FCC Test Report

Report No.	:	**1812C50032212501**
Applicant	:	**HWLT_FZE**
Address	:	**Dubai World Trade Center Sheikh Rashid Tower 04 FZF 312 SRT, Dubai, United Arab Emirates**
Product Name	:	**ERA Wallet**
Report Date	:	**Apr. 07, 2025**

Shenzhen Anbotek Compliance Laboratory Limited

Contents

TEST REPORT

Applicant	:	HWLT_FZE
Manufacturer	:	Dongguan Agilian Technologies Co., Ltd
Product Name	:	ERA Wallet
Model No.	:	EWU-Y-1
Trade Mark	:	N/A
Rating(s)	:	Input: 5V⎓1A(with DC 3.7V, 170mAh Battery inside)
Test Standard(s)	**:**	**47 CFR Part 15.225**
Test Method(s)	**:**	**ANSI C63.10: 2020**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the 47 CFR Part 15.225 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Receipt Jan. 23, 2025

Date of Test Jan. 27, 2025 to Feb. 13, 2025

Prepared By

(Haidi Huang)

Approved & Authorized Signer

(KingKong Jin)

Revision History

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 07, 2025

1. General Information

1.1. Client Information

Applicant	:	HWLT_FZE
Address	:	Dubai World Trade Center Sheikh Rashid Tower 04 FZF 312 SRT, Dubai, United Arab Emirates
Manufacturer	:	Dongguan Agilian Technologies Co., Ltd
Address	:	Room 202, No. 3, Dongyi Street, Xingfa South Road, Wusha community, Chang 'an Town, Dongguan City, Guangdong Province
Factory	:	Dongguan Agilian Technologies Co., Ltd
Address	:	Room 202, No. 3, Dongyi Street, Xingfa South Road, Wusha community, Chang 'an Town, Dongguan City, Guangdong Province

1.2. Description of Device (EUT)

Product Name	:	ERA Wallet
Model No.	:	EWU-Y-1
Trade Mark	:	N/A
Test Power Supply	:	DC 3.7V battery inside
Test Sample No.	:	1-2-1(Normal Sample), 1-2-2(Engineering Sample)
Adapter	:	N/A
RF Specification		
Operation Frequency	:	13.56MHz
Number of Channel	:	1 Channel
Modulation Type	:	ASK
Antenna Type	:	Ferrite Antenna
Remark: 1) All of the RF specification are provided by customer. 2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.		

1.3. Auxiliary Equipment Used During Test

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

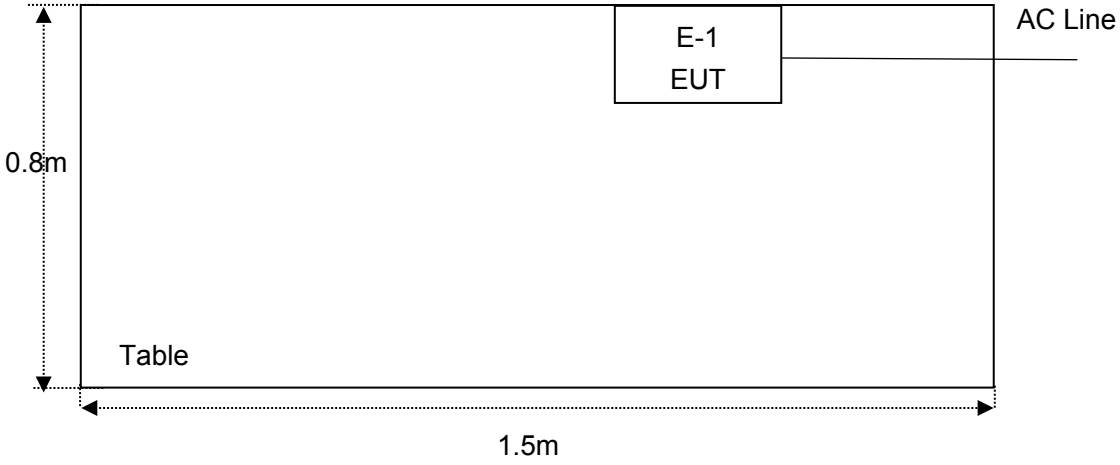
1.4. Description of Test Configuration

The engineering test program was provided and the EUT was programmed to be in transmitting mode.

