



MEASUREMENT REPORT

FCC PART 15.247

FCC ID: 2AXTDUX8125-M42F

APPLICANT: Ubiik Inc.

Application Type: Certification

Product: Weightless EDM

Model No.: UX8125-M42F

FCC Classification: (DSS) FCC Part 15 Spread Spectrum Transmitter

FCC Rule Part(s): Part 15.247

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

Received Date: December 11, 2020

Test Date: December 11, 2020 ~ April 19, 2021

Tested By : Peter Syu

(Peter Syu)

Reviewed By : Paddy Chen

(Paddy Chen)

Approved By : Chenz Ker

(Chenz Ker)



The test results only relate to the tested sample.

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 ANSI C63.10. 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 (Taiwan) Co., Ltd.



Revision History

Report No.	Version	Description	Issue Date	Note
2101TW0501-U1	1.0	Original Report	2021-04-20	

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§2.1033 General Information

Applicant	Ubiik Inc.
Applicant Address	19F., No. 17, Sec. 1, Chengde Rd., Datong Dist., Taipei City 103, Taiwan (R.O.C.)
Manufacturer	Ubiik Inc.
Manufacturer Address	19F., No. 17, Sec. 1, Chengde Rd., Datong Dist., Taipei City 103, Taiwan (R.O.C.)
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082
FCC Rule Part(s)	Part 15.247
Test Device Serial No.	#1 ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.

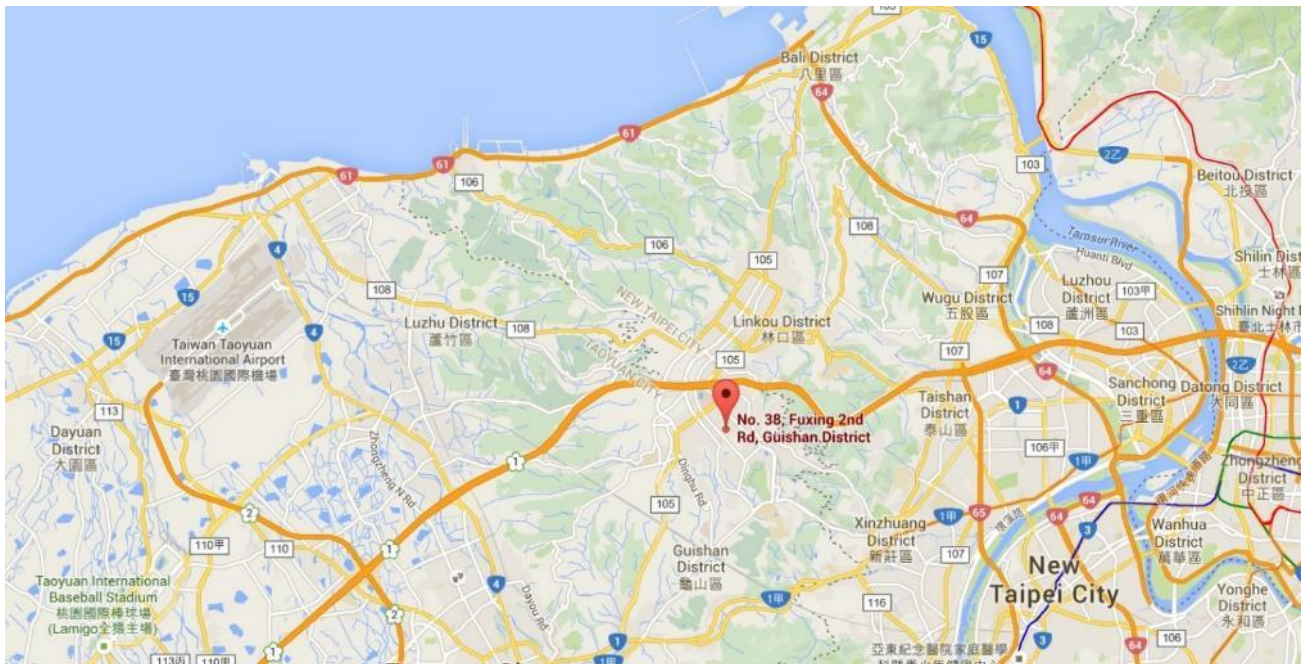
1. INTRODUCTION

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 Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Weightless EDM
Model No.	UX8125-M42F
Brand Name	Ubiik
Maximum Output Power	25.84dBm

2.2. Product Specification Subjective to this Standard

Operating Frequency	902~928MHz
Type of modulation	FHSS (GMSK)

2.3. Test Mode

Test Mode	Mode 1: Transmit by RFID
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Note:

1. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.

2.4. Operation Frequency / Channel List

Channel	Frequency	Channel	Frequency	Channel	Frequency
1	902.1	30	905.0	59	907.9
2	902.2	31	905.1	60	908.0
3	902.3	32	905.2	61	908.1
4	902.4	33	905.3	62	908.2
5	902.5	34	905.4	63	908.3
6	902.6	35	905.5	64	908.4
7	902.7	36	905.6	65	908.5
8	902.8	37	905.7	66	908.6
9	902.9	38	905.8	67	908.7
10	903.0	39	905.9	68	908.8
11	903.1	40	906.0	69	908.9
12	903.2	41	906.1	70	909.0
13	903.3	42	906.2	71	909.1
14	903.4	43	906.3	72	909.2
15	903.5	44	906.4	73	909.3
16	903.6	45	906.5	74	909.4
17	903.7	46	906.6	75	909.5
18	903.8	47	906.7	76	909.6
19	903.9	48	906.8	77	909.7
20	904.0	49	906.9	78	909.8
21	904.1	50	907.0	79	909.9
22	904.2	51	907.1	80	910.0
23	904.3	52	907.2	81	910.1
24	904.4	53	907.3	82	910.2
25	904.5	54	907.4	83	910.3
26	904.6	55	907.5	84	910.4
27	904.7	56	907.6	85	910.5
28	904.8	57	907.7	86	910.6
29	904.9	58	907.8	87	910.7

Channel	Frequency	Channel	Frequency	Channel	Frequency
88	910.8	117	913.7	146	916.6
89	910.9	118	913.8	147	916.7
90	911.0	119	913.9	148	916.8
91	911.1	120	914.0	149	916.9
92	911.2	121	914.1	150	917.0
93	911.3	122	914.2	151	917.1
94	911.4	123	914.3	152	917.2
95	911.5	124	914.4	153	917.3
96	911.6	125	914.5	154	917.4
97	911.7	126	914.6	155	917.5
98	911.8	127	914.7	156	917.6
99	911.9	128	914.8	157	917.7
100	912.0	129	914.9	158	917.8
101	912.1	130	915.0	159	917.9
102	912.2	131	915.1	160	918.0
103	912.3	132	915.2	161	918.1
104	912.4	133	915.3	162	918.2
105	912.5	134	915.4	163	918.3
106	912.6	135	915.5	164	918.4
107	912.7	136	915.6	165	918.5
108	912.8	137	915.7	166	918.6
109	912.9	138	915.8	167	918.7
110	913.0	139	915.9	168	918.8
111	913.1	140	916.0	169	918.9
112	913.2	141	916.1	170	919.0
113	913.3	142	916.2	171	919.1
114	913.4	143	916.3	172	919.2
115	913.5	144	916.4	173	919.3
116	913.6	145	916.5	174	919.4

Channel	Frequency	Channel	Frequency	Channel	Frequency
175	919.5	204	922.4	233	925.3
176	919.6	205	922.5	234	925.4
177	919.7	206	922.6	235	925.5
178	919.8	207	922.7	236	925.6
179	919.9	208	922.8	237	925.7
180	920.0	209	922.9	238	925.8
181	920.1	210	923.0	239	925.9
182	920.2	211	923.1	240	926.0
183	920.3	212	923.2	241	926.1
184	920.4	213	923.3	242	926.2
185	920.5	214	923.4	243	926.3
186	920.6	215	923.5	244	926.4
187	920.7	216	923.6	245	926.5
188	920.8	217	923.7	246	926.6
189	920.9	218	923.8	247	926.7
190	921.0	219	923.9	248	926.8
191	921.1	220	924.0	249	926.9
192	921.2	221	924.1	250	927.0
193	921.3	222	924.2	251	927.1
194	921.4	223	924.3	252	927.2
195	921.5	224	924.4	253	927.3
196	921.6	225	924.5	254	927.4
197	921.7	226	924.6	255	927.5
198	921.8	227	924.7	256	927.6
199	921.9	228	924.8	257	927.7
200	922.0	229	924.9	258	927.8
201	922.1	230	925.0	259	927.9
202	922.2	231	925.1	--	--
203	922.3	232	925.2	--	--

2.5. Test Configuration

This device was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.6. Test Software

The test utility software used during testing was “Lily GUI”.

2.7. EMI Suppression Device(s)/Modifications

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

2.8. 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 Testing Unlicensed Wireless Devices (ANSI C63.10-2013) were used in the measurement of the **Weightless EDM**.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 9'x4'x3' 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.

Line conducted emissions test results are shown in Section 7.10.

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. An 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 Beamwidth of horn antenna, the horn antenna should be always directed to the EUT when rising height.

Radiated emissions test results are shown in Section 7.8 & 7.9

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 Weightless EDM, is permanently attached.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT unit complies with the requirement of §15.203.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Ubiik	M701-3C333075	Dipole	3.29dBi

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2021/3/26
Cable	Rosnol	N1C50-RG400- B1C50-500CM	MRTTWE00013	1 year	2021/6/21
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2021/3/25

Radiated Emissions – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2021/10/5
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2021/3/25
Active Loop Antenna	Schwarzbeck	FMZB 1519B	MRTTWA00002	1 year	2021/4/27
Broadband Horn antenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2021/4/24
Breitband Hornantenna	Schwarzbeck	BBHA 9170	MRTTWA00004	1 year	2021/4/24
Broadband Amplifier	Schwarzbeck	BBV 9721	MRTTWA00006	1 year	2021/4/24
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2021/4/24
Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2021/6/16
Cable	Rosnol	K1K50-UP0264- K1K50-4M	MRTTWE00012	1 year	2021/6/21

Conducted Test Equipment – SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2021/10/14
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/7/14
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2021/3/26

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 $k = 2$.

Conducted Emission- Power Line
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 2.53dB
Radiated Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 3.92dB (Below 30M)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.25dB (30M~1G)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.40dB (1G~18G)
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 4.45dB (18G~40G)
Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 78.4\text{Hz}$
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.84\text{dB}$
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 2.65\text{ dB}$
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 3.3%
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.82^\circ\text{C}/ \pm 3\%$
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): $\pm 0.3\%$

7. TEST RESULT

7.1. Summary

Product Name: Weightless EDM

FCC Classification: (DSS) FCC Part 15 Spread Spectrum Transmitter

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(1)	20dB Bandwidth	N/A	Conducted	PASS	Section 7.2
15.247(b)(1)	Output Power	<1 Watt if > 75 non-overlapping channels used		PASS	Section 7.3
15.247(a)(1)	Carrier Frequency Separation	25KHz or 20 dB BW for systems with Output Power < 125mW		PASS	Section 7.4
15.247(a)(1)(iii)	Number of Hopping Channels	> 15 Channels		PASS	Section 7.5
15.247(a)(1)(iii)	Time of Occupancy	< 0.4 sec in 31.6 sec period		PASS	Section 7.6
15.247(d)	Out-of-Band Emissions	Conducted $\geq$ 20dBc		PASS	Section 7.7
15.205 15.209	Spurious Emission	< FCC 15.209 limits	Radiated	PASS	Section 7.8
15.205 15.209	Band Edge Measurement	$\leq$ 74dBuV/m(Peak) $\leq$ 54dBuV/m(Average)		PASS	Section 7.9
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.10

Note:

- 1) 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.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) 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.
- 4) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.

7.2. 20dB Bandwidth Measurement

7.2.1. Test Limit

N/A

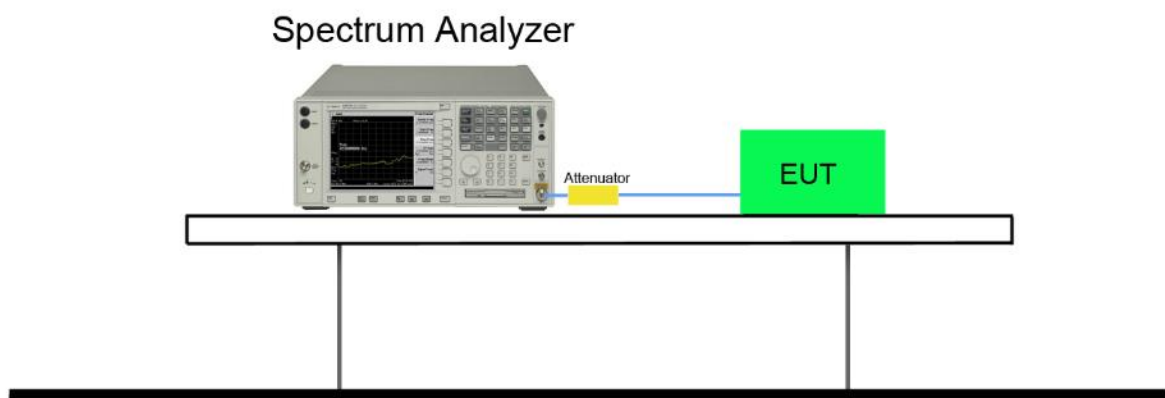
7.2.2. Test Procedure used

ANSI C63.10-2013 - Section 6.9.2

7.2.3. Test Setting

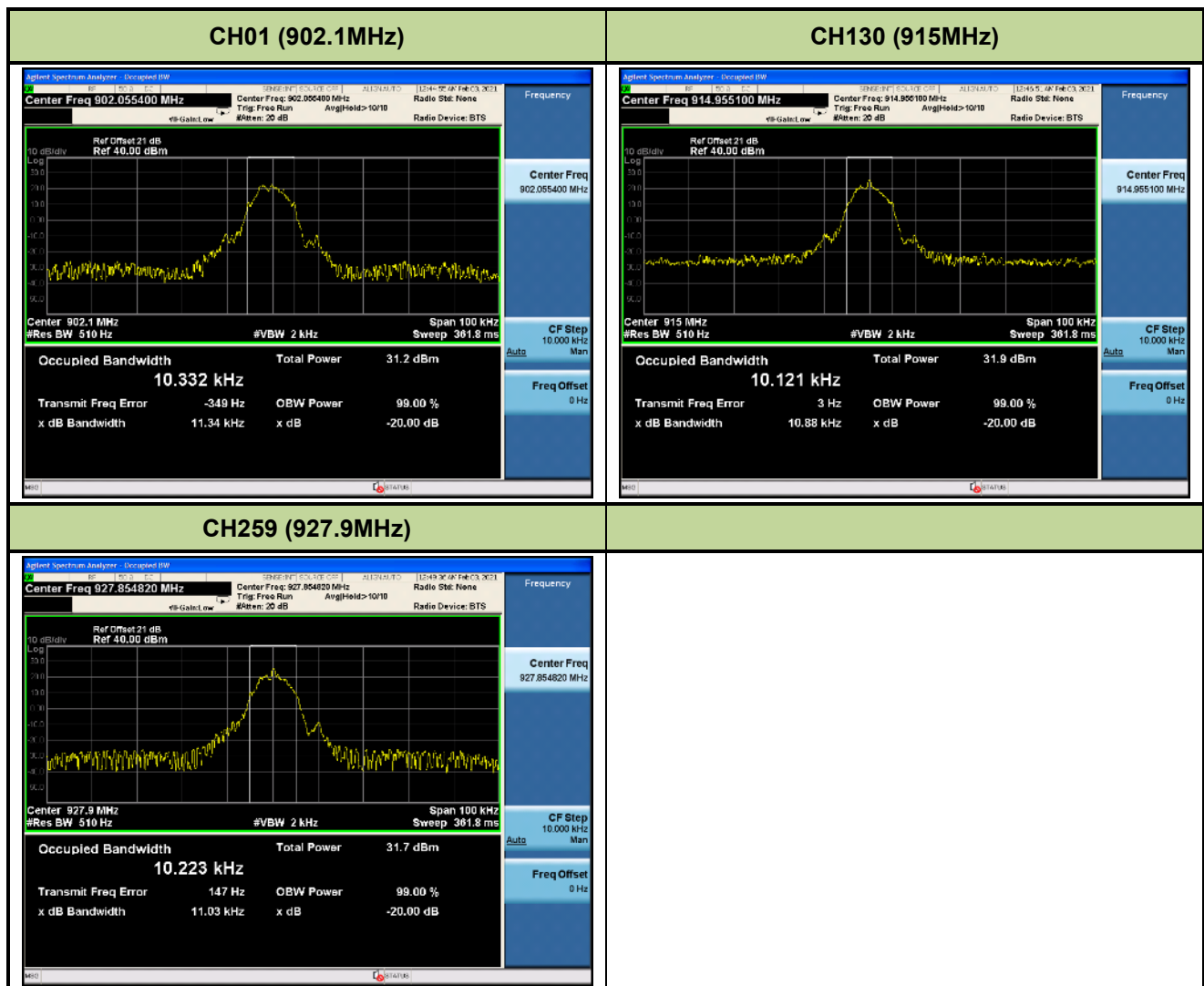
1. Set RBW $\geq 1\%$ of the 20dB bandwidth
2. VBW $\geq 3 \times$ RBW
3. Span = approximately 2 to 5 times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

