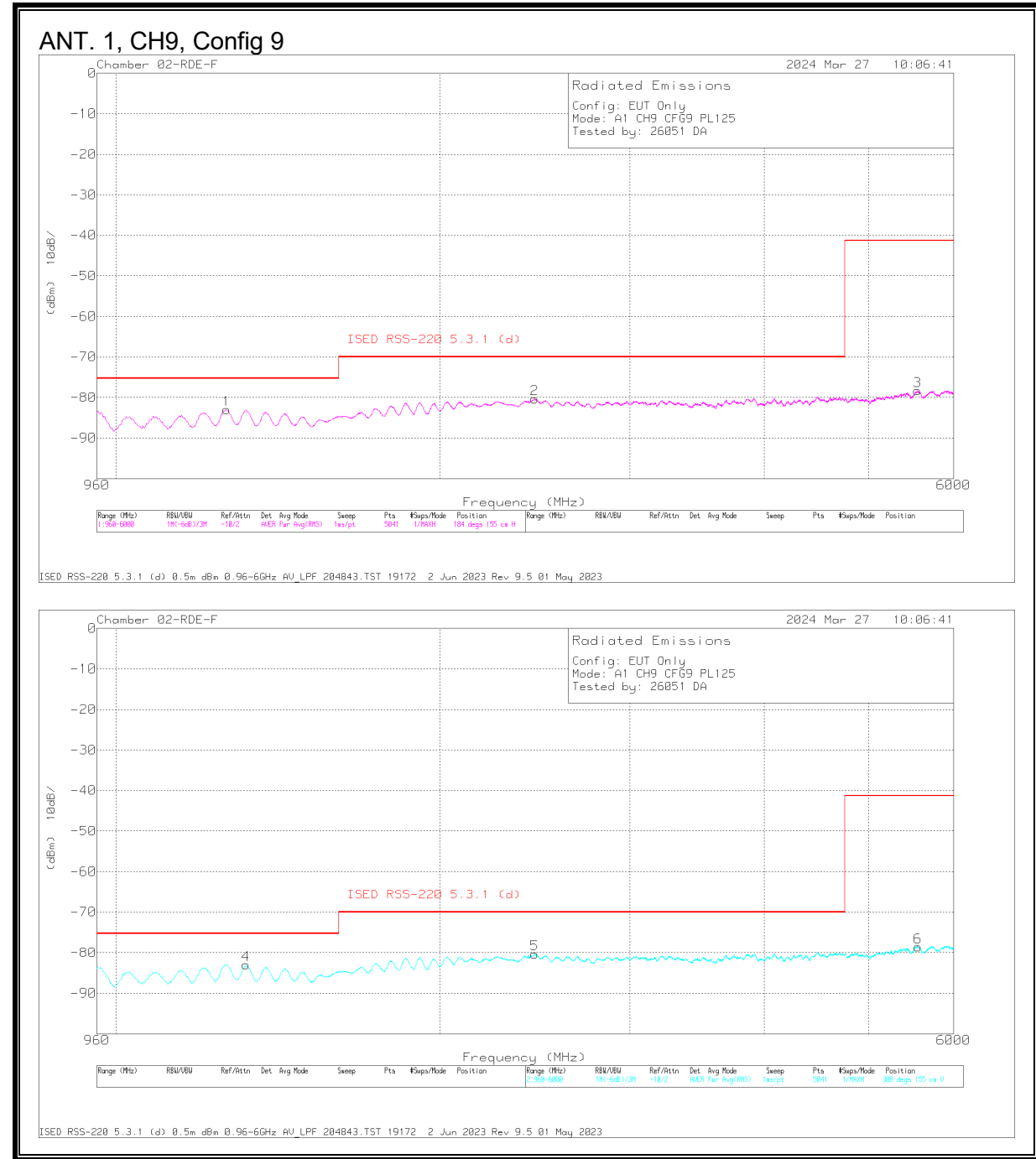
ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	80403 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	* 1202	-59.52	RMS	28.6	-15.6	11.8	-49.9	-84.62	-75.3	-9.32	154	155	H
2	* 2709	-61.88	RMS	32.6	-15.6	11.8	-48.8	-81.88	-61.3	-20.58	220	155	H
4	* 1199	-59.54	RMS	28.6	-15.6	11.8	-49.9	-84.64	-75.3	-9.34	294	155	V
5	* 2703	-61.82	RMS	32.6	-15.6	11.8	-48.8	-81.82	-61.3	-20.52	185	155	V
3	5569	-64.8	RMS	35.3	-15.6	11.8	-46.7	-80	-41.3	-38.7	286	155	H
6	5576	-64.69	RMS	35.3	-15.6	11.8	-46.7	-79.89	-41.3	-38.59	272	155	V

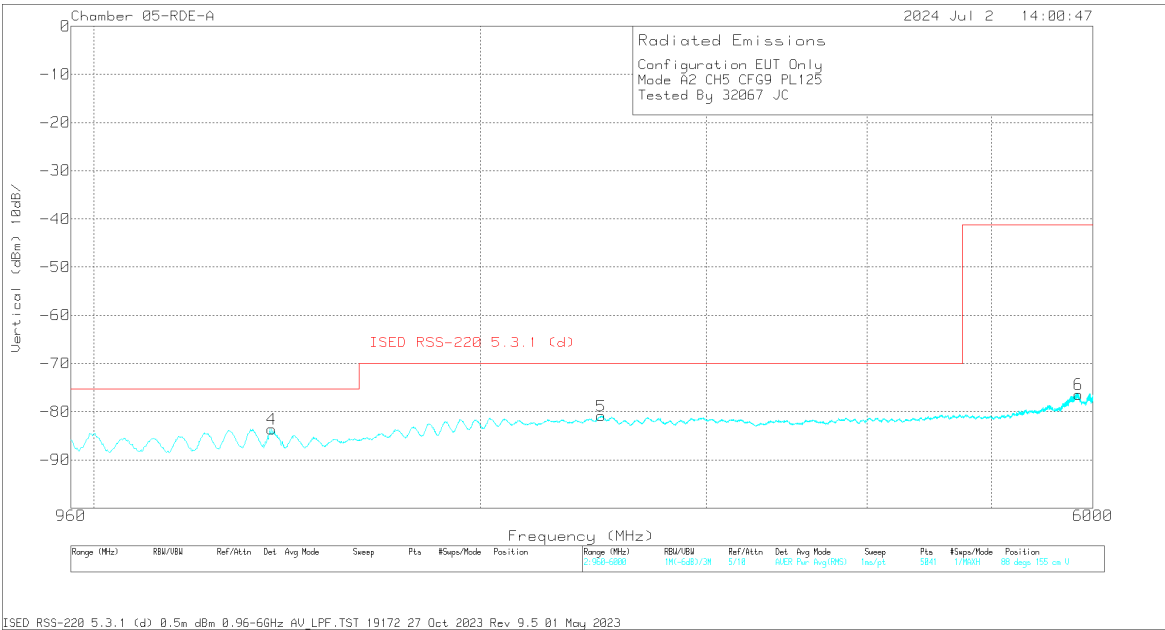
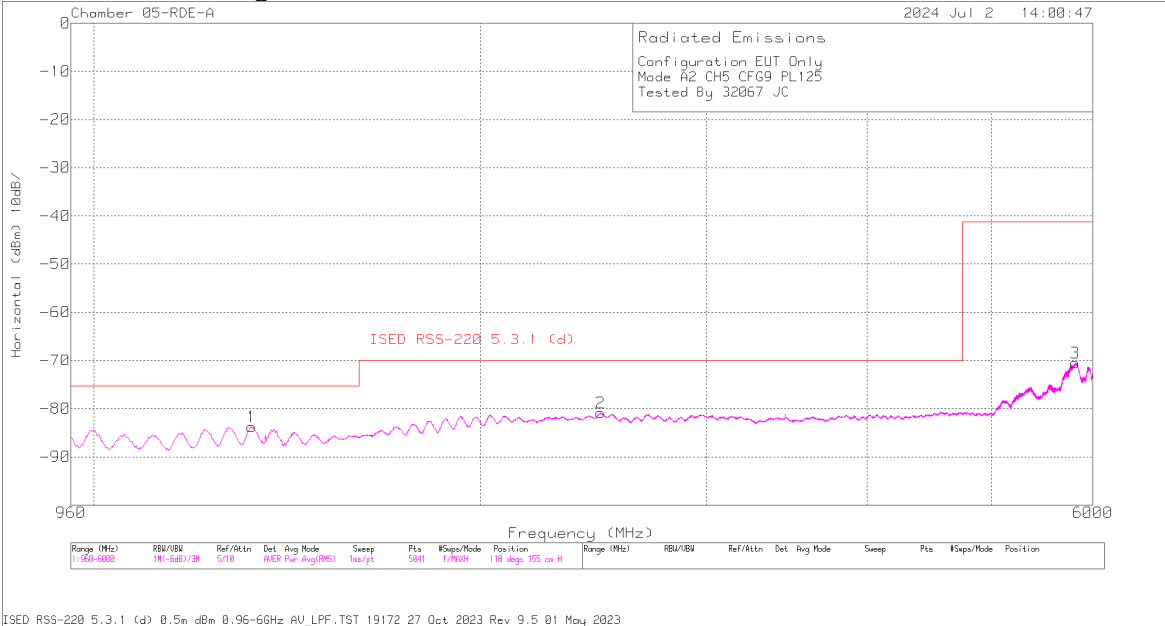
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
RMS - RMS detection

RSS-220 5.3.1 (d)**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	200008 ACF (dBm)	Amp/Cbl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 5.4GHz LFP (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dBm)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	1267	-61.43	RMS	28.8	-46.7	-15.6	11.8	.2	-82.93	-75.3	-7.63	251	155	H
4	1321	-61.54	RMS	28.9	-46.7	-15.6	11.8	.2	-82.94	-75.3	-7.64	0	155	V
2	2448	-62.47	RMS	32.4	-48.7	-15.6	11.8	.2	-80.37	-70	-10.37	316	155	H
5	2449	-62.43	RMS	32.4	-48.7	-15.6	11.8	.2	-80.33	-70	-10.33	88	155	V
3	5555	-66.38	RMS	34.4	-45.2	-15.6	11.8	1.7	-78.28	-41.3	-36.98	316	155	H
6	5561	-65.27	RMS	34.3	-45.5	-15.6	11.8	1.7	-78.57	-41.3	-37.27	154	155	V

RMS - RMS detection

ANT. 2, CH5, Config 9

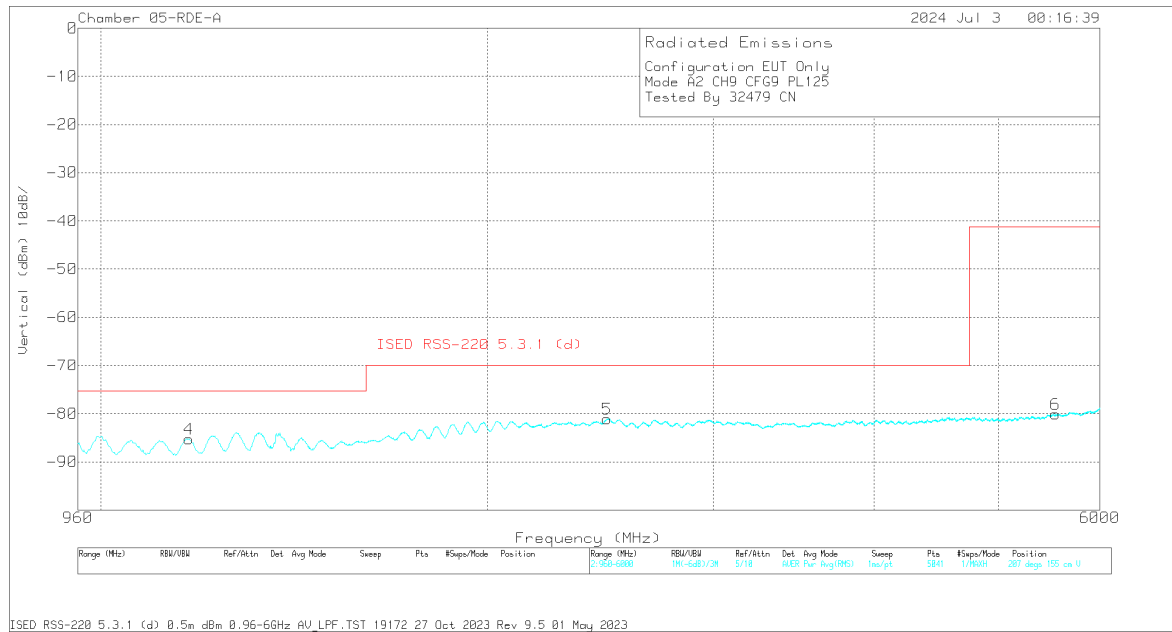
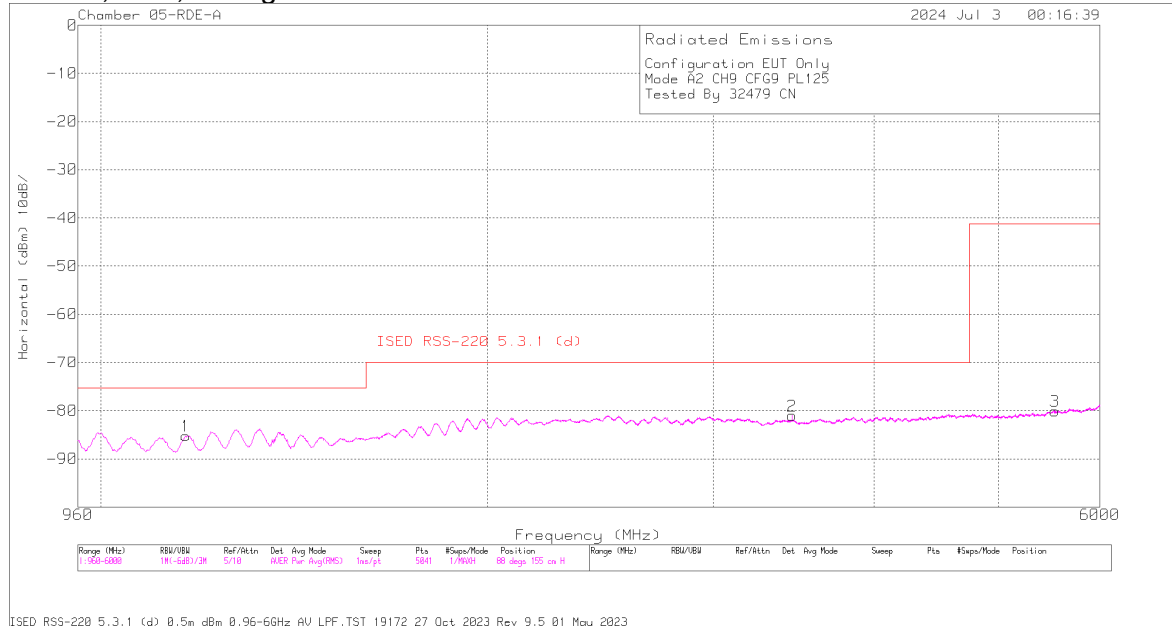


