

# TEST REPORT

**Report No.:** 8234EU012201W3

**Applicant:** Shenzhen Qianyan Technology LTD

**Address:** No.3301,Block C,Section 1,Chuangzhi Yuncheng Building,Liuxian Avenue,Xili Community, Xili Street, Nanshan District, Shenzhen 518000, China

**Product Name:** Smart Gateway 1s

**Model No.:** H5044

**Trademark:** GoveeLife

**FCC ID:** 2A7VD-H5044

**Test Standard(s):** 47 CFR Part 15 Subpart C

**Date of Receipt:** Oct. 22, 2024

**Test Date:** Oct. 22, 2024 – Nov. 15, 2024

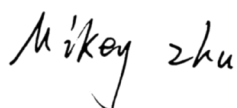
**Date of Issue:** Dec. 07, 2024

**ISSUED BY:**

SHENZHEN EU TESTING LABORATORY LIMITED



**Prepared by:**



Mikey Zhu/ Engineer

**Reviewed and Approved by:**



Sally Zhang/ Manager

## Revision Record

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## 2 General Information

### 2.1 Applicant Information

Applicant	Shenzhen Qianyan Technology LTD
Address	No.3301,Block C,Section 1,Chuangzhi Yuncheng Building,Liuxian Avenue,Xili Community, Xili Street, Nanshan District, Shenzhen 518000, China

### 2.2 Manufacturer Information

Manufacturer	Shenzhen Qianyan Technology LTD
Address	No.3301,Block C,Section 1,Chuangzhi Yuncheng Building,Liuxian Avenue,Xili Community, Xili Street, Nanshan District, Shenzhen 518000, China

### 2.3 Factory Information

Factory	N/A
Address	N/A

### 2.4 General Description of E.U.T.

Product Name	Smart Gateway 1s
Model No. Under Test	H5044
List Model No.	N/A
Description of Model differentiation	N/A
Rating(s)	110-240V~ 50/60Hz 22mA
Product Type	<input checked="" type="checkbox"/> Mobile <input type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Test Sample No.	-1/2(Normal Sample), -2/2(Engineering Sample)
Hardware Version	N/A
Software Version	N/A
Remark	1) The above information is declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

## 2.5 Technical Information of E.U.T.

Network and Wireless Connectivity	Bluetooth (BLE) WiFi 2.4G: 802.11b, 802.11g, 802.11n(HT20) Proprietary Band: 902-928MHz
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The requirement for the following technical information of the EUT was tested in this report:

Technology	<b>Proprietary Band: 902-928MHz</b>
Operating Frequency	912.375 MHz
Number of Channel	1
Modulation Type	GFSK
Antenna Type	Spring Antenna
Antenna Gain(Peak)	1.48 dBi
Remark	The above information is declared by the applicant, EU-LAB is not responsible for the information accuracy provided by the applicant.

All channels were listed on the following table:

Channel Number	Frequency (MHz)
CH01	912.375

### 3 Test Summary

#### 3.1 Test Standard

The tests were performed according to following standards:

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	ANSI C63.10-2020	American National Standard for Testing Unlicensed Wireless Devices

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

#### 3.2 Test Verdict

No.	Description	FCC Part No.	Channel	Verdict	Remark
1	Antenna Requirement	15.203	N/A	Pass	Note <sup>1</sup>
2	Conducted Emission at AC Power Line	15.207	CH01	Pass	--
3	20dB Bandwidth	15.215	CH01	Pass	--
4	Field Strength of Fundamental	15.249 (a)	CH01	Pass	--
5	Radiated Emission & Band Edge	15.209 15.249 (a)	CH01	Pass	--

Note <sup>1</sup>: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

#### 3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Subdistrict, Baoan District, Shenzhen, Guangdong, China
Designation Number	CN1368
Test Firm Registration Number	952583

## 4 Test Configuration

### 4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	30% to 60%	
Atmospheric Pressure	86 kPa to 106 kPa	
Temperature	NT (Normal Temperature)	+15°C to +35°C
Working Voltage of the EUT	NV (Normal Voltage)	120VAC, 60Hz

### 4.2 Test Equipment

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	EE-004	2024/01/09	2025/01/08
EMI Test Receiver	Rohde & Schwarz	ESCI	EE-005	2024/01/09	2025/01/08
Test Software	Farad	EZ-EMC	EE-014	N.C.R	N.C.R

Radiated Emission and RF Test					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2024/01/09	2025/01/08
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023/01/14	2026/01/13
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2023/01/12	2026/01/11
Pre-amplifier	Agilent	8447D	EE-009	2024/01/09	2025/01/08
Pre-amplifier	Agilent	8449B	EE-010	2024/01/09	2025/01/08
MXA Signal Analyzer	Agilent	N9020A	EE-011	2024/01/09	2025/01/08
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2024/01/09	2025/01/08
Test Software	Farad	EZ-EMC	EE-015	N.C.R	N.C.R
MIMO Power Measurement Module	TSTPASS	TSPS 2023R	EE-016	2024/01/09	2025/01/08
RF Test Software	TSTPASS	TS32893 V2.0	EE-017	N.C.R	N.C.R
Wideband Radio Communication Tester	ROHDE & SCHWARZ	CMW500	EE-402	2024/02/15	2025/02/14
Loop Antenna	TESEQ	HLA6121	EE-403	2024/02/15	2025/02/14
MXG RF Analog Signal Generator	Agilent	N5181A	EE-406	2024/02/15	2025/02/14
Constant Temperature Humidity Chamber	Guangxin	GXP-401	ES-002	2024/07/30	2025/07/29
Power Sensor	ROHDE&SCHWARZ ZN	NRP18S	ES-052	2024/02/15	2025/02/14

### 4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	--			

### 4.4 Test Mode

No.	Test Modes	Description
TM1	TX Mode	Keep the EUT connect to AC power line and works in continuously transmitting mode.

### 4.5 Description of Calculation

#### 4.5.1. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS \text{ (dBuV/m)} = RA \text{ (dBuV)} + AF \text{ (dB/m)} + CL \text{ (dB)} - AG \text{ (dB)}$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

#### 4.5.2. Disturbance Calculation

The AC mains conducted disturbance is calculated by adding the 10dB Pulse Limiter and Cable Factor and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$CD \text{ (dBuV)} = RA \text{ (dBuV)} + PL \text{ (dB)} + CL \text{ (dB)}$$

Where CD = Conducted Disturbance	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	PL = 10 dB Pulse Limiter Factor



#### 4.6 Measurement Uncertainty

The following measurement 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  $k=2$ .

