CFR 47 FCC PART 15 SUBPART C

TEST REPORT

For

WIRELESS SOLAR DRIVEWAY ALARM

MODEL NUMBER: HS006

REPORT NUMBER: E04A24110823F00101

ISSUE DATE: December 12, 2024

FCC ID: 2AXOF-HS006

Prepared for

Shenzhen Macross Automation Technology Co., Ltd.
Room 301-3, #5 Building, Jianghao Technical Park, Bantian St. Longgang District, Shenzhen, China

Prepared by

Guangdong Global Testing Technology Co., Ltd.

Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	December 12, 2024	Initial Issue	

Summary of Test Results

Test Item	Limit/Requirement	Result
Antenna Requirement	FCC Part 15.203	Pass
AC Power Line Conducted Emission	FCC Part 15.207	Pass
20dB Bandwidth	FCC Part 15.231(c)	Pass
Transmission Time	FCC Part 15.231(a)	Pass
Radiated Emission	FCC Part 15.205/15.209 FCC Part 15.231(b)	Pass

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
*The measurement result for the sample received is <Pass> according to <CFR 47 FCC PART 15 SUBPART C> when <Accuracy Method> decision rule is applied.

CONTENTS

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Shenzhen Macross Automation Technology Co., Ltd.
Address:	Room 301-3, #5 Building, Jianghao Technical Park, Bantian St. Longgang District, Shenzhen, China

Manufacturer Information

Company Name:	Shenzhen Macross Automation Technology Co., Ltd.
Address:	Room 301-3, #5 Building, Jianghao Technical Park, Bantian St. Longgang District, Shenzhen, China

EUT Information

Product Description:	WIRELESS SOLAR DRIVEWAY ALARM
Model:	HS006
Brand:	EMACROS
Sample Received Date:	November 22, 2024
Sample Status:	Normal
Sample ID:	A24110823 001
Date of Tested:	November 22, 2024 to December 12, 2024

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 FCC PART 15 SUBPART C	**Pass**

Prepared By:

Jok Yang

Project Engineer

Checked By:

Alan He

Laboratory Leader

Approved By:

Shawn Wen

Laboratory Manager

2. TEST METHODOLOGY

All tests were performed in accordance with the standard CFR 47 FCC PART 15 SUBPART C

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	**A2LA (Certificate No.: 6947.01)** Guangdong Global Testing Technology Co., Ltd. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1343)** Guangdong Global Testing Technology Co., Ltd. has been recognized to perform compliance testing on equipment subject to Supplier's Declaration of Conformity (SDoC) and Certification rules **ISED (Company No.: 30714)** Guangdong Global Testing Technology Co., Ltd. has been registered and fully described in a report filed with ISED. The Company Number is 30714 and the test lab Conformity Assessment Body Identifier (CABID) is CN0148.

Note: All tests measurement facilities use to collect the measurement data are located at Room 101-105, 203-210, Building 1, No.2, Keji 8 Road, Songshan Lake Park, Dongguan city, Guangdong, People's Republic of China, 523808

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Items	k	Uncertainty
20dB Emission Bandwidth	1.96	±9.2 PPM
Conducted Output Power	1.96	±1.5 dB
Power Spectral Density Level	1.96	±1.9 dB
Conducted Spurious Emission	1.96	9 kHz-30 MHz: ± 0.95 dB 30 MHz-1 GHz: ± 1.5 dB 1GHz-12.75GHz: ± 1.8 dB 12.75 GHz-26.5 GHz: ± 2.1dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.		

Test Item	Measurement Frequency Range	K	U(dB)
Conducted emissions from the AC mains power ports (AMN)	150 kHz ~ 30 MHz	2	3.37
Radiated emissions	9 kHz ~ 30 MHz	2	4.16
Radiated emissions	30 MHz ~ 1 GHz	2	3.79
Radiated emissions	1 GHz ~ 18 GHz	2	5.62
Radiated emissions	18 GHz ~ 40 GHz	2	5.54
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name		WIRELESS SOLAR DRIVEWAY ALARM
Model		HS006
Hardware Version		V1.4
Software Version		V1.0
Battery Ratings		3.7V 2000mAh 7.4Wh
Adapter Ratings		Model: JHD-AP006U-050100BB-2 Input: 100-240V~ 50/60Hz 0.2A Output: 5V⎓1000mA
Power Supply	AC	120V/60Hz
	DC	5V
	Battery	3.7V

Frequency Band:	433.92 MHz
Frequency Range:	433.92 MHz
Type of Modulation:	FSK
Number of Channels:	1
Max field strength:	78.99 dBμV/m
Antenna Type:	Internal antenna
Antenna Gain:	3 dBi
EUT Test software:	/
Note:	The Antenna Gain was provided by customer, and this information may affect the validity of the results, customer should be responsible for this.

5.2. CHANNEL LIST

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	433.92	/	/	/	/	/	/

5.3. MAX FIELD STRENGTH

Frequency (MHz)	Channel Number	Max field strength (dBμV/m)
433.92	1	78.99

5.4. TEST CHANNEL CONFIGURATION

Test Channel Number	Frequency
CH 1	433.92 MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter			
Test Software		/	
Modulation Mode	Transmit Antenna Number	Test Channel	
		CH 1	
FSK	1	Default	

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	433.92	Internal antenna	3

Test Mode	Transmit and Receive Mode	Description
FSK	☒1TX	ANT 1 can be used as transmitting antenna.

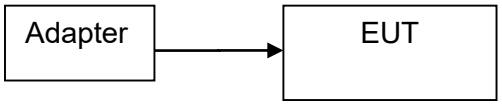
Note: The value of the antenna gain was declared by customer.

5.7. SUPPORT UNITS FOR SYSTEM TEST

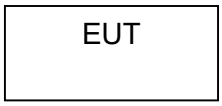
Equipment	**Manufacturer**	**Model No.**
Adapter	Shenzhen Macross Automation Technology Co., Ltd.	JHD-AP006U-050100BB-2

5.8. SETUP DIAGRAM

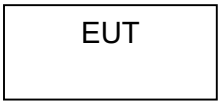
AC conducted emission :



Radiated Emission:



RF conducted:



6. MEASURING EQUIPMENT AND SOFTWARE USED

Test Equipment of Conducted RF					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
Spectrum Analyzer	Rohde & Schwarz	FSV40	102257	2024/09/14	2025/09/13
Spectrum Analyzer	KEYSIGHT	N9020A	MY51285127	2024/09/14	2025/09/13
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY61253075	2024/09/14	2025/09/13
Vector Signal Generator	Rohde & Schwarz	SMM100A	101899	2024/09/14	2025/09/13
RF Control box	MWRF-test	MW100-RFCB	MW220926GTG	2024/09/14	2025/09/13
Wideband Radio Communication Tester	Rohde & Schwarz	CMW270	102792	2024/09/14	2025/09/13
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	103235	2024/09/14	2025/09/13
temperature humidity chamber	Espec	SH-241	SH-241-2014	2024/09/14	2025/09/13
RF Test Software	MWRF-test	MTS8310E (Ver. V2/0)	N/A	N/A	N/A