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	80403 ACF 1m (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1327	-59.29	RMS	29	-15.6	11.8	-49.7	-83.79	-75.3	-8.49	206	155	H
4	* 1376	-59.09	RMS	28.7	-15.6	11.8	-49.4	-83.59	-75.3	-8.29	22	155	V
5	* 2484	-60.91	RMS	33	-15.6	11.8	-49.2	-80.91	-70	-10.91	330	155	V
2	2483	-60.87	RMS	33	-15.6	11.8	-49.2	-80.87	-70	-10.87	118	155	H
3	5815	-56.04	RMS	35.5	-15.6	11.8	-46.2	-70.54	-41.3	-29.24	185	155	H
6	5848	-62.32	RMS	35.6	-15.6	11.8	-45.9	-76.42	-41.3	-35.12	132	155	V

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

ANT. 2, CH9, Config 9

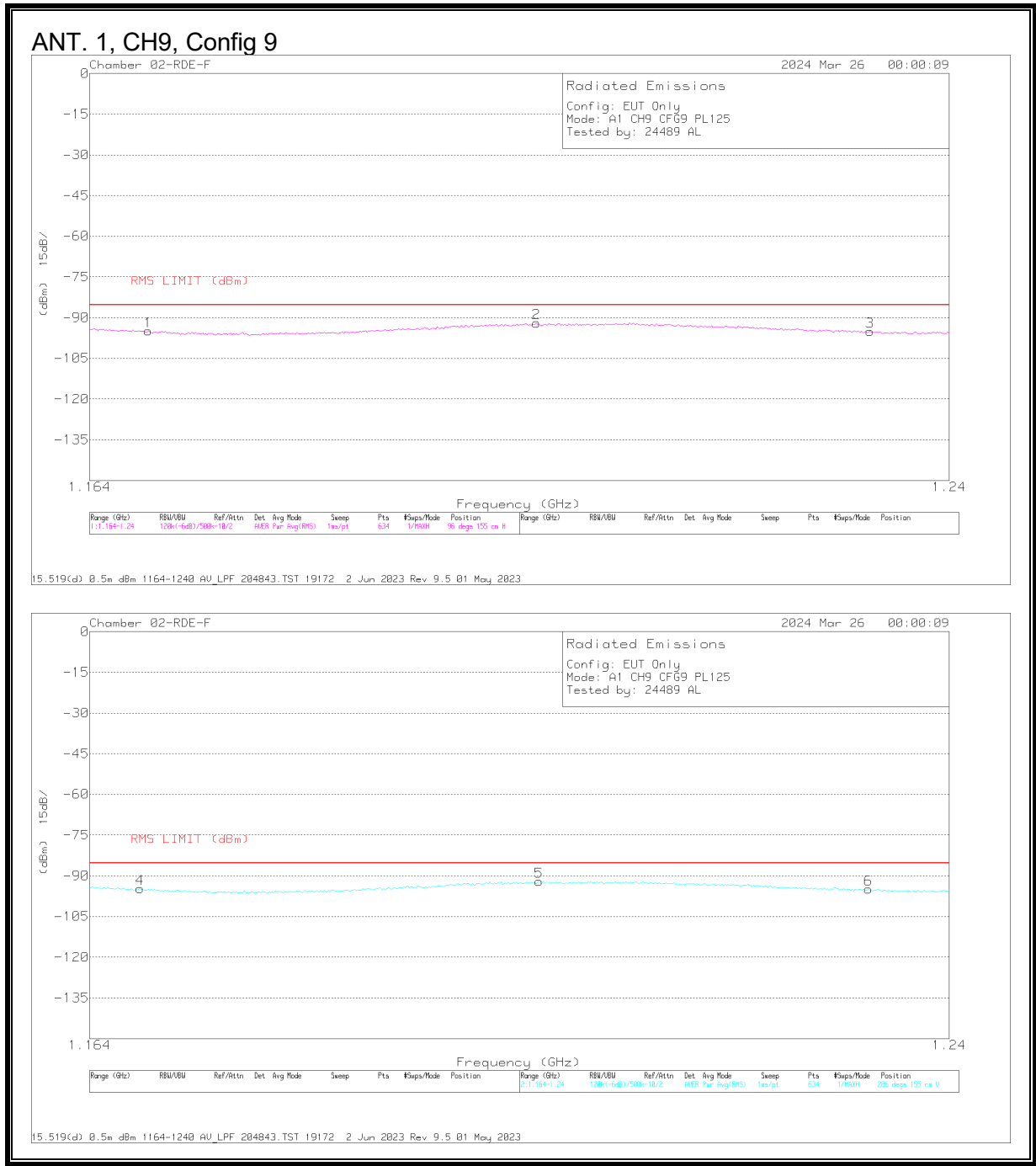


Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBm)	Det	80403 ACF (dB/m)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	ISED RSS-220 5.3.1 (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1165	-59.91	RMS	28.2	-15.6	11.8	-49.7	-85.21	-75.3	-9.91	330	155	H
4	* 1171	-59.83	RMS	28.3	-15.6	11.8	-49.9	-85.23	-75.3	-9.93	75	155	V
5	2478	-61.02	RMS	33	-15.6	11.8	-49.3	-81.12	-70	-11.12	141	155	V
2	3455	-63.84	RMS	33.2	-15.6	11.8	-46.6	-81.04	-70	-11.04	198	155	H
3	5537	-64.72	RMS	35.3	-15.6	11.8	-46.9	-80.12	-41.3	-38.82	109	155	H
6	5544	-64.71	RMS	35.3	-15.6	11.8	-46.9	-80.11	-41.3	-38.81	273	155	V

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

9.6.2. AVERAGE EMISSIONS, 1.164 – 1.240 GHz

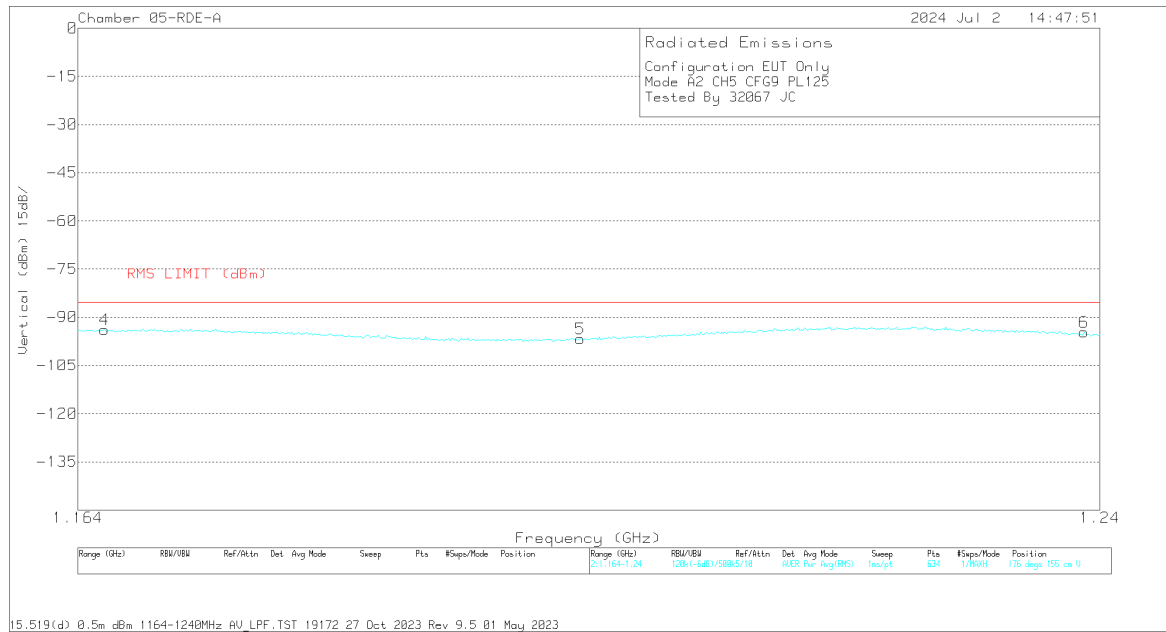
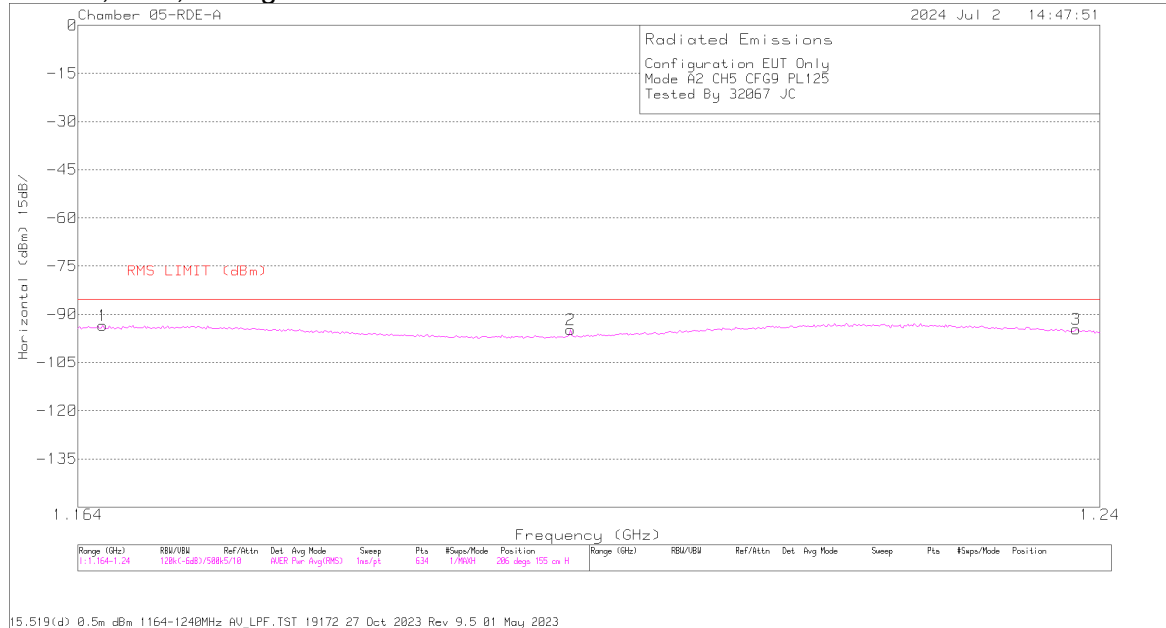


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	20dB BW ACZ (dBm)	Amp/Chl (dB)	Det. Corr. (dB)	Conv. Fact. (dB)	204843 5.4GHz LPF (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
4	1.168322	-72.17	RMS	28.1	-47	-15.6	11.8	2	-94.67	-85.3	-9.37	220	155	V
1	1.169043	-72.29	RMS	28.1	-47.1	-15.6	11.8	2	-94.89	-85.3	-9.59	162	155	H
2	1.2029	-69.87	RMS	28.4	-46.9	-15.6	11.8	2	-91.97	-85.3	-6.67	228	155	H
5	1.203141	-70.03	RMS	28.4	-46.9	-15.6	11.8	2	-92.13	-85.3	-6.83	22	155	V
6	1.232676	-73.16	RMS	28.6	-46.8	-15.6	11.8	2	-94.96	-85.3	-9.66	110	155	V
3	1.232736	-73.28	RMS	28.6	-46.8	-15.6	11.8	2	-95.08	-85.3	-9.78	294	155	H