Test Item	Measurement Uncertainty
Conducted Emission	2.64 dB
Occupied Channel Bandwidth	2.8 %
RF output power, conducted	0.68 dB
Power Spectral Density, conducted	1.37 dB
Unwanted Emissions, conducted	1.84 dB
Radiated Emission (9kHz- 30MHz)	Ur = 2.50 dB
Radiated Emission (30MHz- 1GHz)	Ur = 2.70 dB (Horizontal)
	Ur = 2.70 dB (Vertical)
Radiated Emission (1GHz- 18GHz)	Ur = 3.50 dB (Horizontal)
	Ur = 3.50 dB (Vertical)
Radiated Emission (18GHz- 40GHz)	Ur = 5.15 dB (Horizontal)
	Ur = 5.24 dB (Vertical)
Temperature	0.8°C
Humidity	4%

#### 4.7 Deviation from Standards

None.

#### 4.8 Abnormalities from Standard Condition

None.

## 5 Test Items

### 5.1 Antenna requirement

#### 5.1.1 Test Requirement

Test Requirement	<p>According to FCC §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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 manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p> <p>If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.</p>
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#### 5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

#### 5.1.3 Antenna Gain

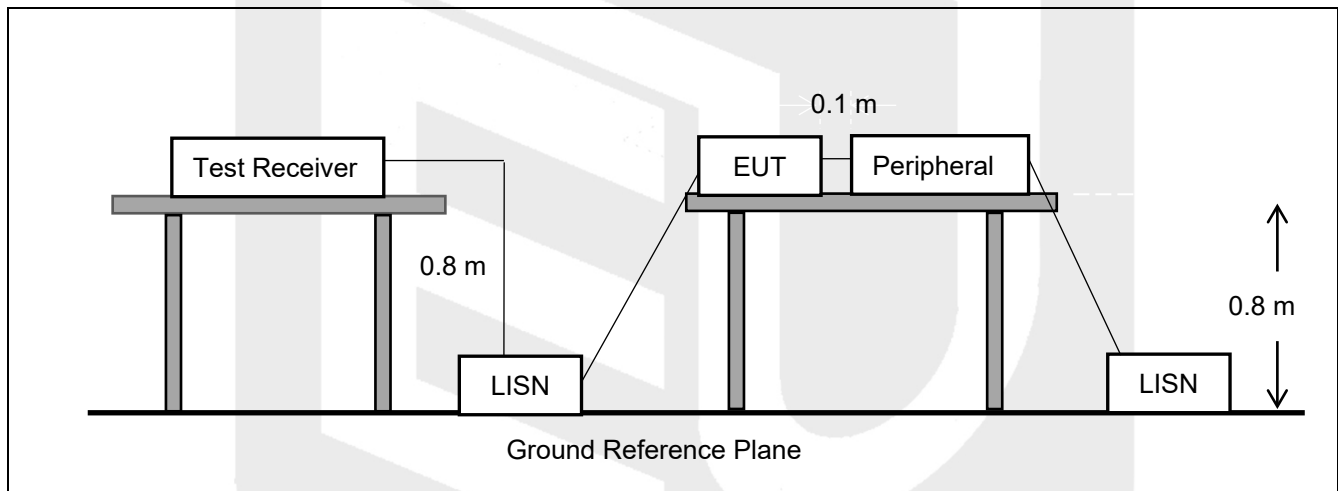
The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

## 5.2 Conducted Emission at AC Power Line

### 5.2.1 Test Requirement

Test Requirement	Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, 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 $\mu$ H/50 ohms line impedance stabilization network (LISN).		
Test Limit	Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method	ANSI C63.10-2020 section 6.2		

### 5.2.2 Test Setup Diagram



### 5.2.3 Test Procedure

The EUT is put on the plane 0.8 m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipment. Both sides of AC line are investigated to find out the maximum conducted emission according to the test standard regulations during conducted emission measurement.

The bandwidth of the field strength meter (R&S Test Receiver ESCI) is set at 9kHz in 150kHz~30MHz.

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

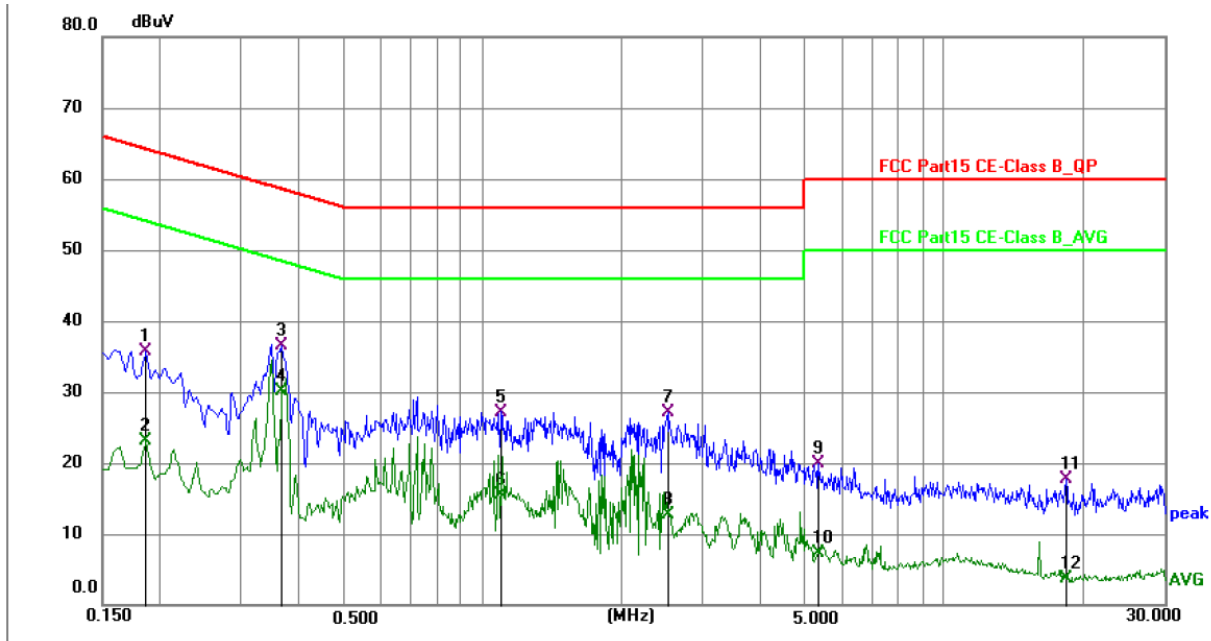
### 5.2.4 Test Data

PASS.

Only the worst case data was showed in the report, please to see the following pages.

