FCC Test Report

Report No.: AGC12971210801FE04

FCC ID	:	2AYI8-WLSA0201
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Freedom Charge Magnetic 2in1
BRAND NAME	:	OMNIKLAD
MODEL NAME	:	WLS-A02-01
APPLICANT	:	HONOTO TECHNOLOGY CO., LTD
DATE OF ISSUE	:	Aug. 24, 2021
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15 Rules
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	/	Aug. 24, 2021	Valid	Initial Release

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1. VERIFICATION OF CONFORMITY

Applicant	HONOTO TECHNOLOGY CO., LTD
Address	9 ORCHARD ROAD, SUITE 102 LAKE FOREST, California 92630 United States of America
Manufacturer	NuVolta Technologies (Hefei) Co., Ltd.
Address	Room 605/606, No.2800, Building F-1, Innovation Industrial Park Phase2, Innovation Avenue, High-tech Zone, Hefei, Anhui, PRC
Factory	U-way Corporation
Address	Building 5,Tongfuyu Xufa Industrial Zone, Shangcun Village, Gongming Town, Guangming New District, Shenzhen City, China
Product Designation	Freedom Charge Magnetic 2in1
Brand Name	OMNIKLAD
Test Model	WLS-A02-01
Date of test	Aug. 20, 2021 to Aug. 24, 2021
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BR/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 Section 15.207, 15.209, 15.203 of the FCC Part 15, Subpart C Rules.

The results of testing in this report apply to the product/system which was tested only.

Prepared By	Eder Zhan (Project Engineer)	Aug. 24, 2021
Reviewed By	Max Zhang (Reviewer)	Aug. 24, 2021
Approved By	Forrest Lei (Authorized Officer)	Aug. 24, 2021

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	110-205kHz
Test Frequency	127.9KHz
Maximum field strength	72.79dBuV/m(PK)@3m
Modulation	FSK
Number of channels	1
Antenna Designation	Coil Antenna (Met 15.203 Antenna requirement)
Hardware Version	T-H1 V1.1
Software Version	NU1509_Tx_Hoton_T-H1_MagnetMPA11_15W_V1_0
Power Supply	Input: 19V-1.58A Wireless Output1: 15W Wireless Output2:5W
Wireless charger	15W (Max)

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3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB

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4. DESCRIPTION OF TEST MODES

MODE	TEST MODE DESCRIPTION
1	Two Coil wireless simultaneous charging mode(Full load)
2	Two Coil wireless simultaneous charging mode(Half load)
3	Two Coil wireless simultaneous charging mode(Null load)
4	Coil 1-Wireless charging mode(Full load)
5	Coil 1-Wireless charging mode(Half load)
6	Coil 1-Wireless charging mode(Null load)
7	Coil 2-Wireless charging mode(Full load)
8	Coil 2-Wireless charging mode(Half load)
9	Coil 2-Wireless charging mode(Null load)

Note:
1. The Mode 1 was the worst case and only the data of the worst case record in this report.

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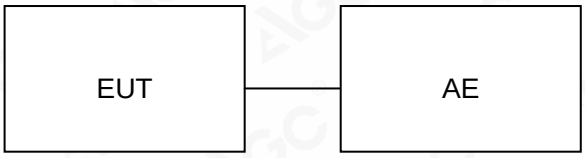
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure :



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Freedom Charge Magnetic 2in1	WLS-A02-01	2AYI8-WLSA0201	EUT
2	Adapter	ADS-40FSI-19 19030EPCU	INPUT: 100-240V~50/60Hz OUTPUT: 19.0V, 1.58A	EUT
3	Wireless Load	N/A	15W	AE

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.207	Conducted Emission	Compliant
§15.209	Radiated Emission	Compliant
§15.203	ANTENNA APPLICATION	Compliant

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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	ESCI	10096	Apr. 14, 2021	Apr. 13, 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	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
ANTENNA	SCHWARZBECK	VULB9168	D69250	Sep. 17, 2021	Sep. 16, 2022
Test software	FARA	EZ_EMC (Ver.RA-03A)	N/A	N/A	N/A

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7.Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C 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 15.207:

(i) Systems operating in the 110KHz~205KHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

Note: The antenna is permanently fixed to the EUT

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8. RADIATED EMISSION

8.1TEST LIMIT

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark: (1) Emission level dB μ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

