

RF Test Report

For

Applicant name: Johnson Controls International
Address: 1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA
EUT name: Meeting Room Display Tablet
Brand name: /
Model number: WA1099T
Series model number: /
FCC ID: 2BVHN-WA1099T

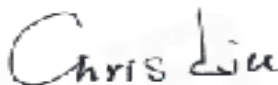
Issued By

Company name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China

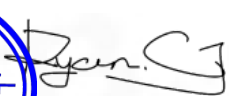
Report number: BTF260413R00406
Test standards: FCC Part 15 Subpart C Section 15.225
Test conclusion: Pass

Date of sample receipt: 2026-4-3
Test date: 2026-4-3 to 2026-4-20
Date of issue: 2026-4-20

Prepared by:


Chris Liu/Project
engineer




Ryan.CJ /EMC manager

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Revision History		
Version	Issue Date	Revisions Content
R_V0	2026-04-20	Original
Note:	Once the revision has been made, then previous versions reports are invalid.	

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1. Introduction

1.1 Laboratory Location

Test location:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Description:	All measurement facilities used to collect the measurement data are located at Plant 101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, Guangdong, China
Phone number:	+86-0755-23146130
Fax number:	+86-0755-23146130

1.2 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1409**
BTF Testing Lab (Shenzhen) Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The test firm Registration No. is 695374.
- **CNAS - Registration No.: CNAS L17568**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L17568.
- **A2LA - Registration No.: 6660.01**
BTF Testing Lab (Shenzhen) Co., Ltd. is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories.

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.
- (7) All entrusted information in this report is provided by the client and has been confirmed through consultation with the client; The testing items for this report have been discussed and confirmed with the client, and our company is only responsible for the content reflected in the report.

2. Product Information

2.1 Application Information

Company Name:	Johnson Controls International
Address:	1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA

2.2 Manufacturer Information

Company Name:	Johnson Controls International
Address:	1101 E Whitaker Mill Rd suite 220, Raleigh, NC 27604, USA

2.3 Factory Information

Company Name:	SHENZHEN ELECTRON TECHNOLOGY CO.,LTD.
Address:	Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Bao'an, Shenzhen, China.

2.4 General Description of Equipment under Test (EUT)

EUT Name	Meeting Room Display Tablet
Under Test Model Name	WA1099T
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software and Firmware Version	N/A
Rating:	Adapter Model: FJ-SW1202000N Input: 100-240V, 50/60Hz Output: DC 12.0V 24W or DC 48V, 0.5A by POE power supply

2.5 Technical Information

Modulation Type	ASK
Operation Frequency	125kHz
Number of Channel	1
Antenna Type	Coil Antenna

3. Summary of Test Results

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart C Section 15.225	Operation within the band 13.110-14.010 MHz
2	ANSI C63.10-2020+Cor 1- 2023	American National Standard for Testing Unlicensed Wireless Devices

3.2 Summary of Test Result

Clauses	Test Items	Result
Part 15.203	Antenna Requirement	PASS
47 CFR 15.207	AC Power Line Conducted Emission	PASS
47 CFR 15.215	20dB Bandwidth	PASS
47 CFR 15.209	Field Strength of Fundamental	PASS
47 CFR 15.209	Field Strength of Spurious Emissions	PASS
1. Remark: 2. Pass: met the requirements. 3. N/A: not applicable.		

3.3 Uncertainty of Test

Measurement	Value
Occupied Channel Bandwidth	±5 %
Conducted Emission for LISN (9kHz ~ 150kHz)	±2.97 dB
Conducted Emission for LISN (150kHz ~ 30MHz)	±2.45 dB
Radiated Emission (9kHz ~ 30MHz)	±2.20 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.80 dB
Radiated Emission (1GHz ~ 18GHz)	±4.82dB
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.	

4. Test Configuration

4.1 Environment Condition

Environment Parameter	Selected Values During Tests			
	Temperature	Voltage	Relative Humidity	Ambient Pressure
Normal Temperature, Normal Voltage (NTNV)	20°C to 25°C	AC 120V	30% to 60%	100 kPa to 102 kPa

4.2 Test Equipment List

Radiated Emission Test					
Test Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwarz	ESCI7	101032	2025/10/17	2026/10/16
Signal Analyzer	Rohde & Schwarz	FSQ40	100010	2025/10/17	2026/10/16
Log periodic antenna	Schwarzbeck	VULB 9168	01328	2025/10/18	2026/10/17
Preamplifier (30MHz ~ 1GHz)	Schwarzbeck	BBV9744	00246	2025/5/26	2026/5/25
BELOW-Cable	REBES Talent	9K1G	21101576	2025/8/23	2026/8/22
Horn Antenna	Schwarzbeck	BBHA9120D	2597	2025/10/18	2026/10/17
Preamplifier (1GHz ~ 18GHz)	Schwarzbeck	BBV9718D	00008	2025/5/26	2026/5/25
Preamplifier	TSTPASS	LNA10180G45	TS2215007	2025/5/26	2026/5/25
ABOVE-Cable	REBES Talent	1~18G	21101558	2025/8/23	2026/8/22
Horn Antenna	SCHWARZBECK	BBHA9170	1157	2025/10/18	2026/10/17
Low Noise Pre-amplifier	Sket	LNPA_1840G-50	SK2022032902	2025/10/17	2026/10/16
ABOVE-Cable2	REBES Talent	18~40G	21101686	2025/8/23	2026/8/22
ABOVE-Cable1	REBES Talent	18~40G	21101687	2025/8/23	2026/8/22
Test Software	Frad	EZ EMC	Version: FA-03A2 RE+		

Conducted Emission Test					
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwarz	ESCI3	101422	2025/10/17	2026/10/16
V-LISN	Schwarzbeck	NSLK 8127	01073	2025/8/23	2026/8/22
Coaxial Switcher	Schwarzbeck	CX210	CX210	/	/
Pulse Limiter	Schwarzbeck	VTSD 9561-F	00953	/	/
LISN-Cable	REBES Talent	LISN9K30M	21101580	2025/8/23	2026/8/22
Test Software	Frad	EZ EMC	Version: EMC-CON 3A1.1+		

