FCC RADIO TEST REPORT

FCC ID	:	**2A3LY-SRFM290P**
Equipment	:	**UWB Module**
Brand Name	:	**CiaoDa**
Model Name	:	**SRF-M290P**
Applicant	:	**CIAODA CLOUD TECHNOLOGY CO., Ltd.** **17F.-1, NO.104, SEC. 1, XINTAI 5TH RD., XIZHI DIST., NEW TAIPEI CITY 22102, TAIWAN (R.O.C.)**
Manufacturer	:	**CIAODA CLOUD TECHNOLOGY CO., Ltd.** **17F.-1, NO.104, SEC. 1, XINTAI 5TH RD., XIZHI DIST., NEW TAIPEI CITY 22102, TAIWAN (R.O.C.)**
Standard	:	**47 CFR FCC Part 15.519**

The product was received on Nov. 23, 2020, and testing was started from Dec. 09, 2020 and completed on Dec. 06, 2021. 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.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR0N2314	01	Initial issue of report	Jan. 20, 2022
FR0N2314	02	1. Add conducted emissions test result in appendix A 2. Remove the description in summary of test result 3. Add antenna information in section 1.1.2 4. Revise description in section 1.3, section 3.2.5, section 2.2, section 2.3, section 3.2.3, section 3.5.1, and section 3.5.3 5. Revise test result and description in section 3.5.7 6. Revise Setup Photographs in appendix B	Mar. 04, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.207	AC Power-line Conducted Emissions	PASS	15.521(j)
3.2	15.503 15.519(b)	UWB Bandwidth	PASS	15.521(e)
3.3	15.519(a)1	Technical requirements for UWB systems	PASS	-
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: 15.521(c)

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Keven Chang
Report Producer: Dara Chiu

1. General Description

1.1 Information

1.1.1 RF General Information

RF General Information		
Mode	**Channel Number**	**Channel Frequency (MHz)**
UWB	1	3494.4
UWB	2	3993.6
UWB	3	4492.8

1.1.2 Antenna Information

Sample	Brand	Model Name	Antenna Type	Connector	Gain
1	JOHANSON	3100AT51A7200E	TAG	I-PEX	4.74
2	CIAODA	SAN-UWB001	PCB	I-PEX	5.53

1.1.3 Type of EUT

Operational Condition	
Sample 1	EUT with TAG Antenna
Sample 2	EUT with PCB Antenna
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.: Brand Name : N/A Model No: N/A
□	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: …
□	Other:

1.2 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.

1.3 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, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855			
Test Site No.	03CH11-HY	03CH12-HY	CO07-HY	TH05-HY
Test Engineer	Bill Cheng and Fu Chen	Jack Cheng	Tom Lee	Steve Chen
Test Temperature (°C)	18.4 ~ 25.0	24.6~26.3	23~26	22.1~25.3
Test Humidity (%)	40.0 ~ 69.9	58.3 ~ 63.4	40~50	48.9~56.4

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

1.4 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)	2.2 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.40 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.4 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	6.3 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.9 dB	Confidence levels of 95%

2. Test Configuration of EUT

2.1 Test Mode

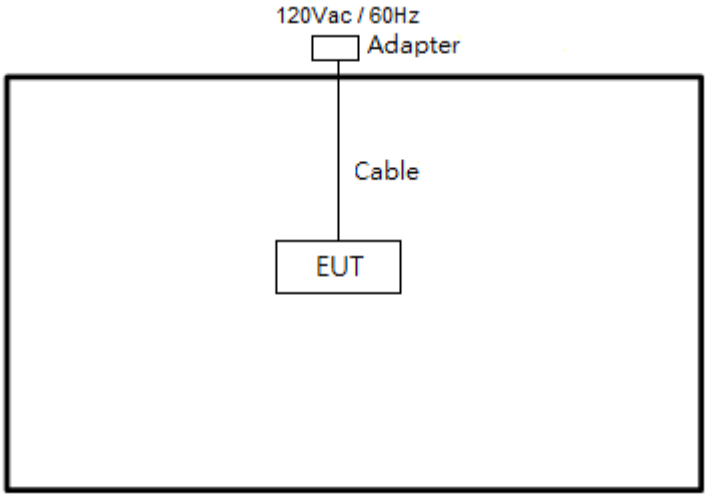
Test Configuration		
Mode	**Sample**	**UWB Channel**
1	1	1
2	1	2
3	1	3
4	2	1
5	2	2
6	2	3

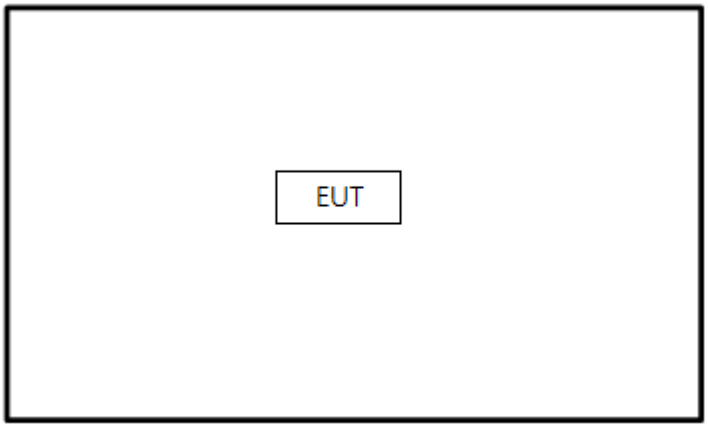
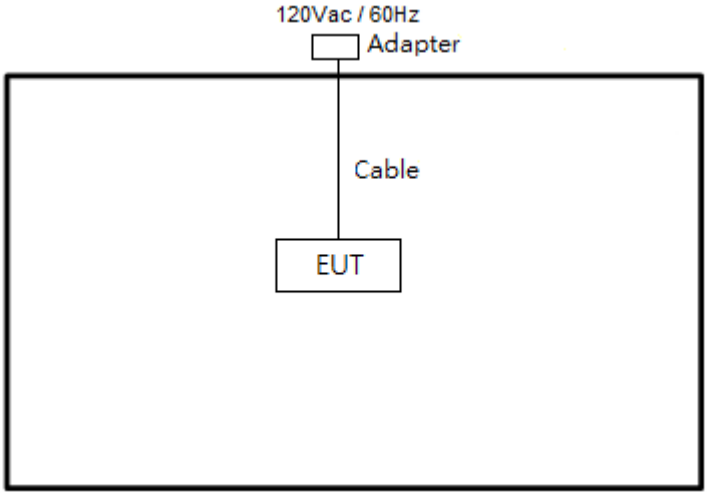
2.2 The Worst Case Measurement Configuration

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
Sample 1	Adapter Mode
Sample 2	Adapter Mode

The Worst Case Mode for Following Conformance Tests			
Tests Item	UWB Bandwidth, Peak Power Measurement, Radiated Emissions		
Test Condition	Radiated measurement		
Operating Mode	CTX		
Sample 1	Stand-alone Mode		
Sample 2	Adapter Mode		
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**
			
Sample 1	V		
Sample 2			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 X plane as worst plane, and recorded in this report.			

2.3 Test Setup Diagram

Test Setup Diagram - AC Power-Line Conducted Emissions Test
Sample 1 and Sample 2


Test Setup Diagram - Radiated Test
Sample 1

Sample 2


2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	DELL	Latitude 3400	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Adapter	DVE	DSA-5PFM-05 FUS	FCC DoC	N/A	Unshielded, 1 m
3.	Adapter	KANI	GF12-US1210	FCC DoC	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

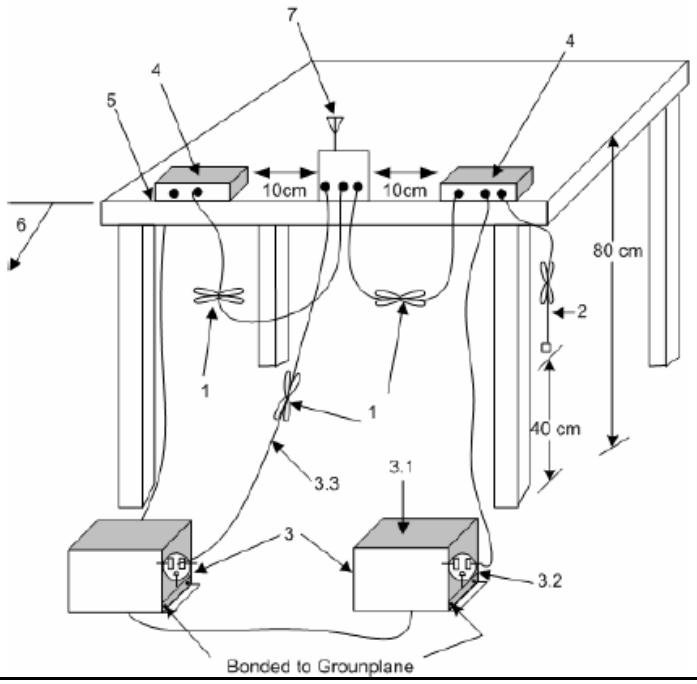
Refer a test equipment and calibration data table in this test report.

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

AC Power-line Conducted Emissions



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

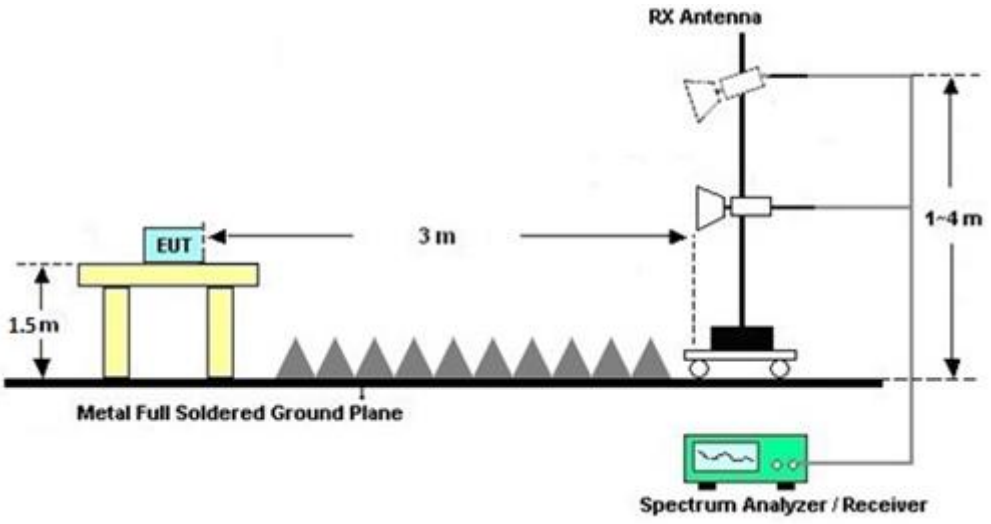
Refer a test equipment and calibration data table in this test report.

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

UWB Bandwidth - Test Distance: 3m

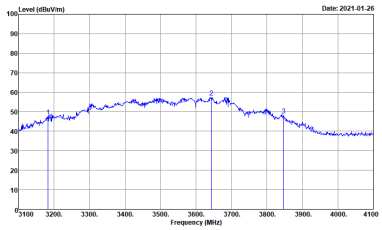


3.2.5 Test Result of UWB Bandwidth

Test mode	F_L (MHz)	F_H (MHz)	UWB bandwidth(MHz)	Bandwidth limit (MHz)	Result
1	3183	3847	664	≥ 500	Pass
2	3845	4402	557	≥ 500	Pass
3	4173	4848	675	≥ 500	Pass
4	3182	3815	633	≥ 500	Pass
5	3682	4344	662	≥ 500	Pass
6	4260	4804	544	≥ 500	Pass

UWB Bandwidth

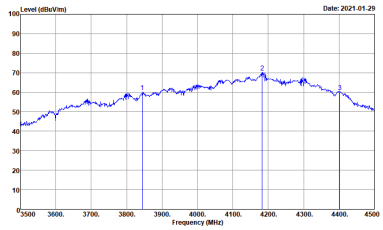
Mode 1: CH 01



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5

	Freq	Level	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3183.00	47.55	77.18	28.63	8.29	66.55	126	47	Peak
2 *	3643.00	57.52	86.46	29.09	8.96	66.99	126	47	Peak
3	3847.00	48.18	76.98	29.29	9.09	67.18	126	47	Peak

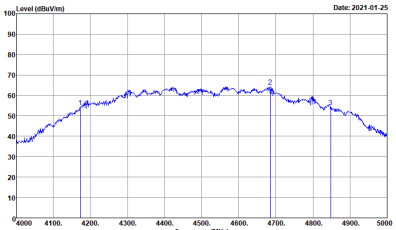
Mode 1: CH 02



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5
PG : 192

	Freq	Level	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	3845.00	60.21	84.11	29.29	8.23	61.42	113	228	Peak
2 *	4183.00	70.12	92.81	29.73	8.60	61.02	113	228	Peak
3 *	4402.00	60.20	81.83	30.30	8.87	60.80	113	228	Peak

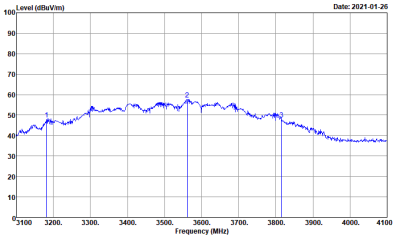
Mode 1: CH 03



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5

	Freq	Level	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	4173.00	54.42	83.45	29.69	8.59	67.31	115	238	Peak
2 *	4685.00	64.27	91.11	31.04	9.12	67.00	115	238	Peak
3 *	4848.00	54.30	80.66	31.00	9.41	66.77	115	238	Peak

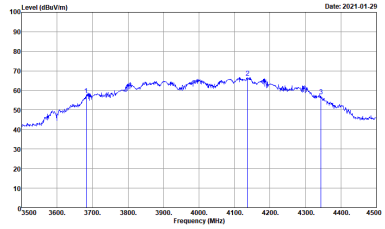
Mode 4: CH 01



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5

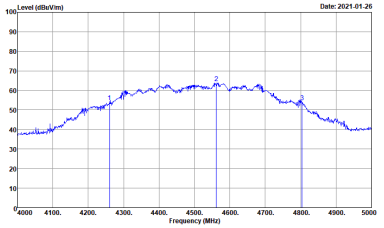
	Freq	Level	ReadAntenna Level Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3182.00	47.79	78.34	28.64	7.35	66.54	100	226	Peak
2 *	3561.00	57.63	87.92	28.84	7.78	66.91	100	226	Peak
3	3815.00	47.79	77.51	29.23	8.20	67.15	100	226	Peak

UWB Bandwidth	
Mode 5: CH 02	**Mode 6: CH 03**



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5

	Freq	Level	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	3682.00	57.61	82.19	29.10	7.97	61.65	390	326	Peak
2 *	4137.00	66.67	89.57	29.60	8.56	61.06	390	326	Peak
3 *	4344.00	57.08	79.05	30.09	8.80	60.86	390	326	Peak



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Peak
Setting : 16.5

	Freq	Level	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Remark
	MHz	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 *	4260.00	53.94	82.55	30.00	8.69	67.30	255	218	Peak
2 *	4562.00	63.77	91.40	30.62	8.93	67.18	255	218	Peak
3 *	4804.00	53.96	80.43	31.00	9.36	66.83	255	218	Peak

3.3 Technical requirements for hand held UWB systems

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.

3.3.1 Measuring Instruments

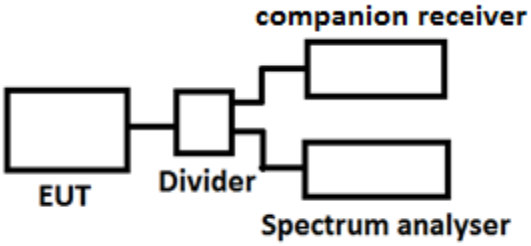
Refer a test equipment and calibration data table in this test report.

