



FCC RADIO TEST REPORT

FCC ID : A4RGG3HH
Equipment : Wireless Device
Model Name : GG3HH
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : 47 CFR FCC Part 15.519

The product was received on Feb. 23, 2024, and testing was performed from Mar. 05, 2024 to Apr. 15, 2024. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issue Date
FR412915I	01	Initial issue of report	Apr. 22, 2024
FR412915I	02	Revise UWB bandwidth This report is an updated version, replacing the report issued on Apr. 22, 2024.	Apr. 26, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1	15.203	Antenna Requirement	PASS	15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	15.207
3.2	15.503	UWB Bandwidth	PASS	≥ 500MHz
3.3	15.519(a)(1)	Technical requirements for Hand Held UWB systems	PASS	15.519(a)(1)
3.4	15.519(e)	Peak Power Measurement	PASS	≤ 0 dBm/50MHz
3.5	15.519(c) /15.519(d)	Radiated Emissions	PASS	UWB Emissions: 15.519(c) GPS Emissions: 15.519(d) Digital Emissions: 15.209

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Yun Huang

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
General Specs Bluetooth, BLE, BLE (CH2-76), Wi-Fi 2.4GHz 802.11b/g/n/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, NFC, UWB, and GPS.	
Antenna Type UWB: PIFA Antenna	

Antenna information		
6489.6 MHz	Peak Gain (dBi)	-0.2
7987.2 MHz	Peak Gain (dBi)	0.4

Remark: The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

EUT Information List	
S/N	Performed Test Item
41311JEAVW004U	Equivalent Isotropic Radiated Power
	Radiated Spurious Emission
	Conducted Emission

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Type of EUT

Operational Condition	
EUT Power Type	AC mains: AC voltage 120 V
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
☐	Other:

1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01

Remark: The TAF code is not including all the FCC KDB listed without accreditation.

1.5 Testing Location Information

Test Site	Sporton International Inc. Wensan Laboratory	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	CO07-HY	03CH20-HY

Note: The test site complies with ANSI C63.4 2014 requirement.
FCC designation No.: TW3786

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
Conduction	CO07-HY	Louis Chung	23.1~25.7 °C 42.2~53.3 %	Apr. 15, 2024
Radiated	03CH20-HY	John Chuang and David Dai	18.3~19.6 °C 65.4~69.4 %	Mar. 05, 2024~ Apr. 11, 2024

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
AC Conduction (150kHz ~ 30MHz)	3.44 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1000MHz)	6.4 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 6GHz)	4.5 dB	Confidence levels of 95%
Radiated Emission (6GHz ~ 18GHz)	4.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	5.4 dB	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Mode

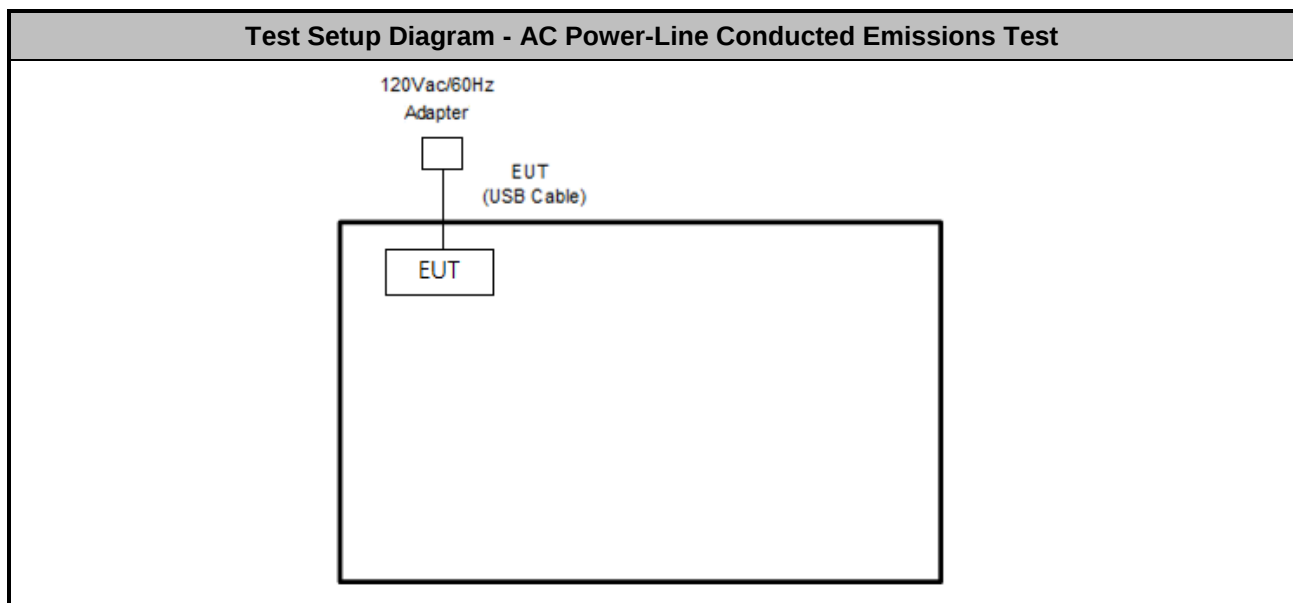
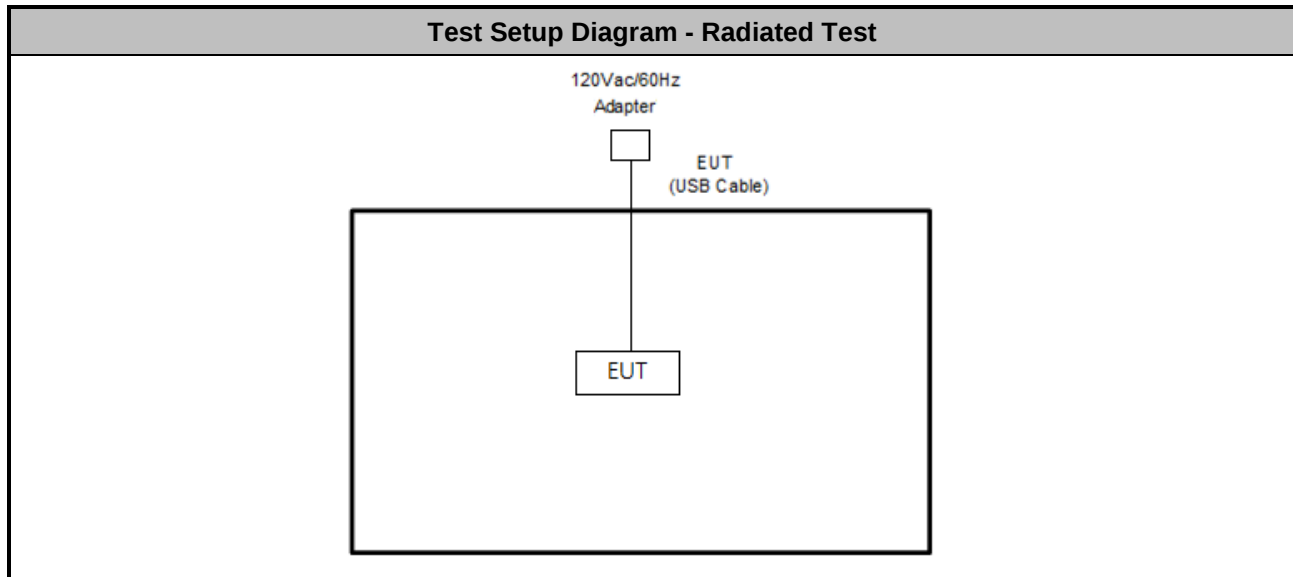
Test Configuration					
Config	Channel	Modulation	Config	STS Nums	Payload Length (bytes)
Mode 1	5	BPRF9	0	0	127
Mode 2	5	BPRF10	0	0	127
Mode 3	5	BPRF9	1	1	127
Mode 4	5	BPRF10	1	1	127
Mode 5	5	BPRF9	3	1	0
Mode 6	5	BPRF10	3	1	0
Mode 7	5	HPRF27	0	0	127
Mode 8	5	HPRF27	1	2	127
Mode 9	5	HPRF27	3	2	0
Mode 10	9	BPRF9	0	0	127
Mode 11	9	BPRF10	0	0	127
Mode 12	9	BPRF9	1	1	127
Mode 13	9	BPRF10	1	1	127
Mode 14	9	BPRF9	3	1	0
Mode 15	9	BPRF10	3	1	0
Mode 16	9	HPRF27	0	0	127
Mode 17	9	HPRF27	1	2	127
Mode 18	9	HPRF27	3	2	0

2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	Adapter Mode
Remark: Please refer to 15.207 which states, "Measurements to demonstrate compliance with the conducted limits are not required for devices employ Battery for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines".	

The Worst Case Mode for Following Conformance Tests			
Tests Item	UWB Bandwidth, Peak Power Measurement, Radiated Emissions		
Test Condition	Radiated measurement		
Operating Mode	CTX		
1	Adapter Mode		
Mode 1 configuration was tested and found to be the worst case and measured during the test.			
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
CH05		V	
CH09	V		
Remark: The measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in three orthogonal axis (X: flat, Y: portrait, Z: landscape), and adjusting the measurement antenna orientation, following C63.10 exploratory test procedures and find as worst plane, and recorded in this report.			

2.3 Test Setup Diagram



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Adapter	Aohai	G9BR1	N/A	N/A	N/A

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

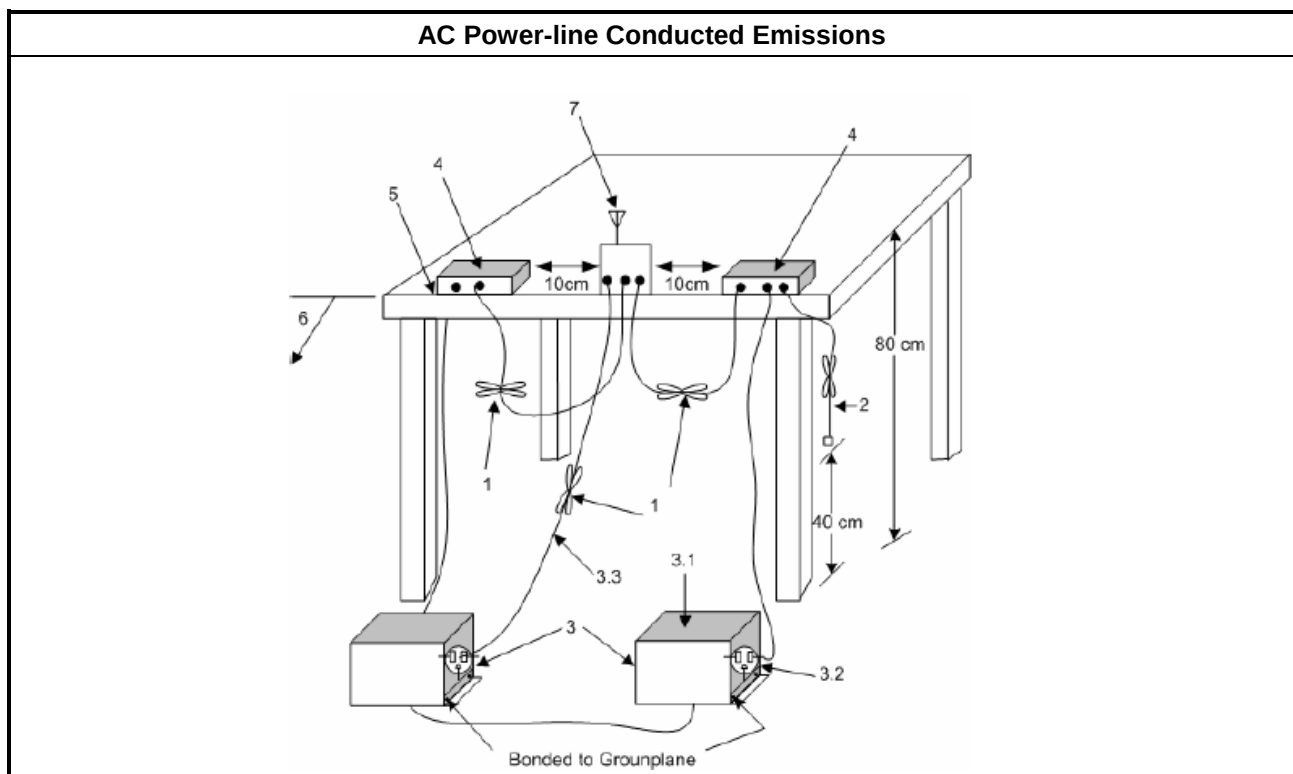
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
■ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Test Result

Please refer to Appendix A.

3.2 UWB bandwidth

3.2.1 UWB bandwidth Limit

UWB bandwidth Limit
UWB bandwidth ≥ 500 MHz or Fractional bandwidth ≥ 0.2 ; Fractional bandwidth = $2(f_H - f_L) / (f_H + f_L)$

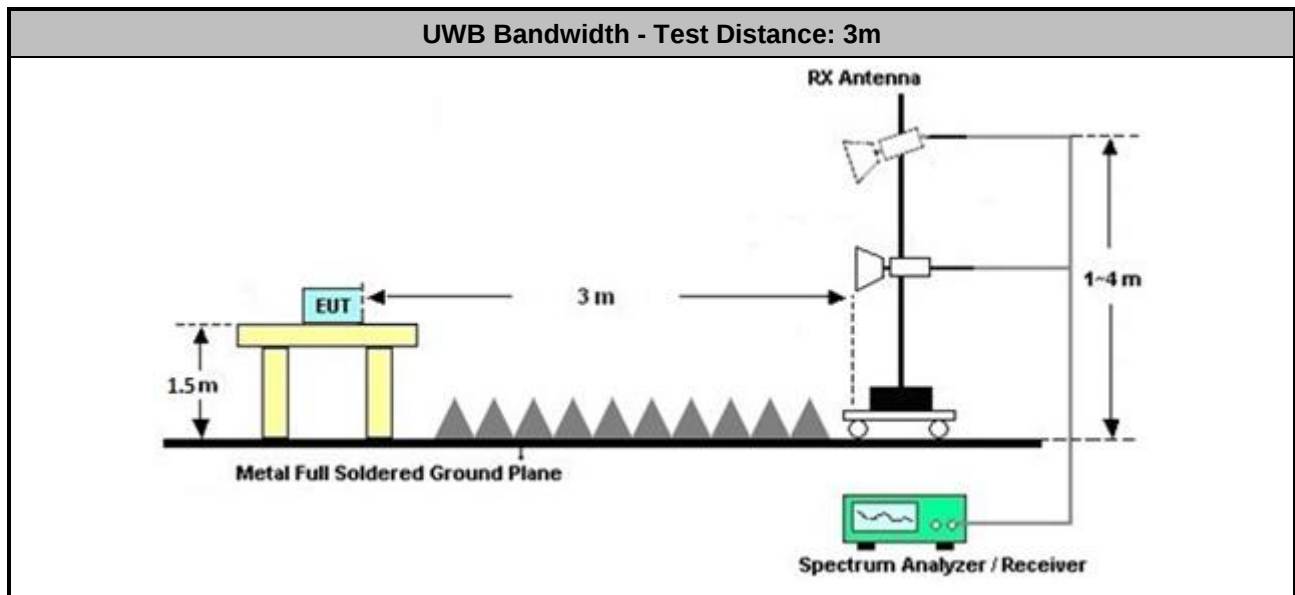
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
■ For the UWB bandwidth shall be measured using one of the options below:
■ Refer as ANSI C63.10, clause 6.9.2 and clause 10.1 for UWB bandwidth testing.

3.2.4 Test Setup



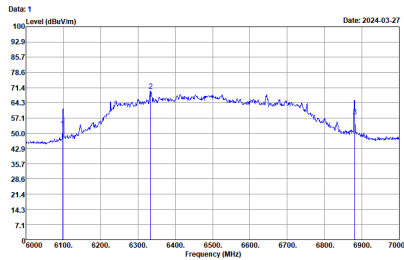
3.2.5 Test Result of UWB Bandwidth

Test mode	F _L (MHz)	F _H (MHz)	UWB Bandwidth (MHz)	Bandwidth limit (MHz)	Result	Pol [H/V]
1	6098	6881	783	≥ 500	Pass	V
2	6225	6881	656	≥ 500	Pass	V
3	6098	6881	783	≥ 500	Pass	V
4	6225	6881	656	≥ 500	Pass	V
5	6098	6882	784	≥ 500	Pass	V
6	6098	6881	783	≥ 500	Pass	V
7	6098	6881	783	≥ 500	Pass	V
8	6223	6881	658	≥ 500	Pass	V
9	6098	6881	783	≥ 500	Pass	V
10	7595	8379	784	≥ 500	Pass	V
11	7723	8252	529	≥ 500	Pass	V
12	7595	8379	784	≥ 500	Pass	V
13	7596	8378	782	≥ 500	Pass	V
14	7595	8379	784	≥ 500	Pass	V
15	7595	8379	784	≥ 500	Pass	V
16	7595	8379	784	≥ 500	Pass	V
17	7596	8379	783	≥ 500	Pass	V
18	7595	8379	784	≥ 500	Pass	V



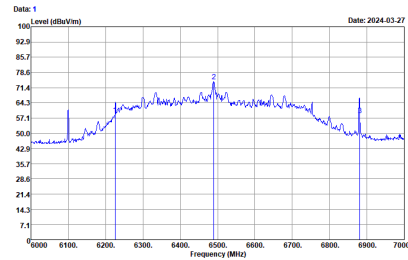
UWB Bandwidth

Mode 1



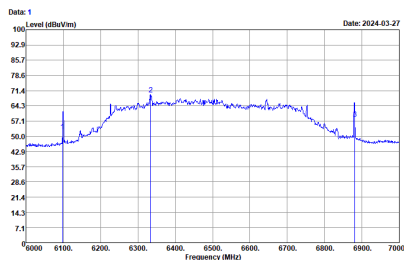
Site	: 03CH20-HY									
Condition	: 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec									
	:									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF9									
Config	: 0									
STS Nums	: 0									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	6098.00	52.32	-----	41.98	34.11	14.16	37.93	---	---	Peak
2	6334.00	70.00	-----	59.06	34.54	14.37	37.97	---	---	Peak
3	6881.00	57.86	-----	45.27	35.84	15.02	38.27	---	---	Peak

Mode 2



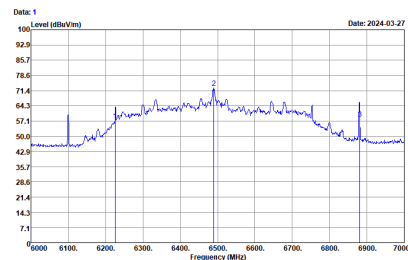
Site	: 03CH20-HY									
Condition	: 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec									
	:									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF10									
Config	: 0									
STS Nums	: 0									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	6225.00	58.80	-----	48.23	34.25	14.27	37.95	---	---	Peak
2	6490.00	74.46	-----	62.59	35.32	14.55	38.00	---	---	Peak
3	6881.00	58.37	-----	45.78	35.84	15.02	38.27	---	---	Peak

Mode 3



Site	: 03CH20-HY									
Condition	: 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec									
	:									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF9									
Config	: 1									
STS Nums	: 1									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	6098.00	52.49	-----	42.15	34.11	14.16	37.93	---	---	Peak
2	6334.00	69.71	-----	58.77	34.54	14.37	37.97	---	---	Peak
3	6881.00	58.13	-----	45.54	35.84	15.02	38.27	---	---	Peak

Mode 4

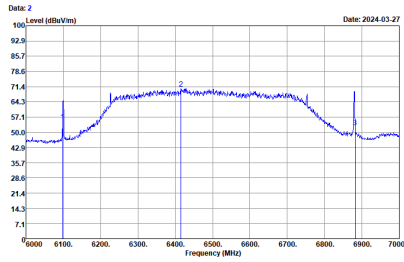


Site	: 03CH20-HY									
Condition	: 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF10									
Config	: 1									
STS Nums	: 1									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
	Freq	Level	Over Limit	Limit	ReadAntenna Level Factor	Cable Loss Factor	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	6225.00	57.30	-----		46.73	34.25	14.27	37.95	---	Peak
2	6490.00	72.79	-----		60.92	35.32	14.55	38.00	---	Peak
3	6881.00	58.10	-----		45.51	35.84	15.02	38.27	---	Peak