7.2.4. Test Setup



7.2.5. Test Result

Test Mode	Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)	Result
RFID	1	902.1	11.340	10.332	Pass
	130	915	10.880	10.121	Pass
	259	927.9	11.030	10.223	Pass



7.3. Output Power Measurement

7.3.1. Test Limit

The maximum out power permissible output power is 1 Watt (30dBm)

The E.I.R.P Power is 4 Watt (36dBm)

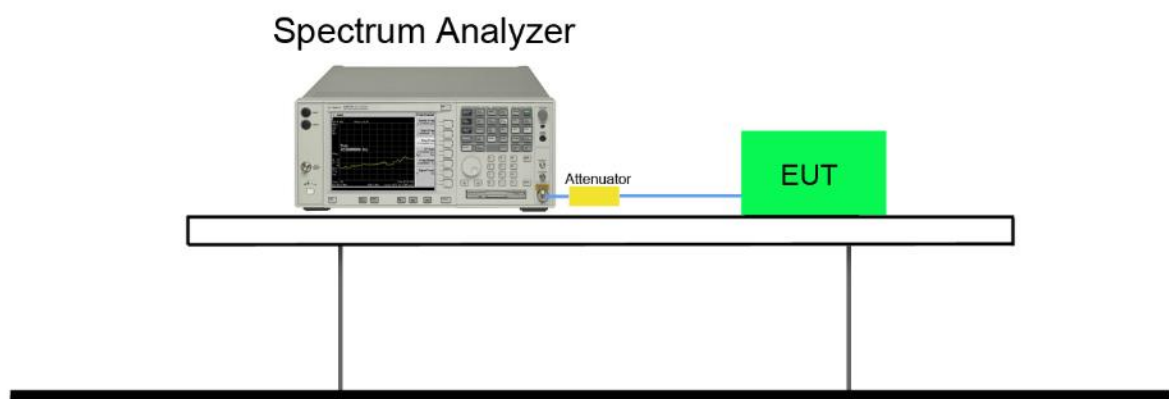
7.3.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.5

7.3.3. Test Setting

1. Set RBW $\geq$ the 20 dB bandwidth of the emission being measured.
2. VBW $\geq 3 \times$ RBW
3. Span = approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize, Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power (don't forget added the external attenuation and cable loss)
8. Note: A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

7.3.4. Test Setup



7.3.5. Test Result

Test Mode	Channel No.	Frequency (MHz)	Peak Power (dBm)	EIRP (dBm)	Peak Power Limit (dBm)	EIRP Limit (dBm)
RFID	1	902.1	25.61	28.9	< 30	< 36
	130	915	25.76	29.05	< 30	< 36
	259	927.9	25.84	29.13	< 30	< 36

Note:

1. Peak Power Output Value = Reading value on power meter (dBm) + cable loss (dBm).
2. E.I.R.P Power = Peak Power (dBm) + Antenna Gain (dBi).
3. Antenna Gain = 3.29dBi.

7.4. Carrier Frequency Separation Measurement

7.4.1. Test Limit

The minimum permissible channel separation for this system is $\frac{2}{3}$ the value of the 20dB BW.

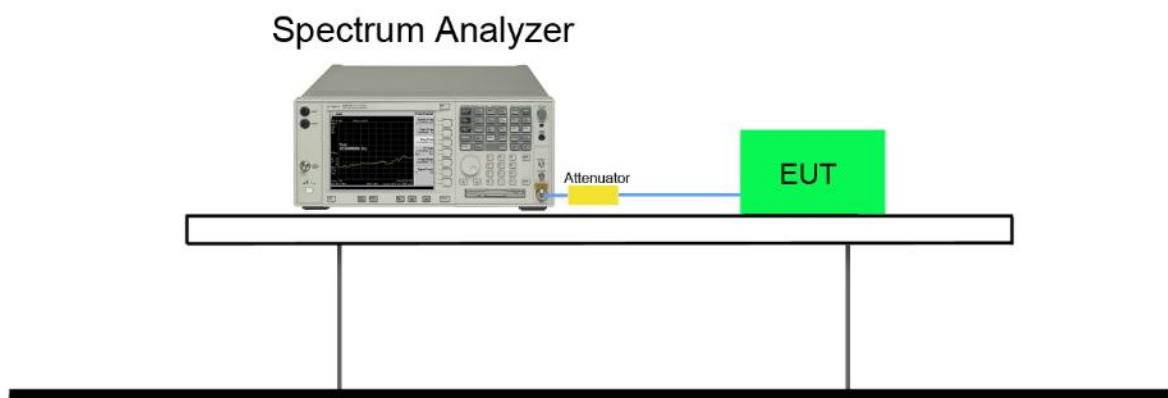
7.4.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.2

7.4.3. Test Setting

1. Span = wide enough to capture the peaks of two adjacent channels.
2. RBW $\geq 1\%$ of the span
3. VBW $\geq$ RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.4.4. Test Setup



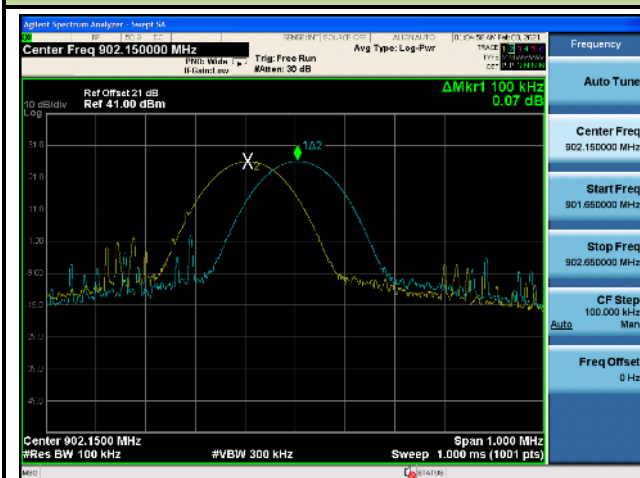
7.4.5. Test Result

Test Mode	Channel No.	Frequency (MHz)	Channel Separation (kHz)	Limit (kHz)	Limit of 2/3*20dB Bandwidth (kHz)	Result
RFID	01	902.3	100	25	7.560	Pass
	32	908.5	100	25	7.253	Pass
	64	914.9	100	25	7.353	Pass

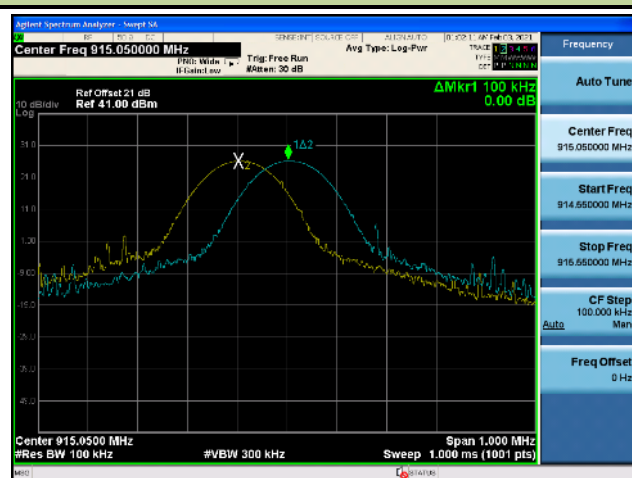
Note:

1. The limit is 25 kHz or 2/3 the value of the 20dB bandwidth of the hopping channel, whichever is greater.
2. The 20dB Bandwidth is refer to section 7.2.

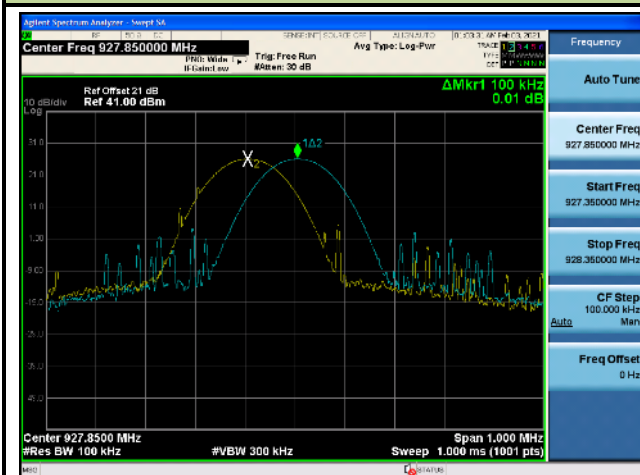
CH01 (902.1MHz)



CH130 (915MHz)



CH259 (927.9MHz)



7.5. Number of Hopping Channels Measurement

7.5.1. Test Limit

This frequency hopping system must employ a minimum of 15 hopping channels.

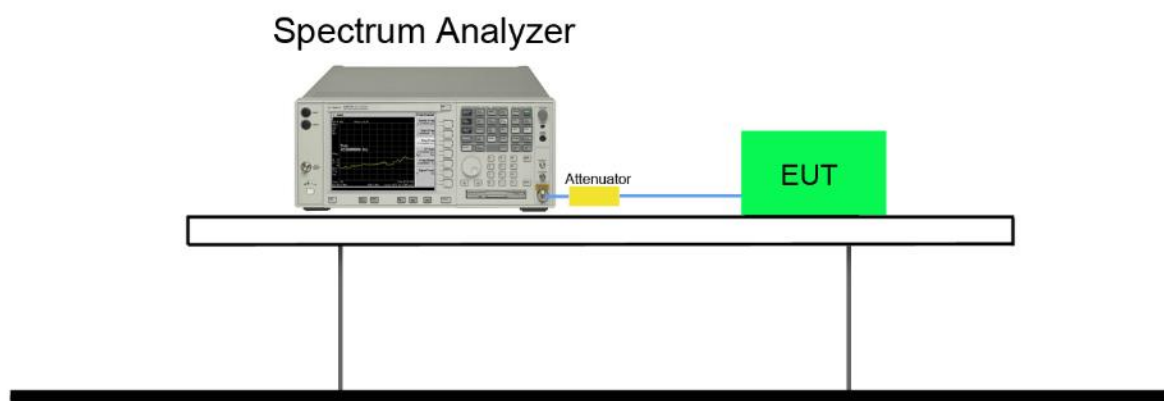
7.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 7.8.3

7.5.3. Test Setting

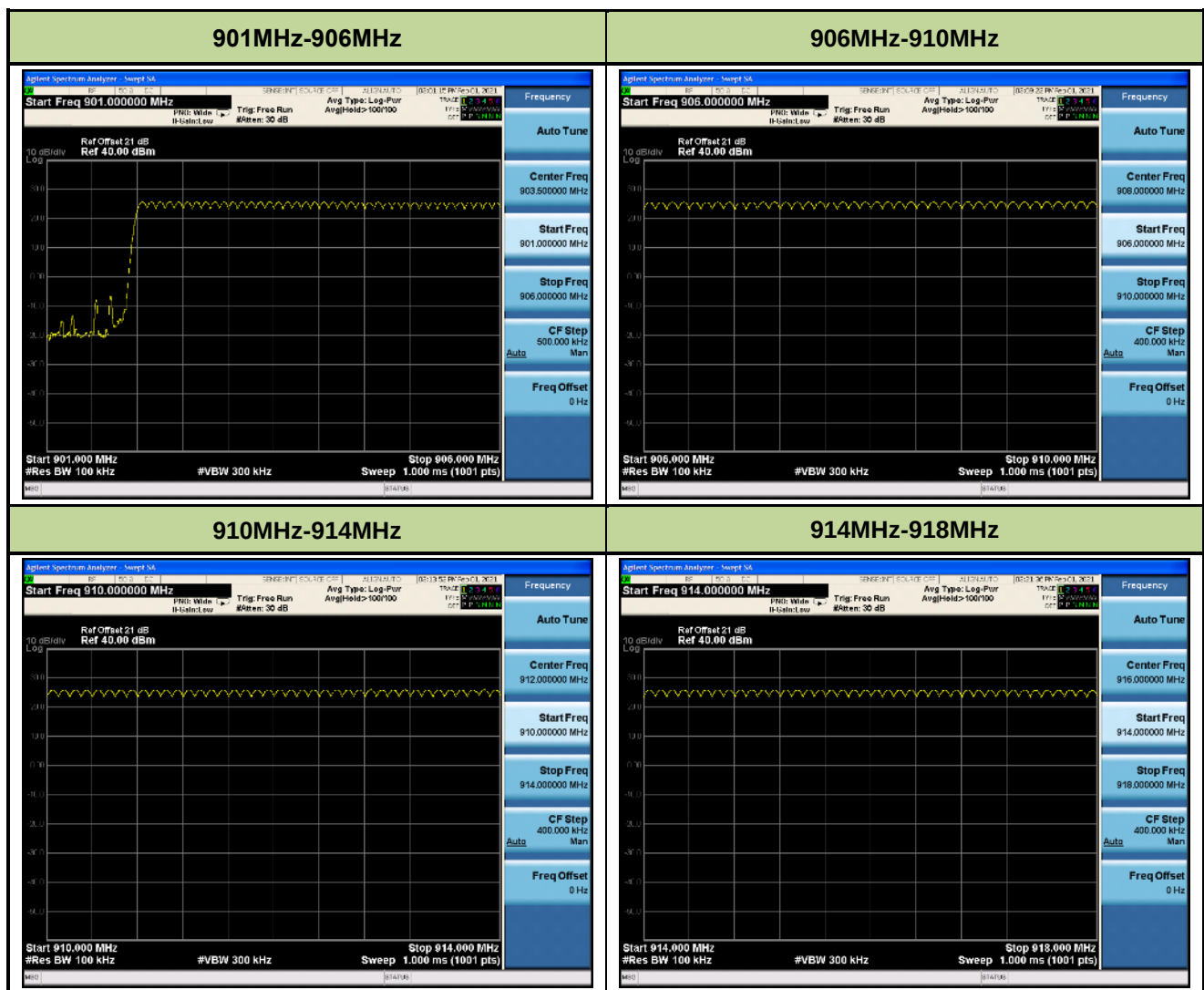
1. Span = the frequency band of operation.
2. RBW $\geq$ 1 % of the span
3. VBW $\geq$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

7.5.4. Test Setup

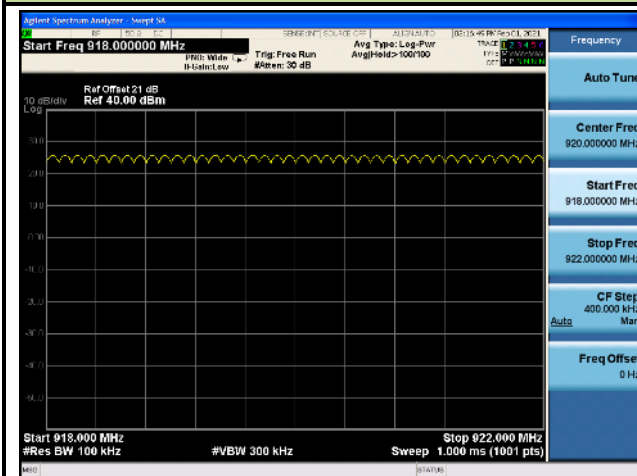


7.5.5. Test Result

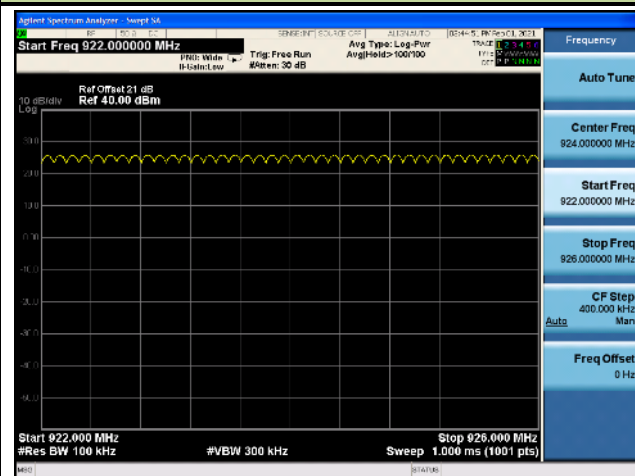
Test Mode (Hopping)	Channel Numbers	Frequency (MHz)	Limit (Hopping Channels)	Result
RFID	259	902~928	≥ 50	Pass



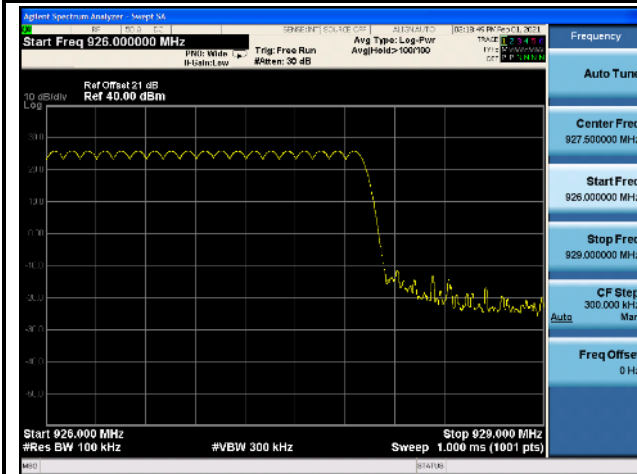
918MHz-922MHz



922MHz-926MHz



926MHz-929MHz



7.6. Time of Occupancy Measurement

7.6.1. Test Limit

The maximum permissible time of occupancy is 400ms within a period of 400ms multiplied by the number of hopping channels employed.