**Conducted Emission Test Data**

Test Site: Shielded Room #1  
Test Mode: TM1  
Comments: Live Line

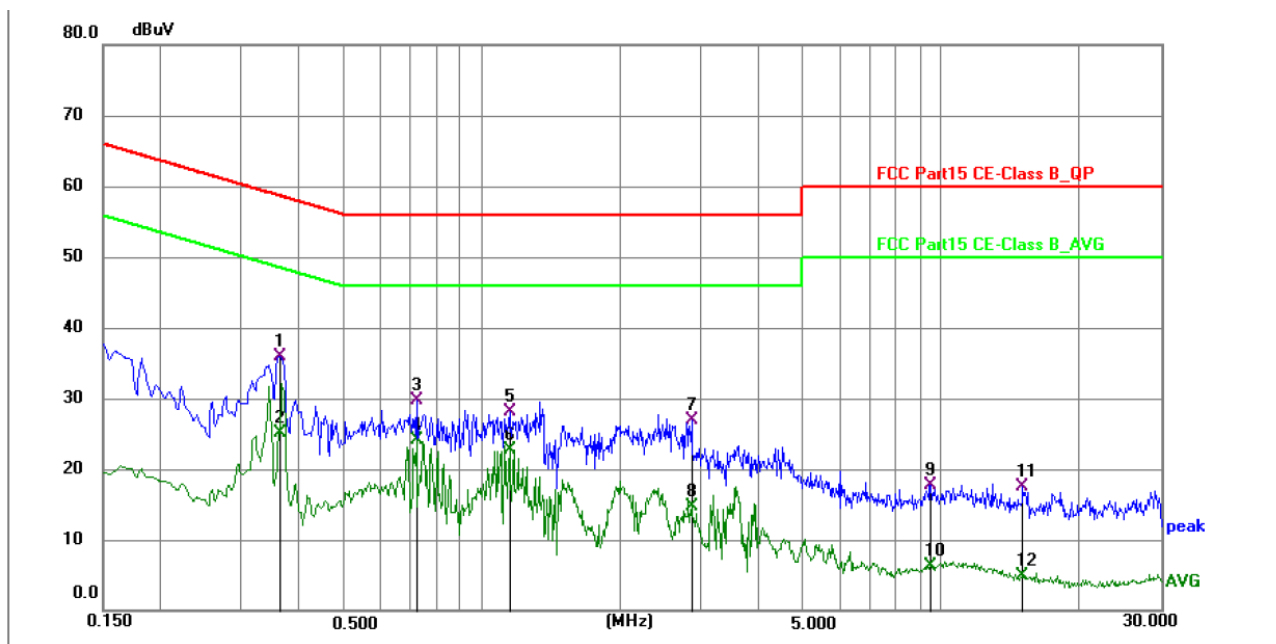


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1860	25.81	9.96	35.77	64.21	-28.44	QP	P	
2	0.1860	13.20	9.96	23.16	54.21	-31.05	AVG	P	
3	0.3660	26.57	10.01	36.58	58.59	-22.01	QP	P	
4 *	0.3660	20.03	10.01	30.04	48.59	-18.55	AVG	P	
5	1.0995	17.16	10.04	27.20	56.00	-28.80	QP	P	
6	1.0995	5.47	10.04	15.51	46.00	-30.49	AVG	P	
7	2.5170	17.01	10.04	27.05	56.00	-28.95	QP	P	
8	2.5170	2.58	10.04	12.62	46.00	-33.38	AVG	P	
9	5.3565	9.77	10.04	19.81	60.00	-40.19	QP	P	
10	5.3565	-2.80	10.04	7.24	50.00	-42.76	AVG	P	
11	18.4020	7.65	10.04	17.69	60.00	-42.31	QP	P	
12	18.4020	-6.39	10.04	3.65	50.00	-46.35	AVG	P	

Note: Level = Reading + Factor    Margin = Level - Limit

**Conducted Emission Test Data**

Test Site: Shielded Room #1  
Test Mode: TM1  
Comments: Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.3615	25.81	10.04	35.85	58.69	-22.84	QP	P	
2	0.3615	15.01	10.04	25.05	48.69	-23.64	AVG	P	
3	0.7215	19.66	10.06	29.72	56.00	-26.28	QP	P	
4 *	0.7215	13.99	10.06	24.05	46.00	-21.95	AVG	P	
5	1.1490	17.96	10.06	28.02	56.00	-27.98	QP	P	
6	1.1490	12.64	10.06	22.70	46.00	-23.30	AVG	P	
7	2.8680	16.89	10.05	26.94	56.00	-29.06	QP	P	
8	2.8680	4.75	10.05	14.80	46.00	-31.20	AVG	P	
9	9.5010	7.74	10.02	17.76	60.00	-42.24	QP	P	
10	9.5010	-3.81	10.02	6.21	50.00	-43.79	AVG	P	
11	15.0000	7.44	9.99	17.43	60.00	-42.57	QP	P	
12	15.0000	-5.00	9.99	4.99	50.00	-45.01	AVG	P	

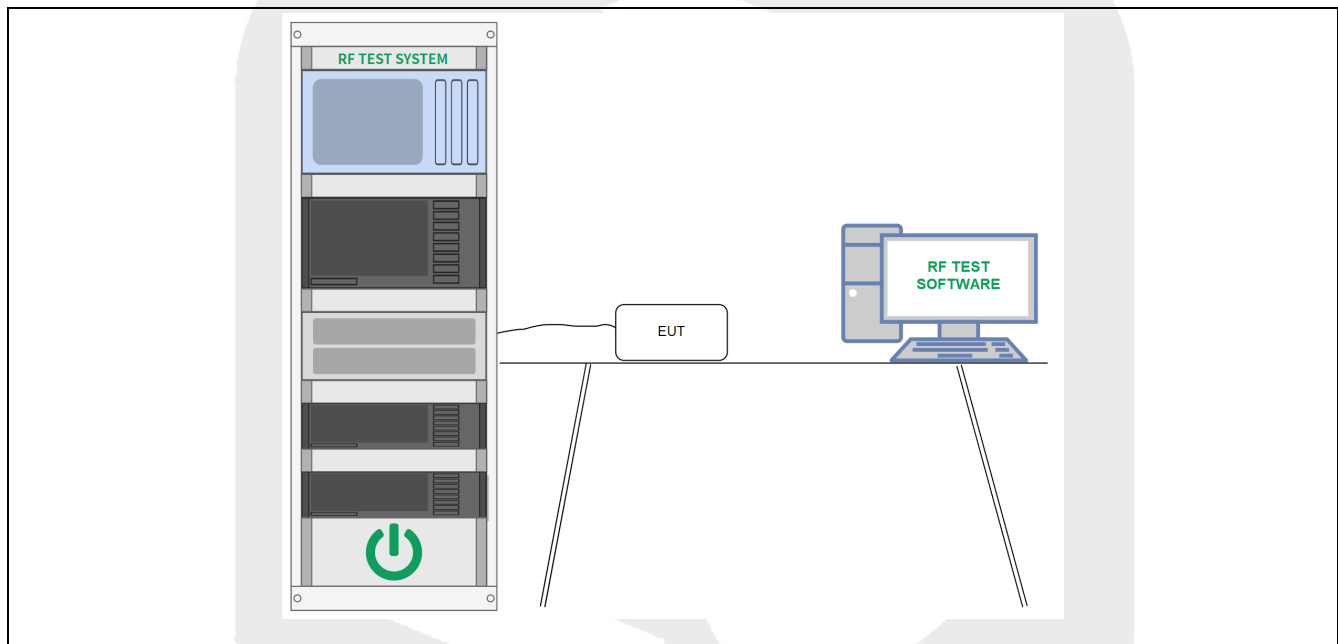
Note: Level = Reading + Factor    Margin = Level - Limit