UWB Bandwidth

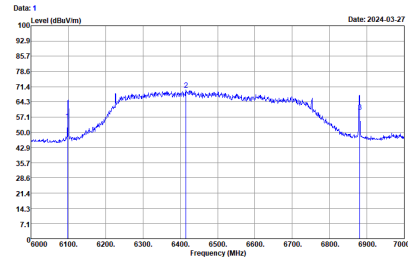
Mode 5



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6098.00	55.13	-----	-----	44.79	34.11	14.16	37.93	---	Peak
2	6415.00	70.52	-----	-----	59.12	34.93	14.45	37.98	---	Peak
3	6882.00	52.42	-----	-----	39.83	35.84	15.02	38.27	---	Peak

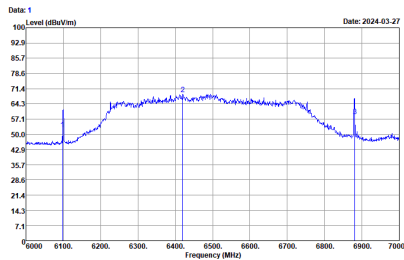
Mode 6



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH5
Modulation : BPRF10
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6098.00	55.47	-----	-----	45.13	34.11	14.16	37.93	---	Peak
2	6415.00	69.88	-----	-----	58.48	34.93	14.45	37.98	---	Peak
3	6881.00	59.55	-----	-----	46.96	35.84	15.02	38.27	---	Peak

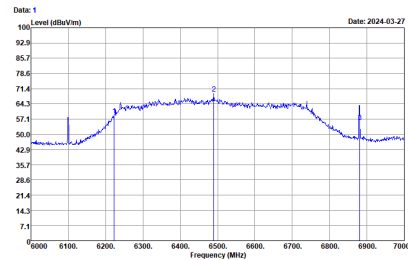
Mode 7



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH5
Modulation : BPRF27
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6098.00	52.31	-----	-----	41.97	34.11	14.16	37.93	---	Peak
2	6420.00	68.75	-----	-----	57.34	34.94	14.46	37.99	---	Peak
3	6881.00	58.55	-----	-----	45.96	35.84	15.02	38.27	---	Peak

Mode 8



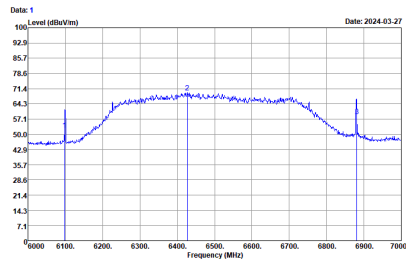
Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH5
Modulation : BPRF27
Config : 1
STS Nums : 2
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6223.00	58.90	-----	-----	48.33	34.25	14.27	37.95	---	Peak
2	6490.00	69.06	-----	-----	57.19	35.32	14.55	38.00	---	Peak
3	6881.00	55.78	-----	-----	43.19	35.84	15.02	38.27	---	Peak



UWB Bandwidth

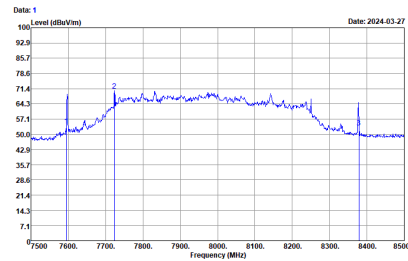
Mode 9



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF27
Config : 3
STS Nums : 2
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6098.00	52.22	-----	41.88	34.11	14.16	37.93	---	---	Peak
2	6427.00	69.73	-----	58.30	34.95	14.47	37.99	---	---	Peak
3	6881.00	58.40	-----	45.81	35.84	15.02	38.27	---	---	Peak

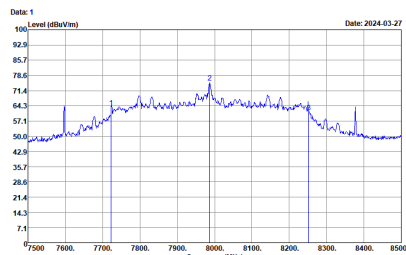
Mode 10



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF9
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7595.00	54.08	-----	40.74	36.38	15.80	38.84	---	---	Peak
2	7724.00	70.59	-----	56.87	36.75	15.92	38.95	---	---	Peak
3	8379.00	53.12	-----	38.65	37.40	16.56	39.49	---	---	Peak

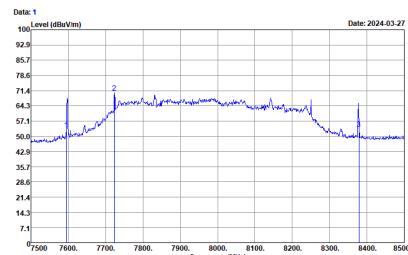
Mode 11



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF10
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7723.00	63.58	-----	49.86	36.75	15.92	38.95	---	---	Peak
2	7987.00	75.22	-----	60.83	37.35	16.22	39.18	---	---	Peak
3	8252.00	61.18	-----	47.01	37.20	16.36	39.39	---	---	Peak

Mode 12



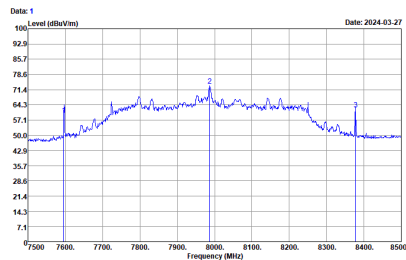
Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF9
Config : 1
STS Nums : 1
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7595.00	53.14	-----	39.80	36.38	15.80	38.84	---	---	Peak
2	7724.00	70.35	-----	56.63	36.75	15.92	38.95	---	---	Peak
3	8379.00	53.58	-----	39.11	37.40	16.56	39.49	---	---	Peak



UWB Bandwidth

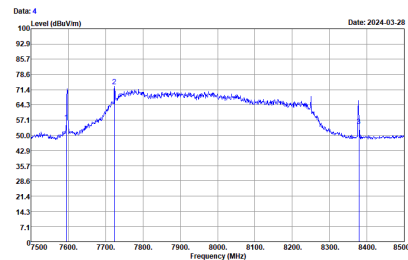
Mode 13



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF10
Config : 1
STS Nums : 1
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm
1	7596.00	59.48	-----	46.14	36.38	15.80	38.84	---
2	7987.00	73.21	-----	58.82	37.35	16.22	39.18	---
3	8378.00	62.10	-----	47.63	37.40	16.56	39.49	---

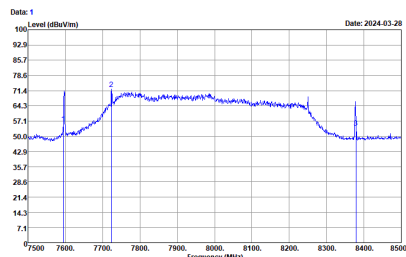
Mode 14



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm
1	7595.00	56.24	-----	42.90	36.38	15.80	38.84	---
2	7724.00	73.04	-----	59.32	36.75	15.92	38.95	---
3	8379.00	54.29	-----	39.82	37.40	16.56	39.49	---

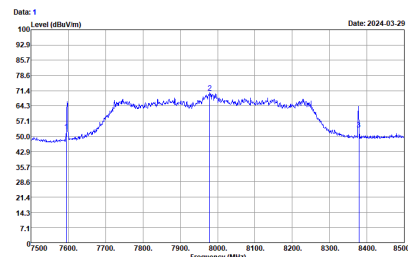
Mode 15



Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF10
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm
1	7595.00	55.93	-----	42.59	36.38	15.80	38.84	---
2	7724.00	72.15	-----	58.43	36.75	15.92	38.95	---
3	8379.00	54.03	-----	39.56	37.40	16.56	39.49	---

Mode 16



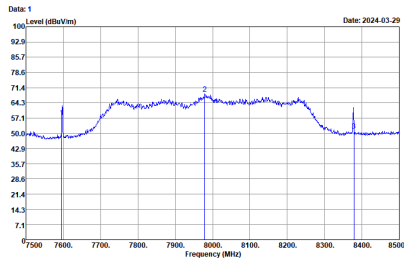
Site : 03CH20-HY
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF27
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm
1	7595.00	52.42	-----	39.08	36.38	15.80	38.84	---
2	7797.00	70.60	-----	56.24	37.32	16.21	39.17	---
3	8379.00	53.17	-----	38.70	37.40	16.56	39.49	---



UWB Bandwidth

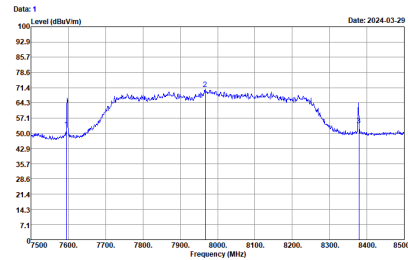
Mode 17



Site : 03CH20-HV
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF27
Config : 1
STS Num : 2
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7596.00	57.75	-----	44.41	36.38	15.80	38.84	---	---	Peak
2	7979.00	68.60	-----	54.24	37.32	16.21	39.17	---	---	Peak
3	8379.00	51.32	-----	36.85	37.40	16.56	39.49	---	---	Peak

Mode 18



Site : 03CH20-HV
Condition : 3m 91200_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:3.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF27
Config : 3
STS Num : 2
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7595.00	52.11	-----	38.77	36.38	15.80	38.84	---	---	Peak
2	7967.00	70.62	-----	56.31	37.27	16.20	39.16	---	---	Peak
3	8379.00	53.80	-----	39.33	37.40	16.56	39.49	---	---	Peak

3.3 Technical requirements for hand held UWB systems

3.3.1 Technical Requirements for transmission Limit

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.

3.3.2 Measuring Instruments

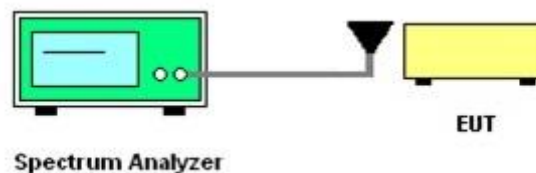
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedure

Follow the test step as below:

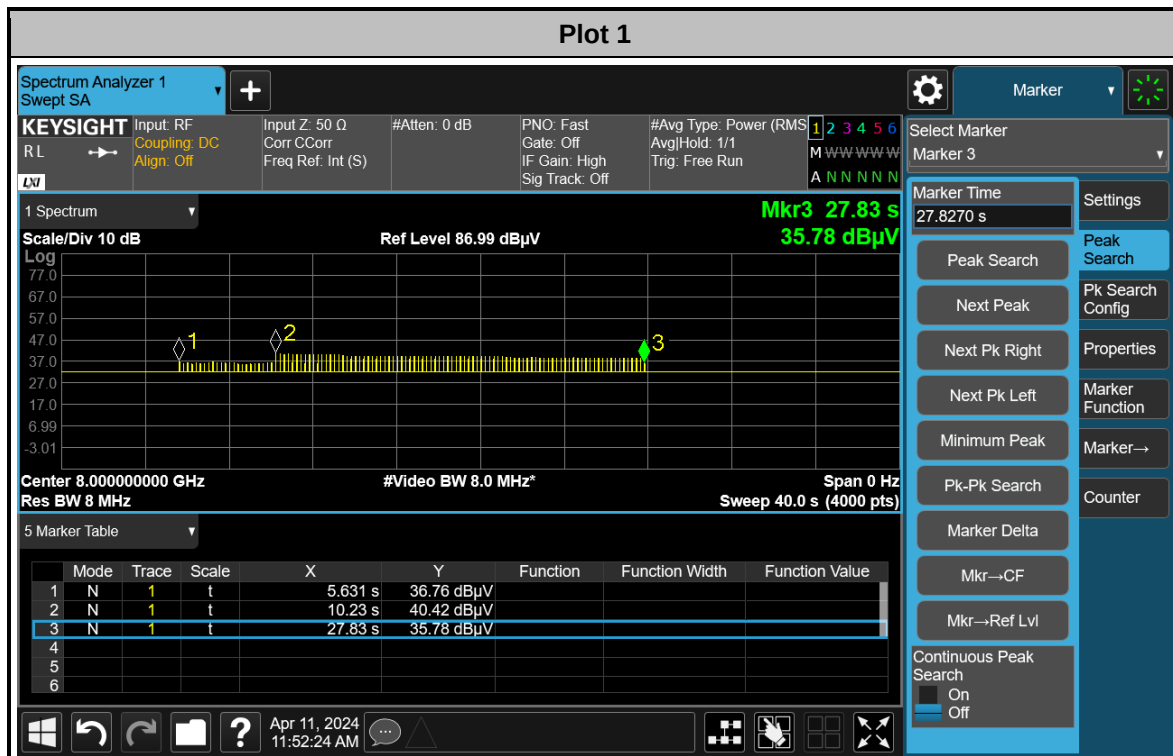
1. Turn on both EUT and companion receiver.
2. Set the EUT to TX mode, and EUT starts polling.
3. Set the companion receiver to associate EUT and EUT starts to transmit.
4. Disable the RX function of the companion receiver to disassociate the EUT.
5. Check if EUT stop transmitting once step 4 is made.

3.3.4 Test Setup





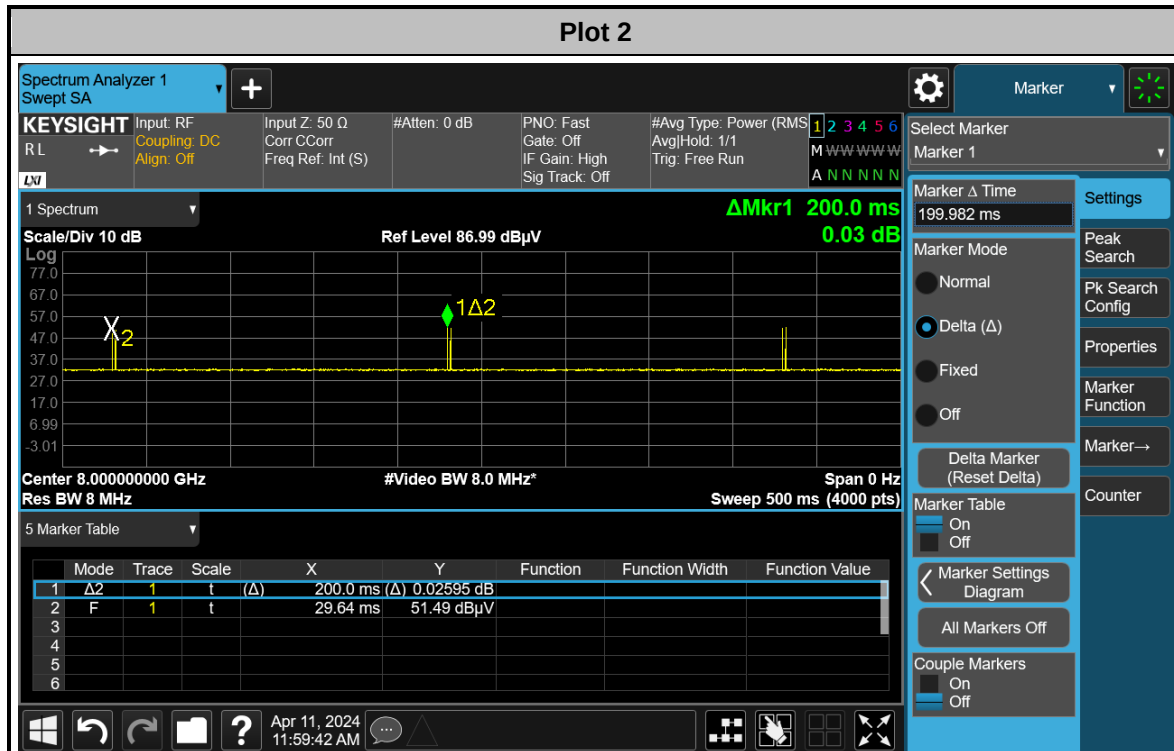
3.3.5 Test Result



M1 to M2: Set the EUT to TX mode, and EUT starts polling.

M2 to M3: Set the companion receiver to associate EUT and EUT starts to transmit.

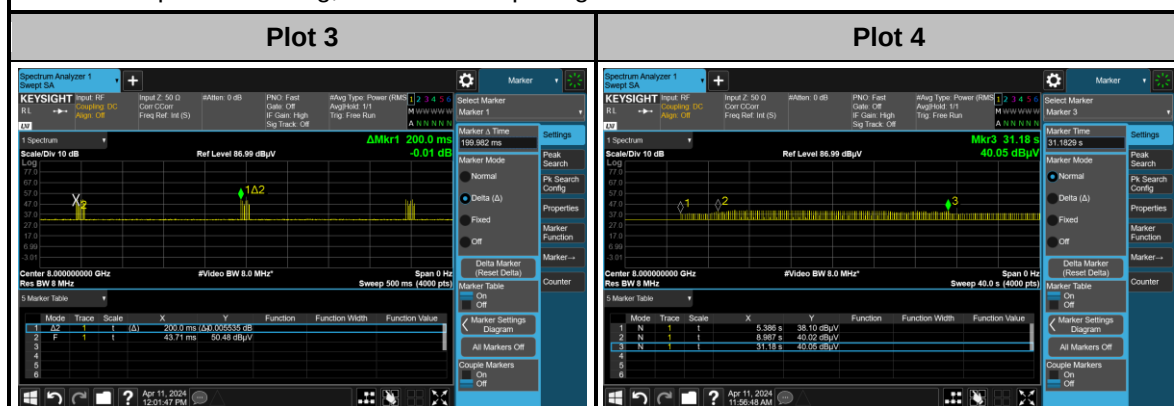
M3: Disable the TX function of EUT. EUT stops transmitting and polling.



M1 to M2: Set the EUT to TX mode, and EUT starts polling.

M2 to M3: Set the companion receiver to associate EUT and EUT starts to transmit.

M3: RX function of the companion receiver is disabled. EUT disassociates the companion receiver and stops transmitting, but continues polling.