7.6.2. Test Procedure Used

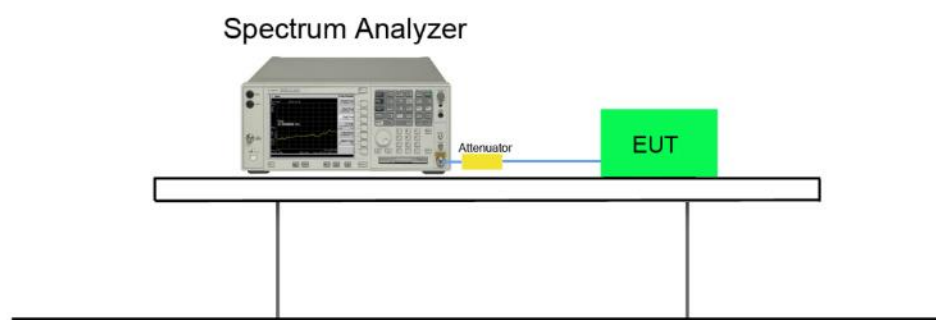
ANSI C63.10-2013 - Section 7.8.4

7.6.3. Test Setting

1. Span = zero span, centered on a hopping channel.
2. RBW = 1MHz
3. VBW $\geq$ RBW
4. Sweep time = as necessary to capture the entire dwell time per hopping channel
5. Detector = Peak
6. Trace mode = max hold

If possible, use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (data rate, modulation format, etc.), repeat this test for each variation. An oscilloscope may be used instead of a spectrum analyzer. The EUT shall show compliance with the appropriate regulatory limit for the number of hopping channels. A plot of the data shall be included in the test report.

7.6.4. Test Setup



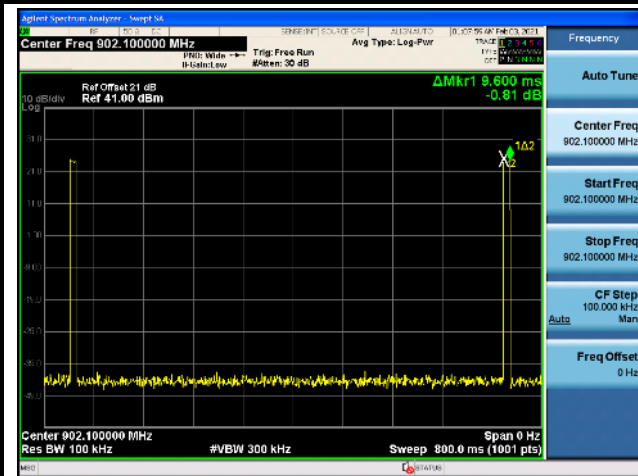
7.6.5. Test Result

Test Mode	Frequency (MHz)	Time of Occupancy (ms)	Hopping of Numbers	Sweep time (ms)	Duty cycle	Dwell Time (Sec)	Limit (Sec)	Result
RFID	902.1	9.6	29	20000	0.014	0.067	0.4	Pass
	915	9.6	29	20000	0.014	0.067	0.4	Pass
	927.9	9.6	29	20000	0.014	0.067	0.4	Pass

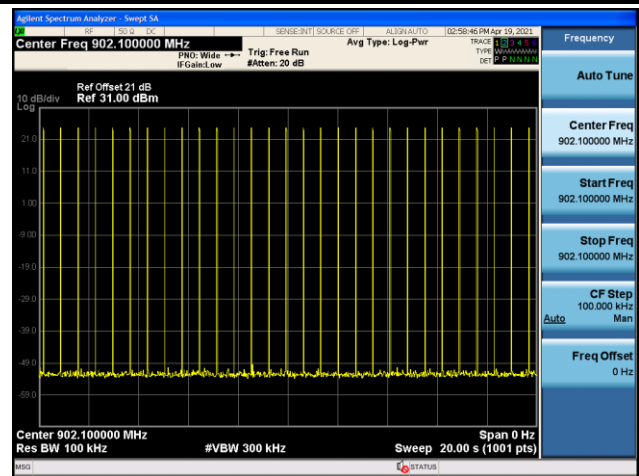
Note:

1. Duty cycle = ((Time slot length (ms)*Hopping of Number) / Sweep time (ms)) °
2. Dwell time = ((Duty cycle *(Time Period <0.4*79>)) / (Total Hopping of Number<79>)) °

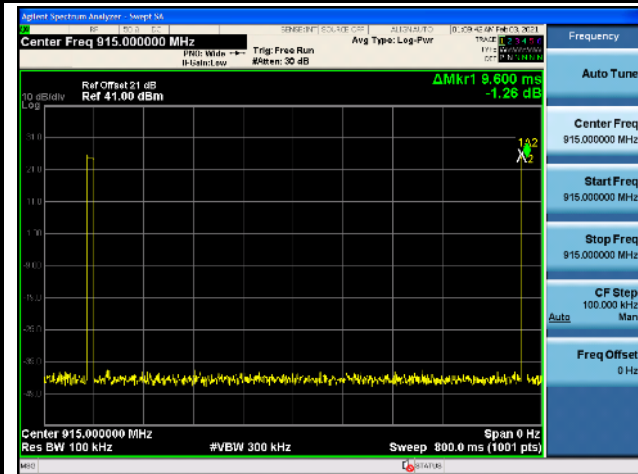
CH01 (902.1MHz)- Duty Cycle



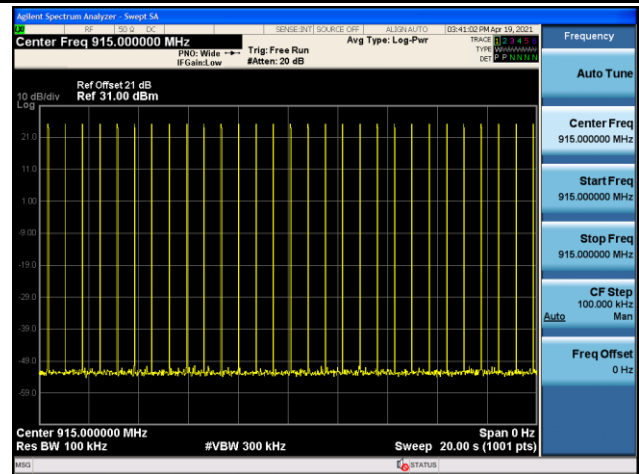
CH01 (902.1MHz)- Dwell time



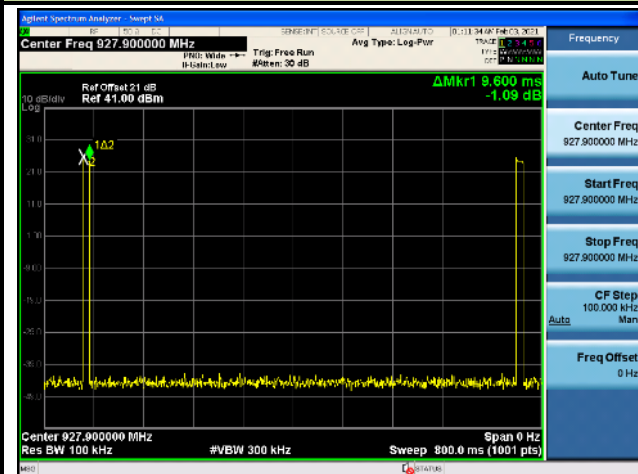
CH130 (915MHz)- Duty Cycle



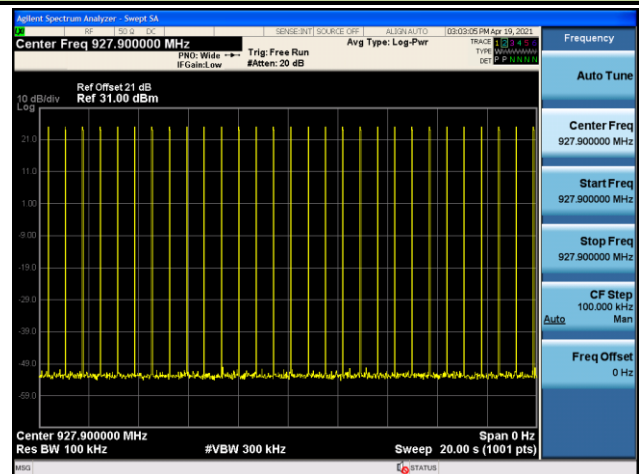
CH130 (915MHz)- Dwell time



CH259 (927.9MHz)- Duty Cycle



CH259 (927.9MHz)- Dwell time



7.7. Out-of-Band Spurious Emissions Emissions Measurement

7.7.1. Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

7.7.2. Test Procedure Used

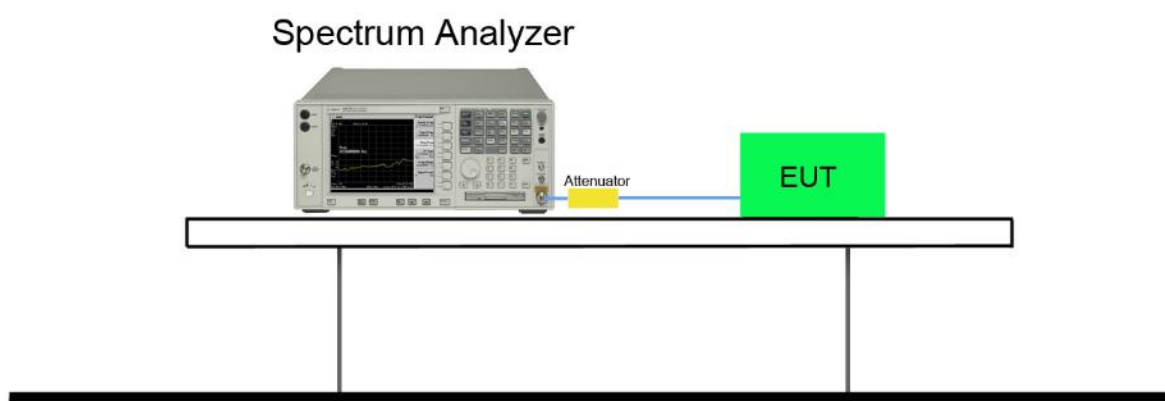
ANSI C63.10-2013 - Section 7.8.8

7.7.3. Test Setting

1. Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
2. RBW = 100 KHz
3. VBW $\geq$ RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this section.

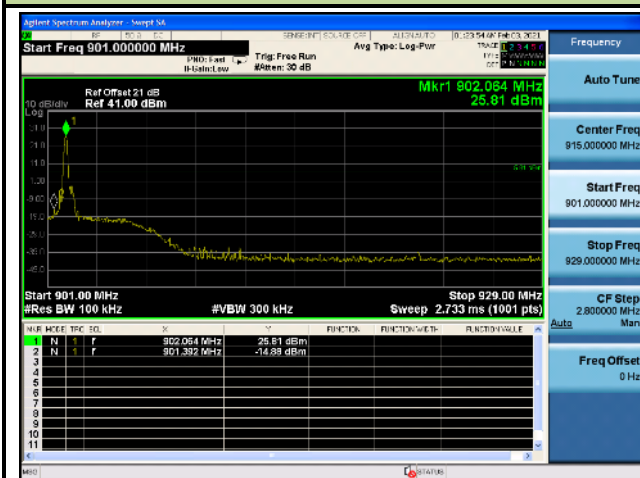
7.7.4. Test Setup



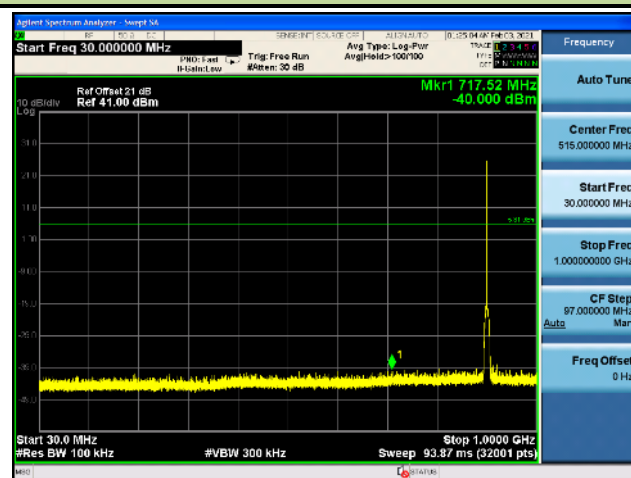
7.7.5. Test Result

Test Mode	Channel No.	Frequency (MHz)	Limit (MHz)	Result
RFID	1	902.1	20dBc	Pass
	130	915	20dBc	Pass
	259	927.9	20dBc	Pass

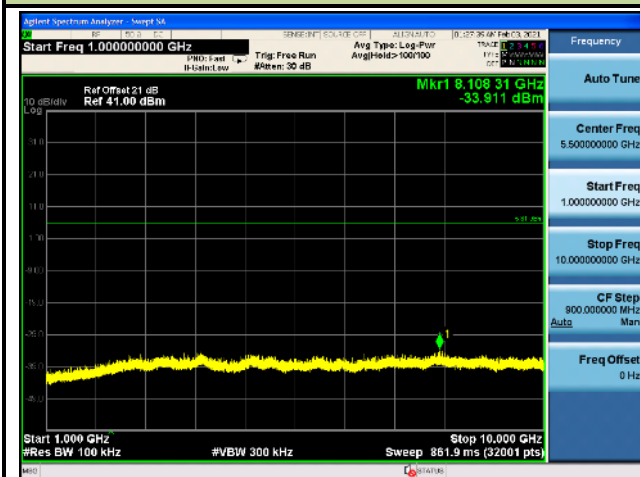
CH01 (902.1MHz)



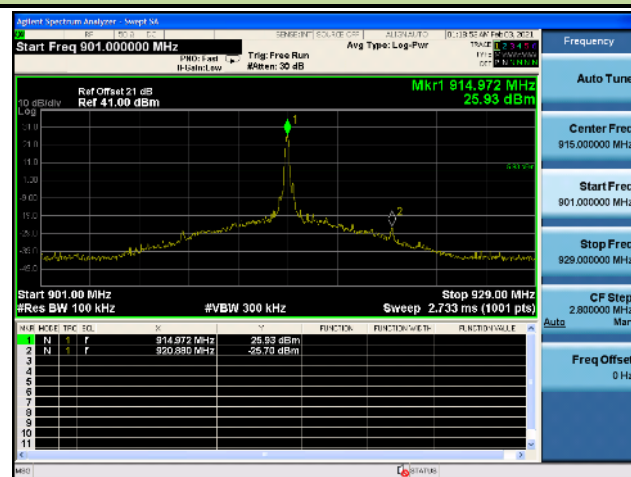
CH01 (902.1MHz)