### 5.3 20dB Bandwidth

#### 5.3.1 Test Requirement

Test Requirement	§ 15.215 (c): Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method	ANSI C63.10-2020 section 6.9.2

#### 5.3.2 Test Setup Diagram



#### 5.3.3 Test Procedure

- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.
- Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (OBW/RBW)]$  below the reference level. Specific guidance is given in 4.1.5.2.
- Steps a) through c) might require iteration to adjust within the specified tolerances.
- The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
- Set detection mode to peak and trace mode to maxhold.
- Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
- Determine the “-xx dB down amplitude” using  $[(\text{reference value}) - xx]$ . Alternatively, this calculation may be made by using the marker-delta function of the instrument.

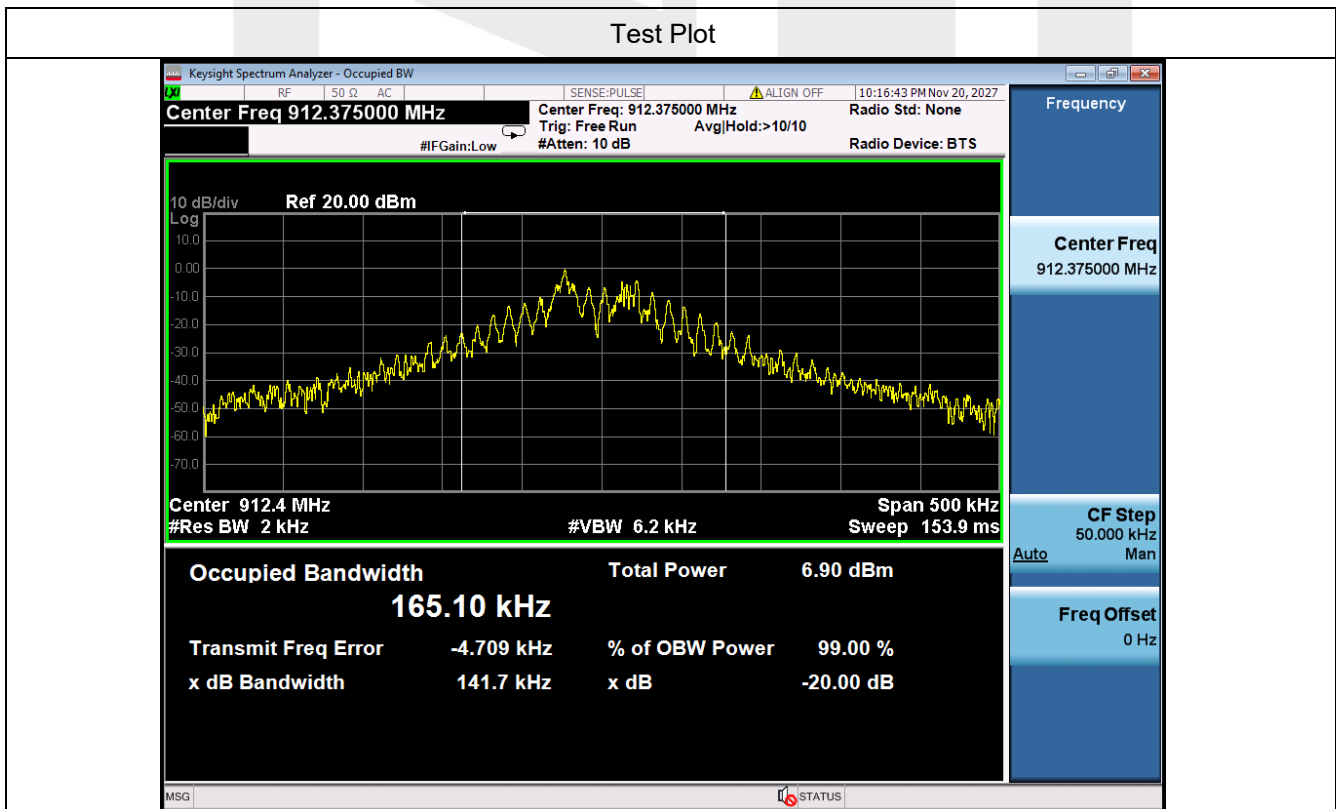
- i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).
- j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