Test Equipment of Radiated emissions below 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2146	2022/08/30	2025/08/29
EMI Test Receiver	Rohde & Schwarz	ESCI3	101409	2024/09/14	2025/09/13
Spectrum Analyzer	KEYSIGHT	N9020A	MY51283932	2024/09/14	2025/09/13
Pre-Amplifier	HzEMC	HPA-9K0130	HYPA21001	2024/09/14	2025/09/13
Biconilog Antenna	Schwarzbeck	VULB 9168	01315	2022/10/10	2025/10/09
Biconilog Antenna	ETS	3142E	00243646	2022/03/23	2025/03/22
Loop Antenna	ETS	6502	243668	2022/03/30	2025/03/29
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE)	N/A	N/A	N/A

Test Equipment of Radiated emissions above 1GHz					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
3m Semi-anechoic Chamber	ETS	9m*6m*6m	Q2149	2022/08/30	2025/08/29
Spectrum Analyzer	Rohde & Schwarz	FSV40	101413	2024/09/14	2025/09/13
Spectrum Analyzer	KEYSIGHT	N9020A	MY51283932	2024/09/14	2025/09/13
Pre-Amplifier	A-INFO	HPA-1G1850	HYPA21003	2024/09/14	2025/09/13

Horn antenna	A-INFO	3117	246069	2022/03/11	2025/03/10
Pre-Amplifier	ZKJC	HPA-184057	HYPA21004	2024/09/14	2025/09/13
Horn antenna	ZKJC	3116C	246265	2022/03/29	2025/03/28
Test Software	Farad	EZ-EMC (Ver.FA-03A2 RE+)	N/A	N/A	N/A

Test Equipment of Conducted emissions					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Due Date**
Shielded Room	CHENG YU	8m*5m*4m	N/A	2022/10/29	2025/10/28
EMI Test Receiver	Rohde & Schwarz	ESR3	102647	2024/09/14	2025/09/13
LISN/AMN	Rohde & Schwarz	ENV216	102843	2024/09/14	2025/09/13
NNLK 8129 RC	Schwarzbeck	NNLK 8129 RC	5046	2024/09/14	2025/09/13
Test Software	Farad	EZ-EMC (Ver. EMC-con-3A1 1+)	N/A	N/A	N/A

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

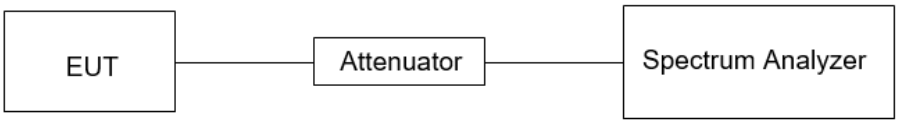
LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Refer to ANSI C63.10-2013 Zero – Span Spectrum Analyzer method.

TEST SETUP



TEST ENVIRONMENT

Temperature	23.6℃	Relative Humidity	53%
Atmosphere Pressure	101kPa		

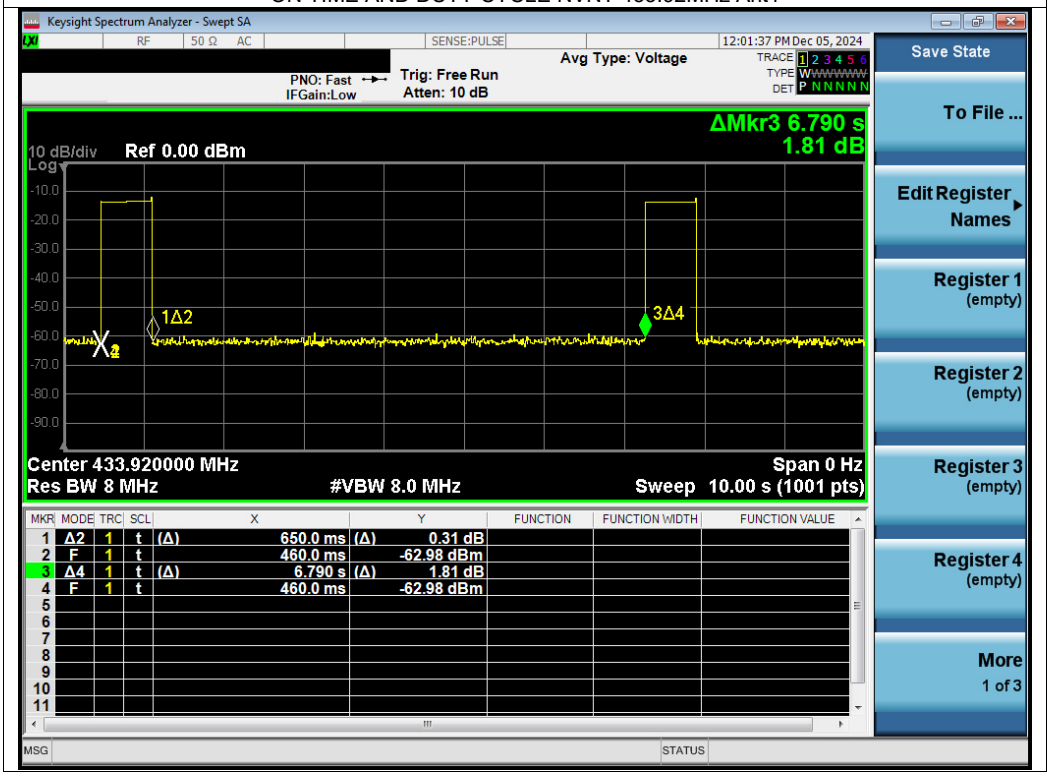
TEST RESULTS

433.92MHz

On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
650	6790	0.0957	9.57	-20.38	0.002	1

Note:
1.Duty Cycle Correction Factor=20log(x).
Where: x is Duty Cycle (Linear)
Where: T is On Time (transmitting duration)
If that calculated VBW is not available on the analyzer then the next higher value should be used.
2.The customer claims that the infrared sensing function of the product triggers every 6 seconds. When the product's infrared sensor detects a person or vehicle, the product's 433MHz signal is emitted once.

Test Graphs
ON TIME AND DUTY CYCLE NVNT 433.92MHz Ant1



7.2. 20DB BANDWIDTH

LIMITS

CFR 47 FCC Part15 (15.231) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.231(a)(2)	20 dB Bandwidth	⩽ 1084.8 kHz	433.92

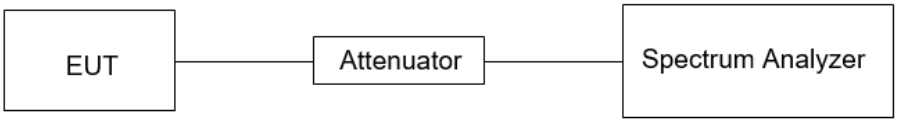
TEST PROCEDURE

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Frequency Span	Approximately 2 to 3 times the 20dB bandwidth
Detector	Peak
RBW	1 % to 5 % of the 20 dB bandwidth
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

a) Use the occupied bandwidth function of the instrument, allow the trace to stabilize and report the measured 20 dB Bandwidth.

