Test Report

Client Information:

Applicant: HangZhou ZhaoTeng Technology Co., Ltd

Applicant add.: Room 505, unit 1, building 3, Wanda business center, Gongshu District, Hangzhou City, Zhejiang Province, China

Product Information:

Product Name: Automatic door wireless switch

Model No.: OS2002, OS2001, OS2003, OS2004, OS2001-120, OS2002-120

Brand Name: N/A

FCC ID: 2AY5E-OS2002

Standards: FCC 47 CFR PART 15 SUBPART C 15.231

Prepared By:

Dongguan Yaxu (AiT) Technology Limited

No. 22, Jinqianling 3rd Street, Jitigang, Huangjiang, Dongguan, Guangdong, China

Tel.: +86 0755-230967639 Fax.: +86 0755-230967639

Date of Receipt:	June 25, 2026	Date of Test:	June 25, 2026~July 12, 2026
Date of Issue:	July 13, 2026	Test Result:	Pass

This device described above has been tested by Dongguan Yaxu (AiT) Technology Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of Dongguan Yaxu (AiT) Technology Limited.

Reviewed by: Emiya Lin

Emiya Lin

Approved by: Simba Huang

Simba Huang

1 Contents

		Page
	COVER PAGE	
1	**CONTENTS**	**2**
2	**TEST SUMMARY**	**4**
2.1	STATEMENT OF THE MEASUREMENT UNCERTAINTY	4
2.2	MEASUREMENT UNCERTAINTY	4
3	**TEST FACILITY**	**5**
3.1	DEVIATION FROM STANDARD	5
3.2	ABNORMALITIES FROM STANDARD CONDITIONS	5
3.3	TEST LOCATION	5
4	**GENERAL INFORMATION**	**6**
4.1	GENERAL DESCRIPTION OF EUT	6
5	**DESCRIPTION OF TEST CONDITIONS**	**8**
5.1	E.U.T. OPERATION	8
5.2	EUT PERIPHERAL LIST	9
5.3	TEST PERIPHERAL LIST	9
6	**EQUIPMENTS LIST FOR ALL TEST ITEMS**	**10**
7	**TEST RESULT**	**12**
7.1	ANTENNA REQUIREMENT	12
7.2	TRANSMIT TIME	13
7.2.1	Applied procedures / Limit	13
7.2.2	Test procedure	13
7.2.3	Deviation from standard	13
7.2.4	Test setup	13
7.2.5	Test results	14
7.3	FIELD STRENGTH OF FUNDAMENTAL& FIELD STRENGTH OF UNWANTED EMISSIONS	15
7.3.1	Test procedure	18
7.4	OCCUPIED BANDWIDTH & BAND EDGE	27
7.5	CONDUCTED EMISSIONS AT MAINS TERMINALS 150 KHZ TO 30 MHZ	29
7.5.1	Test Result	31
8	**PHOTOGRAPHS**	**31**
8.1	RADIATED EMISSION TEST SETUP	31

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	July 13, 2026	Valid	Initial release

2 Test Summary

FCC Rule	Description of Test	Result
Section 15.203 RSS-Gen section 6.8	Antenna Requirement	Pass
Section 15.207(a)	Conduction Emissions	N/A
Section 15.205,15.209,15.231(b)	Radiated Emissions	Pass
Section 15.231(c)	Occupied Bandwidth	Pass
Section 15.231(a)	Transmit time	Pass

Note

1. Test according to ANSI C63.10:2020.

2. The measurement uncertainty is not included in the test result.

3. Test results in other test report (RF Exposure Evaluation Report)

2.1 Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the AiT quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.2 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	0.009MHz-30MHz	3.10dB	(1)
Radiated Emission	30MHz-1GHz	3.75dB	(1)
Radiated Emission	1GHz-18GHz	3.88dB	(1)
Radiated Emission	18GHz-40GHz	3.88dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	1.20dB	(1)
Occupied Channel Bandwidth	0.009MHz-18GHz	0.20dB	(1)
Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.			

3 Test Facility

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

CNAS-Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on April 18, 2022

FCC-Registration No.: 362653 Designation Number: CN1457

Dongguan Yaxu (AiT) technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC-Registration No.: 6819 CAB identifier: CN0122

The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01

Dongguan Yaxu (AiT) technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None

3.3 Test Location

Dongguan Yaxu (AiT) Technology Limited

Address: B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.

Tel.: +86 0755-230967639

Fax.: +86 0755-230967639

4 General Information

4.1 General Description of EUT

Manufacturer:	HangZhou ZhaoTeng Technology Co., Ltd
Manufacturer Address:	Room 505, unit 1, building 3, Wanda business center, Gongshu District, Hangzhou City, Zhejiang Province, China
EUT Name:	Automatic door wireless switch
Test sample(s) ID:	AiTDG-260625009-1
Model No.:	OS2002
Serial Model No.:	OS2001, OS2003, OS2004, OS2001-120, OS2002-120
Operation frequency:	315MHz
Modulation Technology:	OOK
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi
H/W No.:	N/A
S/W No.:	N/A
Power supply:	ALKALINE BATTERY DC 12V 27A
Model difference:	PCB board, structure and internal of these model(s) are the same, So no additional models were tested.

