



MEASUREMENT REPORT

FCC PART 15F

Ultra-Wideband Transmission Systems


FCC ID: XBG-UBA100

APPLICANT: AVALUE TECHNOLOGY INCORPORATION

Application Type: Certification

Product: UWB Anchor

Model No.: UB-A100

Trademark: 

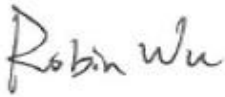
FCC Classification: UWB - Ultra Wideband Transmitter

FCC Rule Part(s): Part 15, Section 15.517 (Indoor UWB Systems)

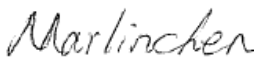
Test Procedure(s): ANSI C63.10-2013

Received Date: September 5, 2019

Test Date: February 14 ~ March 18, 2020

Reviewed By : 

 (Robin Wu)

Approved By : 

 (Marlin Chen)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANCI 63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2002RSU014-U1	Rev. 01	Initial Report	2020-03-19	

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§2.1033 General Information

Applicant	AVALUE TECHNOLOGY INCORPORATION
Applicant Address	7F, 228, Lian-cheng Road, Zhonghe Dist., New Taipei City 235, Taiwan
Manufacturer	AVALUE TECHNOLOGY INCORPORATION
Manufacturer Address	7F, 228, Lian-cheng Road, Zhonghe Dist., New Taipei City 235, Taiwan
Test Site	MRT Technology (Suzhou) Co., Ltd
Test Site Address	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.	893164
FCC Rule Part(s)	FCC CFR 47 Part 15, section 15.517
Test Device Serial No.	N/A <input type="checkbox"/> Production <input type="checkbox"/> Pre-Production <input checked="" type="checkbox"/> Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.


1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name	UWB Anchor
Model No.	UB-A100
Test Sample Number	#1
Trademark	
Supports Radios Spec.	WLAN: 2.4G: 802.11b/g/HT-20/HT-40 UWB: 4.5GHz
Operation Frequency	4.5GHz
Modulation	BPM-BPSK
Physical rate	6.8Mbps
Power Adapter	MFR: FSP GROUP INC. Model No: FSP060-DHAN3 Input: AC 100-240V~1.8A, 50-60Hz Output: DC 12V, 5.0A Cable Out: Non-shielding, 1.8m with Core*1

2.2. Test Mode

Test Mode	Mode 1: Transmit at 4500MHz
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2.3. Description of Test Software

The test utility software used during testing was “UWB Anchor Monitor Simplify”.

Power Setting

UWB Mode	Power Setting Final
UWB-TX	Default

2.4. Device Capabilities

This device contains the following capabilities:

UWB & WiFi 2.4GHz Device.

2.5. Test Configuration

The **UWB Anchor** was tested per the guidance of ANSI C63.10-2013.

2.6. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.7. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION of TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Procedures for measuring ultra-wideband devices (ANSI C63.10-2013).

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions were used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the **UWB Anchor** is **permanently attached**.
- There are provisions for connection to an external antenna.

Conclusion:

The **UWB Anchor** unit complies with the requirement of §15.203.

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	AVALUE TECHNOLOGY INCORPORATION	AEQQ2S-B0003	Dipole	4.2dBi

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Temperature/Humidity Meter	testo	608-H1	MRTSUE06404	1 year	2020/08/08

Radiated Disturbance - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2020/10/18
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2020/12/16
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Thermohygrometer	Testo	608-H1	MRTSUE06401	1 year	2020/08/08

Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software
EMI	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz ~ 1GHz: ± 4.18 dB 1GHz ~ 40GHz: ± 4.76 dB

7. TEST RESULT

7.1. Summary

Product Name: UWB Anchor

FCC Classification: UWB - Ultra Wideband Transmitter

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
FCC Section 15.517(b)	Operation Frequency	within the 3100-10,600 MHz	Conducted	Pass	Section 7.2
FCC Section 15.517(b)	Occupied Bandwidth	>500 MHz	Conducted	Pass	Section 7.2
FCC Section 15.209	Radiated Spurious Emissions	Refer to Section 7.3	Radiated	Pass	Section 7.3
FCC Section 15.517(c)	Radiated Spurious Emissions above 960 MHz	Refer to Section 7.4		Pass	Section 7.4
FCC Section 15.517 (d)	Radiated Spurious Emissions in GPS Band	Refer to Section 7.4		Pass	Section 7.4
FCC Section 15.517(e)	Peak Power within 50 MHz Bandwidth	Refer to Section 7.5		Pass	Section 7.5
FCC Section 15.207	AC Conducted Emission	Refer to Section 7.6	Conducted	Pass	Section 7.6

Notes:

- Determining compliance is based on the test results met the regulation limits or requirements declared by clients, and the test results don't take into account the value of measurement uncertainty.
- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

7.2. Occupied Bandwidth and Operation Frequency Range Measurement

7.2.1. Test Limit

The -10 dB bandwidth of a device operating under the provisions of this section must be contained within the 3100-10,600 MHz band under all conditions and the fundamental emission shall be at least 500 MHz.

7.2.2. Test Procedure used

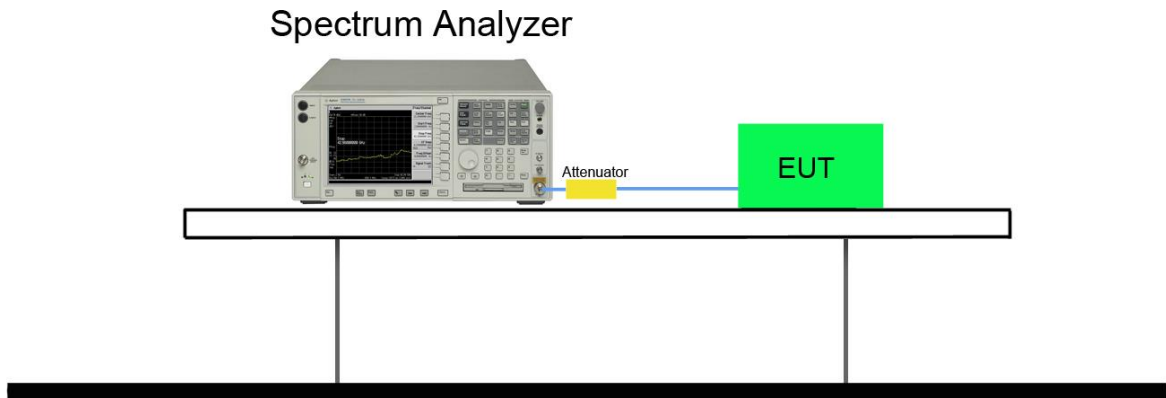
ANSI C63.10-2013, section 6.8 & 10.1

7.2.3. Test Setting

The frequency at which the maximum power level is measured with the peak detector is designated f_M . The peak power measurements shall be made using a spectrum analyzer or EMI receiver with a 1 MHz resolution bandwidth and a video bandwidth of 1 MHz or greater. The instrument shall be set to peak detection using the maximum-hold trace mode. The outermost 1 MHz segments above and below f_M , where the peak power falls by 10 dB relative to the level at f_M , are designated as f_H and f_L , respectively:

- a) For the lowest frequency bound f_L , the emission is searched from a frequency lower than f_M that has, by inspection, a peak power much lower than 10 dB less than the power at f_M and increased toward f_M until the peak power indicates 10 dB less than the power at f_M . The frequency of that segment is recorded.
- b) This process is repeated for the highest frequency bound f_H , beginning at a frequency higher than f_M that has, by inspection, a peak power much lower than 10 dB below the power at f_M . The frequency of that segment is recorded.
- c) The two recorded frequencies represent the highest f_H and lowest f_L bounds of the UWB transmission, and the -10 dB bandwidth ($B - 10$) is defined as $(f_H - f_L)$. The center frequency (f_c) is mathematically determined from $(f_H + f_L) / 2$.
- d) The fractional bandwidth is defined as $2(f_H - f_L) / (f_H + f_L)$.
- e) Determine whether the -10 dB bandwidth $(f_H - f_L)$ is ≥ 500 MHz, or whether the fractional bandwidth $2(f_H - f_L) / (f_H + f_L)$ is ≥ 0.2 .

7.2.4. Test Setup

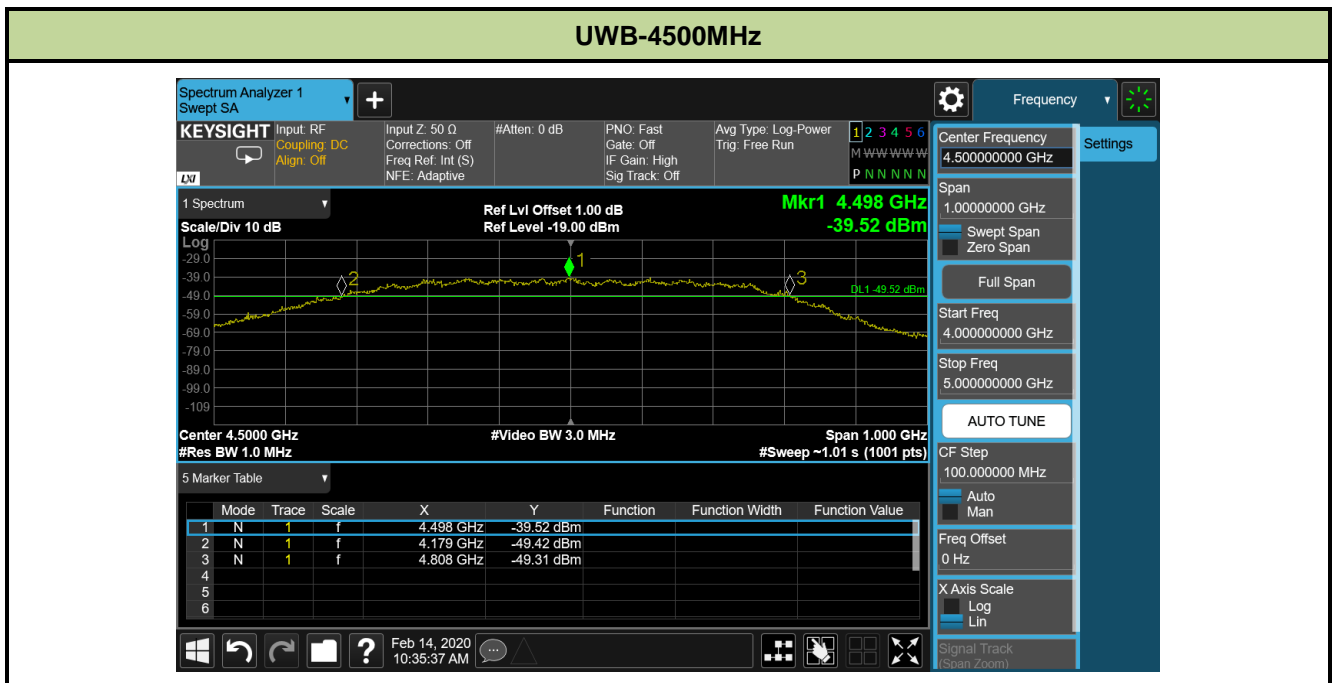


7.2.5. Test Result

Product	UWB Anchor	Temperature	25°C
Test Engineer	Milo	Relative Humidity	60%
Test Site	TR3	Test Date	2020/2/14
Test Item	-10dB Occupied Bandwidth & Operation Frequency Range		

Test Mode	Frequency Bounds	Frequency (MHz)	Limit (MHz)	Result
UWB	f_M	4498.00	N/A	N/A
	f_L	4179.00	> 3100	Pass
	f_H	4808.00	< 10.600	Pass

Test Mode	Frequency (MHz)	10dB Bandwidth (MHz)	Limit (MHz)	Result
UWB	4500	629.00	≥ 500	Pass



7.3. Radiated Spurious Emission Measurements

7.3.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.3.2. Test Procedure Used

ANSI C63.10-2013, sections 10.2, 10.3

7.3.3. Test Setting

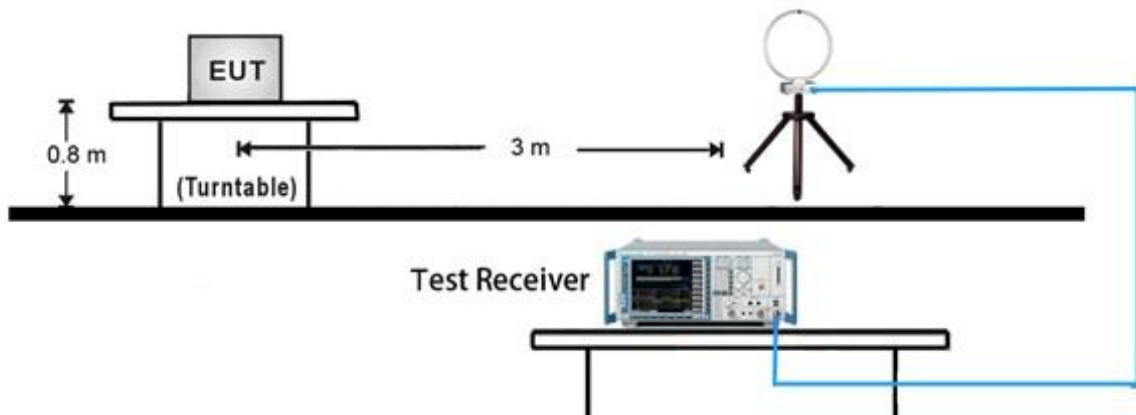
1. RBW = as specified in Table 1
2. VBW \geq 3 RBW
3. Sweep Detector = peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize and record the test result with Table 1 measurement detector.