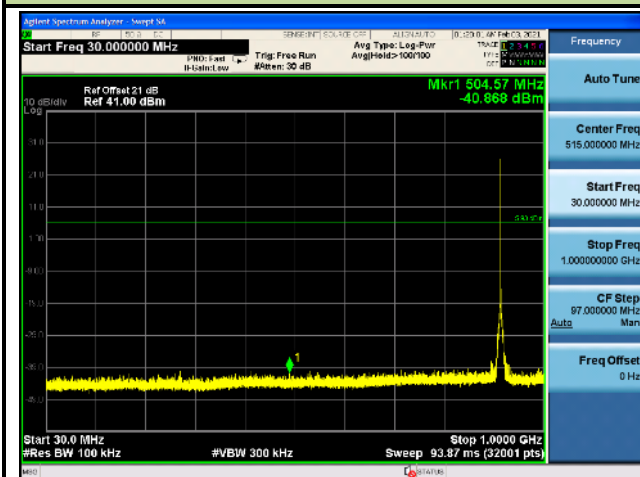
CH01 (902.1MHz)



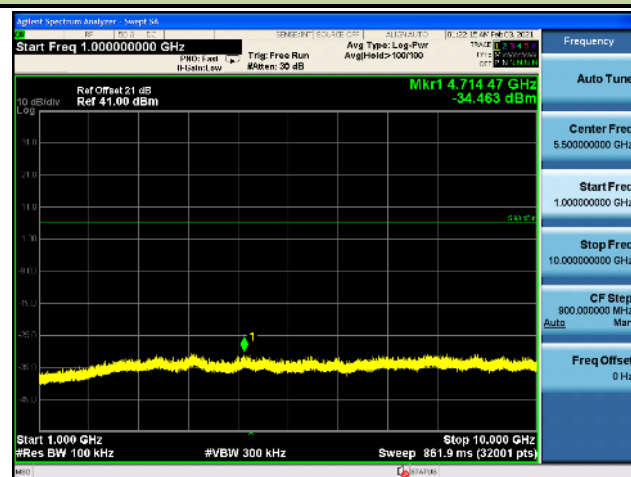
CH130 (915MHz)



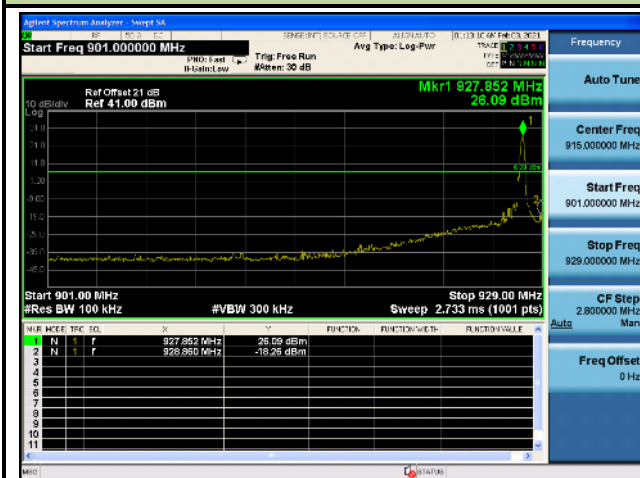
CH130 (915MHz)



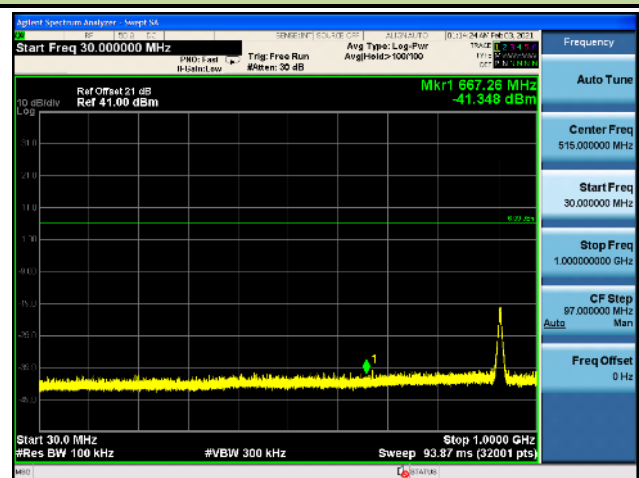
CH130 (915MHz)



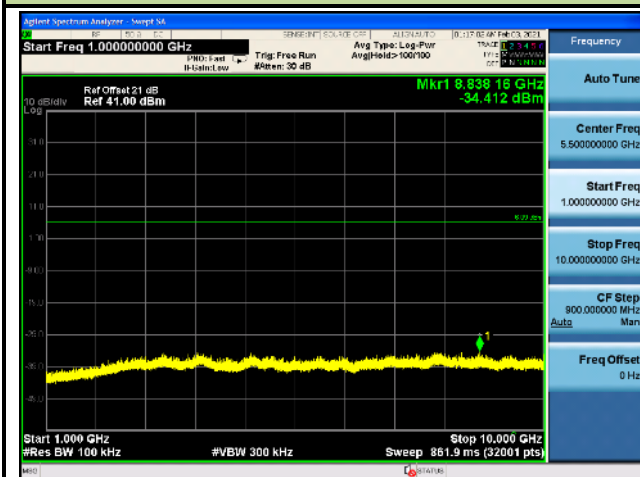
CH259 (927.9MHz)



CH259 (927.9MHz)



CH259 (927.9MHz)



7.8. Radiated Spurious Emission Measurement

7.8.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/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

7.8.2. Test Procedure Used

ANSI C63.10-2013 - Section 11.12.1

7.8.3. Test Setting

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3 * RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold

- Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

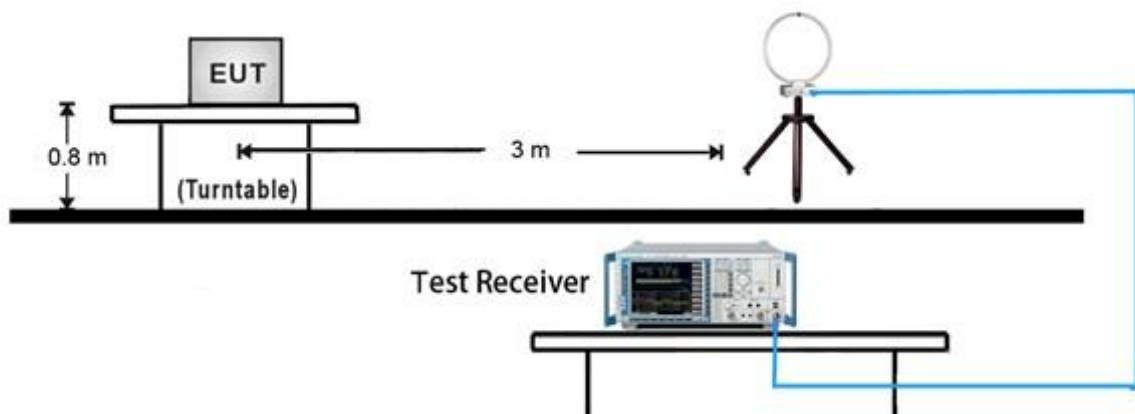
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

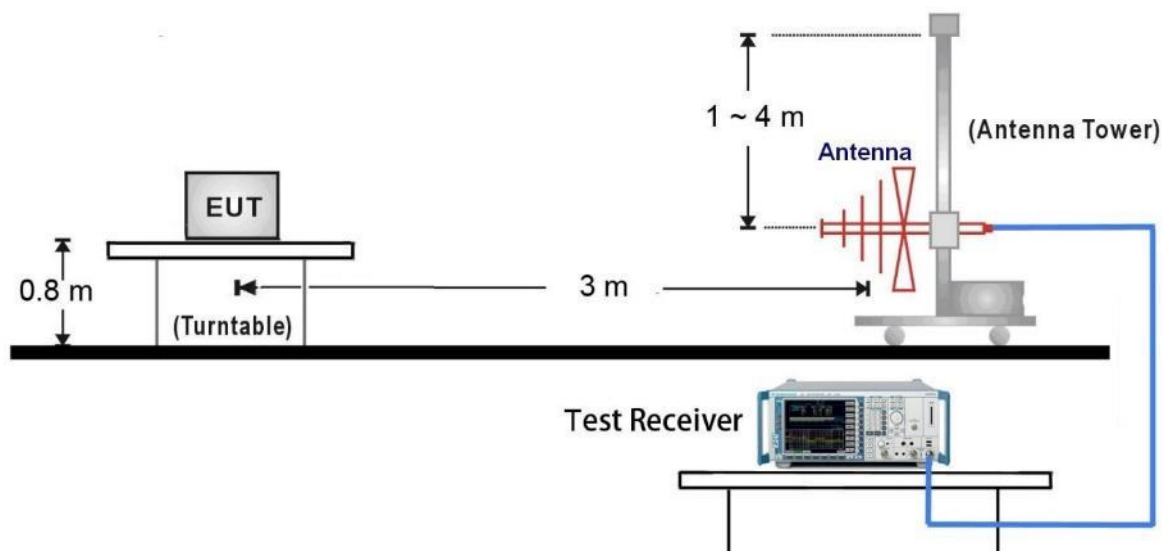
- Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- RBW = 1MHz
- $VBW \geq 1/T$
- De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold
- Allow max hold to run for at least 50 times (1/duty cycle) traces

7.8.4. Test Setup

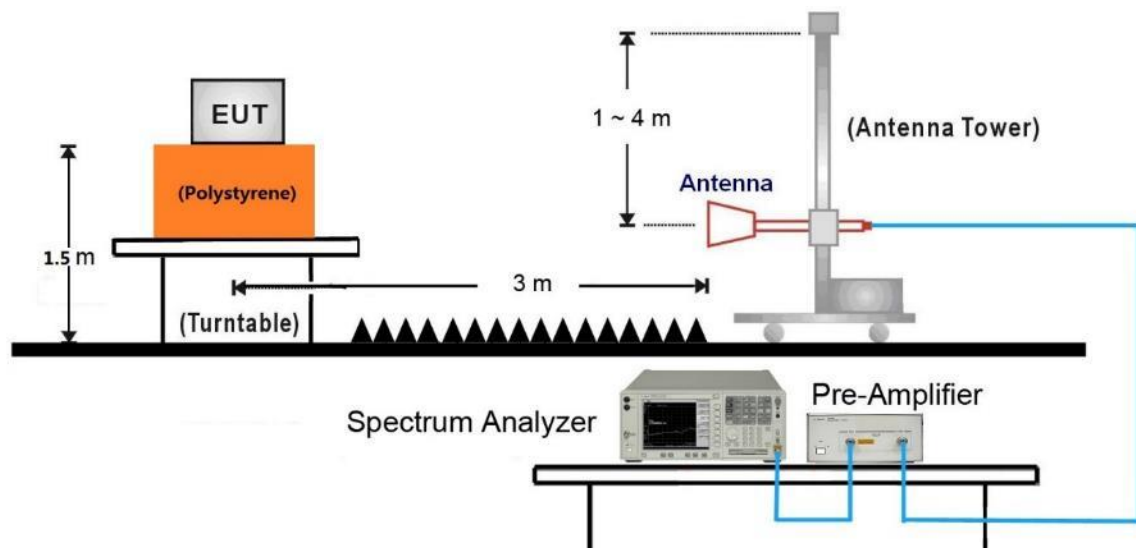
9kHz ~ 30MHz Test Setup:



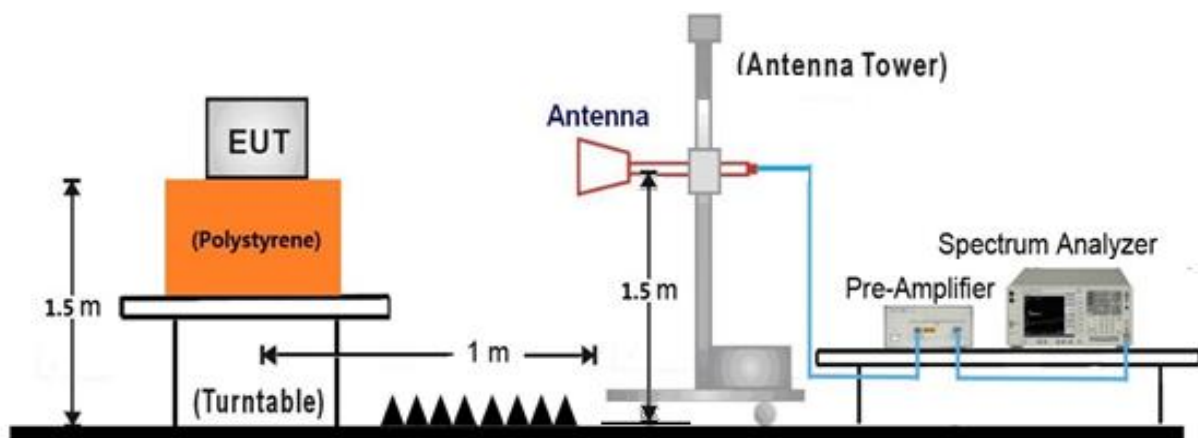
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:

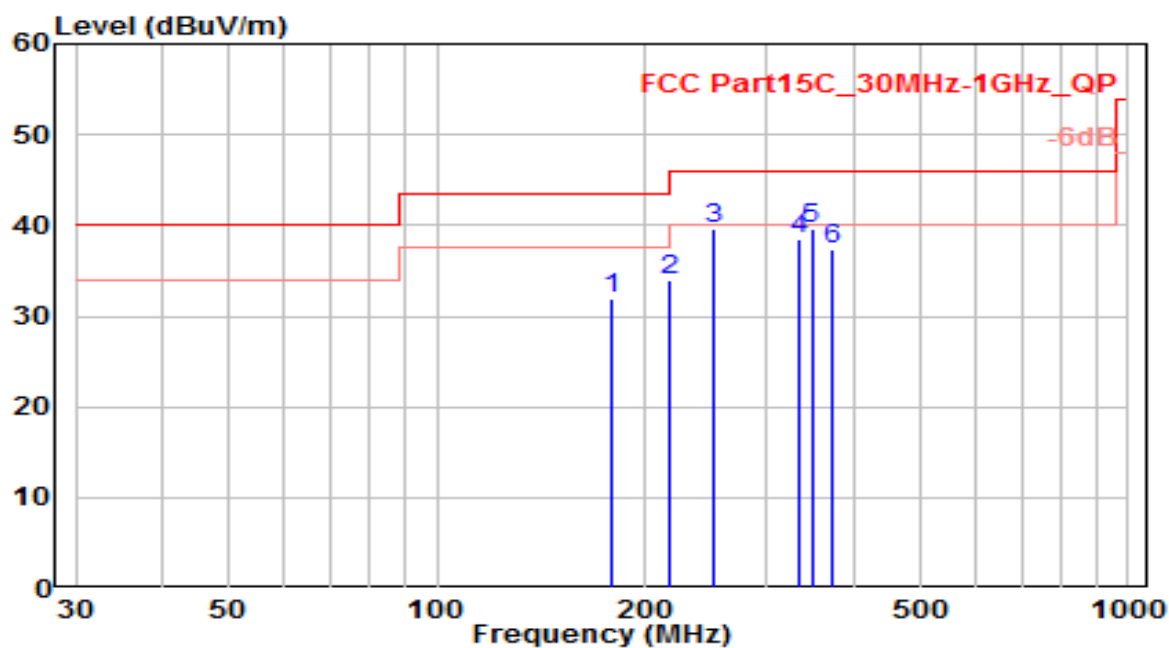


18GHz ~40GHz Test Setup:



7.8.5. Test Result

EUT	Weightless EDM	Date of Test	2021-01-29
Factor	VULB 9162	Temp. / Humidity	21°C /51%
Polarity	Horizontal	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