RMS - RMS detection

ANT. 2, CH5, Config 9

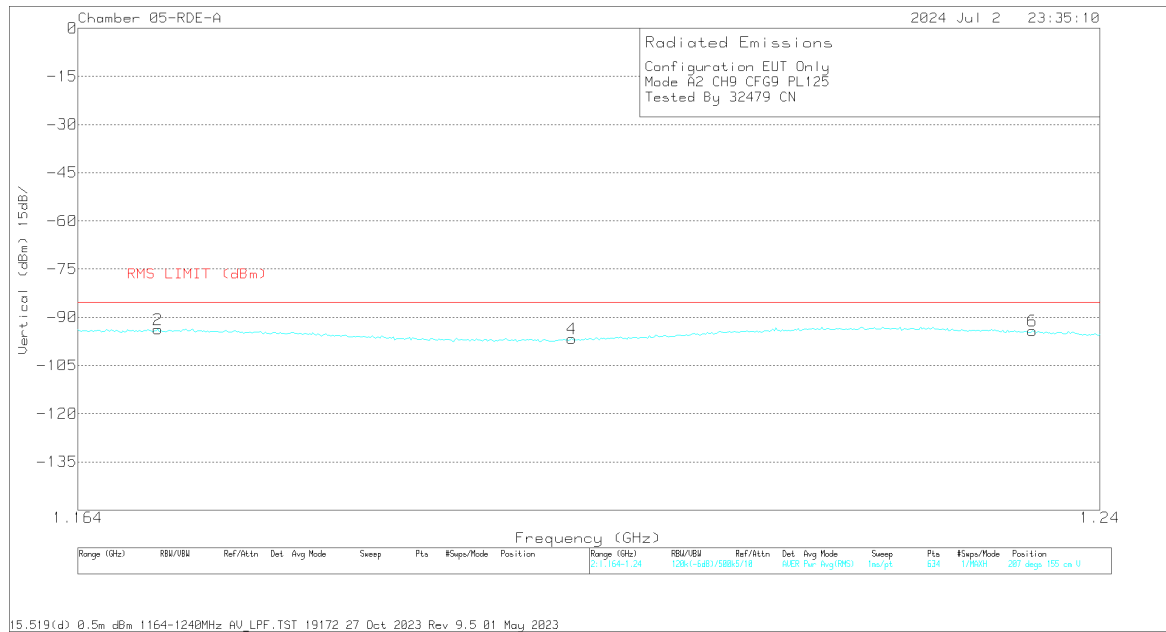
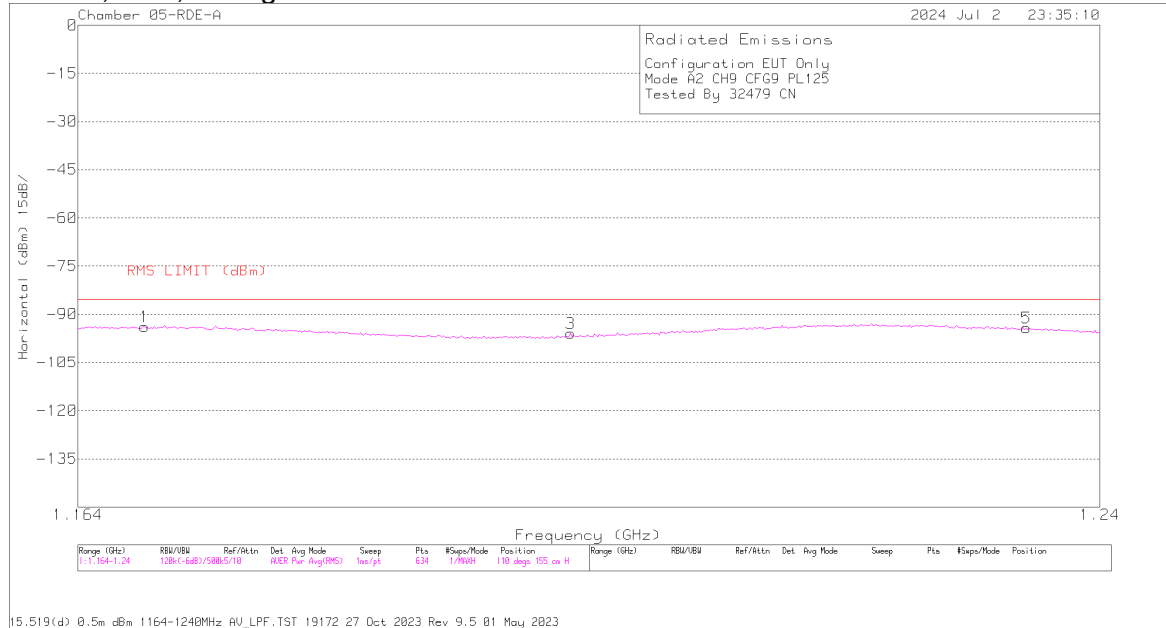


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 1.165801	-67.9	RMS	28	-15.6	11.8	-49.78	-93.48	-85.3	-8.18	251	155	H
2	* 1.200019	-69.43	RMS	28.4	-15.6	11.8	-49.9	-94.73	-85.3	-9.43	30	155	H
3	* 1.238199	-69.65	RMS	28.7	-15.6	11.8	-49.9	-94.65	-85.3	-9.35	360	155	H
4	* 1.165921	-68.24	RMS	28	-15.6	11.8	-49.79	-93.83	-85.3	-8.53	44	155	V
5	* 1.200739	-71.31	RMS	28.4	-15.6	11.8	-49.9	-96.61	-85.3	-11.31	264	155	V
6	* 1.238799	-69.65	RMS	28.7	-15.6	11.8	-49.9	-94.65	-85.3	-9.35	198	155	V

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

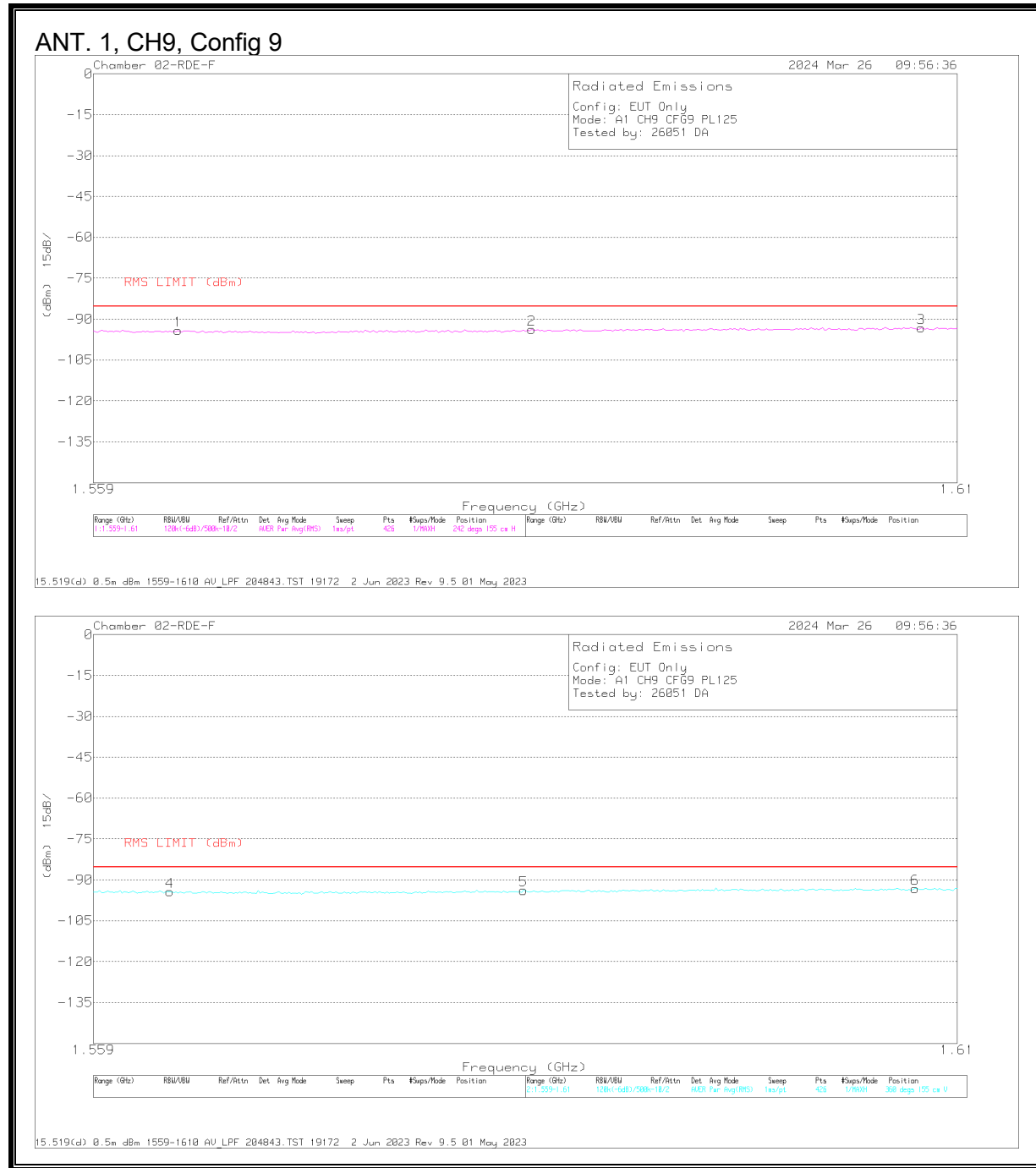
ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 1.168803	-68.2	RMS	28.1	-15.6	11.8	-49.9	-93.8	-85.3	-8.5	132	155	H
3	* 1.200019	-70.63	RMS	28.4	-15.6	11.8	-49.9	-95.93	-85.3	-10.63	88	155	H
5	* 1.234357	-69.14	RMS	28.6	-15.6	11.8	-49.8	-94.14	-85.3	-8.84	132	155	H
2	* 1.169763	-68.15	RMS	28.1	-15.6	11.8	-49.9	-93.75	-85.3	-8.45	339	155	V
4	* 1.200139	-71.41	RMS	28.4	-15.6	11.8	-49.9	-96.71	-85.3	-11.41	261	155	V
6	* 1.234837	-69.2	RMS	28.6	-15.6	11.8	-49.8	-94.2	-85.3	-8.9	339	155	V

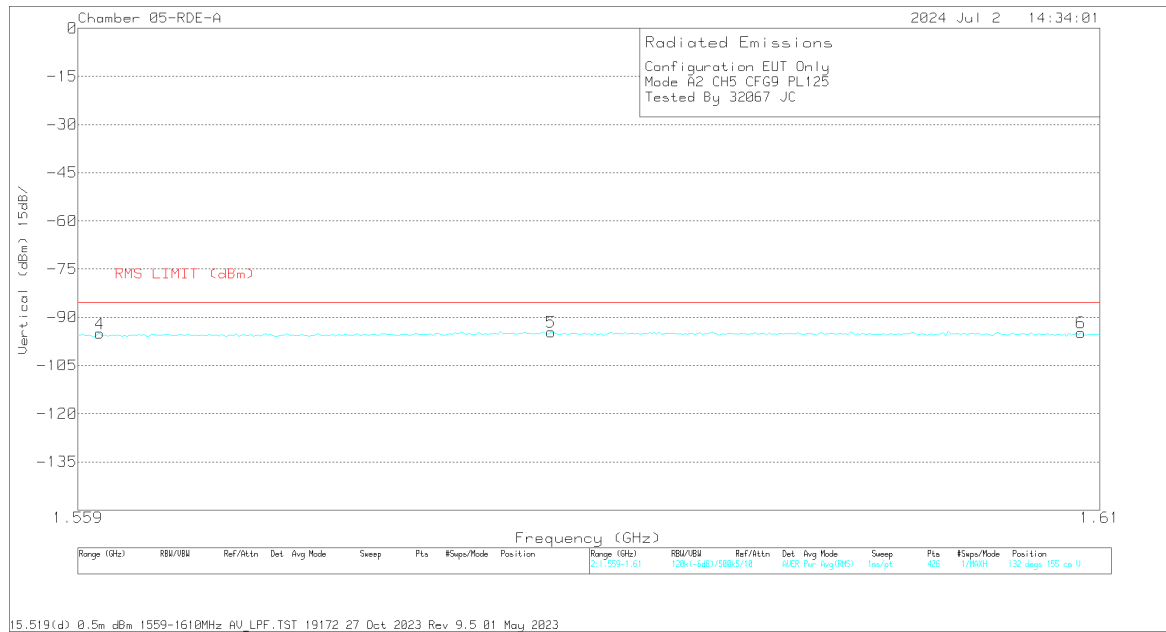
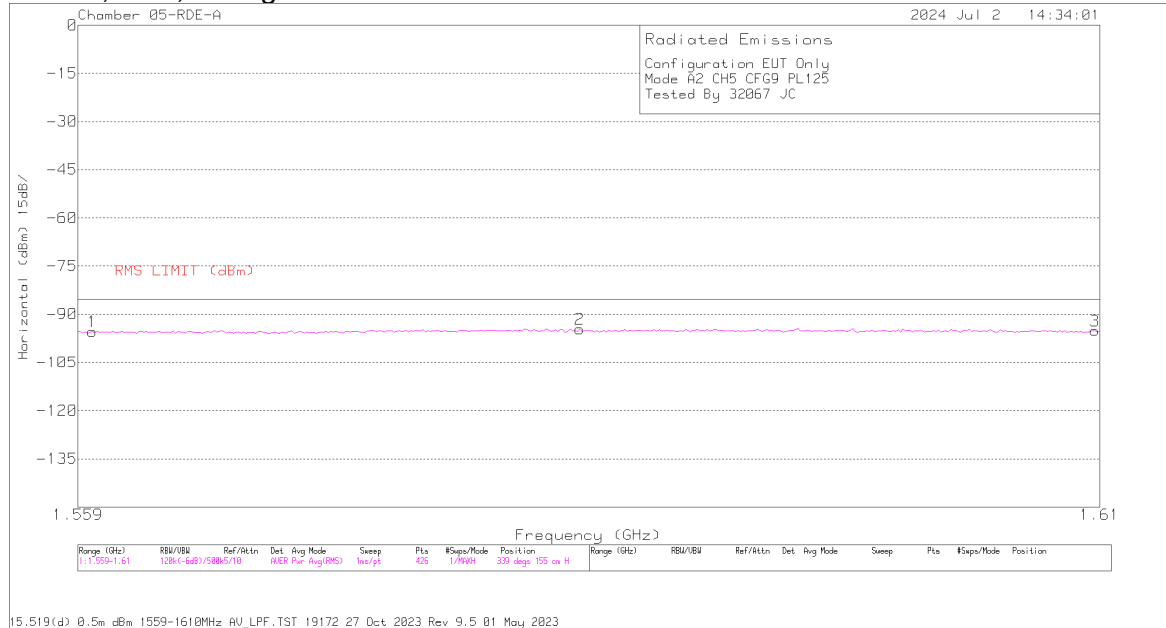
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
RMS - RMS detection

9.6.3. AVERAGE EMISSIONS, 1.559 – 1.610 GHz**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	204843 ACF (dBm)	Amp/Chl (dB)	Dist. Corr. (dB)	Conv. Fact. (dB)	204843 8.4GHz LPF (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
4	1.56344	-71.63	RMS	27.8	-46.9	-15.6	11.8	-2	-94.33	-85.3	-9.03	250	155	V
1	1.56392	-71.51	RMS	27.8	-46.9	-15.6	11.8	-2	-94.21	-85.3	-8.91	330	155	H
5	1.5842	-71.55	RMS	28	-46.7	-15.6	11.8	-2	-93.85	-85.3	-8.55	30	155	V
2	1.58468	-71.52	RMS	28	-46.7	-15.6	11.8	-2	-93.82	-85.3	-8.52	88	155	H
6	1.60748	-70.95	RMS	28.2	-46.8	-15.6	11.8	-2	-93.15	-85.3	-7.85	228	155	V
3	1.60784	-71.06	RMS	28.2	-46.8	-15.6	11.8	-2	-93.26	-85.3	-7.96	66	155	H