Channel	Freq.(MHz)
01	13.56

1.5. Description Of Test Setup

RE



1.6. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Jan. 13, 2025	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESR26	101481	Jan. 14, 2025	1 Year
3.	MXA Spectrum Analysis	Agilent	N9020A	MY51170037	Sept. 09, 2024	1 Year
4.	EMI Preamplifier	SKET Electronic	LNPA-0118G-45	SKET-PA-002	Jan. 13, 2025	1 Year
5.	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D	02555	Oct. 16, 2022	3 Year
6.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	345	Oct. 23, 2022	3 Year
7.	Loop Antenna	Schwarzbeck	FMZB1519B	00053	Sept. 12, 2024	1 Year
8.	Horn Antenna	A-INFO	LB-180400-KF	J211060628	Jan. 22, 2024	3 Year
9.	Pre-amplifier	SONOMA	310N	186860	Jan. 14, 2025	1 Year
10.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
11.	MXA Spectrum Analysis	KEYSIGHT	N9020A	MY53280032	Sept. 09, 2024	1 Year
12.	MXG RF Vector Signal Generator	Agilent	N5182A	MY47420647	Jan. 14, 2025	1 Year
13.	Signal Generator	Agilent	E4421B	MY41000743	Oct. 10, 2024	1 Year
14.	DC Power Supply	IVYTECH	IV3605	1804D360510	Sept. 09, 2024	1 Year
15.	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 14, 2024	1 Year
16.	Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102150	May. 06, 2024	1 Year
17.	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	104209	Sept. 09, 2024	1 Year
18	Constant Temperature Humidity Chamber	ZHONGJIAN	ZJ-KHWS80B	N/A	Oct. 14, 2024	1 Year

1.7. Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions (AMN 150kHz~30MHz)	3.2dB
Occupied Bandwidth	925Hz
Frequency tolerance	74.60Hz
Conducted Spurious Emission	1.24dB
Radiated spurious emissions (Below 30MHz)	3.26dB
Radiated spurious emissions (30MHz~1GHz)	Horizontal: 3.70dB; Vertical: 4.42dB
Radiated spurious emissions (above 1GHz)	1G-6GHz: 4.64dB 6G-18GHz: 4.82dB 18G-40GHz: 5.62dB
The measurement uncertainty and decision risk evaluated according to AB/WI-RF-F-032. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

1.8. Description of Test Facility

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

FCC-Registration No.: 434132

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory 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. Registration No. 434132.

ISED-Registration No.: 8058A

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A.

Test Location

Shenzhen Anbotek Compliance Laboratory Limited.
Sogood Industrial Zone Laboratory & 1/F. of Building D, Sogood Science and Technology Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.

1.9. Disclaimer

1. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
2. The test report is invalid if there is any evidence and/or falsification.
3. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
4. This document may not be altered or revised in any way unless done so by Anbotek 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 authenticity of the information provided by the customer is the responsibility of the customer and the laboratory is not responsible for its authenticity.

The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2. Summary of Test Results

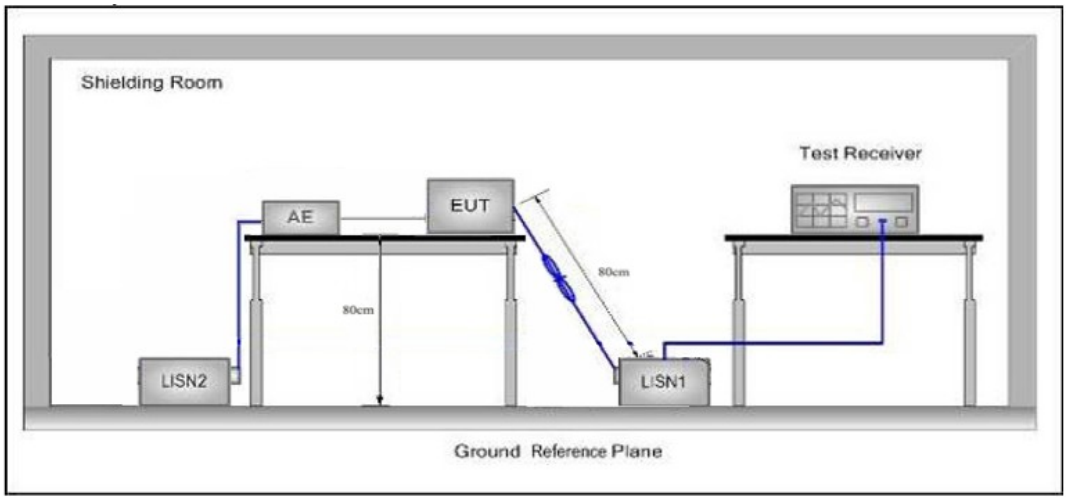
Standard Section	Test Item	Result
15.203	Antenna Requirement	PASS
15.207	Conducted Emission	N/A
15.205/15.209/15.225	Spurious Emission	PASS
15.215(c)	20dB Occupied Bandwidth	PASS
15.225(e)	Frequency Tolerance	PASS
Remark: "N/A" is an abbreviation for Not Applicable.		