Description of Channel:	
Channel	Frequency (MHz)
01	315

5 Description of Test conditions

5.1 E.U.T. Operation

Power supply:	ALKALINE BATTERY DC 12V 27A (New battery)
Temperature:	20.0 -25.0 ◦C
Humidity:	38-50 % RH
Atmospheric Pressure:	1000 -1010 mbar
Test frequencies and frequency range:	(i) Except where otherwise specified, measurements shall be performed for each frequency band of operation for which the radio apparatus is to be certified, with the device operating at the frequencies in each band of operation shown in the table below: In measuring unwanted emissions, the spectrum shall be investigated from 30 MHz or the lowest radio frequency signal generated in the equipment, whichever is lower, without going below 9 kHz, up to at least the frequency given in the table below:

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Remark: Test frequency is 315MHz.

5.2 EUT Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	Remark
1	N/A	N/A	N/A	N/A	N/A	N/A

5.3 Test Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Power cord	Remark
1	N/A	N/A	N/A	N/A	N/A	N/A

6 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Spectrum Analyzer	R&S	FSV40	101470	2025.09.26	2026.09.25
2	Spectrum Analyzer	Agilent	N9020A	MY53421570	2025.09.23	2026.09.22
3	EMI Measuring Receiver	R&S	ESPI	100773	2025.09.25	2026.09.24
4	Low Noise Pre Amplifier	HP	HP8447E	1937A01855	2025.09.25	2026.09.24
5	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2025.09.25	2026.09.24
6	Passive Loop	ETS	6512	00165355	2024.09.04	2026.09.03
7	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB-9160	9160-3206	2024.08.29	2026.08.28
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120D	452	2024.08.29	2026.08.28
9	SHF-EHF Horn Antenna 15-40GHz	SCHWARZBECK	BBHA9170	BBHA9170367	2023.09.12	2026.09.11
10	EMI Test Receiver	R&S	ESCI	100124	2025.09.25	2026.09.24
11	LISN	R&S	ESH3-Z5	892785/016	2025.09.26	2026.09.25
12	LISN	KYORITSU	KNW-242	8-837-4	2025.09.26	2026.09.25
13	Pro.Temp&Humi.chamber	MENTEK	MHP-150-1C	MAA08112501	2025.09.25	2026.09.24
14	RF Automatic Test system	MW	MW100-RFCB	21033016	2025.09.26	2026.09.25
15	Signal Generator	Agilent	N5182A	MY50143009	2025.09.26	2026.09.25
16	Wideband Radio communication tester	R&S	CMW500	135866	2025.09.23	2026.09.22
17	Pulse Limiter	R&S	ESH3-Z2	03578810.54	2025.09.25	2026.09.24
18	Switch	MFJ Rhinos	MFJ-2702	CZ3457	2025.09.25	2026.09.24
19	DC power supply	ZHAOXIN	RXN-305D-2	28070002559	N/A	N/A
20	RE Software	EZ	EZ-EMC_RE	Ver.AIT-03A	N/A	N/A
21	CE Software	EZ	EZ-EMC_CE	Ver.AIT-03A	N/A	N/A
22	RF Software	MW	MTS 8310	2.0.0.0	N/A	N/A

23	temporary antenna connector(Note)	NTS	R001	N/A	N/A	N/A
24	RF Automatic Test system(Power meter)	MW	MW100-PSB	Frequency range: 9kHz-26.5GHz; Power measuring Range: 10MHz~6GHz/ -40dBm~ +20dBm	2025.09.26	2026.09.25
Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.						

7 Test Result

7.1 Antenna Requirement

Standard requirement

For intentional device, according to FCC 47 CFR Section 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, 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

FCC CFR Title 47 Part 15 Subpart C Section 15.247(b) (4):

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sa-mple identified in the report., reference to the Internal photos for details.

Test result: The unit does meet the FCC requirements.

7.2 Transmit time

7.2.1 Applied procedures / Limit

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

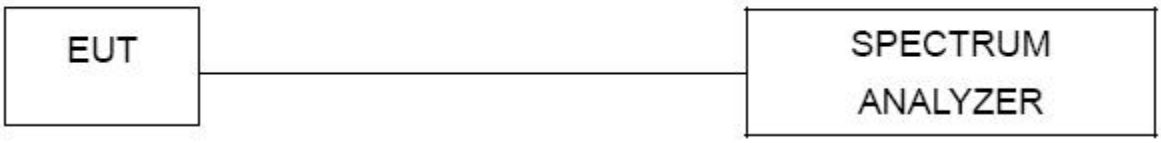
7.2.2 Test procedure

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Spectrum Setting: RBW=1MHz, VBW≧RBW, Sweep time=10s, Detector Function=Peak.

7.2.3 Deviation from standard

No deviation.