RMS - RMS detection

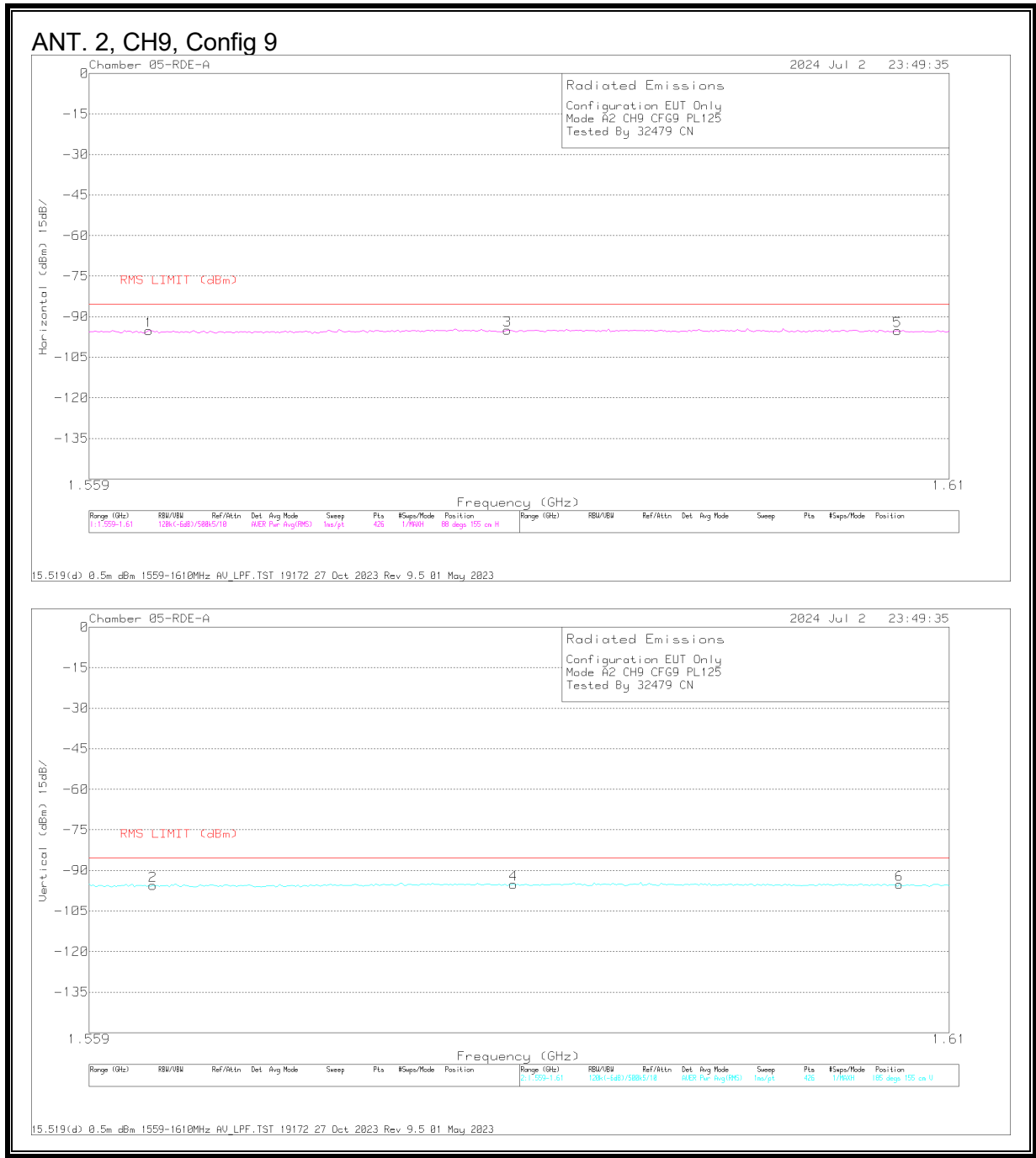
ANT. 2, CH5, Config 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 1.55972	-70.2	RMS	28	-15.6	11.8	-49.3	-95.3	-85.3	-10	163	155	H
2	* 1.58384	-69.64	RMS	28	-15.6	11.8	-49.3	-94.64	-85.3	-9.34	96	155	H
3	* 1.60976	-70.16	RMS	28.2	-15.6	11.8	-49.32	-95.08	-85.3	-9.78	251	155	H
4	* 1.56008	-69.97	RMS	28	-15.6	11.8	-49.3	-95.07	-85.3	-9.77	132	155	V
5	* 1.5824	-69.57	RMS	28	-15.6	11.8	-49.24	-94.61	-85.3	-9.31	110	155	V
6	* 1.60904	-69.78	RMS	28.2	-15.6	11.8	-49.4	-94.78	-85.3	-9.48	66	155	V

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

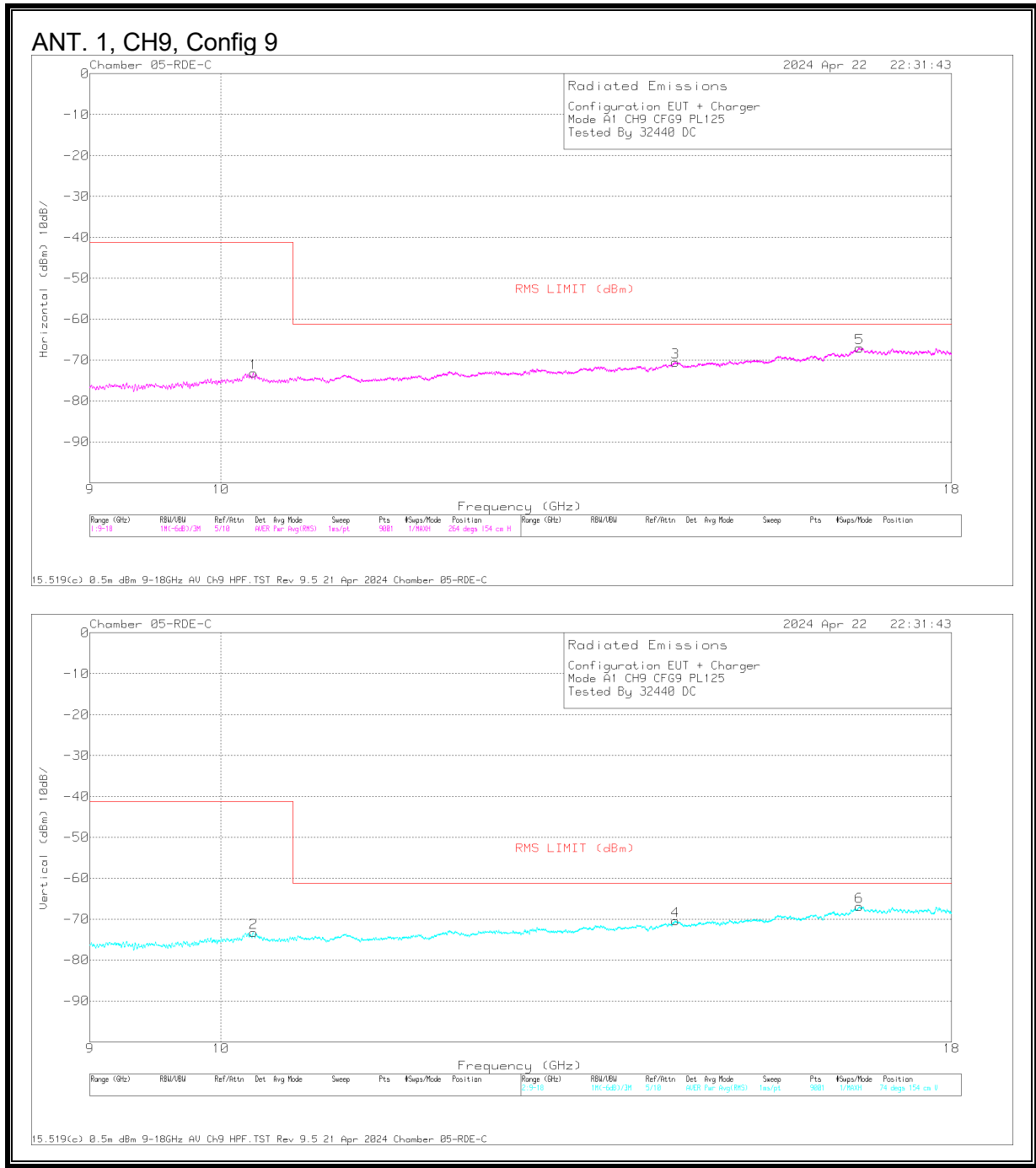


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 1.56248	-70.14	RMS	28	-15.6	11.8	-49.3	-95.24	-85.3	-9.94	198	155	H
3	* 1.5836	-69.9	RMS	28	-15.6	11.8	-49.3	-95	-85.3	-9.7	286	155	H
5	* 1.60688	-70.28	RMS	28.2	-15.6	11.8	-49.3	-95.18	-85.3	-9.88	88	155	H
2	* 1.56272	-70.38	RMS	28	-15.6	11.8	-49.3	-95.48	-85.3	-10.18	294	155	V
4	* 1.58396	-70.06	RMS	28	-15.6	11.8	-49.3	-95.16	-85.3	-9.86	118	155	V
6	* 1.607	-70.35	RMS	28.2	-15.6	11.8	-49.3	-95.25	-85.3	-9.95	250	155	V

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

9.6.4. AVERAGE EMISSIONS, 9 – 18 GHz

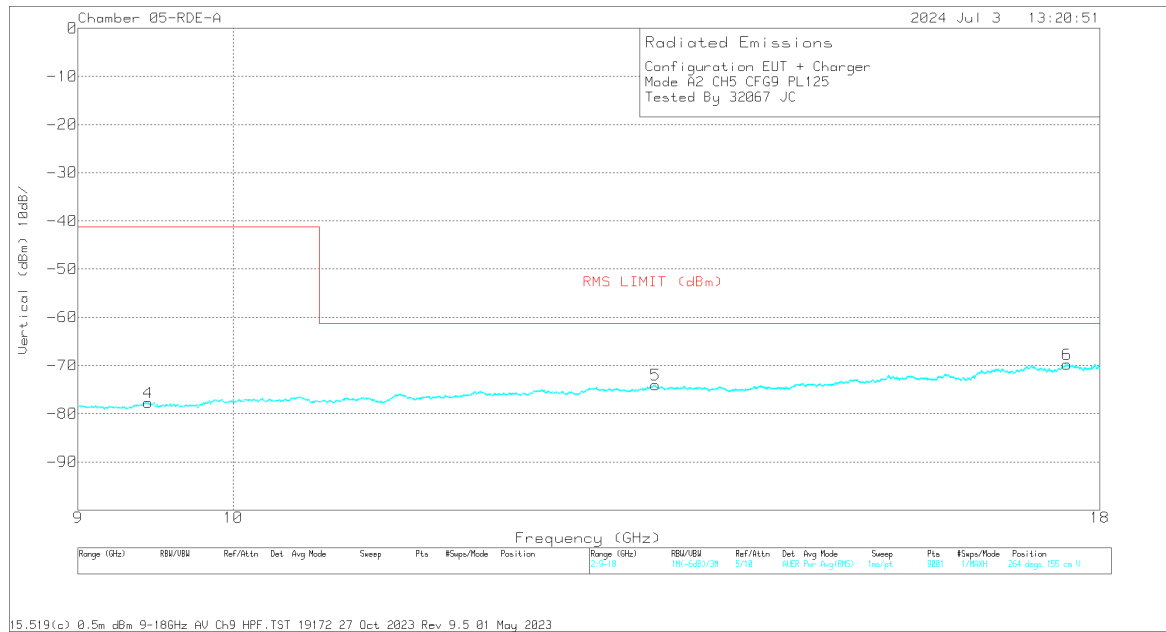
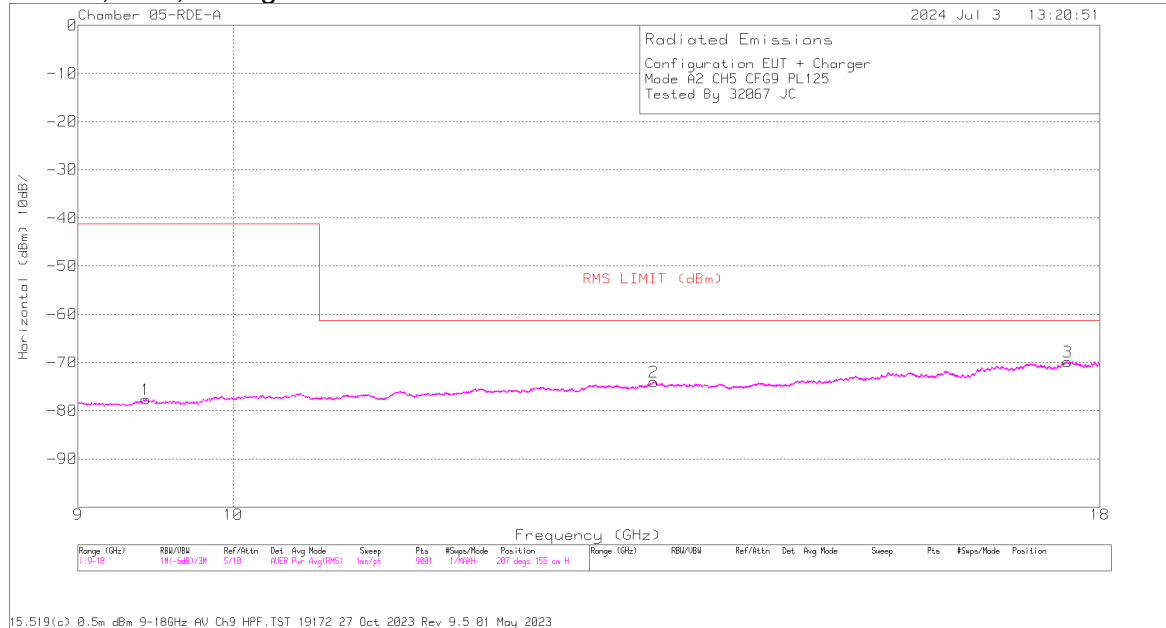