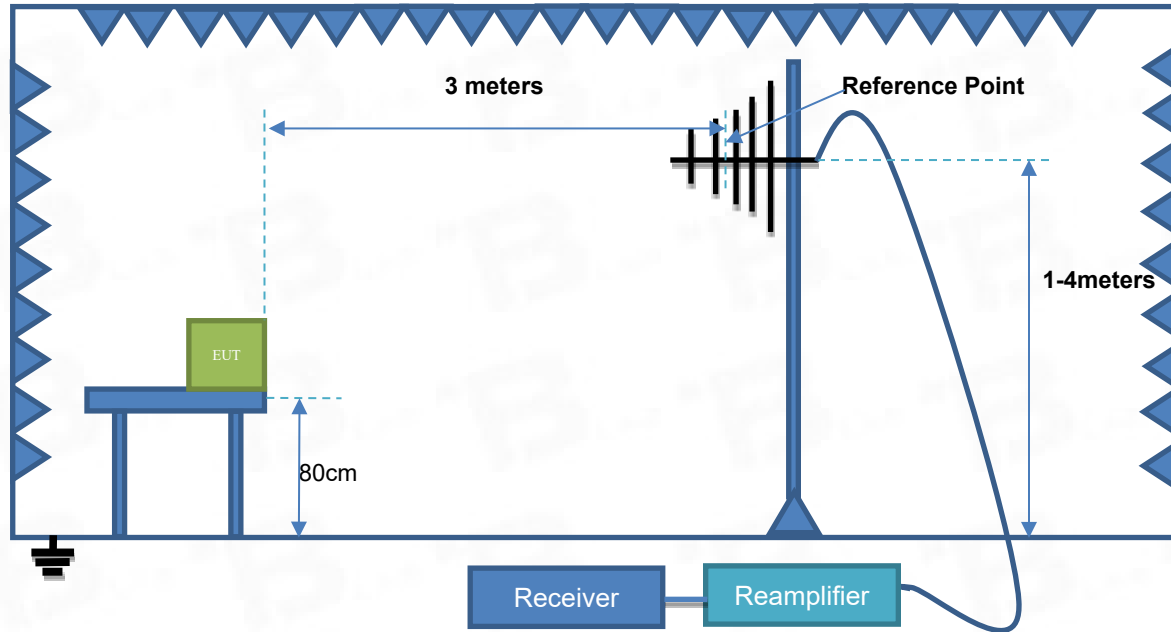
Conducted test method					
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Cell Site Test Set	HP	8921A	US35010158	2025/10/17	2026/10/16
Spectrum Analyzer	Keysight	N9020A	MY50410020	2025/10/17	2026/10/16
ESG Vector Signal Generator	Agilent	E4438C	MY45094854	2025/10/17	2026/10/16
MXG Vector Signal Generator	Agilent	N5182A	MY46240163	2025/10/17	2026/10/16
Wideband Radio Communication Tester	Rohde&Schwarz	CMW500	161997	2025/10/17	2026/10/16
Programmable Constant Temperature And Humidity Test Chamber	ZZCKONG	ZZ-K02A	20210928007	2025/10/17	2026/10/16
DC Power Supply	Tongmen	etm-6050c	20211026123	2025/10/17	2026/10/16
RF Control Unit	Techy	TR1029-1	/	2025/10/17	2026/10/16
RF Sensor Unit	Techy	TR1029-2	/	2025/10/17	2026/10/16
RF shielding box	YinuoXin Electronics	50*50*50 cm	N/A	2025/5/26	2026/5/25
Test Software	TST Pass	/	Version: 2.0		