7.2.4 Test setup



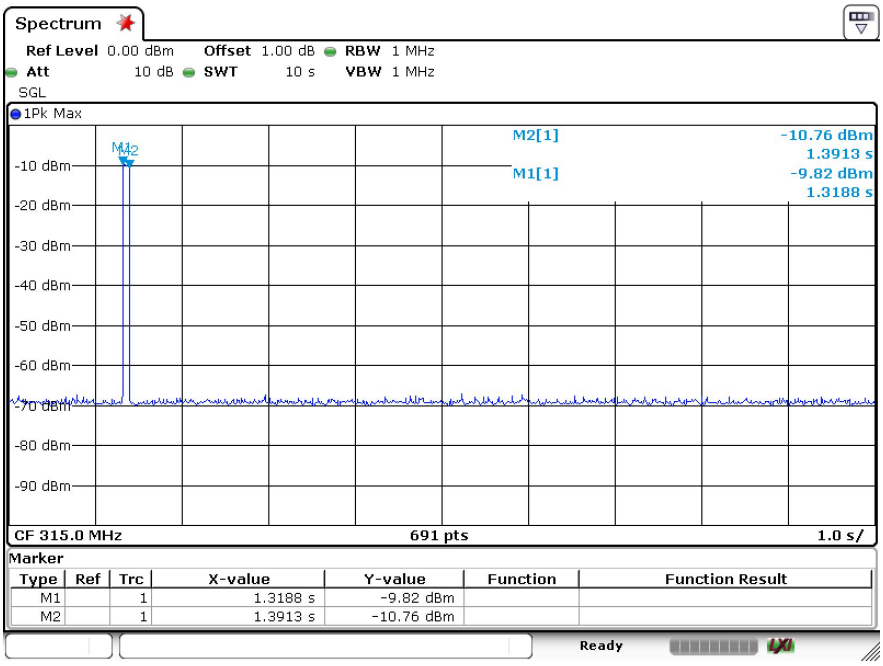
7.2.5 Test results

Test Date: 2026-06-25 Temperature: 26℃

Atmospheric pressure: 1000 pha Humidity: 60%

Item	Duration of each transmission (Td)	Limit
Time	0.0725s	≤5 s

315MHz



7.3 Field Strength of Fundamental& Field Strength of Unwanted Emissions

Test Requirement:	Section 15.209,15.231(b)			
Test Method:	ANSI C63.10: Clause 6.4, 6.5 and 6.6			
Measurement Distance:	3 m (Semi-Anechoic Chamber)			
Test Status:	Test in transmitting mode.			
Requirements:	the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:			
15.209				
Frequency MHz	Field Strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009 to 0.490	2400/F(kHz)	--	--	300
0.490 to 1.705	24000/F(kHz)	--	--	30
1.705 to 30	30	--	--	30
30 to 88	100	40.0	QP	3
88 to 216	150	43.5	QP	3
216 to 960	200	46.0	QP	3
960 to 1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3
	--	74.0	Peak	3
15.231(b)				
Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)		Field strength of spurious emissions (microvolts/meter)	
40.66-40.70	2,250		225	
70-130	1,250		125	
130-174	1,250 to 3,750		125 to 375	
174-260	3,750		375	
260-470	3,750 to 12,500		375 to 1,250	
Above 470	12,500		1,250	
Detector:	Peak for pre-scan			
	QP for 30MHz to1000 MHz:120 kHz resolution bandwidth Peak for Above 1 GHz: 1 MHz resolution bandwidth			
** linear interpolations [Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 260-470 MHz, μV/m at 3 meters = 41.67(F) - 7083. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level The fundamental frequency of the EUT is 434.92 MHz				

The limit for average or Peak field strength dBuv/m for the fundamental emission= 100.83 dBμV/m

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuv/m for the spurious emission= 80.83 dBuV/m (315MHz). Spurious in the restricted bands must be less than average field strength, whichever limit permits a higher field strength.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths, unless otherwise specified. The specifications for the measuring instrument using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Interference (CISPR) of the International Electrotechnical Commission. As an alternative to CISPR quasi-peak measurements, the responsible party, at its option, may demonstrate compliance with the emission limits using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, as long as the same bandwidths as indicated for CISPR quasi-peak measurements are employed.

Note: For pulse modulated devices with a pulse-repetition frequency of 20 Hz or less and for which CISPR quasi-peak measurements are specified, compliance with the regulations shall be demonstrated using measuring equipment employing a peak detector function, properly adjusted for such factors as pulse desensitization, using the same measurement bandwidths that are indicated for CISPR quasi-peak measurements.

Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

The average correction factor is computed by analyzing the on time in 100ms over one complete pulse train. Analysis of the remote transmitter on time in one complete pulse train, therefore the average value of fundamental frequency is: Average = Peak value + 20log (Duty cycle), where the duty factor is calculated from following formula:

For 315MHz:

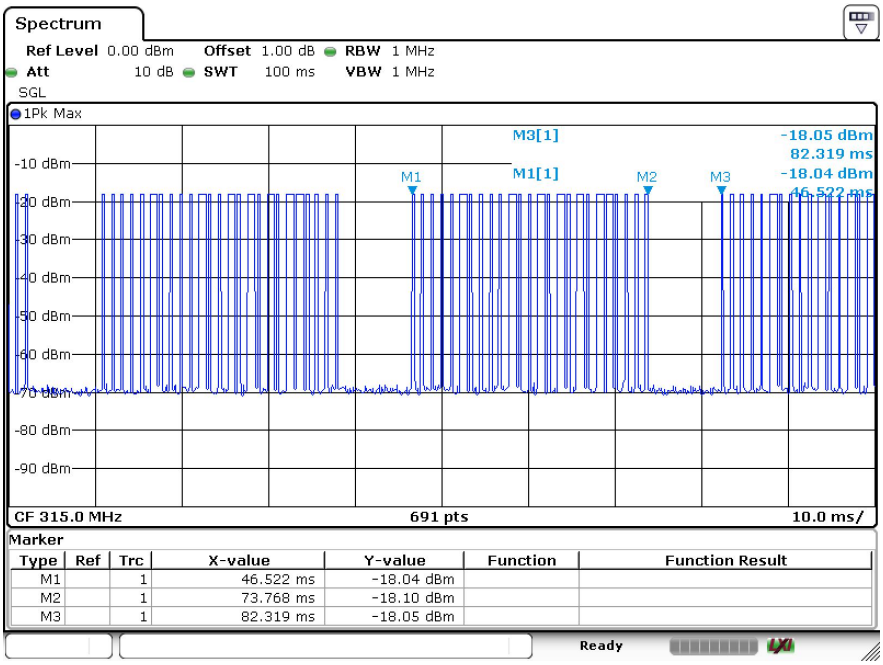
20log (Duty cycle) = 20log(T_{pulse}/35.797) =20log(0.3044)=-10.33dB

