

FCC Test Report

Report No.: AGC12911220202FE09

FCC ID : 2A43P-CABINETLOCK11

APPLICATION PURPOSE : Original Equipment

PRODUCT DESIGNATION : Bluetooth Hidden Cabinet Lock

BRAND NAME : eeoo

MODEL NAME : cabinetlock-11, cabinetlock-01

APPLICANT : MINIICE

DATE OF ISSUE : Mar. 24, 2022

STANDARD(S) : FCC Rules and Regulations Part 15 Subpart C Section 15.225

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 24, 2022	Valid	Initial Release

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1. VERIFICATION OF COMPLIANCE

Applicant	MINIICE
Address	NO.129 NORTH OF RONGGUI ROAD HONGXING NEIGHBORHOOD RONGGUI TOWN Shunde District, Foshan City, Guangdong, China
Manufacturer	MINIICE
Address	NO.129 NORTH OF RONGGUI ROAD HONGXING NEIGHBORHOOD RONGGUI TOWN Shunde District, Foshan City, Guangdong, China
Factory	MINIICE
Address	NO.129 NORTH OF RONGGUI ROAD HONGXING NEIGHBORHOOD RONGGUI TOWN Shunde District, Foshan City, Guangdong, China
Product Designation	Bluetooth Hidden Cabinet Lock
Brand Name	eeoo
Test Model	cabinetlock-11
Series Model	cabinetlock-01
Difference description	All the series models are the same as the test model except for the model names and the color of appearance.
Date of test	Mar. 01, 2022 to Mar. 24, 2022
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-SRD/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.225.

Prepared By

John Zeng

John Zeng
(Project Engineer)

Mar. 24, 2022

Reviewed By

Calvin Liu

Calvin Liu
(Reviewer)

Mar. 24, 2022

Approved By

Max Zhang

Max Zhang
(Authorized Officer)

Mar. 24, 2022

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	13.56MHz
Max field strength	66.42dBuV/m(PK)@3m
Modulation	ASK
Number of channels	1 Channel
Antenna Designation	PCB Antenna (Comply with requirements of the FCC part 15.203)
Antenna Gain	0dBi
Hardware Version	1.0
Software Version	1.0
Power Supply	DC 6V by battery

2.2. TABLE OF CARRIER FREQUENCIES

Frequency Band	Channel Number	Frequency
13.110~14.010 MHz	01	13.56 MHz

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2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: 2A43P-CABINETLOCK11** filing to comply with the FCC Part 15.225 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

- Uncertainty of Conducted Emission, $U_c = \pm 3.2$ dB
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 3.9$ dB
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 4.8$ dB
- Uncertainty of total RF power, conducted, $U_c = \pm 0.8$ dB
- Uncertainty of RF power density, conducted, $U_c = \pm 2.6$ dB
- Uncertainty of spurious emissions, conducted, $U_c = \pm 2.7$ dB
- Uncertainty of Occupied Channel Bandwidth: $U_c = \pm 2$ %

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Transmitting(13.56MHz)

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. For battery operated equipment, the equipment tests are performed using a new battery.

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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth Hidden Cabinet Lock	cabinetlock-11	2A43P-CABINETLOCK11	EUT
2	RFID Card	--	--	Accessory

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.215(c)	20dB Spectrum Bandwidth	Compliant
15.225(e)	Frequency Stability	Compliant
15.225(a)(b)(c)	Field Strength of Fundamental Emissions	Compliant
15.225(d)&15.209	Radiated Emission	Compliant
15.207	AC Power Line Conducted Emissions	Not applicable

Note: The conducted limits are not required for devices which only employ battery power for operation.

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	May 15, 2021	May 14, 2022
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022
Test software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Agilent	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2020	Jan. 07, 2023
Test software	FARA	EZ-EMC (Ver RA-03A)	N/A	N/A	N/A

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7. RADIATED EMISSION

3.1. TEST LIMIT

Rules and specifications	FCC CFR 47 Part 15 section 15.225			
Description	Compliance with the spectrum mask is tested with RBW set to 9kHz.			
Freq. of Emission (MHz)	Field Strength (μV/m) at 30m	Field Strength (dBμV/m) at 30m	Field Strength (dBμV/m) at 10m	Field Strength (dBμV/m) at 3m
1.705~13.110	30	29.5	48.58	69.5
13.110~13.410	106	40.5	59.58	80.5
13.410~13.553	334	50.5	69.58	90.5
13.553~13.567	15848	84.0	103.08	124.0
13.567~13.710	334	50.5	69.58	90.5
13.710~14.010	106	40.5	59.58	80.5
14.010~30.000	30	29.5	48.58	69.5

According to 15.35, 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 limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test.