4.3 Test Auxiliary Equipment

Title	Manufacturer	Model No.	Serial No.
/	/	/	/

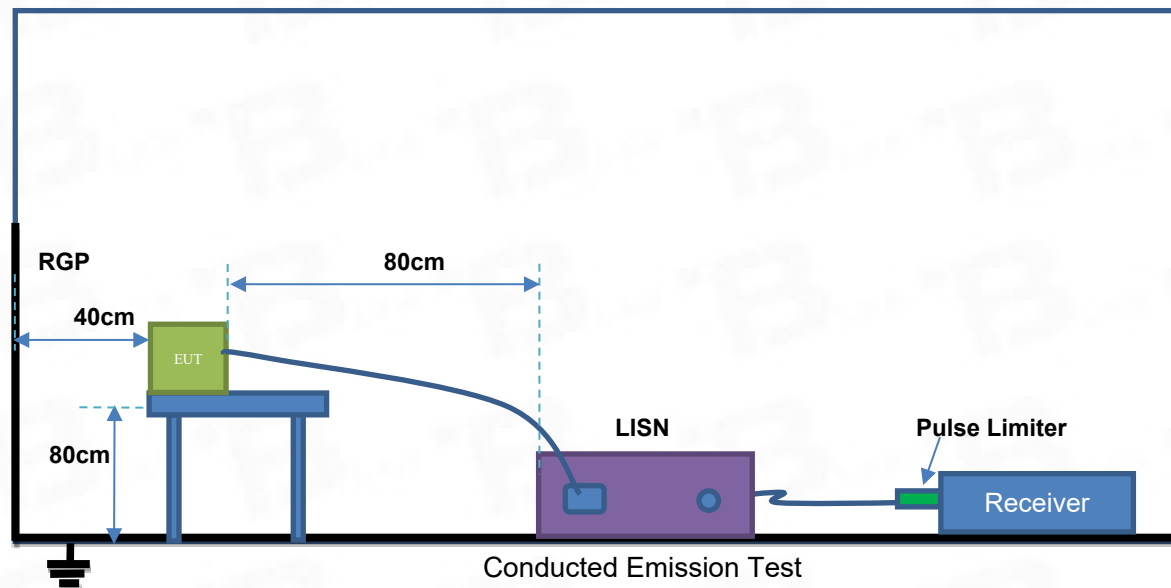
4.4 Test Setup

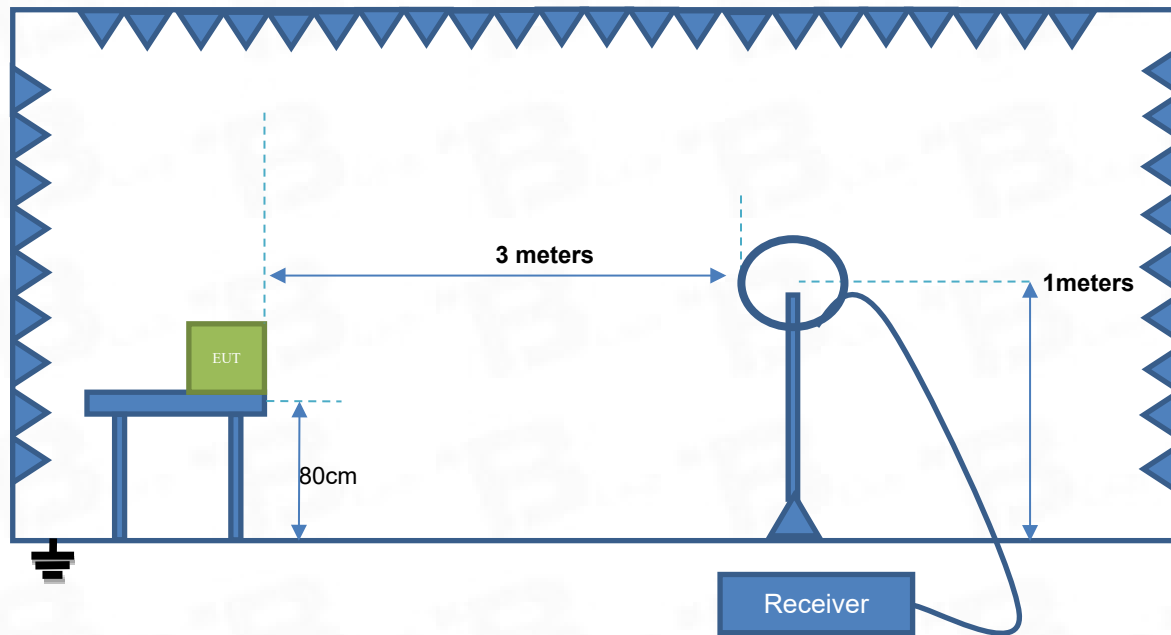
Test Setup 1



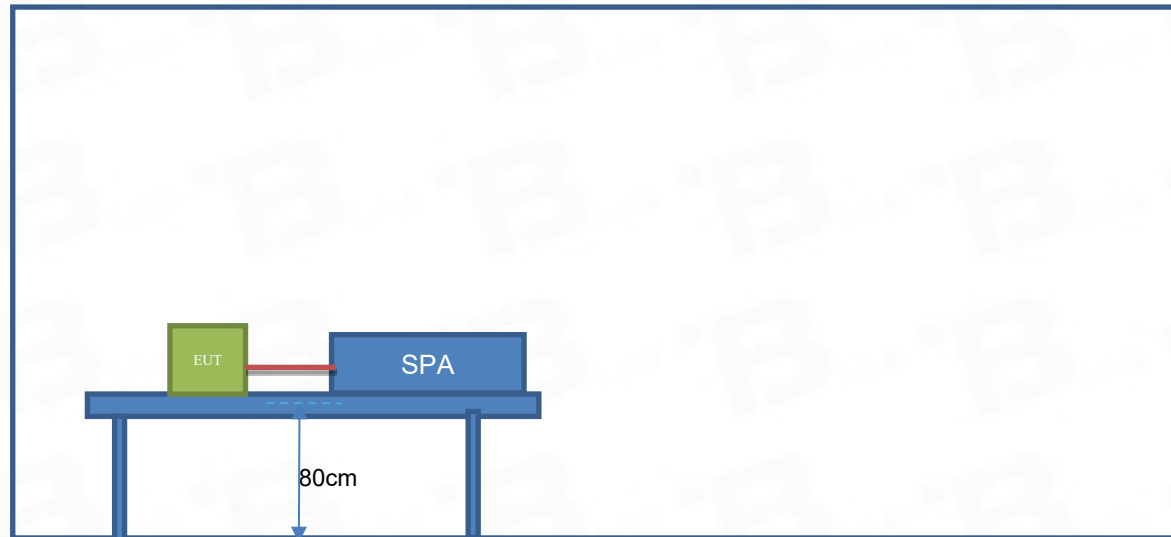
Radiation Test (30MHz – 1GHz)

Test Setup 2



Test Setup 3

Radiation Test (9k - 30MHz)

Test Setup 4

5. Test Items

5.1 Antenna Requirements

5.1.1 Relevant Standards

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.

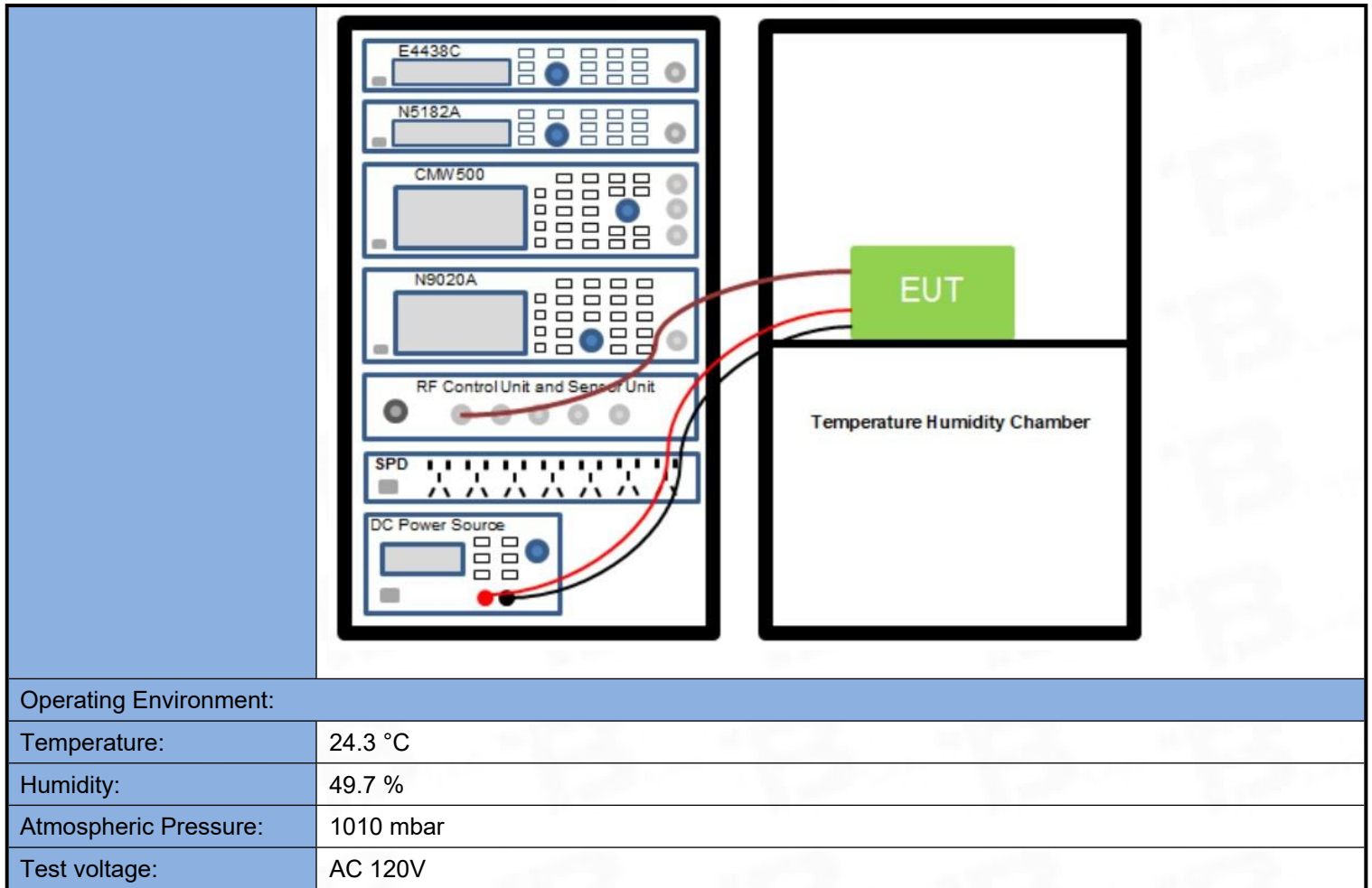
5.1.2 Antenna Anti-Replacement Construction

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.