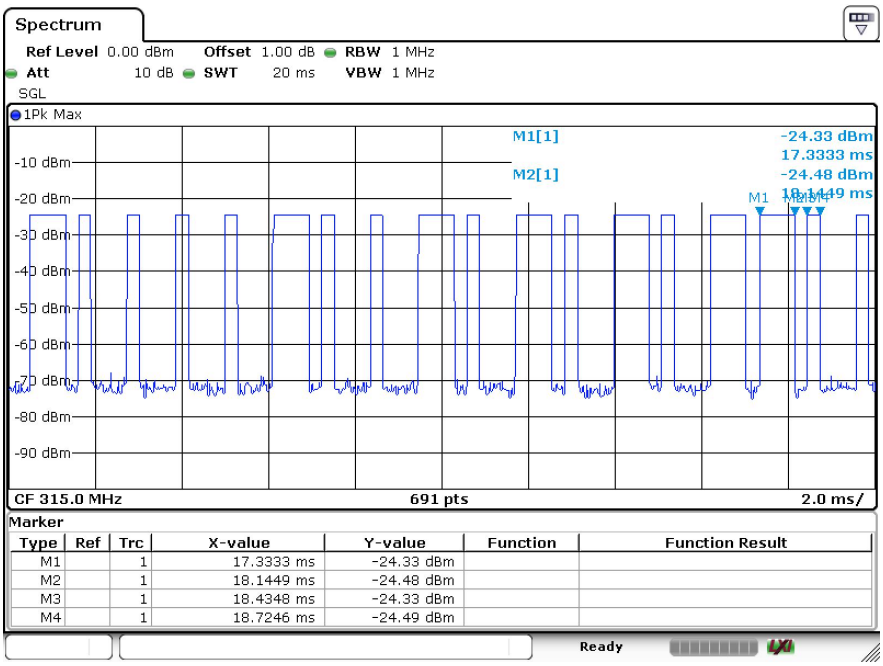
Here T_{pulse}=0.8116*7+0.2898*18=10.8976(ms)

Please refer to below plots for more details.

315MHz

EUT：	Automatic door wireless switch	Model Name ：	OS2002
Temperature：	26 ℃	Test Data	2026-06-25
Pressure：	1010 hPa	Relative Humidity：	60%
Test Mode ：	TX CH01	Test Voltage ：	ALKALINE BATTERY DC 12V 27A





7.3.1 Test procedure

Test Procedure:

1)9 kHz to 30 MHz emissions:

For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.10. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT, During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2)30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360º, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3)1 GHz to 5 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

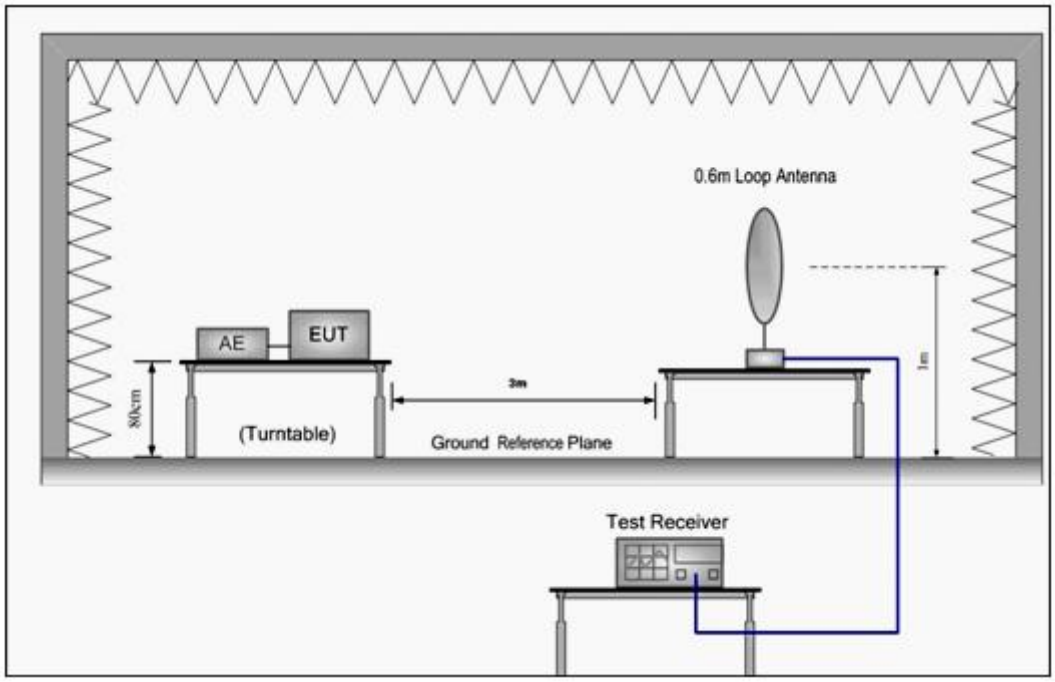
For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.10. The measurement is performed with the EUT rotated 360º, the antenna height scan between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

For the radiated emission test above 1GHz:

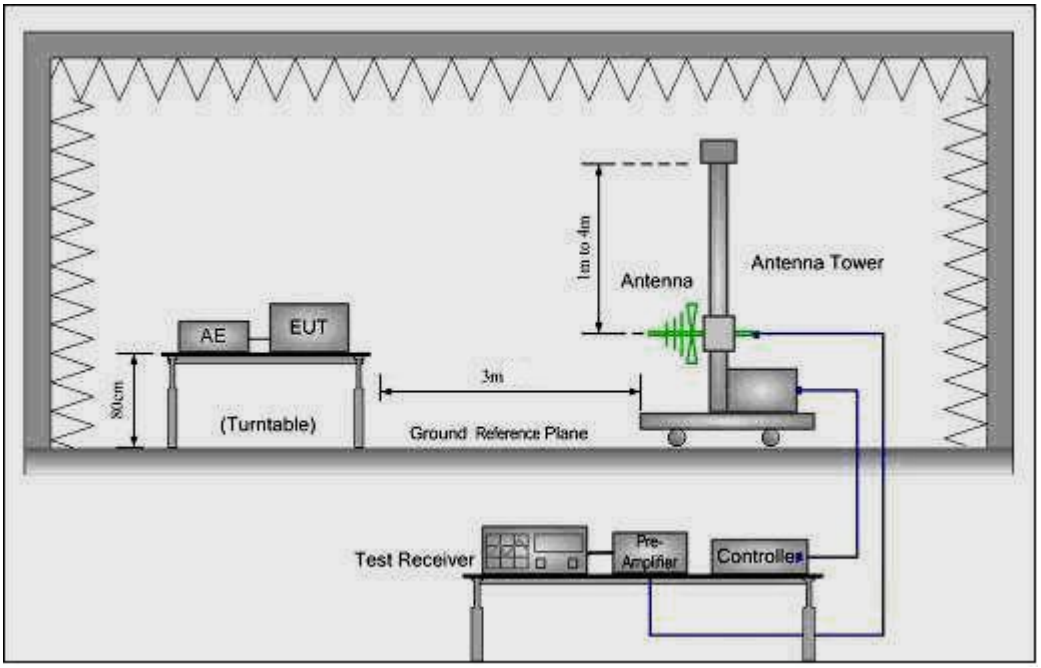
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

Test Configuration:

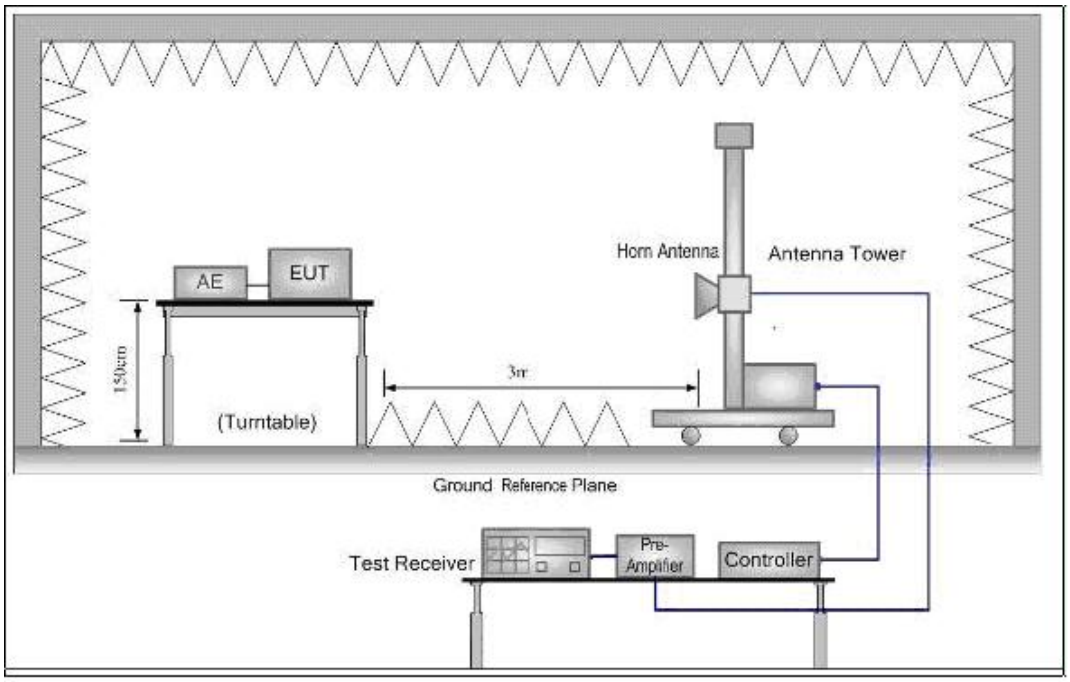
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 5 GHz emissions:



The field strength is calculated by adding the Antenna Factor, Cable Loss & Per-amplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna, Factor + Cable Loss – Preamplifier Factor

Other emissions:

The receive was scanned from the lowest frequency generated within the EUT to 5 GHz.When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

An initial pre-scan was performed in the 3 m chamber using the spectrum analyzer in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Peramplifier Factor.