3.3.2 Test Procedure

Follow the test step as below:

1. Power on EUT and companion receiver.
2. Check no transmitting signal from the EUT, when the EUT does not associate with the companion receiver.
3. (Plot 1 in report section 3.3.4)
4. Set the companion receiver to receiving mode.
5. Set the EUT to associate the companion receiver and then start to transmit.
6. Suspend the receiving function of the associated companion receiver.
7. Check if there is no transmission after stop sending information to receiver.
8. (Plot 2 in report section 3.3.4)

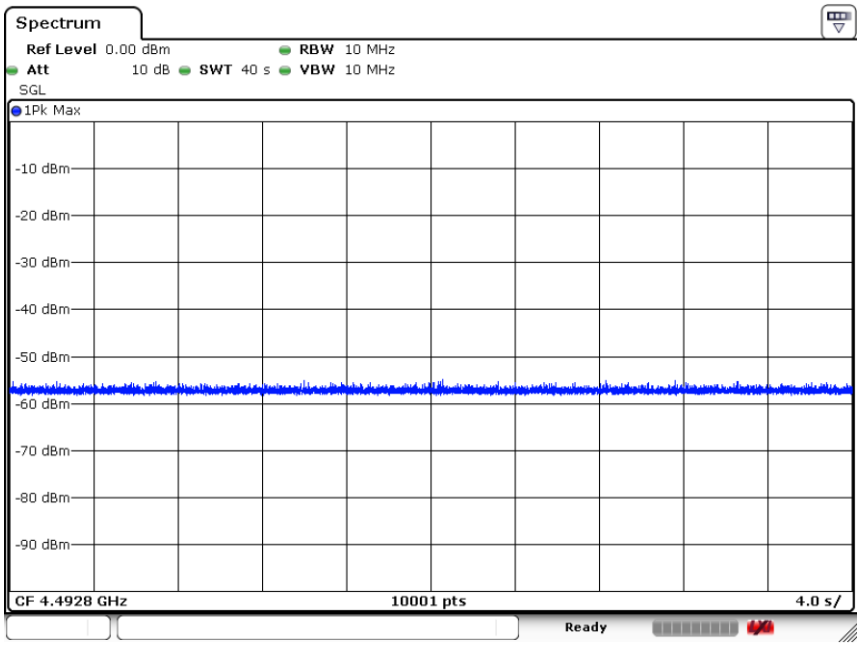
3.3.3 Test Setup



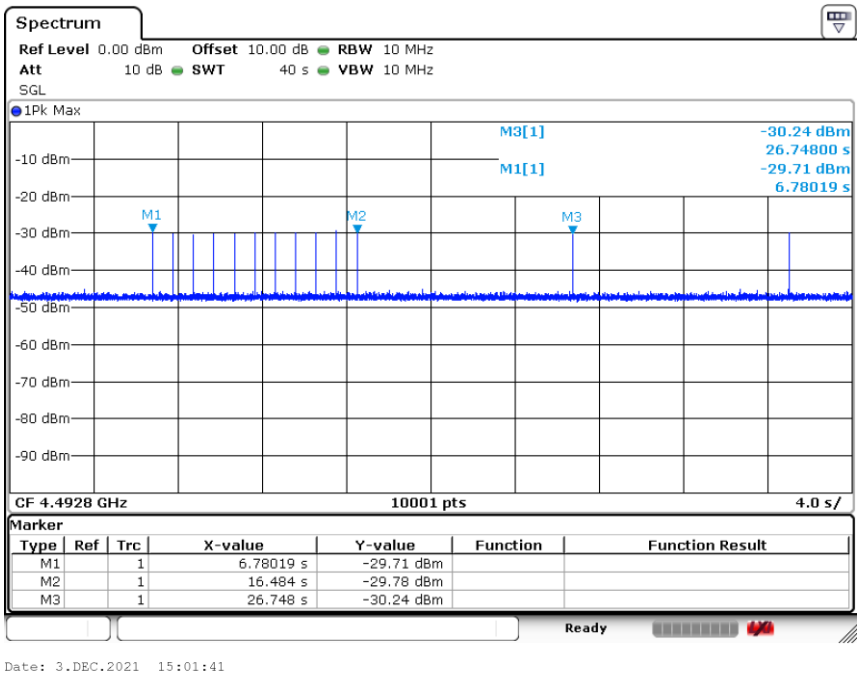
3.3.4 Test Result

Sample 1

Plot 1



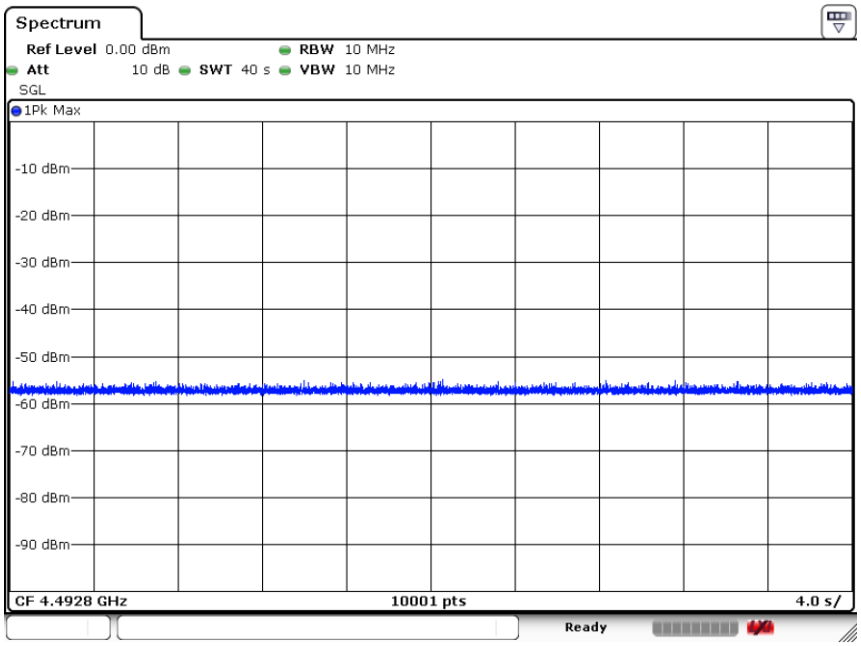
Plot 2



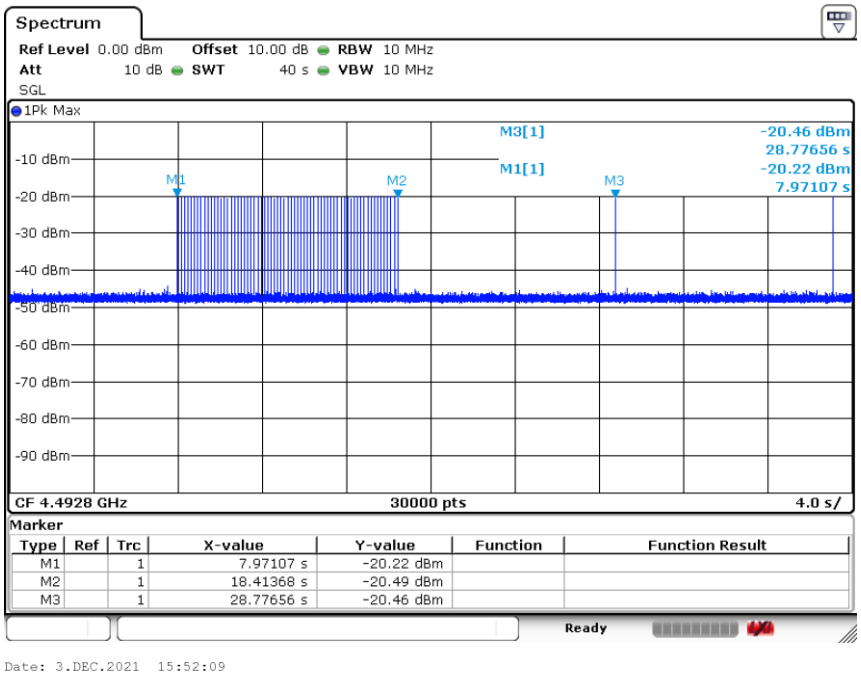
M1: EUT associates the companion receiver and start to transmit.
M2: RX function of the companion receiver is disabled. EUT disassociates the companion receiver and stops transmitting, but continues polling.
M3: Polling.signal

Sample 2

Plot 1



Plot 2



M1: EUT associates the companion receiver and start to transmit.
M2: RX function of the companion receiver is disabled. EUT disassociates the companion receiver and stops transmitting, but continues polling.
M3: Polling.signal

3.4 Peak Power Measurement

3.4.1 Peak Power Measurement Limit

Peak Power Measurement Limit
P_{eirp} = 0 dBm/50MHz

3.4.2 Measuring Instruments

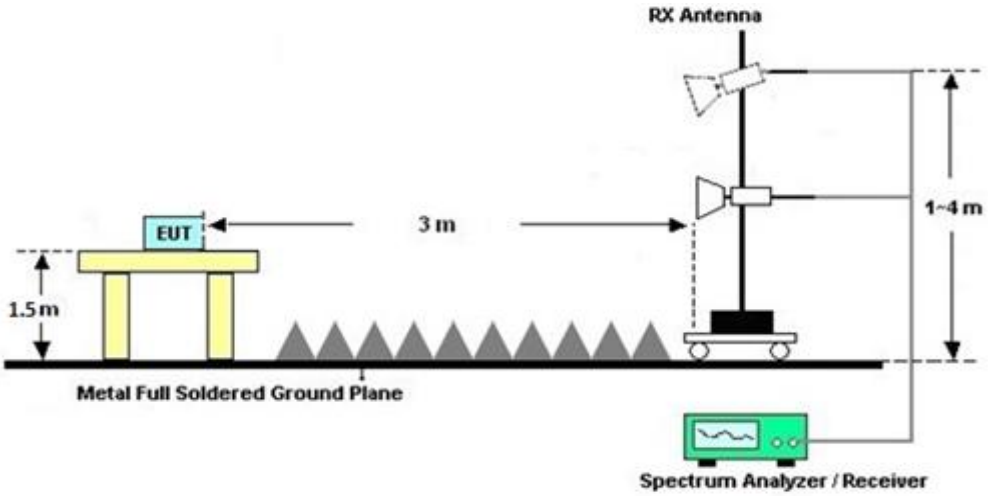
Refer a test equipment and calibration data table in this test report.

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: 40MHz • VBW: 40MHz • Detector: Peak detector Trace: Max hold

3.4.4 Test Setup

Peak Power Measurement



3.4.5 Test Result of Peak Power Measurement

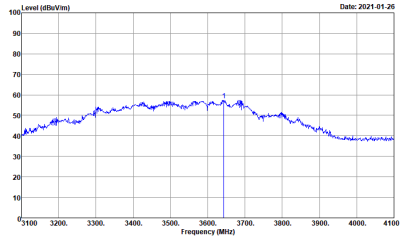
Peak Measurement Result

Test Mode	Freq. (MHz)	$ERIP_{40MHz}$ [dBm]	$ERIP_{50MHz}$ Limit [dBm]	$EIRP_{40MHz}$ Limit [dBm]	Margin [dB]	Result	Pol [H/V]
1	3643	-24.53	0	-1.94	-22.59	Pass	H
2	4183	-14.14	0	-1.94	-12.20	Pass	H
3	4685	-19.85	0	-1.94	-17.91	Pass	H
4	3561	-23.27	0	-1.94	-21.33	Pass	H
5	4137	-17.27	0	-1.94	-15.33	Pass	H
6	4562	-19.33	0	-1.94	-17.39	Pass	H

Note 1: Bandwidth Correction Factor (BWCF) = 20 log (40MHz/50MHz).
Note 2: $EIRP_{40MHz}$ Limit = $EIRP_{50MHz}$ Limit + BWCF, FCC Part 15.521(g).
Note 3: Measurement worst emissions of receive antenna polarization.
Note 4: E (dBuv/m) = EIRP (dBm) + 95.23, example, E(dBuV/m) = -119.76 + 95.23 = -24.53dBuV/m

Pre-locate the worst frequency

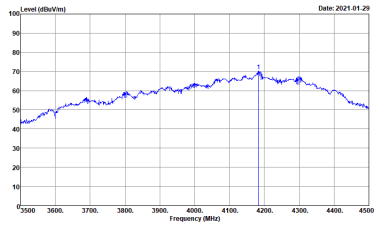
Mode 1



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	3643.00	57.52	------	------	86.46	29.09	8.96	66.99	126	47 HORIZONTAL

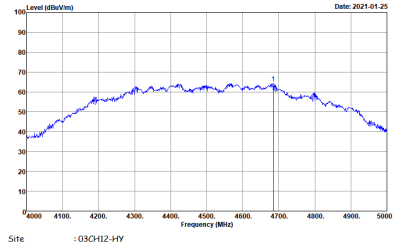
Mode 2



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5
PS : 192

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4183.00	70.12	------	------	91.85	29.73	9.56	61.02	113	228 HORIZONTAL

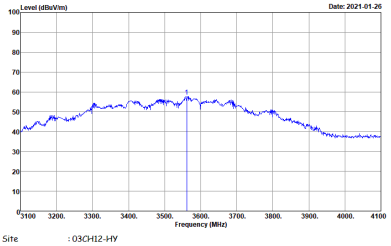
Mode 3



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4685.00	64.27	------	------	89.70	31.04	10.53	67.00	115	238 HORIZONTAL

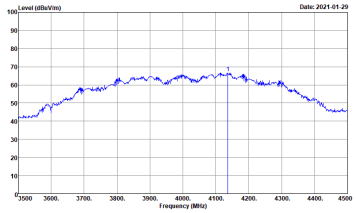
Mode 4



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	3561.00	57.63	------	------	86.83	28.84	8.87	66.91	100	226 HORIZONTAL

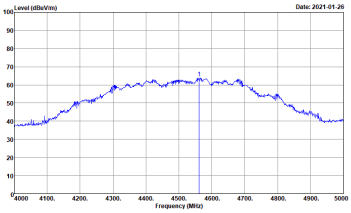
Mode 5



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

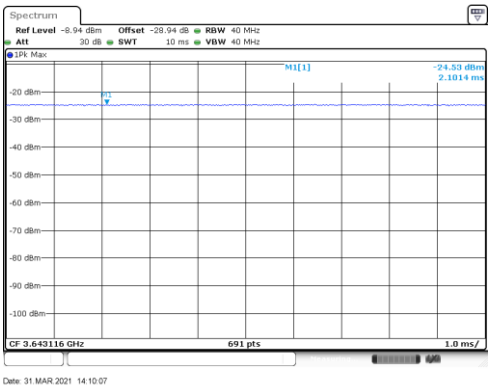
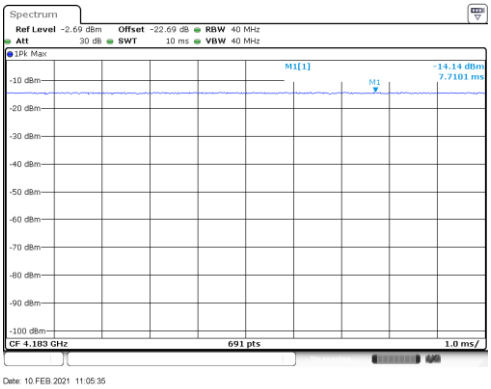
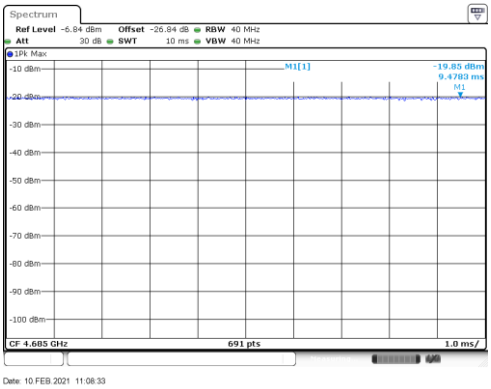
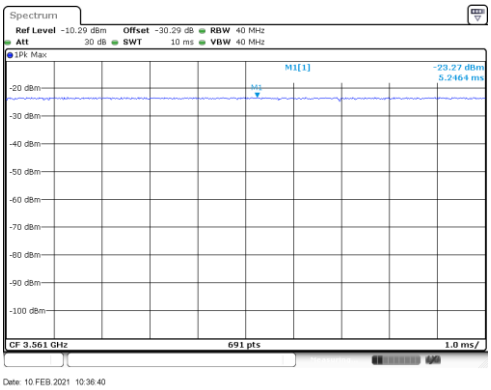
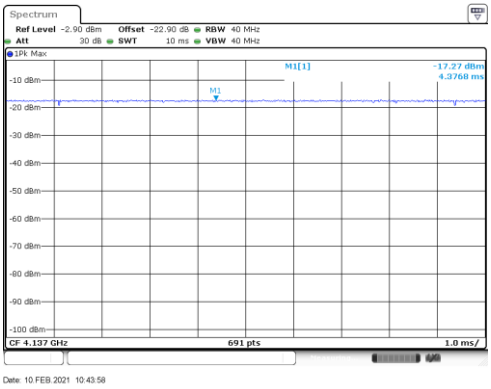
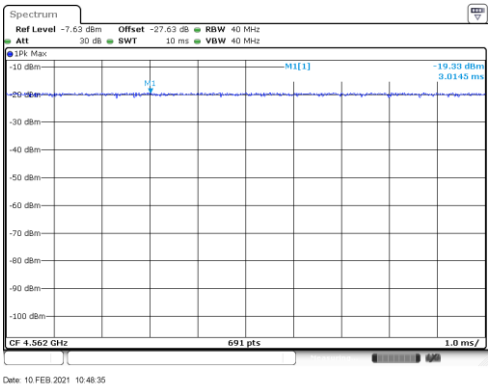
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4137.00	66.67	------	------	88.65	29.60	9.48	61.06	390	326 HORIZONTAL

Mode 6



Site : 03CH12-HY
Condition : 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos Factor	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	4562.00	63.77	------	------	90.24	30.62	10.09	67.18	255	218 HORIZONTAL

Peak Power Measurement Plots	
Mode 1	**Mode 2**
	
Mode 3	**Mode 4**
	
Mode 5	**Mode 6**
	

Note:
Frequency of max peak power is pre-located. Then 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: 40MHz
- VBW: 40MHz
- Detector: Peak detector
- Trace: Max hold

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

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

Note:

1. Distance extrapolation factor = 20 log (test distance [X m]/specific distance [3 m]) (dB)
   Example: Distance extrapolation factor = 20log (0.5m/3m) = -15.56 (dB)
2. Corrected Reading: Antenna Factor (dB/m) + Cable Loss (dB) + Read Level (dBuV) - Preamp Factor (dB) + Aux (dB) = Level (dBuV/m)
   (Note: Aux = Distance extrapolation factor)
3. 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.