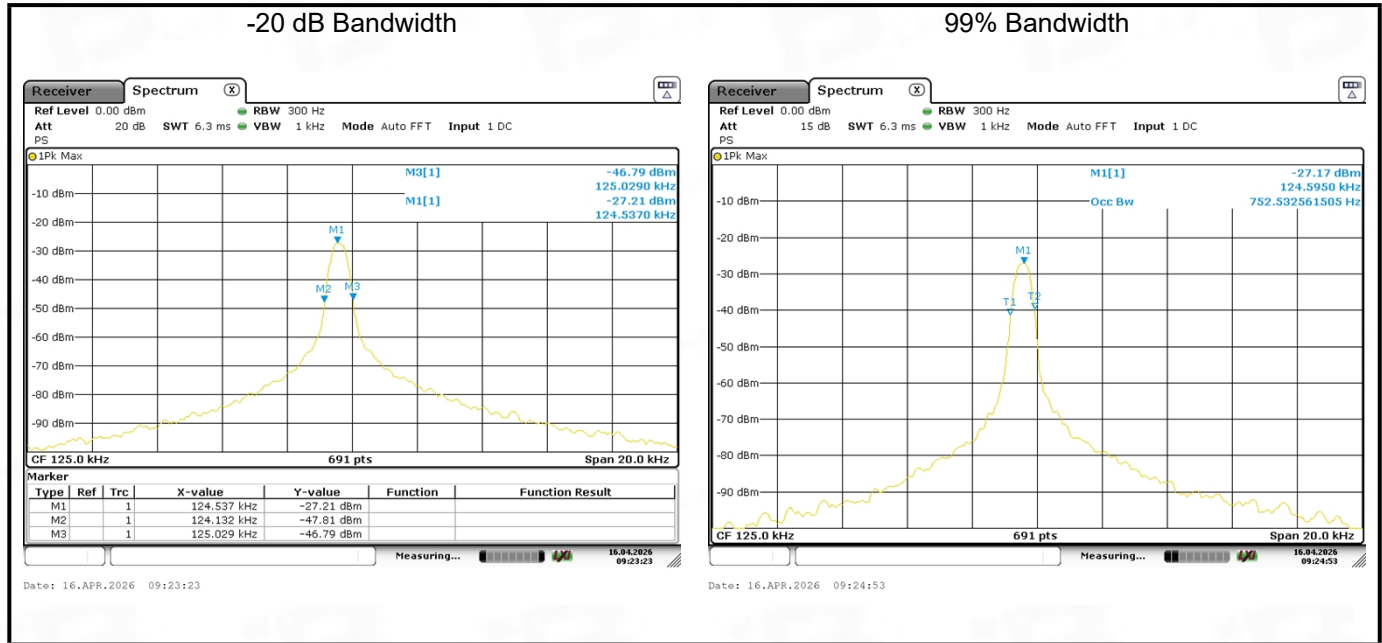
5.2 20dB Bandwidth

Test Requirement:	47 CFR Part 15.215(c)
Test Method:	ANSI C63.10-2020+Cor 1-2023, section 6.9.2
Test Limit:	Refer to 47 CFR 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.
Procedure:	a) 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. b) 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. c) 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. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) 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. f) Set detection mode to peak and trace mode to max hold. g) 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). h) 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. k) 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).
Test Setup:	