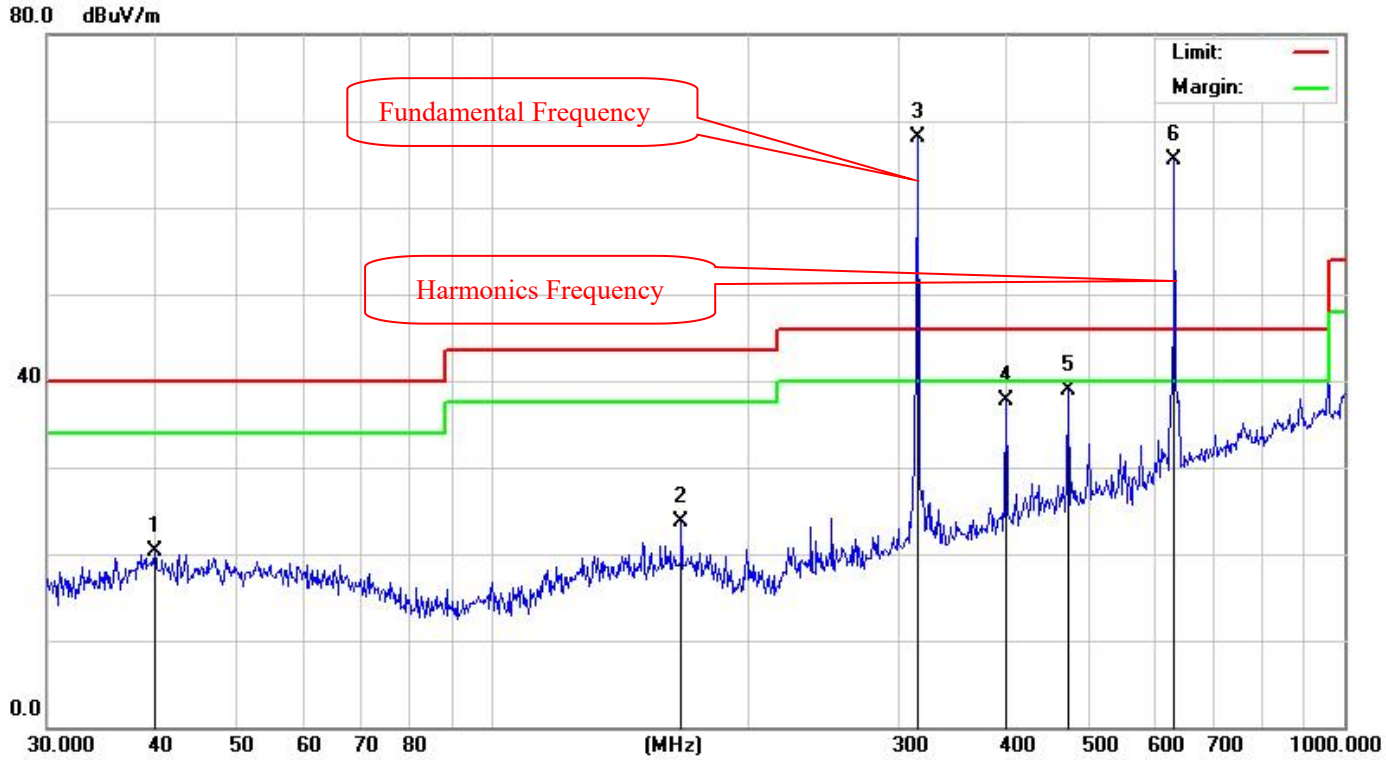
The following test results were performed on the EUT.

Since the peak emission level is lower than the average limit, the average emission level does not need to show.

Test the EUT in transmitting mode.

30MHz-1000MHz

Power	:	ALKALINE BATTERY DC 12V 27A	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	TX CH01	Temperature	:	22 °C
Memo	:		Humidity	:	59 %



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		40.1347	21.08	-0.85	20.23	40.00	-19.77	QP
2		166.6514	23.82	-0.13	23.69	43.50	-19.81	QP
3	*	315.4808	66.20	1.88	68.08	46.00	22.08	peak
4		400.4319	33.71	4.07	37.78	46.00	-8.22	QP
5		473.8347	32.78	6.20	38.98	46.00	-7.02	QP
6	X	631.6883	55.84	9.67	65.51	46.00	19.51	peak