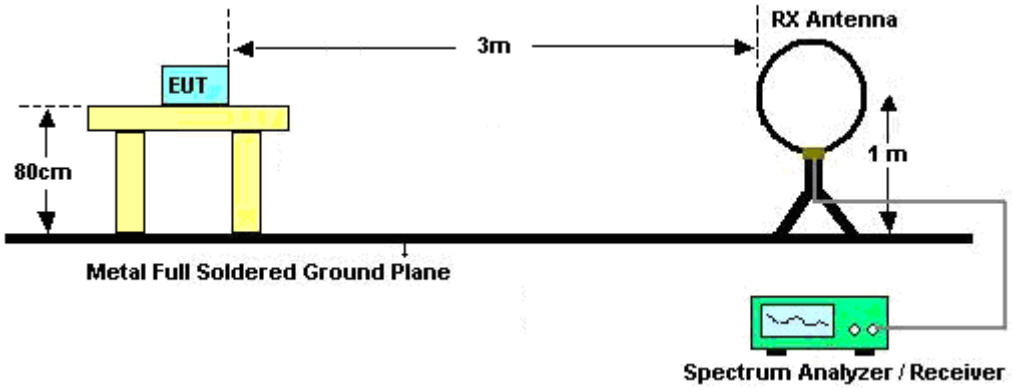
3.5.3 Test Procedures

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.

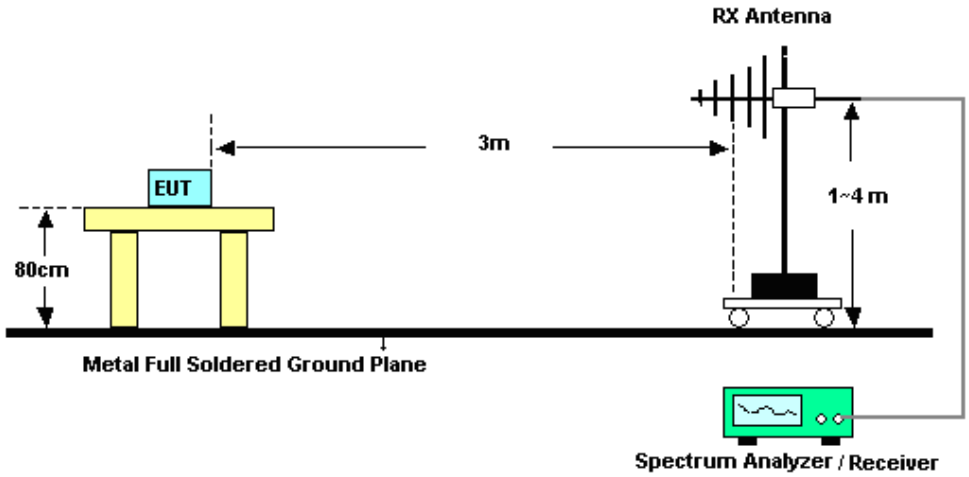
Test Method for Radiated Emissions below 960MHz and Emissions from Digital Circuitry	
■ Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing 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

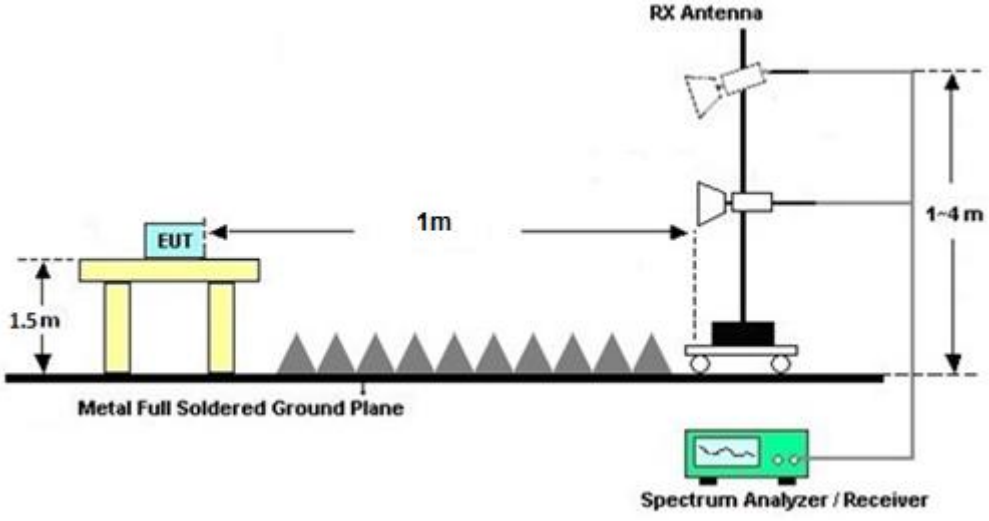
Radiated Emissions below 30MHz

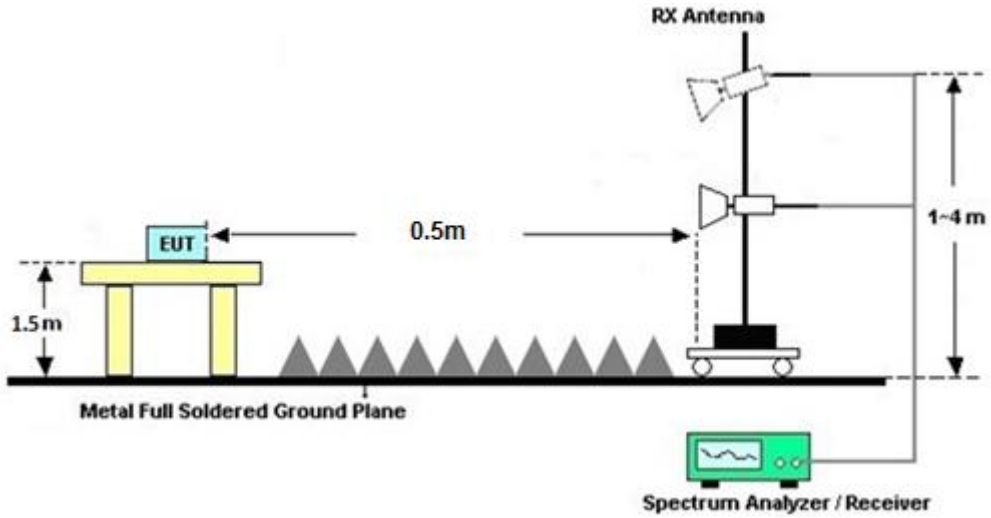


Radiated Emissions from 30MHz to 1GHz and 1 .61GHz to 10GHz



Radiated Emissions from 1GHz to 1.61 GHz



Radiated Emissions from 10.60 GHz to 40GHz


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.

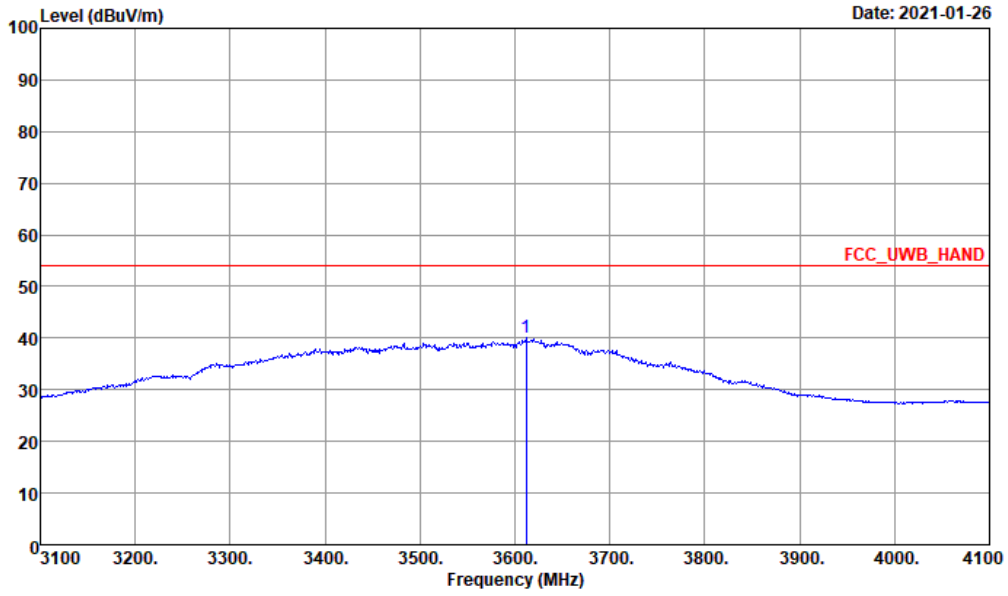
3.5.5 Radiated Emissions (Below 30MHz)

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	3612	40.01	-41.3	53.93	13.92	Pass	H
2	4190	50.93	-41.3	53.93	3.00	Pass	H
3	4643	45.75	-41.3	53.93	8.18	Pass	H
4	3551	38.94	-41.3	53.93	14.99	Pass	H
5	4127	49.16	-41.3	53.93	4.77	Pass	H
6	4544	45.85	-41.3	53.93	8.08	Pass	H

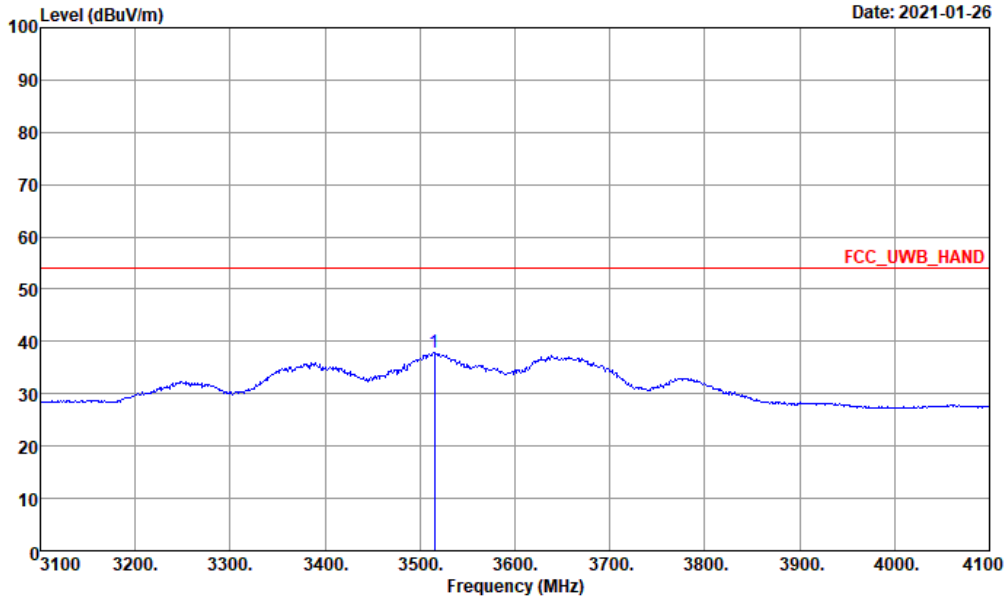
Radiated Emissions (Fundamental)			
Test Mode	1	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3612.00	40.01	-13.92	53.93	69.00	29.02	8.95	66.96	126	47	HORIZONTAL

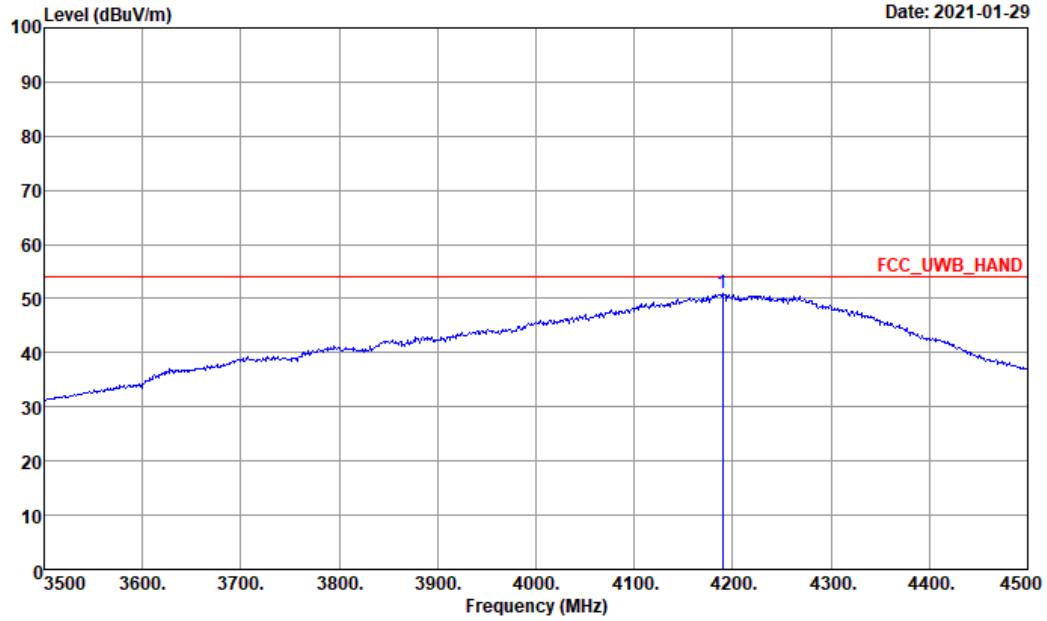
Radiated Emissions (Fundamental)			
Test Mode	1	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3515.00	37.95	-15.98	53.93	67.37	28.66	8.78	66.86	386	87	VERTICAL

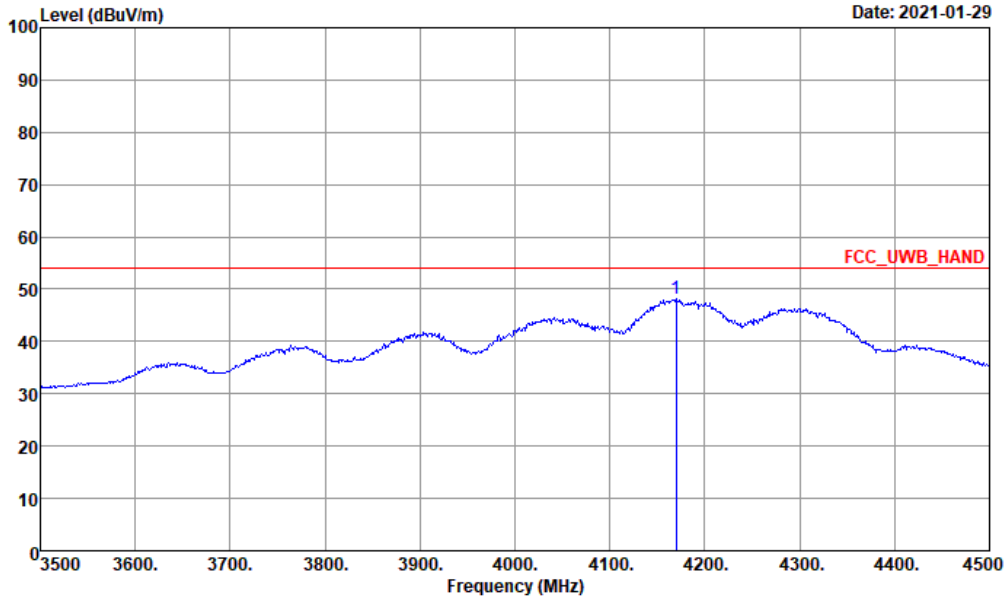
Radiated Emissions (Fundamental)			
Test Mode	2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5
PG : 192

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4190.00	50.93	-3.00	53.93	73.57	29.76	8.61	61.01	113	228	HORIZONTAL

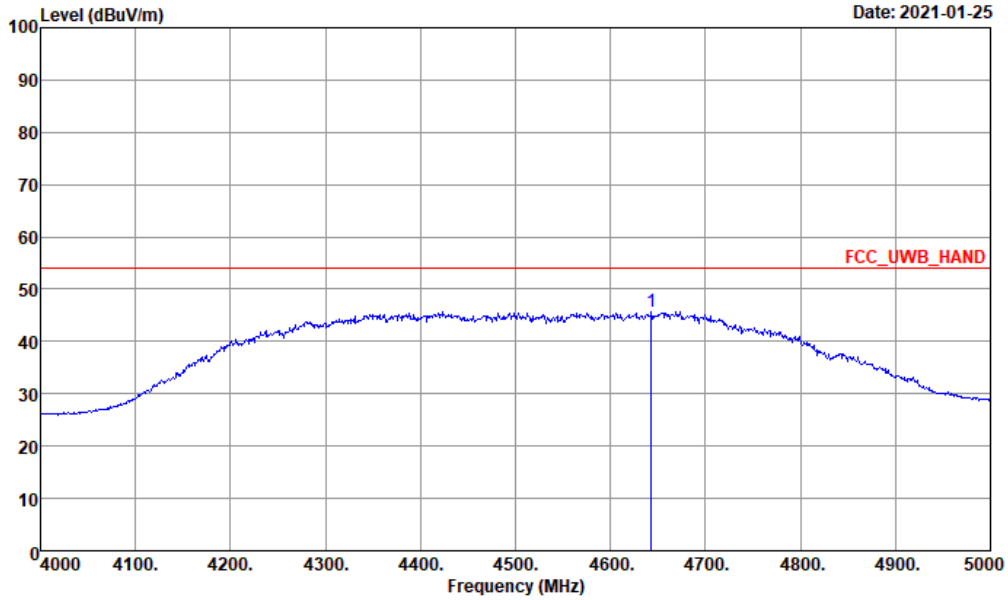
Radiated Emissions (Fundamental)			
Test Mode	2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5
PG : 192