### 5.3.4 Test Data

Test Mode	Frequency (MHz)	20 dB Bandwidth (kHz)	Verdict
TM1	912.375	141.7	Pass

Test Plot





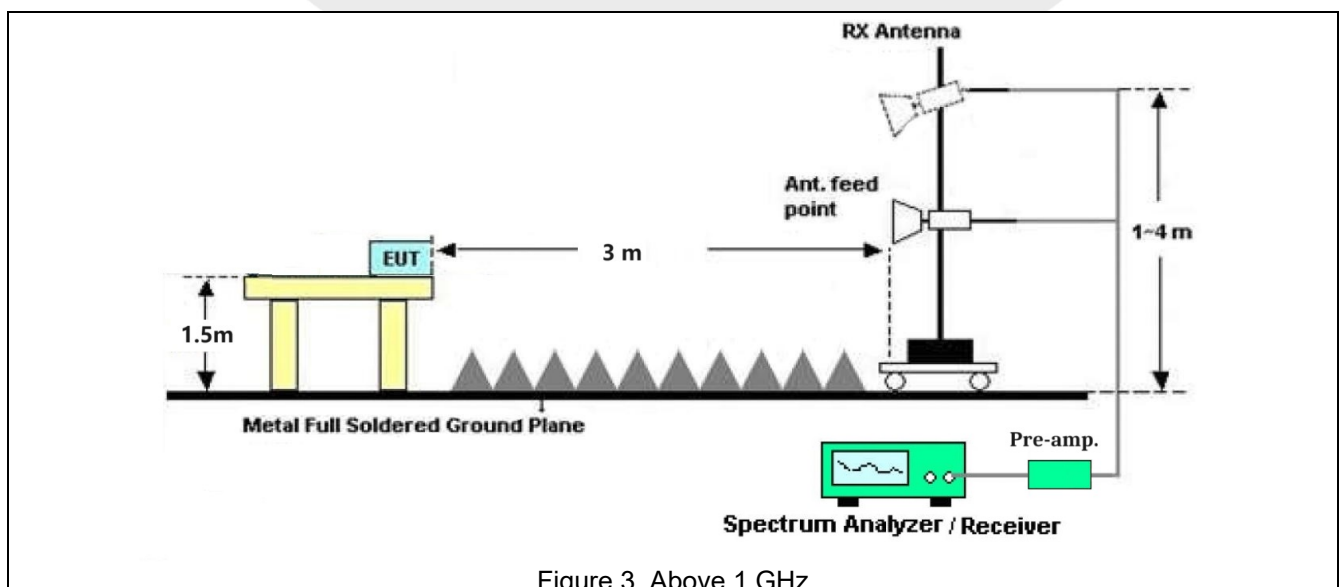
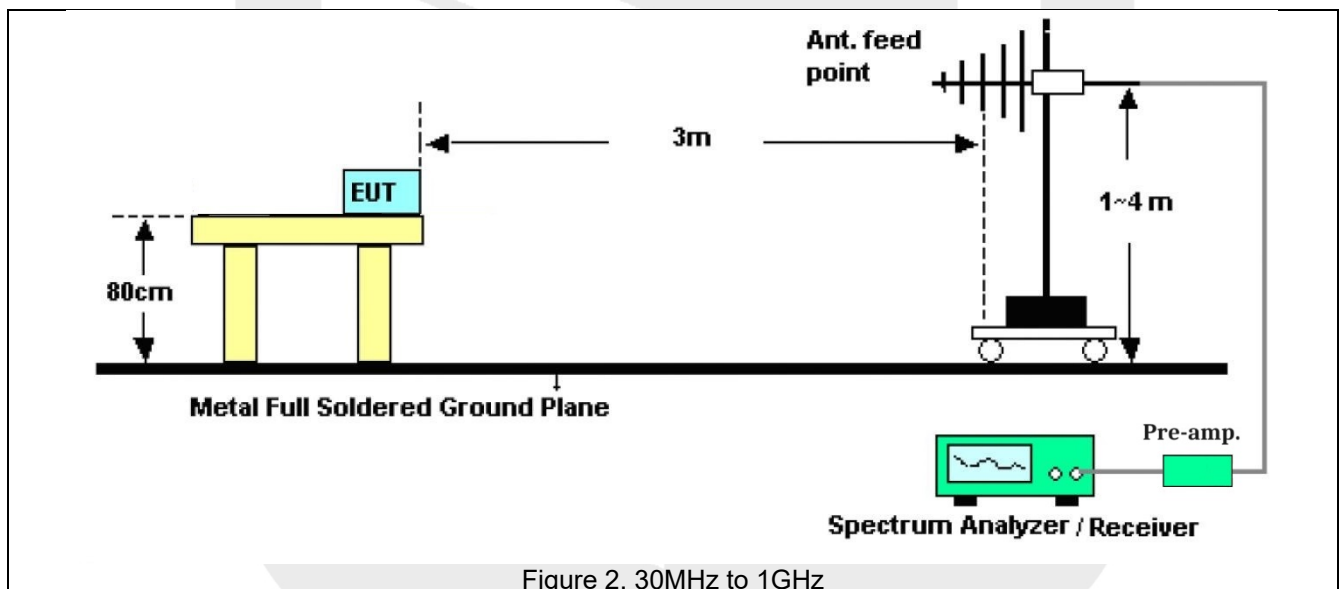
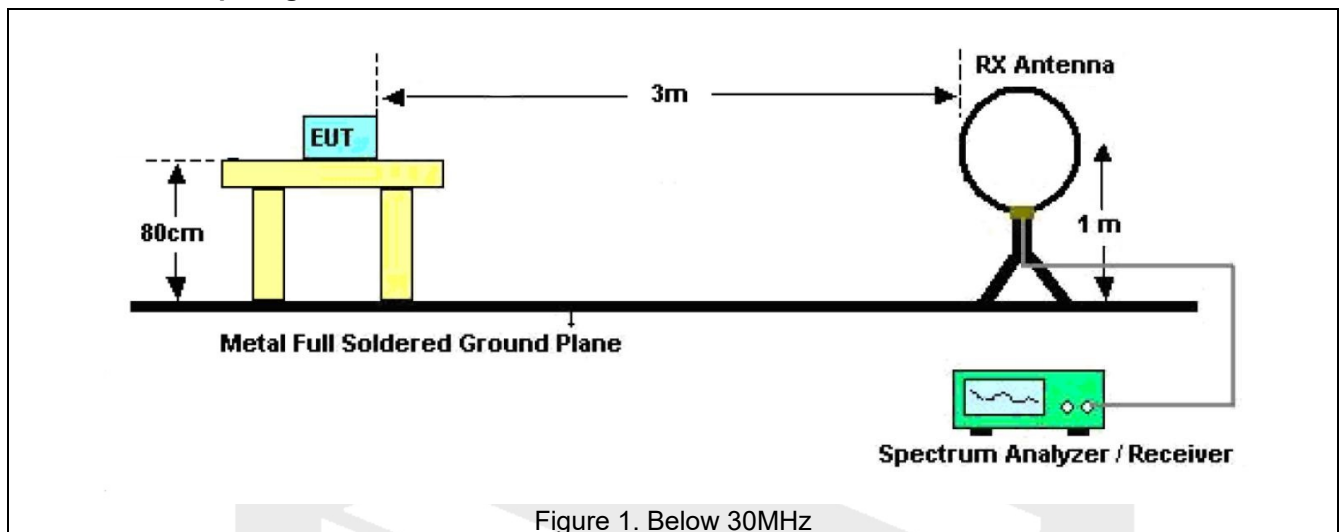
## 5.4 Fundamental and Radiated Spurious Emission