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

Frequencies (MHz)	Field Strength (μV/m)	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

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7.2. MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/1MHz for Peak, 1MHz/10Hz for Average

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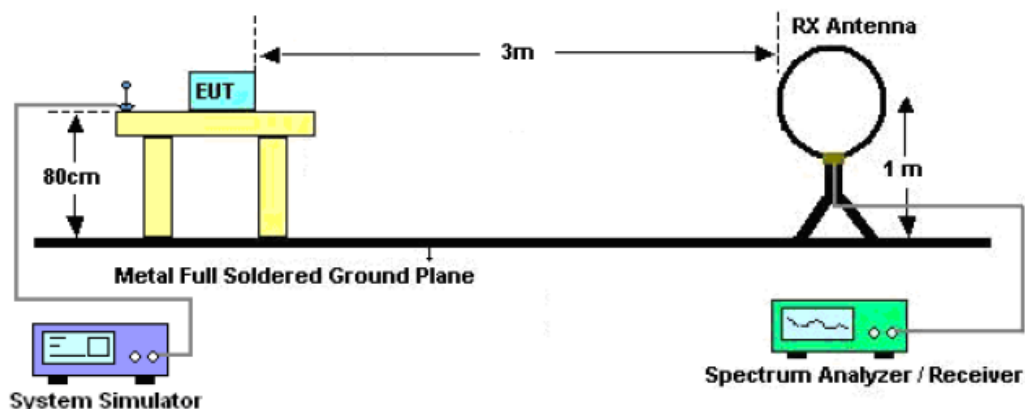
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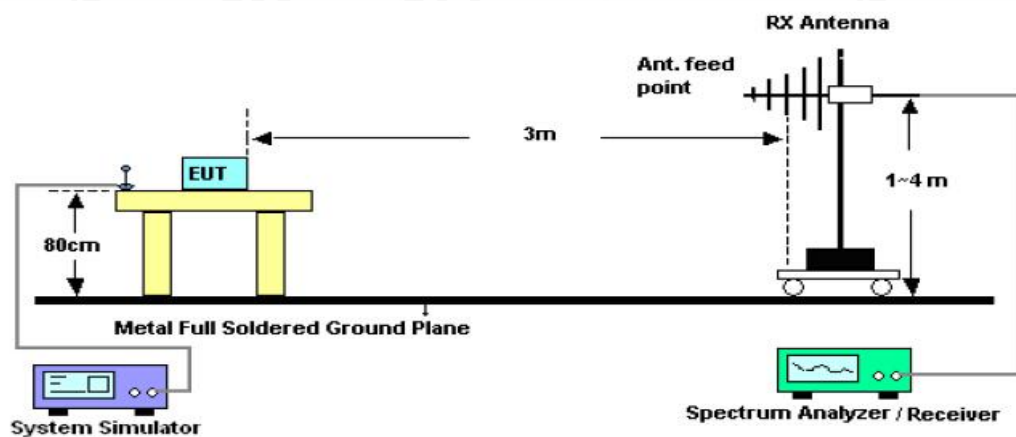
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