Plot 3 is zoom in plot of M2 to M3 (transmission)

Plot 4 is zoom in plot after M3 (polling only)

3.4 Peak Power Measurement

3.4.1 Peak Power Measurement Limit

Peak Power Measurement Limit
$P_{eip} = 0 \text{ dBm/50MHz}$

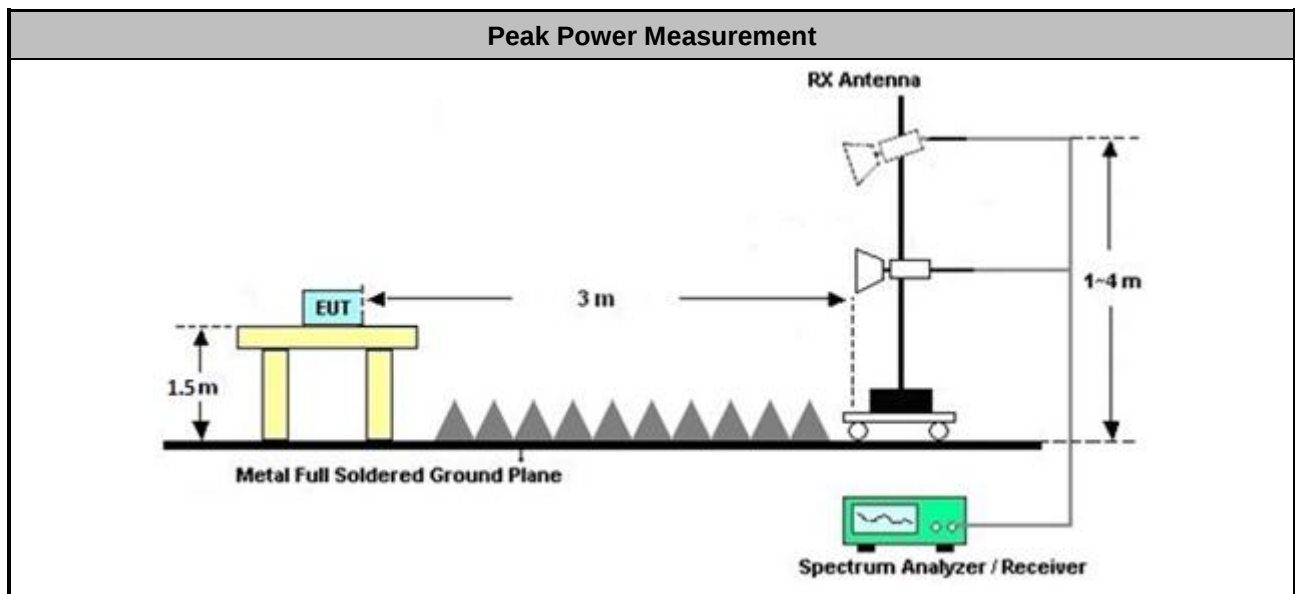
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method
Peak Power Measurement
- Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing. - Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m. - Refer as ANSI C63.10, clause 10.3.5 for peak detector procedure testing. - Refer as ANSI C63.10, clause 10.3.6 for bandwidth conversion of peak power.
- Frequency of max peak power is pre-located: The span bandwidth is continuously reduced to find the worst frequency. Once the worst frequency is found, the setting of spectrum analyzer is set as below: - Central frequency: Worst frequency point - Span: Zero span - RBW: 50MHz - VBW: 80MHz - Detector: Peak detector - Trace: Max hold

3.4.4 Test Setup



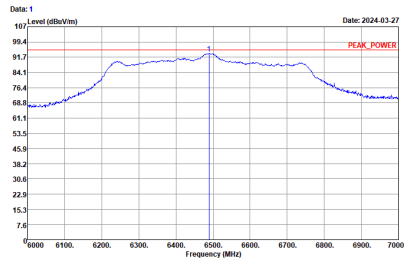
**3.4.5 Test Result of Peak Power Measurement**

Peak Measurement Result							
Test Mode	Freq. (MHz)	E-Field (dBuV/m)	ERIP _{50MHz} (dBm)	ERIP _{50MHz} Limit (dBm)	Margin (dB)	Result	Pol [H/V]
1	6489	93.66	-1.57	0	-1.57	Pass	V
2	6489	93.05	-2.18	0	-2.18	Pass	V
3	6487	92.49	-2.74	0	-2.74	Pass	V
4	6493	91.19	-4.04	0	-4.04	Pass	V
5	6426	87.05	-8.18	0	-8.18	Pass	V
6	6427	85.59	-9.64	0	-9.64	Pass	V
7	6493	86.16	-9.07	0	-9.07	Pass	V
8	6492	85.52	-9.71	0	-9.71	Pass	V
9	6489	83.83	-11.40	0	-11.40	Pass	V
10	7985	93.90	-1.33	0	-1.33	Pass	V
11	7986	93.50	-1.73	0	-1.73	Pass	V
12	7982	92.99	-2.24	0	-2.24	Pass	V
13	7987	91.81	-3.42	0	-3.42	Pass	V
14	7800	87.58	-7.65	0	-7.65	Pass	V
15	7800	87.00	-8.23	0	-8.23	Pass	V
16	7987	86.95	-8.28	0	-8.28	Pass	V
17	7986	84.64	-10.59	0	-10.59	Pass	V
18	7982	83.82	-11.41	0	-11.41	Pass	V
Note 1: EIRP [dBm] = E-Field [dBuV/m] - 95.23;							
Note 2: Measurement worst emissions of receive antenna polarization.							



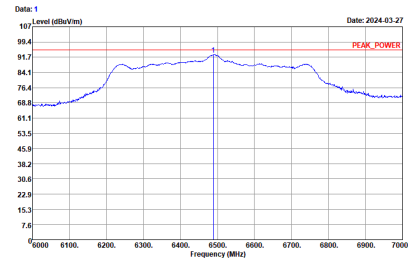
Pre-located worst frequency Plots

Mode 1



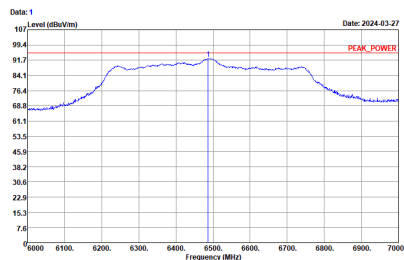
Site	: 03CH20-HY									
Condition	: PEAK_POWER 3m 91200_02360_231030 VERTICAL									
	: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec									
	: .									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF9									
Config	: 0									
STS Nums	: 0									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			
1	6489.00	93.66	-1.57	95.23	81.80	35.31	14.55	38.00	---	Peak

Mode 2



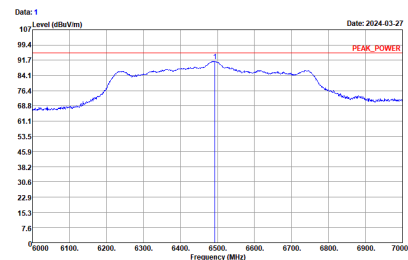
Site	: 03CH20-HY									
Condition	: PEAK_POWER 3m 91200_02360_231030 VERTICAL									
	: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec									
	: .									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF10									
Config	: 0									
STS Nums	: 0									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			
1	6489.00	93.05	-2.18	95.23	81.19	35.31	14.55	38.00	---	Peak

Mode 3



Site	: 03CH20-HY									
Condition	: PEAK_POWER 3m 91200_02360_231030 VERTICAL									
	: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec									
	: .									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF9									
Config	: 1									
STS Nums	: 1									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			
1	6487.00	92.49	-2.74	95.23	80.64	35.30	14.55	38.00	---	Peak

Mode 4

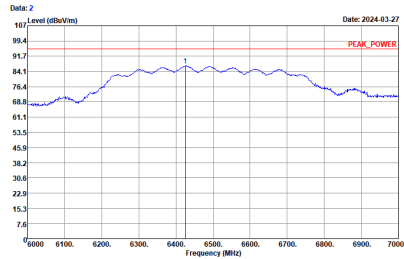


Site	: 03CH20-HY									
Condition	: PEAK_POWER 3m 91200_02360_231030 VERTICAL									
	: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec									
	: .									
Detector	: Peak									
Project	: 412915									
Channel	: CH5									
Modulation	: BRPF10									
Config	: 1									
STS Nums	: 1									
Payload Length	: 127									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			
1	6493.00	91.19	-4.04	95.23	79.29	35.34	14.56	38.00	---	Peak



Pre-located worst frequency Plots

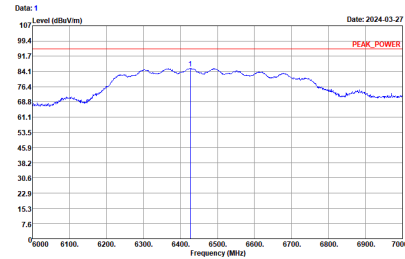
Mode 5



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH5
Modulation : 8PRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6426.00	87.05	-8.18	95.23	75.62	34.95	14.47	37.99	--- --- Peak

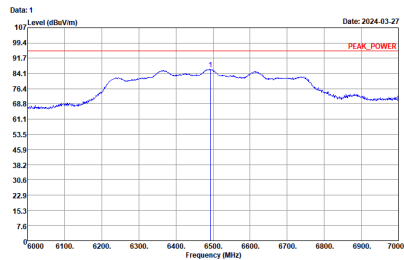
Mode 6



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH5
Modulation : 8PRF10
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6427.00	85.59	-9.64	95.23	74.16	34.95	14.47	37.99	--- --- Peak

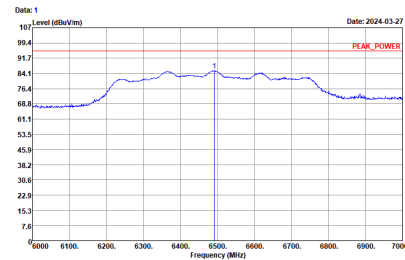
Mode 7



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH5
Modulation : 8PRF27
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6493.00	86.16	-9.07	95.23	74.26	35.34	14.56	38.00	--- --- Peak

Mode 8



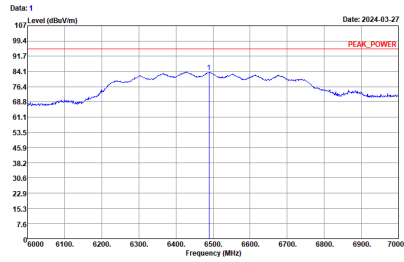
Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH5
Modulation : 8PRF27
Config : 1
STS Nums : 2
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6492.00	85.52	-9.71	95.23	73.63	35.34	14.55	38.00	--- --- Peak



Pre-located worst frequency Plots

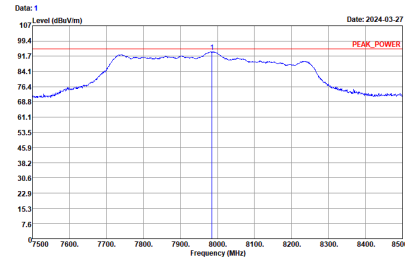
Mode 9



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : 8PRF27
Config : 3
STS Nums : 2
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6489.00	83.83	-11.48	95.23	71.97	35.31	14.55	38.00	--- --- Peak

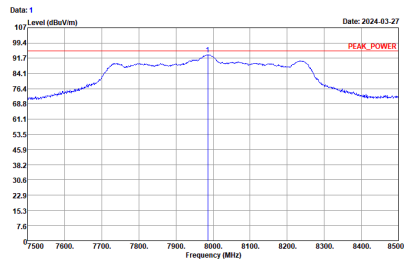
Mode 10



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : 8PRF9
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7985.00	93.90	-1.33	95.23	79.52	37.34	16.22	39.18	--- --- Peak

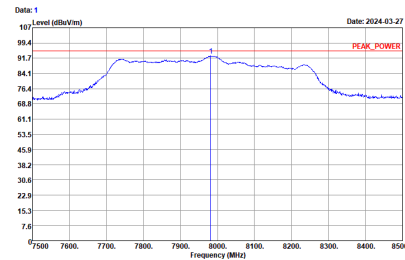
Mode 11



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : 8PRF10
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7986.00	93.58	-1.73	95.23	79.12	37.34	16.22	39.18	--- --- Peak

Mode 12



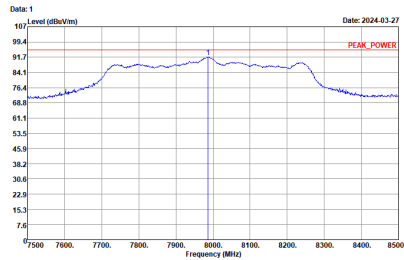
Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:
Detector : Peak
Project : 412915
Channel : CH9
Modulation : 8PRF9
Config : 1
STS Nums : 1
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7982.00	92.99	-2.24	95.23	78.61	37.33	16.22	39.17	--- --- Peak



Pre-located worst frequency Plots

Mode 13



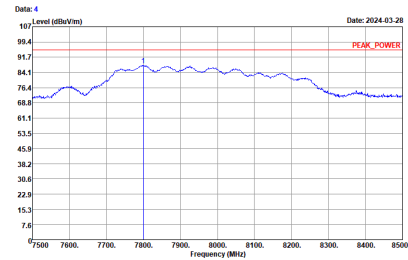
Date: 1
Date: 2024-03-27

Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:

Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF10
Config : 1
STS Nums : 1
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm deg
1	7987.00	91.81	-3.42	95.23	77.42	37.35	16.22	39.18 --- --- Peak

Mode 14



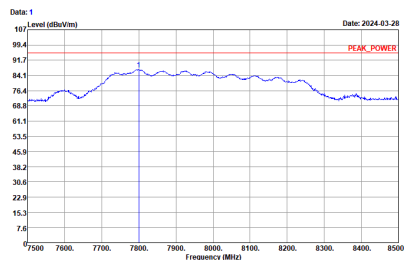
Date: 4
Date: 2024-03-28

Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:

Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm deg
1	7800.00	87.58	-7.65	95.23	73.51	37.10	15.99	39.02 --- --- Peak

Mode 15



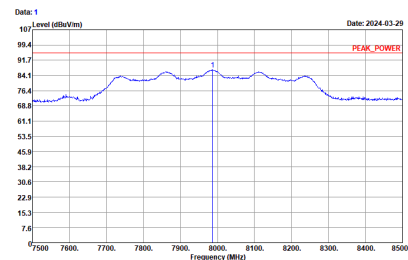
Date: 1
Date: 2024-03-28

Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:

Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF10
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm deg
1	7800.00	87.00	-8.23	95.23	72.93	37.10	15.99	39.02 --- --- Peak

Mode 16



Date: 1
Date: 2024-03-29

Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
:

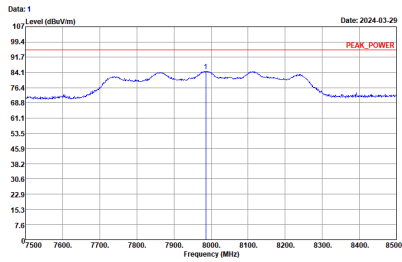
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BRPF27
Config : 0
STS Nums : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm deg
1	7987.00	86.95	-8.28	95.23	72.56	37.35	16.22	39.18 400 314 Peak



Pre-located worst frequency Plots

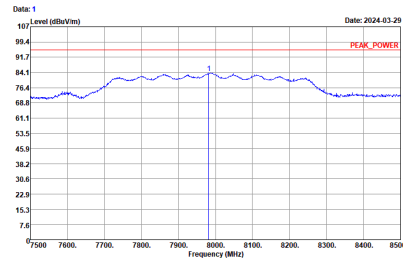
Mode 17



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF27
Config : 1
STS Nums : 2
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7986.00	84.64	-10.59	95.23	70.26	37.34	16.22	39.18	400	327 Peak

Mode 18



Site : 03CH20-HY
Condition : PEAK_POWER 3m 91200_02360_231030 VERTICAL
: RBW:50000.000KHz VBW:80000.000KHz SWT:1.000sec
Detector : Peak
Project : 412915
Channel : CH9
Modulation : HPRF27
Config : 3
STS Nums : 2
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7982.00	83.82	-11.41	95.23	69.44	37.33	16.22	39.17	400	320 Peak

3.5 Radiated Emissions

3.5.1 Radiated Emissions Limit

Radiated Emissions below 960MHz and Emissions from Digital Circuitry Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Radiated Emissions above 960MHz Limit	
Frequency Range (MHz)	EIRP (dBm), RBW = 1MHz
960-1610	-75.3
1610-1990	-63.3
1990-3100	-61.3
3100-10600	-41.3
Above 10600	-61.3

Note: Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)

Radiated Emissions in GPS Bands Limit	
Frequency Range (MHz)	EIRP (dBm), RBW ≥ 1kHz
1164-1240	-85.3
1559-1610	-85.3

Note E (dBuV/m) = EIRP (dBm) + 95.23, example, E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m

3.5.2 Measuring Instruments

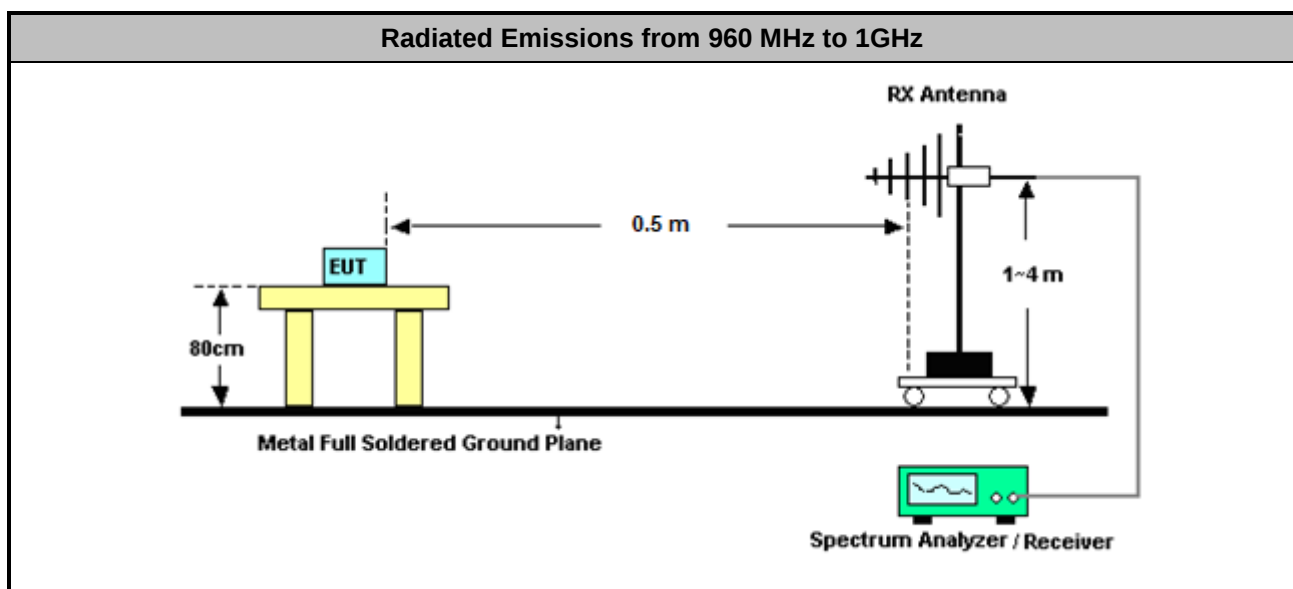
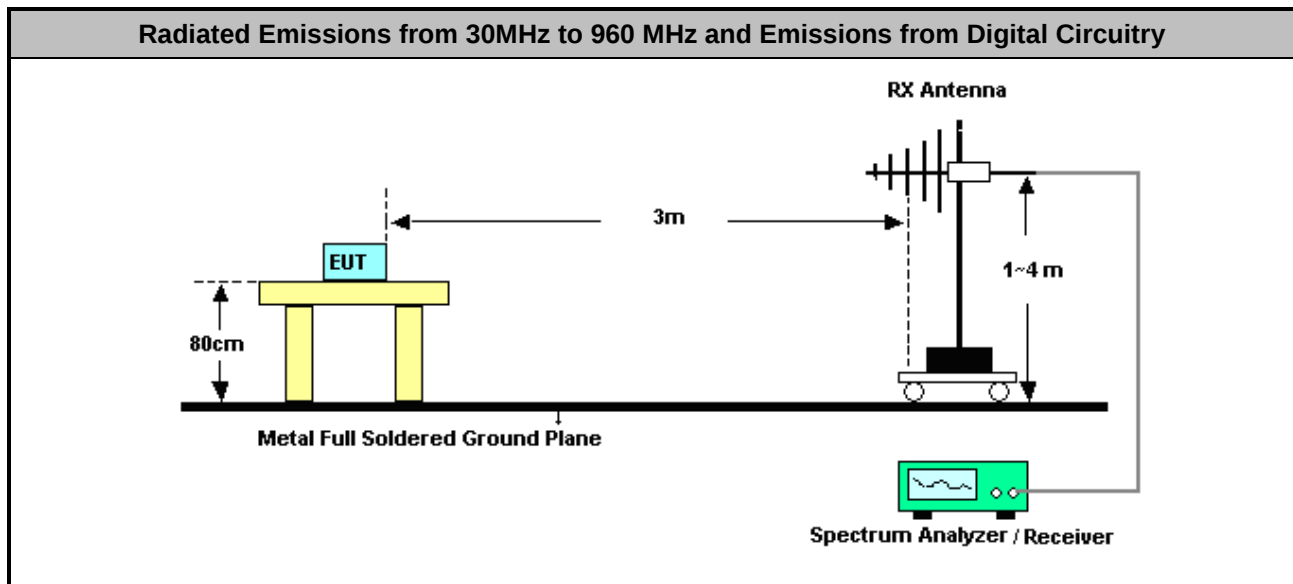
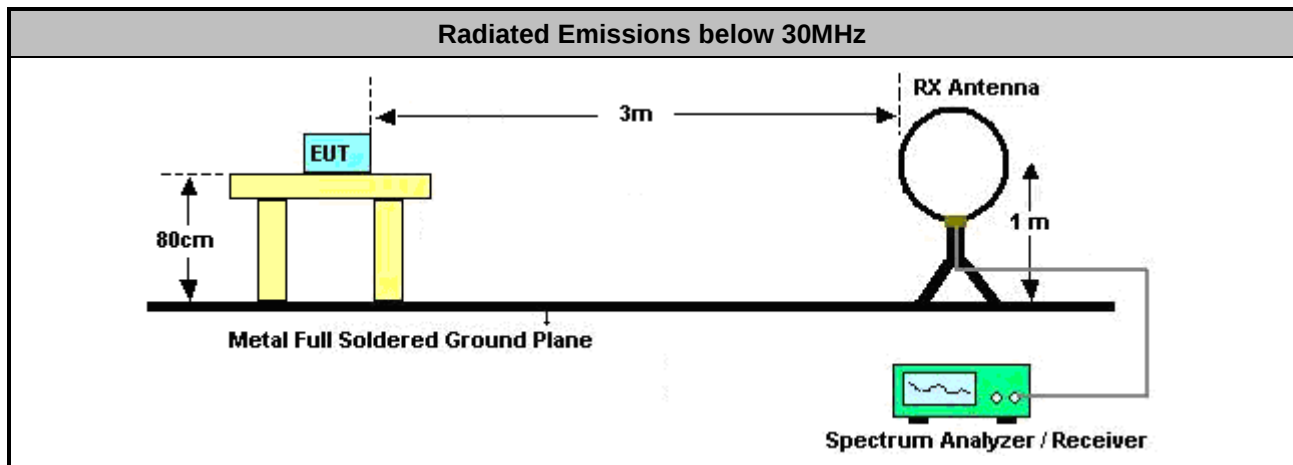
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