TEST SETUP



TEST ENVIRONMENT

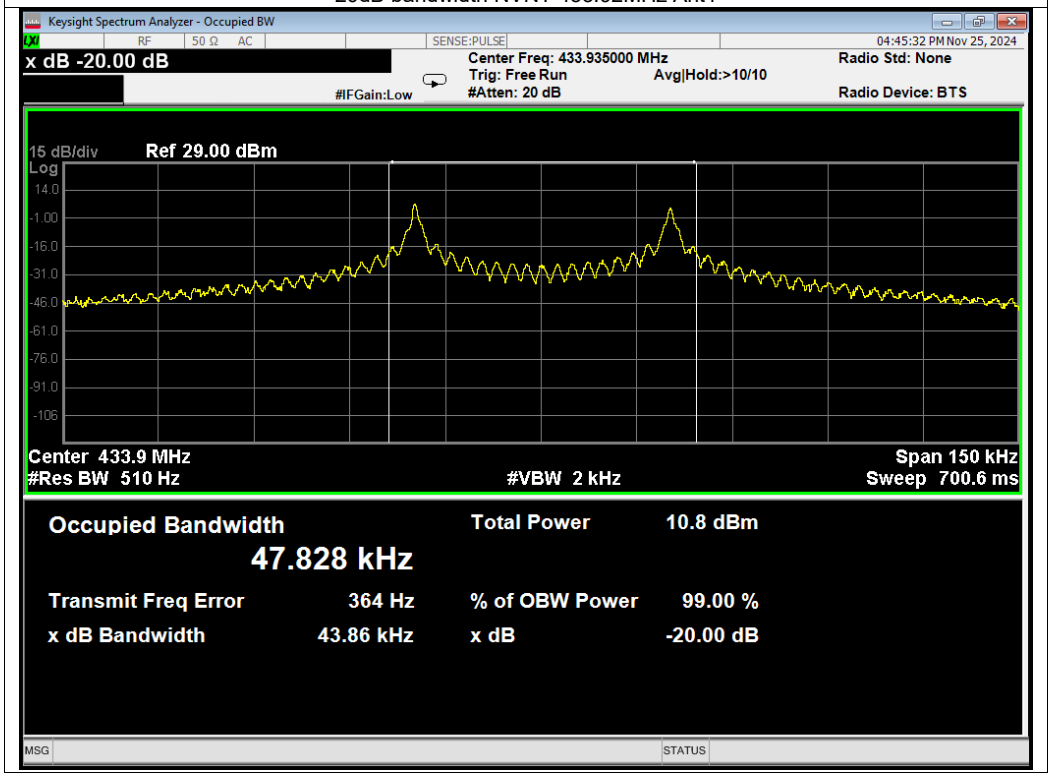
Temperature	23.2℃	Relative Humidity	55%
Atmosphere Pressure	101kPa		

TEST RESULTS

Frequency (MHz)	20dB bandwidth (kHz)	Limit (kHz)	Result
433.92	43.86	⩽1084.8	Pass

Test Graphs

20dB bandwidth NVNT 433.92MHz Ant1



7.3. TRANSMISSION TIME

LIMITS

CFR 47 FCC Part15 (15.231) Subpart C		
Section	Test Item	Limit
CFR 47 FCC §15.247 (a)	Transmission Time	A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

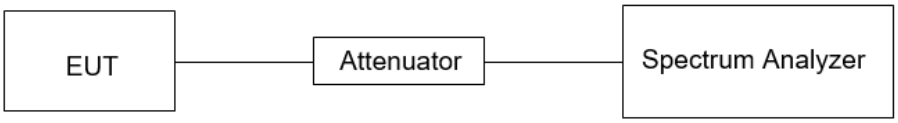
TEST PROCEDURE

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	8MHz
VBW	8MHz
Span	0Hz
Sweep time	Auto couple

Allow trace to fully stabilize and record value.

TEST SETUP



TEST ENVIRONMENT

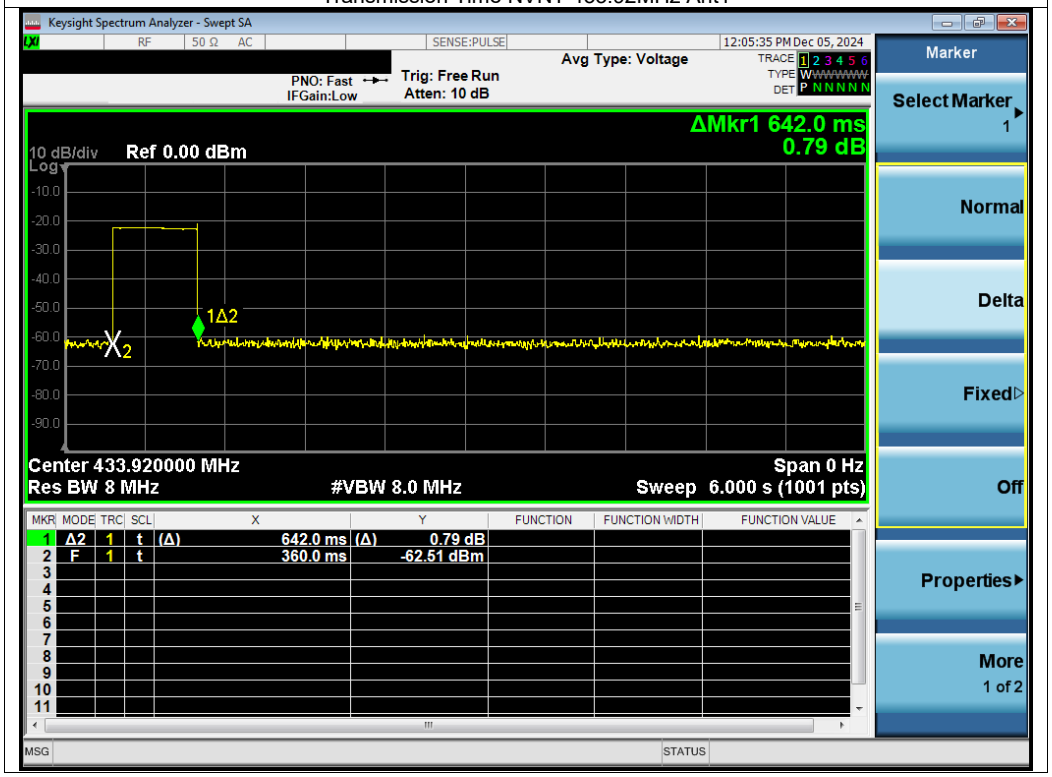
Temperature	23.6℃	Relative Humidity	53%
Atmosphere Pressure	101kPa		

TEST RESULTS

Frequency (MHz)	TRANSMISSION TIME (s)	Limit (s)	Result
433.92	0.642	⩽5	Pass

Test Graphs

Transmission Time NVNT 433.92MHz Ant1



8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.231(b)

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emission (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	[1]1,250 to 3,750	[1]125 to 375
174-260	3,750	375
260-470	[1]3,750 to 12,500	[1]375 to 1,250
Above 470	12,500	1,250

Note: 1. Linear interpolations.

Please refer to CFR 47 FCC §15.205 and §15.209.

Radiation Disturbance Test Limit for FCC (Class B) (9 kHz ~ 1 GHz)

Emissions radiated outside of the specified frequency bands above 30 MHz			
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m	
		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
		74	54

FCC Emissions radiated outside of the specified frequency bands below 30 MHz		
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

TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyser

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits 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.

6. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak and average detector mode re-measured. 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 and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of 377Ω. For example, the measurement frequency X KHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.