7.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



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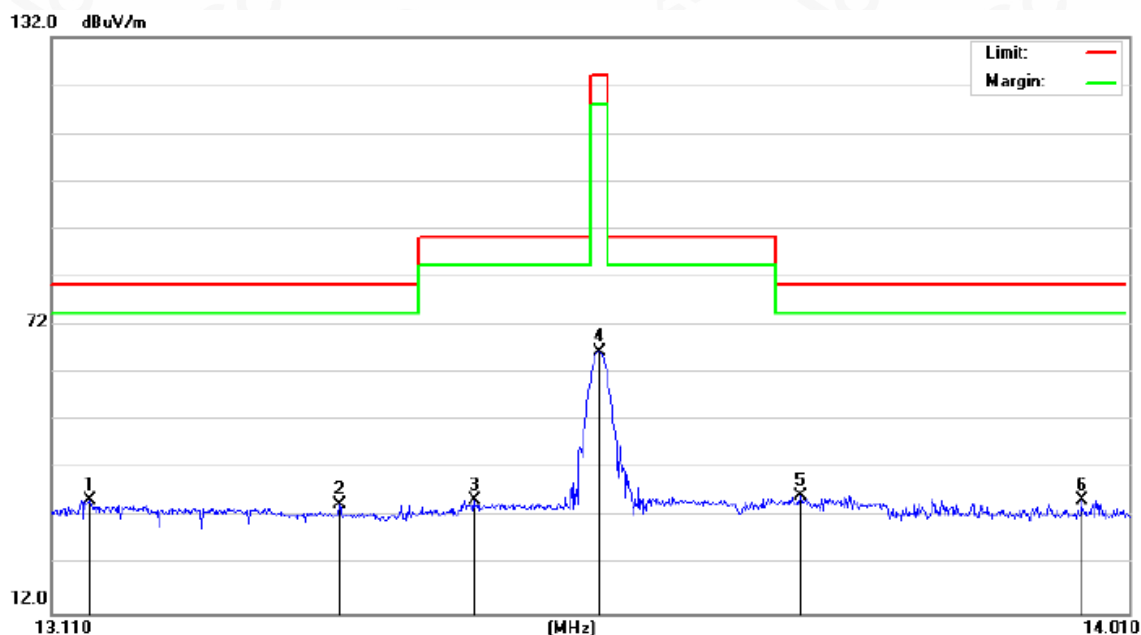
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7.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

EUT:	Bluetooth Hidden Cabinet Lock	Model Name	cabinetlock-11
Temperature:	20 °C	Relative Humidity:	53%
Pressure:	1010hPa	Test Voltage :	DC6V
Test Mode :	Mode 1	Polarization :	Face



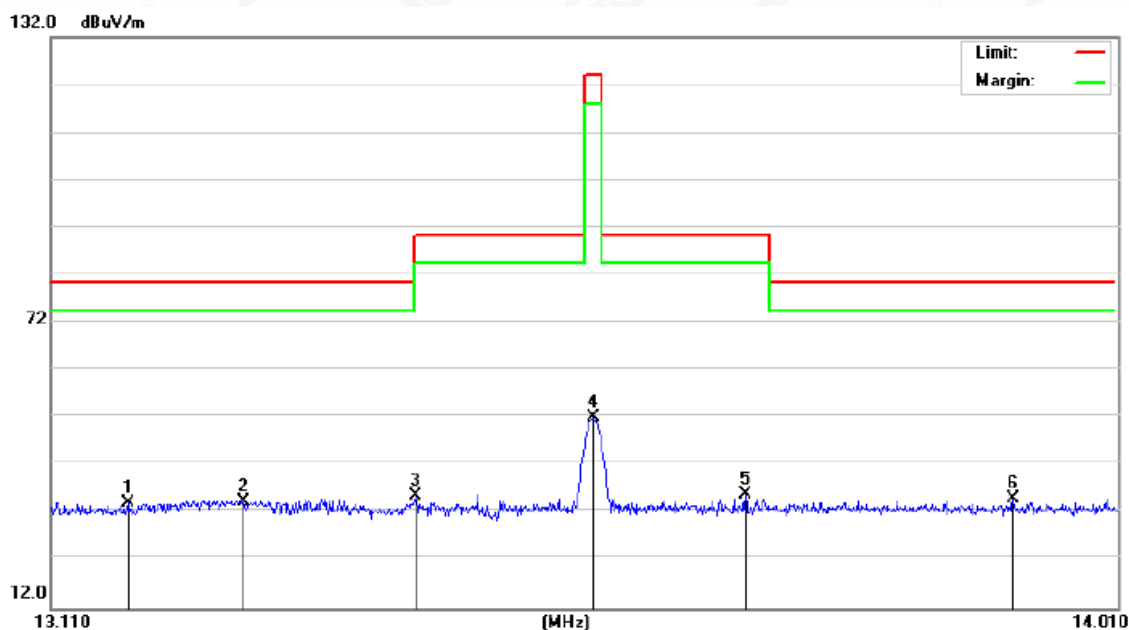
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		13.1405	11.00	24.61	35.61	80.50	-44.89	peak
2		13.3449	10.06	24.62	34.68	80.50	-45.82	peak
3		13.4565	10.88	24.63	35.51	90.50	-54.99	peak
4		13.5600	41.78	24.64	66.42	124.0	-57.58	peak
5 *		13.7292	11.89	24.65	36.54	80.50	-43.96	peak
6		13.9695	10.96	24.67	35.63	80.50	-44.87	peak