### 5.4.1 Test Requirement

Test Requirement and Limit	§ 15.249 (a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:																							
	<table><tr><th>Fundamental frequency</th><th>Field strength of fundamental emissions (mV/m)</th><th>Field strength of harmonics emissions (microvolts/meter)</th></tr><tr><td>902-928 MHz</td><td>50</td><td>500</td></tr><tr><td>2400-2483.5 MHz</td><td>50</td><td>500</td></tr><tr><td>5725-5875 MHz</td><td>50</td><td>500</td></tr><tr><td>24.0-24.25 GHz</td><td>250</td><td>2500</td></tr></table>	Fundamental frequency	Field strength of fundamental emissions (mV/m)	Field strength of harmonics emissions (microvolts/meter)	902-928 MHz	50	500	2400-2483.5 MHz	50	500	5725-5875 MHz	50	500	24.0-24.25 GHz	250	2500								
	Fundamental frequency	Field strength of fundamental emissions (mV/m)	Field strength of harmonics emissions (microvolts/meter)																					
	902-928 MHz	50	500																					
	2400-2483.5 MHz	50	500																					
	5725-5875 MHz	50	500																					
	24.0-24.25 GHz	250	2500																					
	Field strength limits are specified at a distance of 3 meters.																							
	§ 15.209:																							
	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table>	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																						
0.009-0.490	2400/F(kHz)	300																						
0.490-1.705	24000/F(kHz)	30																						
1.705-30.0	30	30																						
30-88	100 **	3																						
88-216	150 **	3																						
216-960	200 **	3																						
Above 960	500	3																						
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.																								
Note:																								
1) Field Strength (dBµV/m) = 20*log[Field Strength (µV/m)].																								
2) In the emission tables above, the tighter limit applies at the band edges.																								
3) For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.																								
4) For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).																								
Test Method	ANSI C63.10-2020 section 6.6.4																							



## 5.4.2 Test Setup Diagram



### 5.4.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power.

Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW = 1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9kHz, VBW = 30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW = 300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz, Set the spectrum analyzer as:

RBW = 1MHz, VBW = 1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

RBW = 1MHz, VBW = 10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

### 5.4.4 Test Data

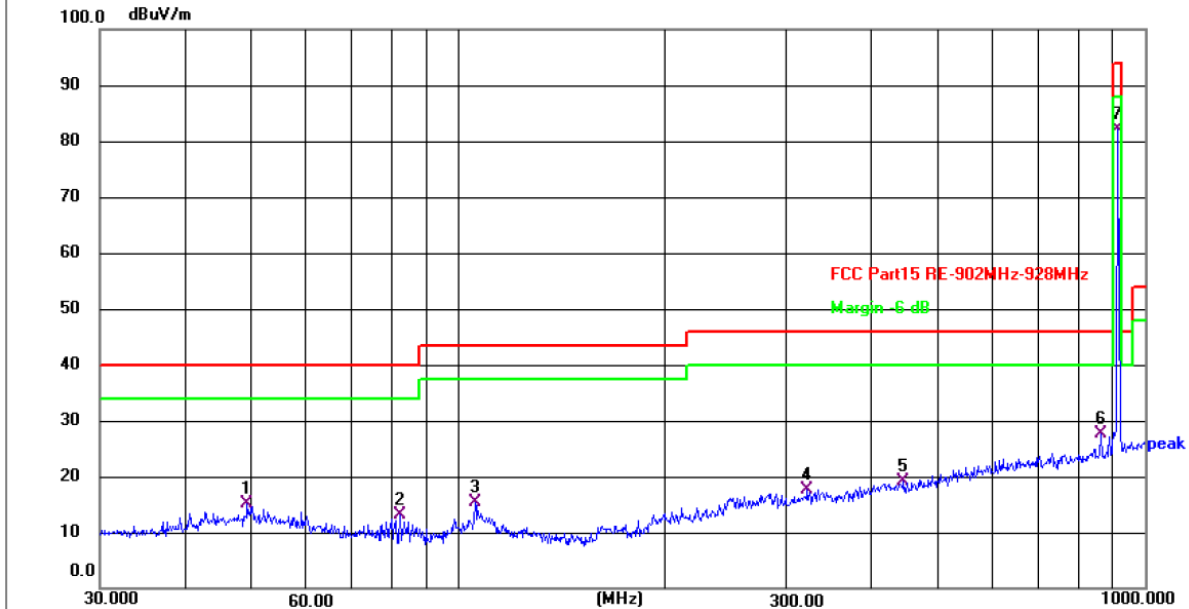
**PASS.**

Please to see the following pages.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

**Radiated Emission Test Data (30-1000MHz)**

<b>Test Site:</b>	966 Chamber #1	<b>Polarization:</b>	Horizontal
<b>Distance:</b>	3m	<b>Test Mode:</b>	TM1



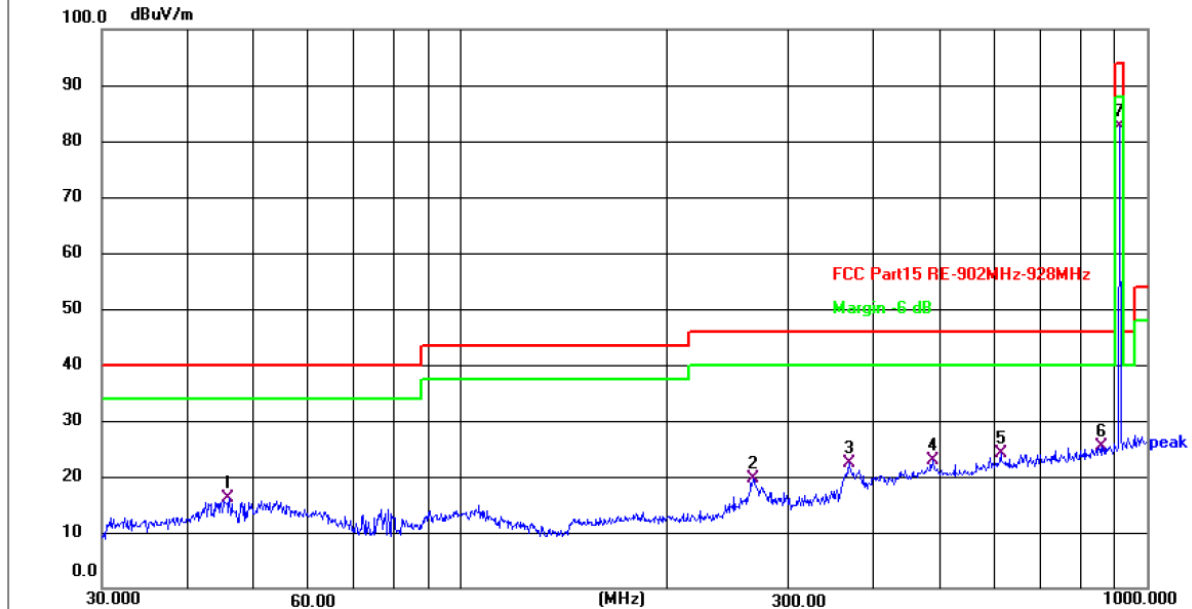
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	49.1865	29.26	-14.18	15.08	40.00	-24.92	QP	P	
2	82.0704	32.32	-19.29	13.03	40.00	-26.97	QP	P	
3	105.6414	31.37	-16.06	15.31	43.50	-28.19	QP	P	
4	322.1884	29.13	-11.51	17.62	46.00	-28.38	QP	P	
5	444.8514	28.38	-9.21	19.17	46.00	-26.83	QP	P	
6	863.0561	30.45	-2.76	27.69	46.00	-18.31	QP	P	
7 *	912.8620	84.09	-1.90	82.19	94.00	-11.81	QP	P	