3. Conducted Emission Test

3.1. Test Standard and Limit

Test Standard	FCC Part15 Section 15.207		
Test Limit	Frequency	Maximum RF Line Voltage (dBuV)	
		Quasi-peak Level	Average Level
	150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
	500kHz~5MHz	56	46
	5MHz~30MHz	60	50
Remark: (1) *Decreasing linearly with logarithm of the frequency. (2) The lower limit shall apply at the transition frequency.			

3.2. Test Setup



3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10: 2020 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.4. Test Data

Not Applicable.

4. Radiation Spurious Emission and Band Edge

4.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.205, 15.209 and 15.225				
Test Limit	Frequency (MHz)	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz~0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz~88MHz	100	40.0	Quasi-peak	3
	88MHz~216MHz	150	43.5	Quasi-peak	3
	216MHz~960MHz	200	46.0	Quasi-peak	3
	960MHz~1000MHz	500	54.0	Quasi-peak	3
	Above 1000MHz	500	54.0	Average	3
		-	74.0	Peak	3
Remark: (1)The lower limit shall apply at the transition frequency. (2) 15.35(b), 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. This peak limit applies to the total peak emission level radiated by the device.					

(a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

Note:

(1) The tighter limit shall apply at the boundary between two frequency range.

(2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).

(3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of Ld1 = Ld2 * (d2/d1)2.

Example:

F.S Limit at 30m distance is 30uV/m, then F.S Limitation at 3m distance is adjusted as