Table 1 - RBW as a function of frequency

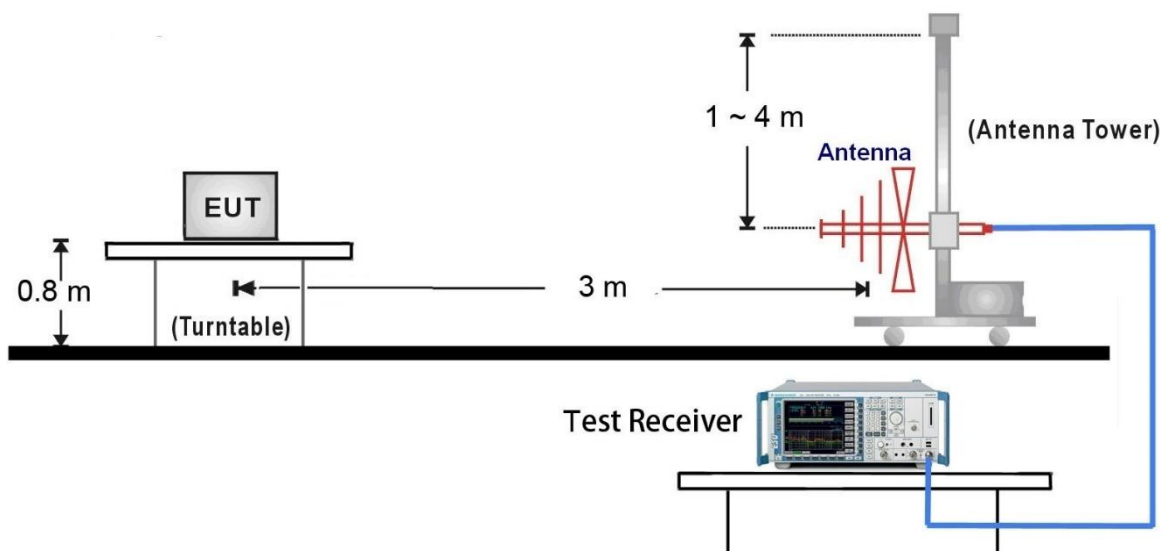
Frequency	RBW	Measurement Detector
9 ~ 150 kHz	200 ~ 300 Hz	Peak or CISPR quasi-peak
0.15 ~ 30 MHz	9 ~ 10 kHz	Peak or CISPR quasi-peak
30 ~ 1000 MHz	100 ~ 120 kHz	CISPR quasi-peak
Above 1000 MHz	1 MHz	Peak or Average

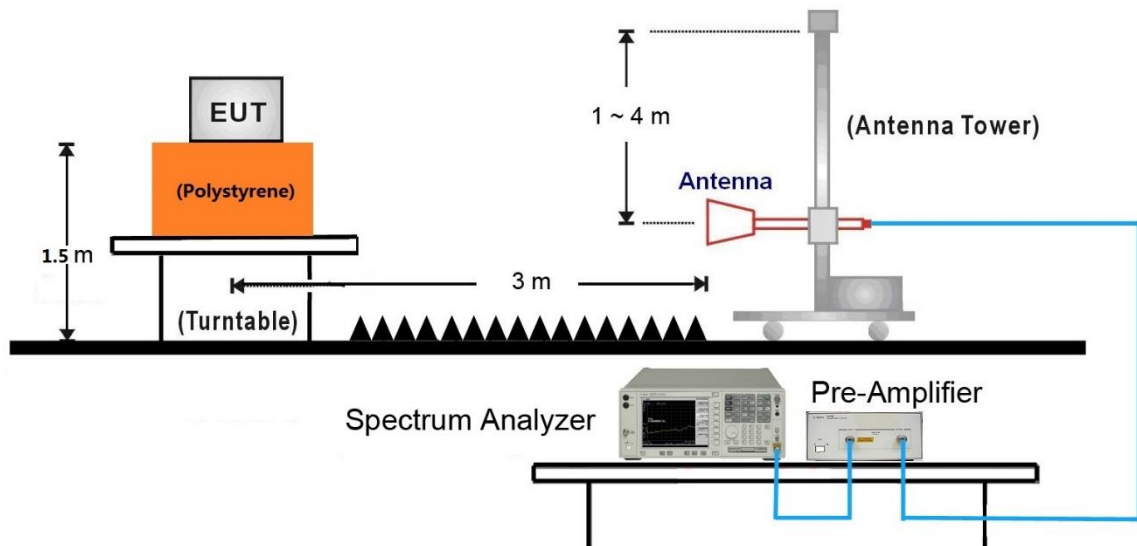
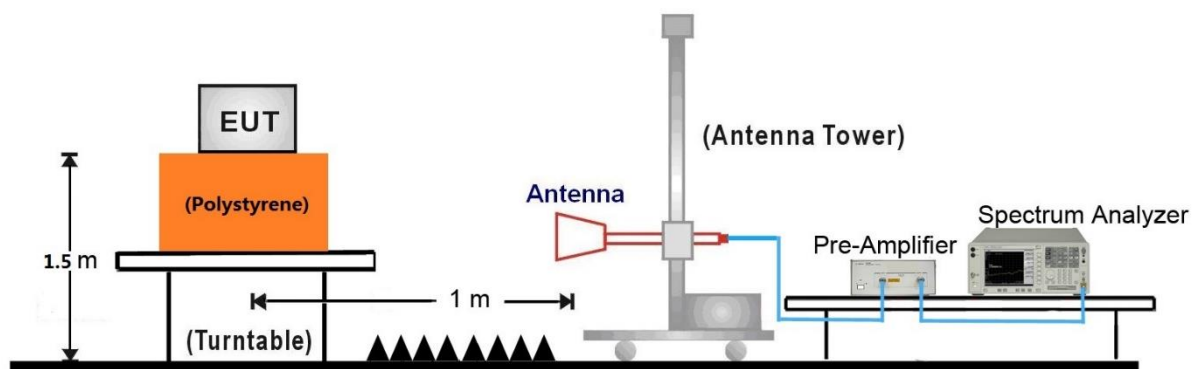
7.3.4. Test Setup

9kHz ~ 30MHz Test Setup:



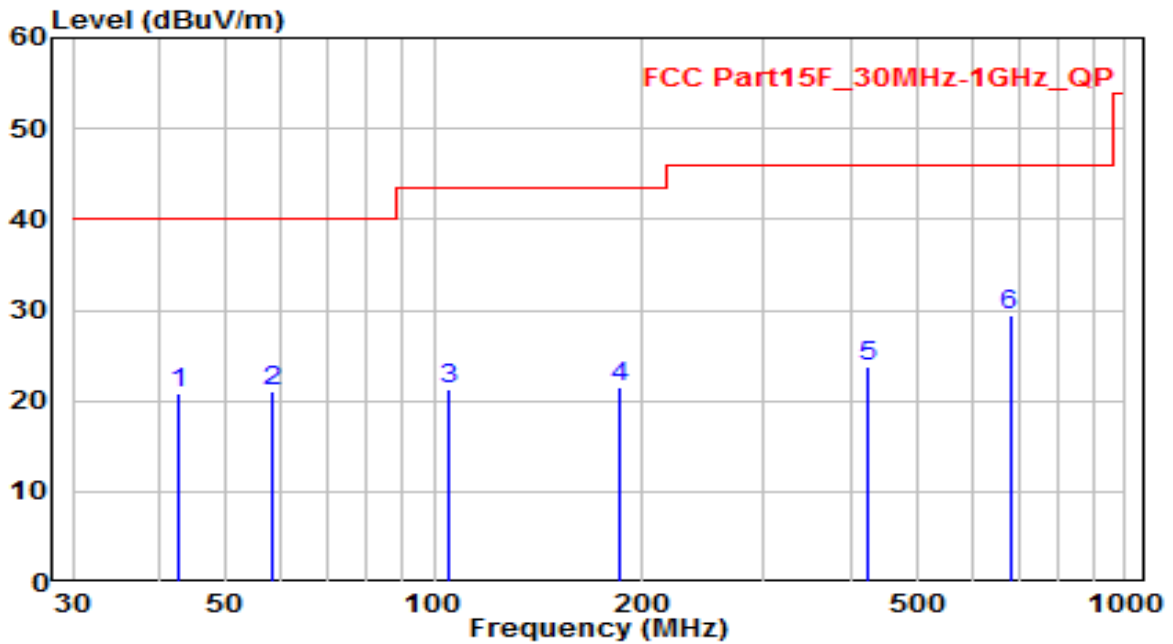
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:18GHz ~ 40GHz Test Setup:

7.3.5. Test Result

EUT	UWB Anchor	Date of Test	2020-02-25
Factor	VULB 9162	Temp. / Humidity	21°C /44%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

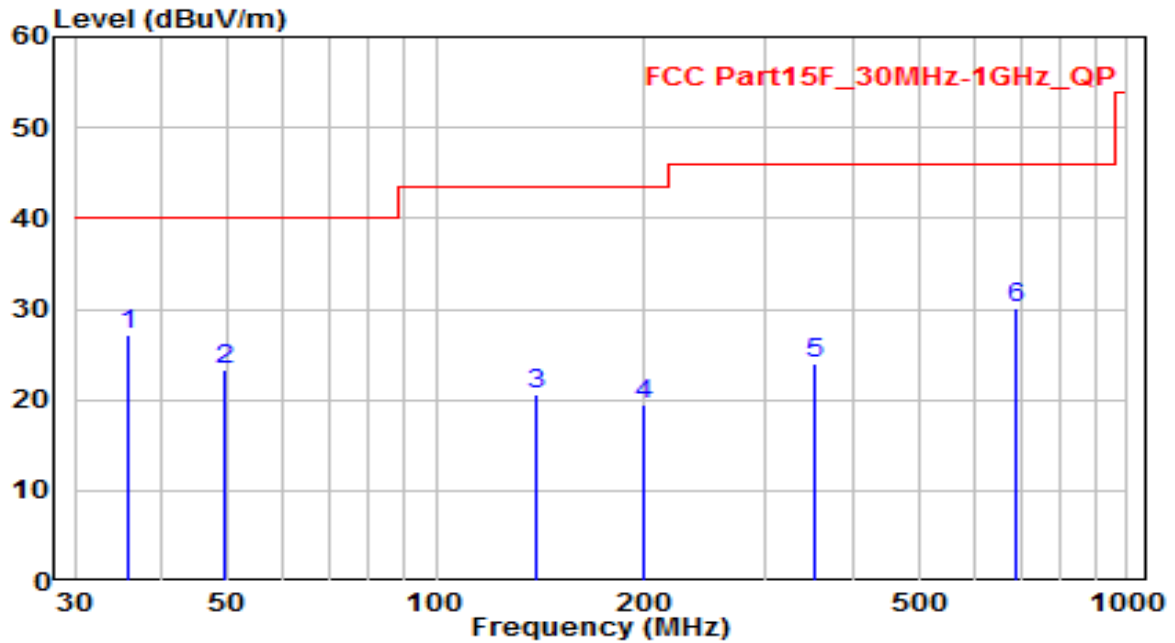


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	42.610	-0.15	21.05	20.90	-19.10	40.00	180	85	QP
2	58.130	0.59	20.40	20.99	-19.01	40.00	100	180	QP
3	104.690	2.05	19.23	21.27	-22.23	43.50	255	100	QP
4	186.170	3.38	18.17	21.54	-21.96	43.50	100	150	QP
5	424.790	-0.67	24.52	23.85	-22.15	46.00	345	120	QP
6	* 680.870	0.55	28.87	29.42	-16.58	46.00	200	310	QP

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-25
Factor	VULB 9162	Temp. / Humidity	21°C /44%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz



No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)	
1	*	35.820	7.94	19.29	27.23	-12.77	40.00	150	320	QP
2		49.400	1.70	21.62	23.32	-16.68	40.00	165	200	QP
3		139.610	5.18	15.45	20.63	-22.87	43.50	100	105	QP
4		199.750	0.56	18.94	19.50	-24.00	43.50	200	-20	QP
5		352.040	0.47	23.46	23.93	-22.07	46.00	300	205	QP
6		688.630	1.13	29.01	30.15	-15.85	46.00	145	160	QP

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

7.4. Radiated Spurious Emission Measurements Above 960MHz

7.4.1. Test Limit

Radiated emission average limits above 960MHz			
Frequency [MHz]	RBW [kHz]	EIRP of spurious [dBm]	Equivalent field strength limit @ 1m [dB(μV/m)]
960 - 1610	1000	-75.3	29.4
1610 - 1990	1000	-53.3	51.4
1990 - 3100	1000	-51.3	53.4
3100 - 10600	1000	-41.3	63.4
Above 10600	1000	-51.3	53.4
Radiated emission average limits in GPS Band			
1164 - 1240	≥ 1	-85.3	19.4
1559 - 1610	≥ 1	-85.3	19.4

Note 1: Because the limits are so low, some bands may have been scanned at a distance closer than 1 meter. If any emissions were detected in these bands, final measurements were made at distance of 1 meter or greater. The actual distance for final measurement was indicated in the measurement data.