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4170.00	48.30	-5.63	53.93	71.06	29.68	8.59	61.03	398	277	VERTICAL

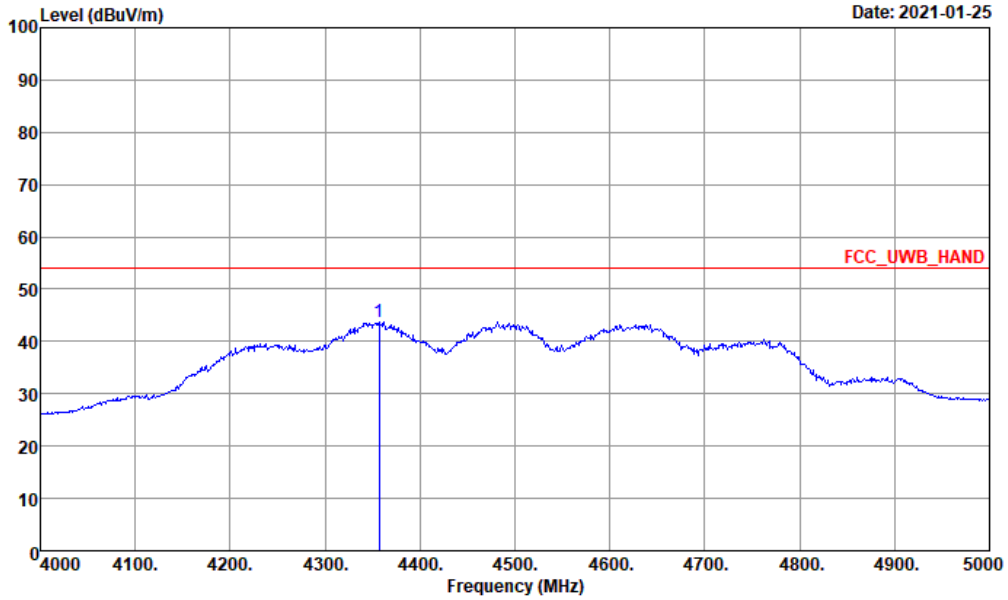
Radiated Emissions (Fundamental)			
Test Mode	3	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4643.00	45.75	-8.18	53.93	72.90	30.87	9.04	67.06	115	238	HORIZONTAL

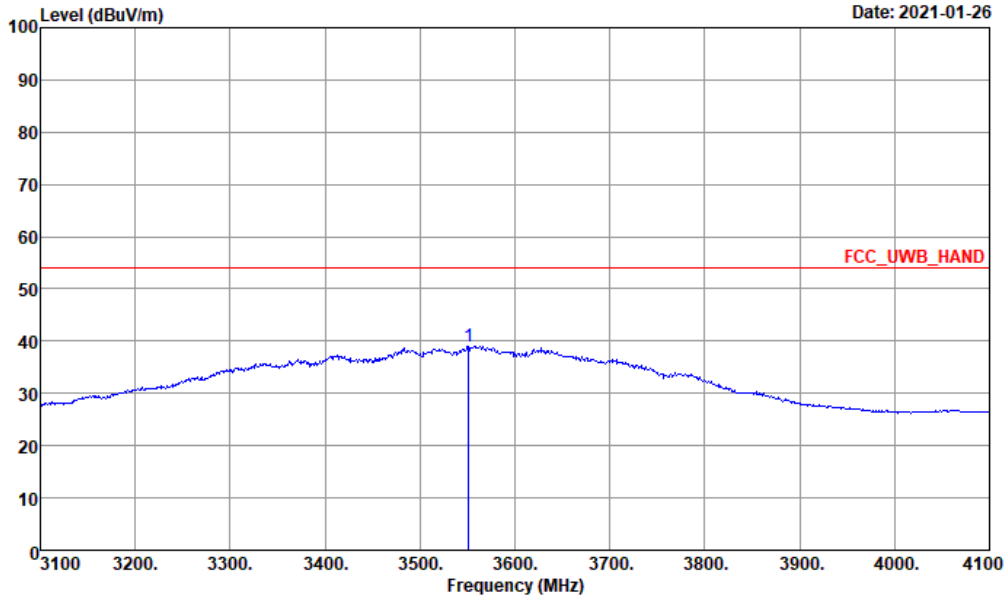
Radiated Emissions (Fundamental)			
Test Mode	3	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4357.00	43.76	-10.17	53.93	72.10	30.13	8.82	67.29	391	266	VERTICAL

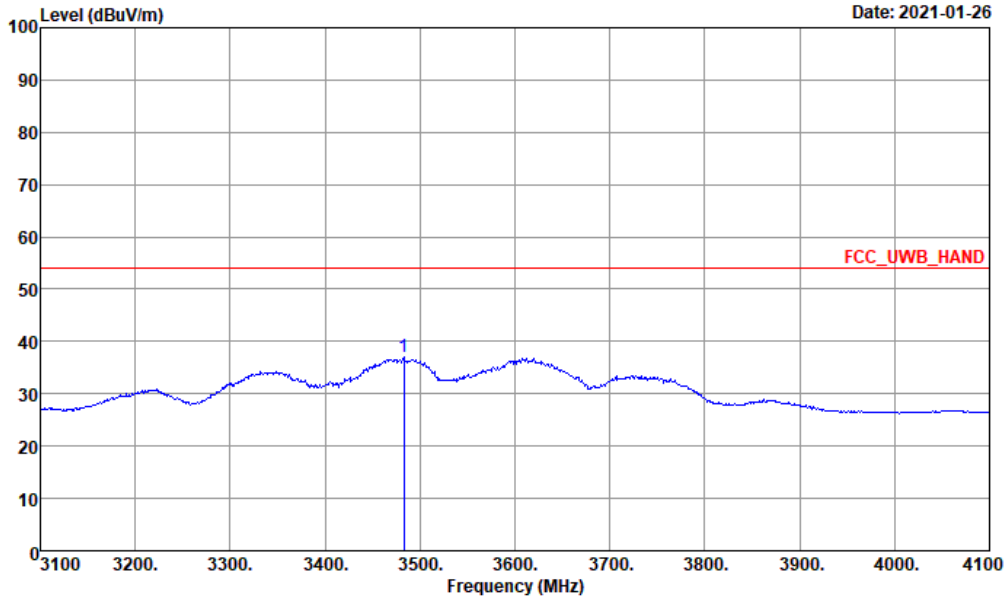
Radiated Emissions (Fundamental)			
Test Mode	4	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3551.00	38.94	-14.99	53.93	69.27	28.80	7.77	66.90	100	226	HORIZONTAL

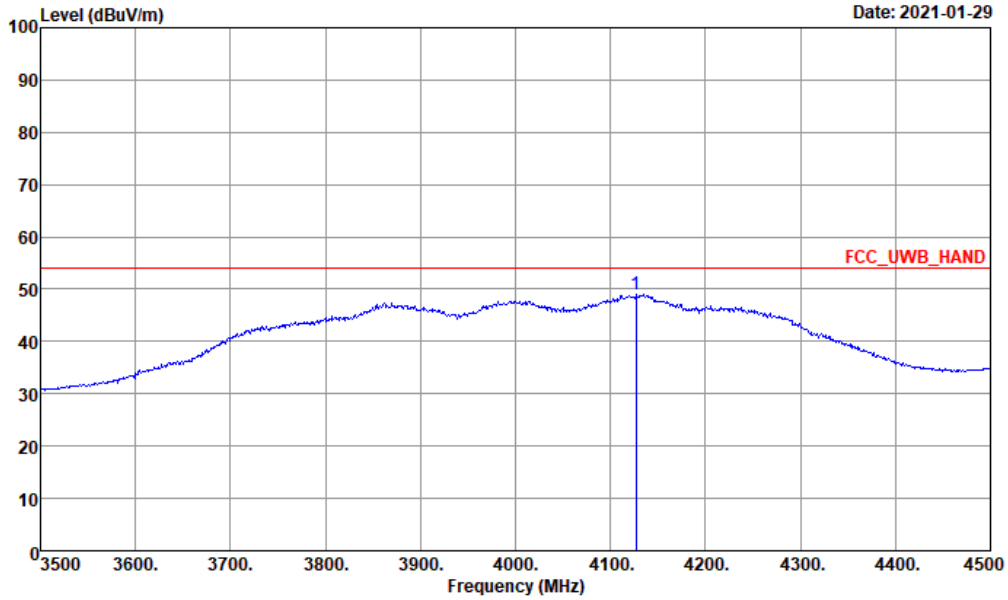
Radiated Emissions (Fundamental)			
Test Mode	4	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	3483.00	37.07	-16.86	53.93	67.69	28.50	7.71	66.83	400	272	VERTICAL

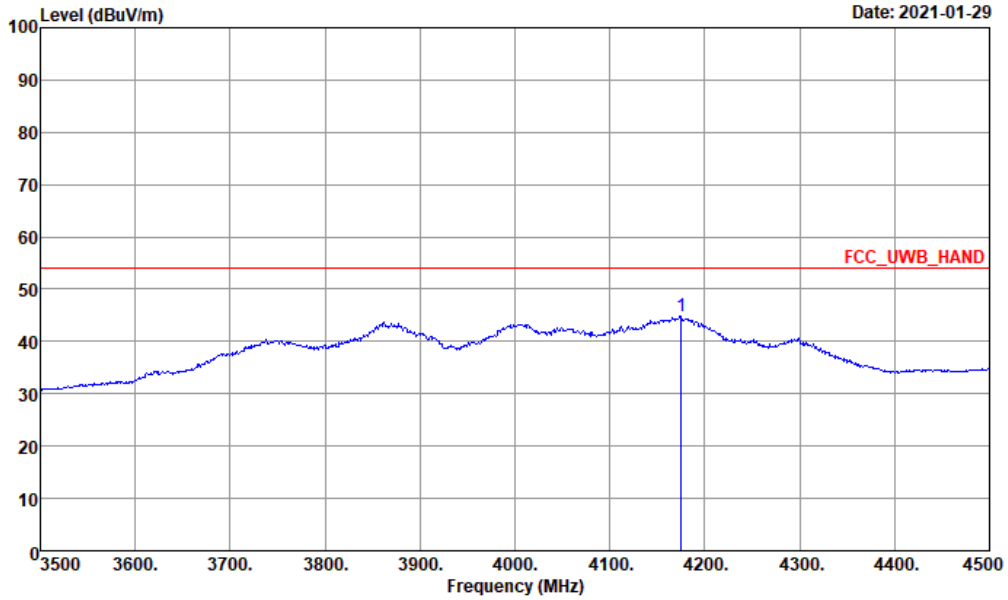
Radiated Emissions (Fundamental)			
Test Mode	5	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4127.00	49.16	-4.77	53.93	72.08	29.60	8.55	61.07	390	326	HORIZONTAL

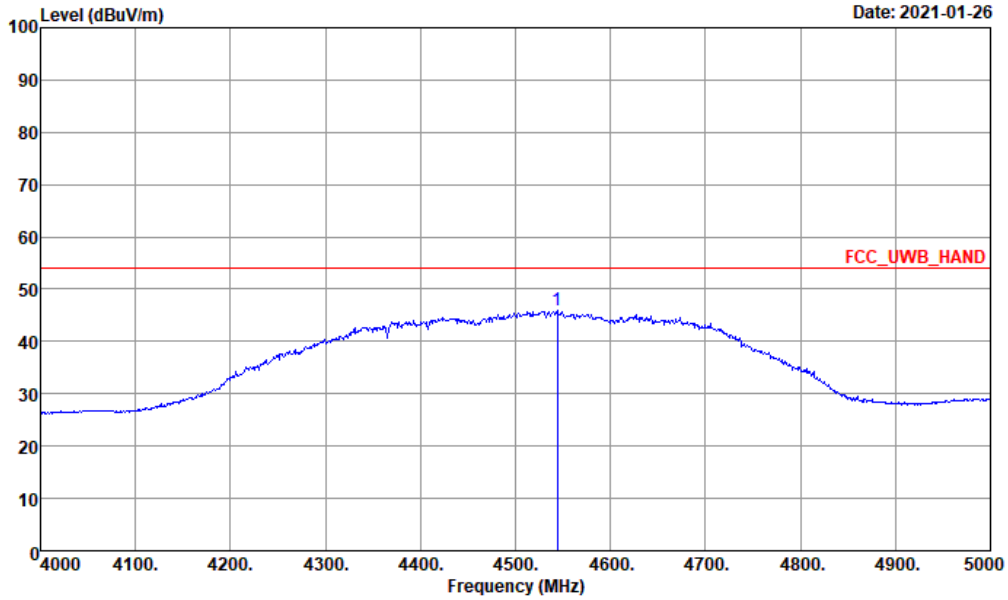
Radiated Emissions (Fundamental)			
Test Mode	5	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4175.00	44.82	-9.11	53.93	67.55	29.70	8.60	61.03	323	275	VERTICAL

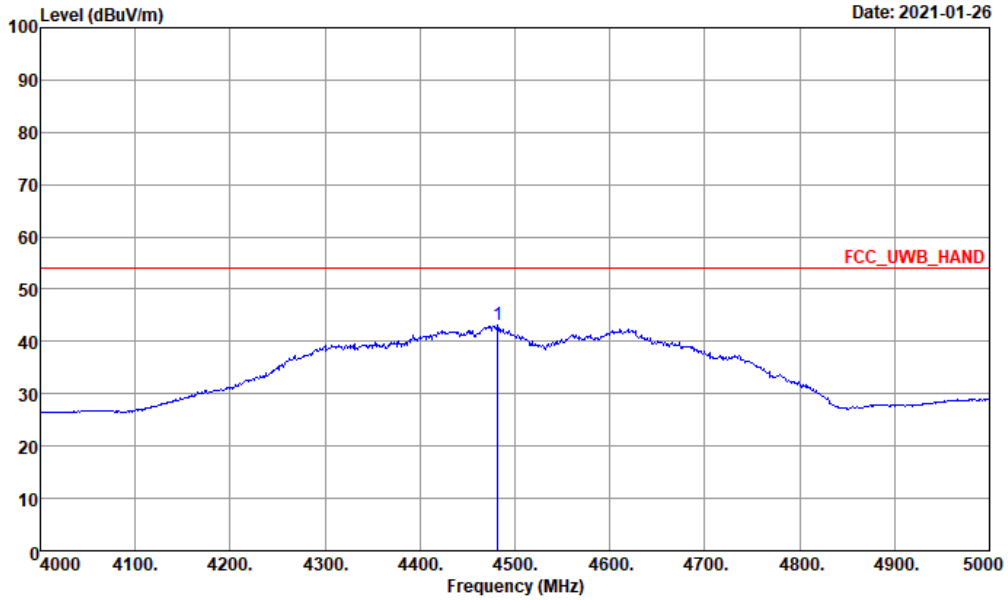
Radiated Emissions (Fundamental)			
Test Mode	6	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4544.00	45.85	-8.08	53.93	73.54	30.59	8.93	67.21	255	218	HORIZONTAL

Radiated Emissions (Fundamental)			
Test Mode	6	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	3m



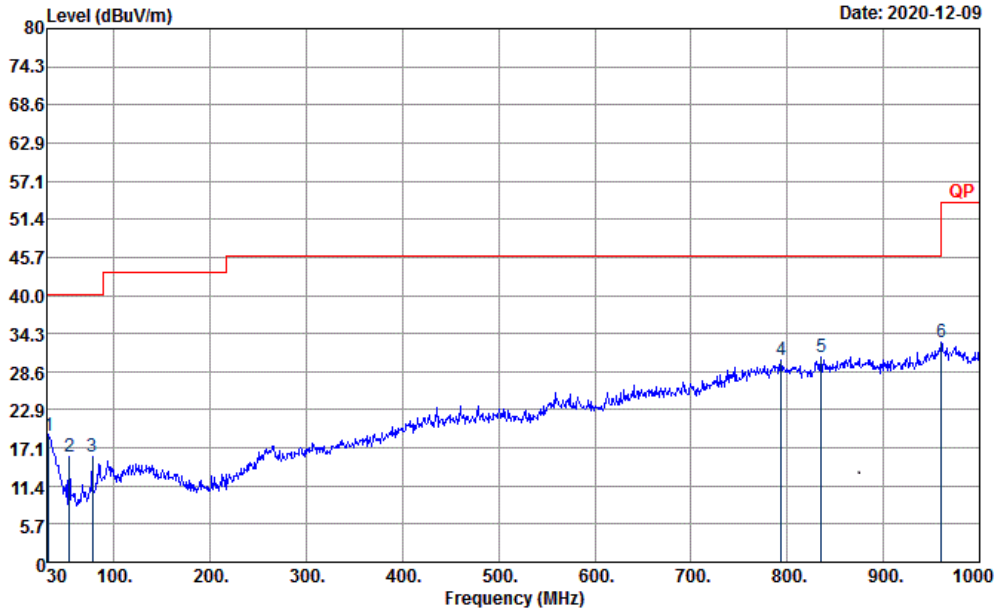
Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:1.000sec
Detector : Peak
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	4482.00	43.18	-10.75	53.93	71.09	30.46	8.90	67.27	288	287	VERTICAL