Ld1 = L1 = 30uV/m * (10)2 = 100 * 30 uV/m

4.2. Test Setup

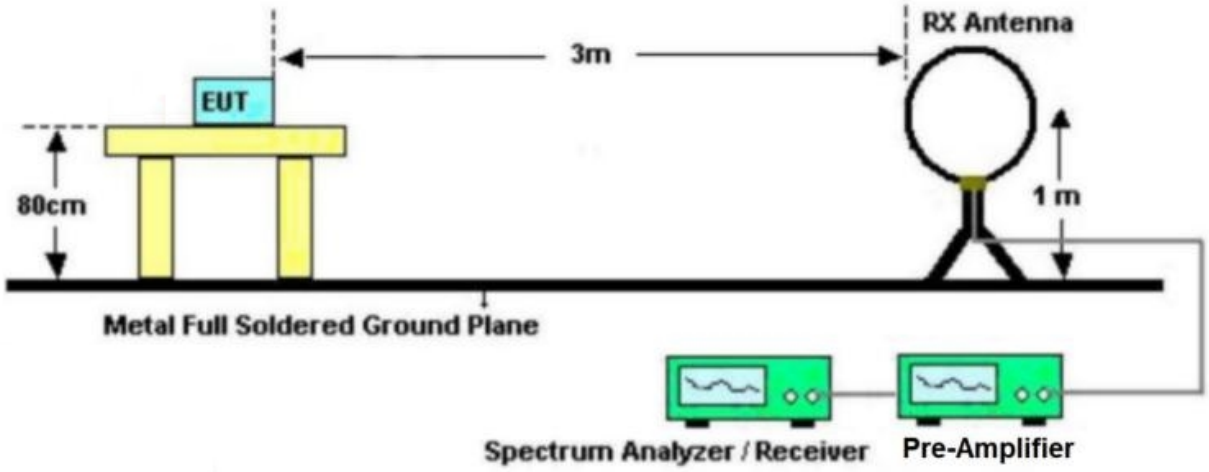


Figure 1. Below 30MHz

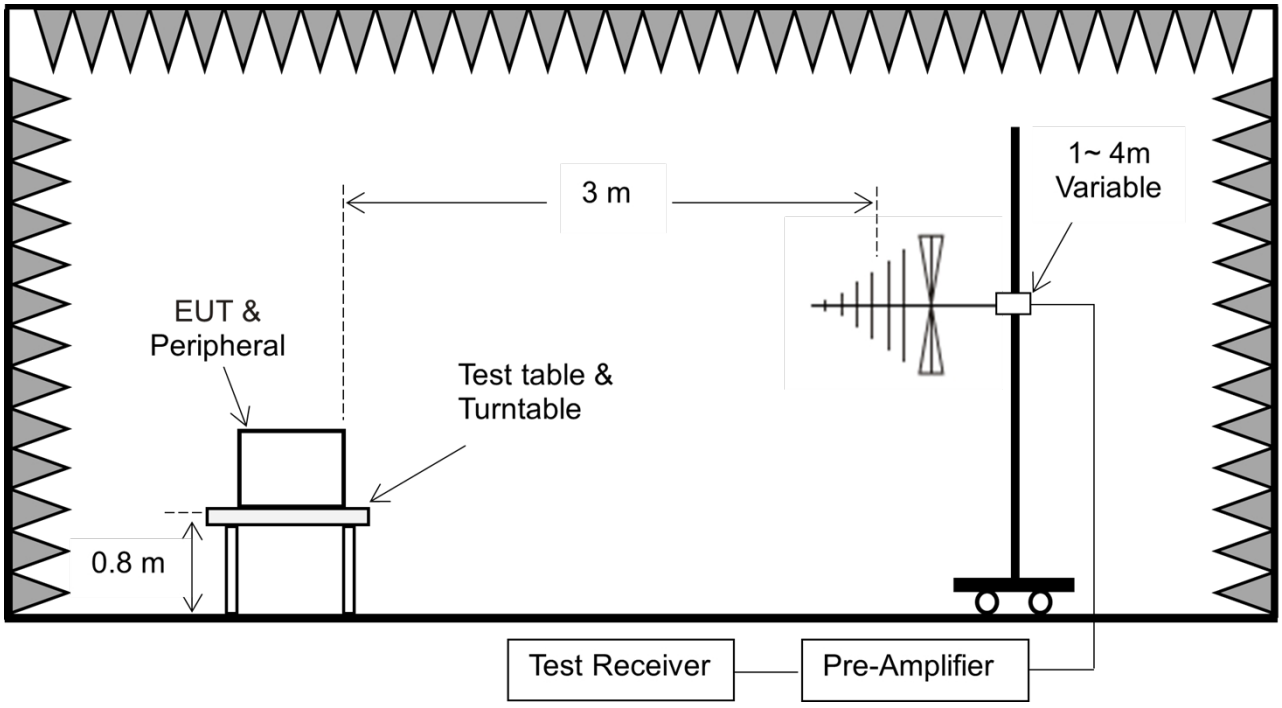


Figure 2. 30MHz to 1GHz

4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9*6*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:
RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:
RBW = 9KHz, VBW =30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:
RBW = 100kHz, VBW =300kHz,Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