Note 2: Equivalent field strength limit @ 1m = EIRP of spurious[dBm] + 95.2 + 20*log(3m/1m)

7.4.2. Test Procedure Used

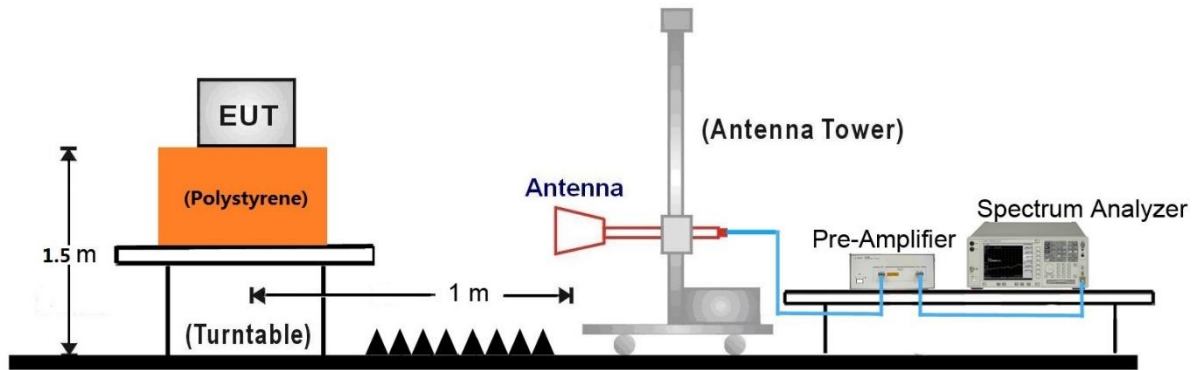
ANSI C63.10-2013, sections 10.2, 10.3

7.4.3. Test Setting

The rms detector is selected, make the trace to max hold and the sweep time and number of measurement bins are set to provide the requisite 1 ms integration time. In this test, the RBW may be reduced to a minimum of 1 kHz (30 kHz is recommended) to enhance the resolution of the individual spectral lines. A ratio of VBW / RBW > 3 shall be maintained when possible.

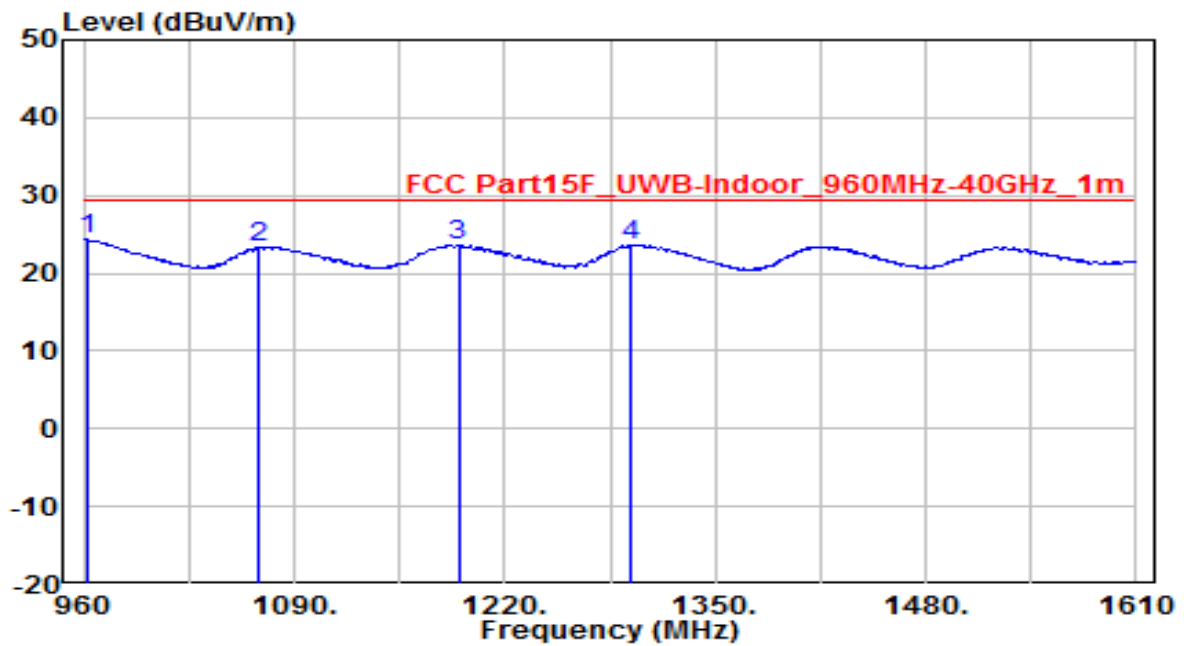
7.4.4. Test Setup

960MHz ~ 40GHz Test Setup:



7.4.5. Test Result

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

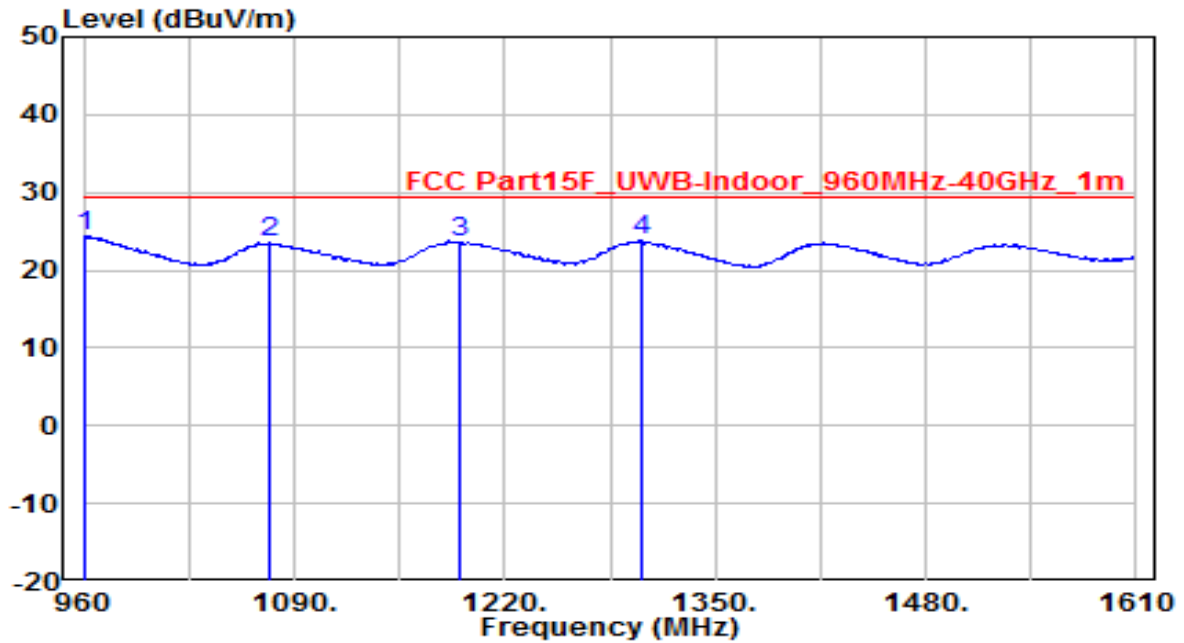


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 962.600	32.95	-8.68	24.27	-5.13	29.40	150	360	RMS
2	1067.250	32.07	-8.74	23.32	-6.08	29.40	150	360	RMS
3	1191.400	31.34	-7.75	23.58	-5.82	29.40	150	360	RMS
4	1297.350	30.52	-6.95	23.57	-5.83	29.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

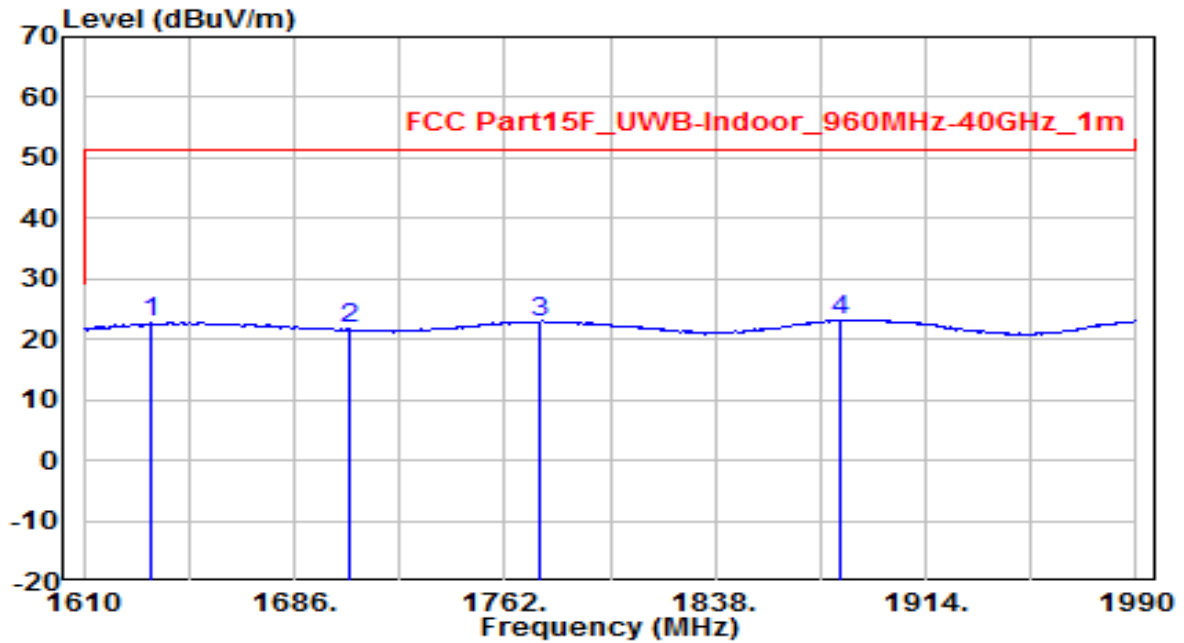


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 961.300	33.01	-8.67	24.33	-5.07	29.40	150	360	RMS
2	1074.400	32.17	-8.71	23.46	-5.94	29.40	150	360	RMS
3	1192.050	31.44	-7.74	23.70	-5.70	29.40	150	360	RMS
4	1303.850	30.66	-6.93	23.73	-5.67	29.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

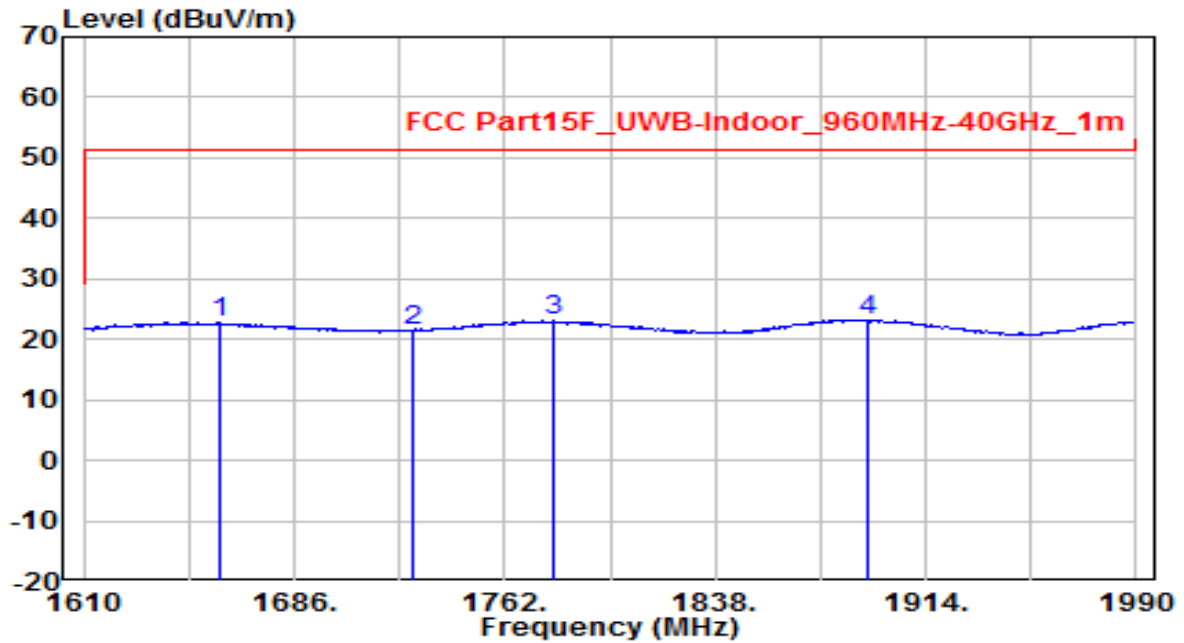


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1634.650	29.64	-6.98	22.65	-28.75	51.40	150	360	RMS
2	1705.720	28.63	-6.84	21.78	-29.62	51.40	150	360	RMS
3	1774.215	29.49	-6.55	22.93	-28.47	51.40	150	360	RMS
4	* 1883.395	29.24	-5.98	23.26	-28.14	51.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