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81887 ACF (dBm)	Dist. Corr. (dB)	Conversion Factor (dB)	Gain/Loss (dB)	Corrected Reading (dBm)	RMS LIMIT (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	10.267	-62.27	RMS	37.7	-15.6	11.8	-44.8	-73.17	-41.3	-31.87	198	154	H
2	10.267	-62.33	RMS	37.7	-15.6	11.8	-44.8	-73.23	-41.3	-31.93	74	154	V
4	14.414	-64.02	RMS	39.6	-15.6	11.8	-42.2	-70.42	-61.3	-9.12	360	154	V
3	14.416	-63.99	RMS	39.6	-15.6	11.8	-42.3	-70.49	-61.3	-9.19	308	154	H
6	16.714	-64.01	RMS	41.9	-15.6	11.8	-41	-66.91	-61.3	-5.61	96	154	V
5	16.717	-64.05	RMS	41.9	-15.6	11.8	-41.1	-67.05	-61.3	-5.75	330	154	H

RMS - RMS detection

ANT. 2, CH5, Config 9

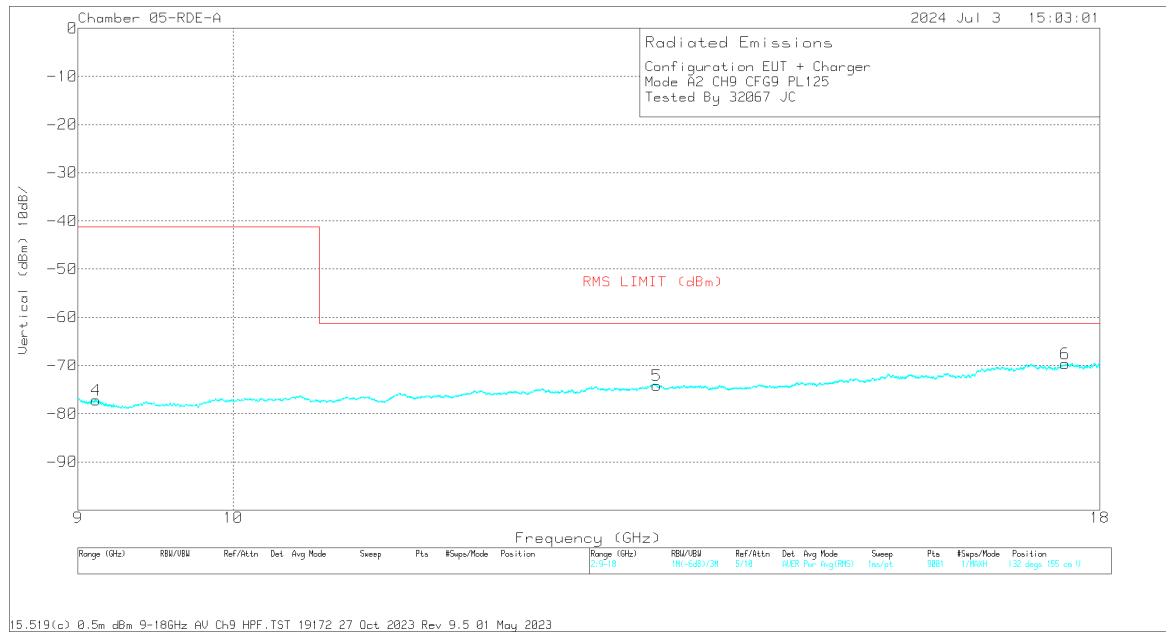


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 9.424	-66.14	RMS	36.4	-15.6	11.8	-44.1	-77.64	-41.3	-36.34	30	155	H
2	* 13.3	-67.75	RMS	39.1	-15.6	11.8	-41.6	-74.05	-61.3	-12.75	250	155	H
4	* 9.439	-66.25	RMS	36.4	-15.6	11.8	-44.1	-77.75	-41.3	-36.45	220	155	V
5	* 13.317	-67.73	RMS	39.1	-15.6	11.8	-41.6	-74.03	-61.3	-12.73	220	155	V
6	17.602	-70.4	RMS	41.6	-15.6	11.8	-37.2	-69.8	-61.3	-8.5	154	155	V
3	17.609	-70.16	RMS	41.6	-15.6	11.8	-37.5	-69.86	-61.3	-8.56	229	155	H

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

ANT. 2, CH9, Config 9

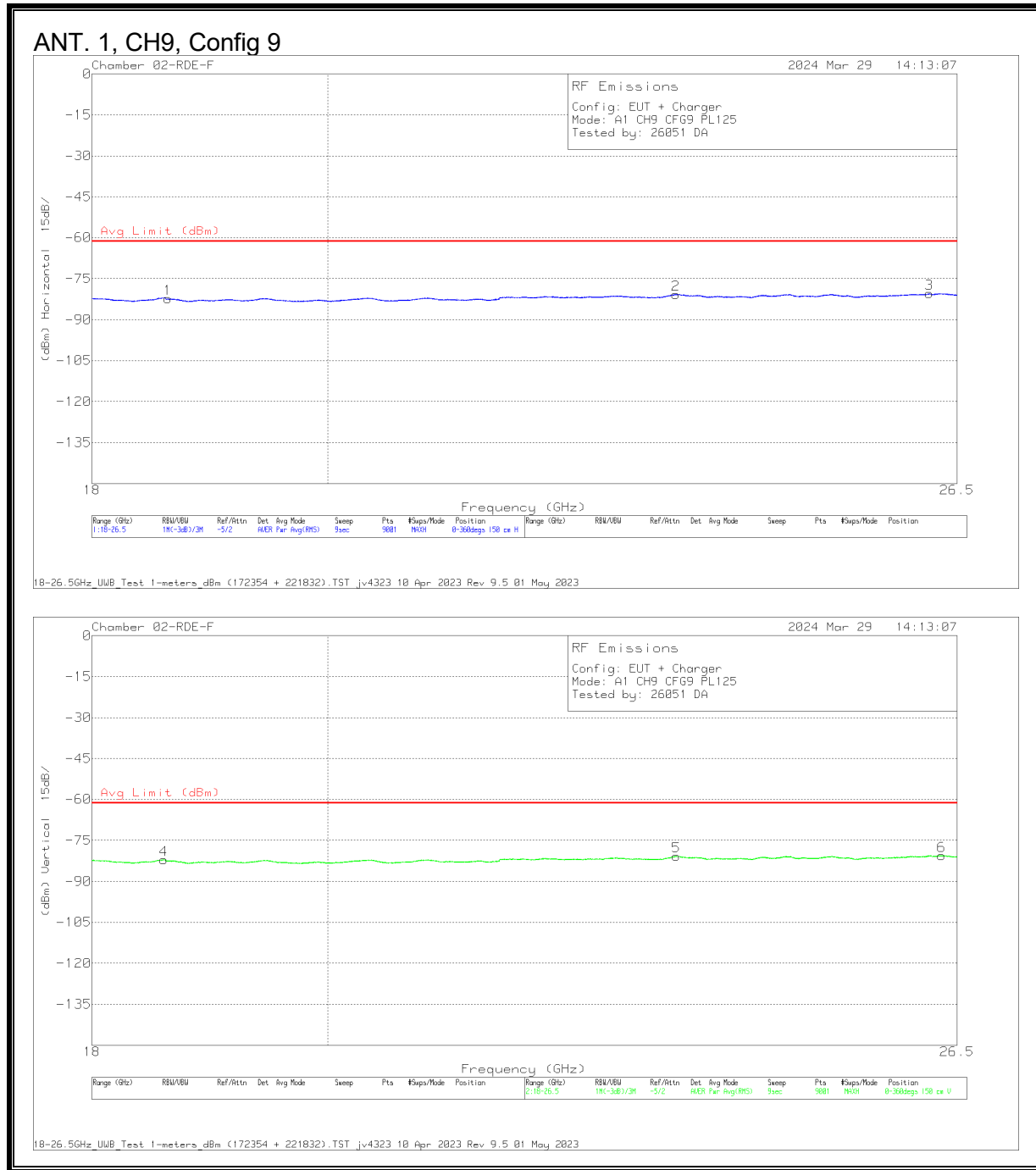


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	80403 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	* 9.425	-66.13	RMS	36.4	-15.6	11.8	-44	-77.53	-41.3	-36.23	359	155	H
2	* 13.296	-67.39	RMS	39.1	-15.6	11.8	-41.7	-73.79	-61.3	-12.49	250	155	H
4	* 9.112	-65.84	RMS	36.1	-15.6	11.8	-43.6	-77.14	-41.3	-35.84	132	155	V
5	* 13.329	-67.59	RMS	39.1	-15.6	11.8	-41.9	-74.19	-61.3	-12.89	132	155	V
6	17.584	-70.29	RMS	41.6	-15.6	11.8	-37.1	-69.59	-61.3	-8.29	308	155	V
3	17.624	-70.17	RMS	41.5	-15.6	11.8	-37.2	-69.67	-61.3	-8.37	228	155	H

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

9.6.5. AVERAGE EMISSIONS, 18 – 26.5 GHz

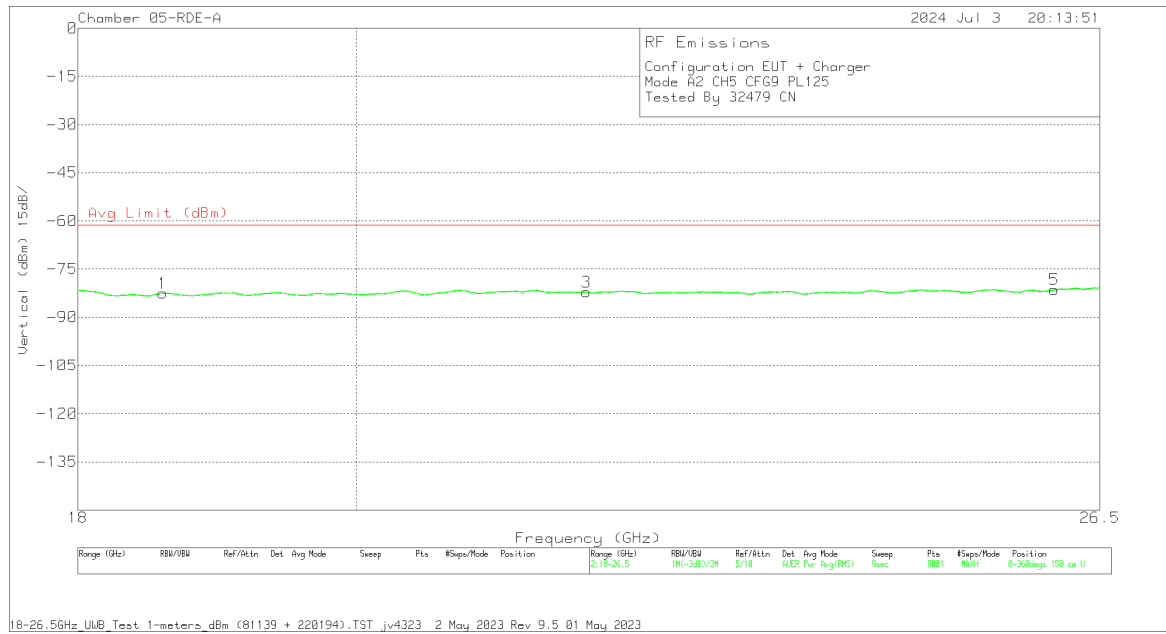
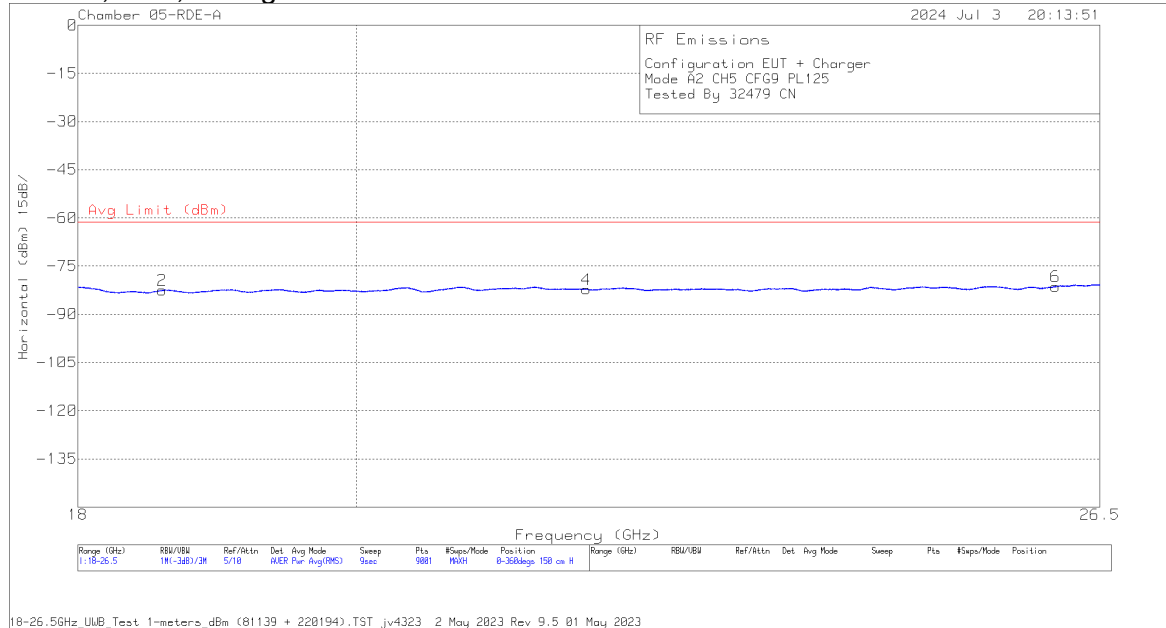