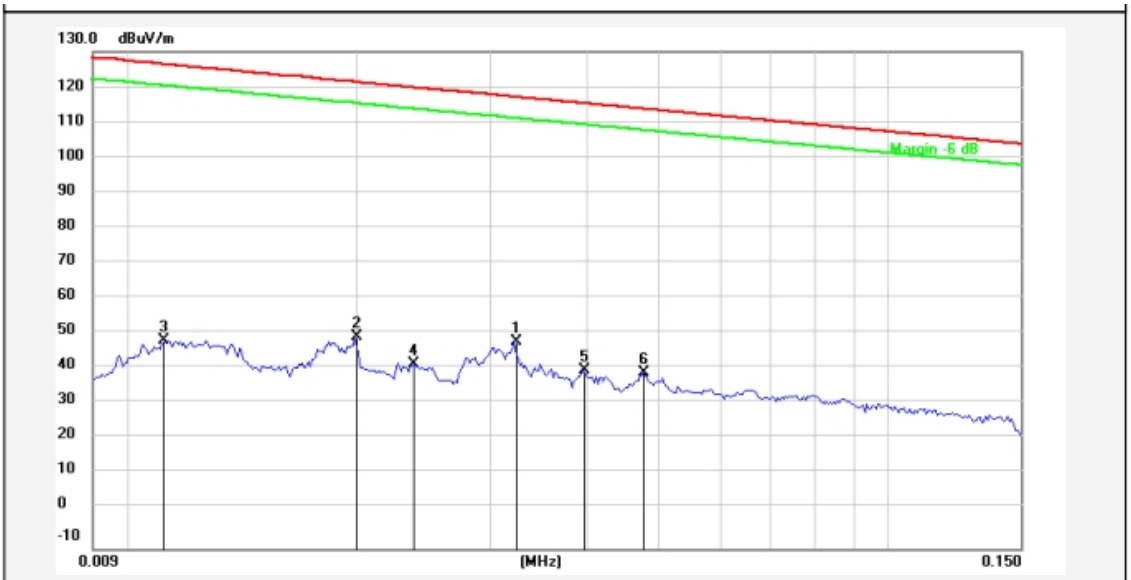
4.4. Test Data

PASS

During the test, Pre-scan all kind of the place mode (coplane, coaxial), and found the coplane is the worst case.

Test Results (9KHz~0.15MHz)

Test Mode:	13.56MHz
Power Source:	DC 3.7V Battery inside
Polarization:	Coplane
Temp.(℃)/Hum.(%RH):	23.5℃/49%RH

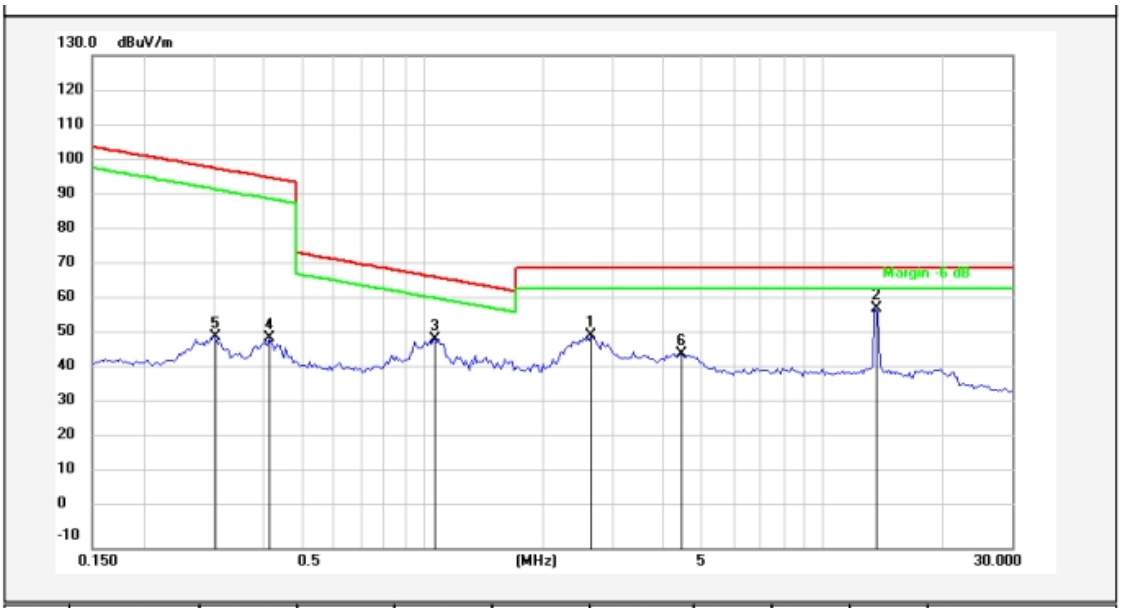


No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	0.0323	27.89	20.56	48.45	117.27	-68.82	peak			
2	0.0200	29.48	20.29	49.77	121.41	-71.64	peak			
3	0.0111	28.58	20.07	48.65	126.50	-77.85	peak			
4	0.0238	21.61	20.38	41.99	119.91	-77.92	peak			
5	0.0398	19.66	20.43	40.09	115.47	-75.38	peak			
6	0.0478	18.96	20.42	39.38	113.89	-74.51	peak			

Remark:
Result(dBμV/m) = Reading(dBμV) + Factor(dB/m);
Over Limit(dB) = Result(dBμV/m) - Limit(dBμV/m)

Test Results (0.15MHz~30MHz)

Test Mode:	13.56MHz
Power Source:	DC 3.7V Battery inside
Polarization:	Coplane
Temp.(℃)/Hum.(%RH):	23.5℃/49%RH