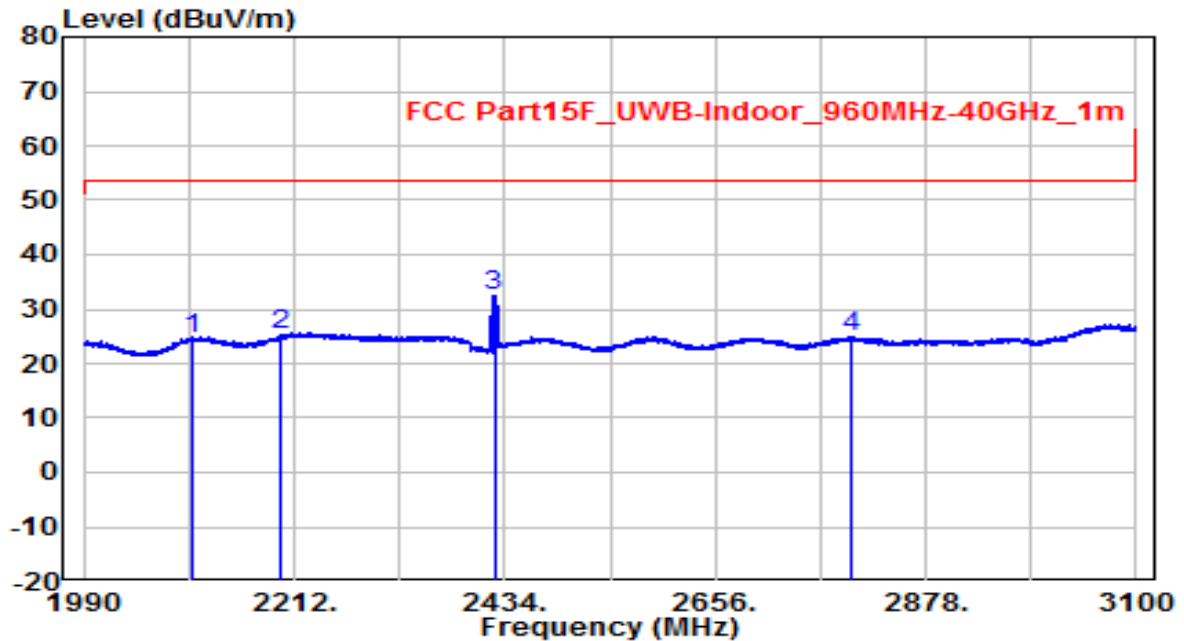


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1658.855	29.59	-6.94	22.65	-28.75	51.40	150	360	RMS
2	1728.380	28.34	-6.75	21.59	-29.81	51.40	150	360	RMS
3	1779.365	29.51	-6.53	22.98	-28.42	51.40	150	360	RMS
4	* 1892.665	29.19	-5.92	23.27	-28.13	51.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

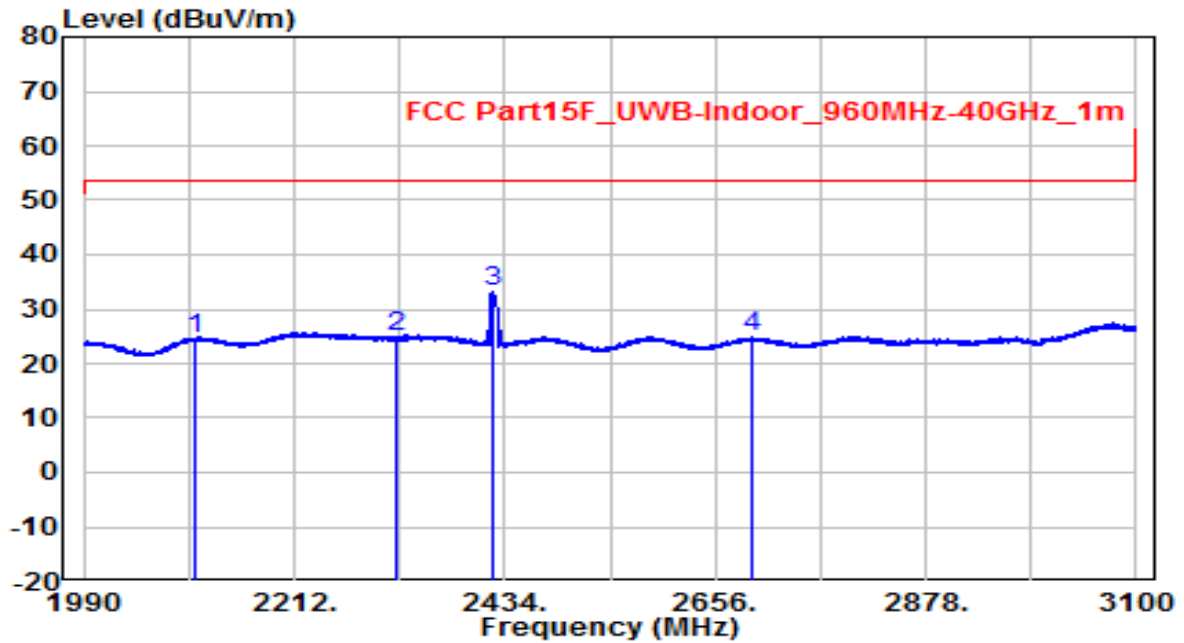


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	2103.997	28.74	-4.11	24.63	-28.77	53.40	150	360	RMS
2	2197.792	28.34	-2.98	25.37	-28.03	53.40	150	360	RMS
3	* 2422.900	35.74	-3.24	32.50	-20.90	53.40	150	360	RMS
4	2798.413	28.28	-3.42	24.86	-28.54	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

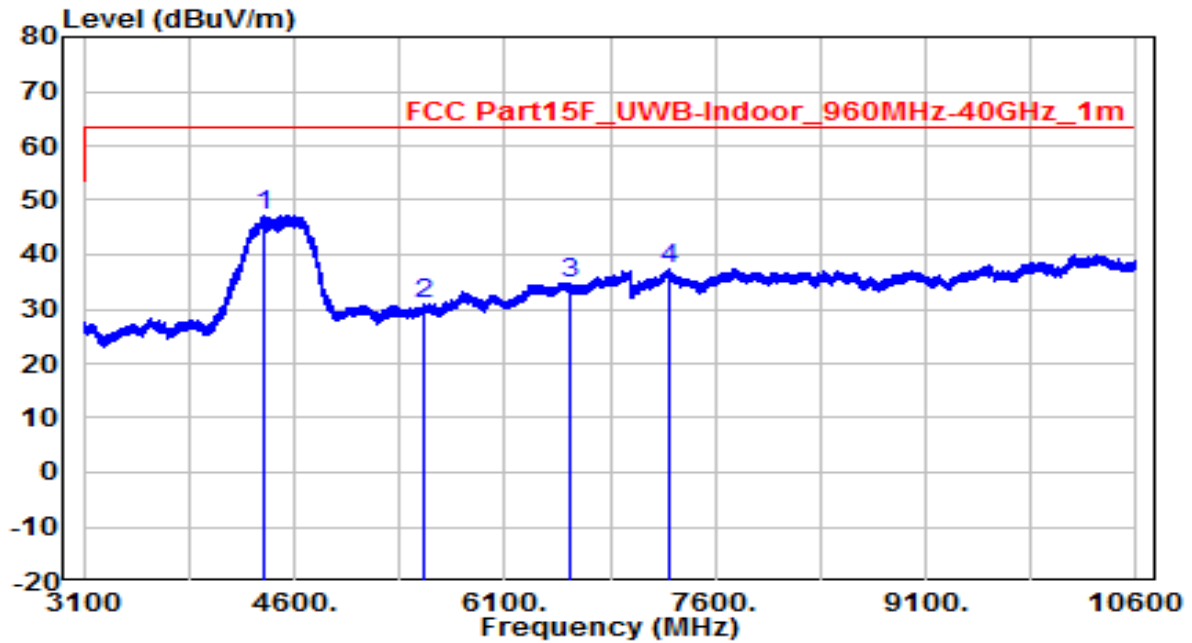


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	2106.772	28.78	-4.07	24.71	-28.69	53.40	150	360	RMS
2	2318.449	28.00	-3.04	24.96	-28.44	53.40	150	360	RMS
3	* 2421.013	36.26	-3.24	33.03	-20.37	53.40	150	360	RMS
4	2694.961	28.38	-3.44	24.94	-28.46	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

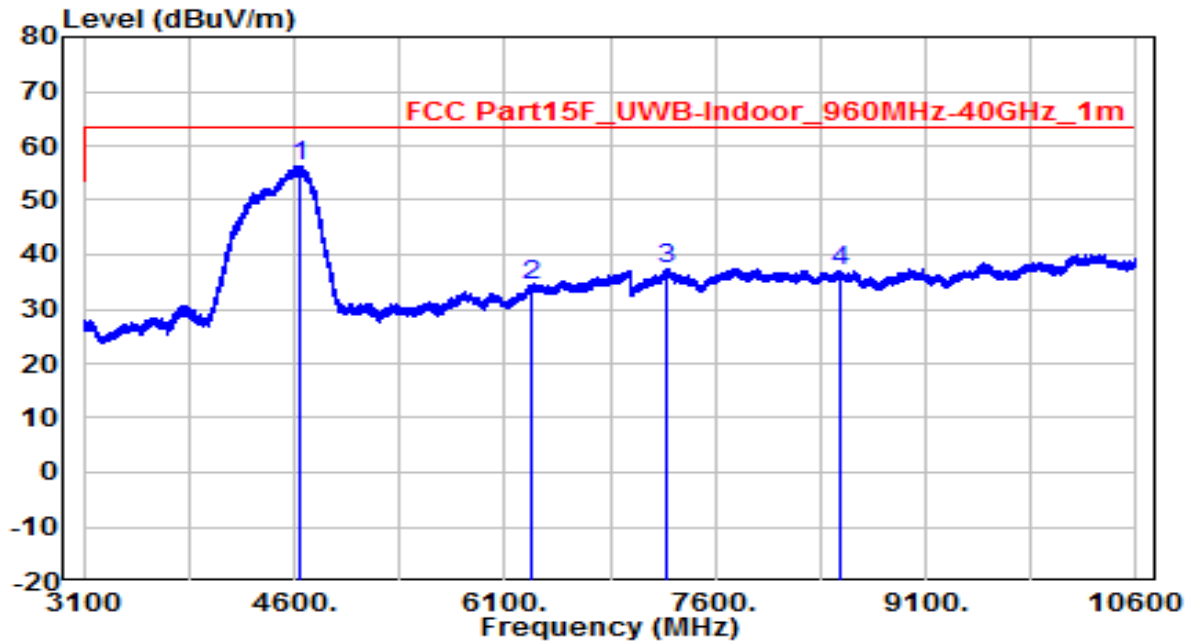


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 4393.984	45.73	1.29	47.02	-16.38	63.40	150	360	RMS
2	5516.172	27.20	3.56	30.77	-32.63	63.40	150	360	RMS
3	6562.656	26.71	8.06	34.77	-28.63	63.40	150	360	RMS
4	7273.047	26.00	11.19	37.19	-26.21	63.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

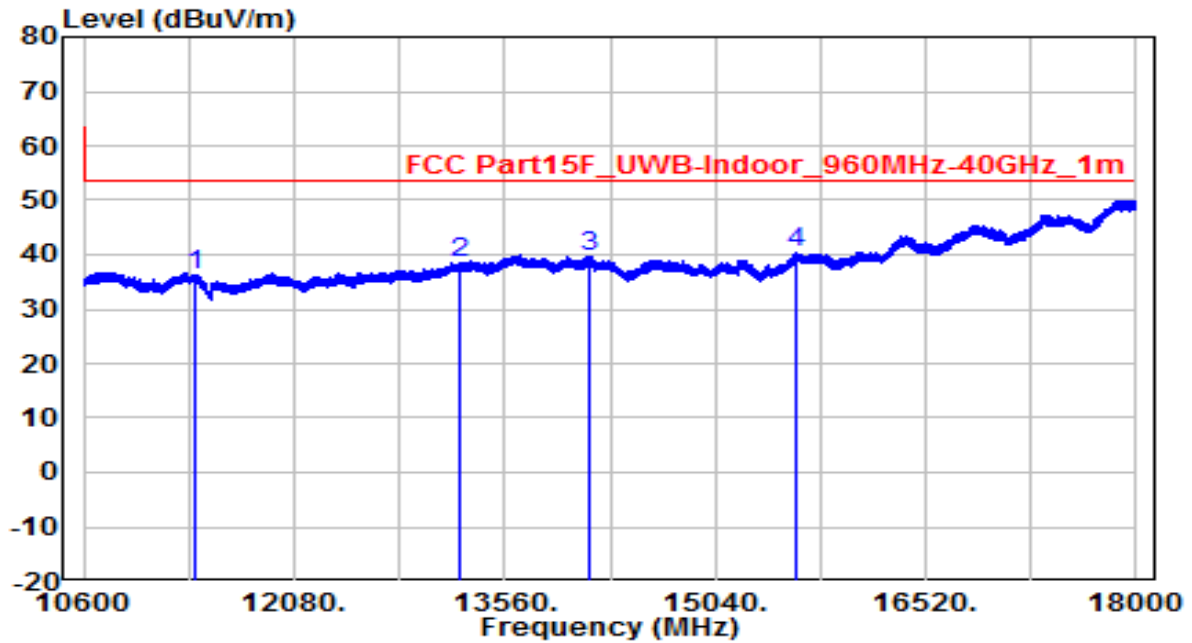


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)	
1	*	4643.828	53.88	2.22	56.11	-7.29	63.40	150	360	RMS
2		6287.500	27.65	6.86	34.50	-28.90	63.40	150	360	RMS
3		7250.547	26.09	11.27	37.36	-26.04	63.40	150	360	RMS
4		8484.766	25.39	11.64	37.03	-26.37	63.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