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EUT:	Bluetooth Hidden Cabinet Lock	Model Name	cabinetlock-11
Temperature:	20 °C	Relative Humidity:	53%
Pressure:	1010 hPa	Test Voltage :	DC6V
Test Mode :	Mode 1	Polarization :	Side



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		13.1730	9.58	24.61	34.19	80.50	-46.31	peak
2		13.2693	9.78	24.62	34.40	80.50	-46.10	peak
3		13.4115	11.00	24.63	35.63	90.50	-54.87	peak
4		13.5600	27.33	24.64	51.97	124.0	-72.03	peak
5		13.6896	11.34	24.65	35.99	90.50	-54.51	peak
6	*	13.9200	10.28	24.67	34.95	80.50	-45.55	peak

Note: Other emissions from 9 kHz to 30 MHz are considered as ambient noise. No recording in the test report.

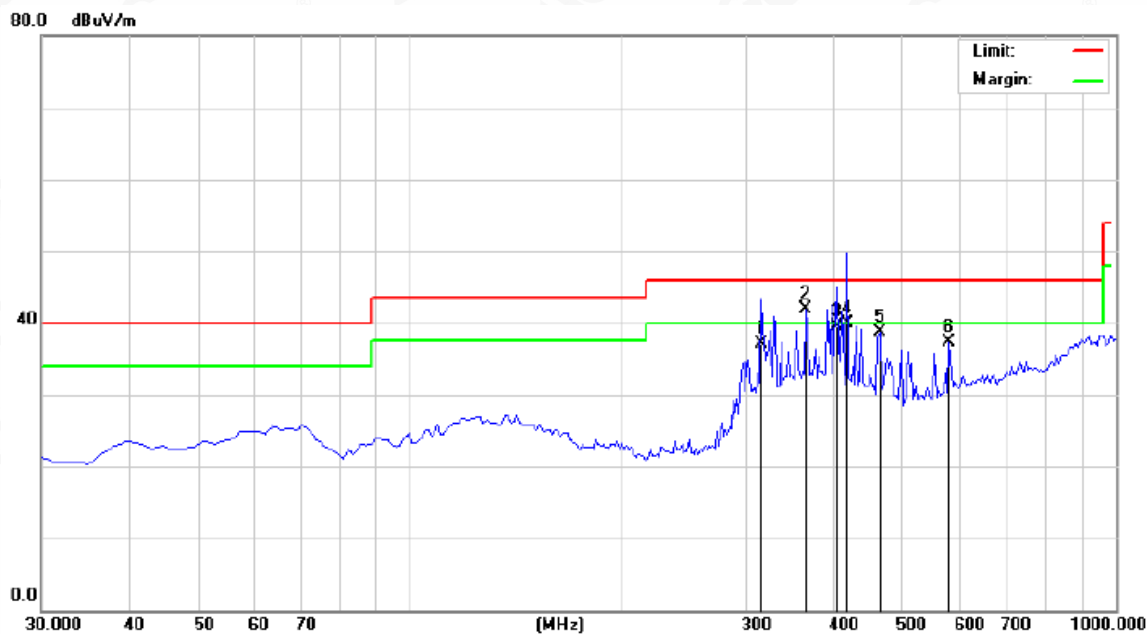
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RADIATED EMISSION 30MHz- 1GHz

EUT:	Bluetooth Hidden Cabinet Lock	Model Name	cabinetlock-11
Temperature:	20 °C	Relative Humidity:	53%
Pressure:	1010 hPa	Test Voltage :	DC6V
Test Mode :	Mode 1	Polarization :	Horizontal



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		316.1500	20.37	16.80	37.17	46.00	-8.83	QP
2	*	364.6500	24.07	17.89	41.96	46.00	-4.04	peak
3		403.4500	21.04	18.52	39.56	46.00	-6.44	QP
4		418.0000	22.15	17.84	39.99	46.00	-6.01	QP
5		463.2667	23.06	15.73	38.79	46.00	-7.21	peak
6		582.9000	20.95	16.45	37.40	46.00	-8.60	peak