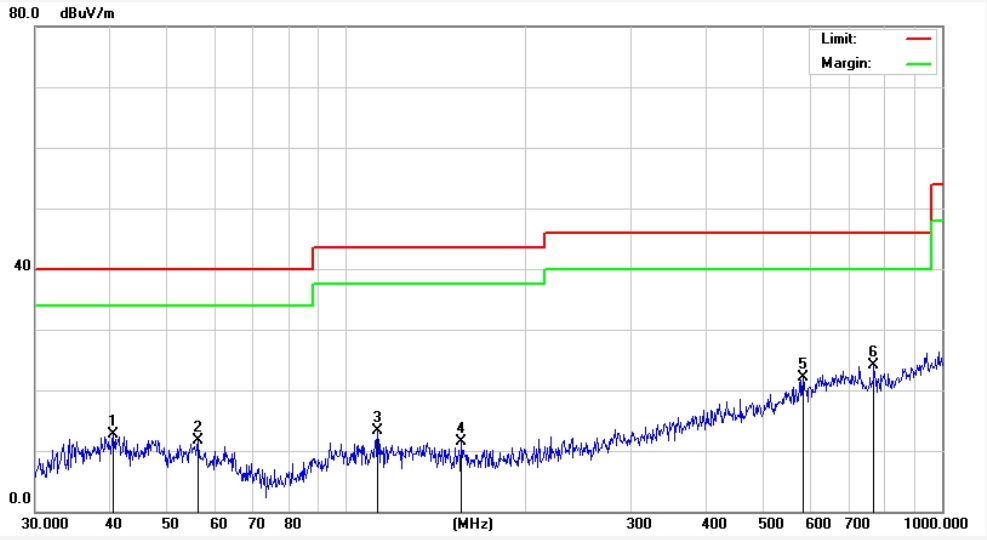


No.	Freq. (MHz)	Reading (dBuV)	Factor ()	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	2.6500	30.14	20.29	50.43	69.50	-19.07	peak			
2	13.5509	37.42	20.53	57.95	69.50	-11.55	peak			
3	1.0766	29.15	20.25	49.40	66.98	-17.58	peak			
4	0.4148	29.24	20.27	49.51	95.24	-45.73	peak			
5	0.3019	29.88	20.30	50.18	97.98	-47.80	peak			
6	4.4537	24.60	20.39	44.99	69.50	-24.51	peak			

Remark:
Result(dBμV/m) = Reading(dBμV) + Factor(dB/m);
Over Limit(dB) = Result(dBμV/m) - Limit(dBμV/m)

Test Results (30~1000MHz)

Test Mode:	13.56MHz
Power Source:	DC 3.7V Battery inside
Polarization:	Horizontal
Temp.(℃)/Hum.(%RH):	23.5℃/49%RH

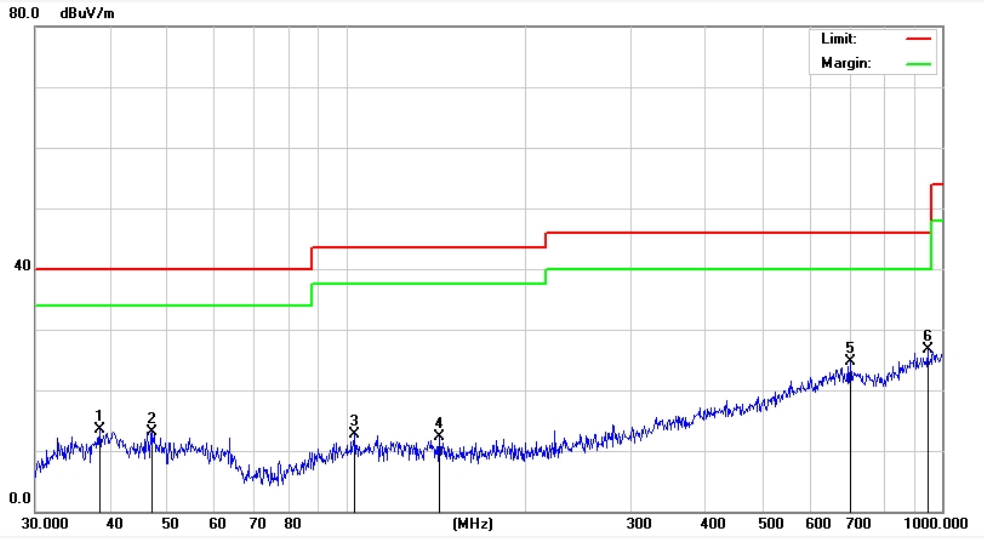


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	40.5591	28.31	-15.61	12.70	40.00	-27.30	QP			
2	56.1974	29.21	-17.42	11.79	40.00	-28.21	QP			
3	112.9196	32.59	-19.26	13.33	43.50	-30.17	QP			
4	155.9101	33.52	-22.05	11.47	43.50	-32.03	QP			
5	584.7895	31.68	-9.57	22.11	46.00	-23.89	QP			
6	768.7481	32.11	-8.06	24.05	46.00	-21.95	QP			