3.5.7 Radiated Emissions (30MHz – 1GHz)

<Sample 1>

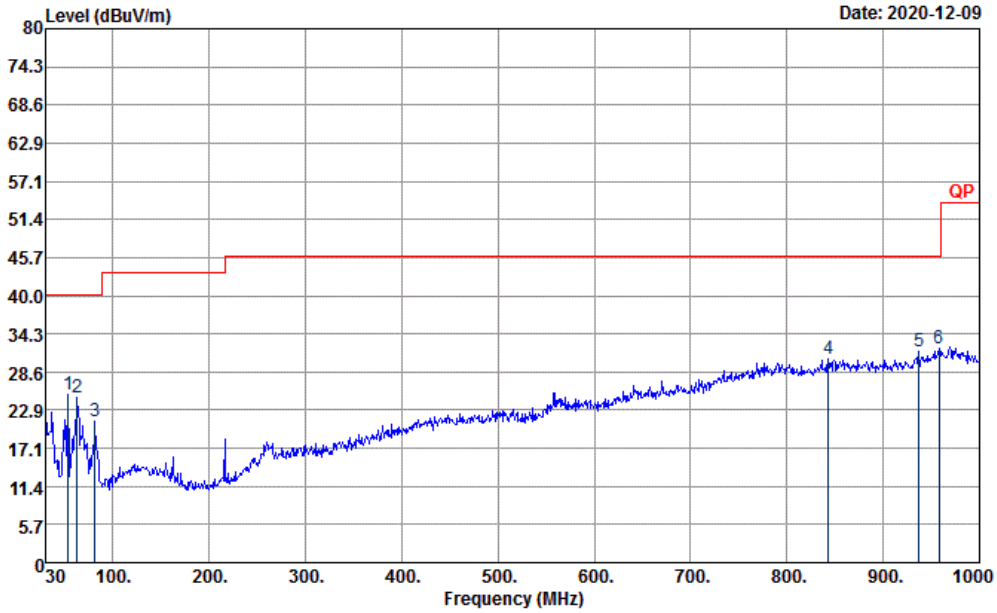
Radiated Emissions (30MHz – 1GHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m



Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.94	18.84	-21.16	40	27.32	23.06	0.92	32.46			Peak
53.28	15.91	-24.09	40	34.7	12.65	1.11	32.55			Peak
77.53	15.8	-24.2	40	34.06	12.89	1.37	32.52			Peak
793.39	30.26	-15.74	46	28.52	28.26	5.13	31.65			Peak
835.1	30.78	-15.22	46	28.37	28.63	5.24	31.46	100	0	Peak
960.23	32.99	-21.01	54	27.29	31.14	5.37	30.81			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: Peak emission setting: RBW=120kHz; VBW = 300kHz.

Radiated Emissions (30MHz – 1GHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m

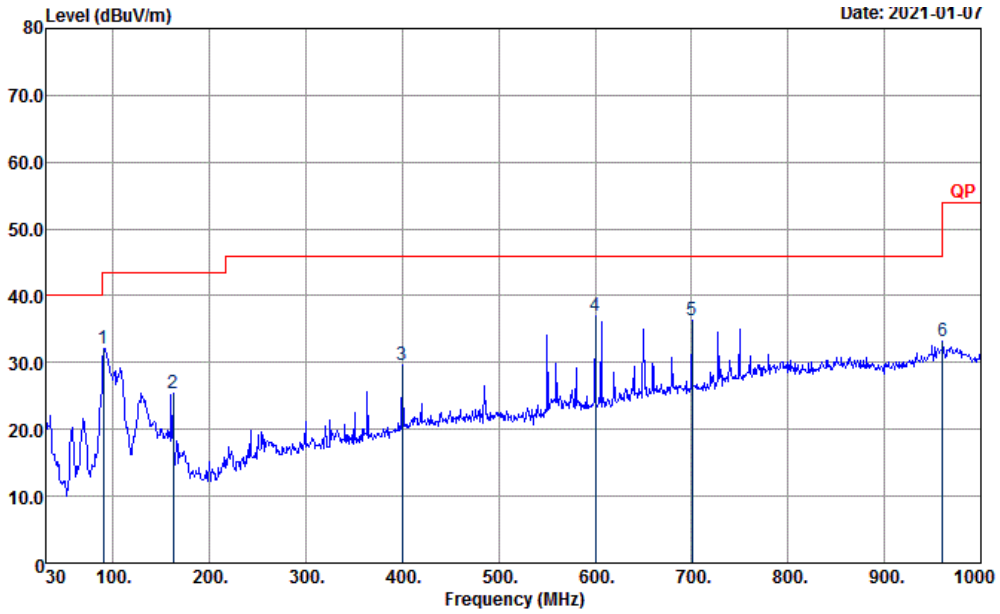


Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
53.28	25.16	-14.84	40	43.95	12.65	1.11	32.55			Peak
62.98	24.77	-15.23	40	44.32	11.78	1.21	32.54			Peak
81.41	21.27	-18.73	40	38.92	13.47	1.4	32.52			Peak
842.86	30.51	-15.49	46	27.76	28.94	5.24	31.43			Peak
936.95	31.68	-14.32	46	27.5	29.91	5.23	30.96			Peak
958.29	32.01	-13.99	46	26.42	31.06	5.35	30.82	100	0	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: Peak emission setting: RBW=120kHz; VBW = 300kHz.

<Sample 2>

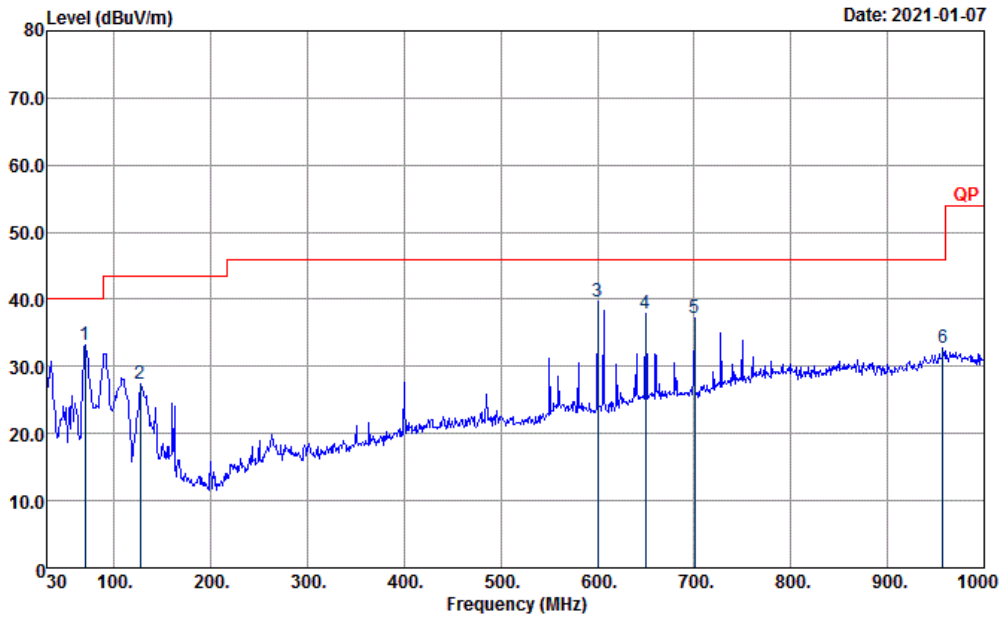
Radiated Emissions (30MHz – 1GHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m



Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
69.77	33.15	-6.85	40	52.21	12.19	1.28	32.53			Peak
127	27.43	-16.07	43.5	40.74	17.5	1.7	32.51			Peak
600.36	39.67	-6.33	46	43.28	25.54	3.75	32.9	100	0	Peak
649.83	37.91	-8.09	46	40.01	26.41	4.14	32.65			Peak
700.27	37.21	-8.79	46	38.69	26.57	4.34	32.39			Peak
957.32	32.74	-13.26	46	27.21	31.02	5.34	30.83			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: Peak emission setting: RBW=120kHz; VBW = 300kHz.

Radiated Emissions (30MHz – 1GHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



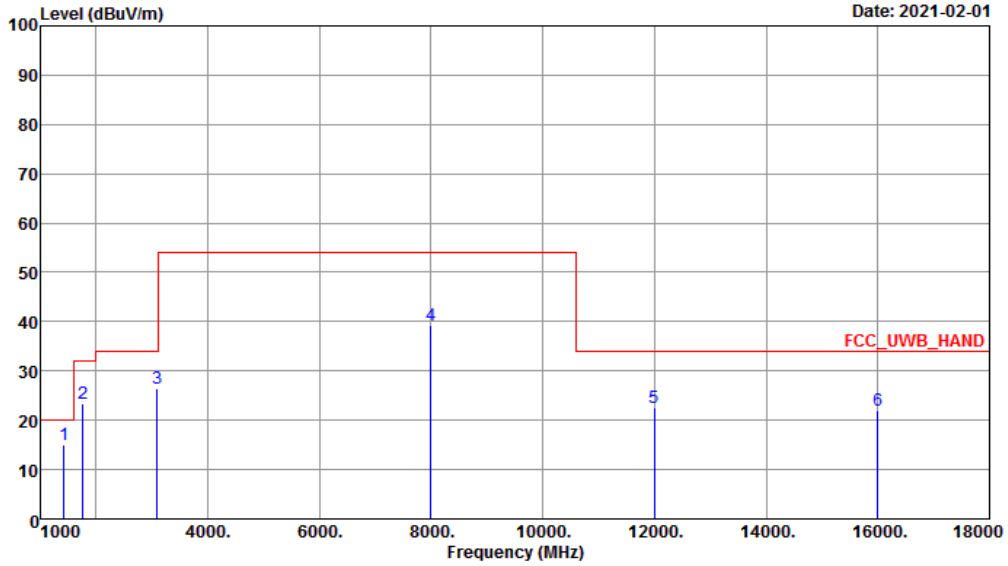
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
69.77	33.15	-6.85	40	52.21	12.19	1.28	32.53			Peak
127	27.43	-16.07	43.5	40.74	17.5	1.7	32.51			Peak
600.36	39.67	-6.33	46	43.28	25.54	3.75	32.9	100	0	Peak
649.83	37.91	-8.09	46	40.01	26.41	4.14	32.65			Peak
700.27	37.21	-8.79	46	38.69	26.57	4.34	32.39			Peak
957.32	32.74	-13.26	46	27.21	31.02	5.34	30.83			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: Peak emission setting: RBW=120kHz; VBW = 300kHz.

3.5.8 Radiated Emissions (960MHz – 18GHz)

<Sample 1>

Radiated Emissions (960MHz – 18GHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.		



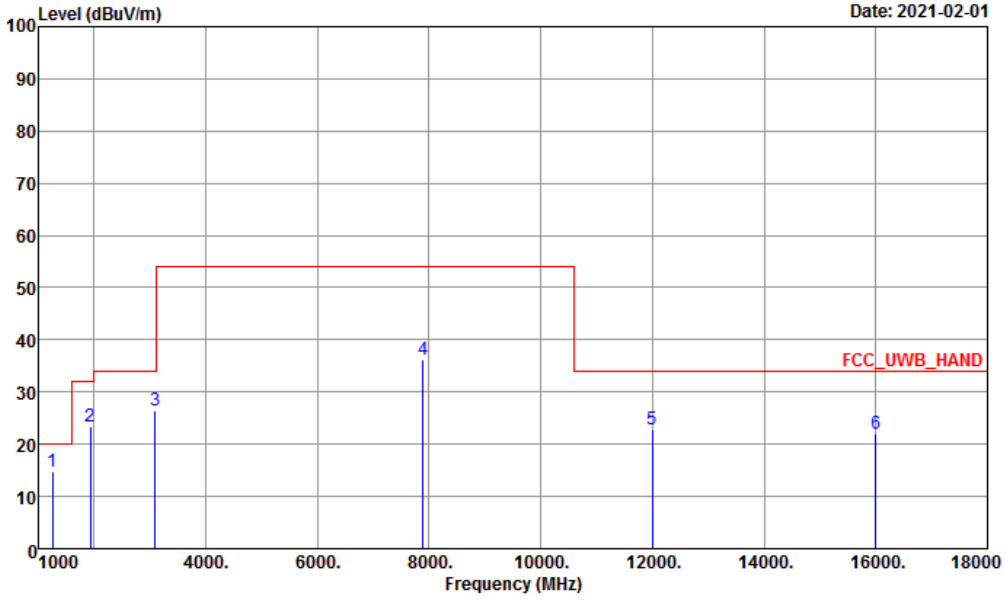
Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	1423.34	15.06	-4.87	19.93	61.93	25.65	4.55	67.53	113	228	-9.54
2	1765.80	23.46	-8.47	31.93	60.53	25.16	5.18	67.41	113	228	0.00
3	3096.67	26.54	-7.39	33.93	57.27	28.49	7.24	66.46	113	228	0.00
4	7990.00	39.18	-14.75	53.93	54.07	36.96	14.14	65.99	113	228	0.00
5	11998.60	22.68	-11.25	33.93	47.75	38.80	17.49	65.80	113	228	-15.56
6	16000.00	21.98	-11.95	33.93	48.29	37.50	19.21	67.46	113	228	-15.56

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=100kHz; VBW=300kHz.

Note 6:
- 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: Aux Factor = Distance extrapolation factor)
  Example:
  Corrected Reading: 25.65 (dB/m) + 4.55 (dB) + 61.93 (dBuV) – 67.53 (dB) + -9.54 (dB) = 15.06 (dBuV/m)

Radiated Emissions (960MHz – 18GHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.		



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
Detector : Average
Setting : 16.5

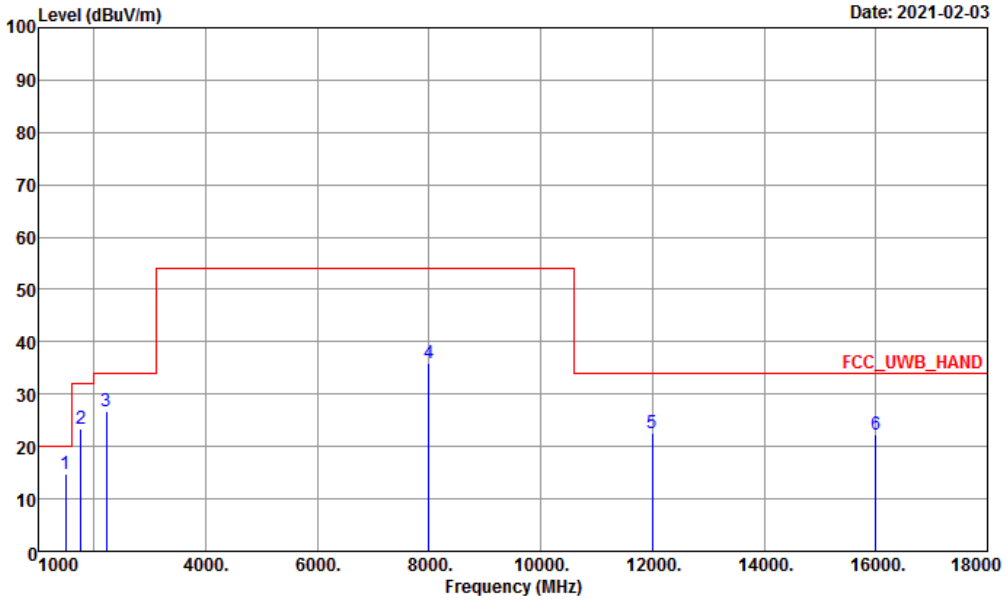
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	1259.86	14.77	-5.16	19.93	62.42	25.42	4.23	67.76	398	277	-9.54
2	1926.54	23.27	-8.66	31.93	59.65	25.61	5.42	67.41	398	277	0.00
3	3098.89	26.60	-7.33	33.93	57.32	28.50	7.24	66.46	398	277	0.00
4	7892.50	36.26	-17.67	53.93	51.73	36.56	13.89	65.92	398	277	0.00
5	12000.00	22.71	-11.22	33.93	47.78	38.80	17.49	65.80	398	277	-15.56
6	16000.00	21.95	-11.98	33.93	48.26	37.50	19.21	67.46	398	277	-15.56

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=100kHz; VBW=300kHz.

Note 6:
- 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: Aux Factor = Distance extrapolation factor)
  Example:
  Corrected Reading: 25.42 (dB/m) + 4.23 (dB) + 62.42 (dBuV) – 67.76 (dB) + -9.54 (dB) = 14.77 (dBuV/m)

<Sample 2>

Radiated Emissions (960MHz – 18GHz)			
Test Mode	Worst case mode 4	**Polarization**	H
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.		