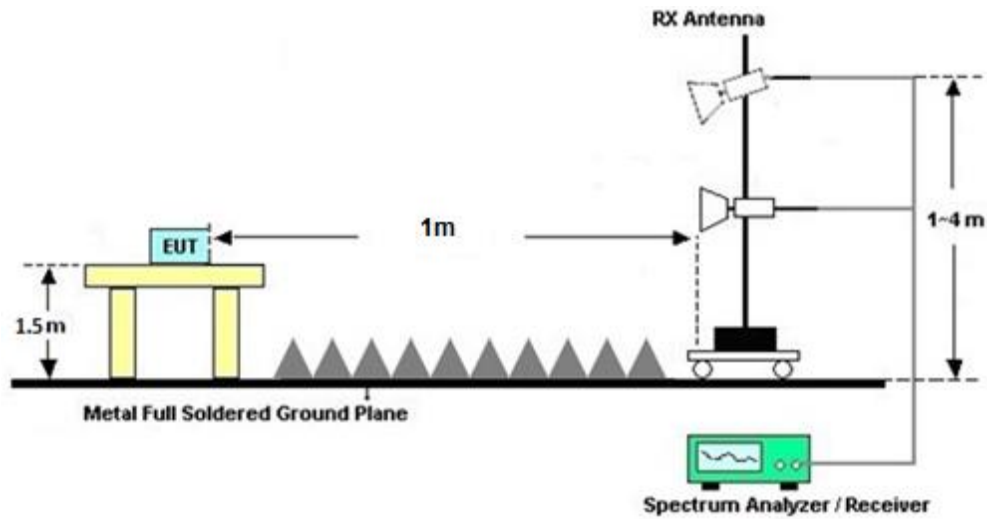
Test Method for Radiated Emissions above 960MHz	
■ Radiated Emissions above 960MHz	
■	Refer as ANSI C63.10, clause 10.3.1 for radiated measurement procedure testing.
■	Refer as ANSI C63.10, clause 10.3.2 for measurement distance is 3m. In some cases, it may be necessary to measure the radiated UWB emissions at a closer distance to obtain enough signal and margin to overcome the measurement system noise floor. Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
■	Refer as ANSI C63.10, clause 10.3.4 for rms detector procedure testing.
■	Refer as ANSI C63.10, clause 10.3.7 for evaluating AVG-PSD (RBW=1MHz).
■	Refer as ANSI C63.10, clause 10.3.10 for evaluating AVG-PSD in GPS Band (RBW≥1kHz).
■ For radiated measurement.	
■	Refer as ANSI C63.10, clause 10.3.8 following eirp can be used radiated test configuration.
■	Refer as ANSI C63.10, clause 10.3.9 following eirp can be directly determined using the field strength.

Test Method for Radiated Emissions below 960MHz and Emissions from Digital Circuitry	
■ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements) for above 30MHz-960MHz; 40dB/decade for frequency below 30MHz.	
■ For the transmitter unwanted emissions shall be measured using following options below:	
■	Refer as ANSI C63.10, clause 4.1.4 Detector functions and selection of bandwidth
□	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
■	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
■ For radiated measurement.	
■	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
■	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
■	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
■	If the noise floor can't meet the limit, the test distance will be shorten and described in the report.
■ Any unwanted emissions level shall not exceed the fundamental emission level.	

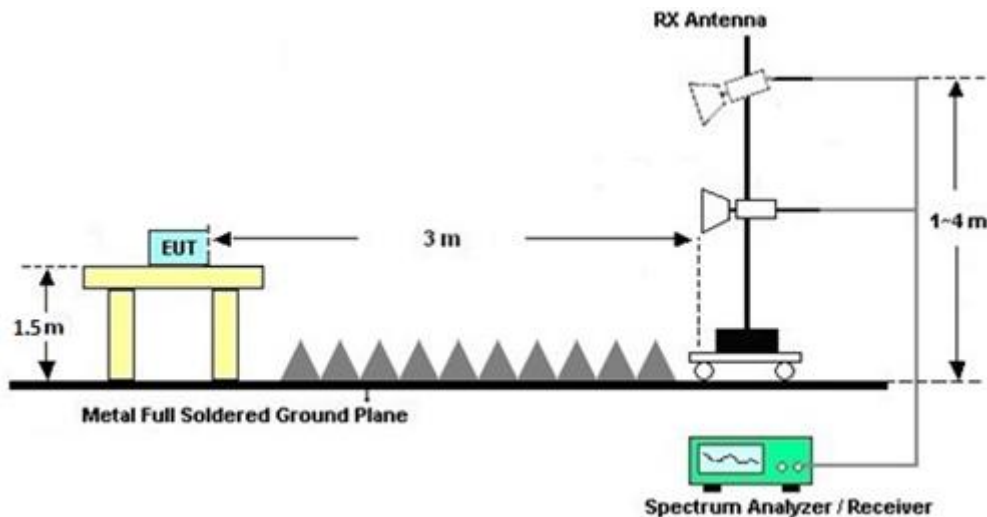
3.5.4 Test Setup

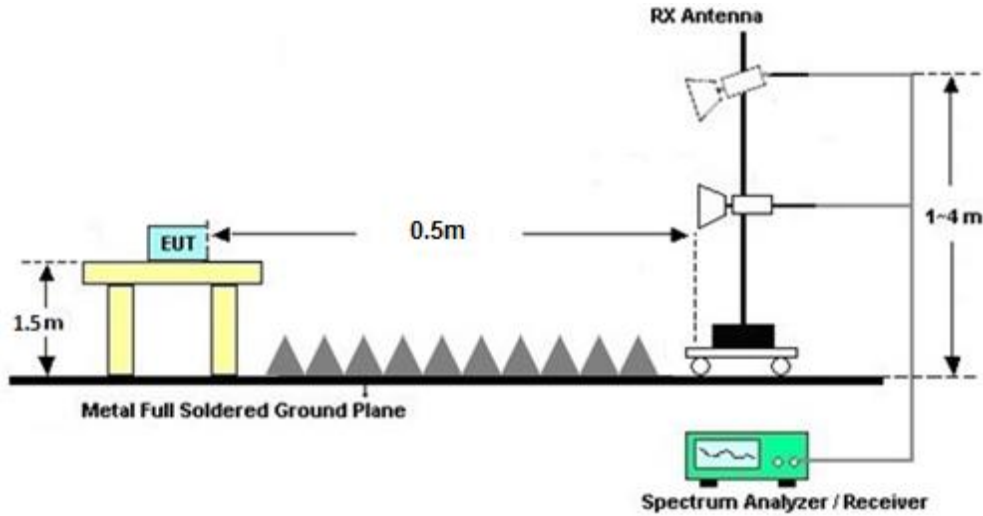
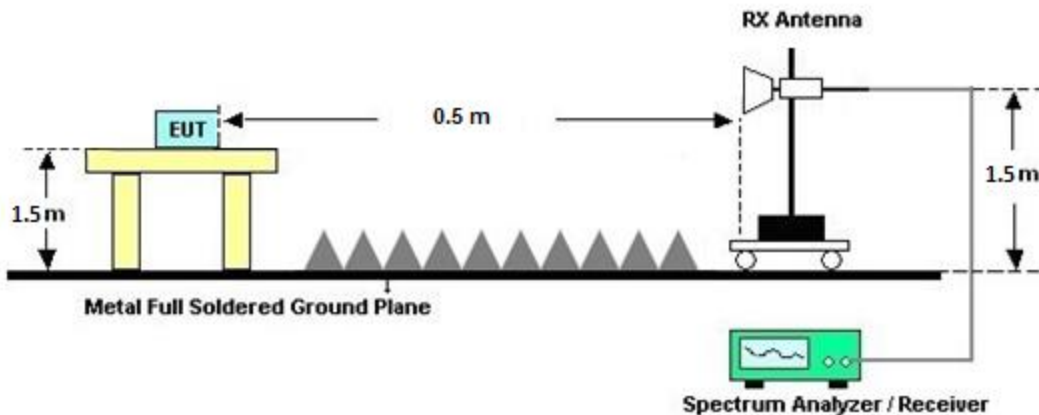


Radiated Emissions from 1GHz to 1.61 GHz



Radiated Emissions from 1.61 GHz to 10.60 GHz



Radiated Emissions from 10.60 GHz to 18GHz

Radiated Emissions above 18GHz


Note 1: Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna and the frequency range of 1 GHz to 40 GHz using a calibrated horn antenna.

Note 2: If test distance other than 3m is used, the used test distance will be recorded in test result.

3.5.5 Radiated Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.5.6 Average Power Spectral Density

Test mode	Frequency (MHz)	Emission Level (dBuV/m)	Emission Limit (dBm/MHz)	Emission Limit (dBuV/m)	Margin (dB)	Result	Pol [H/V]
1	6508	52.19	-41.3	53.93	-1.74	Pass	V
2	6490	51.51	-41.3	53.93	-2.42	Pass	V
3	6416	52.56	-41.3	53.93	-1.37	Pass	V
4	6490	50.29	-41.3	53.93	-3.64	Pass	V
5	6414	53.89	-41.3	53.93	-0.04	Pass	V
6	6414	52.02	-41.3	53.93	-1.91	Pass	V
7	6413	51.87	-41.3	53.93	-2.06	Pass	V
8	6420	51.91	-41.3	53.93	-2.02	Pass	V
9	6420	52.56	-41.3	53.93	-1.37	Pass	V
10	7987	52.80	-41.3	53.93	-1.13	Pass	V
11	7987	52.09	-41.3	53.93	-1.84	Pass	V
12	7987	52.68	-41.3	53.93	-1.25	Pass	V
13	8063	51.43	-41.3	53.93	-2.50	Pass	V
14	7777	53.74	-41.3	53.93	-0.19	Pass	V
15	7780	53.16	-41.3	53.93	-0.77	Pass	V
16	7979	53.07	-41.3	53.93	-0.86	Pass	V
17	7979	52.65	-41.3	53.93	-1.28	Pass	V
18	7974	53.50	-41.3	53.93	-0.43	Pass	V



Radiated Emissions (Fundamental)

Operating Function

Adapter Mode

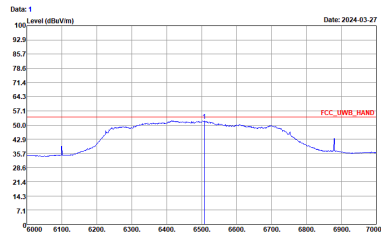
Polarization

V

Test Distance

3m

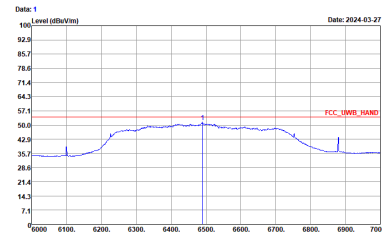
Mode 1



Site : 03CH20-HY
Condition : FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 0
STS Name : 0
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark			
Freq	Level	Line	Level Factor	Loss Factor	dB	cm	deg		
MHz	dBuV/m		dB	dB/m	dB	cm	deg		
1	6588.00	52.19	-1.74	53.93	48.20	35.42	14.58	38.81	--- Average

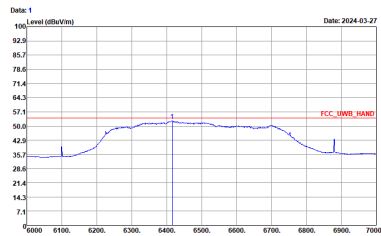
Mode 2



Site : 03CH20-HY
Condition : FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF10
Config : 0
STS Name : 0
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark			
Freq	Level	Line	Level Factor	Loss Factor	dB	cm	deg		
MHz	dBuV/m		dB	dB/m	dB	cm	deg		
1	6490.00	51.51	-2.42	53.93	39.64	35.32	14.55	38.00	--- Average

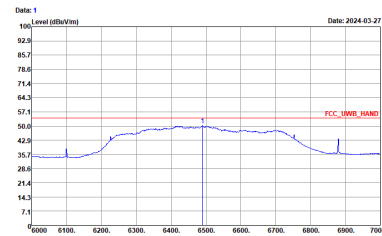
Mode 3



Site : 03CH20-HY
Condition : FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 1
STS Name : 1
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark			
Freq	Level	Line	Level Factor	Loss Factor	dB	cm	deg		
MHz	dBuV/m		dB	dB/m	dB	cm	deg		
1	6416.00	52.56	-1.37	53.93	41.16	34.93	14.45	37.98	--- Average

Mode 4

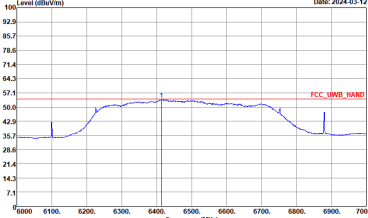
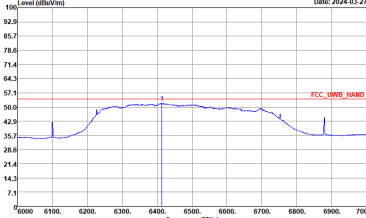
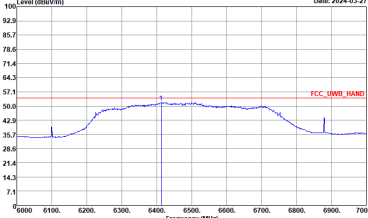
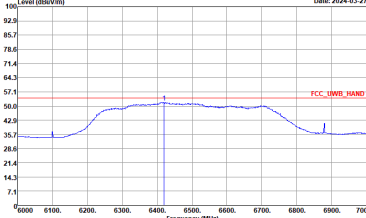


Site : 03CH20-HY
Condition : FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF10
Config : 1
STS Name : 1
Payload Length : 127
RMS Power : 0x0C
Adaptive : 0x01

Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark			
Freq	Level	Line	Level Factor	Loss Factor	dB	cm	deg		
MHz	dBuV/m		dB	dB/m	dB	cm	deg		
1	6490.00	50.29	-3.64	53.93	38.42	35.32	14.55	38.00	--- Average



Radiated Emissions (Fundamental)

Operating Function	Adapter Mode	Polarization	V																																																																						
		Test Distance	3m																																																																						
Mode 5		Mode 6																																																																							
Date: 4 Level (dBuV/m) Date: 2024-03-12  Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec : Detector : Average Project : 412915 Channel : CH5 Modulation : BPRF9 Config : 3 STS Name : 1 Payload Length : 0 RMS Power : 0x0C Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><th>MHz</th><th>dBuV/m</th><th></th><th>dB</th><th>dB/m</th><th>dB</th><th></th><th></th></tr><tr><td>1</td><td>6414.00</td><td>53.89</td><td>-0.04</td><td>53.93</td><td>42.49</td><td>34.93</td><td>14.45</td><td>37.98</td><td>---</td><td>---</td><td>Average</td></tr></table>		Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	dB	dB	cm	deg	MHz	dBuV/m		dB	dB/m	dB			1	6414.00	53.89	-0.04	53.93	42.49	34.93	14.45	37.98	---	---	Average	Date: 1 Level (dBuV/m) Date: 2024-03-27  Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec : Detector : Average Project : 412915 Channel : CH5 Modulation : BPRF10 Config : 3 STS Name : 1 Payload Length : 0 RMS Power : 0x0C Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><th>MHz</th><th>dBuV/m</th><th></th><th>dB</th><th>dB/m</th><th>dB</th><th></th><th></th></tr><tr><td>1</td><td>6414.00</td><td>52.82</td><td>-1.91</td><td>53.93</td><td>40.62</td><td>34.93</td><td>14.45</td><td>37.98</td><td>---</td><td>---</td><td>Average</td></tr></table>		Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	dB	dB	cm	deg	MHz	dBuV/m		dB	dB/m	dB			1	6414.00	52.82	-1.91	53.93	40.62	34.93	14.45	37.98	---	---	Average
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																			
Freq	Level	Line	Level Factor	dB	dB	cm	deg																																																																		
MHz	dBuV/m		dB	dB/m	dB																																																																				
1	6414.00	53.89	-0.04	53.93	42.49	34.93	14.45	37.98	---	---	Average																																																														
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																			
Freq	Level	Line	Level Factor	dB	dB	cm	deg																																																																		
MHz	dBuV/m		dB	dB/m	dB																																																																				
1	6414.00	52.82	-1.91	53.93	40.62	34.93	14.45	37.98	---	---	Average																																																														
Mode 7		Mode 8																																																																							
Date: 1 Level (dBuV/m) Date: 2024-03-27  Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec : Detector : Average Project : 412915 Channel : CH5 Modulation : HPRF27 Config : 0 STS Name : 0 Payload Length : 127 RMS Power : 0x0C Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><th>MHz</th><th>dBuV/m</th><th></th><th>dB</th><th>dB/m</th><th>dB</th><th></th><th></th></tr><tr><td>1</td><td>6413.00</td><td>51.87</td><td>-2.06</td><td>53.93</td><td>40.47</td><td>34.93</td><td>14.45</td><td>37.98</td><td>---</td><td>---</td><td>Average</td></tr></table>		Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	dB	dB	cm	deg	MHz	dBuV/m		dB	dB/m	dB			1	6413.00	51.87	-2.06	53.93	40.47	34.93	14.45	37.98	---	---	Average	Date: 1 Level (dBuV/m) Date: 2024-03-27  Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec : Detector : Average Project : 412915 Channel : CH5 Modulation : HPRF27 Config : 1 STS Name : 2 Payload Length : 127 RMS Power : 0x0C Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><th>MHz</th><th>dBuV/m</th><th></th><th>dB</th><th>dB/m</th><th>dB</th><th></th><th></th></tr><tr><td>1</td><td>6420.00</td><td>51.91</td><td>-2.82</td><td>53.93</td><td>40.50</td><td>34.94</td><td>14.46</td><td>37.99</td><td>---</td><td>---</td><td>Average</td></tr></table>		Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	dB	dB	cm	deg	MHz	dBuV/m		dB	dB/m	dB			1	6420.00	51.91	-2.82	53.93	40.50	34.94	14.46	37.99	---	---	Average
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																			
Freq	Level	Line	Level Factor	dB	dB	cm	deg																																																																		
MHz	dBuV/m		dB	dB/m	dB																																																																				
1	6413.00	51.87	-2.06	53.93	40.47	34.93	14.45	37.98	---	---	Average																																																														
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																			
Freq	Level	Line	Level Factor	dB	dB	cm	deg																																																																		
MHz	dBuV/m		dB	dB/m	dB																																																																				
1	6420.00	51.91	-2.82	53.93	40.50	34.94	14.46	37.99	---	---	Average																																																														