Remark:
Result(dBμV/m) = Reading(dBμV) + Factor(dB/m);
Over Limit(dB) = Result(dBμV/m) - Limit(dBμV/m)

Test Results (30~1000MHz)

Test Mode:	13.56MHz
Power Source:	DC 3.7V Battery inside
Polarization:	Vertical
Temp.(℃)/Hum.(%RH):	23.5℃/49%RH



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	Height (cm)	degree (deg)	Remark
1	38.4809	29.86	-16.26	13.60	40.00	-26.40	QP			
2	47.1599	29.58	-16.50	13.08	40.00	-26.92	QP			
3	103.4421	31.14	-18.37	12.77	43.50	-30.73	QP			
4	143.3261	34.63	-22.35	12.28	43.50	-31.22	QP			
5	701.7610	33.16	-8.49	24.67	46.00	-21.33	QP			
6	945.4399	32.34	-5.69	26.65	46.00	-19.35	QP			

Remark:
Result(dBμV/m) = Reading(dBμV) + Factor(dB/m);
Over Limit(dB) = Result(dBμV/m) - Limit(dBμV/m)

Test Results (Inband)

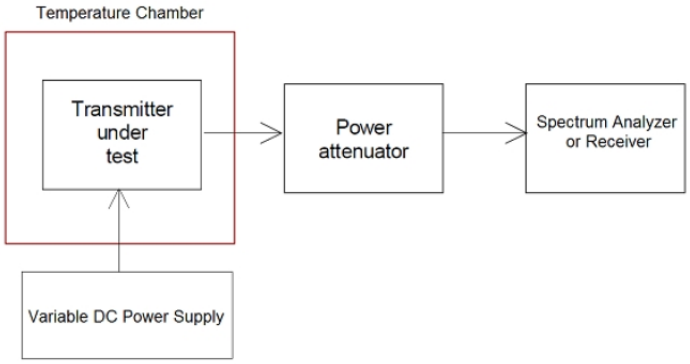
Indicated			Table Angle Degree	Antenna Height (m)	Detector	Correction Factor			Corrected Amplitude (dBuV/m) @3m	FCC part 15.225	
Frequency Range （MHz）	Mark Point (MHz)	Corrected Amplitude (dBuV/m) @3m				Ant. Factor (dB)	Cable Loss (dB)	Pre-Amp. Gain (dB)		Limit (dBuV/m) @3m	Result
13.110~13.410	13.387	74.11	0	1.0	QP	20.8	0.2	30.2	36.32	80.5	PASS
13.410~13.553	13.547	71.84	0	1.0	QP	20.9	0.2	30.2	41.77	90.5	PASS
13.553~13.567	13.558	94.17	0	1.0	QP	20.9	0.2	30.2	46.05	124	PASS
13.567~13.710	13.576	70.76	0	1.0	QP	21.1	0.2	30.2	40.87	90.5	PASS
13.710~14.010	13.889	71.62	0	1.0	QP	21.2	0.2	30.2	36.66	80.5	PASS

5. Frequency Tolerance

5.1. Test Requirement

Test Standard	FCC Part15 C Section 15.225(e)
Test Limit	±0.01% (100ppm)

5.2. Test Setup



5.3. Test Procedure

Let the EUT works on 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.

5.4. Test Data

Temperature:	25.3 °C	Humidity:	48 %	Atmospheric Pressure:	101 kPa

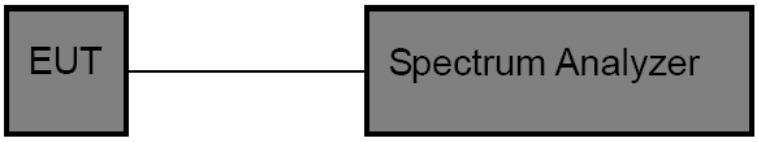
Voltage (VDC)	Temperature (℃)	Frequency Measured (MHz)	Test data (ppm)	Limit (ppm)	Verdict
3.70	-20	13.560738	54.39	±100	PASS
	+20	13.560683	50.33	±100	PASS
	+50	13.560648	47.75	±100	PASS
3.15	+20	13.560740	54.57	±100	PASS
4.26	+20	13.560703	51.81	±100	PASS