Below 1 GHz and above 30 MHz

The setting of the spectrum analyser

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. 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.

Above 1G

The setting of the spectrum analyser

RBW	1 MHz
VBW	PEAK: 3 MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

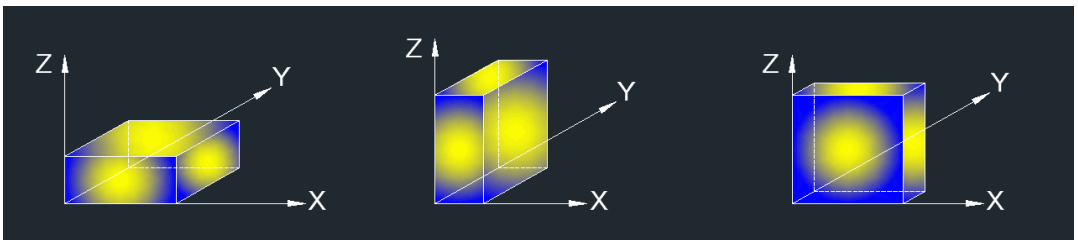
3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

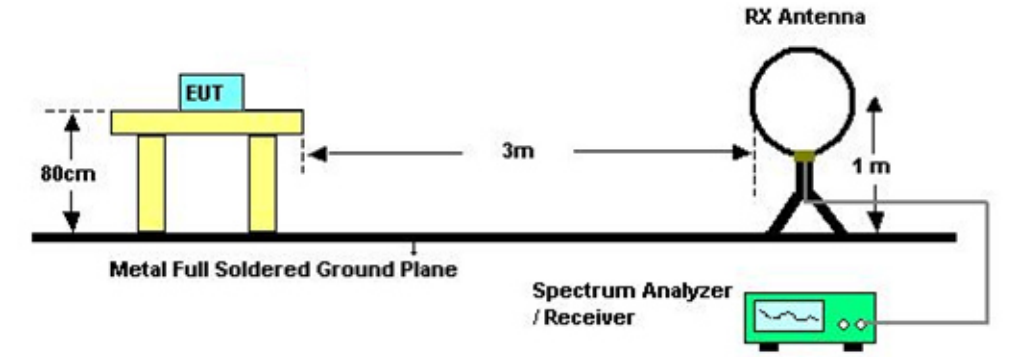
6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.

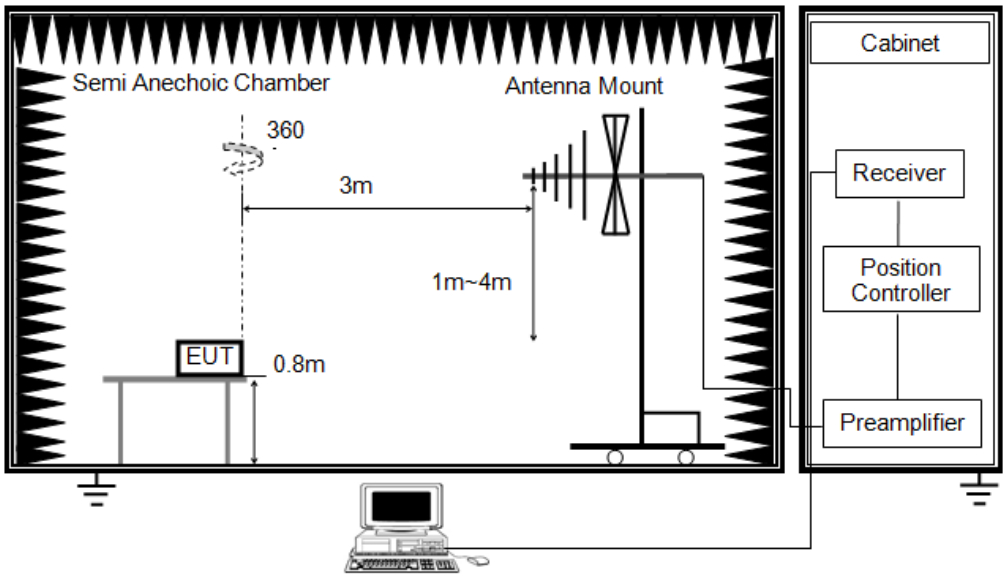
X axis, Y axis, Z axis positions:

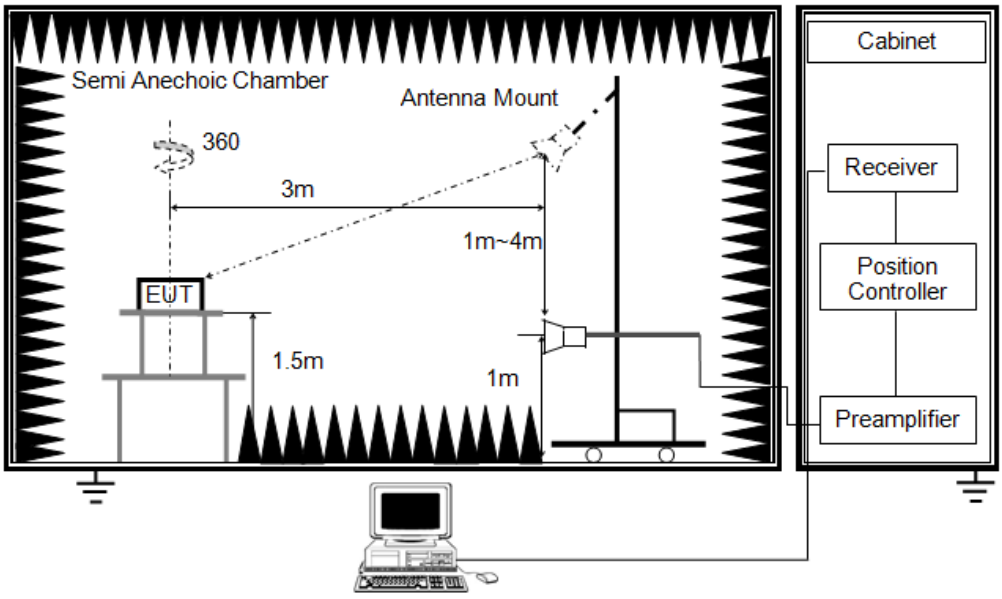


Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

TEST SETUP







TEST ENVIRONMENT

Temperature	23.3℃	Relative Humidity	54%
Atmosphere Pressure	101kPa		

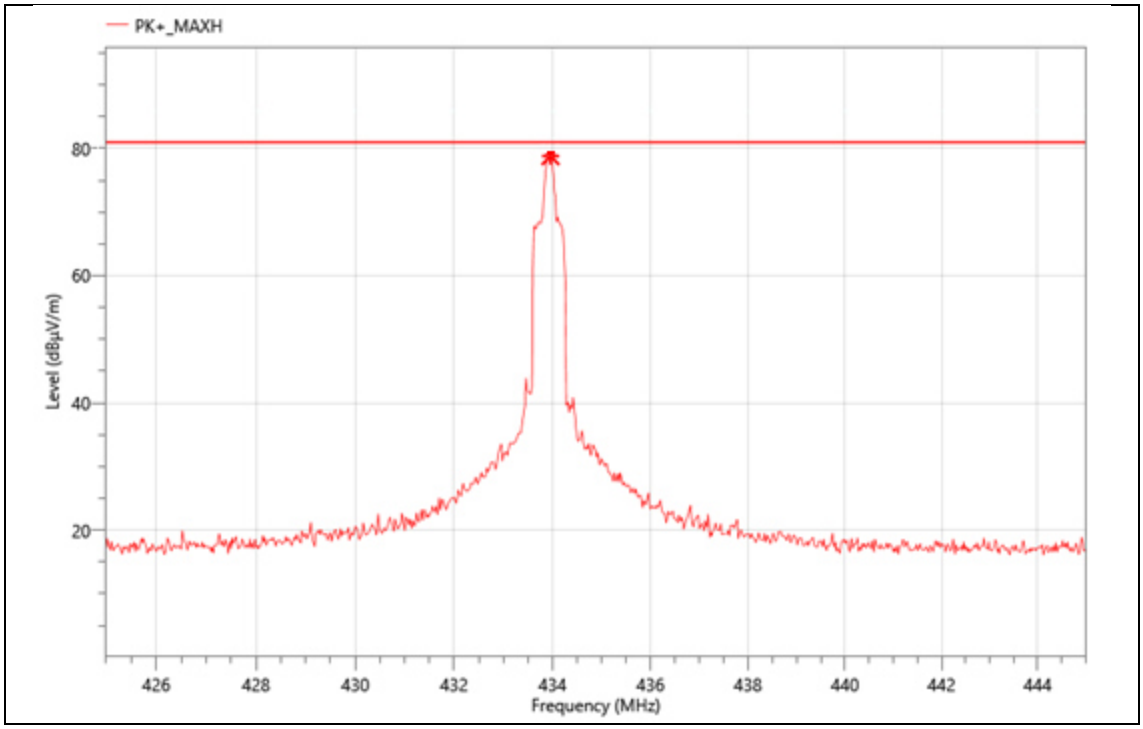
TEST RESULTS

Please refer to section 8.1.

8.1. RADIATED EMISSION

Field Strength of fundamental frequency

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa

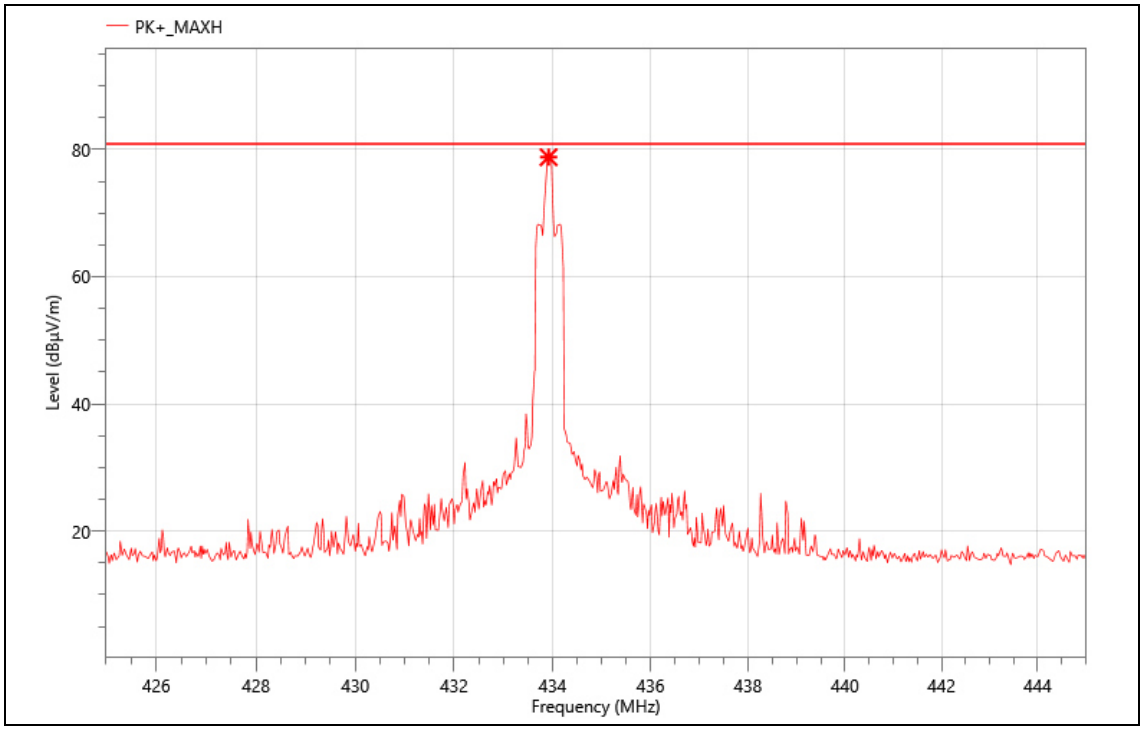


Critical_Freqs

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	433.960	92.98	-14.2	78.78	80.83	2.05	PK+	H

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	433.920	92.98	-14.19	78.99	80.83	1.84	PK+	V

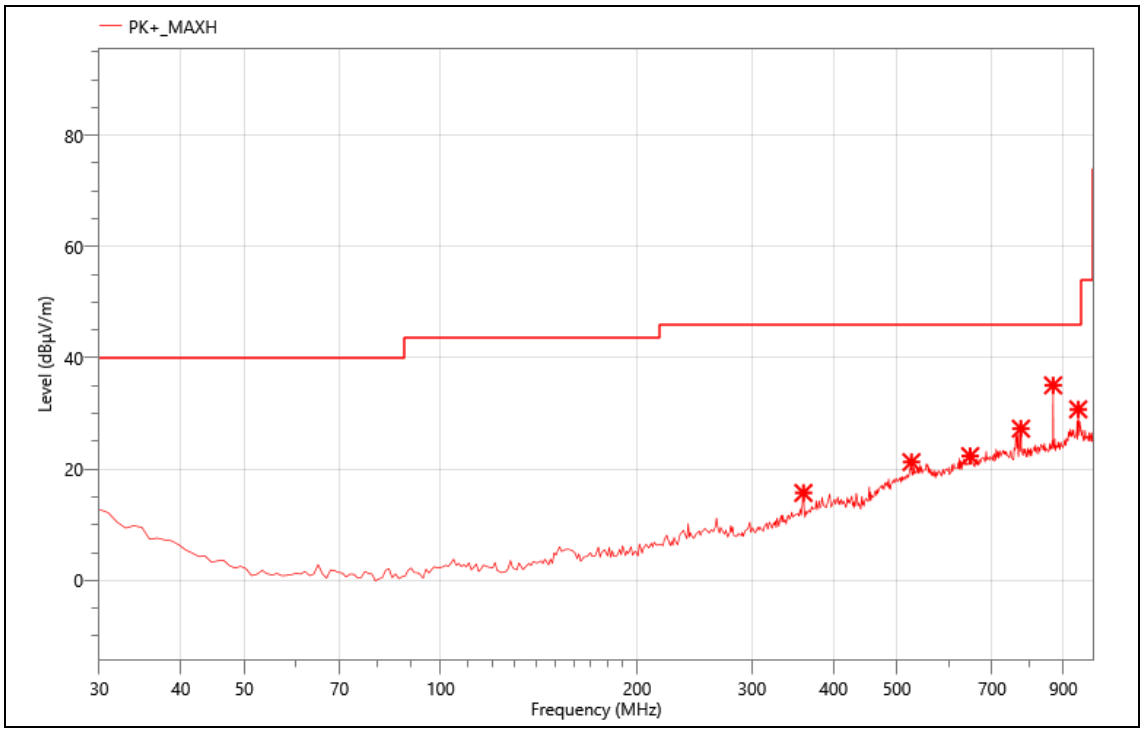
Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