Radiated Emissions (Fundamental)

Operating Function

Adapter Mode

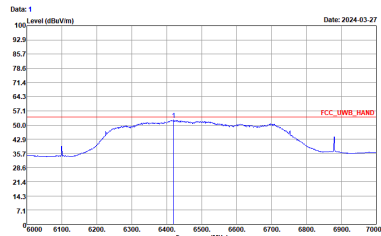
Polarization

V

Test Distance

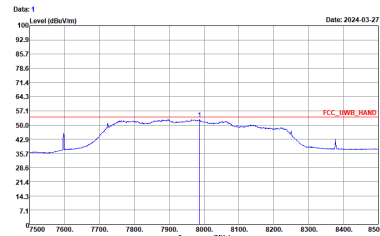
3m

Mode 9



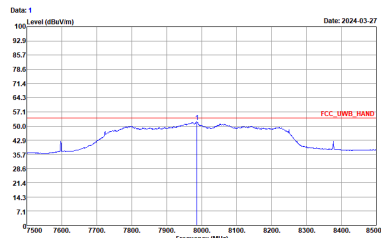
Site	: 03CH20-HY									
Condition	: FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec									
	:									
Detector	: Average									
Project	: 412915									
Channel	: C15									
Modulation	: BPRF27									
Config	: 3									
STS Name	: 2									
Payload Length	: 0									
RMS Power	: 0x0C									
Adaptive	: 0x01									
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark				
Level	Line	Level Factor	Loss Factor	dB	cm	deg				
Freq	Level	Limit	Line	Level Factor	Loss Factor	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg			
1	6420.00	52.56	-1.37	53.93	41.15	34.94	14.46	37.99	---	Average

Mode 10



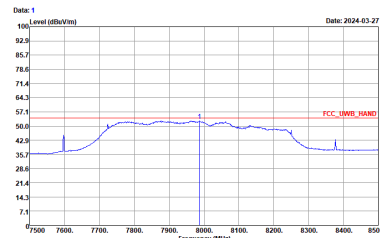
Site	: 03CH20-HY									
Condition	: FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec									
	:									
Detector	: Average									
Project	: 412915									
Channel	: C19									
Modulation	: BPRF9									
Config	: 0									
STS Name	: 0									
Payload Length	: 127									
RMS Power	: 0x05									
Adaptive	: 0x01									
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark				
Level	Line	Level Factor	Loss Factor	dB	cm	deg				
Freq	Level	Limit	Line	Level Factor	Loss Factor	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg			
1	7987.00	52.80	-1.13	53.93	38.41	37.35	16.22	39.18	---	Average

Mode 11



Site	: 03CH20-HY									
Condition	: FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec									
	:									
Detector	: Average									
Project	: 412915									
Channel	: C19									
Modulation	: BPRF10									
Config	: 0									
STS Name	: 0									
Payload Length	: 127									
RMS Power	: 0x05									
Adaptive	: 0x01									
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark				
Level	Line	Level Factor	Loss Factor	dB	cm	deg				
Freq	Level	Limit	Line	Level Factor	Loss Factor	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg			
1	7987.00	52.09	-1.84	53.93	37.70	37.35	16.22	39.18	---	Average

Mode 12



Site	: 03CH20-HY									
Condition	: FCC_UWB_BAND 3m 91200_02360_231030 VERTICAL									
	: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec									
	:									
Detector	: Average									
Project	: 412915									
Channel	: C19									
Modulation	: BPRF9									
Config	: 1									
STS Name	: 1									
Payload Length	: 127									
RMS Power	: 0x05									
Adaptive	: 0x01									
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark				
Level	Line	Level Factor	Loss Factor	dB	cm	deg				
Freq	Level	Limit	Line	Level Factor	Loss Factor	A/Pos	T/Pos	Remark		
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg			
1	7987.00	52.68	-1.25	53.93	38.29	37.35	16.22	39.18	---	Average



Radiated Emissions (Fundamental)

Operating Function

Adapter Mode

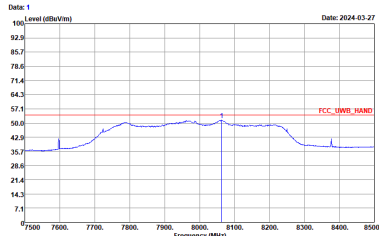
Polarization

V

Test Distance

3m

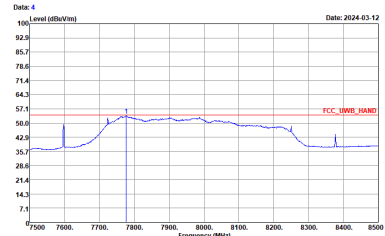
Mode 13



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : C19
Modulation : BPRF10
Config : 1
STS Name : 1
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	cm	deg	
1	8063.00	51.43	-2.50	53.93	37.17	37.25	16.25	39.24	--- Average

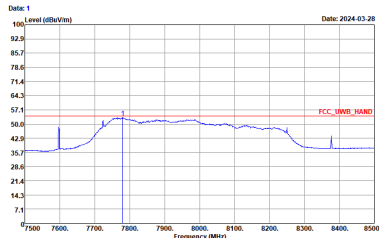
Mode 14



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : C19
Modulation : BPRF9
Config : 3
STS Name : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	cm	deg	
1	7777.00	53.74	-0.19	53.93	39.81	36.96	15.97	39.00	--- Average

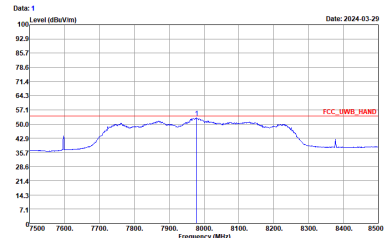
Mode 15



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : C19
Modulation : BPRF10
Config : 3
STS Name : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	cm	deg	
1	7780.00	53.16	-0.77	53.93	39.21	36.98	15.97	39.00	--- Average

Mode 16



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL
RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Project : 412915
Channel : C19
Modulation : HPRF27
Config : 0
STS Name : 0
Payload Length : 127
RMS Power : 0x05
Adaptive : 0x01

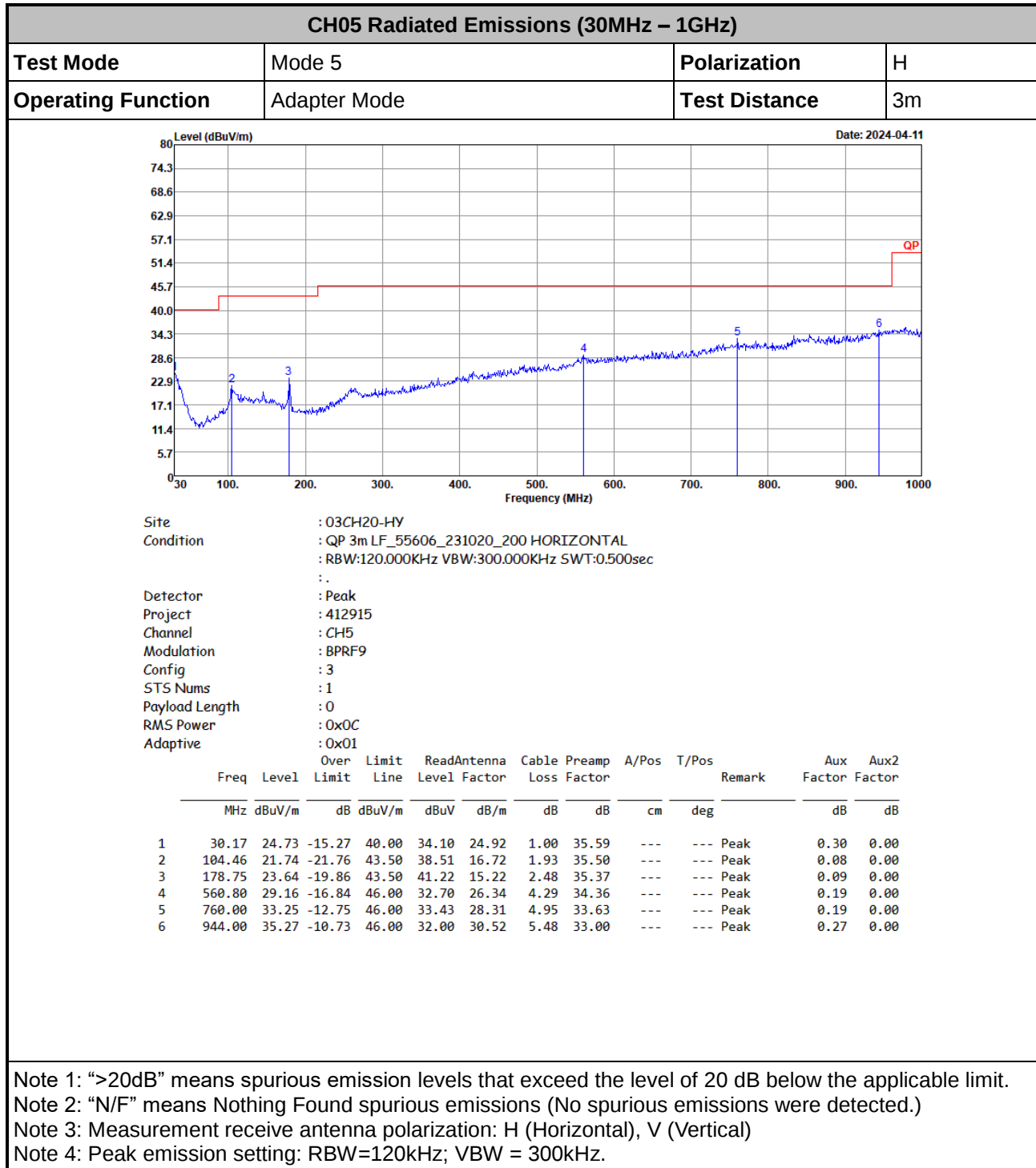
Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	dB	cm	deg	
1	7979.00	53.07	-0.86	53.93	38.71	37.32	16.21	39.17	--- Average



Radiated Emissions (Fundamental)																																																																															
Operating Function	Adapter Mode	Polarization				V																																																																									
		Test Distance				3m																																																																									
Mode 17						Mode 18																																																																									
Date: 1 Level (dBuV/m) Date: 2024-03-29 Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec Detector : Average Project : 412915 Channel : CH9 Modulation : HPRFZ7 Config : 1 STS Name : 2 Payload Length : 127 RMS Power : 0x05 Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>Loss Factor</th><th></th><th></th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>7979.00</td><td>52.65</td><td>-1.28</td><td>53.93</td><td>38.29</td><td>37.32</td><td>16.21</td><td>39.17</td><td>---</td><td>---</td><td>Average</td></tr></table>						Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	Loss Factor			MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg	1	7979.00	52.65	-1.28	53.93	38.29	37.32	16.21	39.17	---	---	Average	Date: 1 Level (dBuV/m) Date: 2024-03-29 Site : 03CH20-HY Condition : FCC_UWB_HAND 3m 91200_02360_231030 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec Detector : Average Project : 412915 Channel : CH9 Modulation : HPRFZ7 Config : 3 STS Name : 2 Payload Length : 0 RMS Power : 0x05 Adaptive : 0x01 <table><tr><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Level Factor</th><th>Loss Factor</th><th></th><th></th></tr><tr><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dB/m</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>7974.00</td><td>53.50</td><td>-0.43</td><td>53.93</td><td>39.16</td><td>37.30</td><td>16.21</td><td>39.17</td><td>---</td><td>---</td><td>Average</td></tr></table>						Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark	Freq	Level	Line	Level Factor	Loss Factor			MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg	1	7974.00	53.50	-0.43	53.93	39.16	37.30	16.21	39.17	---	---	Average
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																									
Freq	Level	Line	Level Factor	Loss Factor																																																																											
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg																																																																								
1	7979.00	52.65	-1.28	53.93	38.29	37.32	16.21	39.17	---	---	Average																																																																				
Over	Limit	ReadAntenna	Cable Preamp	A/Pos	T/Pos	Remark																																																																									
Freq	Level	Line	Level Factor	Loss Factor																																																																											
MHz	dBuV/m	dB	dBuV/m	dB/m	dB	cm	deg																																																																								
1	7974.00	53.50	-0.43	53.93	39.16	37.30	16.21	39.17	---	---	Average																																																																				



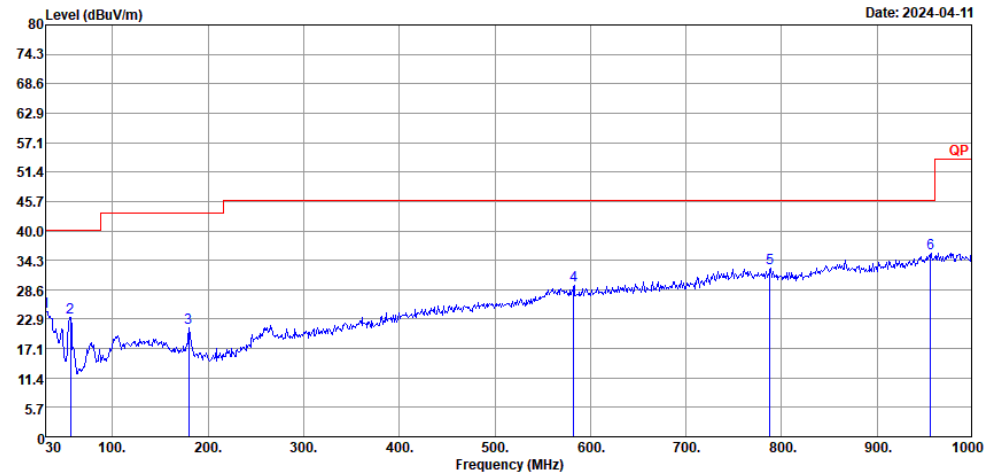
3.5.7 Radiated Emissions (30MHz – 1GHz)





CH05 Radiated Emissions (30MHz – 1GHz)

Test Mode	Mode 5	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : QP 3m LF_55606_231020_200 VERTICAL
: RBW:120.000KHz VBW:300.000KHz SWT:0.500sec
:
Detector : Peak
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Aux Factor	Aux2 Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		dB	dB
1	30.17	24.33	-15.67	40.00	33.70	24.92	1.00	35.59	---	---	Peak	0.30	0.00
2	55.84	23.15	-16.85	40.00	44.44	12.79	1.41	35.57	---	---	Peak	0.08	0.00
3	179.77	21.07	-22.43	43.50	38.70	15.16	2.49	35.37	---	---	Peak	0.09	0.00
4	582.40	29.37	-16.63	46.00	33.25	25.82	4.37	34.27	---	---	Peak	0.20	0.00
5	788.00	32.82	-13.18	46.00	33.00	28.10	5.03	33.51	---	---	Peak	0.20	0.00
6	956.00	35.59	-10.41	46.00	31.77	30.98	5.52	32.95	---	---	Peak	0.27	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

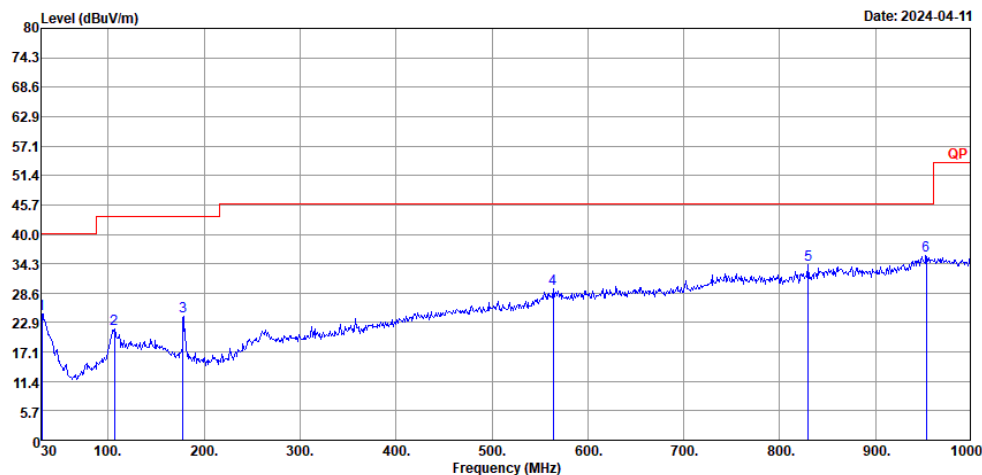
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.



CH09 Radiated Emissions (30MHz – 1GHz)