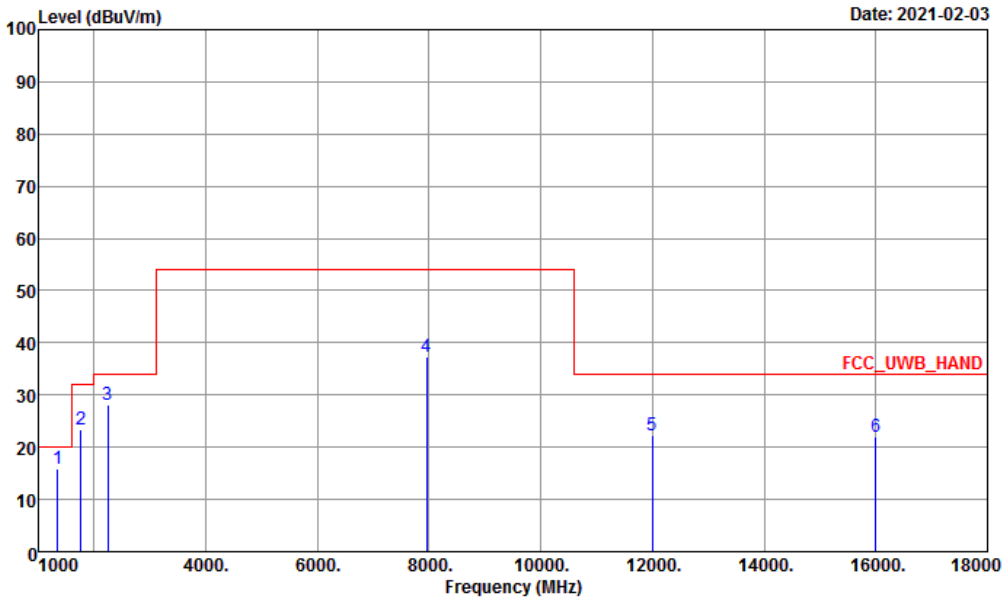
Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 HORIZONTAL
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	1482.51	14.89	-5.04	19.93	61.86	25.34	4.67	67.44	390	326	-9.54
2	1765.04	23.35	-8.58	31.93	60.43	25.16	5.17	67.41	390	326	0.00
3	2225.32	26.63	-7.30	33.93	60.16	27.80	5.96	67.29	390	326	0.00
4	7997.50	35.85	-18.08	53.93	50.70	36.99	14.16	66.00	390	326	0.00
5	11998.60	22.46	-11.47	33.93	47.53	38.80	17.49	65.80	390	326	-15.56
6	16000.00	22.17	-11.76	33.93	48.48	37.50	19.21	67.46	390	326	-15.56

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=100kHz; VBW=300kHz

Note 6:
- 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: Aux Factor = Distance extrapolation factor)
  Example:
  Corrected Reading: 25.34 (dB/m) + 4.67 (dB) + 61.86 (dBuV) – 67.44 (dB)+ -9.54 (dB) = 14.89(dBuV/m)

Radiated Emissions (960MHz – 18GHz)			
Test Mode	Worst case mode 4	**Polarization**	V
Operating Function	Adapter Mode		
Test Distance	The test distance between the receiving antenna and the EUT is as following: 3 m for 1.61 GHz ~ 10.60 GHz frequency range 1 m for 1 GHz ~ 1.61 GHz 0.5 m for other frequency ranges.		



Site : 03CH12-HY
Condition : FCC_UWB_HAND 3m HORN_9120D_1328 VERTICAL
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	1343.43	15.81	-4.12	19.93	62.93	25.67	4.39	67.64	323	275	-9.54
2	1765.04	23.41	-8.52	31.93	60.49	25.16	5.17	67.41	323	275	0.00
3	2245.30	28.09	-5.84	33.93	61.58	27.80	5.99	67.28	323	275	0.00
4	7960.00	37.22	-16.71	53.93	52.28	36.84	14.07	65.97	323	275	0.00
5	11998.60	22.42	-11.51	33.93	47.49	38.80	17.49	65.80	323	275	-15.56
6	16000.00	22.14	-11.79	33.93	48.45	37.50	19.21	67.46	323	275	-15.56

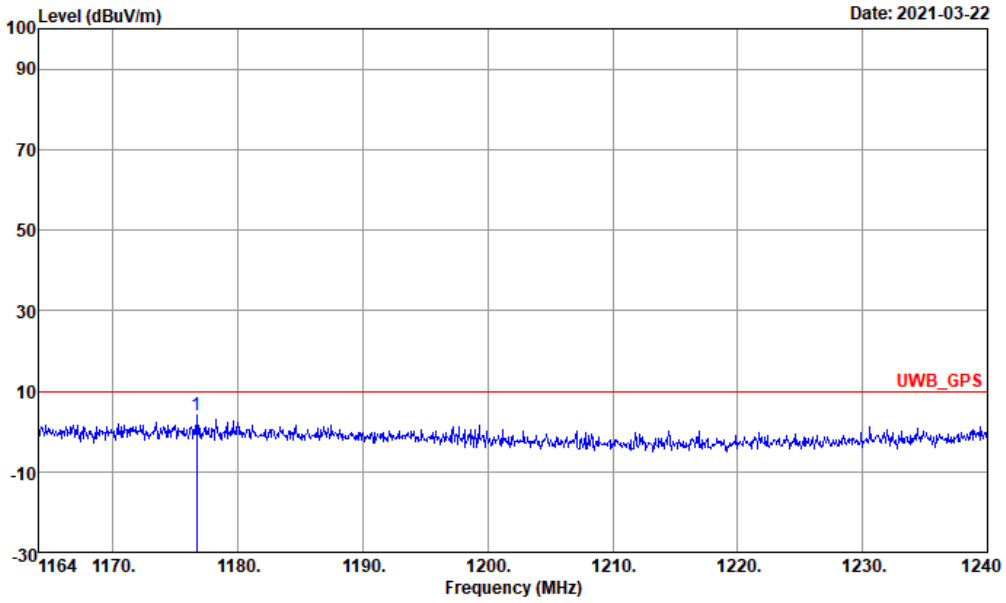
Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: Average emission setting outside GPS Bands: RBW=1MHz; VBW=3MHz.
Note 5: Average emission setting in GPS bands: RBW=100kHz; VBW=300kHz.

Note 6:
- 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: Aux Factor = Distance extrapolation factor)
  Example:
  Corrected Reading: 25.67 (dB/m) + 4.39 (dB) + 62.93 (dBuV) – 67.64 (dB)+ -9.54 (dB) = 15.81 (dBuV/m)

Radiated Emissions (1164MHz – 1240MHz)

<Sample 1>

Radiated Emissions (1164MHz – 1240MHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m

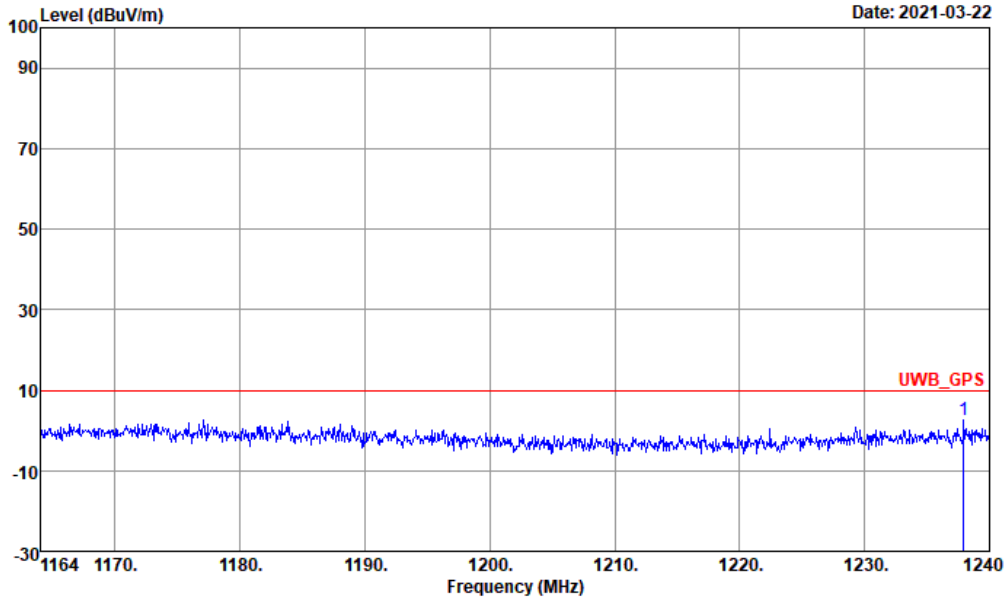


Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1176.69	4.19	-5.74	9.93	42.09	24.96	5.01	67.87	113	228	HORIZONTAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

Radiated Emissions (1164MHz – 1240MHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



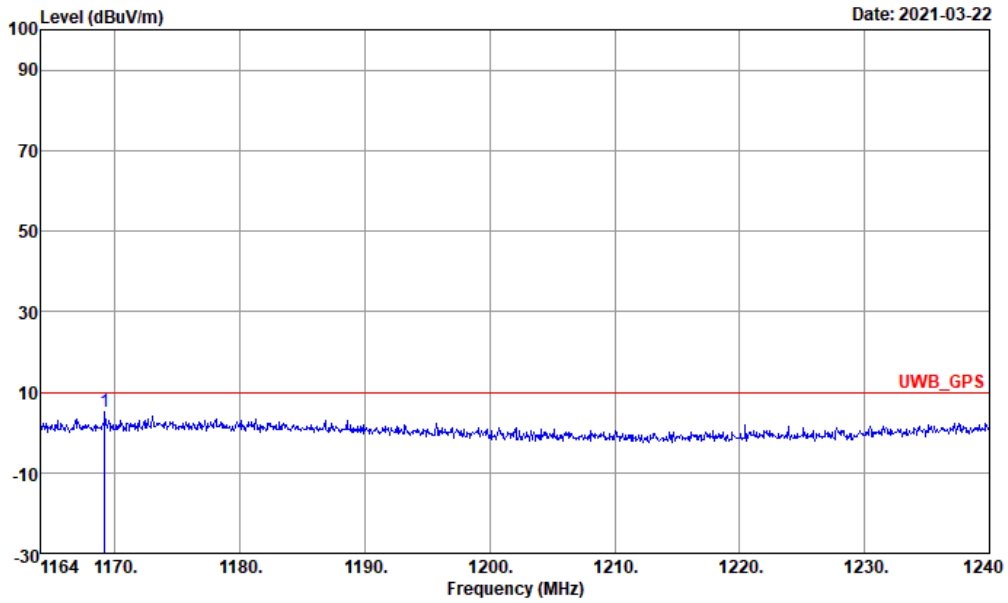
Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1237.95	2.73	-7.20	9.93	40.05	25.33	5.14	67.79	398	277	VERTICAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

<Sample 2>

Radiated Emissions (1164MHz – 1240MHz)			
Test Mode	Worst case mode 4	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	3m

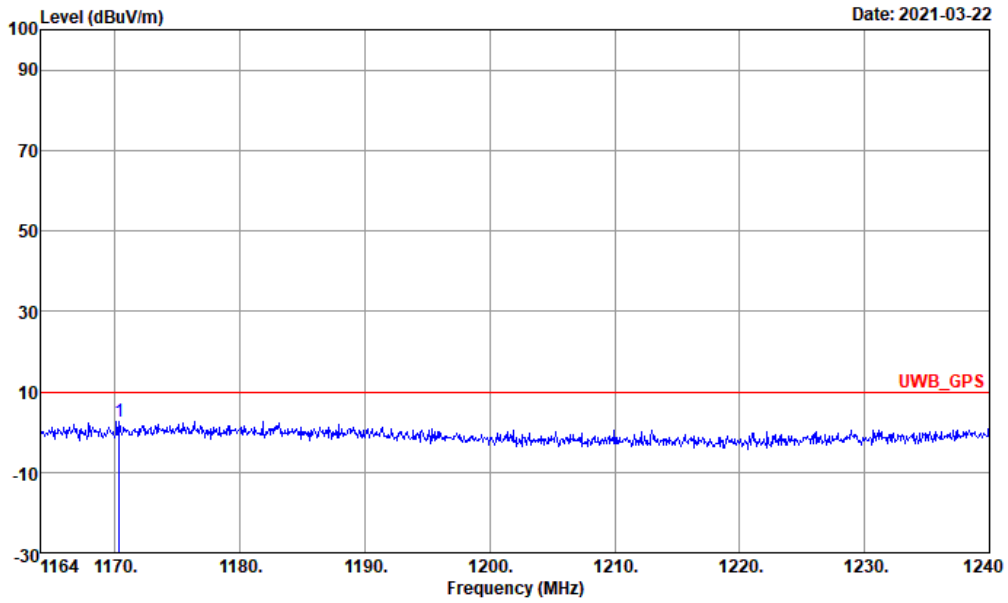


Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1169.17	4.98	-4.95	9.93	42.94	24.92	5.00	67.88	100	226	HORIZONTAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

Radiated Emissions (1164MHz – 1240MHz)			
Test Mode	Worst case mode 4	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

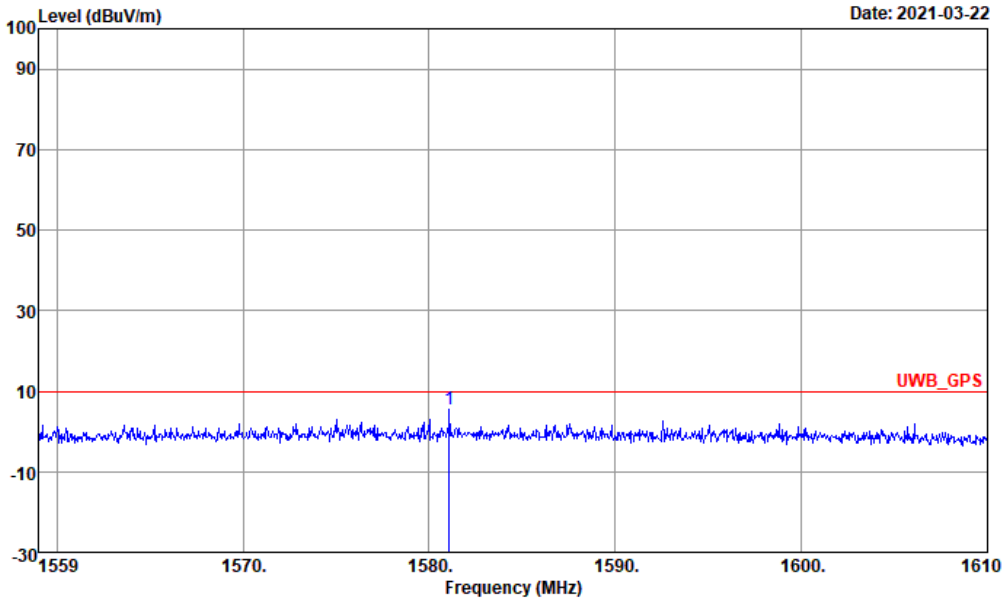
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1170.31	2.74	-7.19	9.93	40.70	24.92	5.00	67.88	400	272	VERTICAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

3.5.9 Radiated Emissions (1559MHz – 1610MHz)

<Sample 1>

Radiated Emissions (1559MHz – 1610MHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	3m

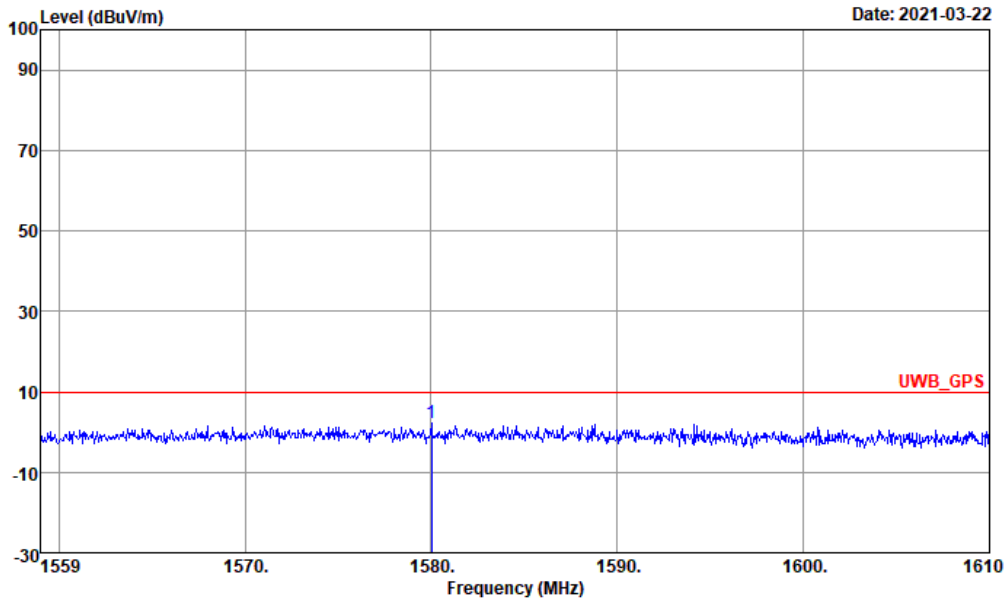


Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1581.08	5.34	-4.59	9.93	42.01	24.98	5.77	67.42	100	226	HORIZONTAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

Radiated Emissions (1559MHz – 1610MHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	3m