**Note: Level = Reading + Factor**
**Margin = Level - Limit**

**Radiated Emission Test Data (30-1000MHz)**
**Test Site:** 966 Chamber #1

**Polarization:** Vertical

**Distance:** 3m

**Test Mode:** TM1


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	46.0162	30.24	-14.22	16.02	40.00	-23.98	QP	P	
2	266.6090	32.55	-12.98	19.57	46.00	-26.43	QP	P	
3	368.1116	32.92	-10.57	22.35	46.00	-23.65	QP	P	
4	487.3150	31.41	-8.55	22.86	46.00	-23.14	QP	P	
5	612.0641	30.10	-6.07	24.03	46.00	-21.97	QP	P	
6	857.0244	28.51	-3.06	25.45	46.00	-20.55	QP	P	
7 *	912.8620	84.80	-2.14	82.66	94.00	-11.34	QP	P	

**Note: Level = Reading + Factor**
**Margin = Level - Limit**

**Radiated Spurious Emission (1GHz-10GHz)**

Test Mode: TM1					Test Channel: CH01			
Pol.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type	Result
V	1825.72	41.23	3.75	44.98	74.00	-29.02	PK	PASS
V	2737.46	33.01	5.02	38.03	74.00	-35.97	PK	PASS
V	3650.22	29.21	5.69	34.90	74.00	-39.11	PK	PASS
V	4562.24	*	*	*	74.00	*	PK	PASS
V	5474.75	*	*	*	74.00	*	PK	PASS
V	6387.07	*	*	*	74.00	*	PK	PASS
H	1825.43	40.27	3.75	44.02	74.00	-29.99	PK	PASS
H	2737.89	33.61	5.02	38.63	74.00	-35.37	PK	PASS
H	3650.02	28.60	5.69	34.29	74.00	-39.72	PK	PASS
H	4562.01	*	*	*	74.00	*	PK	PASS
H	5474.99	*	*	*	74.00	*	PK	PASS
H	6386.78	*	*	*	74.00	*	PK	PASS
V	1825.72	30.90	3.75	34.65	54.00	-19.36	AV	PASS
V	2737.46	22.75	5.02	27.77	54.00	-26.24	AV	PASS
V	3650.22	17.17	5.69	22.86	54.00	-31.14	AV	PASS
V	4562.24	*	*	*	54.00	*	AV	PASS
V	5474.75	*	*	*	54.00	*	AV	PASS
V	6387.07	*	*	*	54.00	*	AV	PASS
H	1825.43	32.99	3.75	36.74	54.00	-17.27	AV	PASS
H	2737.89	23.71	5.02	28.73	54.00	-25.28	AV	PASS
H	3650.02	17.93	5.69	23.62	54.00	-30.38	AV	PASS
H	4562.01	*	*	*	54.00	*	AV	PASS
H	5474.99	*	*	*	54.00	*	AV	PASS
H	6386.78	*	*	*	54.00	*	AV	PASS

**Remark:**

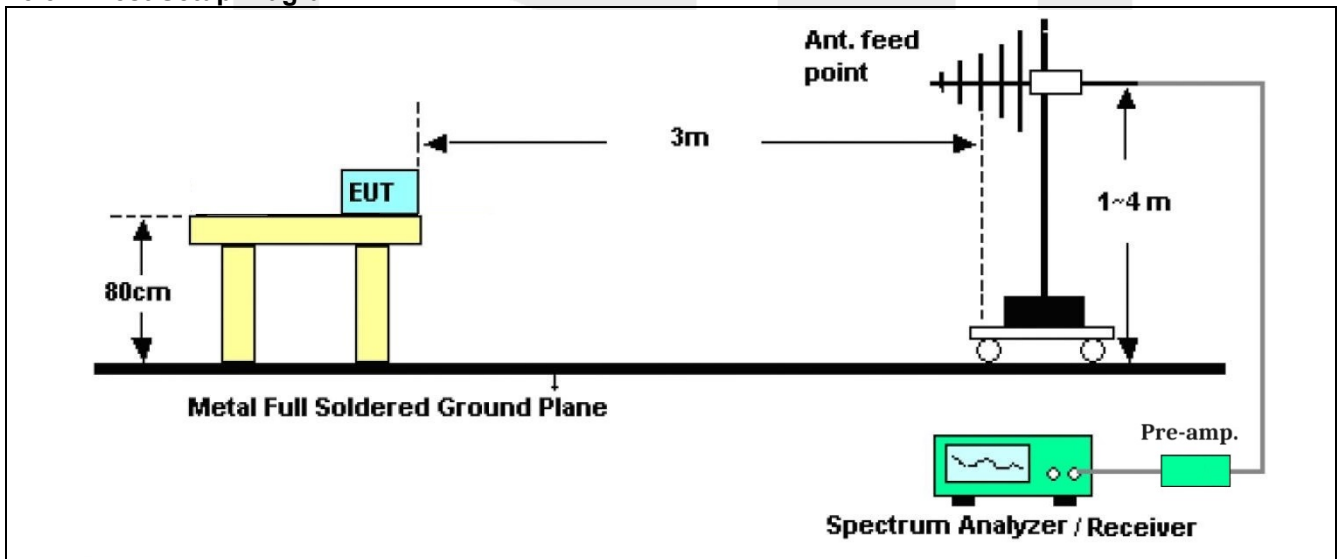
1. Emission Level = Reading + Factor, Margin= Emission Level – Limit.
2. “\*” means the test results were attenuated more than 20dB below the permissible limits, so the results don't record in the report.