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8.2. MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 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. 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

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

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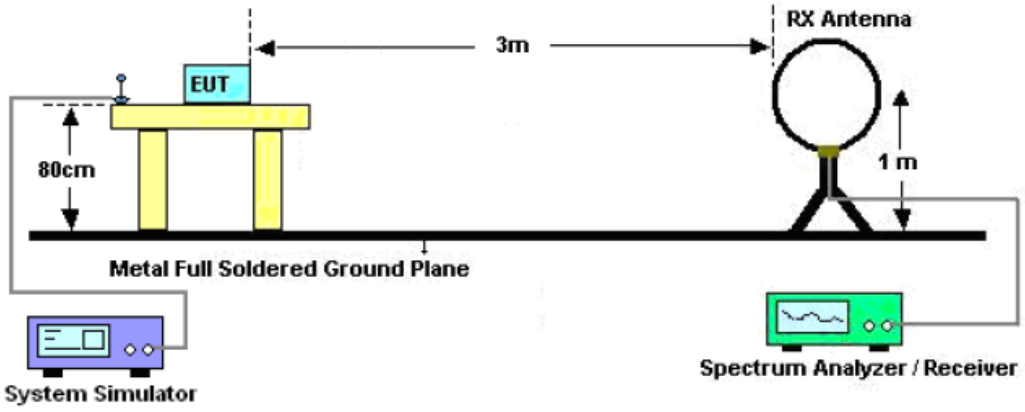
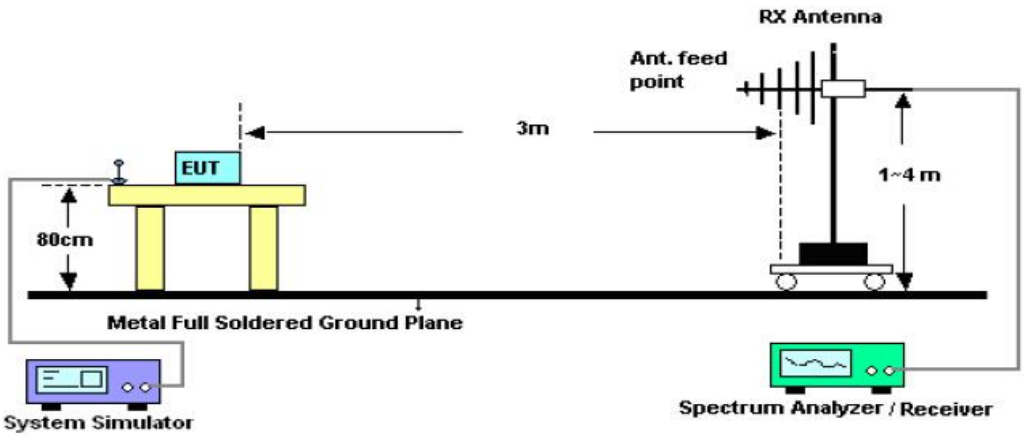
8.3. TEST SETUP

Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



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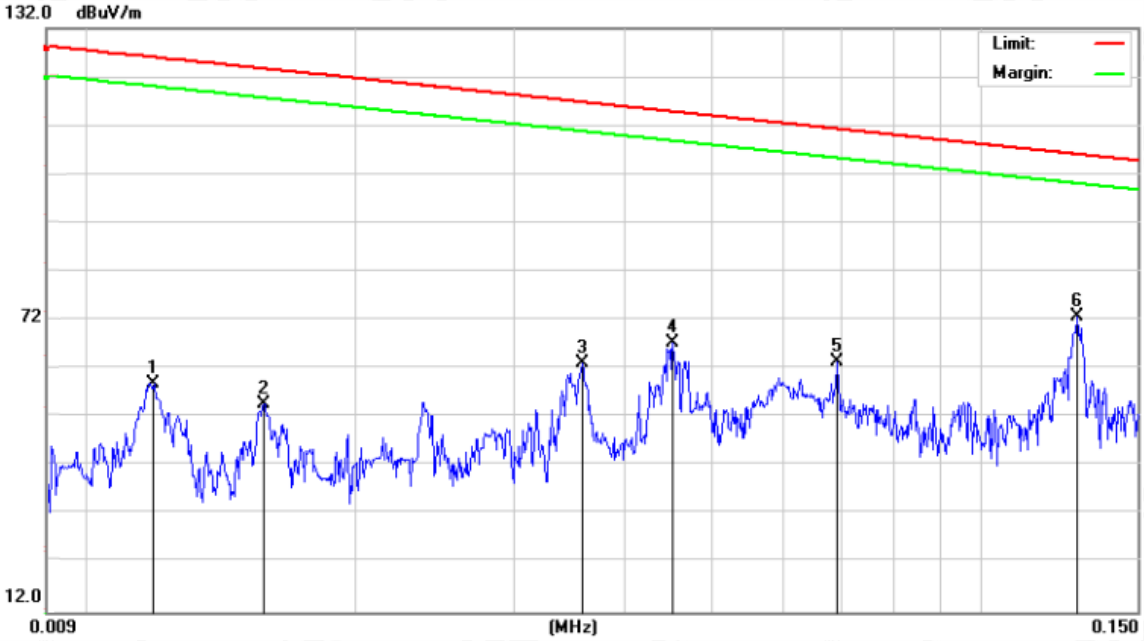
8.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

