

FCC Test Report

Report No.: AGC03946220709FE10

FCC ID	:	2AYA9L-WP-05A5-V3
APPLICATION PURPOSE		Original Equipment
PRODUCT DESIGNATION	:	Magnetic wireless power bank
BRAND NAME	:	LOOWOKO
MODEL NAME	:	L-WP-05A5-V3, MB1-5000
APPLICANT	:	Shenzhen LOOWOKO Technology Limited
DATE OF ISSUE	:	Aug. 08, 2022
STANDARD(S)	:	FCC Part 15 Subpart C
REPORT VERSION	:	V 1.0 Compliance (Strenthen) Co., /
<u>Attestation of</u>	<u>G</u> lo	bat Compliance (Shenzhen) Co., Ltd





REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 08, 2022	Valid	Initial Release



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1. GENERAL INFORMATION

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Shenzhen LOOWOKO Technology Limited		
4F, E building, Jin Bao Bao Industry Dist., No2 North Part, Shang Xue Industry City, Long Gang, Shenzhen, 518129, P.R. China		
Magnetic wireless power bank		
LOOWOKO		
L-WP-05A5-V3		
del MB1-5000		
All the series models are the same as the test model except for the model name		
No any deviation from the test method		
Jul. 20, 2022 to Aug. 08, 2022		
Pass		
AGCTR-ER-FCC-WPTV1.0		

Prepared By

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Aug. 08, 2022

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Aug. 08, 2022

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Aug. 08, 2022

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Attestation of Global Compliance(Shenzhen)Co., Ltd Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd Tel: +86–755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	2313-V8
Software Version	WZ-2313-V8-3CD2A061
Operation Frequency	110KHz-205KHz
Modulation Type	ASK
Number of channels	1
Field Strength of Fundamental	73.05dBuV/m (Max)
Antenna Designation	Coil Antenna
Antenna Gain	0dBi
EUT Power Supply	DC 3.85V battery
Power Supply	DC 5V 3A; DC 9V 2A; DC 12V 1.5A
Wireless Charging Output Power	5W, 7.5W

2.2 TEST FREQUENCY LIST

Frequency Band	Channel Number	Frequency
110KHz-205KHz	01	110.3 KHz



2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **2AYA9L-WP-05A5-V3**, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 TEST METHODOLOGY

The tests were performed according to following standards:

No.	Identity	Document Title	
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations	
2	FCC 47 CFR Part 15	Radio Frequency Devices	
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices	

2.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7 ANTENNA REQUIREMENT

Standard Requirement

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 antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 0 dBi.



3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory 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.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. 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 with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.



3.3 ENVIRONMENTAL CONDITIONS

	NORMAL CONDITIONS EXTREME CONDIT				
Temperature range (°C)	15 - 35	-20 - 50			
Relative humidty range	ge 20 % - 75 % 20 % - 75 %				
Pressure range (kPa)	86 - 106	86 - 106			
Power supply					
Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.					

3.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard

uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 150kHz	$U_c = \pm 4.2 \text{ dB}$
Uncertainty of Radiated Emission below 30MHz	$U_c = \pm 3.8 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$



3.5 LIST OF EQUIPMENTS USED

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Mar. 28, 2022	Mar. 27, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 08, 2022	Jun. 07, 2023
Test Software	R&S	ES-K1(Ver.V1.71)	N/A	N/A	N/A
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY5347050 4	Nov. 17, 2021	Nov. 16, 2022
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 11, 2024
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test Software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



4.SYSTEM TEST CONFIGURATION

4.1 EUT CONFIGURATION

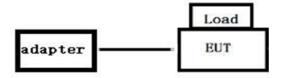
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

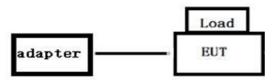
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



4.4 EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement: Test Accessories Come From The Laboratory Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	Magnetic wireless power bank	L-WP-05A5-V3	FCC ID: 2AYA9L-WP-05A5-V3	EUT
2	Adapter	K-T10E0502000E	N/A	Accessories
3	Wireless Load	RX24-50W	N/A	Accessories