Test Mode	Mode 14	Polarization	H
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : QP 3m LF_55606_231020_200 HORIZONTAL
: RBW:120.000KHz VBW:300.000KHz SWT:0.500sec
: .
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	F001		F002		F003		F004		F005		F006		F007		F008		F009		F010		F011		F012		F013		F014		F015		F016		F017		F018		F019		F020		F021		F022		F023		F024		F025		F026		F027		F028		F029		F030		F031		F032		F033		F034		F035		F036		F037		F038		F039		F040		F041		F042		F043		F044		F045		F046		F047		F048		F049		F050		F051		F052		F053		F054		F055		F056		F057		F058		F059		F060		F061		F062		F063		F064		F065		F066		F067		F068		F069		F070		F071		F072		F073		F074		F075		F076		F077		F078		F079		F080		F081		F082		F083		F084		F085		F086		F087		F088		F089		F090		F091		F092		F093		F094		F095		F096		F097		F098		F099		F100		F101		F102		F103		F104		F105		F106		F107		F108		F109		F110		F111		F112		F113		F114		F115		F116		F117		F118		F119		F120		F121		F122		F123		F124		F125		F126		F127		F128		F129		F130		F131		F132		F133		F134		F135		F136		F137		F138		F139		F140		F141		F142		F143		F144		F145		F146		F147		F148		F149		F150		F151		F152		F153		F154		F155		F156		F157		F158		F159		F160		F161		F162		F163		F164		F165		F166		F167		F168		F169		F170		F171		F172		F173		F174		F175		F176		F177		F178		F179		F180		F181		F182		F183		F184		F185		F186		F187		F188		F189		F190		F191		F192		F193		F194		F195		F196		F197		F198		F199		F200		F201		F202		F203		F204		F205		F206		F207		F208		F209		F210		F211		F212		F213		F214		F215		F216		F217		F218		F219		F220		F221		F222		F223		F224		F225		F226		F227		F228		F229		F230		F231		F232		F233		F234		F235		F236		F237		F238		F239		F240		F241		F242		F243		F244		F245		F246		F247		F248		F249		F250		F251		F252		F253		F254		F255		F256		F257		F258		F259		F260		F261		F262		F263		F264		F265		F266		F267		F268		F269		F270		F271		F272		F273		F274		F275		F276		F277		F278		F279		F280		F281		F282		F283		F284		F285		F286		F287		F288		F289		F290		F291		F292		F293		F294		F295		F296		F297		F298		F299		F300		F301		F302		F303		F304		F305		F306		F307		F308		F309		F310		F311		F312		F313		F314		F315		F316		F317		F318		F319		F320		F321		F322		F323		F324		F325		F326		F327		F328		F329		F330		F331		F332		F333		F334		F335		F336		F337		F338		F339		F340		F341		F342		F343		F344		F345		F346		F347		F348		F349		F350		F351		F352		F353		F354		F355		F356		F357		F358		F359		F360		F361		F362		F363		F364		F365		F366		F367		F368		F369		F370		F371		F372		F373		F374		F375		F376		F377		F378		F379		F380		F381		F382		F383		F384		F385		F386		F387		F388		F389		F390		F391		F392		F393		F394		F395		F396		F397		F398		F399		F400		F401		F402		F403		F404		F405		F406		F407		F408		F409		F410		F411		F412		F413		F414		F415		F416		F417		F418		F419		F420		F421		F422		F423		F424		F425		F426		F427		F428		F429		F430		F431		F432		F433		F434		F435		F436		F437		F438		F439		F440		F441		F442		F443		F444		F445		F446		F447		F448		F449		F450		F451		F452		F453		F454		F455		F456		F457		F458		F459		F460		F461		F462		F463		F464		F465		F466		F467		F468		F469		F470		F471		F472		F473		F474		F475		F476		F477		F478		F479		F480		F481		F482		F483		F484		F485		F486		F487		F488		F489		F490		F491		F492		F493		F494		F495		F496		F497		F498		F499		F500		F501		F502		F503		F504		F505		F506		F507		F508		F509		F510		F511		F512		F513		F514		F515		F516		F517		F518		F519		F520		F521		F522		F523		F524		F525		F526		F527		F528		F529		F530		F531		F532		F533		F534		F535		F536		F537		F538		F539		F540		F541		F542		F543		F544		F545		F546		F547		F548		F549		F550		F551		F552		F553		F554		F555		F556		F557		F558		F559		F560		F561		F562		F563		F564		F565		F566		F567		F568		F569		F570		F571		F572		F573		F574		F575		F576		F577		F578		F579		F580		F581		F582		F583		F584		F585		F586		F587		F588		F589		F590		F591		F592		F593		F594		F595		F596		F597		F598		F599		F600		F601		F602		F603		F604		F605		F606		F607		F608		F609		F610		F611		F612		F613		F614		F615		F616		F617		F618		F619		F620		F621		F622		F623		F624		F625		F626		F627		F628		F629		F630		F631		F632		F633		F634		F635		F636		F637		F638		F639		F640		F641		F642		F643		F644		F645		F646		F647		F648		F649		F650		F651		F652		F653		F654		F655		F656		F657		F658		F659		F660		F661		F662		F663		F664		F665		F666		F667		F668		F669		F670		F671		F672		F673		F674		F675		F676		F677		F678		F679		F680		F681		F682		F683		F684		F685		F686		F687		F688		F689		F690		F691		F692		F693		F694		F695		F696		F697		F698		F699		F700		F701		F702		F703		F704		F705		F706		F707		F708		F709		F710		F711		F712		F713		F714		F715		F716		F717		F718		F719		F720		F721		F722		F723		F724		F725		F726		F727		F728		F729		F730		F731		F732		F733		F734		F735		F736		F737		F738		F739		F740		F741		F742		F743		F744		F745		F746		F747		F748		F749		F750		F751		F752		F753		F754		F755		F756		F757		F758		F759		F760		F761		F762		F763		F764		F765		F766		F767		F768		F769		F770		F771		F772		F773		F774		F775		F776		F777		F778		F779		F780		F781		F782		F783		F784		F785		F786		F787		F788		F789		F790		F791		F792		F793		F794		F795		F796		F797		F798		F799		F800		F801		F802		F803		F804		F805		F806		F807		F808		F809		F810		F811		F812		F813		F814		F815		F816		F817		F818		F819		F820		F821		F822		F823		F824		F825		F826		F827		F828		F829		F830		F831		F832		F833		F834		F835		F836		F837		F838		F839		F840		F841		F842		F843		F844		F845		F846		F847		F848		F849		F850		F851		F852		F853		F854		F855		F856		F857		F858		F859		F860		F861		F862		F863		F864		F865		F866		F867		F868		F869		F870		F871		F872		F873		F874		F875		F876		F877		F878		F879		F880		F881		F882		F883		F884		F885		F886		F887		F888		F889		F890		F891		F892		F893		F894		F895		F896		F897		F898		F899		F900		F901		F902		F903		F904		F905		F906		F907		F908		F909		F910		F911		F912		F913		F914		F915		F916		F917		F918		F919		F920		F921		F922		F923		F924		F925		F926		F927		F928		F929		F930		F931		F932		F933		F934		F935		F936		F937		F938		F939		F940		F941		F942		F943		F944		F945		F946		F947		F948		F949		F950		F951		F952		F953		F954		F955		F956		F957		F958		F959		F960		F961		F962		F963		F964		F965		F966		F967		F968		F969		F970		F971		F972		F973		F974		F975		F976		F977		F978		F979		F980		F981		F982		F983		F984		F985		F986		F987		F988		F989		F990		F991		F992		F993		F994		F995		F996		F997		F998		F999		F1000		F1001		F1002		F1003		F1004		F1005		F1006		F1007		F1008		F1009		F1010		F1011		F1012		F1013		F1014		F1015		F1016		F1017		F1018		F1019		F1020		F1021		F1022		F1023		F1024		F1025		F1026		F1027		F1028		F10	
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Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

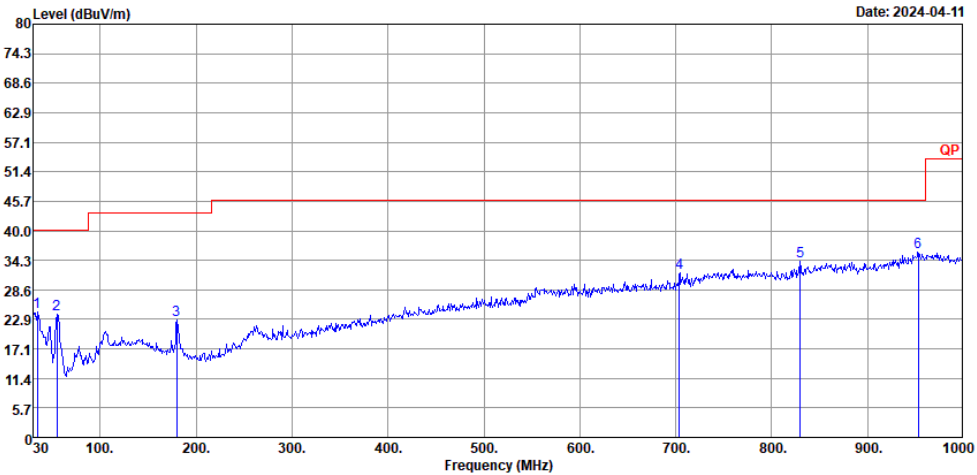
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.



CH09 Radiated Emissions (30MHz – 1GHz)

Test Mode	Mode 14	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : QP 3m LF_55606_231020_200 VERTICAL
: RBW:120.000KHz VBW:300.000KHz SWT:0.500sec
: .
Detector : Peak
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Aux	Aux2
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB	dB
1	34.76	24.39	-15.61	40.00	36.08	22.64	1.09	35.58	---	Peak	0.16	0.00
2	55.16	23.82	-16.18	40.00	44.99	12.92	1.40	35.57	---	Peak	0.08	0.00
3	179.77	22.74	-20.76	43.50	40.37	15.16	2.49	35.37	---	Peak	0.09	0.00
4	704.00	31.75	-14.25	46.00	34.08	26.66	4.77	33.93	---	Peak	0.17	0.00
5	829.60	34.01	-11.99	46.00	33.72	28.33	5.13	33.42	---	Peak	0.25	0.00
6	952.80	35.93	-10.07	46.00	32.25	30.87	5.51	32.97	---	Peak	0.27	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

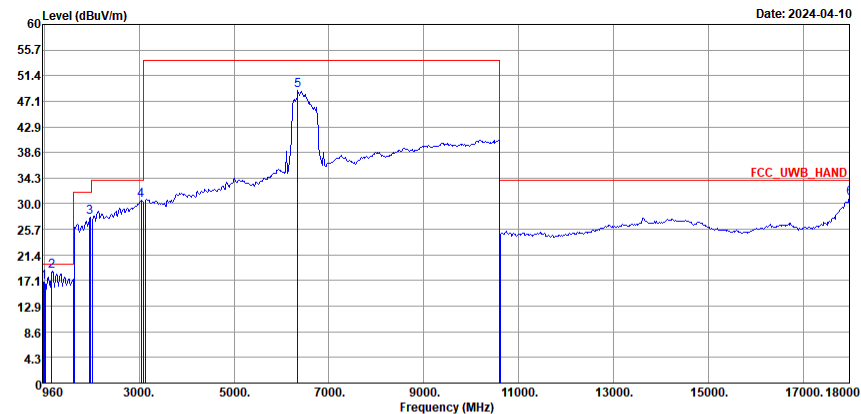
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Peak emission setting: RBW=120kHz; VBW = 300kHz.



3.5.8 Radiated Emissions (960MHz – 18GHz)

CH05 Radiated Emissions (960MHz – 18GHz)			
Test Mode	Mode 5	Polarization	H
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3m for 1.61 GHz ~ 10.60 GHz frequency range, 1 m for 1GHz ~ 1.61 GHz, and 0.5 m for other frequency ranges.		



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 9120B_02360_231030 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec
:
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Aux	Aux2
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor			Factor	Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB	dB
1	982.72	16.89	-3.04	19.93	28.78	30.60	5.60	32.82	---	---	Average	0.29 -15.56
2	1158.60	18.64	-1.29	19.93	31.91	25.87	6.10	35.70	---	---	Average	-9.54 0.00
3	1959.98	27.67	-4.26	31.93	29.74	26.16	7.86	36.09	---	---	Average	0.00 0.00
4	3041.17	30.58	-3.35	33.93	27.04	29.76	9.91	36.13	---	---	Average	0.00 0.00
5	6347.50	48.91	-5.02	53.93	37.91	34.59	14.38	37.97	---	---	Average	0.00 0.00
6	17992.60	30.96	-2.97	33.93	25.07	42.46	24.57	45.58	---	---	Average	-15.56 0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.

Note 5: Average emission setting in GPS bands: RBW=1kHz; VBW=3kHz.

Note 6: #5 is fundamental signal.

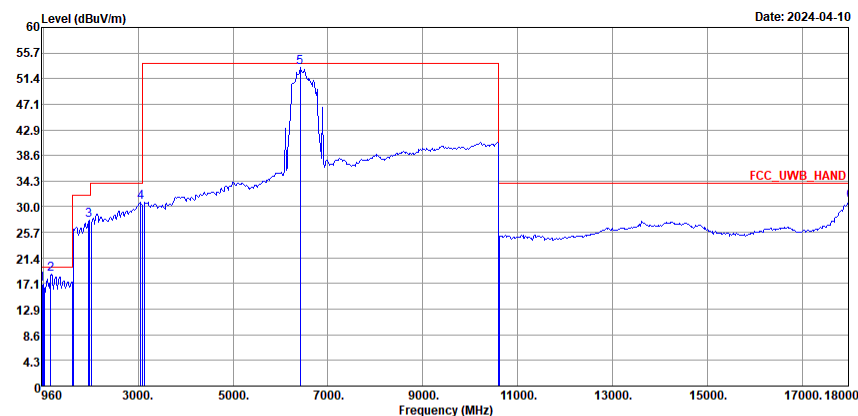
Note 7:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
Example: Distance extrapolation factor = $20 \log (0.5\text{m}/3\text{m}) = -15.56$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) + Aux 2 Factor (dB) = Level (dBuV/m)
(Note: For test item below 1GHz, Aux = Filter loss; Aux 2 = Distance extrapolation factor)
(Note: For test item above 1GHz, Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)
Example: Corrected Reading: 30.60 (dB/m) + 5.60 (dB) + 28.78 (dBuV) - 32.82 (dB) + 0.29 dB + (-15.56) (dB) = 16.89 (dBuV/m)



CH05 Radiated Emissions (960MHz – 18GHz)

Test Mode	Mode 5	Polarization	V
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3m for 1.61 GHz ~ 10.60 GHz frequency range, 1 m for 1GHz ~ 1.61 GHz, and 0.5 m for other frequency ranges.		



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 9120b_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec
:
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Aux Factor	Aux2 Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		dB	dB
1	977.60	16.99	-2.94	19.93	28.78	30.74	5.59	32.85	---	---	Average	0.29	-15.56
2	1158.60	18.70	-1.23	19.93	31.97	25.87	6.10	35.70	---	---	Average	-9.54	0.00
3	1959.60	27.80	-4.13	31.93	29.87	26.16	7.86	36.09	---	---	Average	0.00	0.00
4	3047.83	30.68	-3.25	33.93	27.10	29.79	9.93	36.14	---	---	Average	0.00	0.00
5	6415.00	53.35	-0.58	53.93	41.95	34.93	14.45	37.98	---	---	Average	0.00	0.00
6	18000.00	30.92	-3.01	33.93	25.00	42.50	24.57	45.59	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.

Note 5: Average emission setting in GPS bands: RBW=1kHz; VBW=3kHz.

Note 6: #5 is fundamental signal.

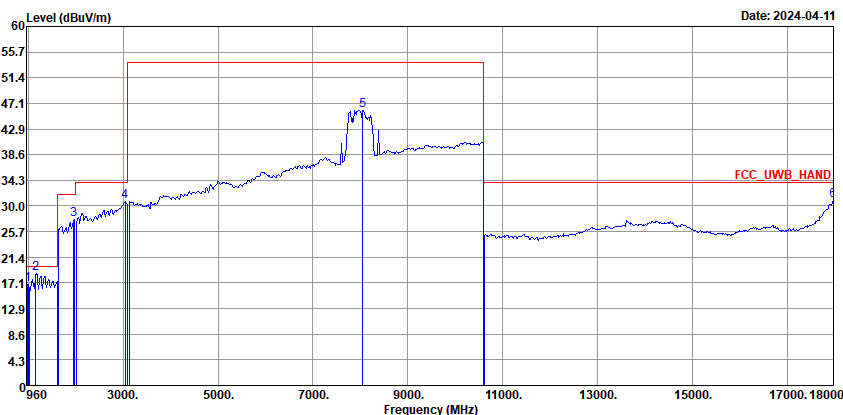
Note 7:

- Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)
(Note: For test item below 1GHz, Aux = Filter loss; Aux 2 = Distance extrapolation factor)
(Note: For test item above 1GHz, Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



CH09 Radiated Emissions (960MHz – 18GHz)

Test Mode	Mode 14	Polarization	H
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3m for 1.61 GHz ~ 10.60 GHz frequency range, 1 m for 1GHz ~ 1.61 GHz, and 0.5 m for other frequency ranges.		



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 9120b_02360_231030 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec
: .

Detector : Average
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

		Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos			Aux	Aux2	
Freq	Level	Limit	Line	Level	Factor	Loss	Factor		Remark	Factor	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB	dB		
1	984.48	16.89	-3.04	19.93	28.77	30.59	5.61	32.81	---	---	Average	0.29	-15.56
2	1157.38	18.70	-1.23	19.93	31.98	25.87	6.09	35.70	---	---	Average	-9.54	0.00
3	1958.46	27.78	-4.15	31.93	29.86	26.15	7.86	36.09	---	---	Average	0.00	0.00
4	3042.28	30.70	-3.23	33.93	27.15	29.77	9.91	36.13	---	---	Average	0.00	0.00
5	8050.00	46.04	-7.89	53.93	31.72	37.30	16.25	39.23	---	---	Average	0.00	0.00
6	17970.40	30.85	-3.08	33.93	25.10	42.32	24.55	45.56	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.

Note 5: Average emission setting in GPS bands: RBW=1kHz; VBW=3kHz.

Note 6: #5 is fundamental signal.

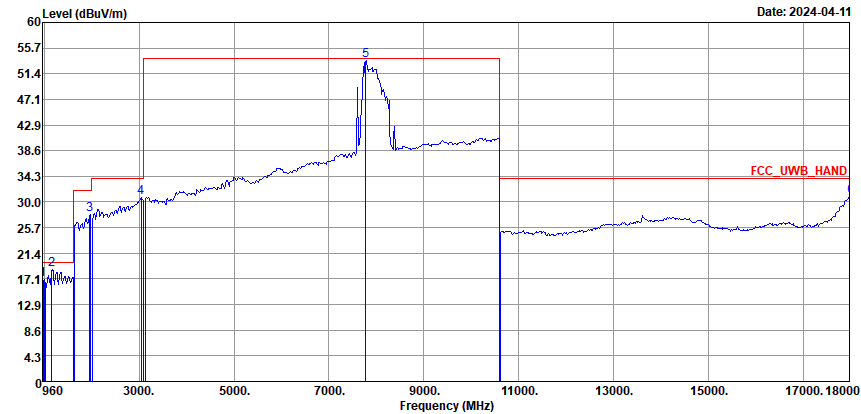
Note 7:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)
(Note: For test item below 1GHz, Aux = Filter loss; Aux 2 = Distance extrapolation factor)
(Note: For test item above 1GHz, Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



CH09 Radiated Emissions (960MHz – 18GHz)

Test Mode	Mode 14	Polarization	V
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3m for 1.61 GHz ~ 10.60 GHz frequency range, 1 m for 1GHz ~ 1.61 GHz, and 0.5 m for other frequency ranges.		



Site : 03CH20-HY
Condition : FCC_UWB_HAND 3m 9120D_02360_231030 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:7.500sec
: .
Detector : Average
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Aux Factor	Aux2 Factor	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB		cm	deg	dB	dB	
1	980.04	17.08	-2.85	19.93	29.00	30.59	5.60	32.84	---	---	Average	0.29	-15.56
2	1158.60	18.68	-1.25	19.93	31.95	25.87	6.10	35.70	---	---	Average	-9.54	0.00
3	1954.28	27.87	-4.06	31.93	29.98	26.13	7.85	36.09	---	---	Average	0.00	0.00
4	3042.28	30.71	-3.22	33.93	27.16	29.77	9.91	36.13	---	---	Average	0.00	0.00
5	7780.00	53.69	-0.24	53.93	39.74	36.98	15.97	39.00	---	---	Average	0.00	0.00
6	18000.00	30.89	-3.04	33.93	24.97	42.50	24.57	45.59	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.

Note 5: Average emission setting in GPS bands: RBW=1kHz; VBW=3kHz.

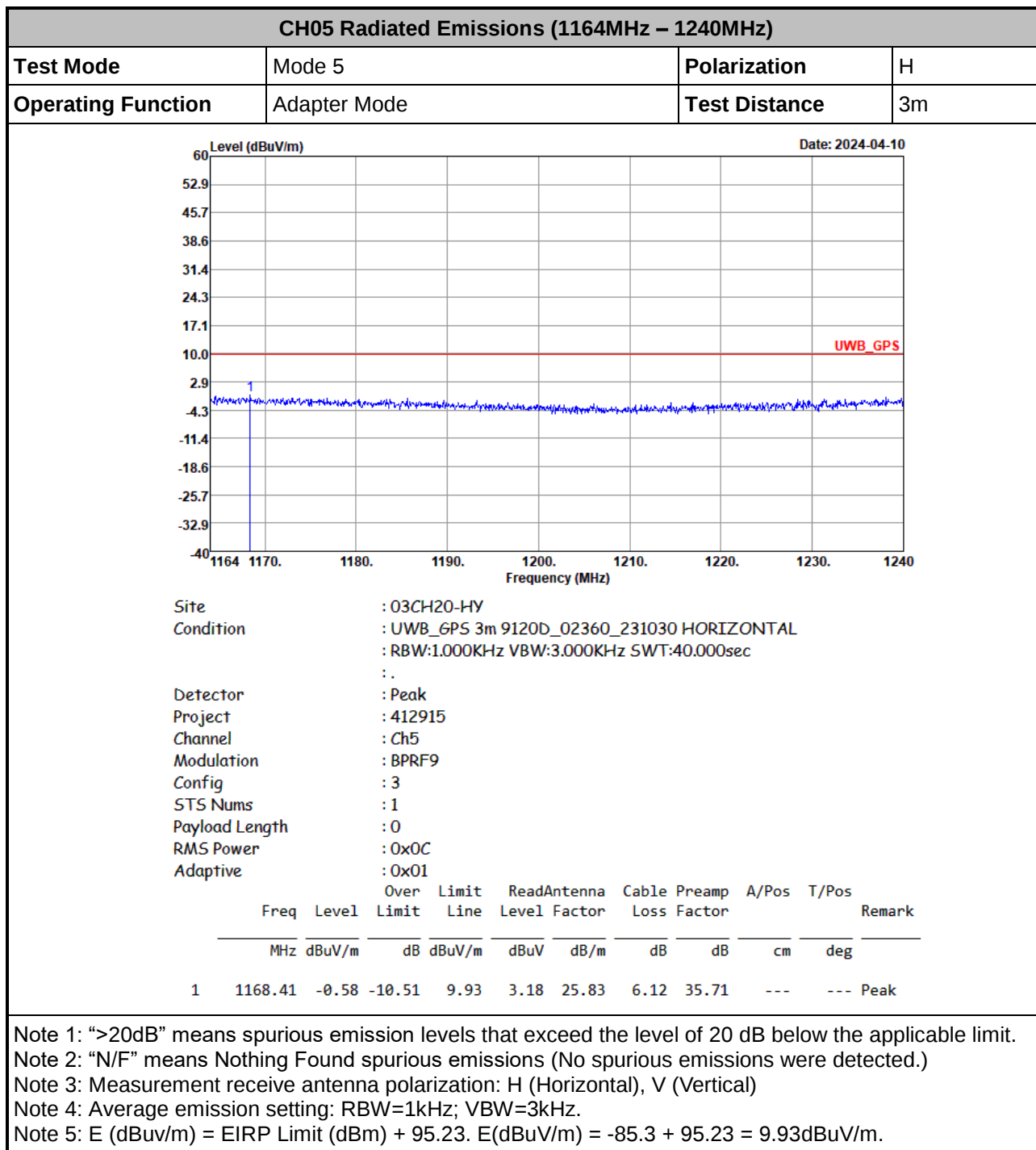
Note 6: #5 is fundamental signal.