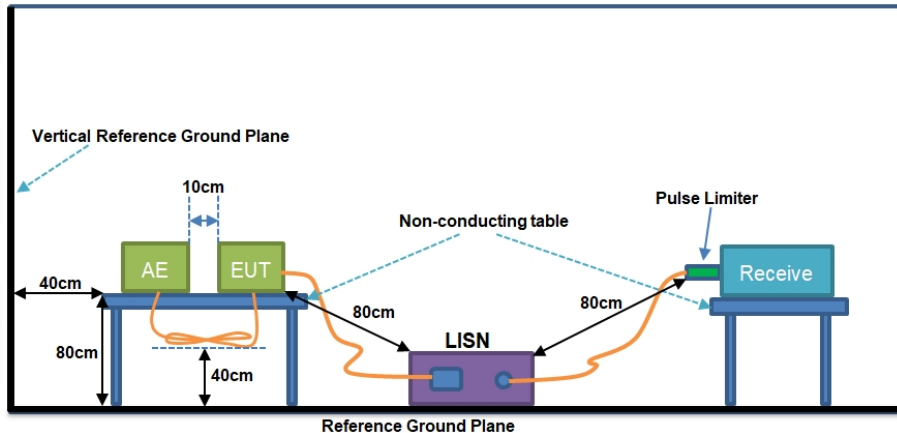


5.2.1 Test Result

Frequency (kHz)	-20dB Bandwidth(kHz)	99% Bandwidth(kHz)
125	0.897	0.753

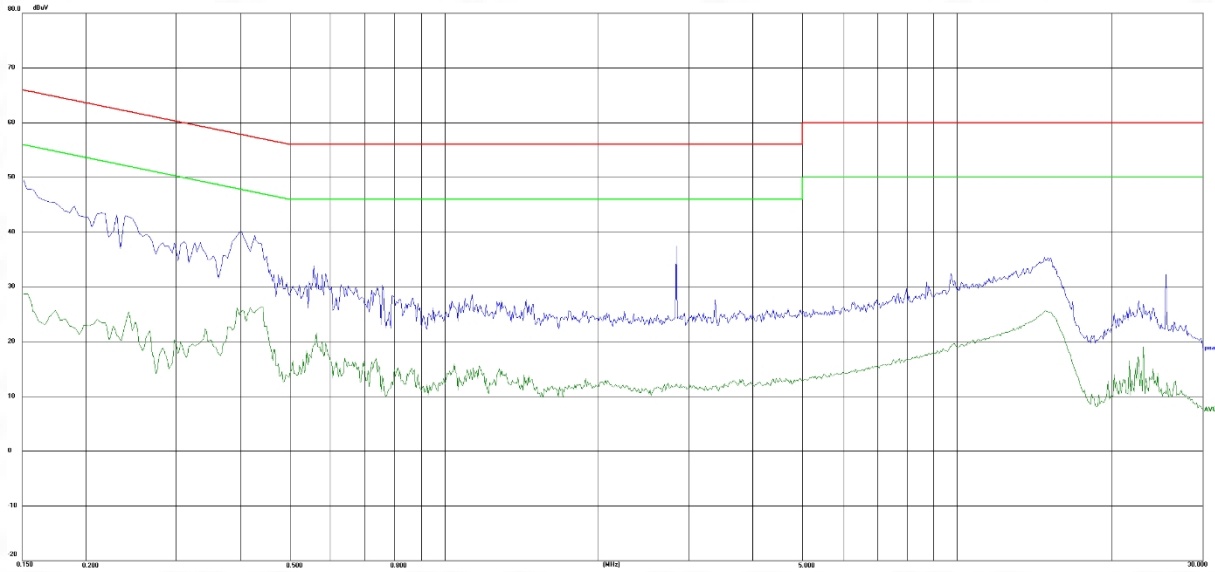


5.3 Conducted Emission

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 μH/50 ohms line impedance stabilization network (LISN).		
Test Method:	ANSI C63.10-2020+Cor 1-2023 section 6.2		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		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.			
Procedure:	Refer to ANSI C63.10-2020+Cor 1-2023 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		
Test Setup:			
Operating Environment:			
Temperature:	24.3 °C		
Humidity:	49.7 %		
Atmospheric Pressure:	1010 mbar		
Test voltage:	AC 120V 60Hz		

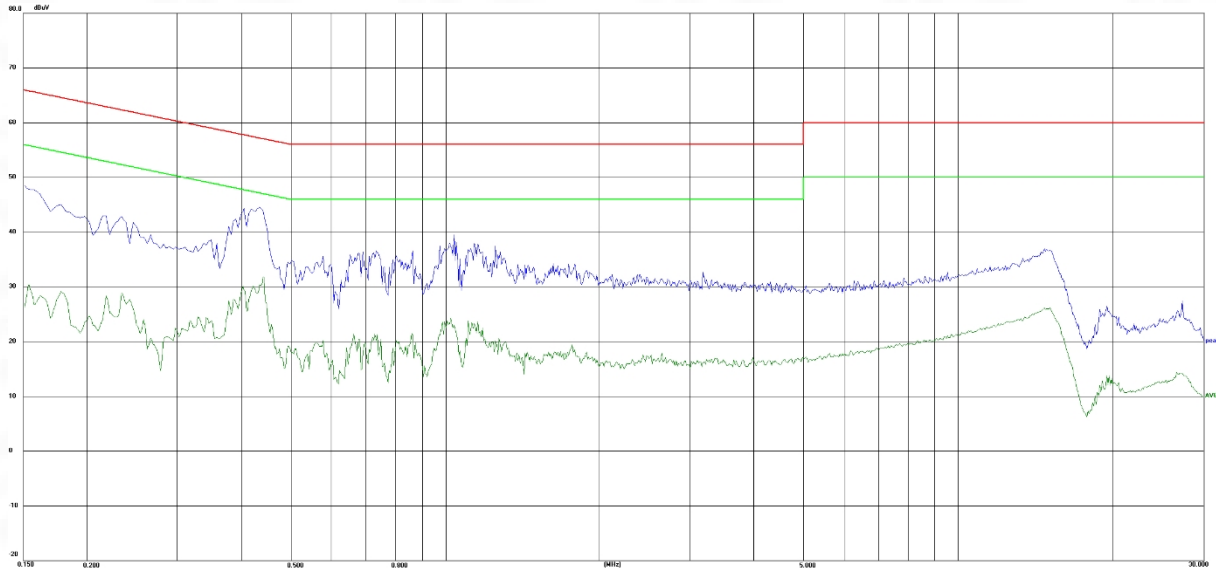
5.3.1 Test Result

L:



No.	Frequency (MHz)	QP Value (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Value (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Result	Line
1	0.151	48.44	65.94	-17.50	28.71	55.94	-27.23	Pass	Line 1
2	0.190	44.76	64.04	-19.28	22.74	54.04	-31.30	Pass	Line 1
3	0.242	43.01	62.03	-19.02	25.47	52.03	-26.56	Pass	Line 1
4	0.402	40.10	57.81	-17.71	26.19	47.81	-21.62	Pass	Line 1
5	2.826	37.49	56.00	-18.51	12.29	46.00	-33.71	Pass	Line 1
6	14.894	35.42	60.00	-24.58	25.59	50.00	-24.41	Pass	Line 1

N:

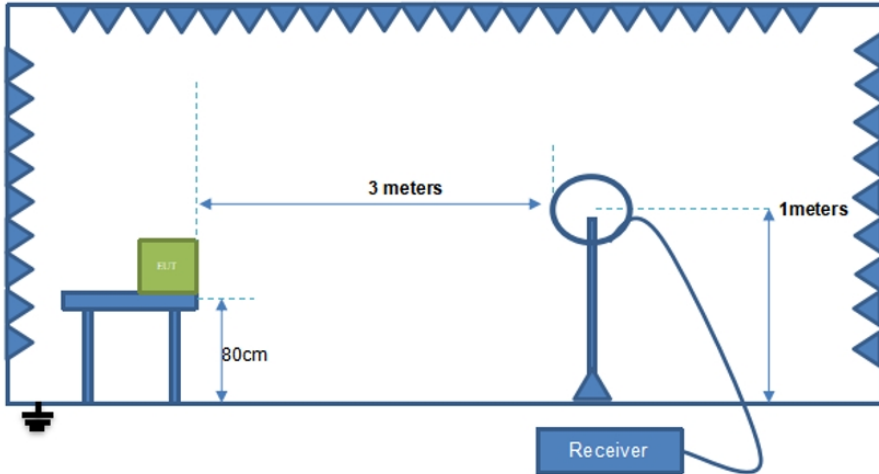


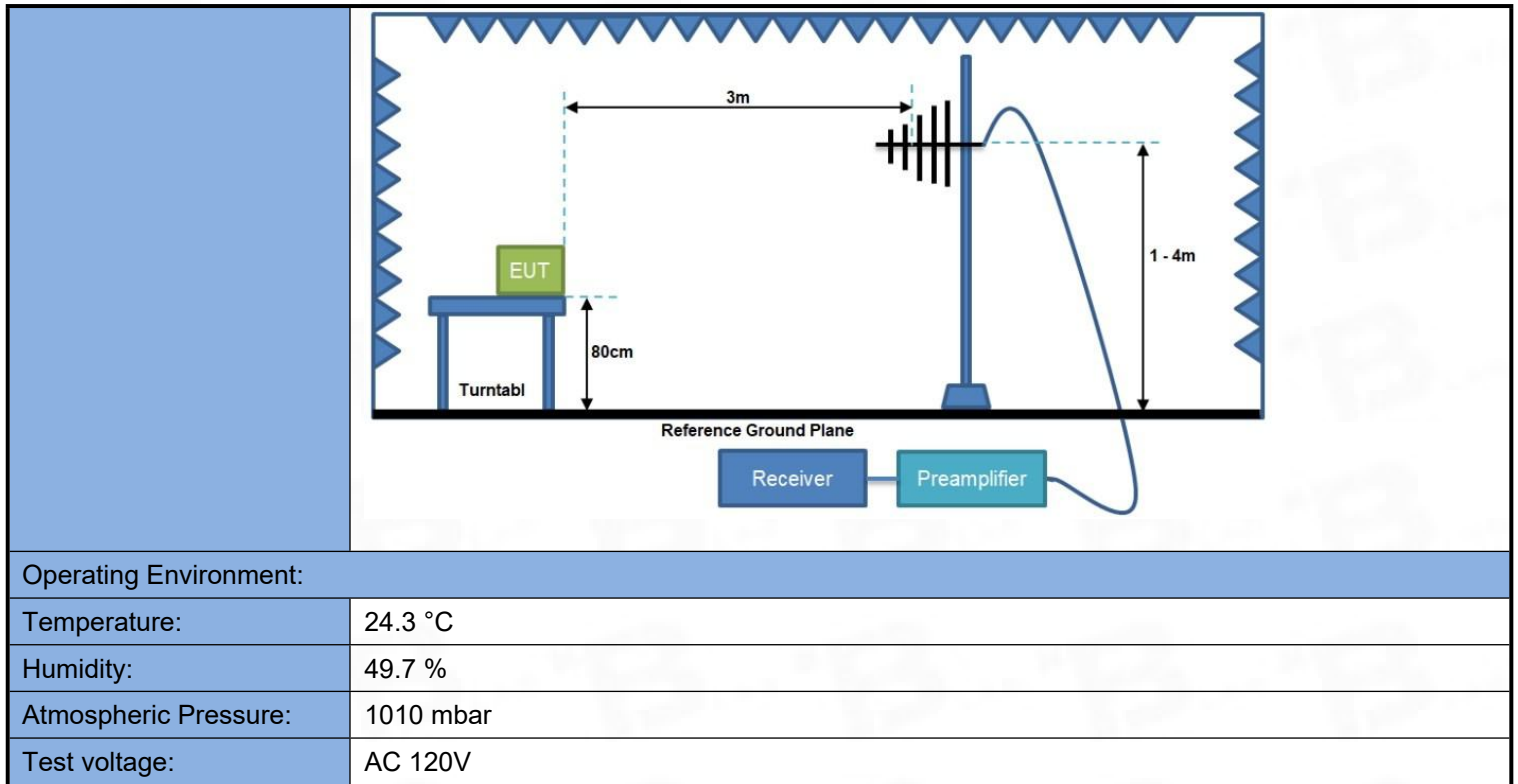
No.	Frequency (MHz)	QP Value (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Value (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)	Result	Line
1	0.154	48.76	65.79	-17.03	30.32	55.79	-25.47	Pass	Neutral
2	0.406	44.41	57.73	-13.32	30.14	47.73	-17.59	Pass	Neutral
3	0.442	44.59	57.02	-12.43	31.84	47.02	-15.18	Pass	Neutral
4	1.042	39.51	56.00	-16.49	24.31	46.00	-21.69	Pass	Neutral
5	1.158	37.97	56.00	-18.03	23.62	46.00	-22.38	Pass	Neutral
6	14.746	37.01	60.00	-22.99	26.24	50.00	-23.76	Pass	Neutral

NOTE:

- Results (dBuV) = Reading (dBuV) + Factor (dB)
The reading level is calculated by software which is not shown in the sheet
- Factor = Insertion loss + Cable loss
- Margin = Results – Limit.