Note: The Fundamental Frequency limit is 100.83 dBuV/m

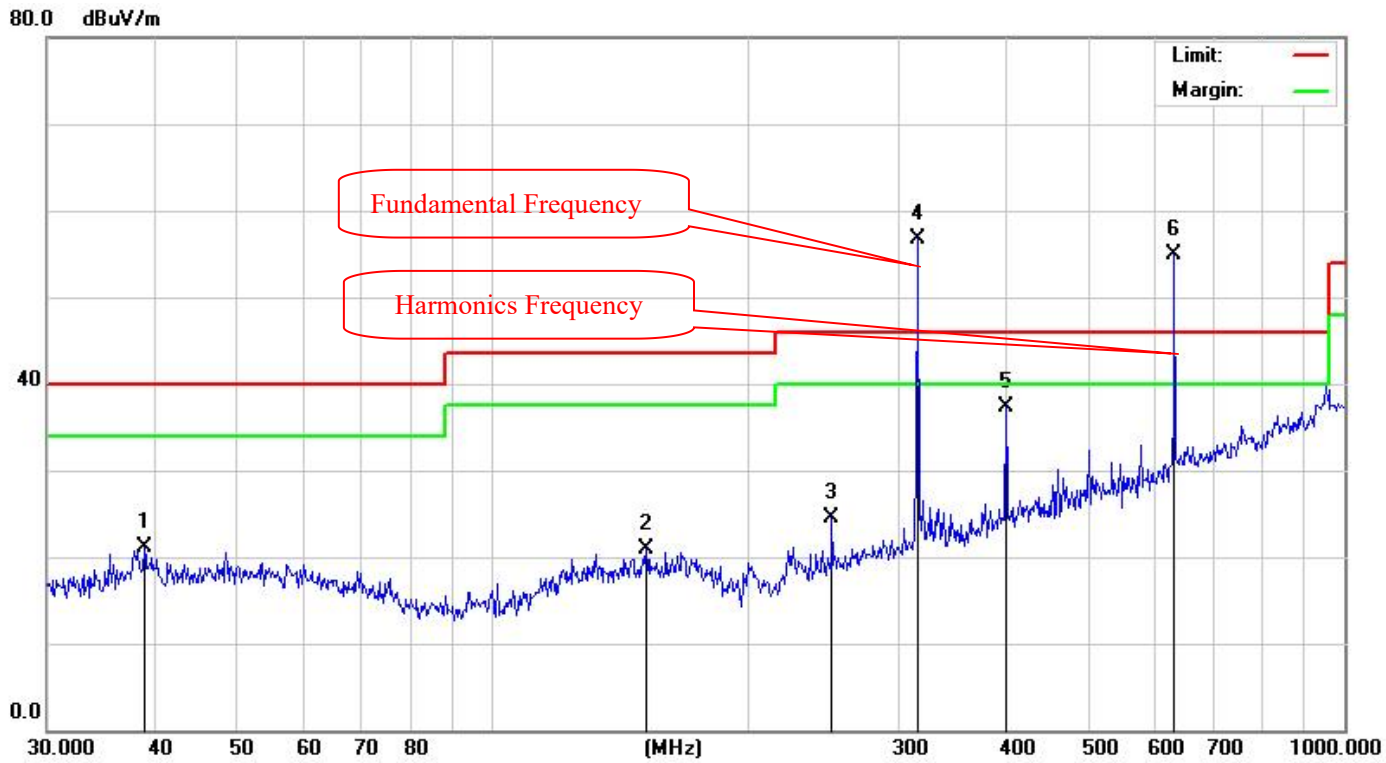
The Harmonics Frequency limit is 80.83 dBuV/m

Antenna polarization: Horizontal:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
315.4808	66.20	1.88	68.08	95.53	-27.45	Peak
631.6883	55.84	9.67	65.51	75.63	-10.12	Peak

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dBμV/m)	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector Type
315.4808	-10.33	68.08	57.75	75.53	-17.78	AVG
631.6883	-10.33	65.51	55.18	55.63	-0.45	AVG

Power :	ALKALINE BATTERY DC 12V 27A	Pol/Phase :	VERTICAL
Test Mode 1 :	TX CH01	Temperature :	22 °C
Memo :		Humidity :	59%



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		39.0245	22.11	-0.95	21.16	40.00	-18.84	QP
2		151.5972	20.95	0.01	20.96	43.50	-22.54	QP
3		250.3012	24.84	-0.30	24.54	46.00	-21.46	QP
4	*	315.4808	54.80	1.88	56.68	46.00	10.68	peak
5		400.4319	33.33	4.07	37.40	46.00	-8.60	QP
6	X	631.6883	45.31	9.67	54.98	46.00	8.98	peak

Note: The Fundamental Frequency limit is 100.83 dBuV/m
The Harmonics Frequency limit is 80.83 dBuV/m

Antenna polarization: Vertical:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
315.4808	54.80	1.88	56.68	95.53	-38.85	Peak
631.6883	45.31	9.67	54.98	75.63	-20.65	Peak

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dBμV/m)	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector Type
315.4808	-10.33	56.68	46.35	75.53	-29.18	AVG
631.6883	-10.33	54.98	44.65	55.63	-10.98	AVG

Remark: Other emissions of harmonics are attenuated 20dB below the limits, so it does not recorded in report.

1GHz-4GHz

Antenna polarization: Horizontal:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1261.9232	56.33	-10.33	46.00	74.00	-28.00	Peak
2526.7532	54.00	-9.53	44.47	74.00	-29.53	Peak

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dBμV/m)	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector Type
1261.9232	-10.33	46.00	35.67	54.00	-18.33	AVG
2526.7532	-10.33	44.47	34.14	54.00	-19.86	AVG

Antenna polarization: Vertical:

Frequency (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
1261.9232	55.08	-10.33	44.75	74.00	-29.25	Peak
2526.7532	51.86	-9.53	42.33	74.00	-31.67	Peak

Frequency (MHz)	20log (Duty cycle) (dB)	Peak Level (dBμV/m)	Average Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector Type
1261.9232	-10.33	44.75	34.42	54.00	-19.58	AVG
2526.7532	-10.33	42.33	32.00	54.00	-22.00	AVG

Remark: Other emissions of harmonics are attenuated 20dB below the limits, so it does not recorded in report.

Remark:

1). The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Measurement Level = Reading Level + Factor

Average Correct Factor= Ant Factor + Cable Loss+ Averaging factor

Factor=Ant Factor + Cable Loss

2). As shown in Section, for frequencies above 1000 MHz. the above field strength limits 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.

3). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.