## 5.5 Band Edge Emissions

### 5.5.1 Test Requirement

Test Requirement and Limit	§ 15.249 (d): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209,whichever is the lesser attenuation.		
	§ 15.209:		
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
	Note: 1) Field Strength (dBµV/m) = 20*log[Field Strength (µV/m)]. 2) In the emission tables above, the tighter limit applies at the band edges.		
Test Method	ANSI C63.10-2020 section 6.6.4		

### 5.5.2 Test Setup Diagram



### 5.5.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak

Trace = max hold.

### 5.5.4 Test Data

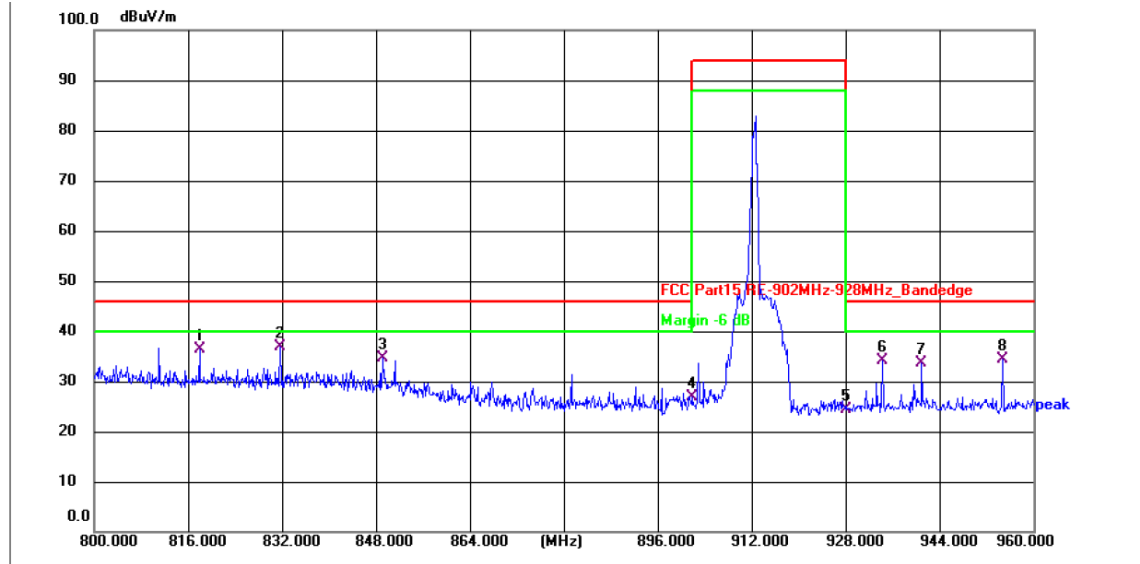
**PASS.**

Please refer to the following pages.

**Band Edge Emissions:**

**Test Site:** 966 Chamber #1  
**Distance:** 3m

**Polarization:** Vertical  
**Test Mode:** TM1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	817.9200	39.94	-3.62	36.32	46.00	-9.68	QP	P	
2 *	831.6800	40.12	-3.35	36.77	46.00	-9.23	QP	P	
3	849.1200	37.73	-3.01	34.72	46.00	-11.28	QP	P	
4	902.0000	28.95	-2.07	26.88	46.00	-19.12	QP	P	
5	928.0000	26.12	-1.64	24.48	46.00	-21.52	QP	P	
6	934.2400	35.61	-1.54	34.07	46.00	-11.93	QP	P	
7	940.9600	35.00	-1.42	33.58	46.00	-12.42	QP	P	
8	954.7200	35.60	-1.21	34.39	46.00	-11.61	QP	P	

**Note: Level = Reading + Factor**

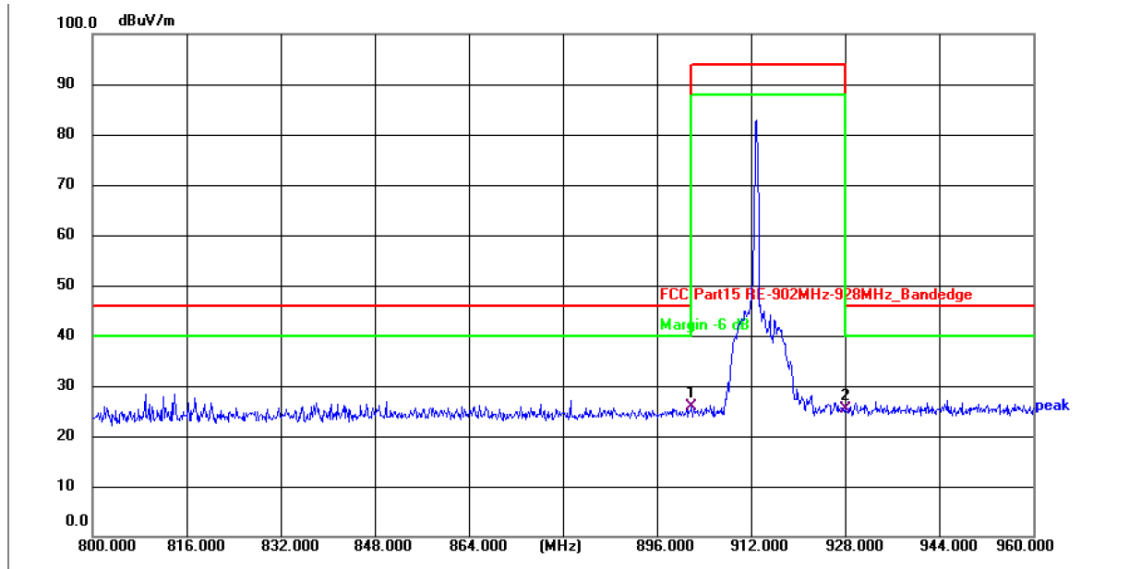
**Margin = Level - Limit**



**Band Edge Emissions:**

**Test Site:** 966 Chamber #1  
**Distance:** 3m

**Polarization:** Vertical  
**Test Mode:** TM1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 *	902.0000	28.08	-2.32	25.76	46.00	-20.24	QP	P	
2	928.0000	27.27	-1.87	25.40	46.00	-20.60	QP	P	

**Note: Level = Reading + Factor**

**Margin = Level - Limit**

## **ANNEX A TEST SETUP PHOTOS**

Please refer to the document “8234EU012201W-AA.PDF”

## **ANNEX B EXTERNAL PHOTOS**

Please refer to the document “8234EU012201W-AB.PDF”

## **ANNEX C INTERNAL PHOTOS**

Please refer to the document “8234EU012201W-AC.PDF”



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--- End of Report ---