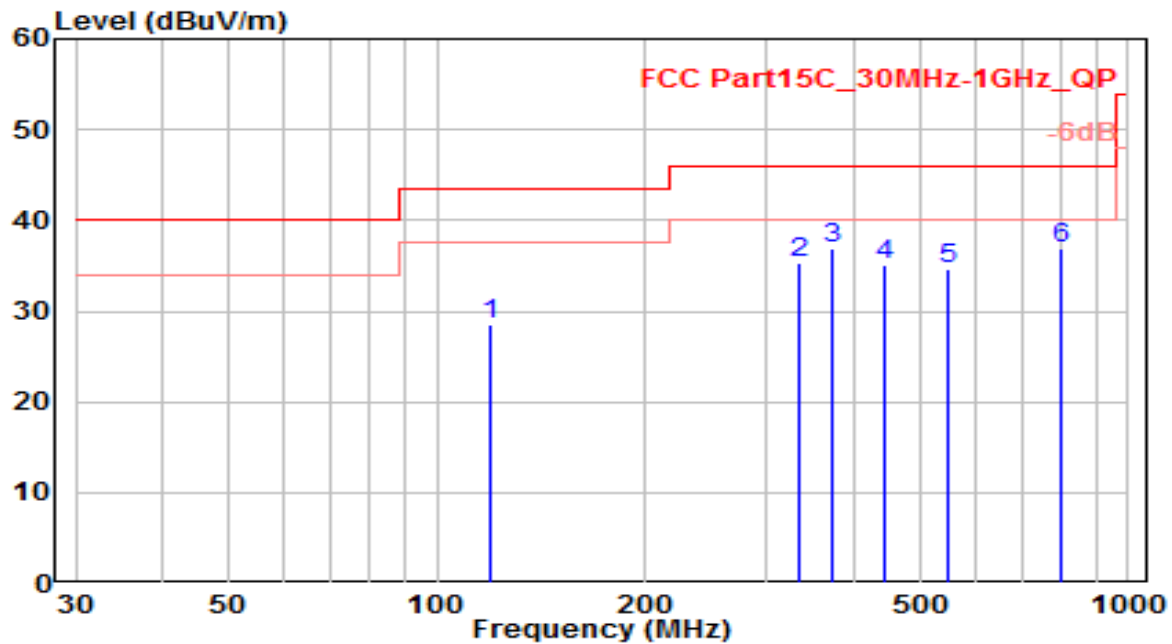


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	179.380	14.66	17.33	32.00	-11.50	43.50	100	250	QP
2	216.240	14.84	19.06	33.90	-12.10	46.00	100	300	QP
3	* 252.130	19.19	20.55	39.74	-6.26	46.00	100	225	QP
4	335.550	15.87	22.73	38.60	-7.40	46.00	100	40	QP
5	348.160	16.57	23.17	39.73	-6.27	46.00	100	160	QP
6	371.440	13.82	23.59	37.41	-8.59	46.00	100	140	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	Weightless EDM	Date of Test	2021-01-29
Factor	VULB 9162	Temp. / Humidity	21°C /51%
Polarity	Vertical	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

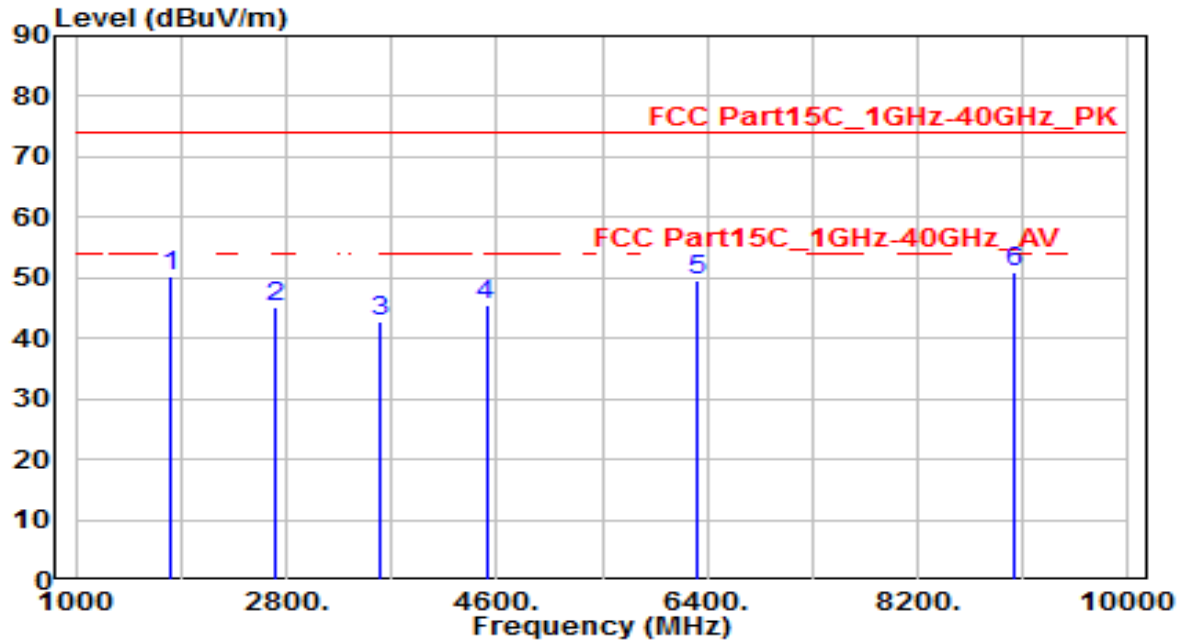


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	119.240	11.25	17.35	28.60	-14.90	43.50	100	330	QP
2	335.550	12.53	22.73	35.26	-10.74	46.00	100	140	QP
3	371.440	13.24	23.59	36.83	-9.17	46.00	100	50	QP
4	444.190	10.33	24.79	35.12	-10.88	46.00	100	170	QP
5	549.920	7.84	26.81	34.65	-11.35	46.00	100	140	QP
6	* 796.300	6.53	30.47	37.00	-9.00	46.00	100	325	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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Horizontal	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

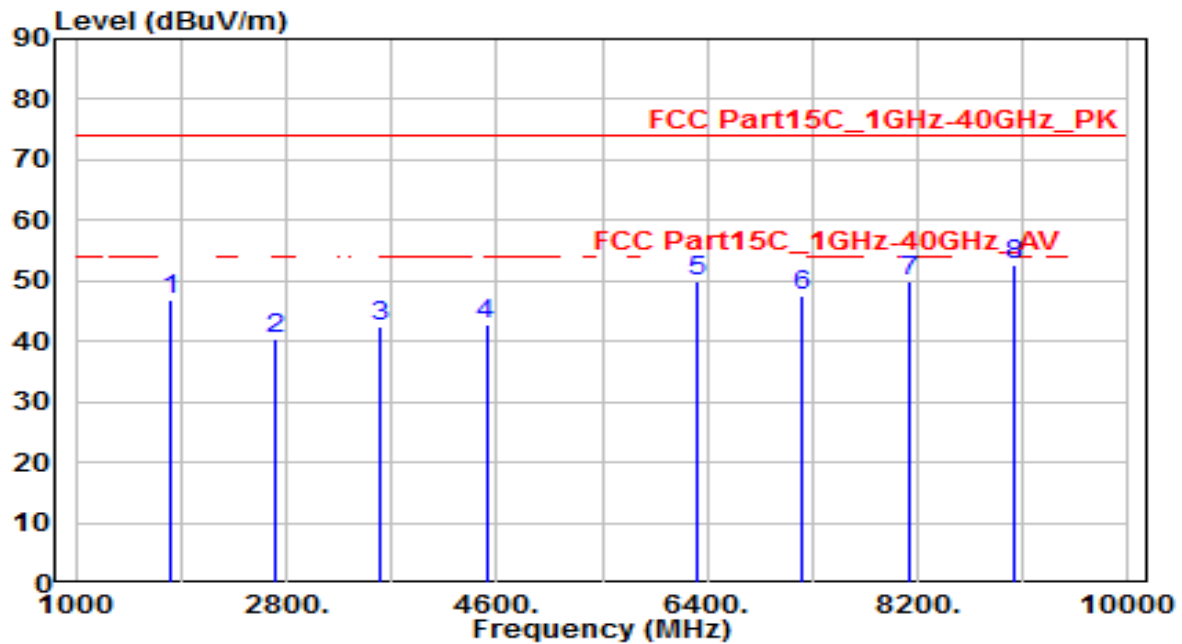


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1804.094	55.15	-4.93	50.22	-23.78	74.00	150	360	Peak
2	2705.500	47.64	-2.35	45.29	-28.71	74.00	150	360	Peak
3	3608.313	43.42	-0.47	42.95	-31.05	74.00	150	360	Peak
4	4510.281	43.07	2.57	45.64	-28.36	74.00	150	360	Peak
5	6314.219	42.24	7.28	49.51	-24.49	74.00	150	360	Peak
6	* 9020.688	37.37	13.71	51.08	-22.92	74.00	150	360	Peak

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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Vertical	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

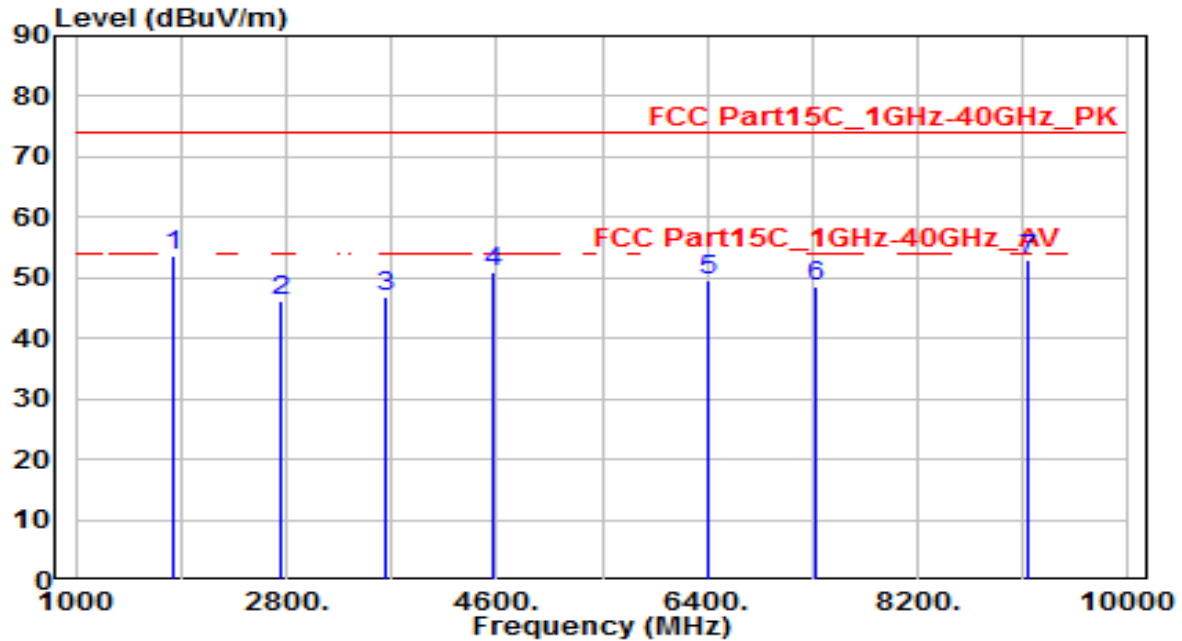


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1804.375	51.78	-4.93	46.85	-27.15	74.00	150	360	Peak
2	2705.781	42.73	-2.35	40.39	-33.61	74.00	150	360	Peak
3	3608.313	42.92	-0.47	42.45	-31.55	74.00	150	360	Peak
4	4510.281	40.20	2.57	42.78	-31.22	74.00	150	360	Peak
5	6314.500	42.58	7.28	49.85	-24.15	74.00	150	360	Peak
6	7216.750	36.59	10.91	47.51	-26.49	74.00	150	360	Peak
7	8118.438	37.57	12.51	50.08	-23.92	74.00	150	360	Peak
8	* 9020.406	38.78	13.71	52.49	-21.51	74.00	150	360	Peak

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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Horizontal	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

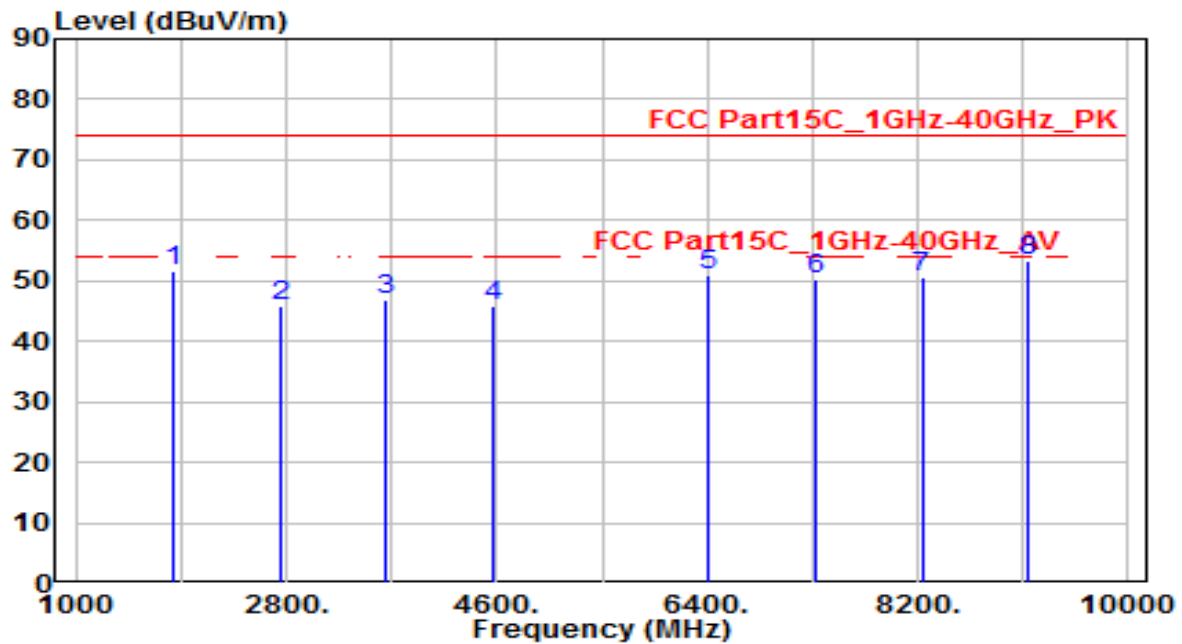


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	*	1829.969	58.43	-4.87	53.56	-20.44	74.00	150	360	Peak
2		2744.875	48.70	-2.37	46.33	-27.67	74.00	150	360	Peak
3		3659.781	47.20	-0.29	46.91	-27.09	74.00	150	360	Peak
4		4574.688	48.08	2.73	50.81	-23.19	74.00	150	360	Peak
5		6405.063	42.07	7.68	49.75	-24.25	74.00	150	360	Peak
6		7319.969	37.47	11.21	48.68	-25.32	74.00	150	360	Peak
7		9149.781	38.99	13.90	52.89	-21.11	74.00	150	360	Peak

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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Vertical	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

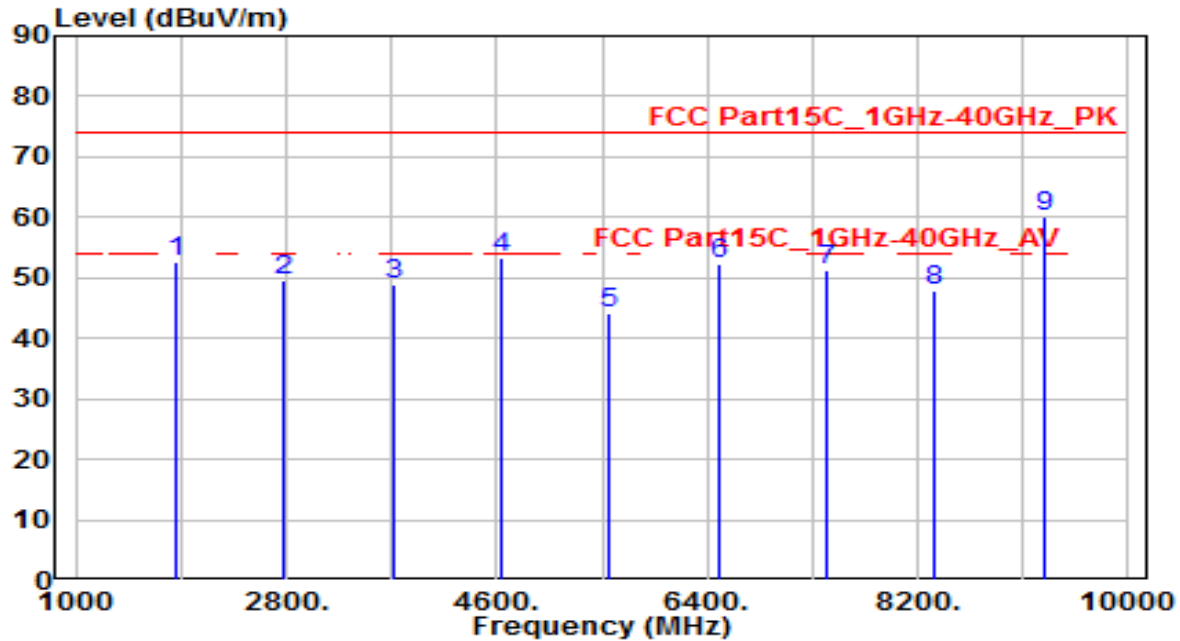


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1829.688	56.52	-4.87	51.66	-22.34	74.00	150	360	Peak
2	2744.594	48.12	-2.37	45.74	-28.26	74.00	150	360	Peak
3	3660.063	47.15	-0.29	46.86	-27.14	74.00	150	360	Peak
4	4574.969	43.03	2.73	45.76	-28.24	74.00	150	360	Peak
5	6404.500	43.34	7.67	51.02	-22.98	74.00	150	360	Peak
6	7319.969	38.98	11.21	50.18	-23.82	74.00	150	360	Peak
7	8235.156	38.22	12.49	50.71	-23.29	74.00	150	360	Peak
8	* 9149.781	39.32	13.90	53.22	-20.78	74.00	150	360	Peak