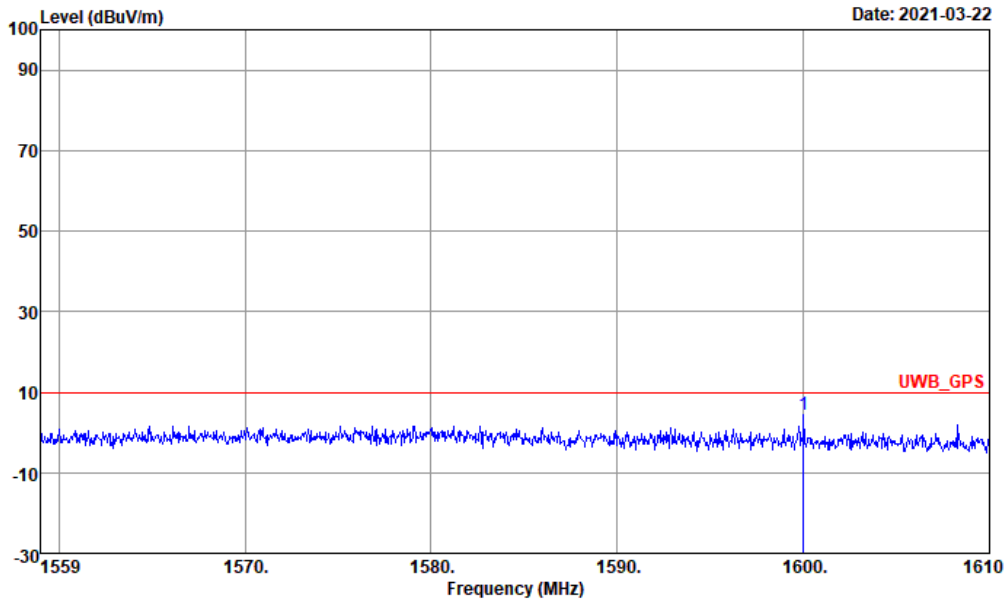
Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1580.01	2.18	-7.75	9.93	38.86	24.98	5.76	67.42	400	272	VERTICAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

<Sample 2>

Radiated Emissions (1559MHz – 1610MHz)			
Test Mode	Worst case mode 4	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	3m

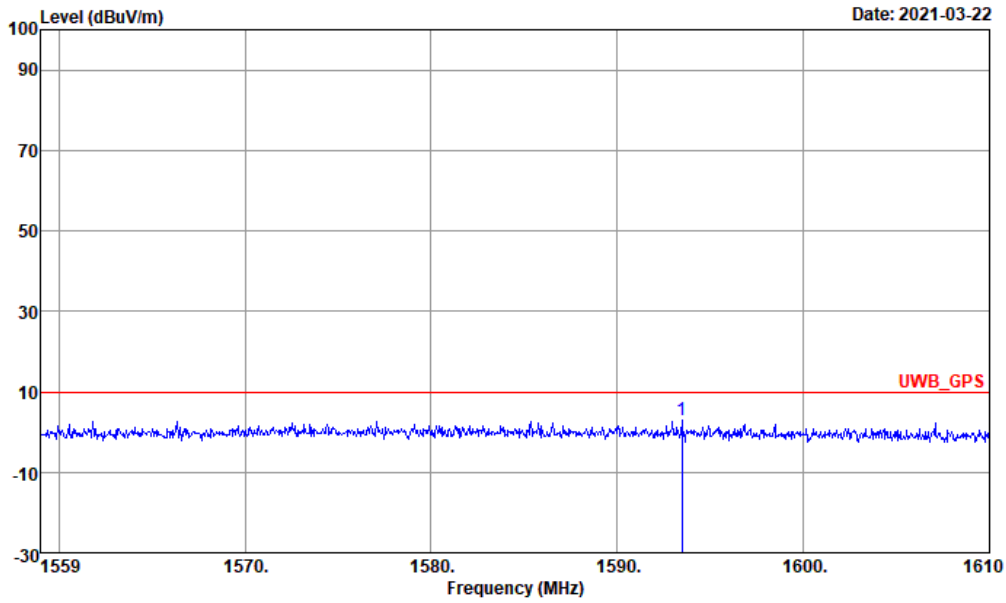


Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 HORIZONTAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1600.00	4.34	-5.59	9.93	41.06	24.90	5.80	67.42	100	226	HORIZONTAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

Radiated Emissions (1559MHz – 1610MHz)			
Test Mode	Worst case mode 4	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	3m



Site : 03CH12-HY
Condition : UWB_GPS 3m HORN_9120D_1328 VERTICAL
: RBW:1.000KHz VBW:3.000KHz SWT:40.000sec
Detector : Average
Setting : 16.5

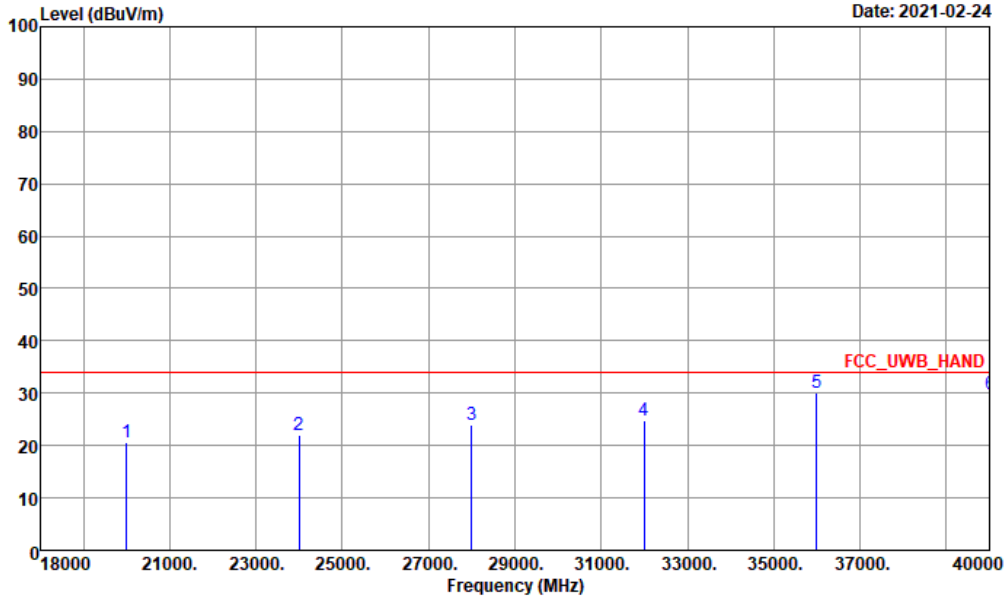
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1593.48	3.12	-6.81	9.93	39.82	24.93	5.79	67.42	400	272	VERTICAL

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 (dBm) + 95.2. E(dBuV/m) = -85.3 + 95.23 = 9.93dBuV/m.

3.5.10 Radiated Emissions (18GHz – 40GHz)

<Sample 1>

Radiated Emissions (18GHz – 40GHz)			
Test Mode	Worst case mode 2	**Polarization**	H
Operating Function	Stand-alone Mode	**Test Distance**	0.5m



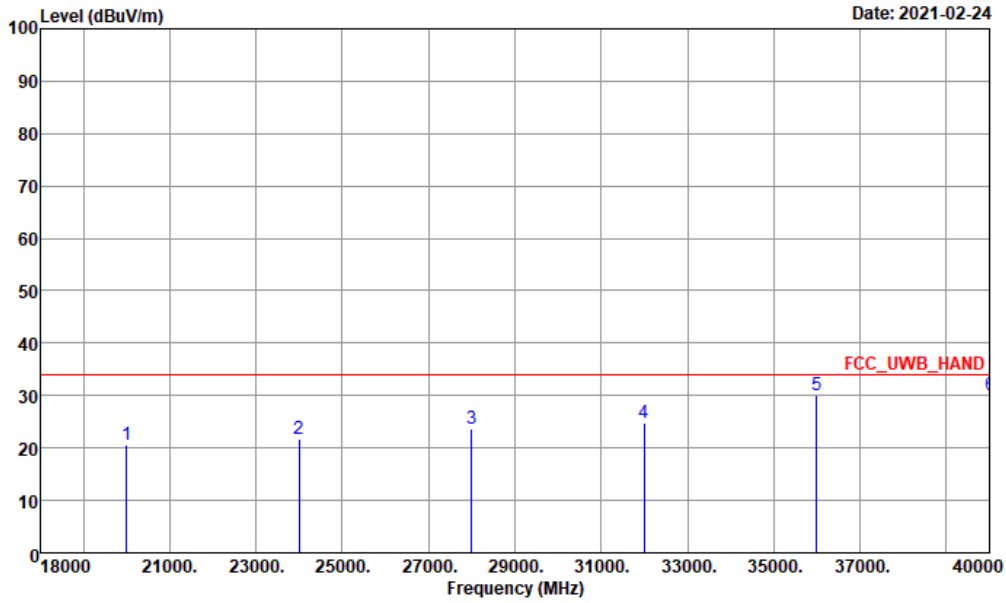
Site : 03CH12-HY
Condition : FCC_UWB_HAND 1m SHF HORN BBHA9170993 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
Detector : Average

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	20000.00	20.64	-13.29	33.93	45.79	38.20	6.01	53.80	---	---	-15.56
2	24000.00	21.99	-11.94	33.93	45.17	39.20	6.68	53.50	---	---	-15.56
3	28000.00	24.07	-9.86	33.93	47.02	39.40	7.01	53.80	---	---	-15.56
4	32000.00	24.88	-9.05	33.93	47.93	40.10	7.51	55.10	---	---	-15.56
5	36000.00	30.06	-3.87	33.93	48.91	44.80	8.41	56.50	---	---	-15.56
6	40000.00	29.88	-4.05	33.93	47.80	43.30	8.84	54.50	---	---	-15.56

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 (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: Aux Factor = Distance extrapolation factor)

Radiated Emissions (18GHz – 40GHz)			
Test Mode	Worst case mode 2	**Polarization**	V
Operating Function	Stand-alone Mode	**Test Distance**	0.5m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 1m SHF HORN BBHA9170993 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
Detector : Average

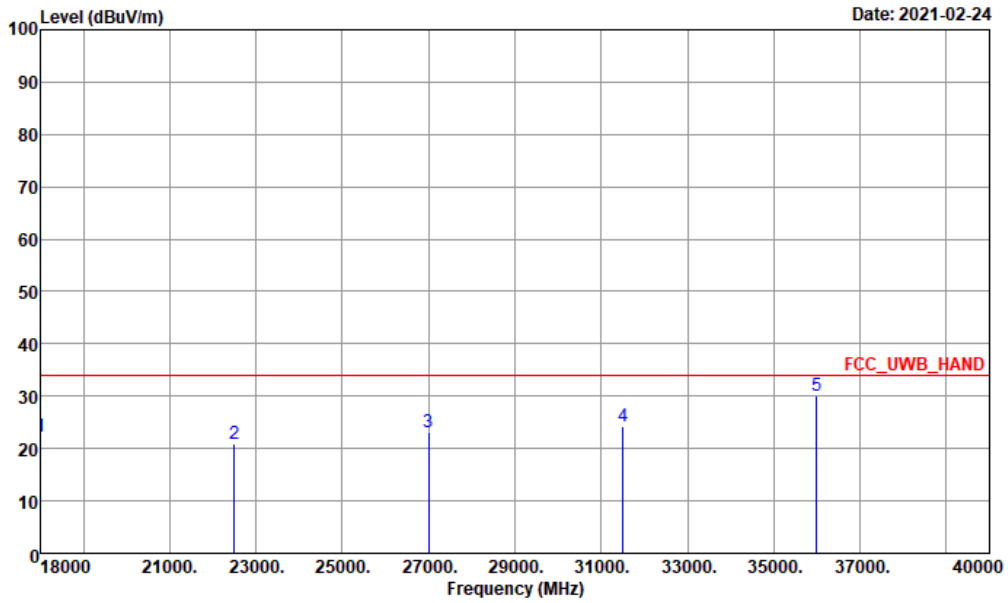
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	20000.00	20.61	-13.32	33.93	45.76	38.20	6.01	53.80	---	---	-15.56
2	24000.00	21.69	-12.24	33.93	44.87	39.20	6.68	53.50	---	---	-15.56
3	28000.00	23.64	-10.29	33.93	46.59	39.40	7.01	53.80	---	---	-15.56
4	32000.00	24.69	-9.24	33.93	47.74	40.10	7.51	55.10	---	---	-15.56
5	36000.00	29.99	-3.94	33.93	48.84	44.80	8.41	56.50	---	---	-15.56
6	40000.00	29.95	-3.98	33.93	47.87	43.30	8.84	54.50	---	---	-15.56

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 (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: Aux Factor = Distance extrapolation factor)

<Sample 2>

Radiated Emissions (18GHz – 40GHz)			
Test Mode	Worst case mode 4	**Polarization**	H
Operating Function	Adapter Mode	**Test Distance**	0.5m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 1m SHF HORN BBHA9170993 HORIZONTAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
Detector : Average

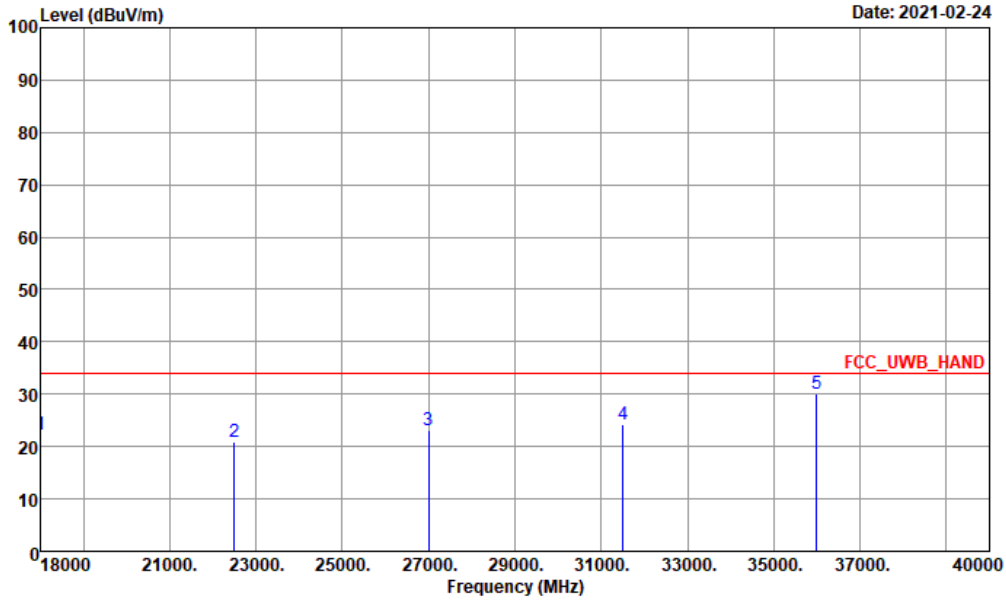
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	18000.00	22.33	-11.60	33.93	48.39	37.90	5.80	54.20	---	---	-15.56
2	22500.00	20.85	-13.08	33.93	45.24	38.50	6.27	53.60	---	---	-15.56
3	27000.00	23.10	-10.83	33.93	45.37	39.20	6.99	52.90	---	---	-15.56
4	31500.00	24.23	-9.70	33.93	48.12	39.80	7.57	55.70	---	---	-15.56
5	36000.00	29.99	-3.94	33.93	48.84	44.80	8.41	56.50	---	---	-15.56

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 (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: Aux Factor = Distance extrapolation factor)

Radiated Emissions (18GHz – 40GHz)			
Test Mode	Worst case mode 4	**Polarization**	V
Operating Function	Adapter Mode	**Test Distance**	0.5m



Site : 03CH12-HY
Condition : FCC_UWB_HAND 1m SHF HORN BBHA9170993 VERTICAL
: RBW:1000.000KHz VBW:3000.000KHz SWT:11.000sec
Detector : Average

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Aux Factor
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	dB
1	18000.00	22.16	-11.77	33.93	48.22	37.90	5.80	54.20	---	---	-15.56
2	22500.00	20.78	-13.15	33.93	45.17	38.50	6.27	53.60	---	---	-15.56
3	27000.00	23.00	-10.93	33.93	45.27	39.20	6.99	52.90	---	---	-15.56
4	31500.00	24.25	-9.68	33.93	48.14	39.80	7.57	55.70	---	---	-15.56
5	36000.00	30.06	-3.87	33.93	48.91	44.80	8.41	56.50	---	---	-15.56

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 (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: Aux Factor = Distance extrapolation factor)

4. Test Equipment and Calibration Data

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Jul. 14, 2020	Dec. 22, 2020 ~ Dec. 23, 2020	Jul. 13, 2021	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 11, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Oct. 10, 2021	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 02, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Dec. 01, 2021	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 23, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Oct. 22, 2021	Radiation (03CH11-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY55420170	20MHz~8.4GHz	May. 21, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	May. 20, 2021	Radiation (03CH11-HY)
Filter	Wainwright	WHK20/1000C 7/40SS	SN2	20M High Pass	Sep. 14, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Sep. 13, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 12, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	30MHz~18GHz	Mar. 12, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11681/4PE	30MHz~18GHz	Mar. 12, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Mar. 11, 2021	Radiation (03CH11-HY)
Controller	EMEC	EM 1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 09, 2020 ~ Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Dec. 09, 2020 ~ Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Dec. 09, 2020 ~ Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Hygrometer	TECPEL	DTN-303B	TP140325	N/A	Nov. 18, 2020	Dec. 09, 2020 ~ Jan. 07, 2021	Nov. 17, 2021	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Dec. 09, 2020 ~ Jan. 07, 2021	N/A	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Nov. 23, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Nov. 22, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz~40GHz	Dec. 19, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Dec. 18, 2021	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY57280120	1GHz~26.5GHz	Jul. 20, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 05, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Dec. 04, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 11, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 15, 2021	Jan. 26, 2021 ~ Feb. 10, 2021	Jan. 14, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Feb. 24, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Jan. 26, 2021 ~ Feb. 10, 2021	Feb. 24, 2021	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Jan. 26, 2021 ~ Feb. 10, 2021	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Jan. 26, 2021 ~ Feb. 10, 2021	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Jan. 26, 2021 ~ Feb. 10, 2021	N/A	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Jan. 26, 2021 ~ Feb. 10, 2021	N/A	Radiation (03CH12-HY)