Note 7:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux Factor (dB) = Level (dBuV/m)
(Note: For test item below 1GHz, Aux = Filter loss; Aux 2 = Distance extrapolation factor)
(Note: For test item above 1GHz, Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



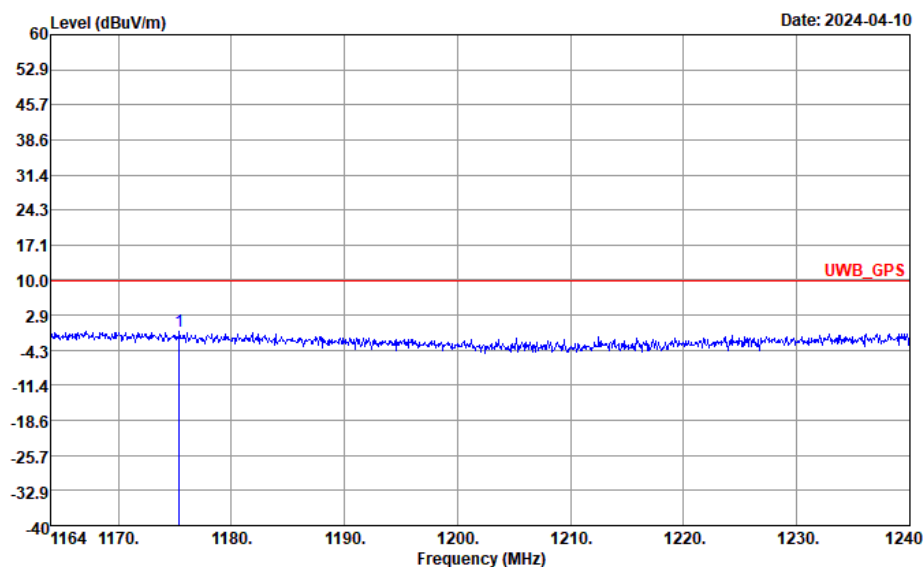
3.5.9 Radiated Emissions (1164MHz – 1240MHz)





CH05 Radiated Emissions (1164MHz – 1240MHz)

Test Mode	Mode 5	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
:
Detector : Peak
Project : 412915
Channel : Ch5
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1175.40	-0.36	-10.29	9.93	3.41	25.80	6.14	35.71	---	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

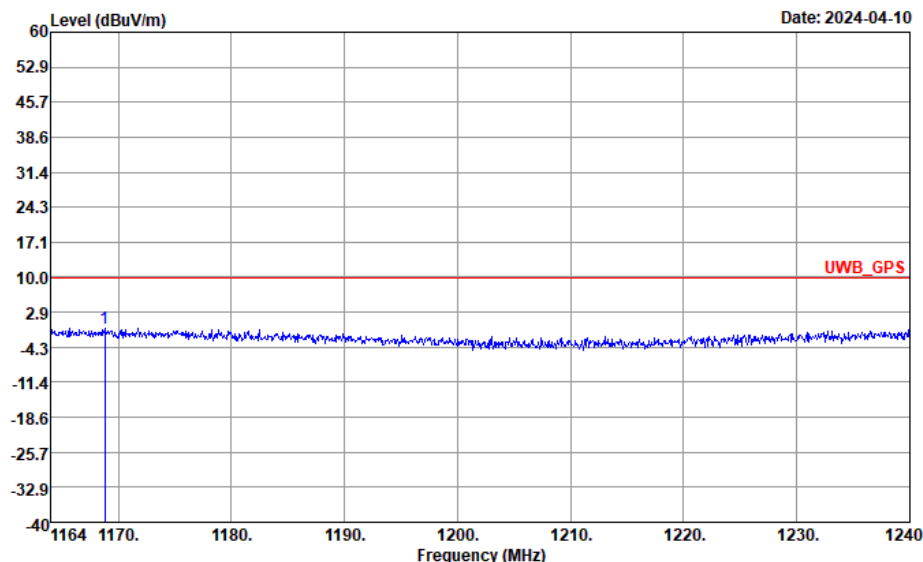
Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



CH09 Radiated Emissions (1164MHz – 1240MHz)

Test Mode	Mode 14	Polarization	H
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
: .

Detector : Peak
Project : 412915
Channel : Ch9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1168.79	-0.44	-10.37	9.93	3.33	25.82	6.12	35.71	---	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

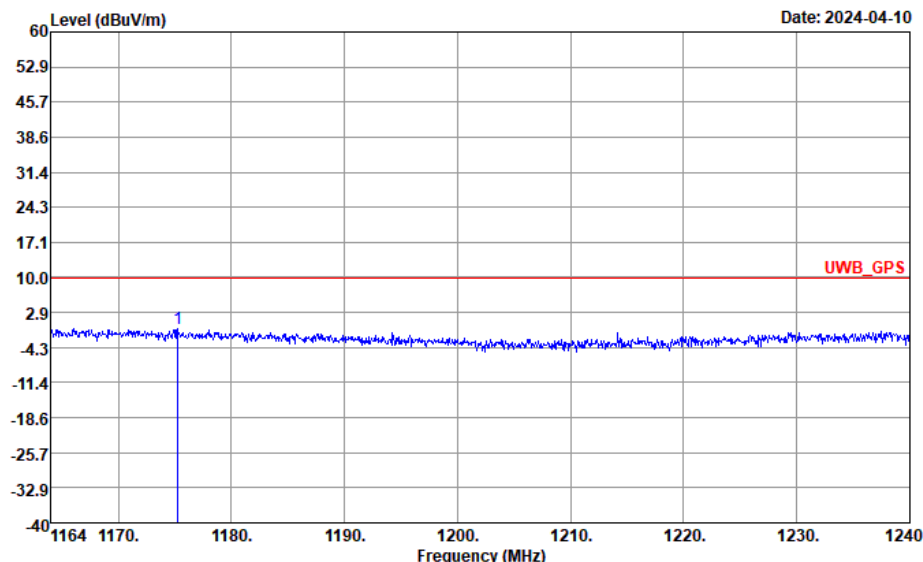
Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



CH09 Radiated Emissions (1164MHz – 1240MHz)

Test Mode	Mode 14	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
:
Detector : Peak
Project : 412915
Channel : Ch9
Modulation : BPRF9
Config : 3
STS Nums : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1175.25	-0.52	-10.45	9.93	3.25	25.80	6.14	35.71	---	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

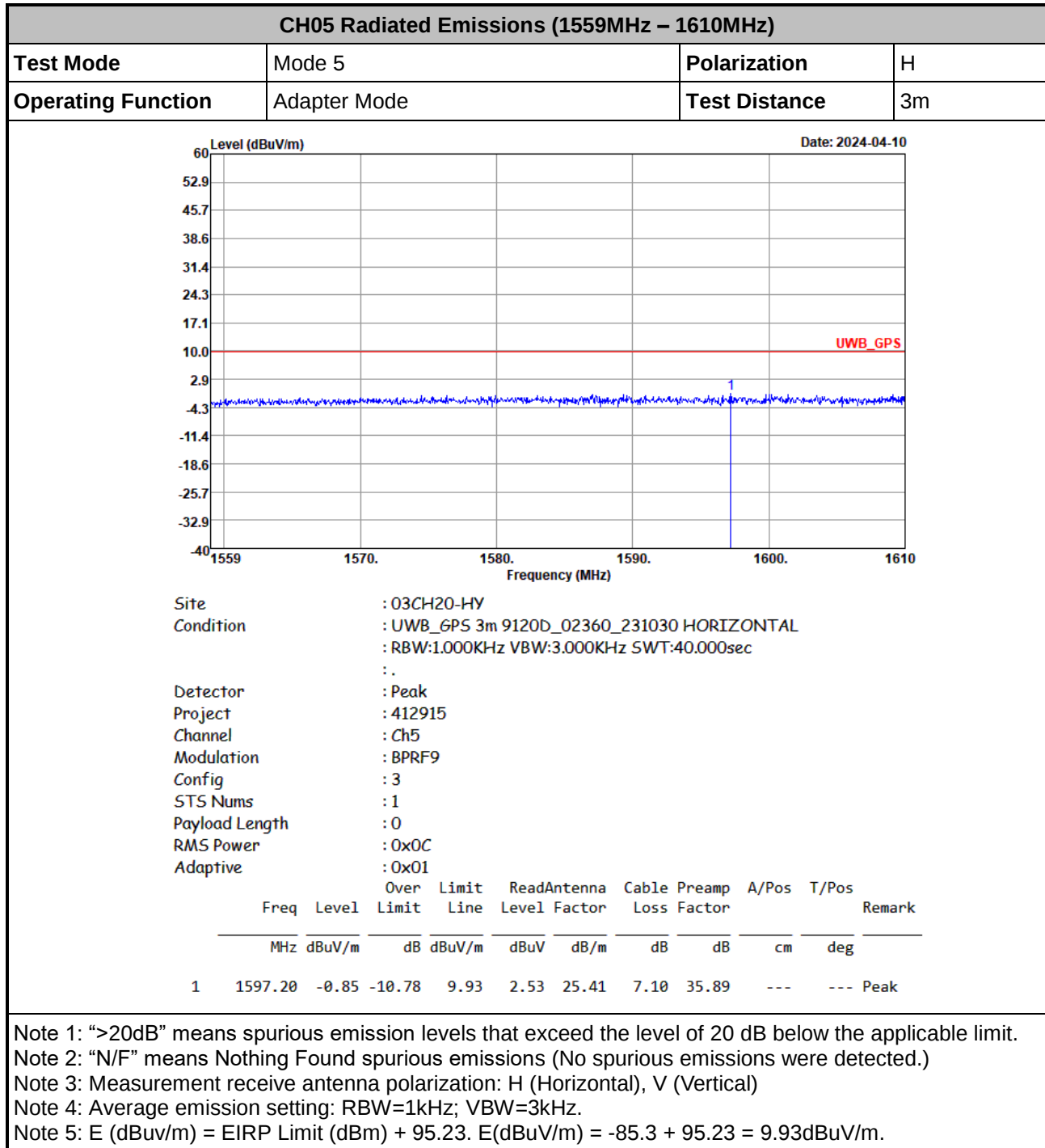
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



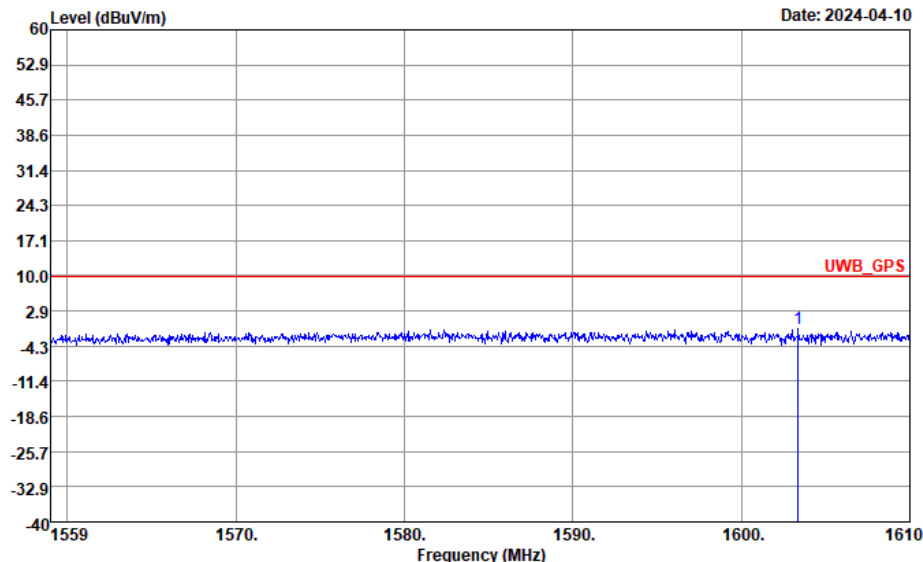
3.5.10 Radiated Emissions (1559MHz – 1610MHz)





CH05 Radiated Emissions (1559MHz – 1610MHz)

Test Mode	Mode 5	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
: .

Detector : Peak
Project : 412915
Channel : Ch5
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg
1	1603.37	-0.72	-10.65	9.93	2.65	25.41	7.12	35.90	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

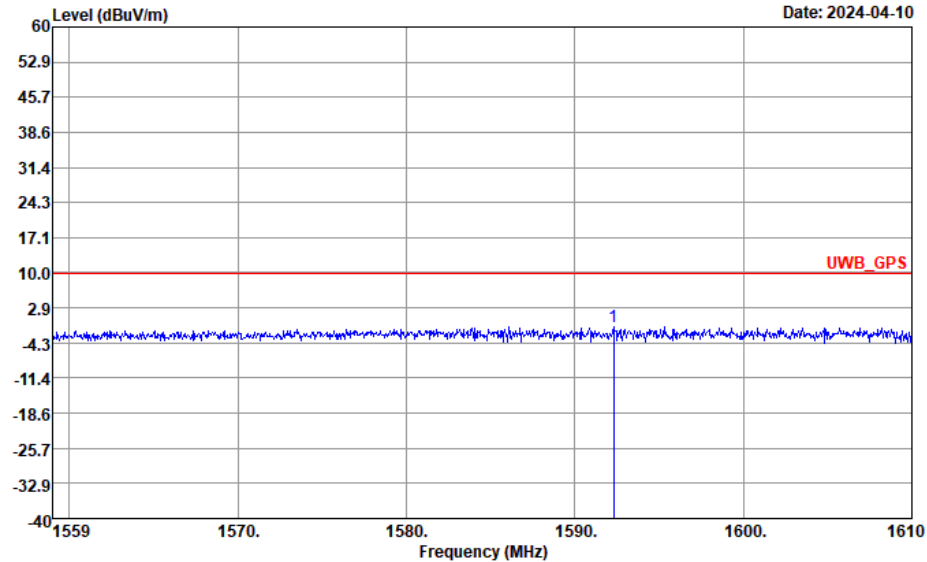
Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



CH09 Radiated Emissions (1559MHz – 1610MHz)

Test Mode	Mode 14	Polarization	H
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
:
Detector : Peak
Project : 412915
Channel : Ch9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	1592.30	-1.08	-11.01	9.93	2.30	25.42	7.09	35.89	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

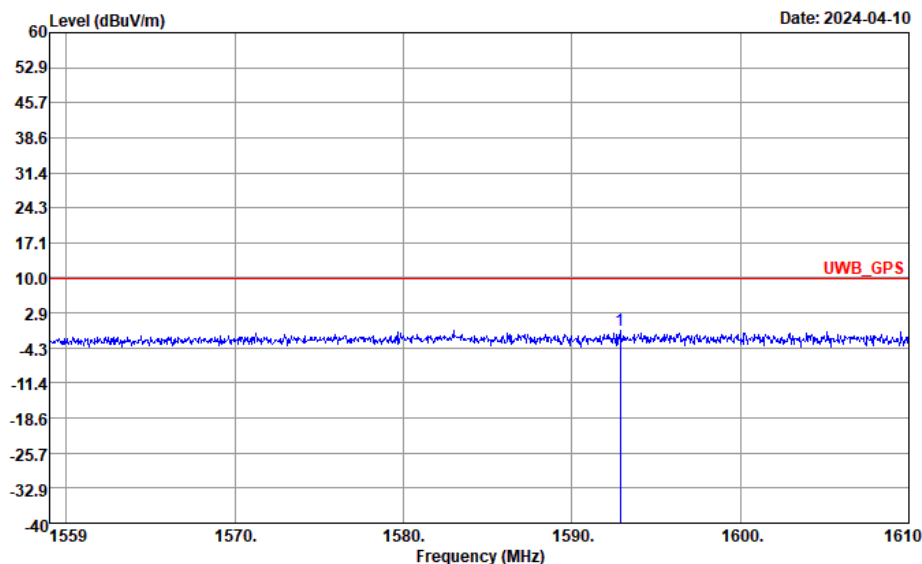
Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



CH09 Radiated Emissions (1559MHz – 1610MHz)

Test Mode	Mode 14	Polarization	V
Operating Function	Adapter Mode	Test Distance	3m



Site : 03CH20-HY
Condition : UWB_GPS 3m 9120D_02360_231030 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
: .

Detector : Peak
Project : 412915
Channel : Ch9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg
			dB	dBuV/m	dBuV	dB/m	dB	dB		
1	1592.86	-0.73	-10.66	9.93	2.66	25.41	7.09	35.89	---	Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

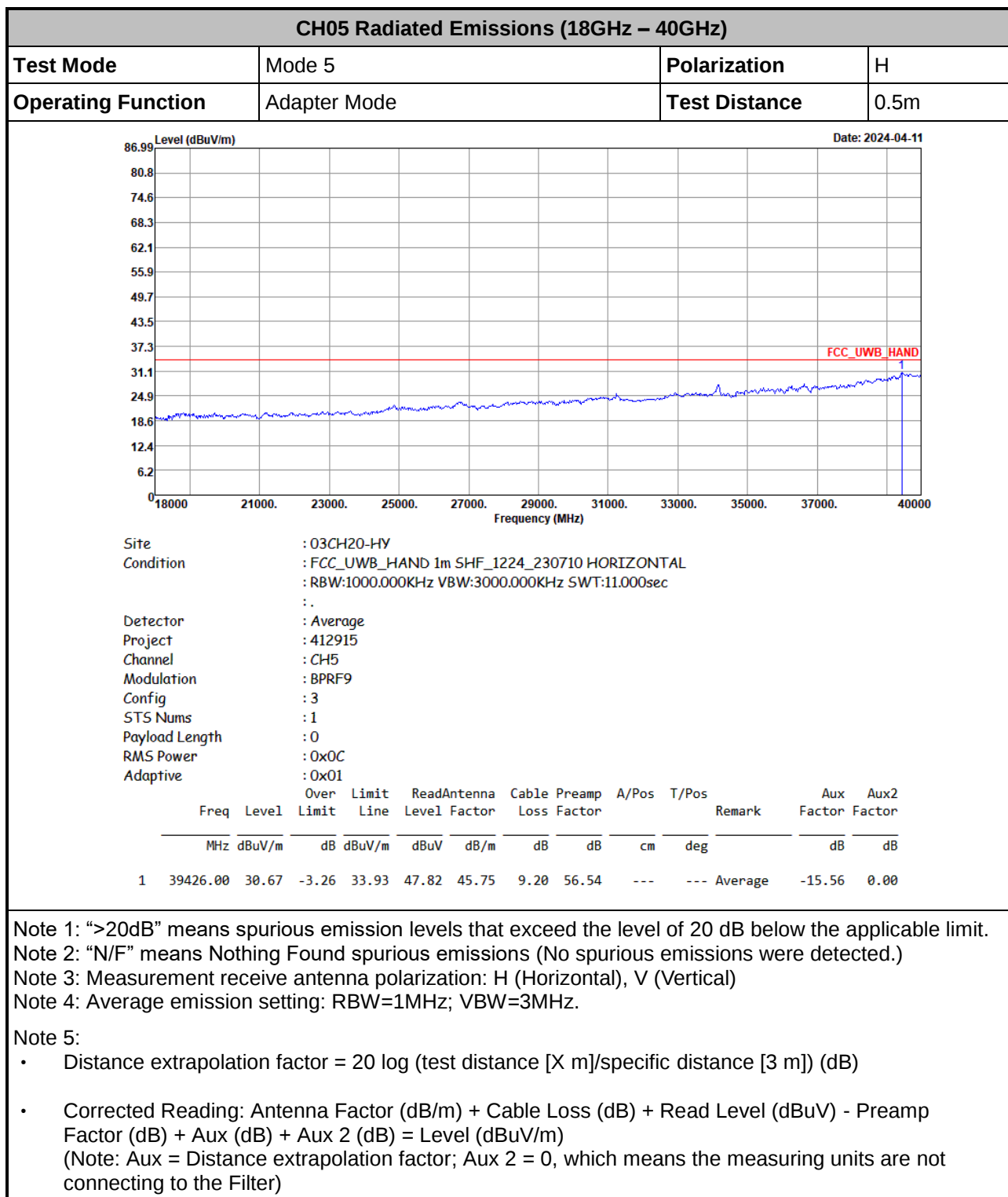
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1kHz; VBW=3kHz.