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172354 AF (dBm)	18-26GHz Amp (dB)	CBL (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 18.623333	-64.18	RMS	32.6	-63.1	16.2	-15.6	11.8	-82.28	-61.3	-20.98	0-360	150	H
4	* 18.5865	-63.82	RMS	32.6	-63.2	16.2	-15.6	11.8	-82.02	-61.3	-20.72	0-360	150	V
2	23.367747	-67.06	RMS	34.1	-62.2	18.2	-15.6	11.8	-80.76	-61.3	-19.46	0-360	150	H
5	23.372942	-67.05	RMS	34.1	-62.2	18.2	-15.6	11.8	-80.75	-61.3	-19.45	0-360	150	V
3	26.170385	-69.65	RMS	35	-61.1	19.1	-15.6	11.8	-80.45	-61.3	-19.15	0-360	150	H
6	26.317718	-69.64	RMS	35.1	-61.2	19.2	-15.6	11.8	-80.54	-61.3	-19.24	0-360	150	V

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

ANT. 2, CH5, Config 9

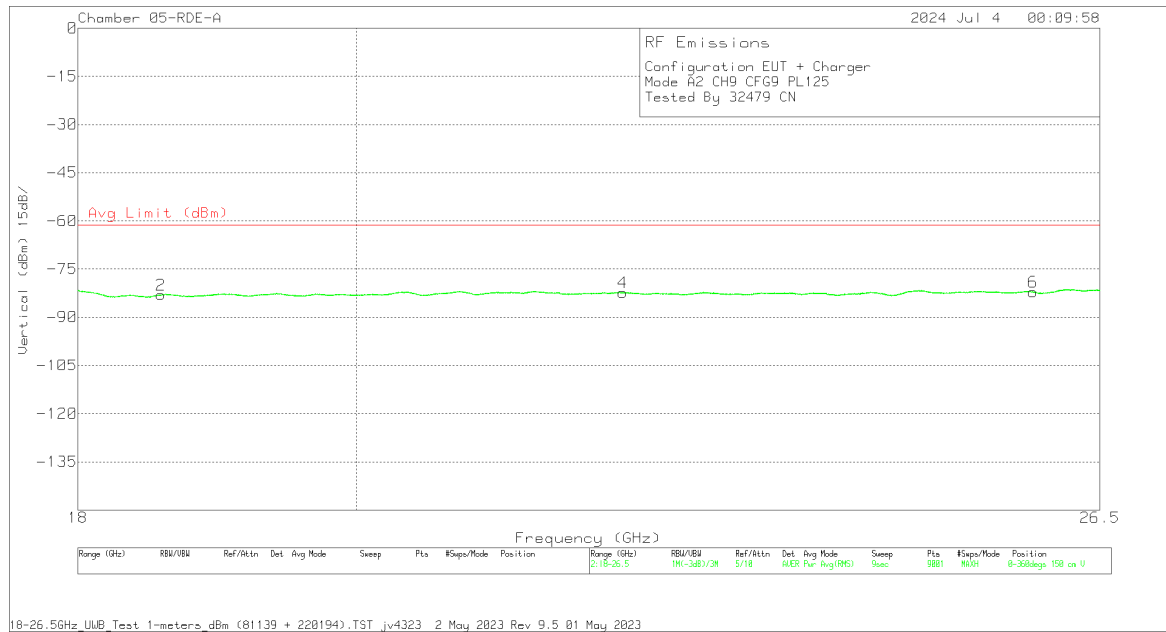
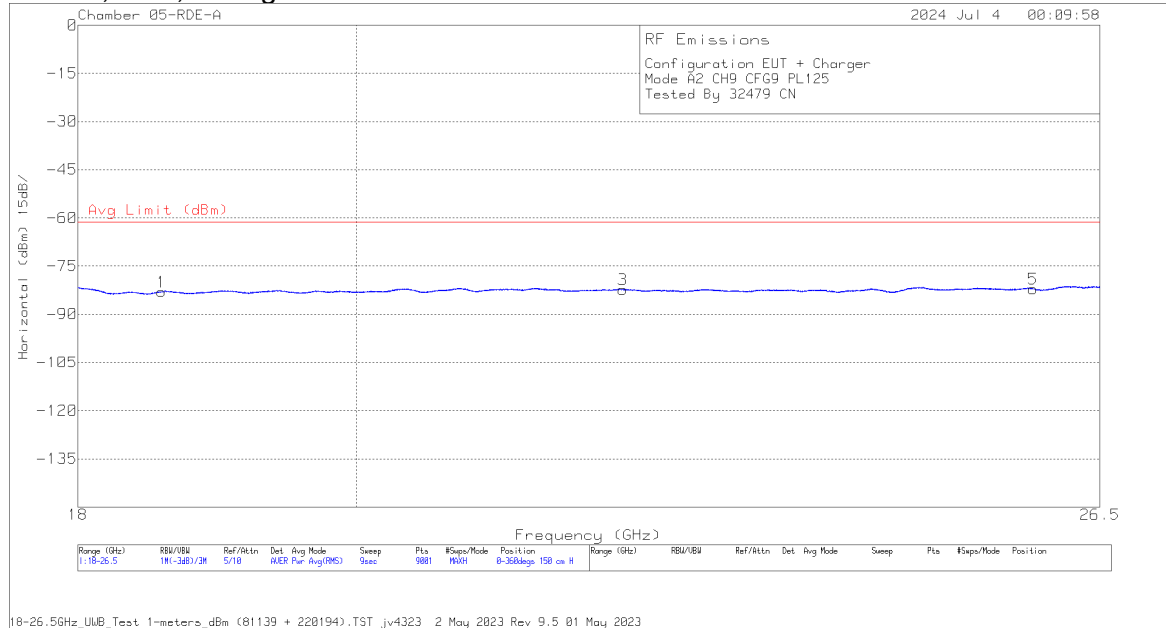


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81139 ACF (dBm)	Amp/Ctrl (dB)	Ctrl (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 18.584611	-63.33	RMS	32.9	-61.8	13.5	-15.6	11.8	-82.53	-61.3	-21.23	0-360	150	H
1	* 18.587444	-63.34	RMS	32.9	-61.8	13.5	-15.6	11.8	-82.54	-61.3	-21.24	0-360	150	V
4	21.820276	-65.51	RMS	33.7	-61.1	14.5	-15.6	11.8	-82.21	-61.3	-20.91	0-360	150	H
3	21.82122	-65.43	RMS	33.7	-61.1	14.5	-15.6	11.8	-82.13	-61.3	-20.83	0-360	150	V
5	26.048552	-67.19	RMS	35.1	-61.2	15.7	-15.6	11.8	-81.39	-61.3	-20.09	0-360	150	V
6	26.057996	-67.31	RMS	35.2	-61.1	15.7	-15.6	11.8	-81.31	-61.3	-20.01	0-360	150	H

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

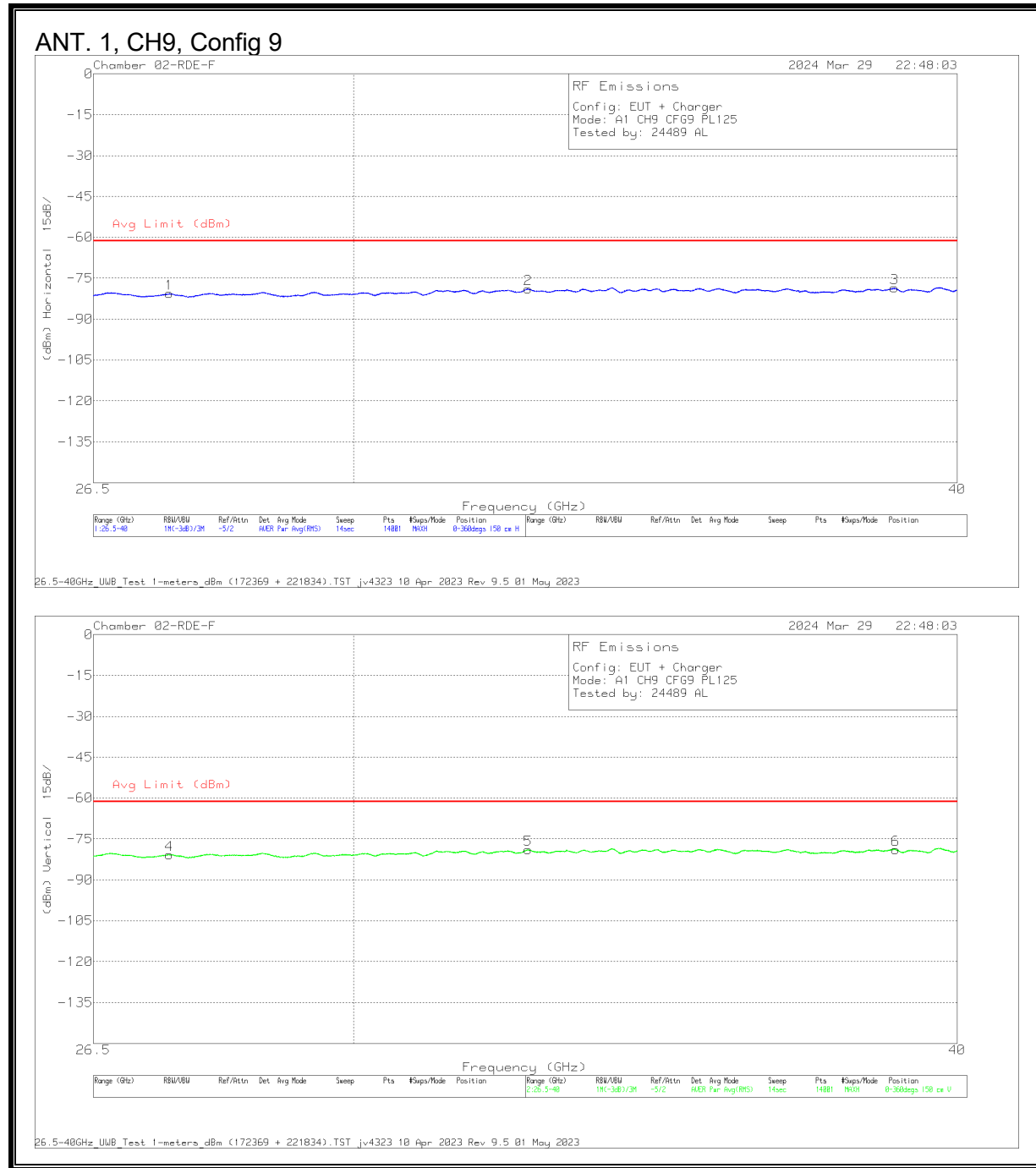
ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81139 ACF (dBm)	Amp/Ctrl (dB)	Ctrl (dB)	Dist Corr (dB)	Conv. Fact. (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 18.578944	-63.77	RMS	32.9	-61.8	13.5	-15.6	11.8	-82.97	-61.3	-21.67	0-360	150	H
3	* 22.12297	-65.63	RMS	34	-61.3	14.5	-15.6	11.8	-82.23	-61.3	-20.93	0-360	150	H
2	* 18.578111	-63.77	RMS	32.9	-61.8	13.5	-15.6	11.8	-82.97	-61.3	-21.67	0-360	150	V
4	* 22.123443	-65.63	RMS	34	-61.3	14.5	-15.6	11.8	-82.23	-61.3	-20.93	0-360	150	V
5	25.836052	-67.43	RMS	34.9	-61.3	15.6	-15.6	11.8	-82.03	-61.3	-20.73	0-360	150	H
6	25.836052	-67.49	RMS	34.9	-61.3	15.6	-15.6	11.8	-82.09	-61.3	-20.79	0-360	150	V