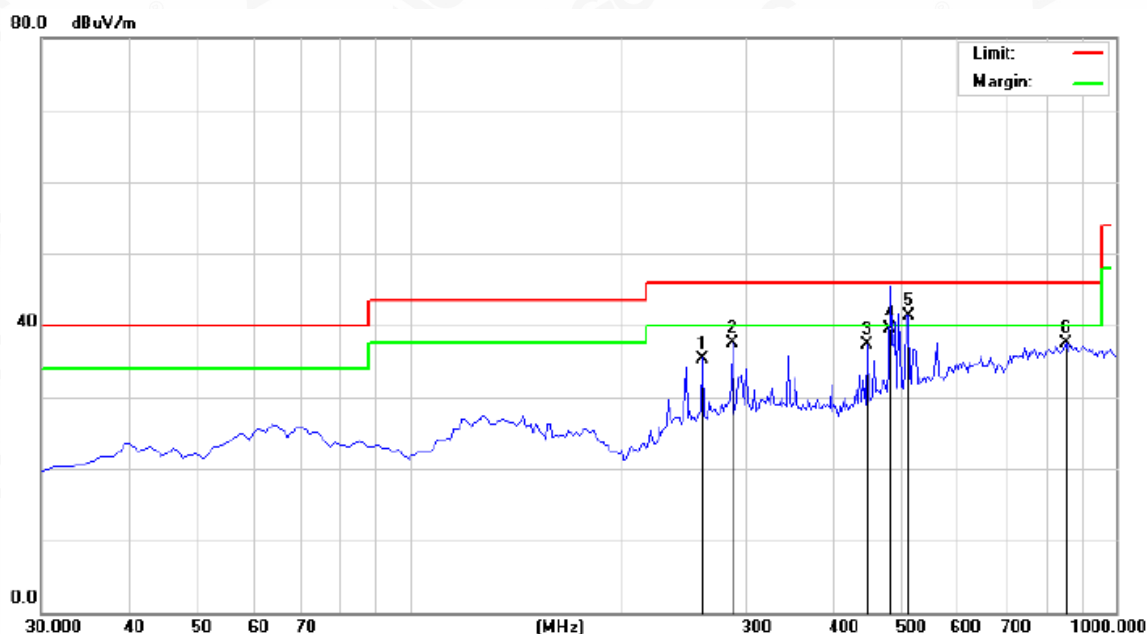
RESULT: PASS

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EUT:	Bluetooth Hidden Cabinet Lock	Model Name	cabinetlock-11
Temperature:	20 °C	Relative Humidity:	53%
Pressure:	1010 hPa	Test Voltage :	DC6V
Test Mode :	Mode 1	Polarization :	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		259.5667	22.08	13.32	35.40	46.00	-10.60	peak
2		287.0500	22.81	14.77	37.58	46.00	-8.42	peak
3		445.4832	21.94	15.35	37.29	46.00	-8.71	peak
4		481.0500	23.12	16.42	39.54	46.00	-6.46	QP
5	*	508.5332	24.11	17.24	41.35	46.00	-4.65	peak
6		852.8832	14.89	22.53	37.42	46.00	-8.58	peak

RESULT: PASS

Note:

Factor=Antenna Factor + Cable loss, Margin= Limit-Result.

The "Factor" value can be calculated automatically by software of measurement system.

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8. FREQUENCY STABILITY

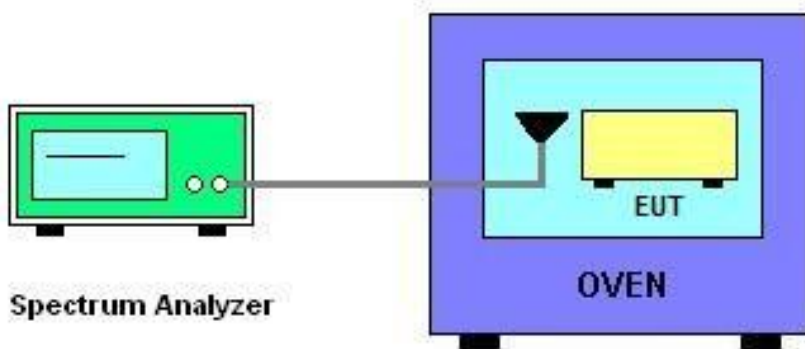
8.1. TEST LIMIT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (100ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