Note:

1. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

Radiated Spurious Emission

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa

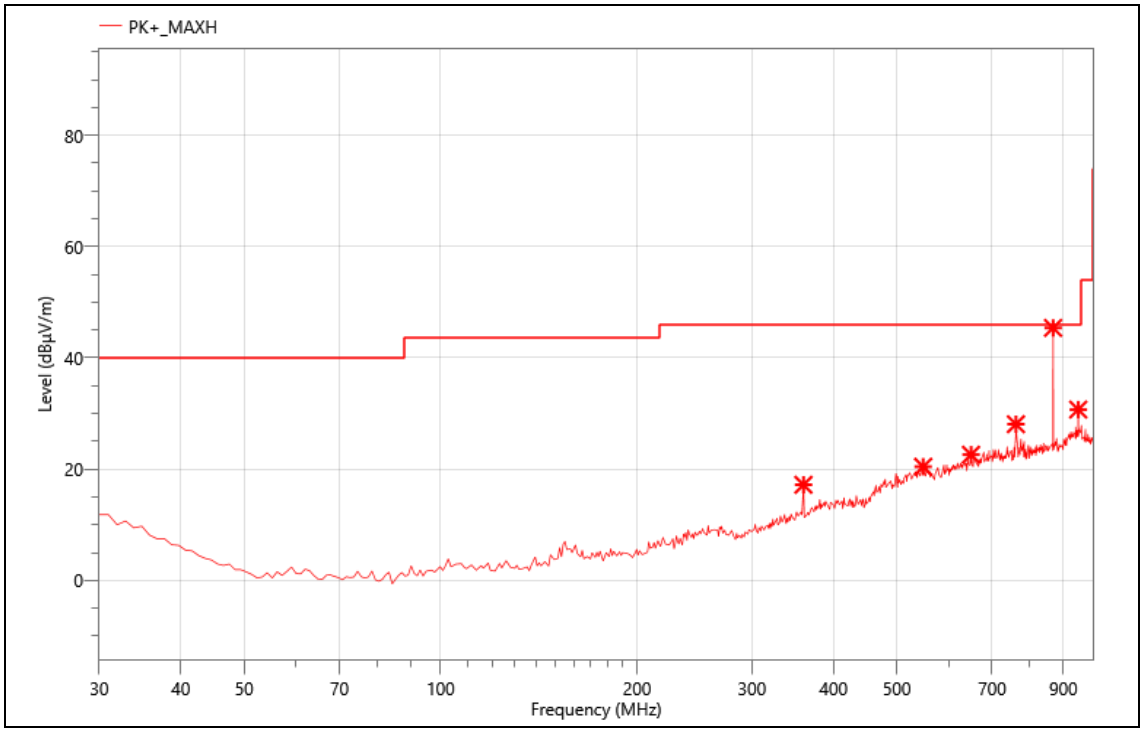


Critical_Freqs

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	359.800	31.60	-15.88	15.72	46.00	30.28	PK+	V
2	526.640	32.17	-10.91	21.26	46.00	24.74	PK+	V
3	647.890	30.85	-8.5	22.35	46.00	23.65	PK+	V
4	774.960	34.24	-6.97	27.27	46.00	18.73	PK+	V
5	868.080	40.55	-5.49	35.06	46.00	10.94	PK+	V
6	948.590	34.17	-3.42	30.75	46.00	15.25	PK+	V

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa

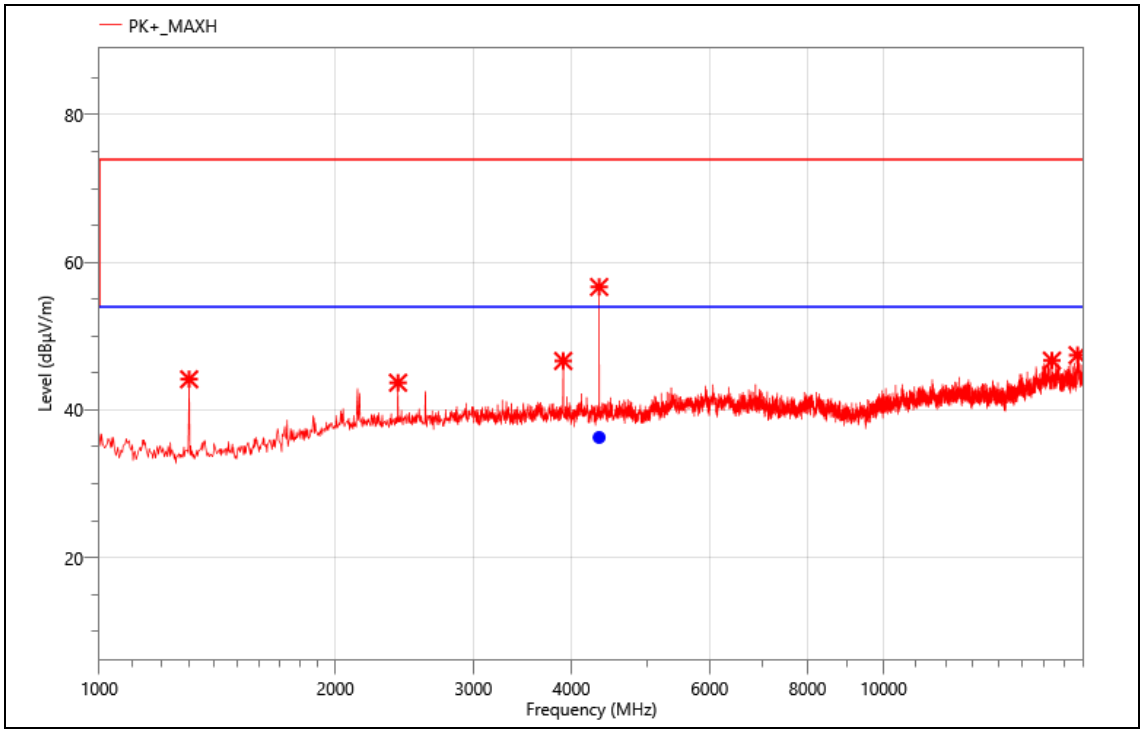


Critical_Freqs

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	359.800	33.07	-15.88	17.19	46.00	28.81	PK+	H
2	548.950	30.22	-9.79	20.43	46.00	25.57	PK+	H
3	649.830	31.07	-8.48	22.59	46.00	23.41	PK+	H
4	761.380	35.39	-7.31	28.08	46.00	17.92	PK+	H
5	868.080	50.88	-5.49	45.39	46.00	0.61	PK+	H
6	948.590	34.13	-3.42	30.71	46.00	15.29	PK+	H