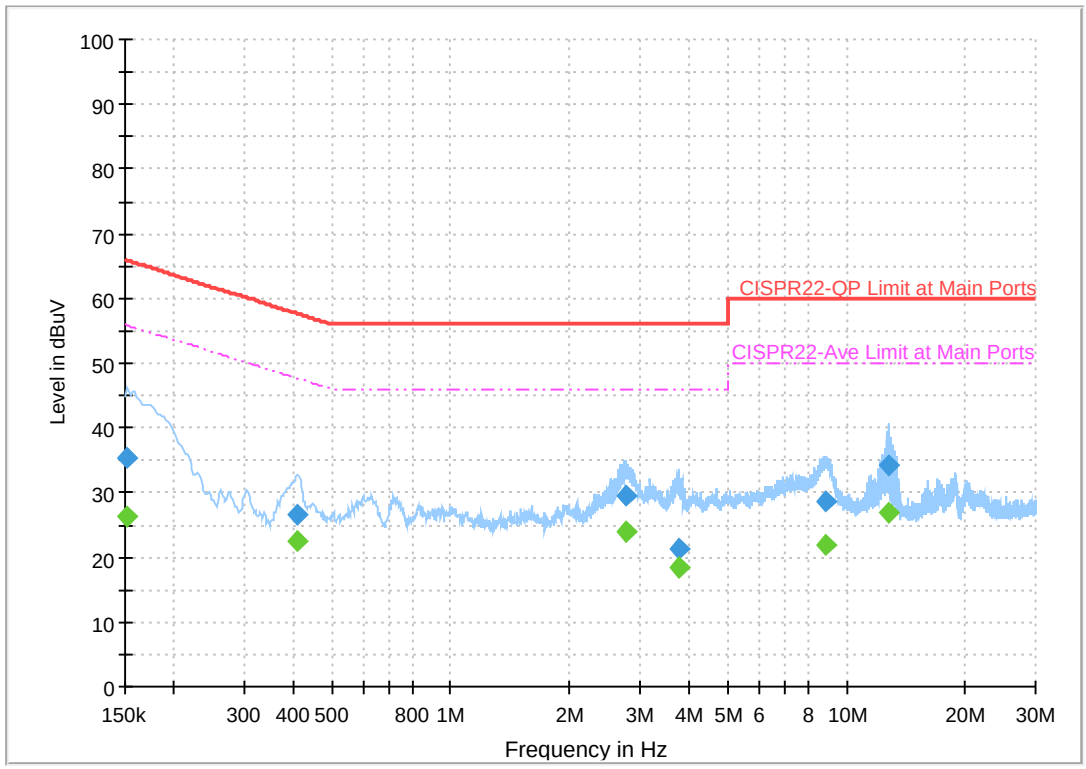
Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Divider	Woken	MVE8546	A702518	0.5~6 GHz	Calibration from System	Dec. 03. 2021~ Dec. 06. 2021	Calibration from System	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSV40	101564	10Hz ~ 40GHz	Aug. 30, 2021	Dec. 03. 2021~ Dec. 06. 2021	Aug. 29, 2022	Conducted (TH05-HY)
AC Power Source	ACPOWER	AFC-11003G	F317040033	N/A	N/A	Aug. 20, 2021	N/A	Conduction (CO07-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Aug. 20, 2021	N/A	Conduction (CO07-HY)
Pulse Limiter	SCHWARZBECK	VTSD 9561-F N	9561-F N00373	9kHz-200MHz	Nov. 02, 2020	Aug. 20, 2021	Nov. 01, 2021	Conduction (CO07-HY)
RF Cable	HUBER + SUHNER	RG 214/U	1358175	9kHz~30MHz	N/A	Aug. 20, 2021	N/A	Conduction (CO07-HY)
Two-Line V-Network	TESEQ	NNB 51	45051	N/A	Feb. 01, 2021	Aug. 20, 2021	Jan. 31, 2022	Conduction (CO07-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102317	9kHz~3.6GHz	Sep. 11, 2020	Aug. 20, 2021	Sep. 10, 2021	Conduction (CO07-HY)

Appendix A. AC Conducted Emission Test Results

EUT Information

Report NO :	0N2314
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



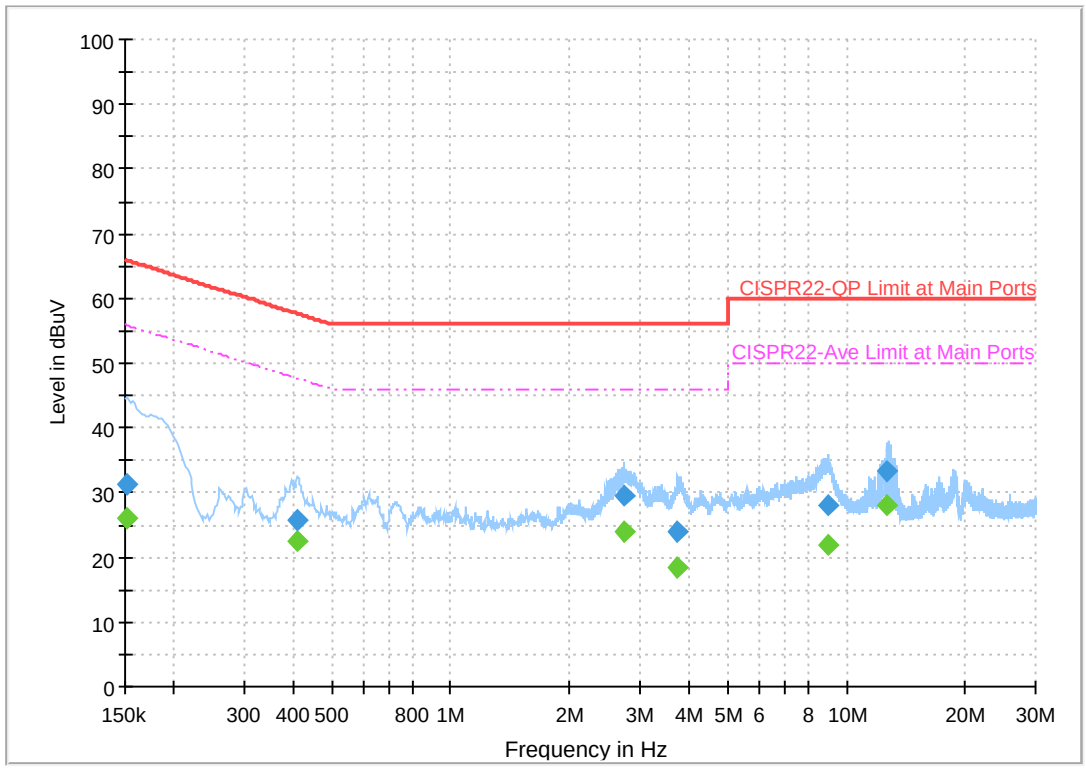
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	35.28	---	65.88	30.60	L1	OFF	20.0
0.152250	---	26.26	55.88	29.62	L1	OFF	20.0
0.408750	26.59	---	57.67	31.09	L1	OFF	20.0
0.408750	---	22.63	47.67	25.04	L1	OFF	20.0
2.780250	29.43	---	56.00	26.57	L1	OFF	20.1
2.780250	---	24.10	46.00	21.90	L1	OFF	20.1
3.777000	21.41	---	56.00	34.59	L1	OFF	20.1
3.777000	---	18.43	46.00	27.57	L1	OFF	20.1
8.875500	28.63	---	60.00	31.37	L1	OFF	20.1
8.875500	---	22.06	50.00	27.94	L1	OFF	20.1
12.761250	34.35	---	60.00	25.65	L1	OFF	20.2
12.761250	---	26.86	50.00	23.14	L1	OFF	20.2

EUT Information

Report NO :	0N2314
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



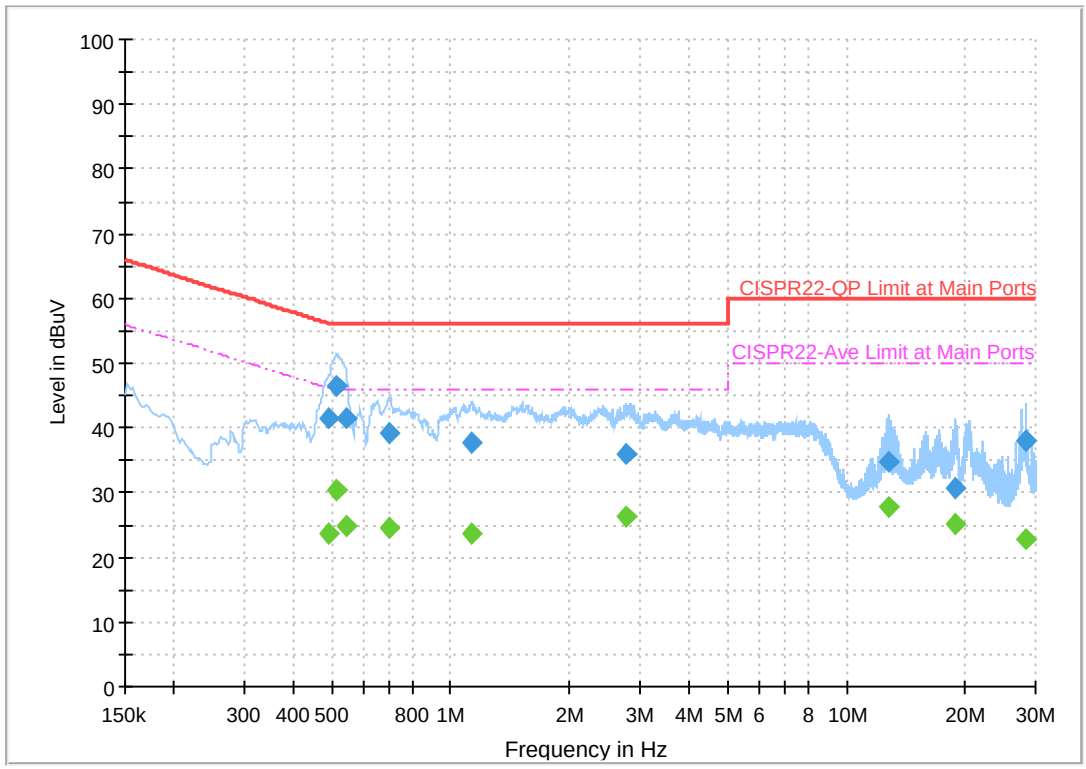
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.152250	31.23	---	65.88	34.65	N	OFF	20.0
0.152250	---	25.97	55.88	29.90	N	OFF	20.0
0.411000	25.80	---	57.63	31.83	N	OFF	20.0
0.411000	---	22.43	47.63	25.20	N	OFF	20.0
2.733000	29.53	---	56.00	26.47	N	OFF	20.1
2.733000	---	23.91	46.00	22.09	N	OFF	20.1
3.732000	24.04	---	56.00	31.96	N	OFF	20.1
3.732000	---	18.45	46.00	27.55	N	OFF	20.1
8.945250	28.11	---	60.00	31.89	N	OFF	20.1
8.945250	---	21.92	50.00	28.08	N	OFF	20.1
12.655500	33.28	---	60.00	26.72	N	OFF	20.2
12.655500	---	28.16	50.00	21.84	N	OFF	20.2

EUT Information

Report NO :	0N2314
Test Mode :	Mode 2
Test Voltage :	120Vac/60Hz
Phase :	Line

Full Spectrum



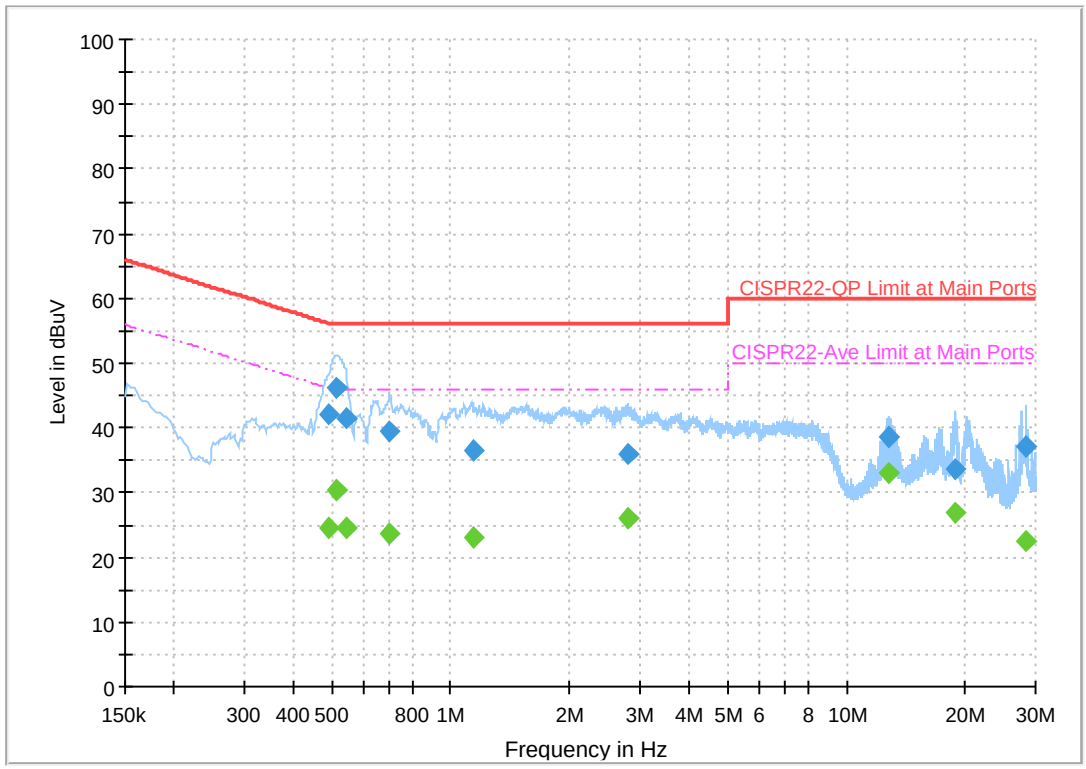
Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.492000	41.43	---	56.13	14.70	L1	OFF	20.0
0.492000	---	23.83	46.13	22.31	L1	OFF	20.0
0.514500	46.53	---	56.00	9.47	L1	OFF	20.0
0.514500	---	30.45	46.00	15.55	L1	OFF	20.0
0.543750	41.57	---	56.00	14.43	L1	OFF	20.0
0.543750	---	24.74	46.00	21.26	L1	OFF	20.0
0.694500	39.29	---	56.00	16.71	L1	OFF	20.0
0.694500	---	24.43	46.00	21.57	L1	OFF	20.0
1.131000	37.66	---	56.00	18.34	L1	OFF	20.0
1.131000	---	23.64	46.00	22.36	L1	OFF	20.0
2.778000	35.96	---	56.00	20.04	L1	OFF	20.1
2.778000	---	26.40	46.00	19.60	L1	OFF	20.1
12.754500	34.69	---	60.00	25.31	L1	OFF	20.2
12.754500	---	27.79	50.00	22.21	L1	OFF	20.2
18.836250	30.81	---	60.00	29.19	L1	OFF	20.2
18.836250	---	25.15	50.00	24.85	L1	OFF	20.2
28.286250	37.87	---	60.00	22.13	L1	OFF	20.3
28.286250	---	22.79	50.00	27.21	L1	OFF	20.3

EUT Information

Report NO :	0N2314
Test Mode :	Mode 2
Test Voltage :	120Vac/60Hz
Phase :	Neutral

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.489750	---	24.59	46.17	21.58	N	OFF	20.0
0.489750	41.98	---	56.17	14.19	N	OFF	20.0
0.514500	---	30.32	46.00	15.68	N	OFF	20.0
0.514500	46.07	---	56.00	9.93	N	OFF	20.0
0.543750	---	24.57	46.00	21.43	N	OFF	20.0
0.543750	41.63	---	56.00	14.37	N	OFF	20.0
0.701250	---	23.54	46.00	22.46	N	OFF	20.0
0.701250	39.36	---	56.00	16.64	N	OFF	20.0
1.135500	---	23.20	46.00	22.80	N	OFF	20.0
1.135500	36.58	---	56.00	19.42	N	OFF	20.0
2.809500	---	26.07	46.00	19.93	N	OFF	20.1
2.809500	36.06	---	56.00	19.94	N	OFF	20.1
12.761250	---	33.03	50.00	16.97	N	OFF	20.2
12.761250	38.50	---	60.00	21.50	N	OFF	20.2
18.726000	---	26.79	50.00	23.21	N	OFF	20.3
18.726000	33.74	---	60.00	26.26	N	OFF	20.3
28.286250	---	22.57	50.00	27.43	N	OFF	20.2
28.286250	37.28	---	60.00	22.72	N	OFF	20.2