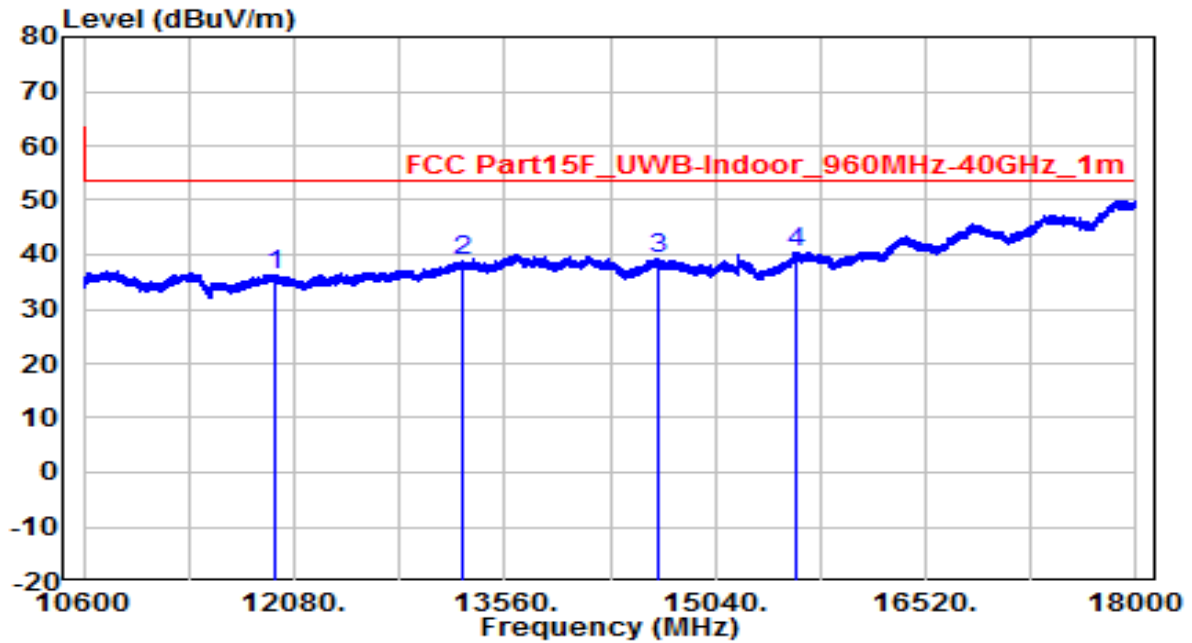


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	11383.470	19.32	17.08	36.40	-17.00	53.40	150	360	RMS
2	13237.870	18.31	20.16	38.47	-14.93	53.40	150	360	RMS
3	14149.690	18.61	20.85	39.46	-13.94	53.40	150	360	RMS
4	* 15605.870	20.44	19.80	40.24	-13.16	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

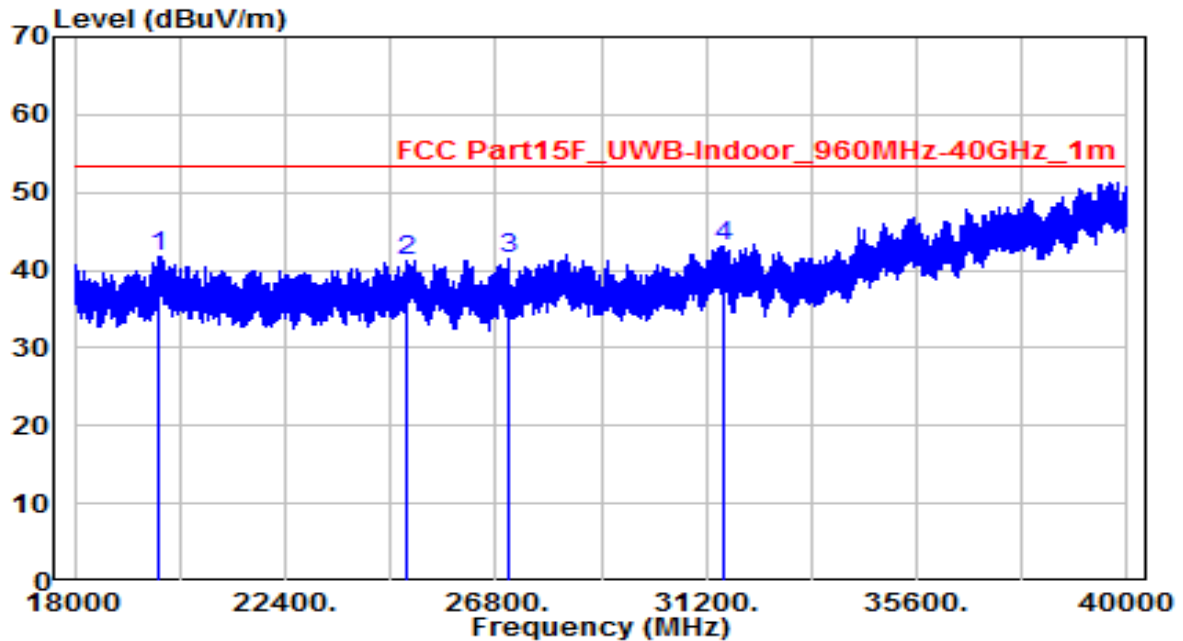


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	11936.390	19.32	16.98	36.30	-17.10	53.40	150	360	RMS
2	13270.470	18.38	20.34	38.73	-14.67	53.40	150	360	RMS
3	14640.860	19.33	19.85	39.18	-14.22	53.40	150	360	RMS
4	* 15614.660	20.63	19.80	40.43	-12.97	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9170_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

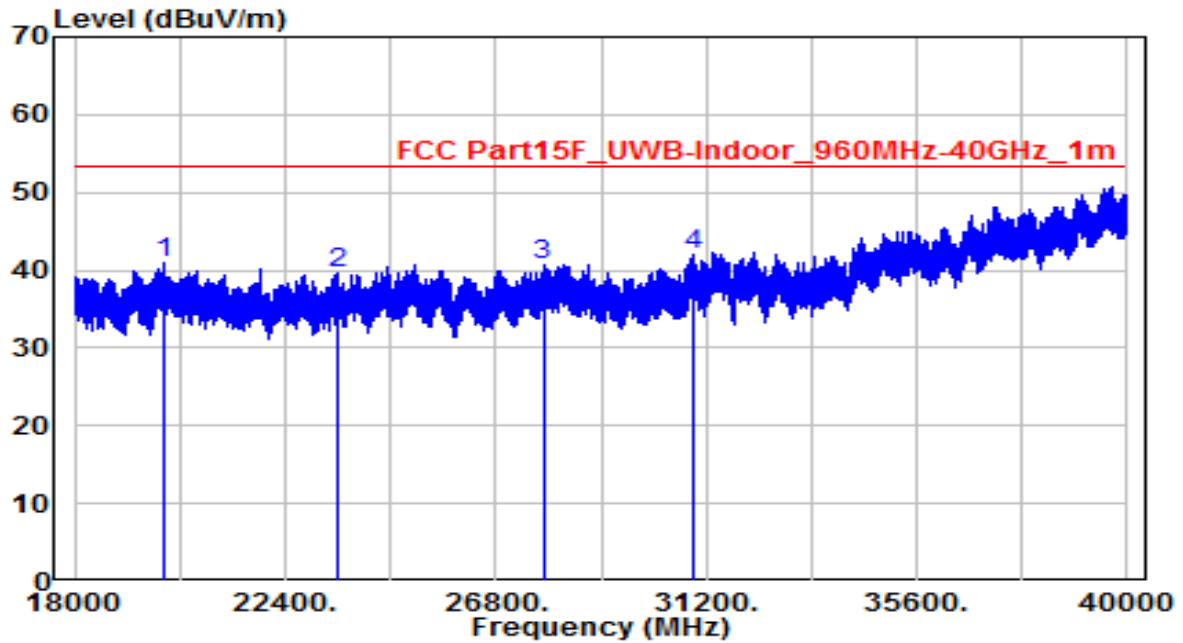


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	19752.440	29.76	11.97	41.73	-11.67	53.40	150	360	RMS
2	24936.190	28.52	12.73	41.26	-12.14	53.40	150	360	RMS
3	27059.880	28.29	13.08	41.37	-12.03	53.40	150	360	RMS
4	* 31570.560	26.49	16.50	43.00	-10.40	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9170_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

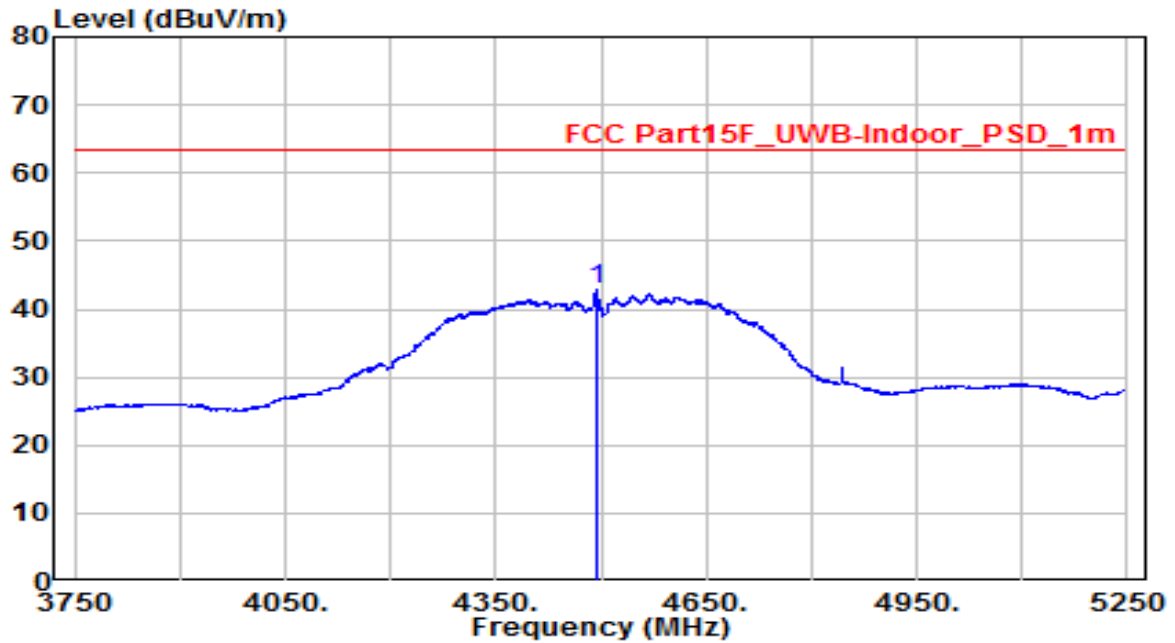


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	19890.630	28.83	12.00	40.83	-12.57	53.40	150	360	RMS
2	23506.190	26.84	12.67	39.51	-13.89	53.40	150	360	RMS
3	27790.690	26.83	13.88	40.71	-12.69	53.40	150	360	RMS
4	* 30919.500	26.83	15.25	42.08	-11.32	53.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