9KHz~30MHz

EUT :	Freedom Charge Magnetic 2in1	Model Name. :	WLS-A02-01
Test Mode :	Mode 1（Full load）	Polarization :	X
Test Power :	Output: 15W(Coil 1) , 5W(Coil 2) ; Input: AC 120V 60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.0119	30.87	28.21	59.08	126.0	-67.00	QP
2		0.0158	26.92	27.91	54.83	123.7	-68.87	QP
3		0.0358	36.80	26.42	63.22	116.8	-53.61	QP
4		0.0452	41.51	25.72	67.23	114.8	-47.64	QP
5		0.0690	39.42	23.94	63.36	111.3	-47.96	QP
6	*	0.1279	51.22	21.57	72.79	106.1	-33.34	QP

Remark:

Final level = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

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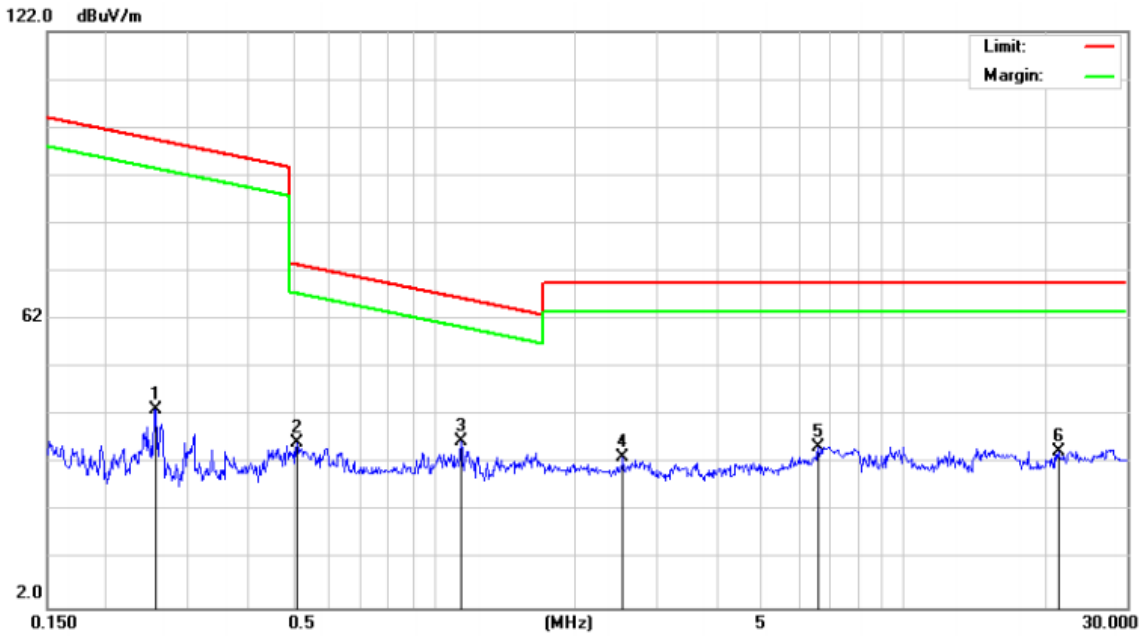
EUT :	Freedom Charge Magnetic 2in1	Model Name. :	WLS-A02-01
Test Mode :	Mode 1（Full load）	Polarization :	X
Test Power :	Output: 15W(Coil 1) , 5W(Coil 2) ; Input: AC 120V 60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		0.2558	21.85	21.33	43.18	99.43	-56.25	QP
2		0.5101	15.38	20.89	36.27	73.45	-37.18	QP
3	*	1.1413	15.26	21.41	36.67	66.46	-29.79	QP
4		2.5266	10.93	22.27	33.20	69.54	-36.34	QP
5		6.5921	12.03	23.45	35.48	69.54	-34.06	QP
6		21.3725	9.69	24.97	34.66	69.54	-34.88	QP