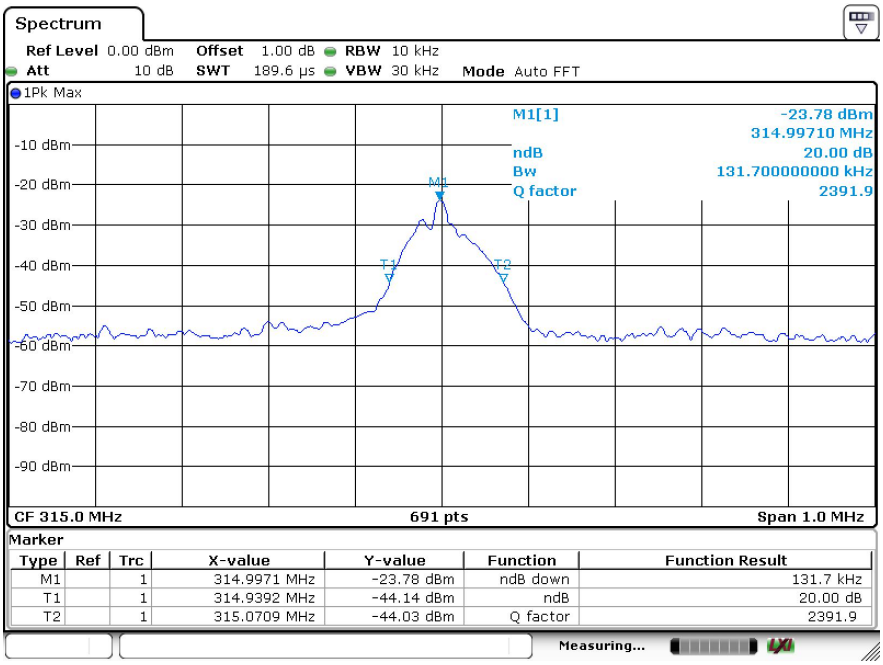
Test result: The unit does meet the FCC requirements.

7.4 Occupied Bandwidth & Band Edge

Test Requirement:	Section 15.231(c)
	For the purpose of Section A1.1, the 20dB bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70 MHz and 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency. Bandwidth (20dB) Limit = 0.25% * f(MHz) = 0.25% * 315MHz = 787.5 kHz Bandwidth (20dB) Limit = 0.25% * f(MHz) = 0.25% * 315MHz = 1085kHz
Test Method:	Section 15.231(c) & ANSI C63.10: Clause 6.9, ANSI C63.10: Clause 6.4, 6.5, 6.6
	Operation within the band 315 MHz
Method of measurement:	A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

315MHz

Test Mode	Frequency (MHz)	20dB Bandwidth (kHz)	
TX	315	131.7	



7.5 Conducted Emissions at Mains Terminals 150 kHz to 30 MHz

Test Requirement: Section 15.207(a)&RSS-Gen 8.8

TEST METHOD: Section 15.207(a)&RSS-Gen clause 8.8 & ANSI C63.10: Clause 6.2

Frequency Range: 150 kHz to 30 MHz

Detector: for pre-scan (9 kHz Resolution Bandwidth)

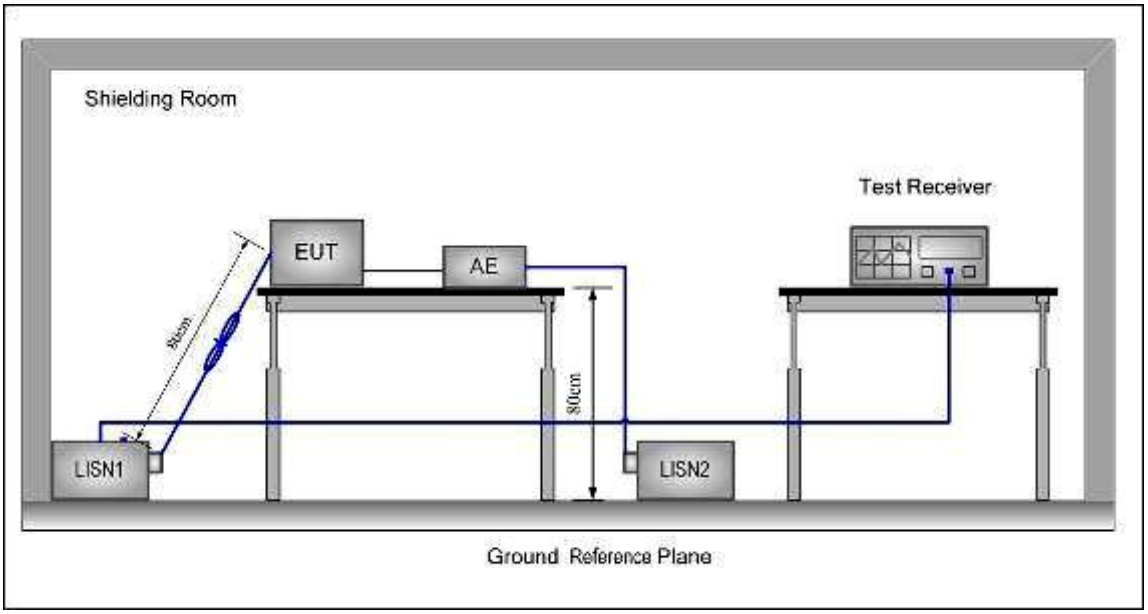
Test Limit

Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	**Class B Limit dB(μV)**	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

EUT Operation: Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Test Configuration:



Test procedure:

1. The mains terminal disturbance voltage test was conducted in a shielded room.

2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

7.5.1 Test Result

N/A

The EUT is powered by DC power.

8 Photographs

8.1 Radiated Emission Test Setup

Please refer to separated files for Test Setup Photos of the EUT.

End of Report