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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Horizontal	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-927.9MHz	Test Voltage	AC 120V/60Hz

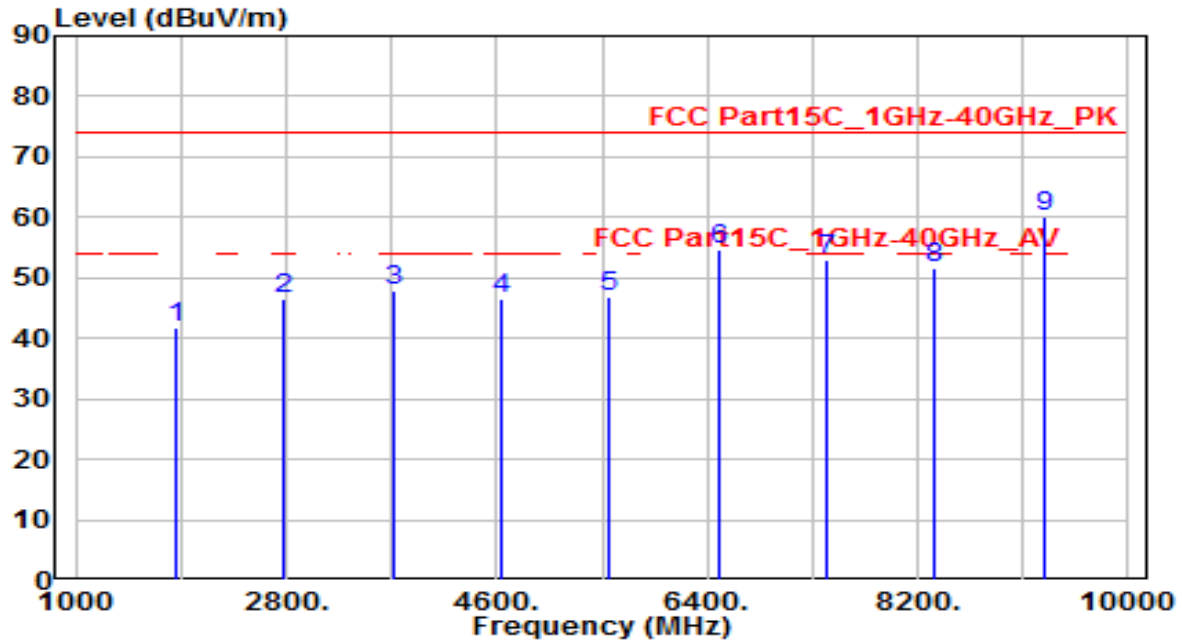


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	1855.563	57.55	-4.80	52.75	-21.25	74.00	150	360	Peak
2	2783.406	52.10	-2.40	49.71	-24.29	74.00	150	360	Peak
3	3711.531	49.04	-0.11	48.93	-25.07	74.00	150	360	Peak
4	4639.375	50.30	2.88	53.18	-20.82	74.00	150	360	Peak
5	5567.219	39.78	4.49	44.26	-29.74	74.00	150	360	Peak
6	6495.063	44.30	8.07	52.37	-21.63	74.00	150	360	Peak
7	7422.906	39.80	11.50	51.30	-22.70	74.00	150	360	Peak
8	8350.750	35.58	12.48	48.05	-25.95	74.00	150	360	Peak
9	* 9278.875	46.08	14.09	60.18	-13.82	74.00	150	360	Peak

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	Weightless EDM	Date of Test	2021-01-29
Factor	BBHA 9120D	Temp. / Humidity	21°C /51%
Polarity	Vertical	Site / Test Engineer	AC1 / Kaunaz
Test Mode	TX-927.9MHz	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	1855.844	46.42	-4.80	41.62	-32.38	74.00	150	360	Peak
2	2783.688	48.97	-2.40	46.58	-27.42	74.00	150	360	Peak
3	3711.531	48.01	-0.11	47.90	-26.10	74.00	150	360	Peak
4	4639.375	43.75	2.88	46.63	-27.37	74.00	150	360	Peak
5	5567.219	42.54	4.49	47.03	-26.97	74.00	150	360	Peak
6	6495.063	46.67	8.07	54.74	-19.26	74.00	150	360	Peak
7	7423.188	41.53	11.50	53.02	-20.98	74.00	150	360	Peak
8	8350.750	39.03	12.48	51.50	-22.50	74.00	150	360	Peak
9	* 9278.594	46.00	14.09	60.09	-13.91	74.00	150	360	Peak

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.

7.9. Radiated Restricted Band Edge Measurement

7.9.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [V/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

7.9.2. Test Procedure Used

ANSI C63.10-2013 - Section 11.12.1

7.9.3. Test Setting

Peak Field Strength Measurements

8. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
9. RBW = as specified in Table 1
10. VBW = 3 * RBW
11. Detector = peak
12. Sweep time = auto couple
13. Trace mode = max hold

14. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

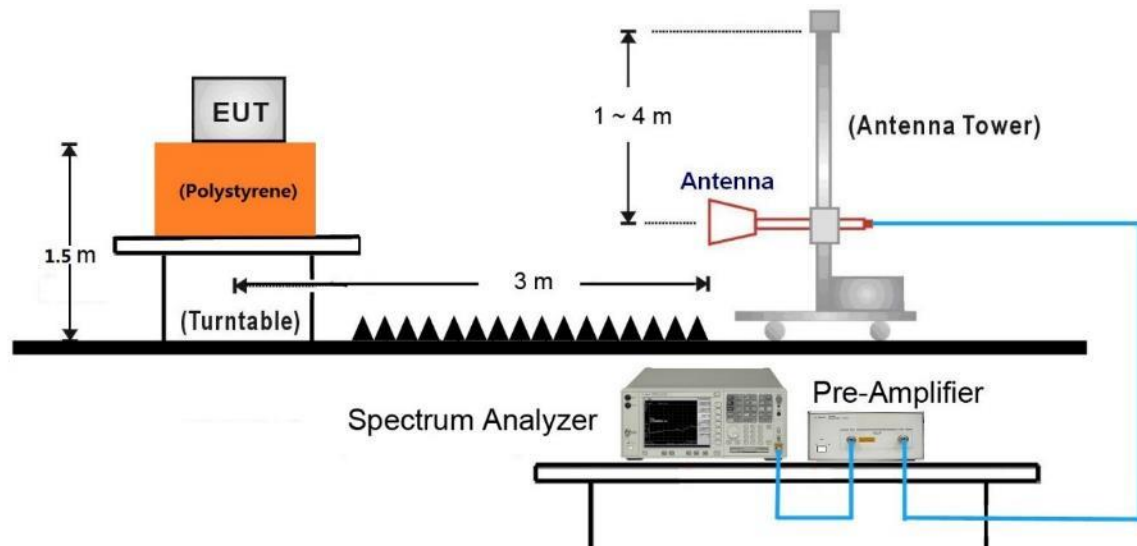
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

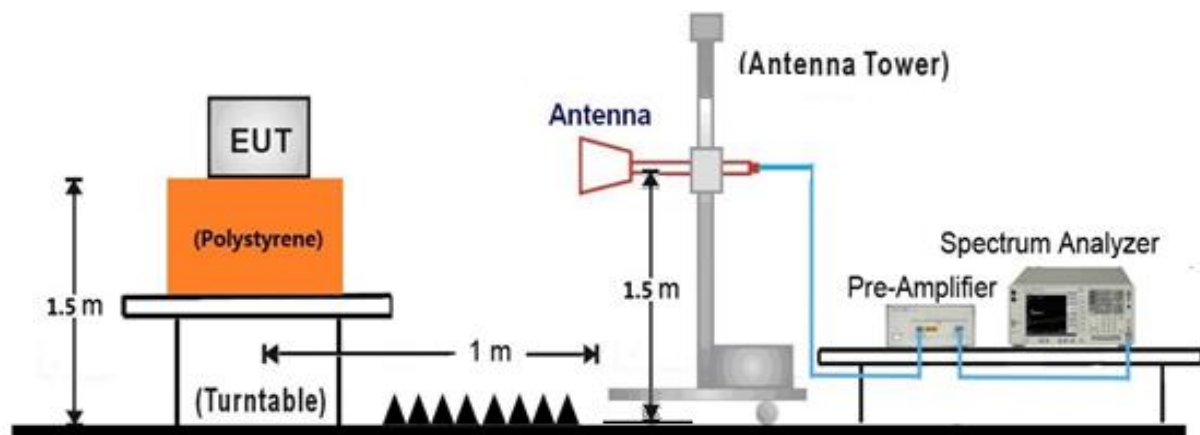
9. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
10. RBW = 1MHz
11. VBW $\geq 1/T$
12. De As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
13. Detector = Peak
14. Sweep time = auto
15. Trace mode = max hold
16. Allow max hold to run for at least 50 times (1/duty cycle) traces

7.9.4. Test Setup

1GHz ~ 18GHz Test Setup:

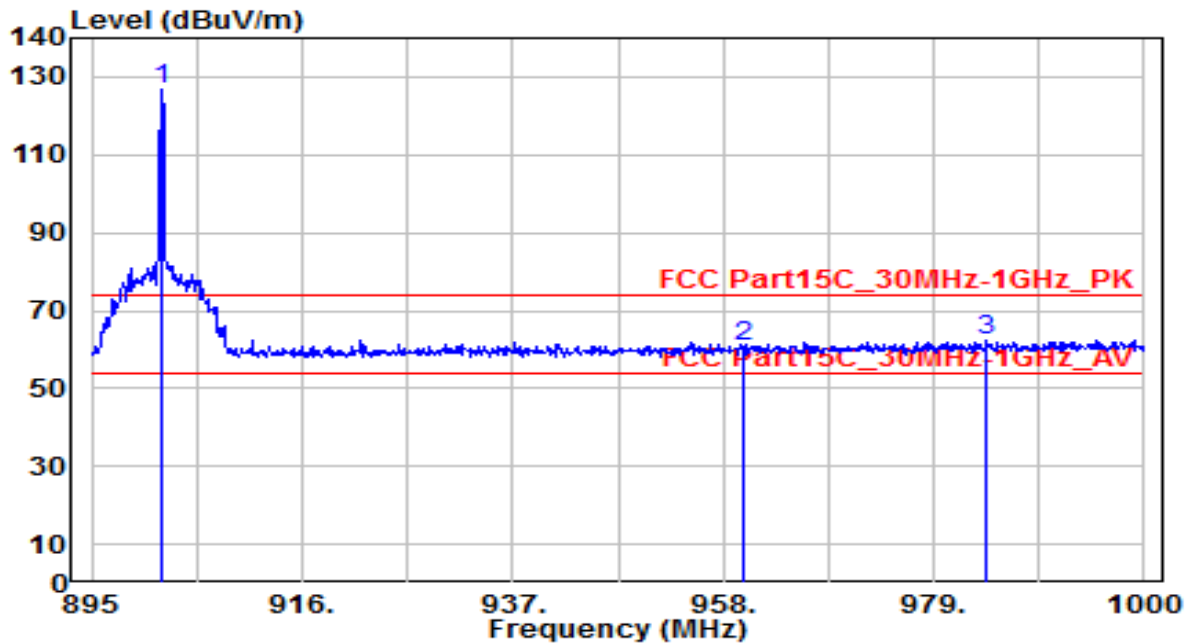


18GHz ~40GHz Test Setup:



7.9.5. Test Result

EUT	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Horizontal	Site / Test Engineer	AC1 / Jay
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

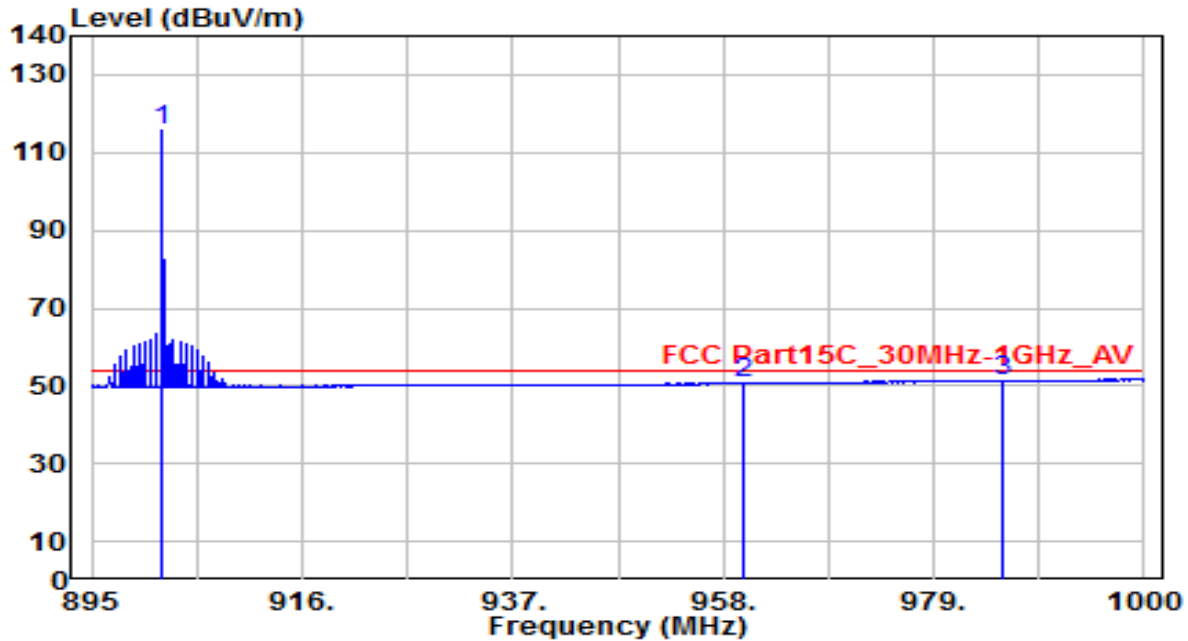


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	902.035	95.13	31.79	126.91	N/A	N/A	120	180	Peak
2	960.000	28.25	32.32	60.57	-13.43	74.00	120	180	Peak
3	* 984.250	29.48	32.70	62.18	-11.82	74.00	120	180	Peak

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	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Horizontal	Site / Test Engineer	AC1 / Jay
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