6. 20dB Occupy Bandwidth Test

6.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.215(c)
Test Limit	N/A

6.2. Test Setup



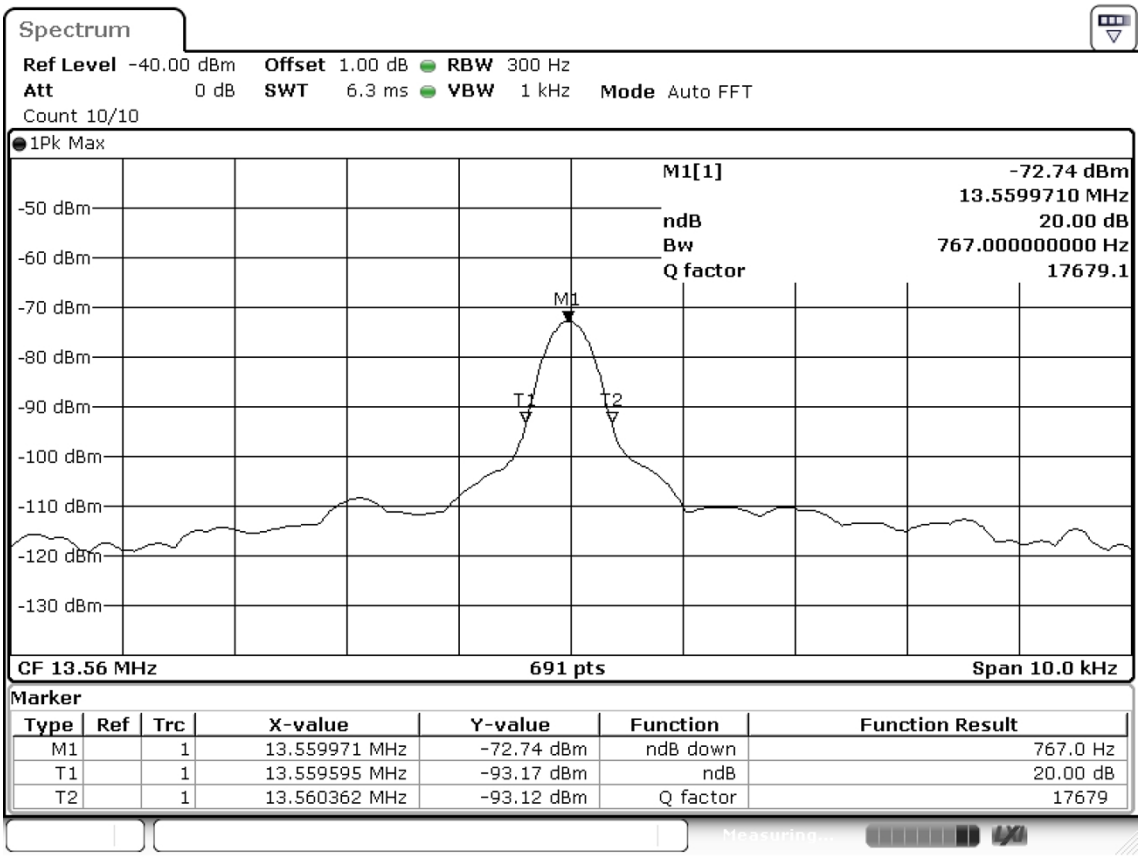
6.3. Test Procedure

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 3kHz RBW and VBW≥3*RBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

6.4. Test Data

Temperature:	25.3 °C	Humidity:	48 %	Atmospheric Pressure:	101 kPa

Freq.(MHz)	Bandwidth (kHz)	Results
13.56	0.767	PASS



7. Antenna Requirement

7.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203
Requirement	1) 15.203 requirement: 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.

7.2. Antenna Connected Construction

The antenna is a Ferrite Antenna which permanently attached. It complies with the standard requirement.

APPENDIX I -- TEST SETUP PHOTOGRAPH

Please refer to separated files Appendix I -- Test Setup Photograph_RF

APPENDIX II -- EXTERNAL PHOTOGRAPH

Please refer to separated files Appendix II -- External Photograph

APPENDIX III -- INTERNAL PHOTOGRAPH

Please refer to separated files Appendix III -- Internal Photograph

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