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa



Critical_Freqs

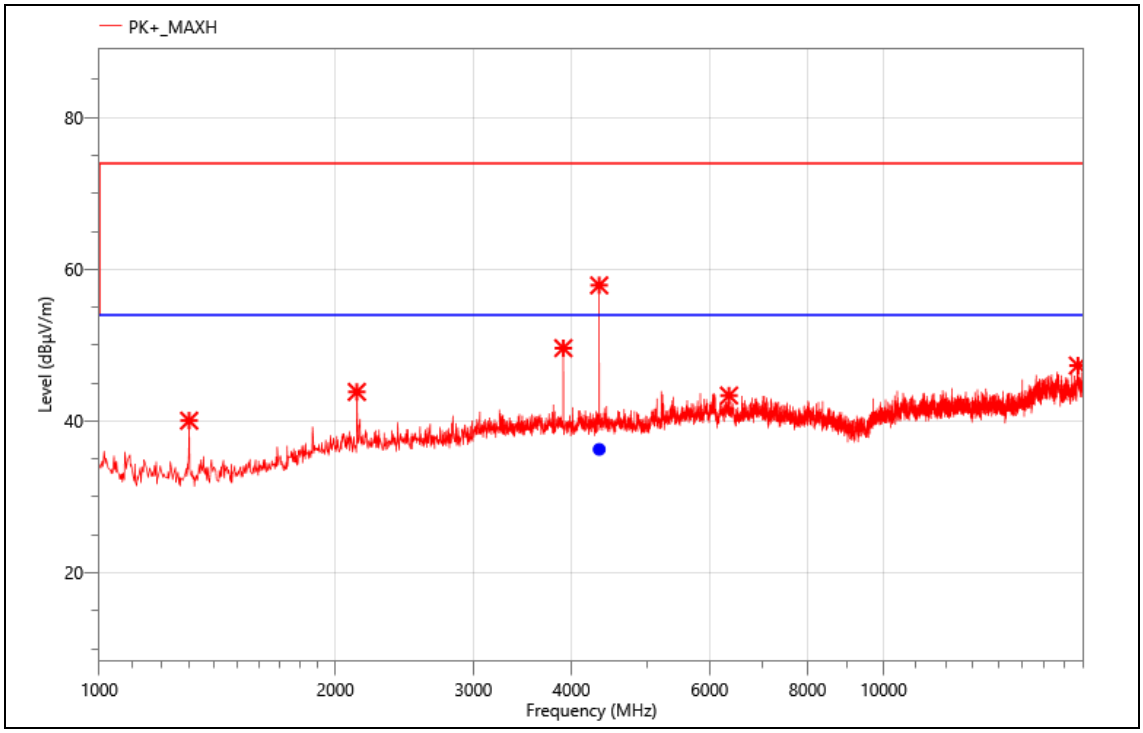
No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	1302.000	66.98	-22.83	44.15	74.00	29.85	PK+	H
2	2404.000	61.18	-17.5	43.68	74.00	30.32	PK+	H
3	3904.500	59.74	-13.11	46.63	74.00	27.37	PK+	H
4	4338.000	68.89	-12.24	56.65	74.00	17.35	PK+	H
5	16395.000	47.86	-1.18	46.68	74.00	27.32	PK+	H
6	17676.000	47.11	0.31	47.42	74.00	26.58	PK+	H

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.	Verdict
1	4338.000	N/A	N/A	36.27	53.90	17.63	AVG	H	PASS

Note： 1. Meas.(AVG)= Meas.(PK)+Duty Cycle Correction Factor.
2. Duty Cycle Correction Factor =-20.38dB.

Mode:	433.92MHz
Power:	DC 3.7V
TE:	Berny
Date	2024/11/26
T/A/P	23.3℃/54%/101Kpa



Critical_Freqs

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.
1	1302.000	62.88	-22.83	40.05	74.00	33.95	PK+	V
2	2130.000	61.88	-18.04	43.84	74.00	30.16	PK+	V
3	3906.000	62.73	-13.12	49.61	74.00	24.39	PK+	V
4	4339.500	70.13	-12.24	57.89	74.00	16.11	PK+	V
5	6352.500	51.31	-7.94	43.37	74.00	30.63	PK+	V
6	17692.500	47.10	0.22	47.32	74.00	26.68	PK+	V

Note：[Margin=Limit-Meas.]; [Meas.=Reading+Corr.]

No.	Freq. (MHz)	Reading (dBµV)	Corr. (dB)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Det.	Pol.	Verdict
1	4339.500	N/A	N/A	37.51	53.90	16.39	AVG	V	PASS

Note： 1. Meas.(AVG)= Meas.(PK)+Duty Cycle Correction Factor.
2. Duty Cycle Correction Factor =-20.38dB.

Note:
1. Measurement = Reading Level + Correct Factor.
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Peak: Peak detector.
4. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

9. ANTENNA REQUIREMENT

REQUIREMENT

Please refer 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.

DESCRIPTION

Pass

10. AC POWER LINE CONDUCTED EMISSION

LIMITS

Please refer to CFR 47 FCC §15.207 (a)

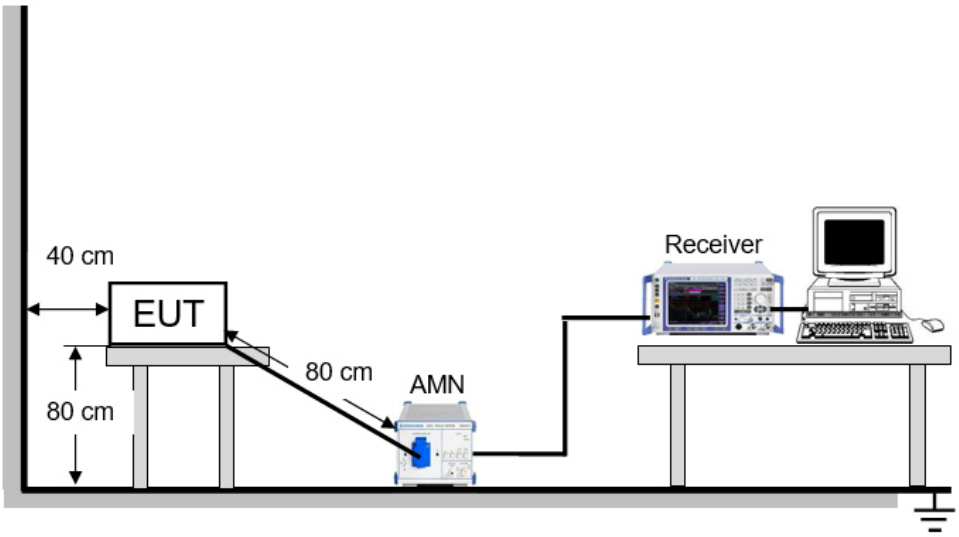
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