Remark:

Final level = Reading level + Correct Factor

Correct Factor=Antenna Factor + Cable Loss -Preamplifier Factor

Note:1.Below 30MHz, Pre-test the X, Y, Z axis to find X axis is worst case, so only record X axis test data.

2.Pre-scan Full load,Half load,Null load, and found Full load which it is worse case, so only show the test data for worse case（Mode 1）

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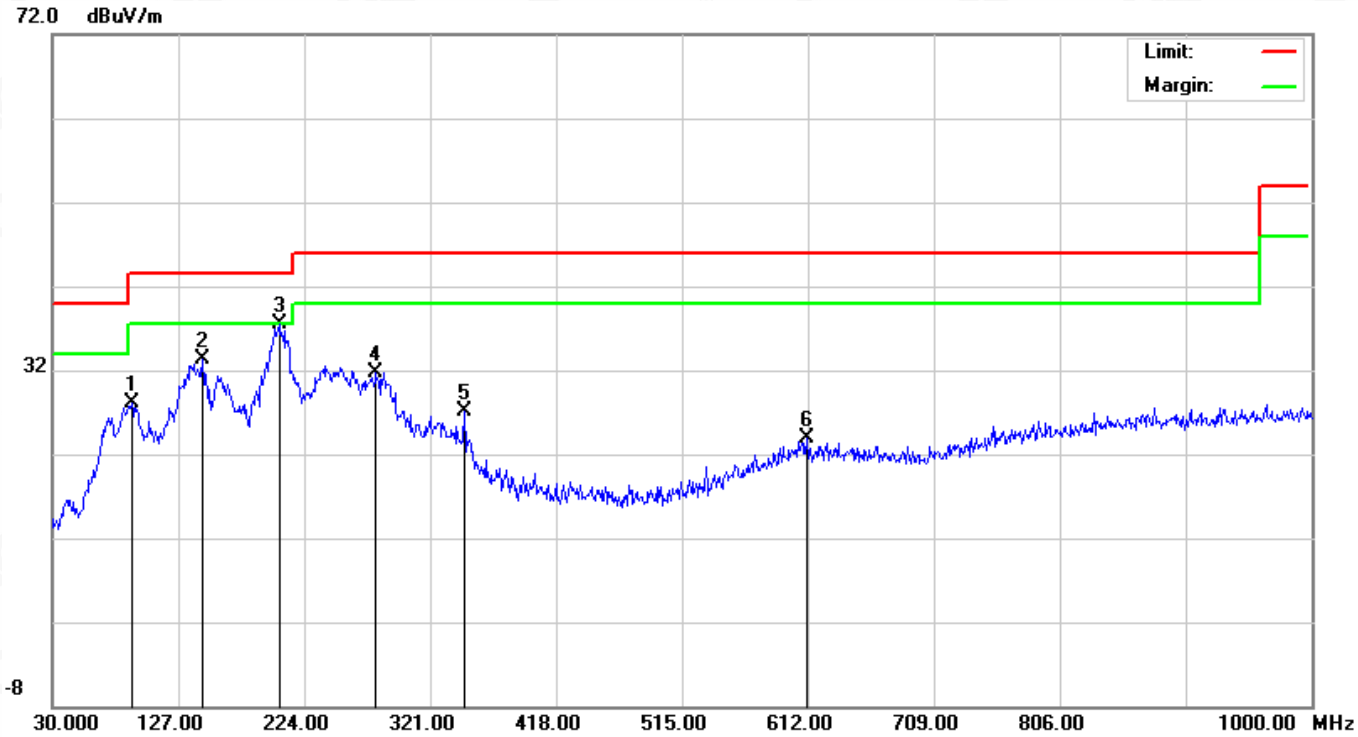
RADIATED EMISSION 30MHz- 1GHz