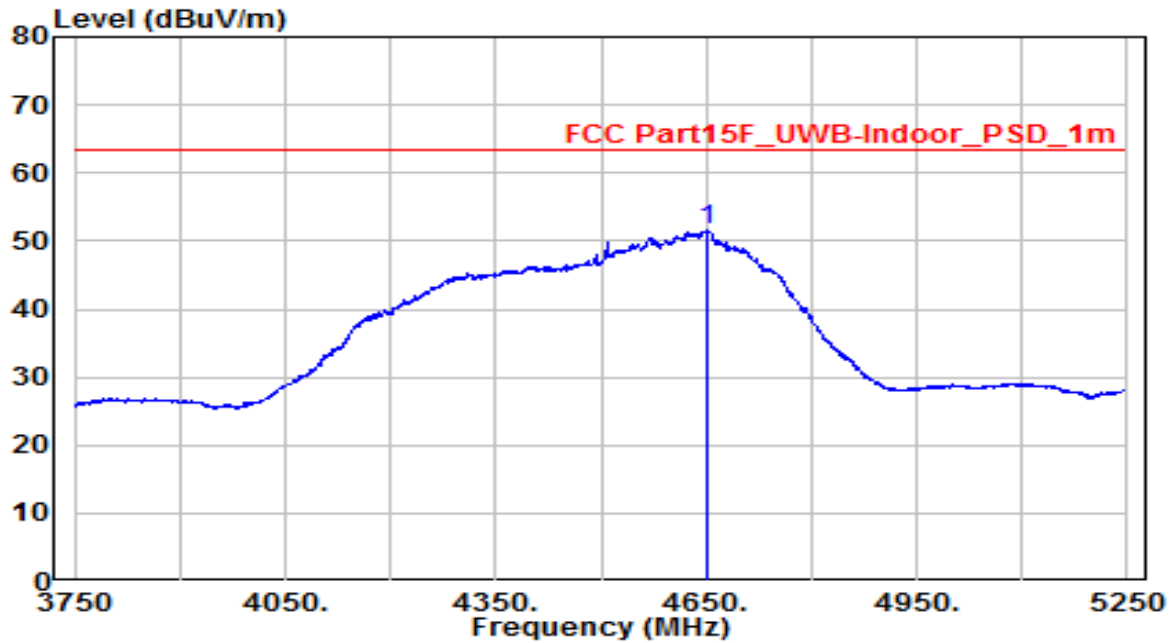


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)	
1	*	4493.000	41.09	1.64	42.73	-20.67	63.40	150	146	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

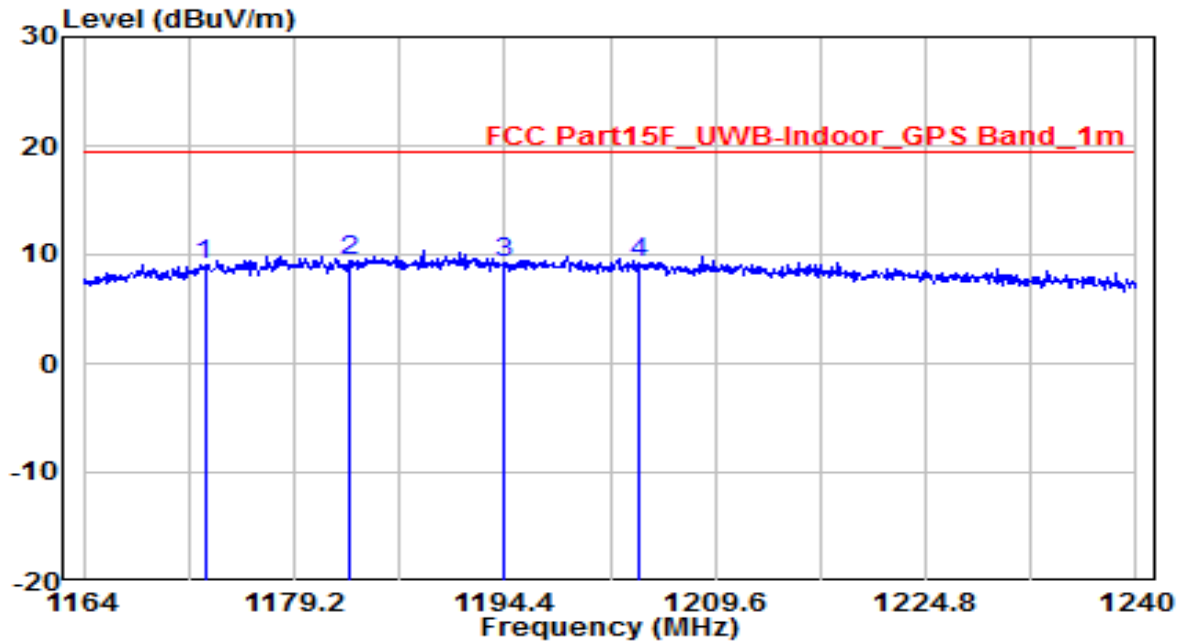


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	49.26	2.26	51.52	-11.88	63.40	150	98	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

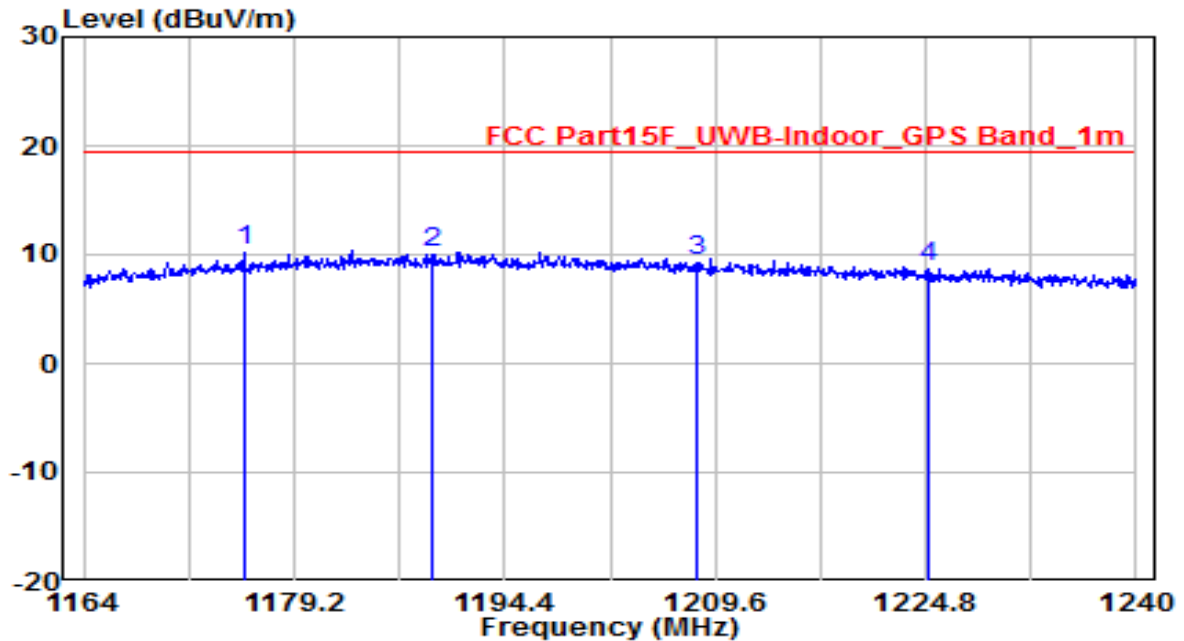


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1172.740	17.01	-7.95	9.06	-10.34	19.40	150	360	RMS
2	* 1183.228	17.35	-7.84	9.51	-9.89	19.40	150	360	RMS
3	1194.248	17.02	-7.72	9.29	-10.11	19.40	150	360	RMS
4	1204.128	16.83	-7.62	9.21	-10.19	19.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

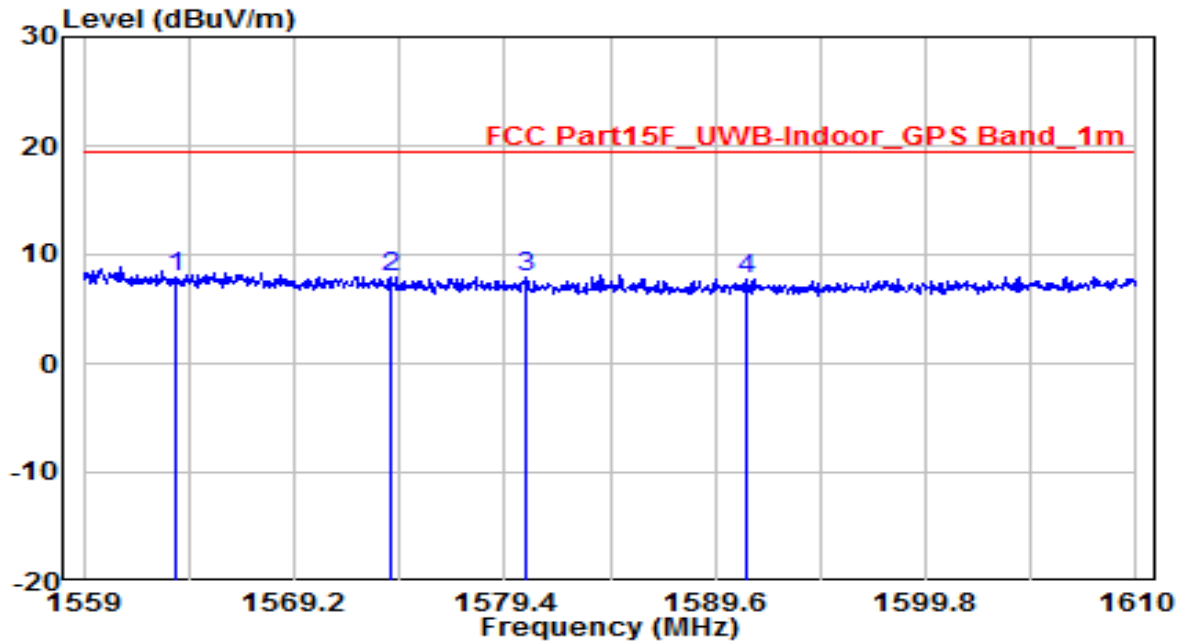


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 1175.615	18.37	-7.92	10.45	-8.95	19.40	150	360	RMS
2	1189.124	17.92	-7.78	10.14	-9.26	19.40	150	360	RMS
3	1208.230	16.93	-7.58	9.35	-10.05	19.40	150	360	RMS
4	1225.005	16.22	-7.40	8.82	-10.58	19.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

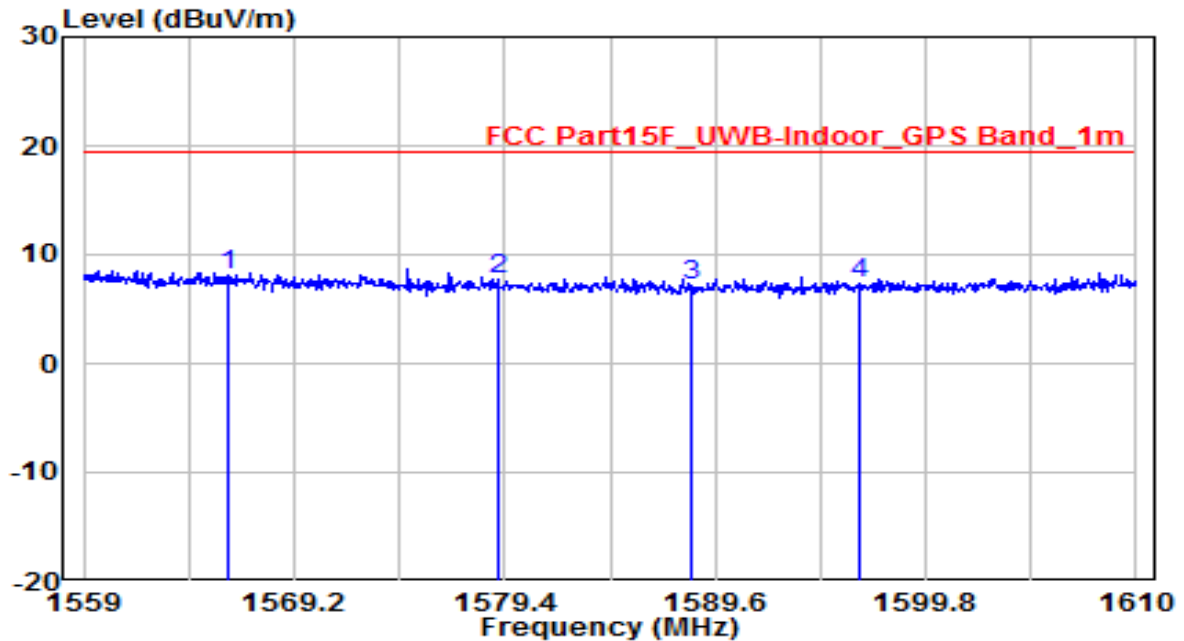


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)	
1	*	1563.437	14.97	-7.02	7.95	-11.45	19.40	150	360	RMS
2		1573.892	14.93	-7.03	7.90	-11.50	19.40	150	360	RMS
3		1580.369	14.92	-7.03	7.89	-11.51	19.40	150	360	RMS
4		1591.079	14.68	-7.03	7.65	-11.75	19.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz



No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 1565.987	15.15	-7.03	8.12	-11.28	19.40	150	360	RMS
2	1579.043	14.72	-7.03	7.69	-11.71	19.40	150	360	RMS
3	1588.427	14.27	-7.03	7.23	-12.17	19.40	150	360	RMS
4	1596.587	14.42	-7.04	7.38	-12.02	19.40	150	360	RMS

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Preamplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

7.5. Peak Power within 50 MHz bandwidth

7.5.1. Test Limit

This test was performed to measure effective radiated power emanated by transmitter at carrier frequency. Specification test limits are given in the following table.