8.2. MEASUREMENT PROCEDURE

- 1.The spectrum analyzer connected via a receive antenna placed near the EUT.
- 2.EUT have transmitted signal and fixed channelize.
- 3.Set the spectrum analyzer span to view the entire emissions bandwidth.
- 4.Set RBW = 1 kHz, VBW = 3 kHz with peak detector and maxhold settings.
- 5.The f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and the limit is less than ± 100 ppm.
- 6.Extreme temperature rule is -20°C~50°C.

8.3. TEST SETUP (BLOCK DIAGRAM OF CONFIGURATION)



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8.4. MEASUREMENT RESULTS

Operating frequency: 13.56MHz

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
6.00	13.56045	+35	± 100	PASS
5.10	13.56036			
6.90	13.56047			

Temperature vs. Frequency Stability (Test Voltage: 6.00V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (ppm)	Limit(ppm)	Conclusion
-20°C	13.56049	+41	± 100	PASS
-10°C	13.56047			
0°C	13.56053			
10°C	13.56056			
20°C	13.56055			
30°C	13.56051			
40°C	13.56053			
50°C	13.56048			

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9. 20 dB SPECTRUM BANDWIDTH

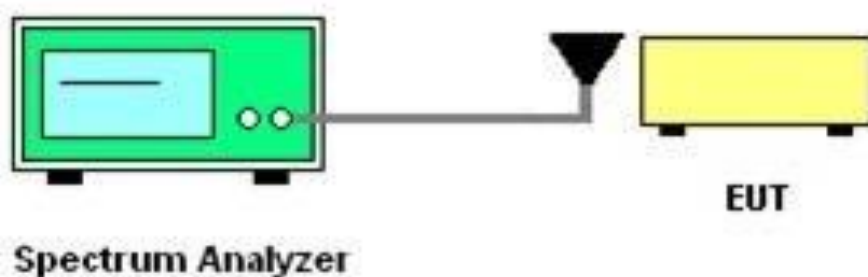
9.1. TEST LIMIT

Intentional radiators must be designed to ensure that the 20dB and 99% emission bandwidth in the specific band 13.553~13.567MHz

9.2. MEASUREMENT PROCEDURE

1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
2. The resolution bandwidth of 10 kHz and the video bandwidth of 30 kHz were used.
3. Measured the spectrum width with power higher than 20dB below carrier.
4. Measured the 99% OBW.

9.3. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



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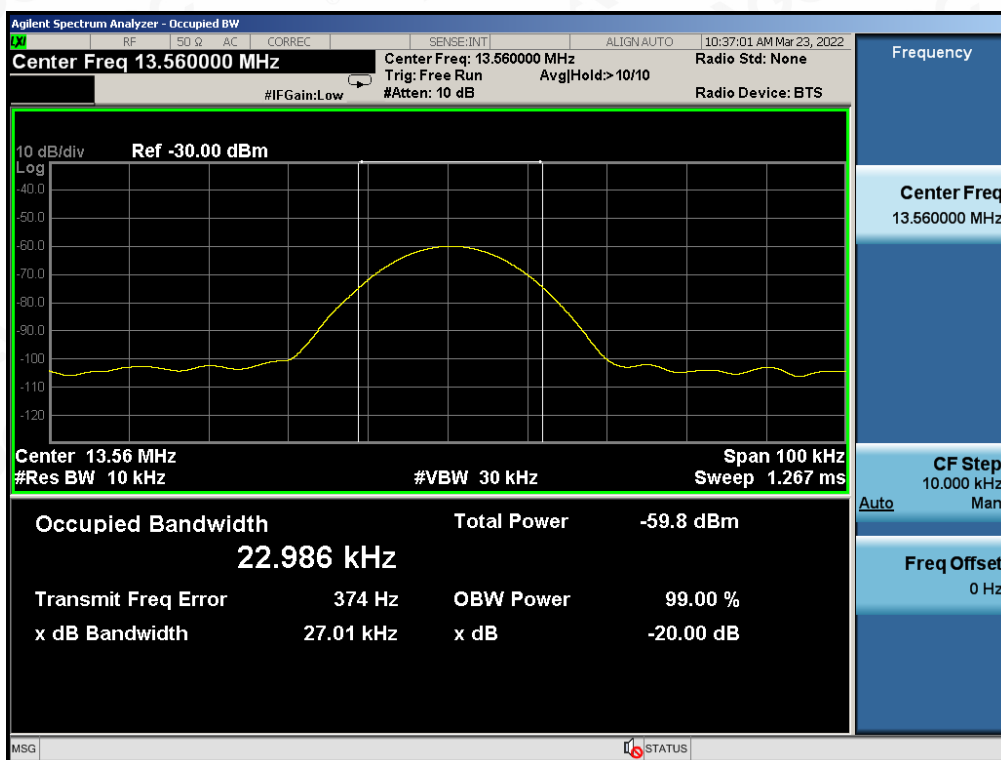
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9.4. MEASUREMENT RESULTS