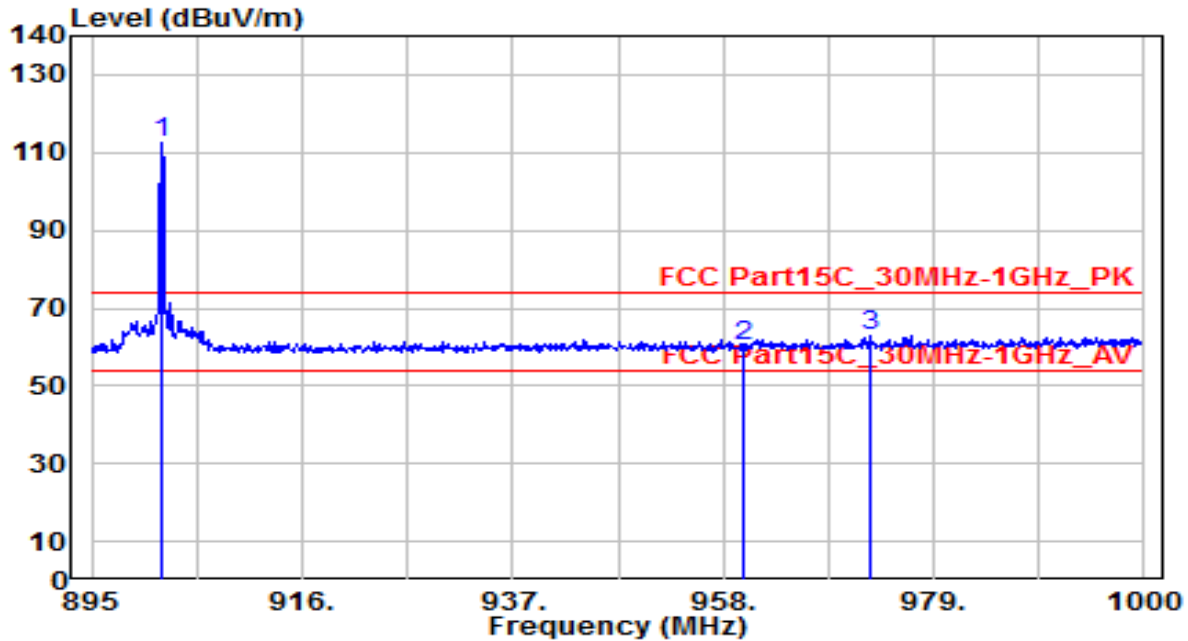


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	902.035	83.67	31.79	115.46	N/A	N/A	120	180	Average
2	960.000	18.32	32.32	50.64	-3.36	54.00	120	180	Average
3	* 985.930	18.55	32.73	51.28	-2.72	54.00	120	180	Average

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).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Vertical	Site / Test Engineer	AC1 / Jay
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

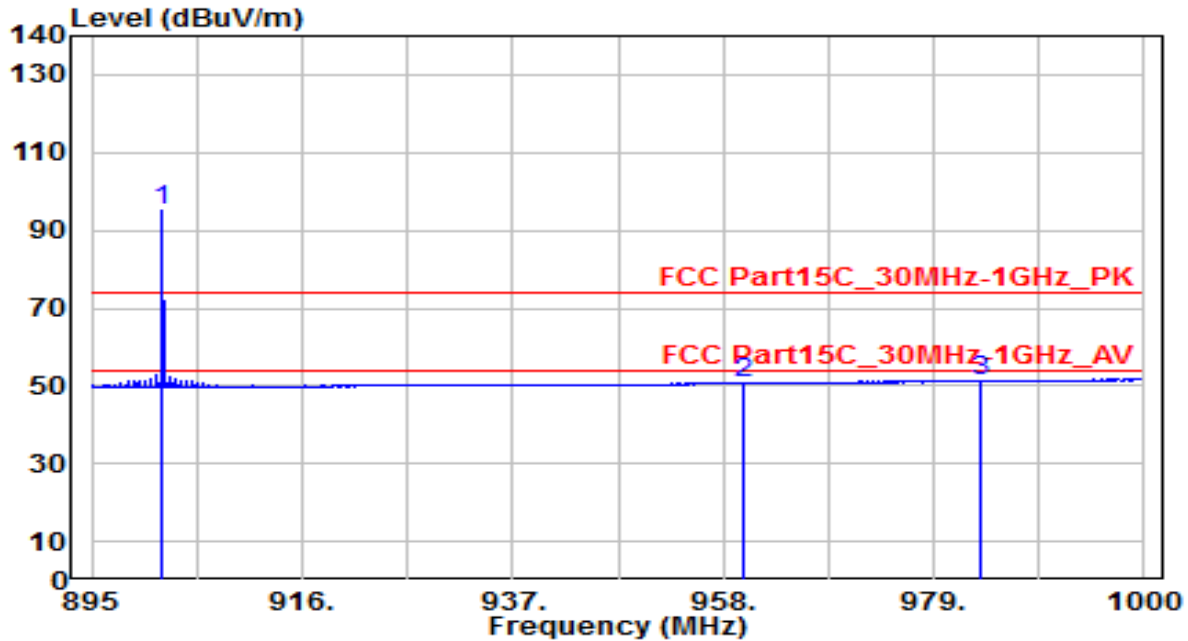


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	902.035	80.65	31.79	112.44	N/A	N/A	155	200	Peak
2	960.000	27.74	32.32	60.06	-13.94	74.00	155	200	Peak
3	* 972.805	30.40	32.52	62.93	-11.07	74.00	155	200	Peak

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	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Vertical	Site / Test Engineer	AC1 / Jay
Test Mode	TX-902.1MHz	Test Voltage	AC 120V/60Hz

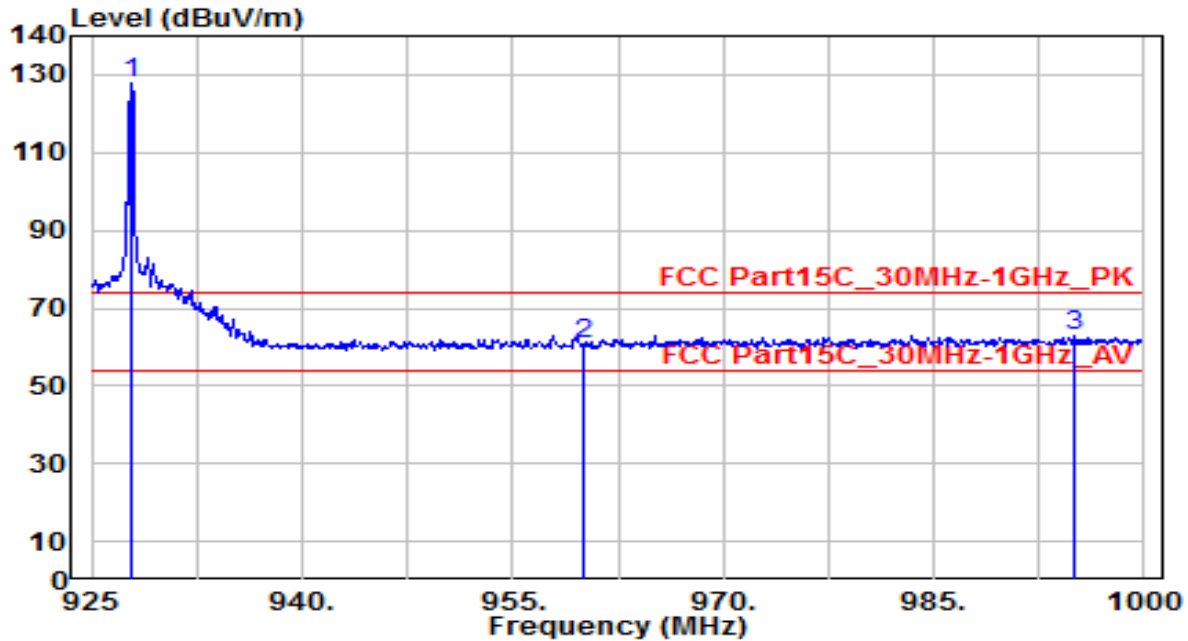


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	902.035	63.09	31.79	94.87	N/A	N/A	155	200	Average
2	960.000	18.32	32.32	50.63	-3.37	54.00	155	200	Average
3	* 983.620	18.50	32.69	51.19	-2.81	54.00	155	200	Average

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).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Horizontal	Site / Test Engineer	AC1 / Jay
Test Mode	TX-927.9MHz	Test Voltage	AC 120V/60Hz

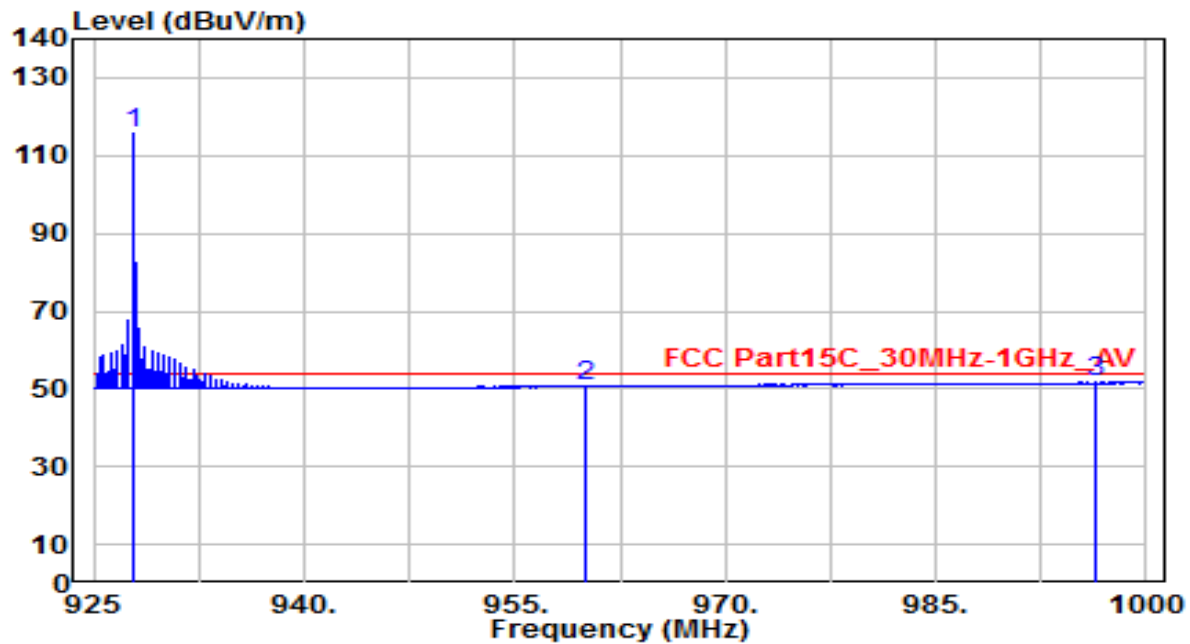


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	* 927.850	95.62	31.99	127.61	N/A	N/A	120	180	Peak
2	960.000	28.24	32.32	60.56	-13.44	74.00	120	180	Peak
3	995.050	29.82	32.87	62.69	-11.31	74.00	120	180	Peak

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	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Horizontal	Site / Test Engineer	AC1 / Jay
Test Mode	TX-927.9MHz	Test Voltage	AC 120V/60Hz

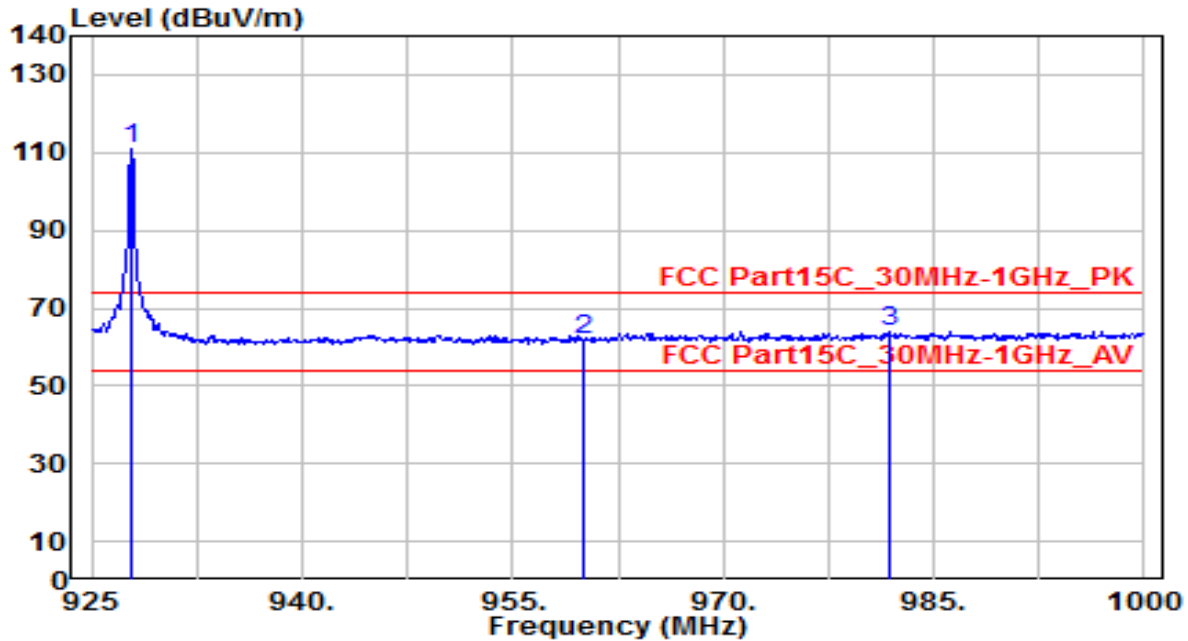


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	927.850	83.61	31.99	115.60	N/A	N/A	120	180	Average
2	960.000	18.24	32.32	50.56	-3.44	54.00	120	180	Average
3	* 996.400	18.63	32.89	51.52	-2.48	54.00	120	180	Average

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).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

EUT	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Vertical	Site / Test Engineer	AC1 / Jay
Test Mode	TX-927.9MHz	Test Voltage	AC 120V/60Hz

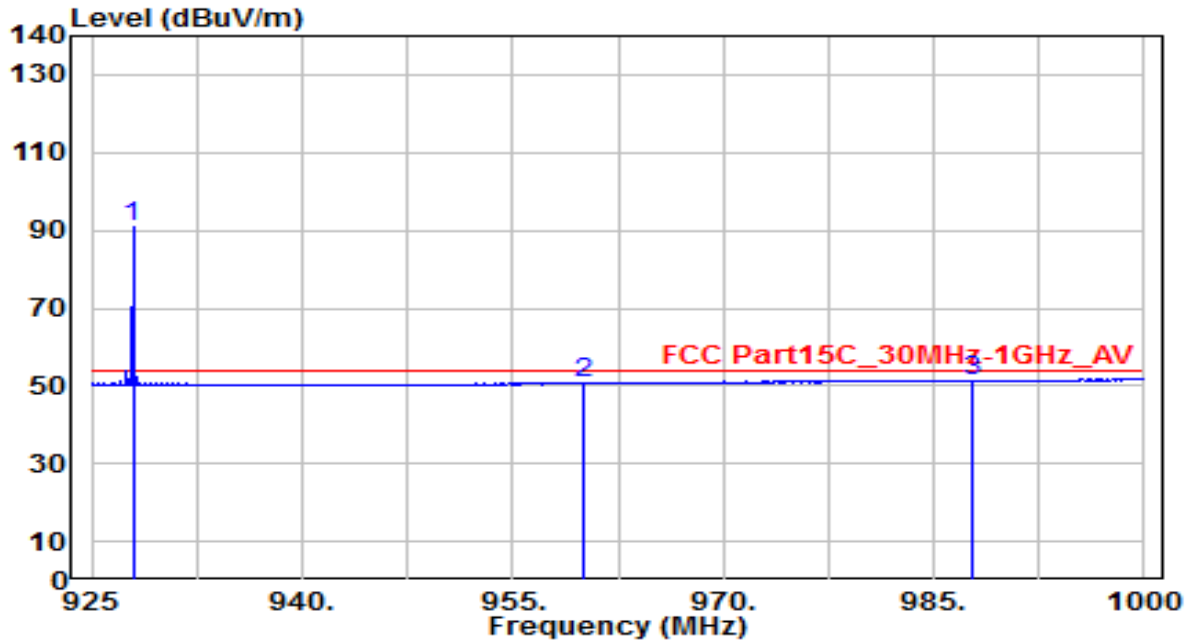


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Height (cm)	Angle (deg)	Remark (QP/PK/AV)
1	927.850	78.97	31.99	110.95	N/A	N/A	155	270	Peak
2	960.000	29.50	32.32	61.82	-12.18	74.00	155	270	Peak
3	* 981.775	31.47	32.66	64.13	-9.87	74.00	155	270	Peak

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	Weightless EDM	Date of Test	2020-12-11
Factor	VULB 9162	Temp. / Humidity	25°C /64%
Polarity	Vertical	Site / Test Engineer	AC1 / Jay
Test Mode	TX-927.9MHz	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	927.925	59.04	31.99	91.03	N/A	N/A	155	270	Average
2	960.000	18.30	32.32	50.62	-3.38	54.00	155	270	Average
3	* 987.775	18.54	32.76	51.30	-2.70	54.00	155	270	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).
4. The emission levels of other frequencies are very lower than the limit and not show in test report.