Peak Power Limit (EIRP)

Assigned frequency band (MHz)	EIRP in 50MHz BW (dBm)	Equivalent field strength limit in MHz @ 1m (dBμV/m)
FCC section 15.517(e)		
3100 ~ 10,600	0	80.3

Note 1: Because the limits are so low, some bands may have been scanned at a distance closer than 1 meter. If any emissions were detected in these bands, final measurements were made at distance of 1 meter or greater. The actual distance for final measurement was indicated in the measurement data.

Note 2: Peak power limit at 1m = $0 + 95.2 + 20 \cdot \log(3\text{MHz}/50\text{MHz}) + 20 \cdot \log(3\text{m}/1\text{m}) = 80.3\text{dB}\mu\text{V}/\text{m}$

7.5.2. Test Procedure Used

ANSI C63.10-2013, Section 10.3

7.5.3. Test Setting

Bandwidth conversion of peak power measurements

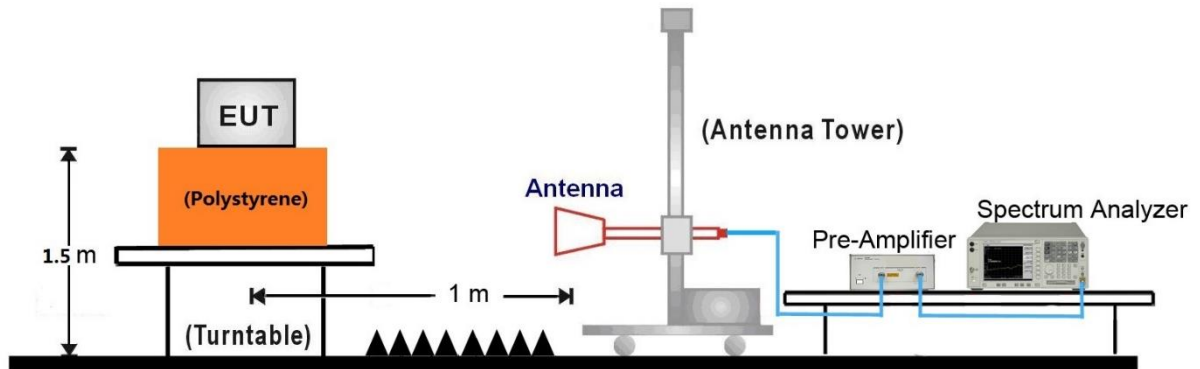
It is acceptable to employ an RBW(1MHz) of less than 50 MHz (but no less than 1 MHz) when performing the required peak power measurements. When this approach is employed, the peak emissions EIRP limit (0 dBm / 50 MHz) is converted to a limit commensurate with the RBW by employing a $[20 \log(\text{RBW}/50 \text{ MHz})]$ relationship. For example, the peak power limit could be expressed in a 3 MHz bandwidth as follows in Equation:

$$EIRP = 20 \log(3\text{MHz}/50\text{MHz}) \text{ dBm} = (-24\text{dB}) = 24\text{dBm}$$

When a resolution bandwidth of less than 50 MHz is used, this measurement shall be performed over a 50 MHz span centered on the frequency associated with the highest detected average emission level.

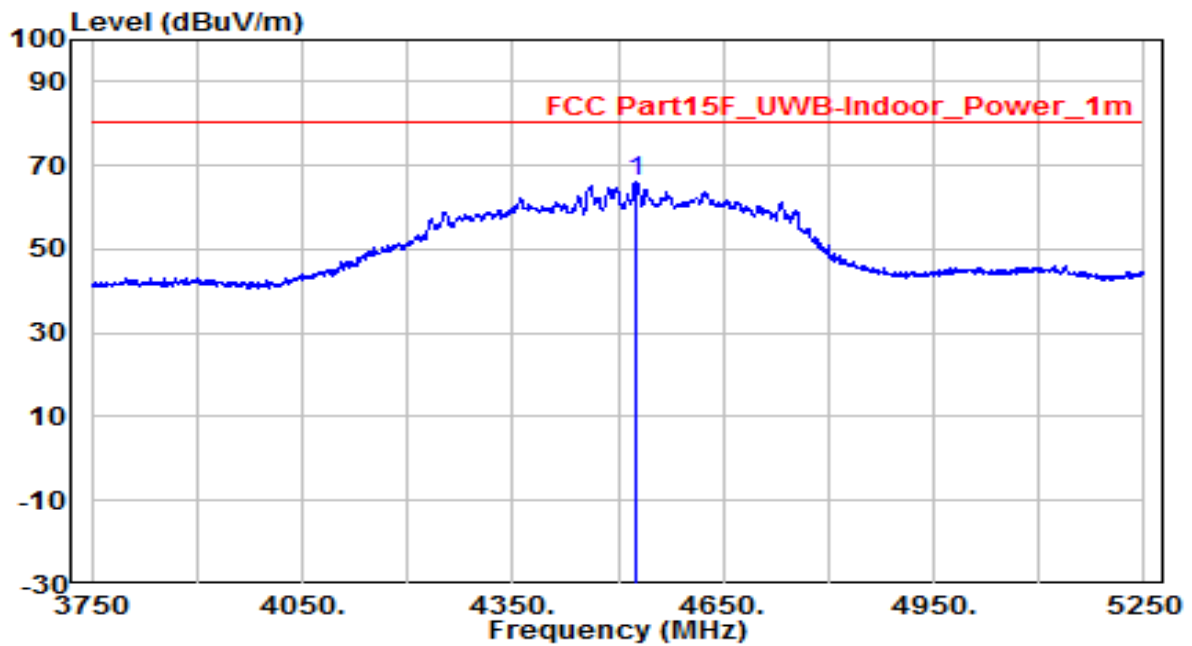
7.5.4. Test Setup

1GHz ~ 40GHz Test Setup:



7.5.5. Test Result

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Horizontal	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

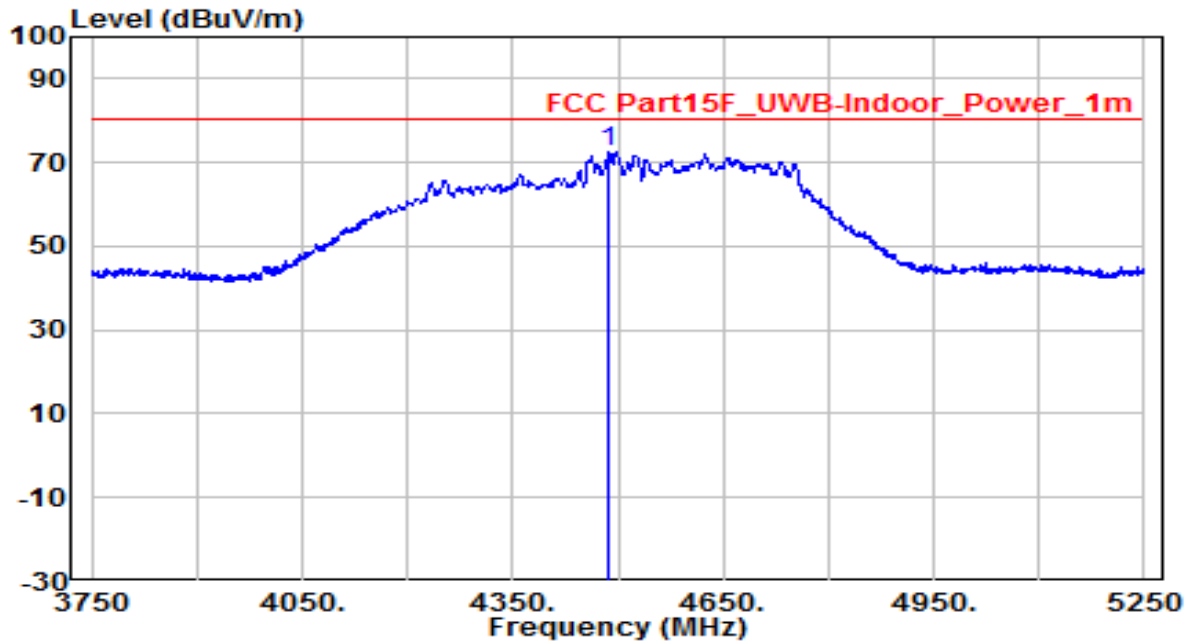


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 4524.000	64.14	1.78	65.92	-14.38	80.30	150	146	Peak

Note:

- "*", means this data is the worst emission level.
- C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
- Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- EIRP= E-field -80.3 = -14.4dBm

EUT	UWB Anchor	Date of Test	2020-02-24
Factor	BBHA 9120D_1m	Temp. / Humidity	20°C /42%
Polarity	Vertical	Site / Test Engineer	AC1 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz



No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	70.66	1.64	72.30	-8.00	80.30	150	98	Peak

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB) – Pre-amplifier(dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. EIRP= E-field -80.3 = -8dBm

7.6. AC Conducted Emissions Measurement

7.6.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

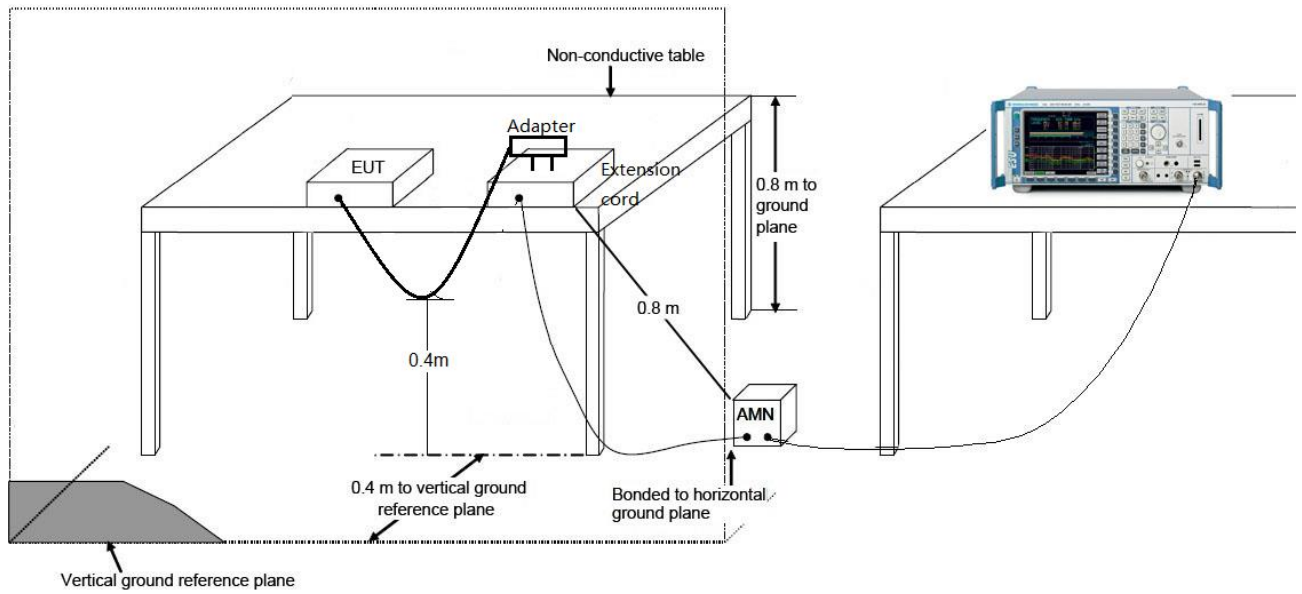
7.6.2. Test Procedure Used

FCC Part 15 Subpart C Paragraph 15.207

7.6.3. Test Setting

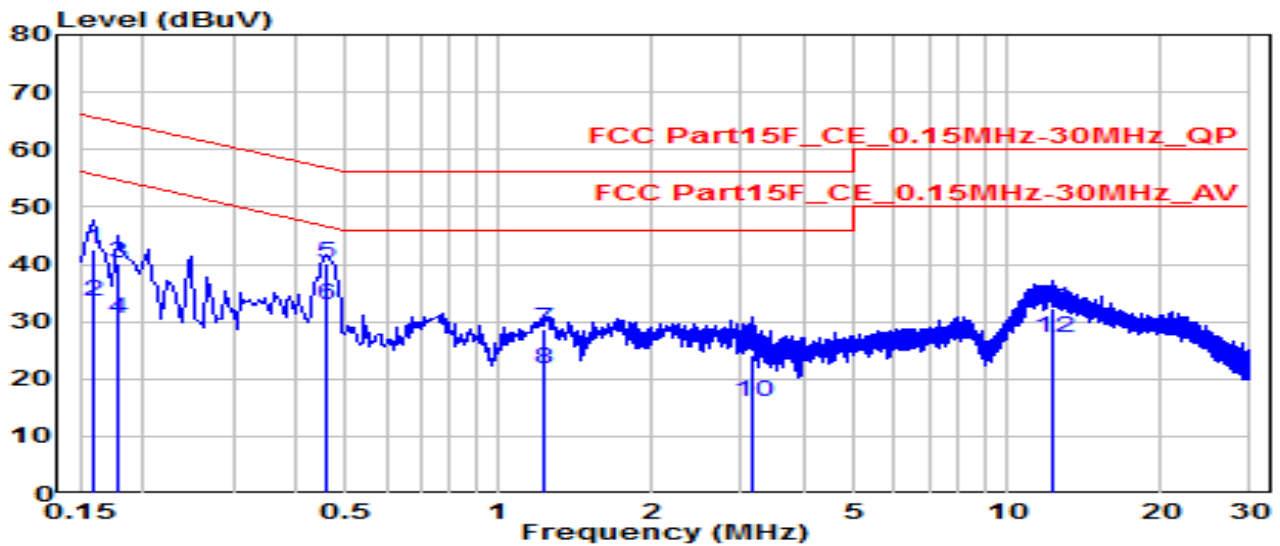
The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