EUT：	Freedom Charge Magnetic 2in1	Model Name.	WLS-A02-01
Temperature：	21.8 ℃	Relative Humidity:	58%
Pressure：	1010 hPa	Test Voltage ：	DC 19V
Test Mode ：	Mode 1	Polarization :	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		91.1100	18.22	9.94	28.16	43.50	-15.34	peak
2		145.4299	21.09	12.25	33.34	43.50	-10.16	peak
3	*	204.6000	28.83	8.64	37.47	43.50	-6.03	peak
4		279.2900	21.92	9.88	31.80	46.00	-14.20	peak
5		347.1900	16.05	10.96	27.01	46.00	-18.99	peak
6		611.0300	7.11	16.86	23.97	46.00	-22.03	peak

RESULT: PASS

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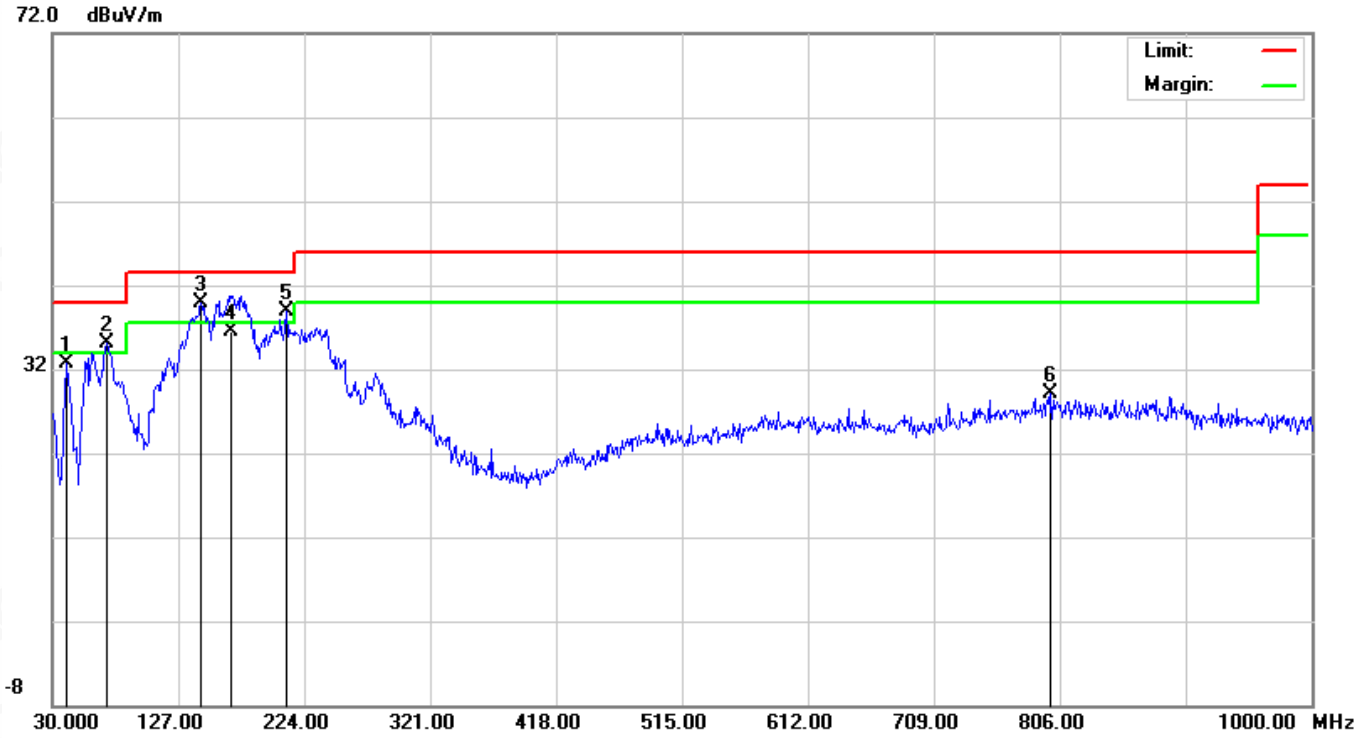
EUT：	Freedom Charge Magnetic 2in1	Model Name.	WLS-A02-01
Temperature：	21.8 ℃	Relative Humidity:	58%
Pressure：	1010 hPa	Test Voltage ：	DC 19V
Test Mode ：	Mode 1	Polarization :	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		40.6699	22.72	9.97	32.69	40.00	-7.31	peak
2	!	71.7100	23.41	11.74	35.15	40.00	-4.85	peak
3	*	144.4600	27.03	12.78	39.81	43.50	-3.69	peak
4		167.7400	25.01	11.55	36.56	43.50	-6.94	QP
5	!	210.4200	29.74	9.20	38.94	43.50	-4.56	peak
6		799.2100	6.65	22.39	29.04	46.00	-16.96	peak