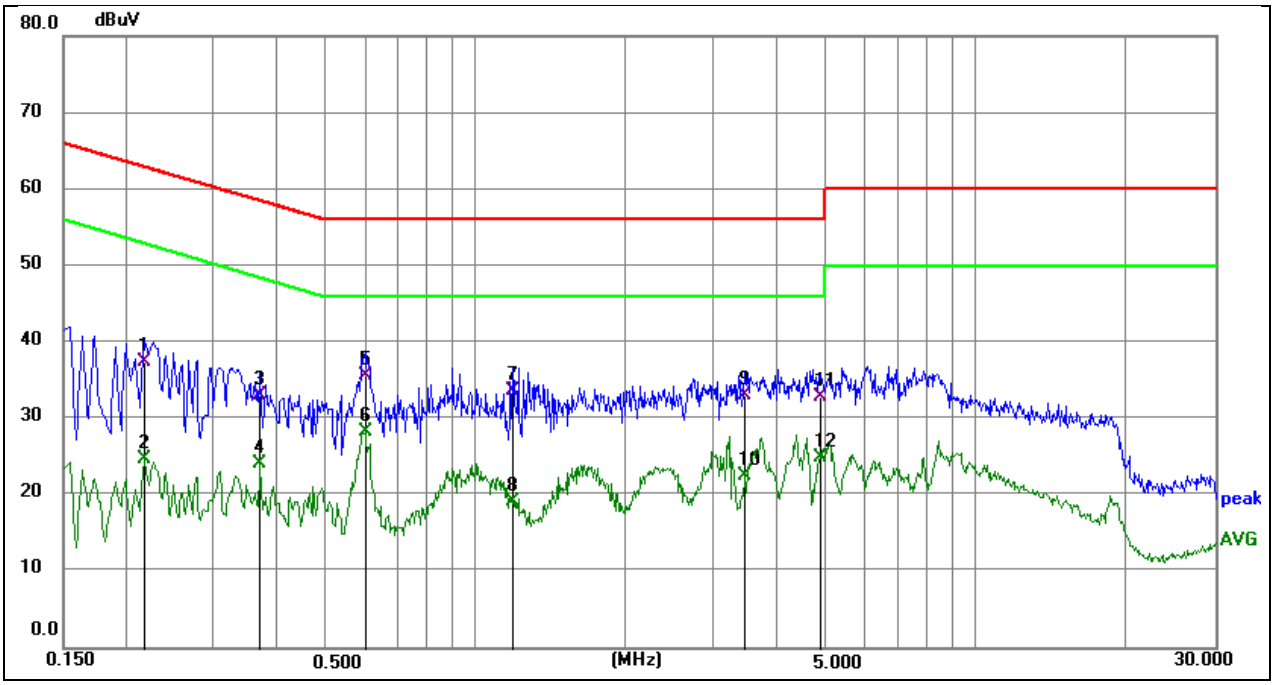
TEST SETUP



TEST ENVIRONMENT

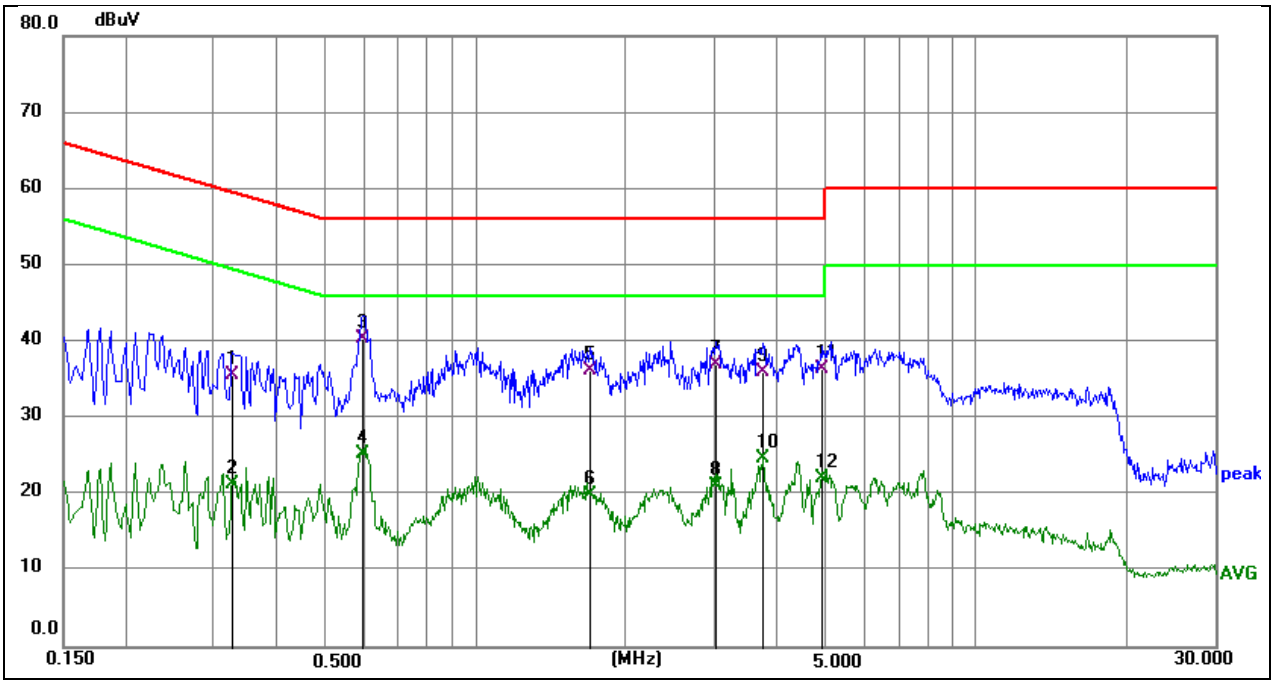
Temperature	26℃	Relative Humidity	54%
Atmosphere Pressure	101kPa		

TEST RESULTS



Phase: N	Mode: 433.92MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2175	27.61	9.80	37.41	62.91	-25.50	QP
2	0.2175	14.97	9.80	24.77	52.91	-28.14	AVG
3	0.3704	23.24	9.76	33.00	58.49	-25.49	QP
4	0.3704	14.42	9.76	24.18	48.49	-24.31	AVG
5	0.6000	25.88	9.77	35.65	56.00	-20.35	QP
6	0.6000	18.45	9.77	28.22	46.00	-17.78	AVG
7	1.1895	23.90	9.82	33.72	56.00	-22.28	QP
8	1.1895	9.40	9.82	19.22	46.00	-26.78	AVG
9	3.4710	23.23	9.82	33.05	56.00	-22.95	QP
10	3.4710	12.81	9.82	22.63	46.00	-23.37	AVG
11	4.8885	22.90	9.89	32.79	56.00	-23.21	QP
12	4.8885	14.98	9.89	24.87	46.00	-21.13	AVG



Phase: L1	Mode: 433.92MHz

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3268	25.88	9.76	35.64	59.53	-23.89	QP
2	0.3268	11.65	9.76	21.41	49.53	-28.12	AVG
3	0.5948	30.58	9.82	40.40	56.00	-15.60	QP
4	0.5948	15.55	9.82	25.37	46.00	-20.63	AVG
5	1.6891	26.31	9.88	36.19	56.00	-19.81	QP
6	1.6891	9.98	9.88	19.86	46.00	-26.14	AVG
7	3.0094	27.17	9.90	37.07	56.00	-18.93	QP
8	3.0094	11.18	9.90	21.08	46.00	-24.92	AVG
9	3.7395	26.22	9.86	36.08	56.00	-19.92	QP
10	3.7395	14.84	9.86	24.70	46.00	-21.30	AVG
11	4.8997	26.50	9.86	36.36	56.00	-19.64	QP
12	4.8997	12.33	9.86	22.19	46.00	-23.81	AVG

Note: 1. Result = Reading + Correct Factor.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).
4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.

END OF REPORT