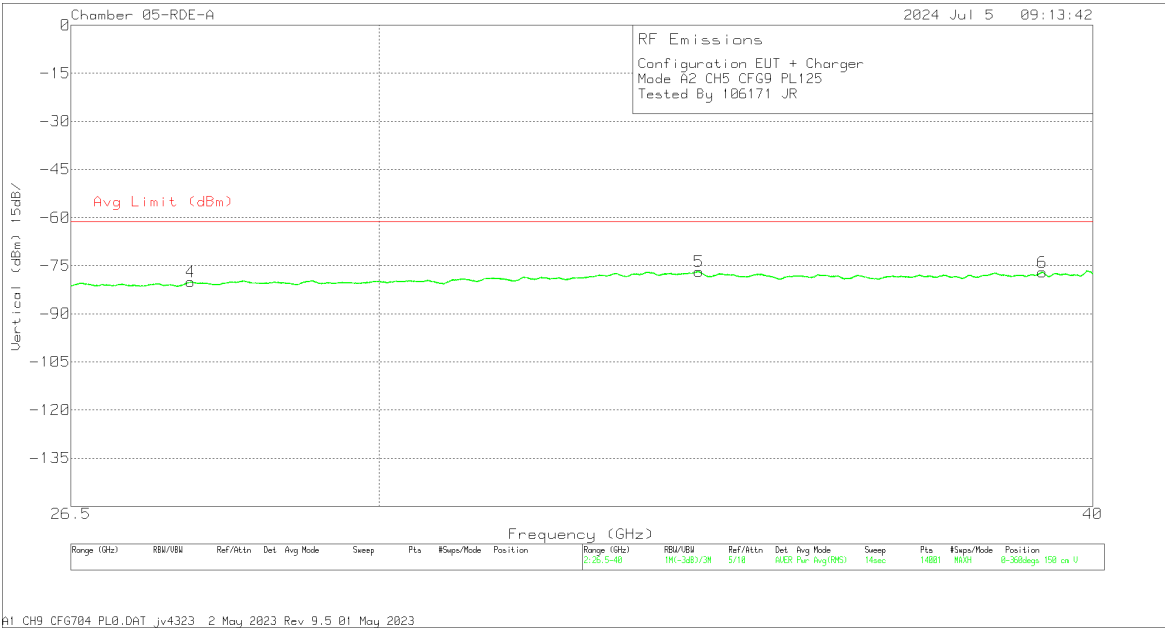
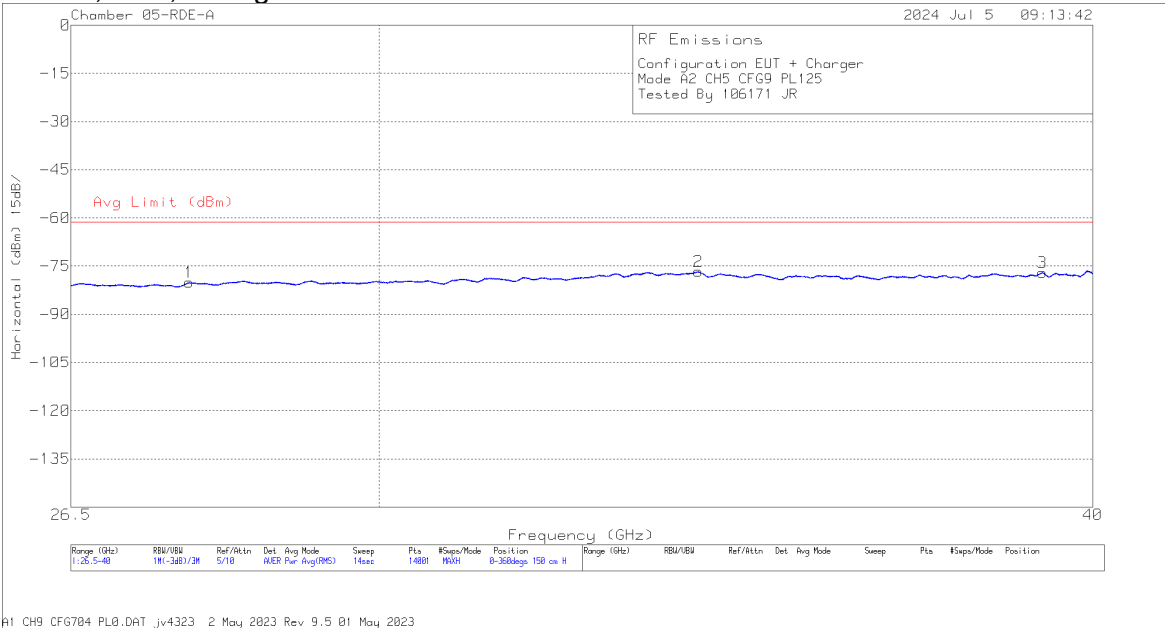
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
RMS - RMS detection

9.6.6. AVERAGE EMISSIONS, 26.5 – 40 GHz**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	172369 AF (dBm)	221834 ampchb1 (dB)	Dist Corr (dB)	Conv. Fact. (dB)	CBL (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	27.47875	-69.68	RMS	36	-62.7	-15.6	11.8	19.6	-80.58	-61.3	-19.28	0-360	150	H
4	27.47875	-69.68	RMS	36	-62.7	-15.6	11.8	19.6	-80.76	-61.3	-19.46	0-360	150	V
5	32.599109	-72.1	RMS	37.3	-61.5	-15.6	11.8	21.2	-78.9	-61.3	-17.6	0-360	150	V
2	32.602002	-72.11	RMS	37.3	-61.5	-15.6	11.8	21.2	-78.91	-61.3	-17.61	0-360	150	H
3	38.816154	-70.38	RMS	39	-67.1	-15.6	11.8	23.7	-78.58	-61.3	-17.28	0-360	150	H
6	38.844789	-70.72	RMS	39	-67	-15.6	11.8	23.7	-78.82	-61.3	-17.52	0-360	150	V

RMS - RMS detection

ANT. 2, CH5, Config 9

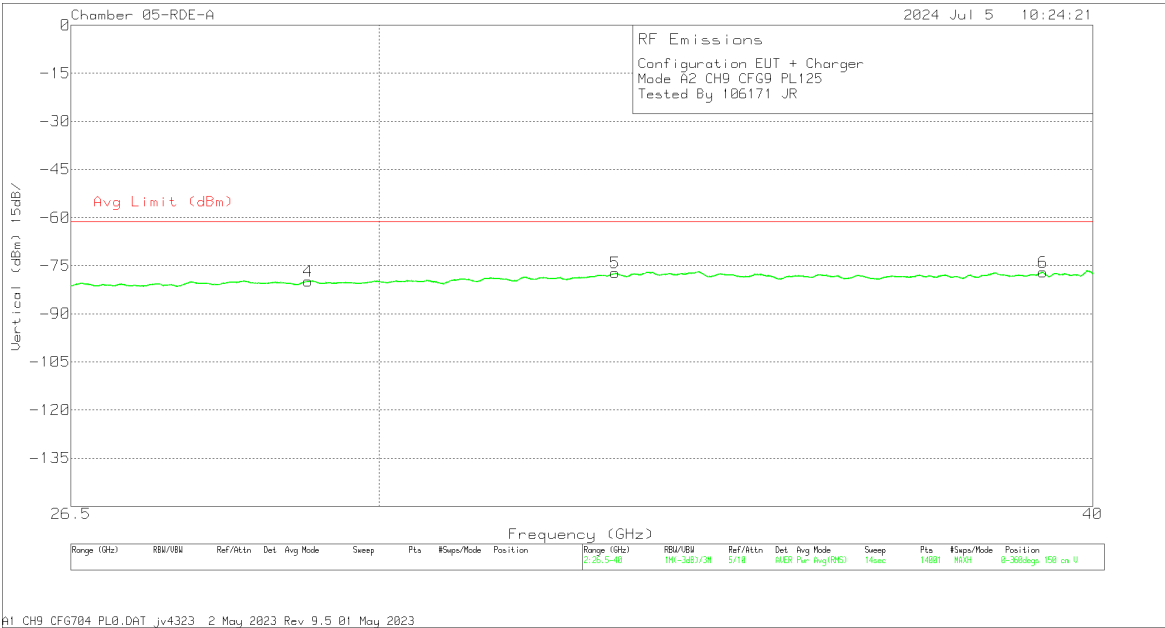
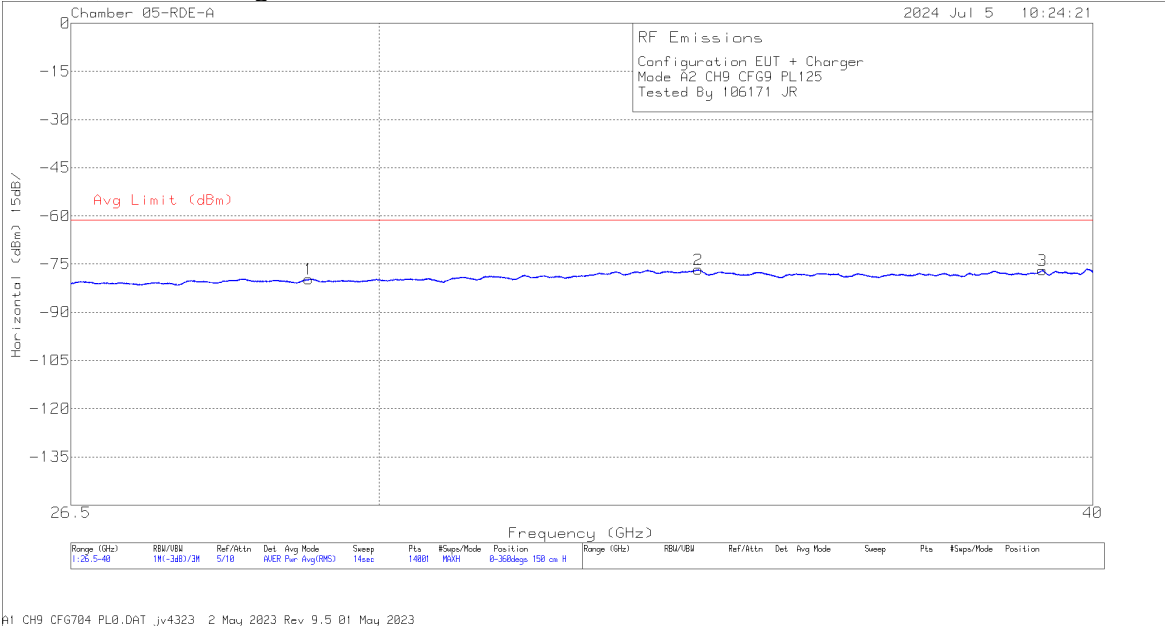


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81105 ACF (dBm)	Amp/Ctrl (dB)	Dist Corr (dB)	Conversion Factor (dB)	Ctrl (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	27.795036	-63.21	RMS	36.2	-65.5	-15.6	11.8	16.3	-80.01	-61.3	-18.71	0-360	150	H
4	27.8095	-63.3	RMS	36.2	-65.5	-15.6	11.8	16.3	-80.1	-61.3	-18.8	0-360	150	V
2	34.120752	-65.79	RMS	38.1	-63.7	-15.6	11.8	18.5	-76.69	-61.3	-15.39	0-360	150	H
5	34.130395	-65.79	RMS	38.1	-63.8	-15.6	11.8	18.5	-76.79	-61.3	-15.49	0-360	150	V
6	39.195789	-67.25	RMS	38.9	-65	-15.6	11.8	20.2	-76.95	-61.3	-15.65	0-360	150	V
3	39.197718	-67.29	RMS	38.9	-65	-15.6	11.8	20.2	-76.99	-61.3	-15.69	0-360	150	H

RMS - RMS detection

ANT. 2, CH9, Config 9



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	81105 ACF (dBm)	Amp/Ctrl (dB)	Dist Corr (dB)	Conversion Factor (dB)	Ctrl (dB)	Corrected Reading (dBm)	Avg Limit (dBm)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	29.156608	-65.46	RMS	36.7	-64	-15.6	11.8	16.8	-79.76	-61.3	-18.46	0-360	150	V
1	29.165287	-65.35	RMS	36.7	-64	-15.6	11.8	16.8	-79.65	-61.3	-18.35	0-360	150	H
5	32.999298	-66.23	RMS	38.1	-63.4	-15.6	11.8	18.1	-77.23	-61.3	-15.93	0-360	150	V
2	34.118824	-65.81	RMS	38.1	-63.7	-15.6	11.8	18.5	-76.71	-61.3	-15.41	0-360	150	H
3	39.199847	-67.21	RMS	38.9	-65	-15.6	11.8	20.2	-76.91	-61.3	-15.61	0-360	150	H
6	39.204468	-67.21	RMS	38.9	-65.1	-15.6	11.8	20.2	-77.01	-61.3	-15.71	0-360	150	V

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.

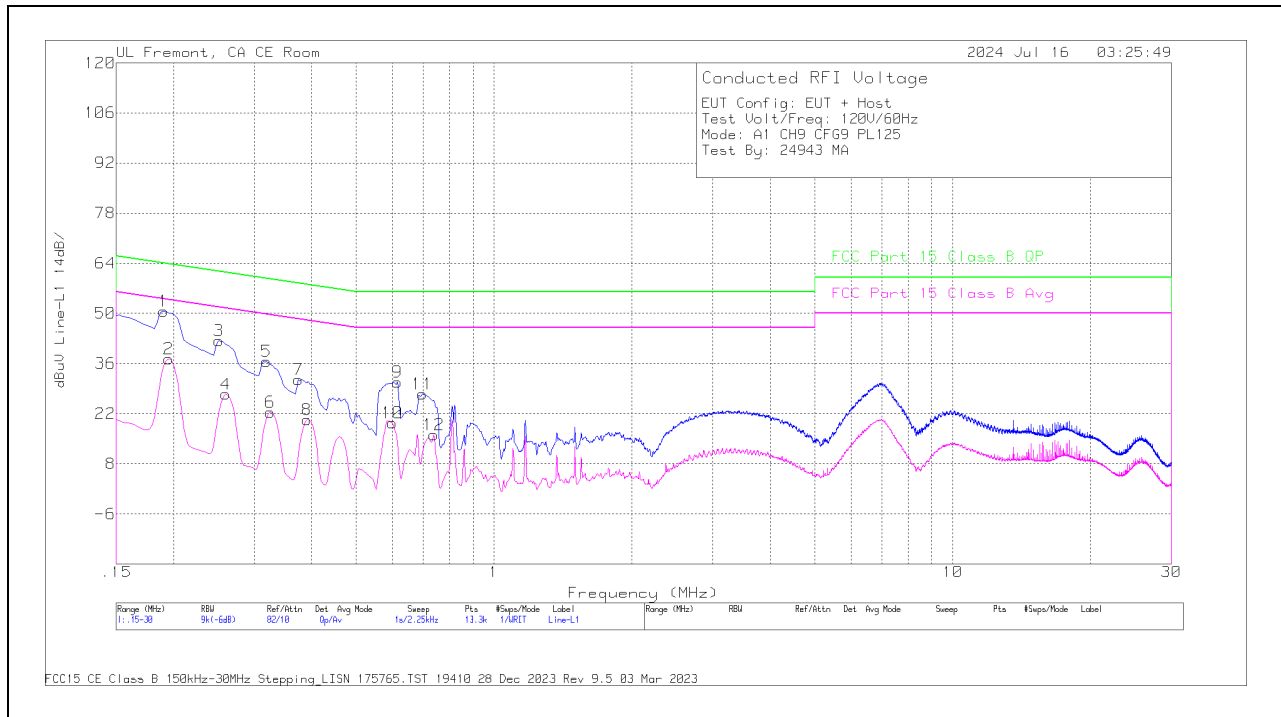
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