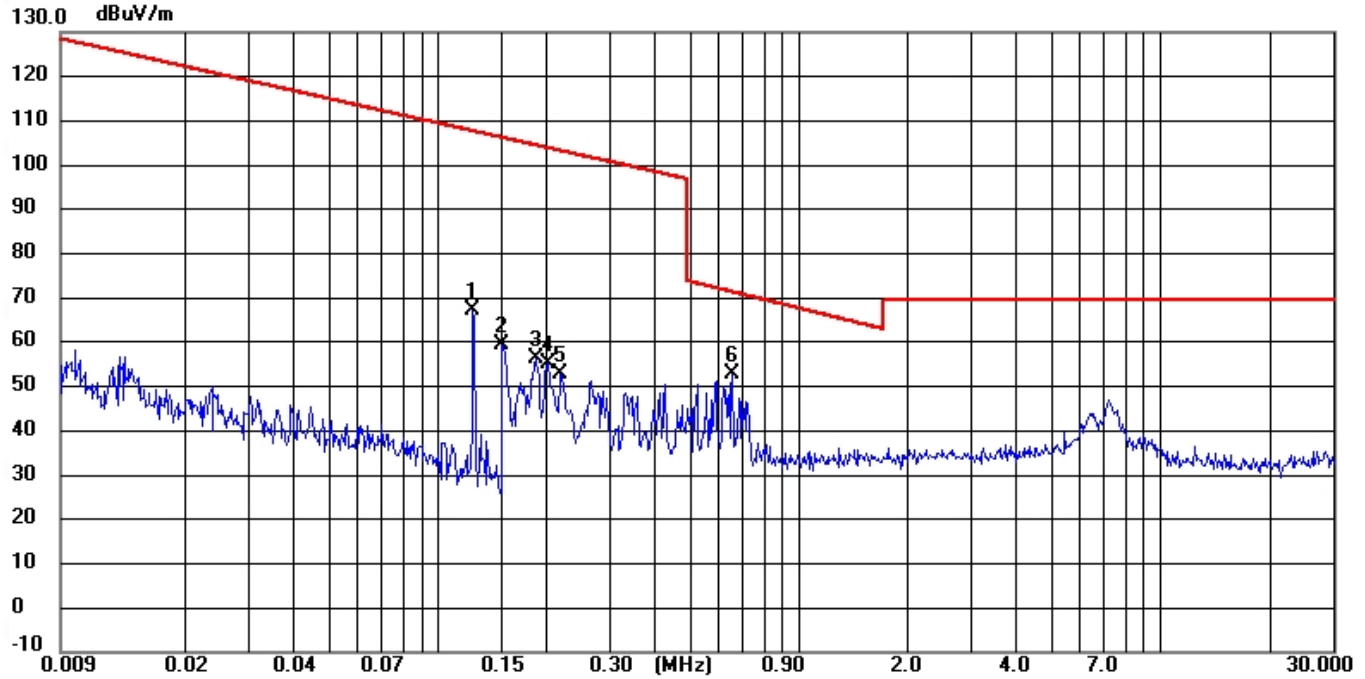
5.5 Radiated Spurious Emission

Test Requirement:	47 CFR Part 15.209		
Test Method:	ANSI C63.10-2020+Cor 1-2023 section 6.4		
Test Limit:	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. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.		
Procedure:	ANSI C63.10-2020+Cor 1-2023 section 6.4		
Test Setup:			