TEST ITEM	BANDWIDTH	
TEST MODE	Mode1	

Test Data (kHz)		Criteria
Occupied Bandwidth	22.986	PASS
-20dB Bandwidth	27.01	PASS



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10. AC LINE CONDUCTED EMISSION TEST

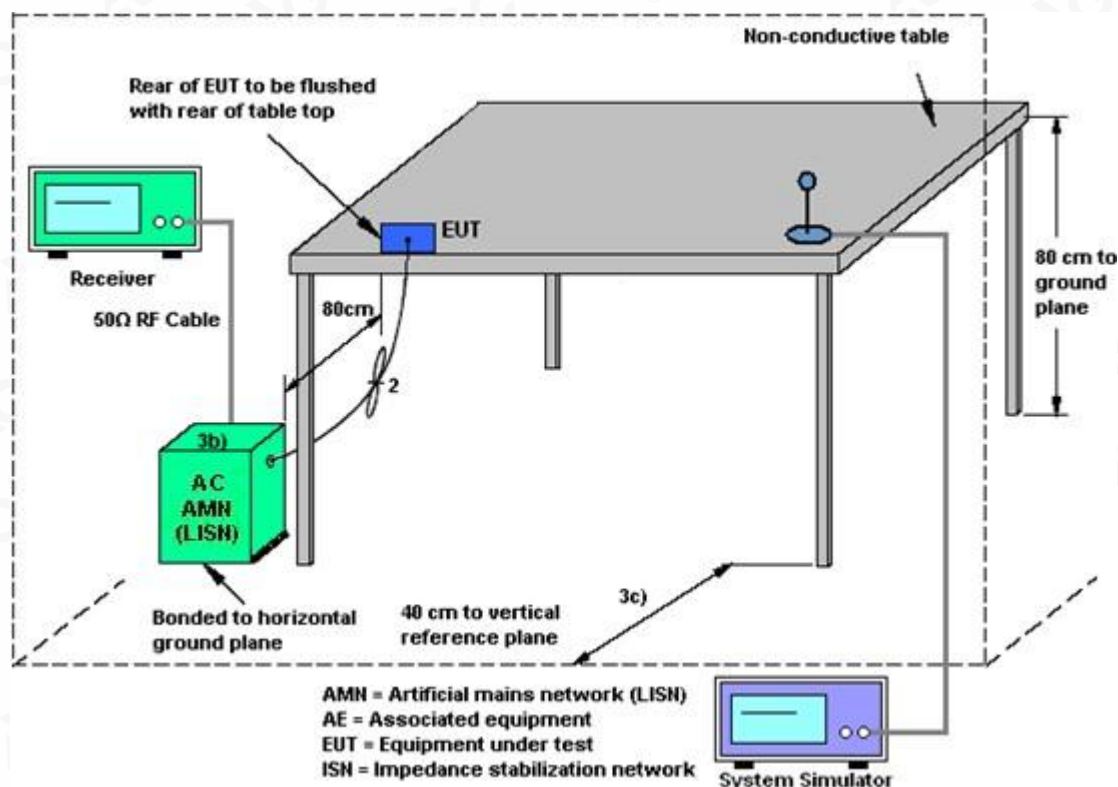
10.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

10.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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10.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hz power by a LISN..
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

10.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

10.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

N/A

Note: The conducted limits are not required for devices which only employ battery power for operation.



APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC12911220202AP01

APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC12911220202AP02

----END OF REPORT----

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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

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