Note 5: E (dBuV/m) = EIRP Limit (dBm) + 95.23. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.



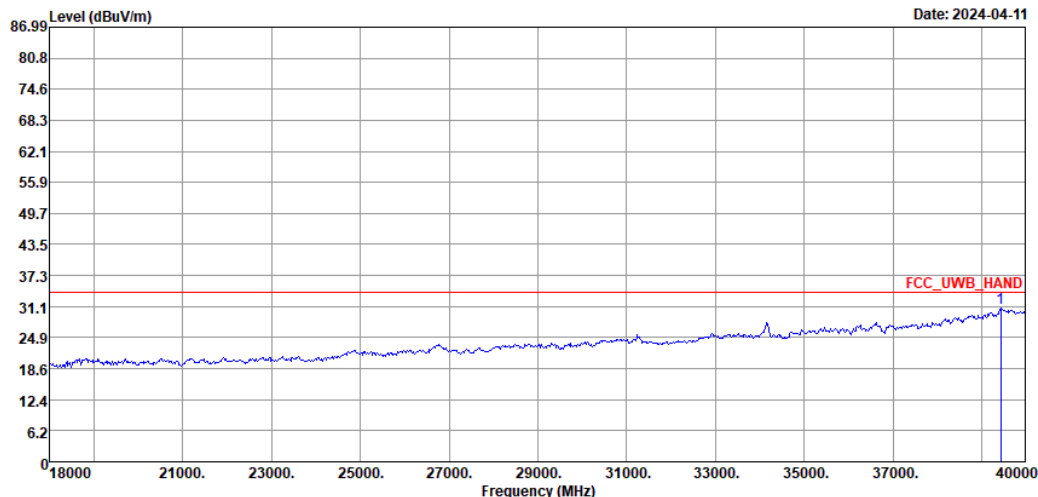
3.5.11 Radiated Emissions (18GHz – 40GHz)





CH05 Radiated Emissions (18GHz – 40GHz)

Test Mode	Mode 5	Polarization	V
Operating Function	Adapter Mode	Test Distance	0.5m



Site : 03CH20-HY
Condition : FCC_UWB_HAND 1m SHF_1224_230710 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
:
Detector : Average
Project : 412915
Channel : CH5
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x0C
Adaptive : 0x01

	F107		Limit		ReadAntenna		Cable	Preamp	A/Pos	T/Pos	Remark	Aux	Aux2
	Freq	Level	Limit	Line	Level	Factor	Loss	Factor				Factor	Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		dB	dB
1	39426.00	30.70	-3.23	33.93	47.85	45.75	9.20	56.54	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

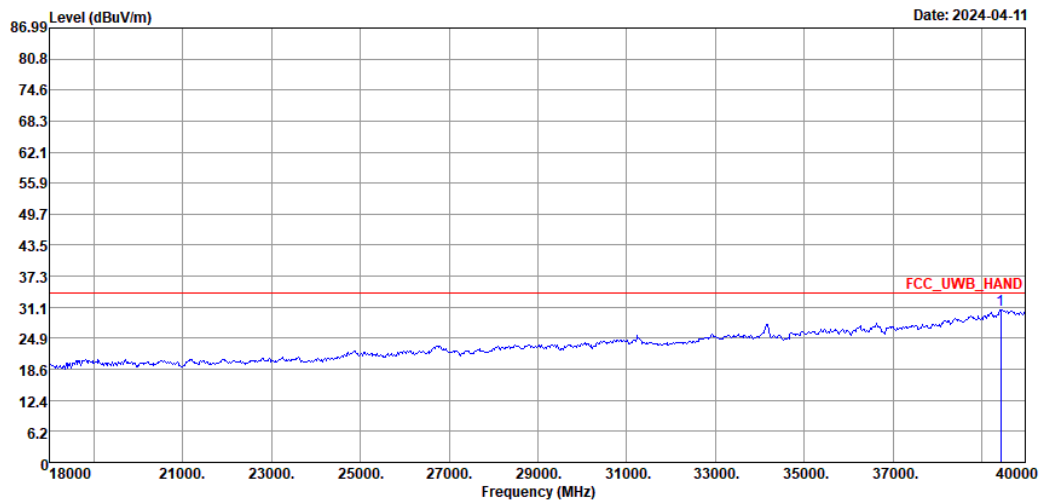
Note 5:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux (dB) + Aux 2 (dB) = Level (dBuV/m)
(Note: Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



CH09 Radiated Emissions (18GHz – 40GHz)

Test Mode	Mode 14	Polarization	H
Operating Function	Adapter Mode	Test Distance	0.5m



Site : 03CH20-HY
Condition : FCC_UWB_HAND 1m SHF_1224_230710 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
:
Detector : Average
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Aux Factor	Aux2 Factor	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB	dB	
1	39426.00	30.62	-3.31	33.93	47.77	45.75	9.20	56.54	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

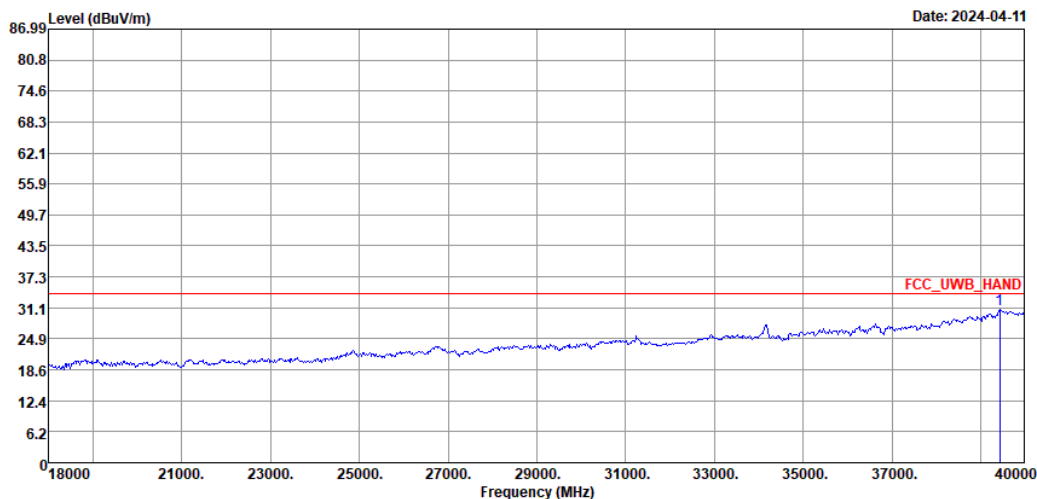
Note 5:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux (dB) + Aux 2 (dB) = Level (dBuV/m)
(Note: Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



CH09 Radiated Emissions (18GHz – 40GHz)

Test Mode	Mode 14	Polarization	V
Operating Function	Adapter Mode	Test Distance	0.5m



Site : 03CH20-HY
Condition : FCC_UWB_HAND 1m SHF_1224_230710 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
:
Detector : Average
Project : 412915
Channel : CH9
Modulation : BPRF9
Config : 3
STS Num : 1
Payload Length : 0
RMS Power : 0x05
Adaptive : 0x01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Aux Factor	Aux2 Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		dB	dB
1	39426.00	30.81	-3.12	33.93	47.96	45.75	9.20	56.54	---	---	Average	-15.56	0.00

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: Average emission setting: RBW=1MHz; VBW=3MHz.

Note 5:

- Distance extrapolation factor = $20 \log (\text{test distance [X m]}/\text{specific distance [3 m]})$ (dB)
- Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux (dB) + Aux 2 (dB) = Level (dBuV/m)
(Note: Aux = Distance extrapolation factor; Aux 2 = 0, which means the measuring units are not connecting to the Filter)



4 Test Equipment and Calibration Data

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	N/A	Oct. 06, 2023	Mar. 05, 2024~ Apr. 11, 2024	Oct. 05, 2024	Radiation (03CH20-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 12, 2023	Mar. 05, 2024~ Apr. 11, 2024	Sep. 11, 2024	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 27, 2023	Mar. 05, 2024~ Apr. 11, 2024	Jun. 26, 2024	Radiation (03CH20-HY)
Controller	ChainTek	EM1000	N/A	Control Turn table & Ant Mast	N/A	Mar. 05, 2024~ Apr. 11, 2024	N/A	Radiation (03CH20-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Mar. 05, 2024~ Apr. 11, 2024	N/A	Radiation (03CH20-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Mar. 05, 2024~ Apr. 11, 2024	N/A	Radiation (03CH20-HY)
Signal Analyzer	Keysight	N9010B	MY60240520	N/A	Dec. 12, 2023	Mar. 05, 2024~ Apr. 11, 2024	Dec. 11, 2024	Radiation (03CH20-HY)
Bilog Antenna	TESEQ	CBL 6111D&00802N1 D01N-06	55606 & 08	30MHz~1GHz	Oct. 20, 2023	Mar. 05, 2024~ Apr. 11, 2024	Oct. 19, 2024	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	02360	1GHz-18GHz	Oct. 30, 2023	Mar. 05, 2024~ Apr. 11, 2024	Oct. 29, 2024	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	1224	18GHz-40GHz	Jul. 10, 2023	Mar. 05, 2024~ Apr. 11, 2024	Jul. 09, 2024	Radiation (03CH20-HY)
Preamplifier	COM-POWER	PAM-103	18020201	1MHz-1000MHz	Jan. 01, 2024	Mar. 05, 2024~ Apr. 11, 2024	Dec. 31, 2024	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45SE	980792	N/A	Nov. 13, 2023	Mar. 05, 2024~ Apr. 11, 2024	Nov. 12, 2024	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,8040 15/2,804027/2	N/A	Jan. 17, 2024	Mar. 05, 2024~ Apr. 11, 2024	Jan. 16, 2025	Radiation (03CH20-HY)
Software	Audix	N/A	RK-002156	N/A	N/A	Mar. 05, 2024~ Apr. 11, 2024	N/A	Radiation (03CH20-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Apr. 15, 2024	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Apr. 15, 2024	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBE CK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Oct. 20, 2023	Apr. 15, 2024	Oct. 19, 2024	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Mar. 10, 2024	Apr. 15, 2024	Mar. 09, 2025	Conduction (CO07-HY)
Four-Line V-Network	TESEQ	NNB 52	36122	N/A	Mar. 07, 2024	Apr. 15, 2024	Mar. 06, 2025	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 20, 2023	Apr. 15, 2024	Sep. 19, 2024	Conduction (CO07-HY)

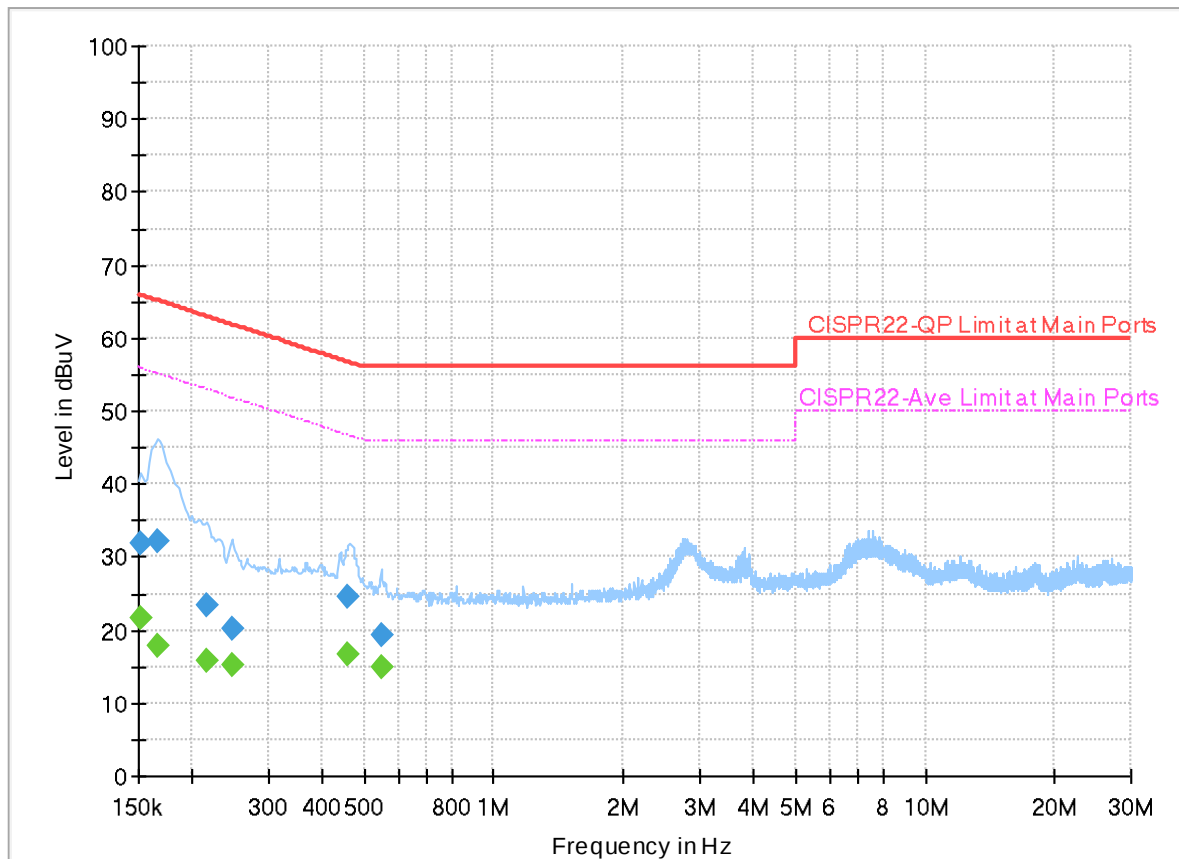


Appendix A. AC Conducted Emission Test Results

EUT Information

Report NO : 412915
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Line

Full Spectrum



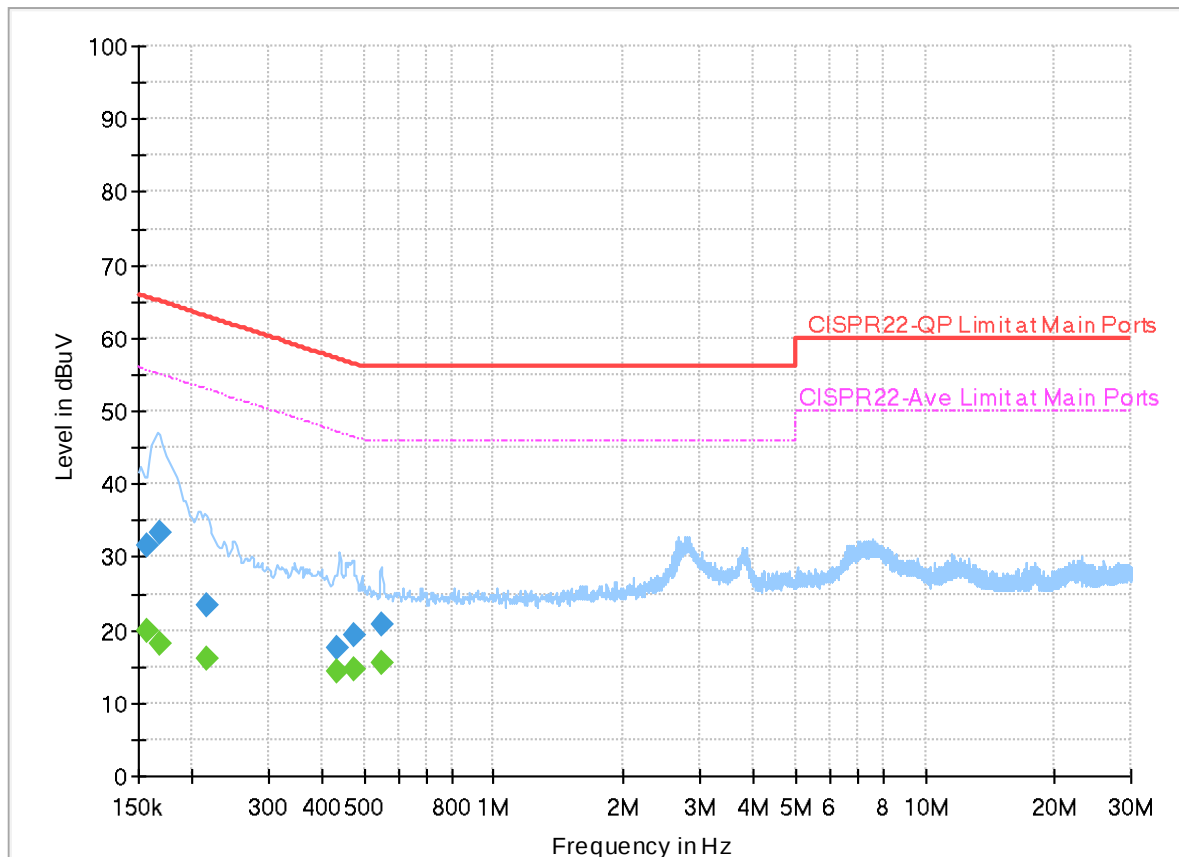
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152160	---	21.51	55.88	34.37	L1	OFF	19.9
0.152160	31.95	---	65.88	33.93	L1	OFF	19.9
0.165570	---	17.83	55.18	37.35	L1	OFF	19.9
0.165570	32.18	---	65.18	33.00	L1	OFF	19.9
0.215070	---	15.93	53.01	37.08	L1	OFF	19.9
0.215070	23.31	---	63.01	39.70	L1	OFF	19.9
0.246840	---	15.17	51.86	36.69	L1	OFF	19.9
0.246840	20.13	---	61.86	41.73	L1	OFF	19.9
0.460680	---	16.76	46.68	29.92	L1	OFF	19.9
0.460680	24.55	---	56.68	32.13	L1	OFF	19.9
0.551940	---	14.80	46.00	31.20	L1	OFF	19.9
0.551940	19.33	---	56.00	36.67	L1	OFF	19.9

EUT Information

Report NO : 412915
Test Mode : Mode 1
Test Voltage : 120Vac/60Hz
Phase : Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.156750	---	19.80	55.63	35.83	N	OFF	19.9
0.156750	31.56	---	65.63	34.07	N	OFF	19.9
0.167820	---	18.17	55.07	36.90	N	OFF	19.9
0.167820	33.28	---	65.07	31.79	N	OFF	19.9
0.214980	---	16.00	53.01	37.01	N	OFF	19.9
0.214980	23.51	---	63.01	39.50	N	OFF	19.9
0.431340	---	14.42	47.23	32.81	N	OFF	19.9
0.431340	17.53	---	57.23	39.70	N	OFF	19.9
0.475890	---	14.68	46.41	31.73	N	OFF	19.9
0.475890	19.43	---	56.41	36.98	N	OFF	19.9
0.547440	---	15.36	46.00	30.64	N	OFF	19.9
0.547440	20.73	---	56.00	35.27	N	OFF	19.9

—THE END—