Employee IDs: 124943
Location: Immunity Lab
Test Date: 2024-07-16

9.7.1. AC Power Line With Laptop

LINE 1 RESULTS



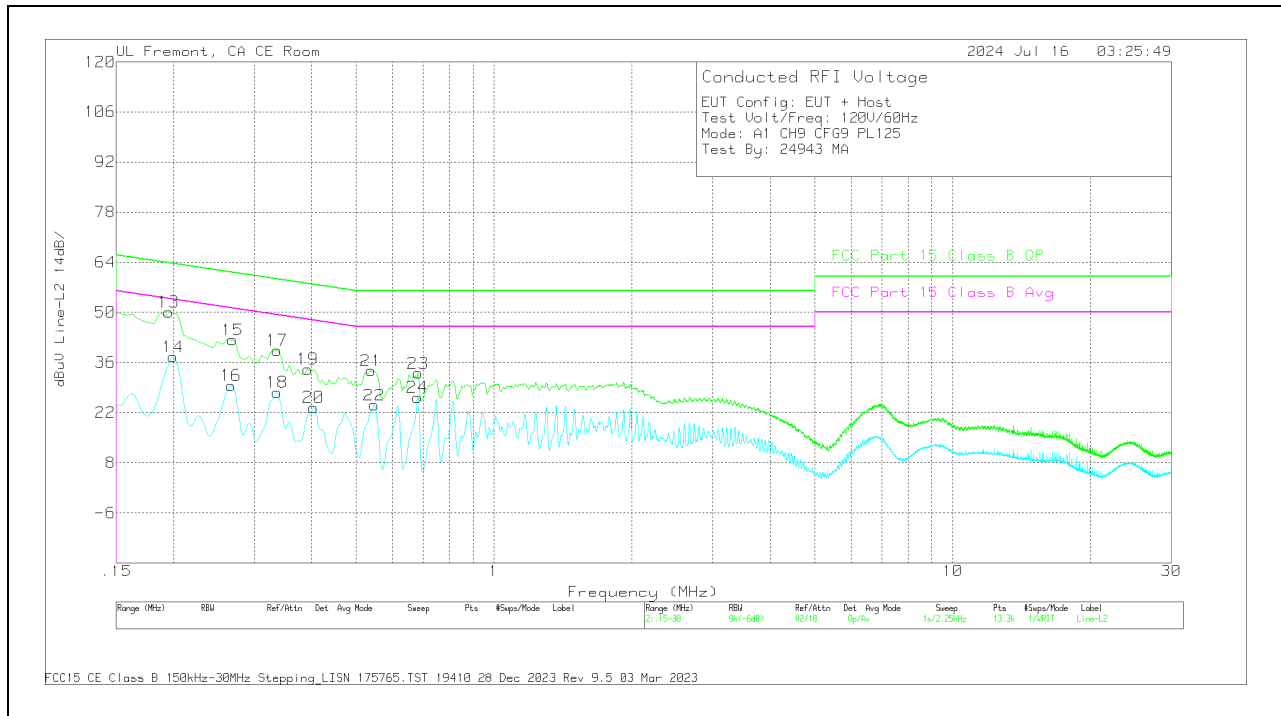
Trace Markers

Range 1: Line-L1_15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trms Limiter (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B QP (dBuV)	QP Margin (dB)	FCC Part 15 Class B Avg (dBuV)	Av Margin (dB)
2	.195	27.72	Av	.1	.1	9.4	37.32	-	-	53.82	-16.5
4	.2603	18	Av	0	0	9.4	27.4	-	-	51.42	-24.02
6	.3255	13	Av	0	0	9.4	22.4	-	-	49.57	-27.17
8	.3908	10.87	Av	0	0	9.4	20.27	-	-	48.05	-27.78
10	.6	9.99	Av	0	0	9.4	19.39	-	-	46	-26.61
12	.7395	6.6	Av	0	.1	9.4	16.1	-	-	46	-29.9
1	.1905	40.95	Qp	.1	.1	9.4	50.55	64.01	-13.46	-	-
3	.2513	32.95	Qp	0	0	9.4	42.35	61.72	-19.37	-	-
5	.3188	27.1	Qp	0	.1	9.4	36.6	59.74	-23.14	-	-
7	.375	22.18	Qp	0	0	9.4	31.58	58.39	-26.81	-	-
9	.6158	21.35	Qp	0	0	9.4	30.75	56	-25.25	-	-
11	.699	18.09	Qp	0	.1	9.3	27.49	56	-28.51	-	-

Qp - Quasi-Peak detector

Av - Average detection

LINE 2 RESULTS



Trace Markers

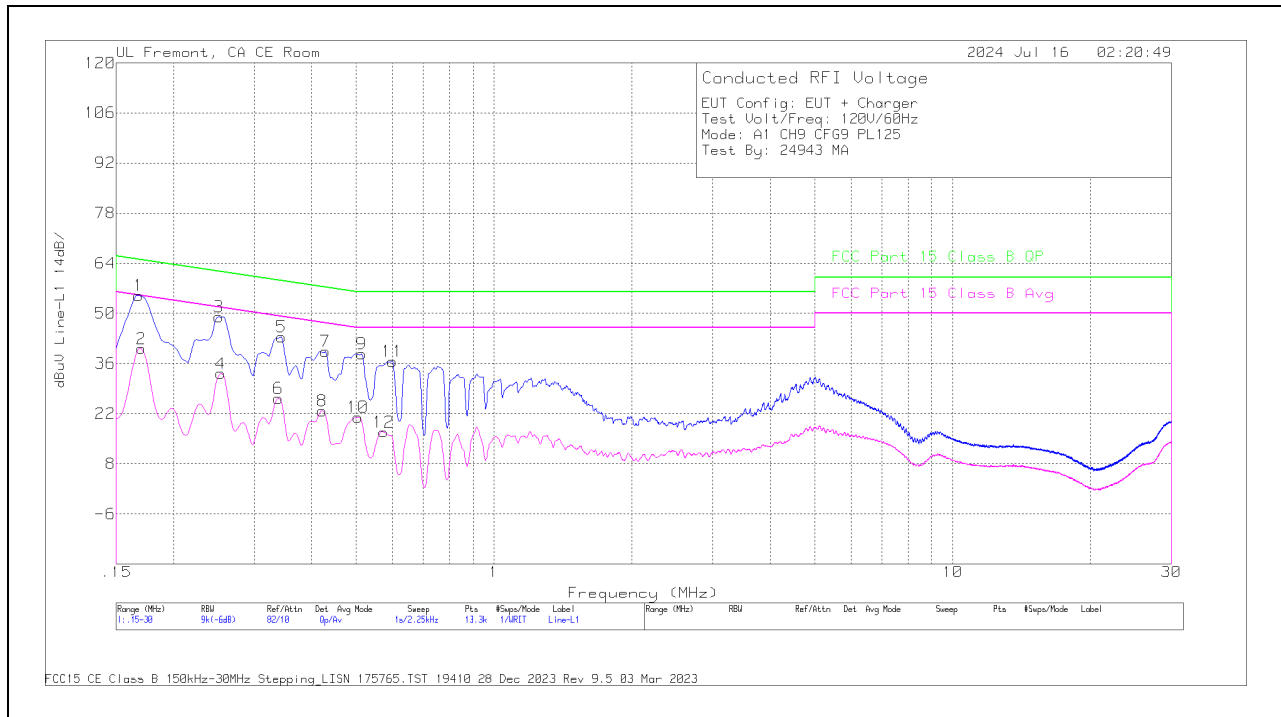
Range 2: Line-L2 15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B QP (dBuV)	QP Margin (dB)	FCC Part 15 Class B Avg (dBuV)	Av Margin (dB)
14	.1995	28.06	Av	0	.1	9.4	37.56	-	-	53.63	-16.07
16	.267	20.22	Av	0	0	9.4	29.62	-	-	51.21	-21.59
18	.3368	18.13	Av	0	.1	9.4	27.63	-	-	49.28	-21.65
20	.4043	13.92	Av	0	.1	9.4	23.42	-	-	47.77	-24.35
22	.5483	14.77	Av	0	0	9.3	24.07	-	-	46	-21.93
24	.681	16.92	Av	0	0	9.3	26.22	-	-	46	-19.78
13	.195	40.56	Qp	0	.1	9.4	50.06	63.82	-13.76	-	-
15	.2693	32.89	Qp	0	0	9.4	42.29	61.14	-18.85	-	-
17	.3368	29.86	Qp	0	.1	9.4	39.36	59.28	-19.92	-	-
19	.393	24.63	Qp	0	.1	9.4	34.13	58	-23.87	-	-
21	.5393	24.41	Qp	0	0	9.3	33.71	56	-22.29	-	-
23	.6833	23.7	Qp	0	0	9.3	33	56	-23	-	-

Qp - Quasi-Peak detector

Av - Average detection

9.7.2. AC Power Line With AC/DC Adapter

LINE 1 RESULTS



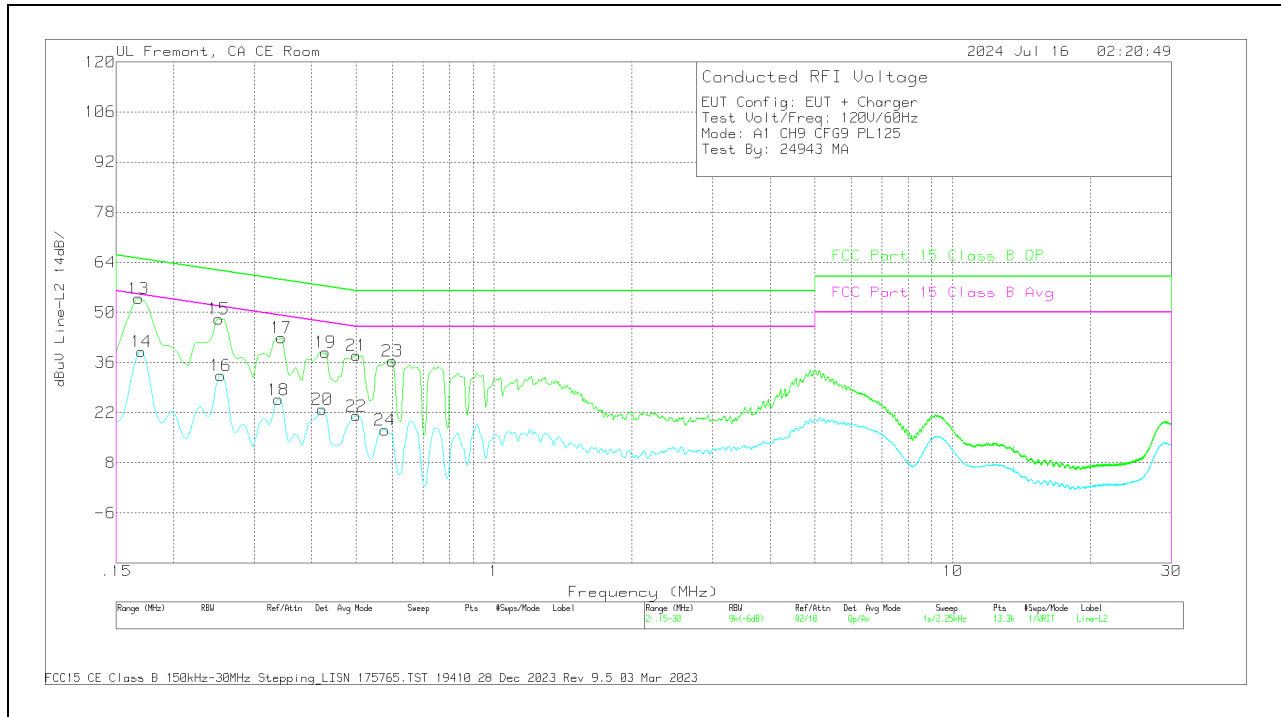
Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B QP (dBuV)	QP Margin (dB)	FCC Part 15 Class B Avg (dBuV)	Av Margin (dB)
2	.1703	30.58	Av	.1	0	9.5	40.18	-	-	54.95	-14.77
4	.2535	23.78	Av	0	0	9.4	33.18	-	-	51.64	-18.46
6	.339	16.9	Av	0	0	9.4	26.3	-	-	49.23	-22.93
8	.4223	13.37	Av	0	0	9.4	22.77	-	-	47.4	-24.63
10	.5055	11.69	Av	0	0	9.3	20.99	-	-	46	-25.01
12	.5753	7.47	Av	0	0	9.4	16.87	-	-	46	-29.13
1	.168	45.41	Qp	.1	0	9.5	55.01	65.06	-10.05	-	-
3	.2513	39.63	Qp	0	0	9.4	49.03	61.72	-12.69	-	-
5	.3435	33.98	Qp	0	0	9.4	43.38	59.12	-15.74	-	-
7	.429	29.96	Qp	0	.1	9.3	39.36	57.27	-17.91	-	-
9	.5145	29.41	Qp	0	0	9.3	38.71	56	-17.29	-	-
11	.6	27.17	Qp	0	0	9.4	36.57	56	-19.43	-	-

Qp - Quasi-Peak detector

Av - Average detection

LINE 2 RESULTS



Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B QP (dBuV)	QP Margin (dB)	FCC Part 15 Class B Avg (dBuV)	Av Margin (dB)
14	.1703	29.48	Av	0	0	9.5	38.98	-	-	54.95	-15.97
16	.2535	22.93	Av	0	0	9.4	32.33	-	-	51.64	-19.31
18	.339	16.14	Av	0	.1	9.4	25.64	-	-	49.23	-23.59
20	.4223	13.48	Av	0	.1	9.4	22.98	-	-	47.4	-24.42
22	.501	11.78	Av	0	0	9.3	21.08	-	-	46	-24.92
24	.5775	7.63	Av	0	.1	9.4	17.13	-	-	46	-28.87
13	.168	44.27	Qp	.1	0	9.5	53.87	65.06	-11.19	-	-
15	.2513	38.76	Qp	0	0	9.4	48.16	61.72	-13.56	-	-
17	.3435	33.37	Qp	0	.1	9.4	42.87	59.12	-16.25	-	-
19	.429	29.62	Qp	0	0	9.3	38.92	57.27	-18.35	-	-
21	.501	28.74	Qp	0	0	9.3	38.04	56	-17.96	-	-
23	.6	26.97	Qp	0	.1	9.4	36.47	56	-19.53	-	-

Qp - Quasi-Peak detector

Av - Average detection

10. SETUP PHOTOS

Please refer to 14982490-EP1V1 for setup photos.

END OF REPORT