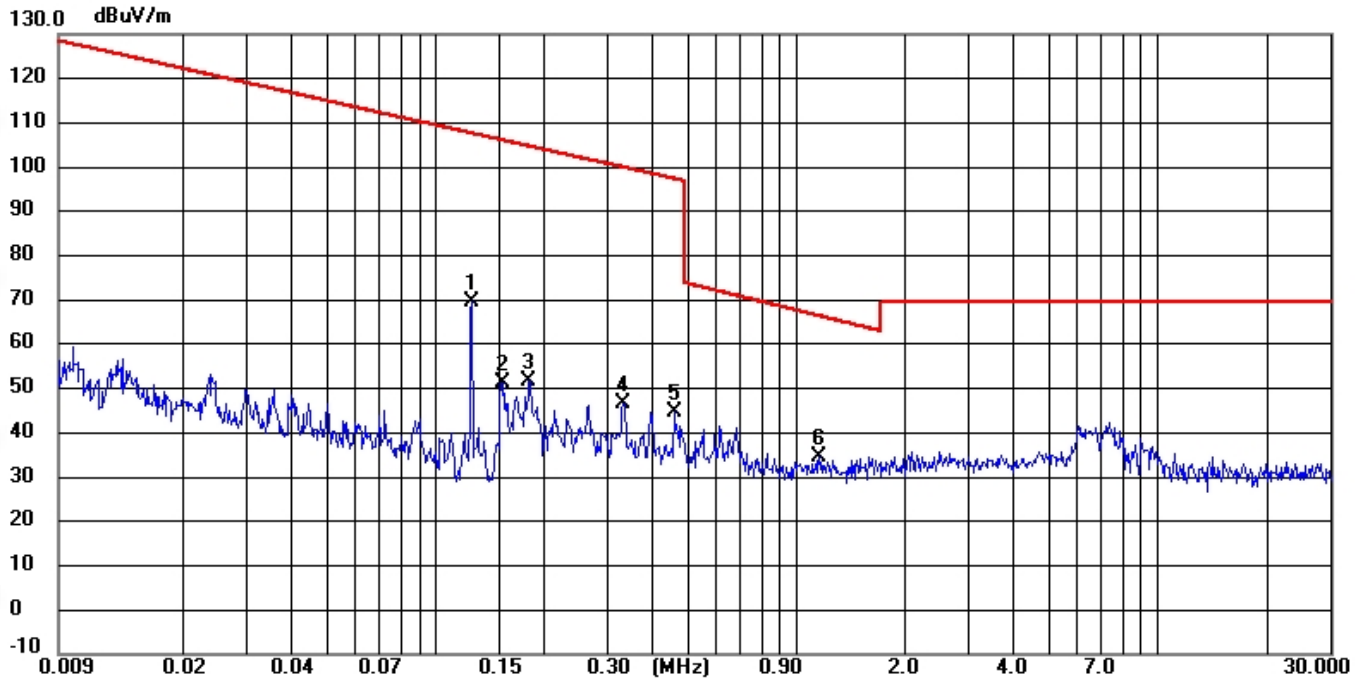


5.5.4 Test Result

9KHz – 30MHz

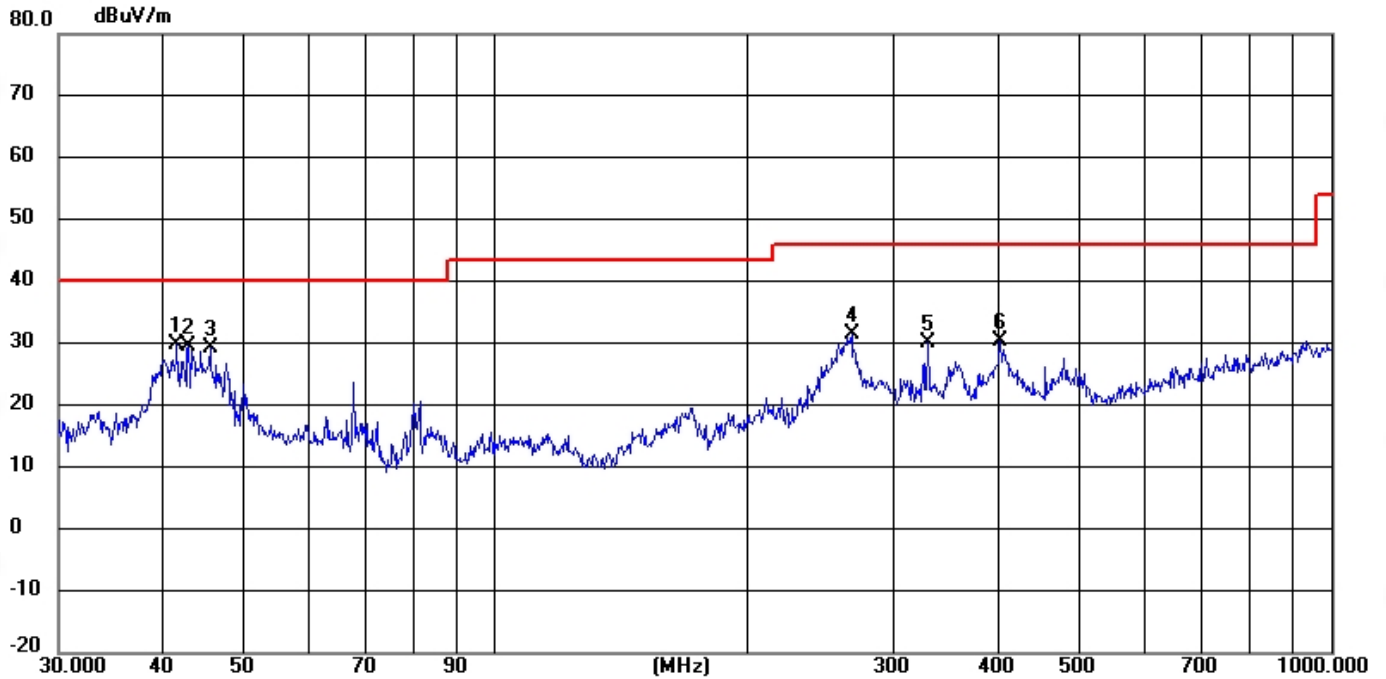


No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
1	0.125	47.68	19.63	67.31	107.63	-40.32	peak	Coaxial
2	0.150	39.79	19.61	59.40	106.19	-46.79	peak	Coaxial
3	0.185	36.62	19.61	56.23	104.52	-48.29	peak	Coaxial
4	0.201	35.46	19.60	55.06	103.87	-48.81	peak	Coaxial
5	0.218	33.06	19.59	52.65	103.22	-50.57	peak	Coaxial
6 *	0.652	33.17	19.59	52.76	71.32	-18.56	peak	Coaxial

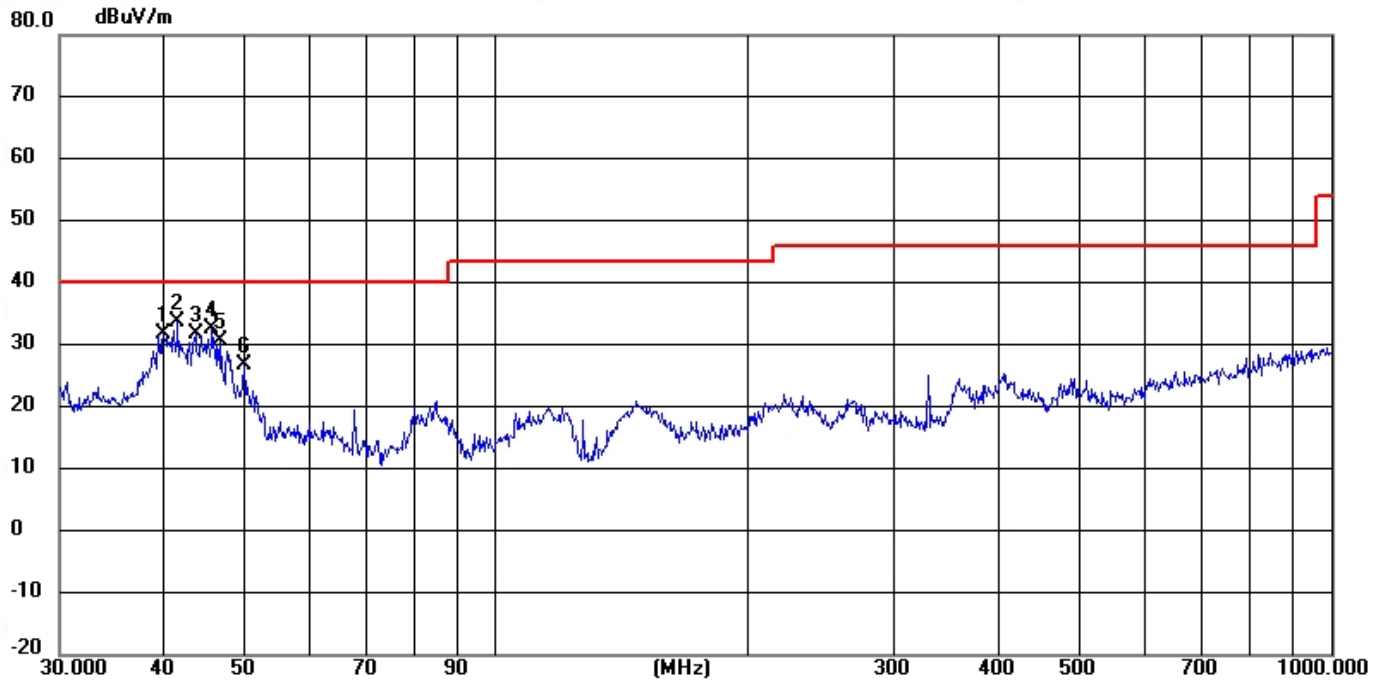


No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
1	0.126	49.93	19.63	69.56	107.58	-38.02	peak	Coplanar
2	0.153	31.58	19.61	51.19	106.03	-54.84	peak	Coplanar
3	0.181	32.21	19.61	51.82	104.70	-52.88	peak	Coplanar
4	0.330	26.94	19.56	46.50	99.93	-53.43	peak	Coplanar
5	0.456	25.01	19.57	44.58	97.37	-52.79	peak	Coplanar
6 *	1.151	14.89	19.55	34.44	66.38	-31.94	peak	Coplanar

30MHz – 1GHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1 *	41.585	16.07	13.66	29.73	40.00	-10.27	QP	Horizontal
2	42.937	15.60	13.87	29.47	40.00	-10.53	QP	Horizontal
3	45.575	14.99	14.32	29.31	40.00	-10.69	QP	Horizontal
4	266.726	16.90	14.50	31.40	46.00	-14.60	QP	Horizontal
5	330.050	14.07	15.98	30.05	46.00	-15.95	QP	Horizontal
6	401.838	12.13	18.15	30.28	46.00	-15.72	QP	Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Remark
1	40.117	18.17	13.67	31.84	40.00	-8.16	QP	Vertical
2 *	41.640	19.99	13.65	33.64	40.00	-6.36	QP	Vertical
3	43.793	17.87	14.06	31.93	40.00	-8.07	QP	Vertical
4	45.775	18.39	14.32	32.71	40.00	-7.29	QP	Vertical
5	46.892	16.08	14.52	30.60	40.00	-9.40	QP	Vertical
6	49.991	11.84	14.87	26.71	40.00	-13.29	QP	Vertical

NOTE:

1. Results (dBuV) = Reading (dBuV) + Factor (dB)

The reading level is calculated by software which is not shown in the sheet

2. Factor = Insertion loss + Cable loss

3. Margin = Results – Limit.

ANNEX A TEST SETUP PHOTOS

Please refer to the Appendix I Test Setup Photos

ANNEX B EUT Constructional Details (EUT Photos)

Please refer to the Appendix II External Photos & Appendix III External Photos



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