RESULT: PASS

Note:

Factor=Antenna Factor + Cable loss, Over=Measurement-Limit

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

All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.

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8. FCC LINE CONDUCTED EMISSION TEST

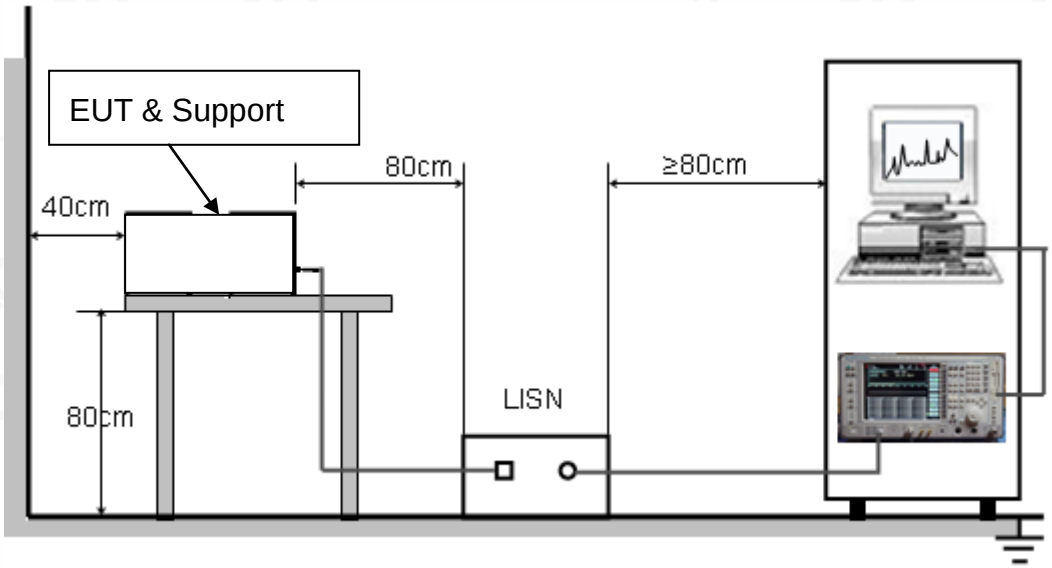
8.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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 0.50MHz.

8.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



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8.3. 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/60Hzpower 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.

8.4. 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.

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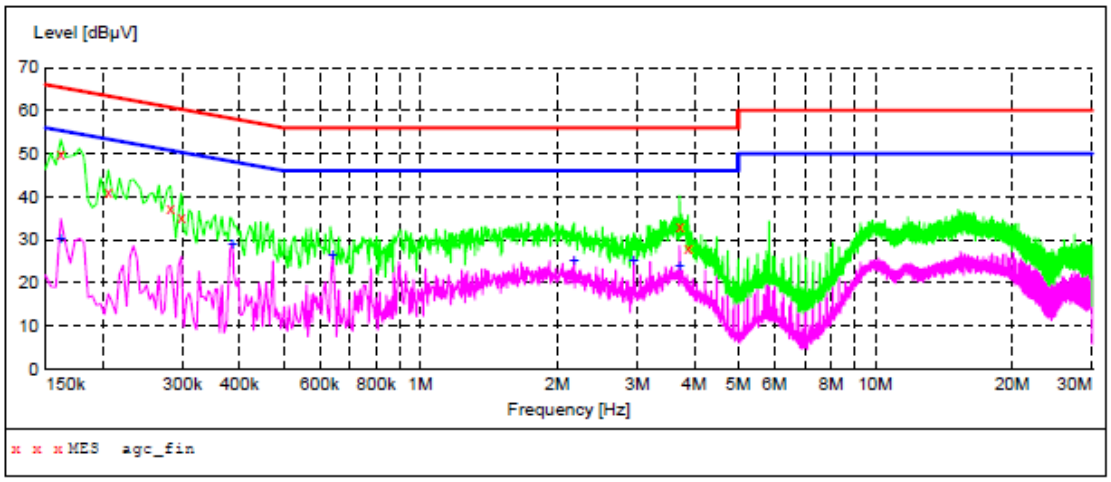
8.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