7.6.4. Test Setup



7.6.5. Test Result

EUT	UWB Anchor	Date of Test	2020-02-25
Factor	CE_ENV216-L1 (Filter ON)	Temp. / Humidity	20°C /52%
Polarity	Line	Site / Test Engineer	SR2 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

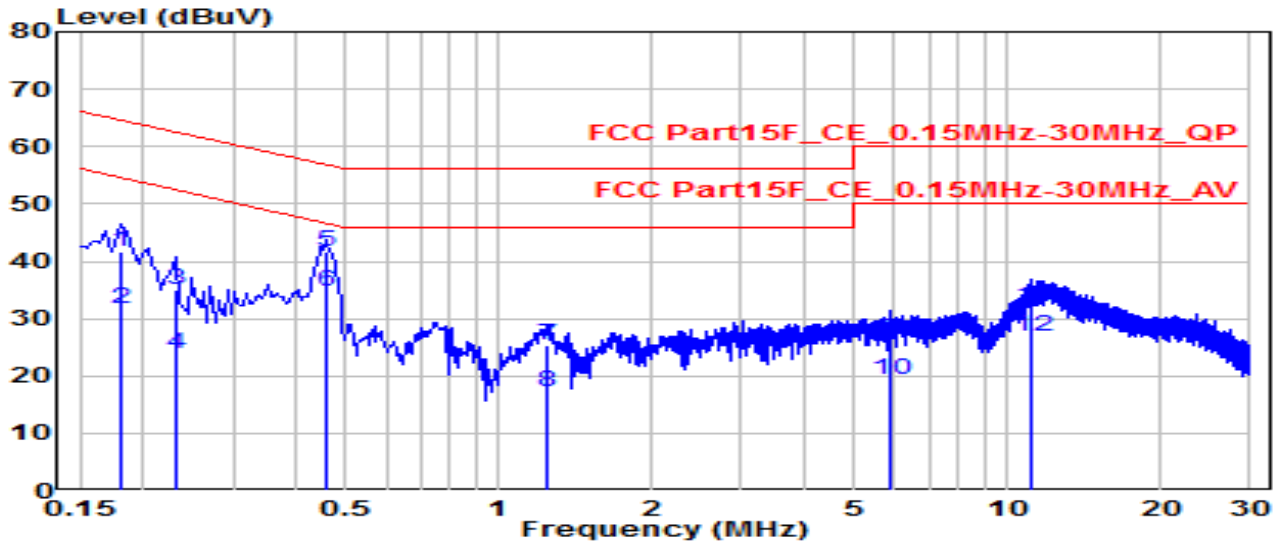


No	Frequency (MHz)	Reading (dBUV)	C.F (dB)	Measurement (dBUV/m)	Margin (dB)	Limit (dBUV/m)	Remark (QP/PK/AV)
1	0.159	32.90	9.59	42.49	-23.03	65.52	QP
2	0.159	23.94	9.59	33.53	-21.99	55.52	Average
3	0.177	30.53	9.57	40.09	-24.53	64.63	QP
4	0.177	21.05	9.57	30.61	-24.01	54.63	Average
5	* 0.456	30.67	9.60	40.27	-16.49	56.77	QP
6	* 0.456	23.38	9.60	32.98	-13.78	46.77	Average
7	1.230	18.93	9.67	28.60	-27.40	56.00	QP
8	1.230	11.95	9.67	21.62	-24.38	46.00	Average
9	3.165	14.34	9.71	24.04	-31.96	56.00	QP
10	3.165	6.40	9.71	16.11	-29.89	46.00	Average
11	12.236	22.47	9.90	32.37	-27.63	60.00	QP
12	12.236	17.24	9.90	27.14	-22.86	50.00	Average

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBUV/m) = Reading(dBUV) + C.F (Correction Factor).

EUT	UWB Anchor	Date of Test	2020-02-25
Factor	CE_ENV216-N (Filter ON)	Temp. / Humidity	20°C /52%
Polarity	Neutral	Site / Test Engineer	SR2 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 120V/60Hz

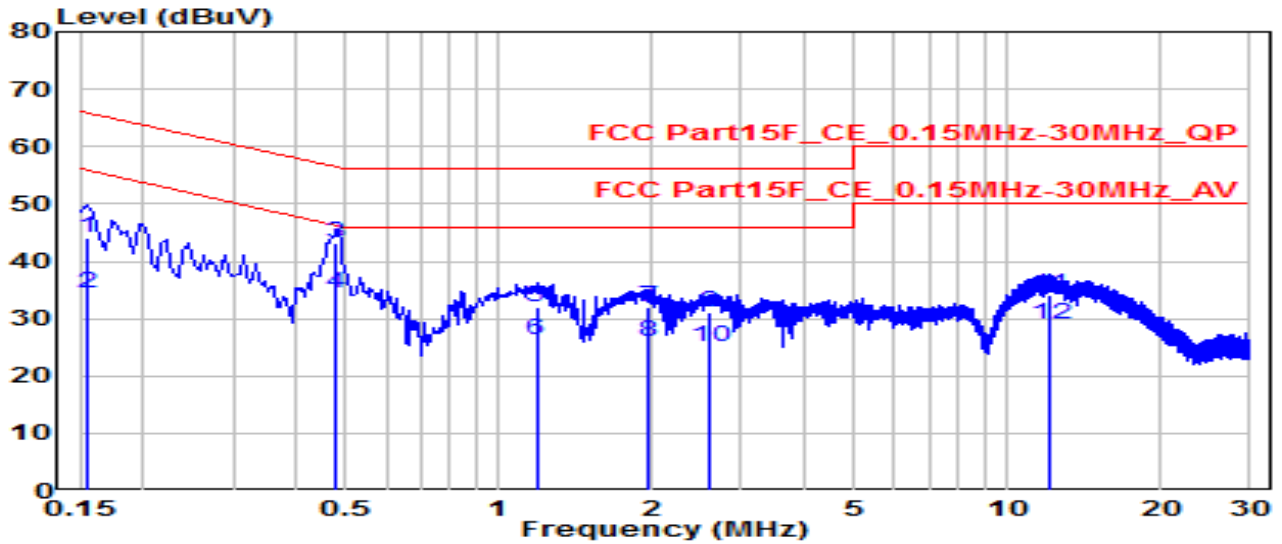


No	Frequency (MHz)	Reading (dBUV)	C.F (dB)	Measurement (dBUV/m)	Margin (dB)	Limit (dBUV/m)	Remark (QP/PK/AV)
1	0.181	31.91	9.60	41.51	-22.90	64.42	QP
2	0.181	22.21	9.60	31.81	-22.61	54.42	Average
3	0.231	25.43	9.61	35.05	-27.37	62.41	QP
4	0.231	14.37	9.61	23.98	-28.43	52.41	Average
5	* 0.456	32.16	9.61	41.77	-15.00	56.77	QP
6	* 0.456	24.96	9.61	34.57	-12.20	46.77	Average
7	1.243	15.84	9.67	25.50	-30.50	56.00	QP
8	1.243	7.62	9.67	17.28	-28.72	46.00	Average
9	5.896	16.50	9.76	26.26	-33.74	60.00	QP
10	5.896	9.55	9.76	19.31	-30.69	50.00	Average
11	11.214	22.12	9.91	32.03	-27.97	60.00	QP
12	11.214	17.10	9.91	27.01	-22.99	50.00	Average

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBUV/m) = Reading(dBUV) + C.F (Correction Factor).

EUT	UWB Anchor	Date of Test	2020-03-18
Factor	CE_ENV216-L1 (Filter ON)	Temp. / Humidity	23.1°C /59%
Polarity	Line1	Site / Test Engineer	SR2 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 240V/60Hz

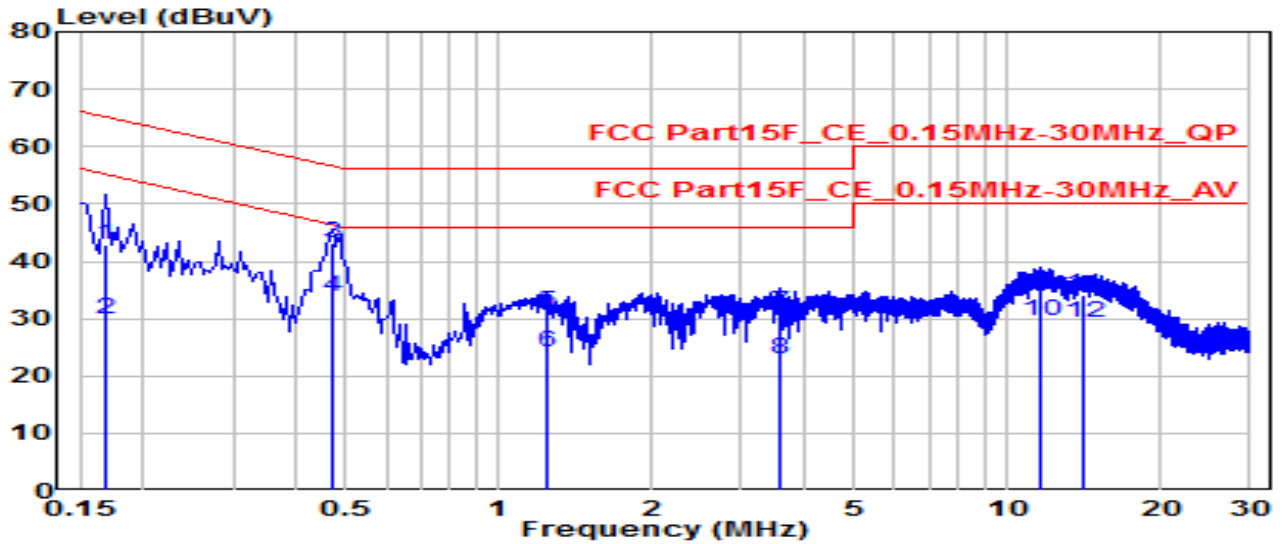


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Remark (QP/PK/AV)
1	0.154	34.51	9.60	44.11	-21.64	65.75	QP
2	0.154	24.81	9.60	34.41	-21.35	55.75	Average
3	* 0.478	33.50	9.60	43.10	-13.26	56.37	QP
4	* 0.478	24.90	9.60	34.50	-11.87	46.37	Average
5	1.185	22.41	9.67	32.08	-23.92	56.00	QP
6	1.185	16.72	9.67	26.39	-19.61	46.00	Average
7	1.954	22.37	9.69	32.06	-23.94	56.00	QP
8	1.954	16.17	9.69	25.85	-20.15	46.00	Average
9	2.584	21.54	9.70	31.24	-24.76	56.00	QP
10	2.584	15.24	9.70	24.94	-21.06	46.00	Average
11	12.128	24.23	9.90	34.13	-25.87	60.00	QP
12	12.128	18.94	9.90	28.84	-21.16	50.00	Average

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).

EUT	UWB Anchor	Date of Test	2020-03-18
Factor	CE_ENV216-N (Filter ON)	Temp. / Humidity	23.1°C /59%
Polarity	Neutral	Site / Test Engineer	SR2 / Milo Li
Test Mode	UWB-TX_4.5GHz	Test Voltage	AC 240V/60Hz



No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Remark (QP/PK/AV)
1	0.168	33.39	9.61	43.00	-22.06	65.06	QP
2	0.168	20.21	9.61	29.82	-25.24	55.06	Average
3	* 0.469	33.69	9.61	43.30	-13.22	56.52	QP
4	* 0.469	24.19	9.61	33.80	-12.72	46.52	Average
5	1.239	21.45	9.67	31.11	-24.89	56.00	QP
6	1.239	14.55	9.67	24.21	-21.79	46.00	Average
7	3.561	21.35	9.71	31.06	-24.94	56.00	QP
8	3.561	13.16	9.71	22.86	-23.14	46.00	Average
9	11.574	24.92	9.92	34.83	-25.17	60.00	QP
10	11.574	19.59	9.92	29.50	-20.50	50.00	Average
11	14.094	24.22	9.96	34.18	-25.82	60.00	QP
12	14.094	19.41	9.96	29.36	-20.64	50.00	Average

Note:

1. " *", means this data is the worst emission level.
2. C.F (Correction Factor) = Antenna Factor (dB)+ Cable Loss (dB).
3. Measurement (dBuV/m) = Reading(dBuV) + C.F (Correction Factor).

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **UWB Anchor FCC ID:**

XBG-UBA100 is in compliance with Part 15F of the FCC Rules.

_____ The End _____