7.10. AC Conducted Emissions Measurement

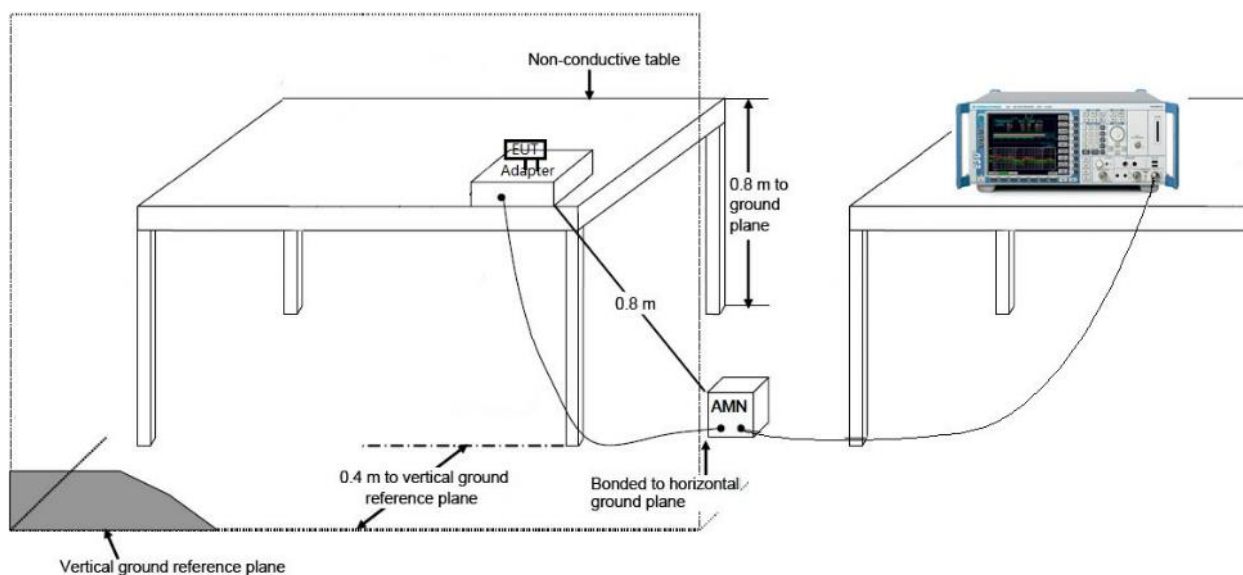
7.10.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 / RSS-Gen Limits		
Frequency (MHz)	QP (dB μ V)	Average (dB μ V)
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.

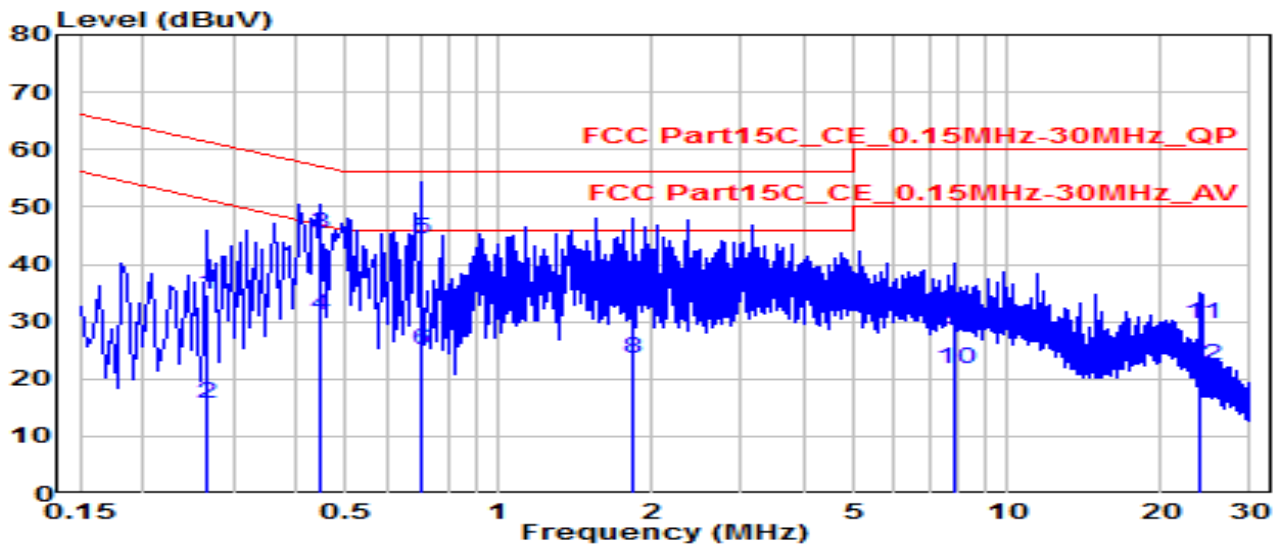
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.10.2. Test Setup



7.10.3. Test Result

EUT	Weightless EDM	Date of Test	2021-02-02
Factor	CE_ENV216-L1 (Filter ON)	Temp. / Humidity	23.6°C / 49%
Polarity	Line1	Site / Test Engineer	SR2 / Eric
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

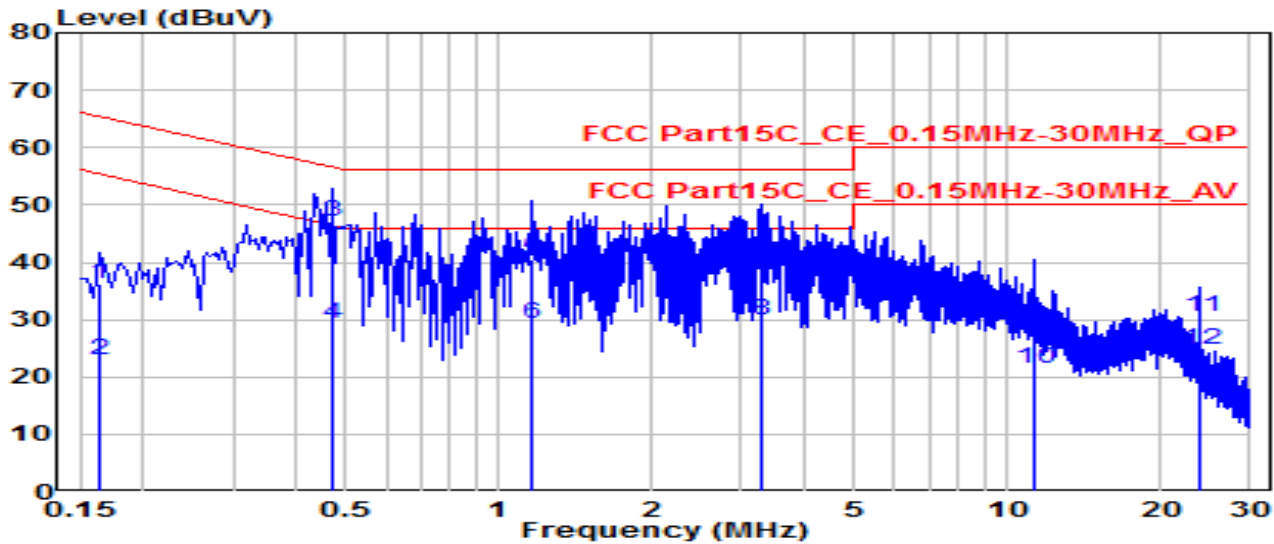


No		Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Remark (QP/PK/AV)
1		0.267	25.20	9.62	34.81	-26.40	61.21	QP
2		0.267	5.99	9.62	15.60	-35.61	51.21	Average
3		0.447	35.54	9.63	45.17	-11.76	56.93	QP
4		0.447	21.56	9.63	31.19	-15.75	46.93	Average
5	*	0.703	34.87	9.64	44.52	-11.48	56.00	QP
6	*	0.703	15.41	9.64	25.05	-20.95	46.00	Average
7		1.842	27.17	9.69	36.85	-19.15	56.00	QP
8		1.842	13.96	9.69	23.64	-22.36	46.00	Average
9		7.894	18.60	9.82	28.43	-31.57	60.00	QP
10		7.894	11.96	9.82	21.79	-28.21	50.00	Average
11		23.971	19.66	10.03	29.69	-30.31	60.00	QP
12		23.971	12.28	10.03	22.31	-27.69	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	Weightless EDM	Date of Test	2021-02-02
Factor	CE_ENV216-N (Filter ON)	Temp. / Humidity	23.6°C /49%
Polarity	Neutral	Site / Test Engineer	SR2 / Eric
Test Mode	TX-915MHz	Test Voltage	AC 120V/60Hz

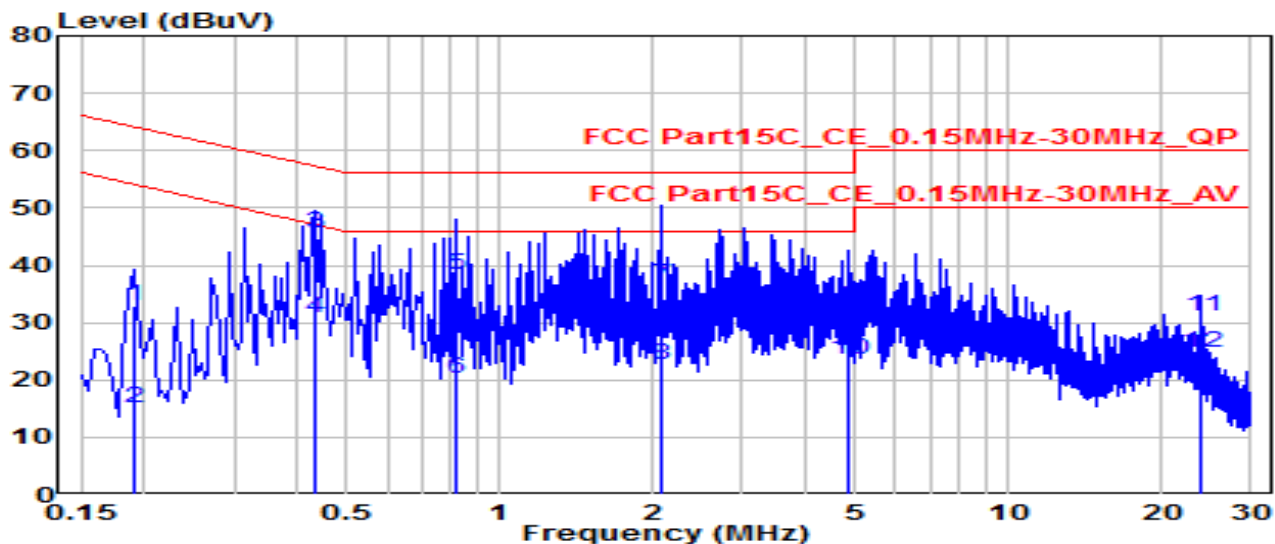


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Remark (QP/PK/AV)
1	0.163	26.57	9.62	36.19	-29.09	65.28	QP
2	0.163	13.35	9.62	22.97	-32.31	55.28	Average
3	* 0.469	37.59	9.64	47.23	-9.29	56.52	QP
4	* 0.469	19.74	9.64	29.37	-17.15	46.52	Average
5	1.153	30.83	9.67	40.50	-15.50	56.00	QP
6	1.153	19.69	9.67	29.37	-16.63	46.00	Average
7	3.273	31.14	9.72	40.85	-15.15	56.00	QP
8	3.273	20.18	9.72	29.90	-16.10	46.00	Average
9	11.349	18.43	9.91	28.34	-31.66	60.00	QP
10	11.349	11.66	9.91	21.57	-28.43	50.00	Average
11	23.980	20.49	10.13	30.62	-29.38	60.00	QP
12	23.980	14.53	10.13	24.65	-25.35	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	Weightless EDM	Date of Test	2021-02-02
Factor	CE_ENV216-L1 (Filter ON)	Temp. / Humidity	23.6°C /49%
Polarity	Line1	Site / Test Engineer	SR2 / Eric
Test Mode	TX-915MHz	Test Voltage	AC 240V/60Hz

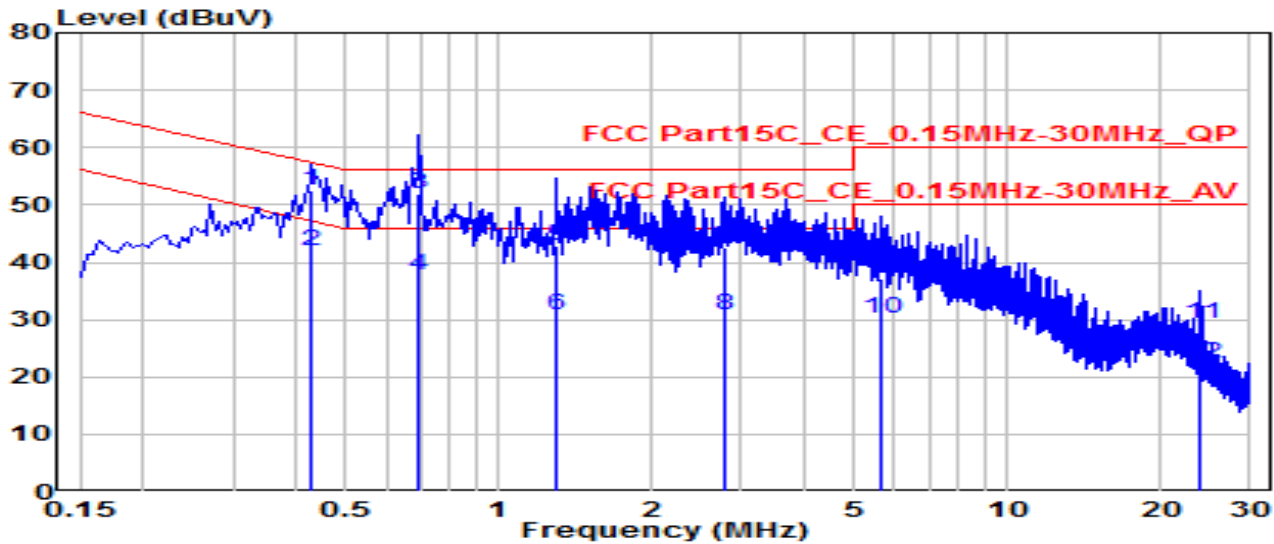


No	Frequency (MHz)	Reading (dBuV)	C.F (dB)	Measurement (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Remark (QP/PK/AV)
1	0.190	23.17	9.61	32.79	-31.23	64.01	QP
2	0.190	5.46	9.61	15.07	-38.95	54.01	Average
3	* 0.433	36.06	9.63	45.69	-11.50	57.19	QP
4	* 0.433	21.24	9.63	30.87	-16.32	47.19	Average
5	0.816	28.61	9.65	38.26	-17.74	56.00	QP
6	0.816	10.60	9.65	20.24	-25.76	46.00	Average
7	2.067	26.86	9.69	36.55	-19.45	56.00	QP
8	2.067	13.09	9.69	22.78	-23.22	46.00	Average
9	4.839	22.79	9.74	32.52	-23.48	56.00	QP
10	4.839	13.90	9.74	23.64	-22.36	46.00	Average
11	23.998	20.94	10.03	30.97	-29.03	60.00	QP
12	23.998	14.73	10.03	24.76	-25.24	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	Weightless EDM	Date of Test	2021-02-02
Factor	CE_ENV216-N (Filter ON)	Temp. / Humidity	23.6°C /49%
Polarity	Neutral	Site / Test Engineer	SR2 / Eric
Test Mode	TX-915MHz	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	0.429	42.90	9.64	52.53	-4.74	57.27	QP
2	0.429	32.22	9.64	41.86	-5.42	47.27	Average
3	* 0.694	42.32	9.65	51.97	-4.03	56.00	QP
4	* 0.694	28.23	9.65	37.88	-8.12	46.00	Average
5	1.297	33.23	9.68	42.91	-13.09	56.00	QP
6	1.297	21.23	9.68	30.91	-15.09	46.00	Average
7	2.769	32.91	9.71	42.61	-13.39	56.00	QP
8	2.769	21.24	9.71	30.94	-15.06	46.00	Average
9	5.621	27.30	9.77	37.07	-22.93	60.00	QP
10	5.621	20.28	9.77	30.05	-19.95	50.00	Average
11	24.025	19.25	10.13	29.38	-30.62	60.00	QP
12	24.025	12.27	10.13	22.40	-27.60	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 **Weightless EDM** is in compliance with Part 15C of the FCC Rules.

_____ The End _____