MEASUREMENT RESULT: "agc_fin"

2021/8/20 18:24

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.162000	49.80	6.8	65	15.6	QP	L1
0.206000	41.20	6.5	63	22.2	QP	L1
0.282000	37.40	6.1	61	23.4	QP	L1
0.298000	35.40	6.0	60	24.9	QP	L1
3.714000	33.30	6.5	56	22.7	QP	L1
3.878000	28.00	6.5	56	28.0	QP	L1

MEASUREMENT RESULT: "agc_fin2"

2021/8/20 18:24

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.162000	30.10	6.8	55	25.3	AV	L1
0.386000	28.80	5.7	48	19.3	AV	L1
0.642000	26.30	5.4	46	19.7	AV	L1
2.178000	25.30	6.5	46	20.7	AV	L1
2.946000	25.20	6.5	46	20.8	AV	L1
3.714000	23.80	6.5	46	22.2	AV	L1

RESULT: PASS

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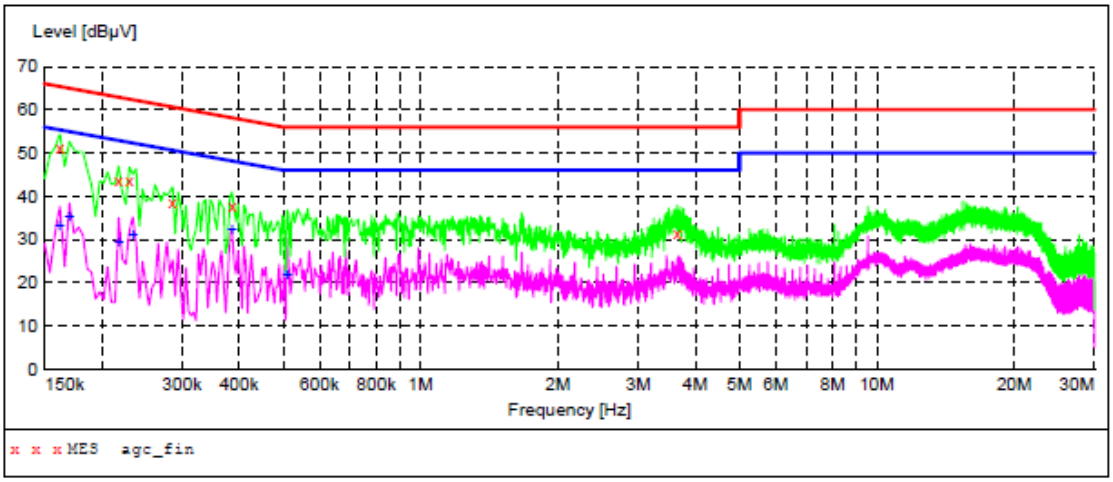
LINE CONDUCTED EMISSION TEST-N



MEASUREMENT RESULT: "agc_fin"

2021/8/20 18:19

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.162000	51.20	6.8	65	14.2	QP	N
0.218000	43.50	6.4	63	19.4	QP	N
0.230000	43.80	6.4	62	18.6	QP	N
0.286000	38.50	6.1	61	22.1	QP	N
0.386000	37.80	5.7	58	20.3	QP	N
3.650000	31.30	6.5	56	24.7	QP	N

MEASUREMENT RESULT: "agc_fin2"

2021/8/20 18:19

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.162000	33.00	6.8	55	22.4	AV	N
0.170000	35.40	6.8	55	19.6	AV	N
0.218000	29.40	6.4	53	23.5	AV	N
0.234000	31.00	6.3	52	21.3	AV	N
0.386000	32.40	5.7	48	15.7	AV	N
0.510000	21.70	5.4	46	24.3	AV	N

RESULT: PASS

Note: All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC12971210801AP01

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APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC12971210801AP01

----END OF REPORT----

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Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

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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