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4.5 SUMMARY OF TEST RESULTS

ltem	FCC Rules	Description Of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.209(a)(f)	Radiated Spurious Emission	Pass
3	§15.215(c)	20dB Bandwidth	Pass
4	§15.205(a)	Restricted Bands of Operation	Pass
5	§15.207	AC Power Line Conducted Emission	Pass



5. DESCRIPTION OF TEST MODES

	Summary table of Test Cases
	Equipment type / Modulation
Test Item	WPT_(TX:110.3KHz)/ ASK
	Mode 1: DUT+ Wireless Load+Charging(5W Full Load)
	Mode 2: DUT+ Wireless Load+Charging(5W Half Load)
	Mode 3: DUT+ Wireless Load(7.5W Full Load)
Radiated&Conducted	Mode 4: DUT+ Wireless Load(5W Full Load)
Test Cases	Mode 5: DUT+ Wireless Load(7.5W Half Load)
	Mode 6: DUT+ Wireless Load(5W Half Load)
	Mode 7: DUT+ Wireless Load(Null Load)
	Mode 1: DUT+ Wireless Load+Charging(5W Full Load)
	Mode 2: DUT+ Wireless Load+Charging(5W Half Load)
	Mode 3: DUT+ Wireless Load(7.5W Full Load)
AC Conducted Emission	Mode 4: DUT+ Wireless Load(5W Full Load)
	Mode 5: DUT+ Wireless Load(7.5W Half Load)
	Mode 6: DUT+ Wireless Load(5W Half Load)
	Mode 7: DUT+ Wireless Load(Null Load)

The battery is full-charged during the test.

2. 3. 4. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

Wireless output up to 5W when charging.



6. FIELD STRENGTH OF FUNDAMENTAL

6.1 PROVISIONS APPLICABLE

Test Requirement:	FCC Part	15 C Secti	on 15.209			
Test Method:	ANSI C63	.10:2013				
Test Frequency Range:	9kHz to 1	GHz				
Test site:	Measuren	nent Distar	nce: 3m			
	Frequ	uency	Detector	RBW	VBW	Value
	9KHz-1	150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
Receiver setup:	150KHz	:-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
Receiver setup.	30MHz	z-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above		Peak	1MHz	3MHz	Peak
	Above	1GHz	Peak	1MHz	10Hz	Average
				<u> </u>		g-

Limits for frequency below 30MHz

Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Limits for frequency Above 30MHz

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

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.



6.2 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 emission, 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 RBW and 3MHz VBW for peak reading. 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.
- 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.



6.3 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG - AV

where FS = Field Strength in dBµV/m

RA = Receiver Amplitude (including preamplifier) in dBµV

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m

AG = Amplifier Gain in dB

AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF

where $FS = Field Strength in dB\mu V/m$ RR = RA - AG - AV in dB μ V LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB μ V/m.

This value in dB μ V/m was converted to its corresponding level in μ V/m.

 $\begin{array}{ll} {\sf RA} = 52.0 \; d{\sf B}\mu{\sf V}/{\sf m} & \\ {\sf AF} = 7.4 \; d{\sf B}/{\sf m} & {\sf RR} = 18.0 \; d{\sf B}\mu{\sf V} \\ {\sf CF} = 1.6 \; d{\sf B} & {\sf LF} = 9.0 \; d{\sf B} \\ {\sf AG} = 29.0 \; d{\sf B} & \\ {\sf AV} = 5.0 \; d{\sf B} & \\ {\sf FS} = {\sf RR} + {\sf LF} \\ {\sf FS} = 18 + 9 = 27 \; d{\sf B}\mu{\sf V}/{\sf m} & \\ \end{array}$

Level in μ V/m = Common Antilogarithm [(27 dB μ V/m)/20] = 22.4 μ V/m

Magnetic field strength calculation (9 kHz – 30 MHz)

When the limit is in terms of magnetic field, the following equation applies: $H[dB(\mu A/m)] = V[dB(\mu V)] + LC [dB] - GPA [dB] + AFH [dB(S/m)]$

Where,

H is the magnetic field strength (to be compared with the limit), V is the voltage level measured by the receiver or spectrum analyzer, LC is the cable loss, GPA is the gain of the preamplifier (if used), and AFH is the magnetic antenna factor.

If the "electrical" antenna factor is used instead, the above equation becomes:

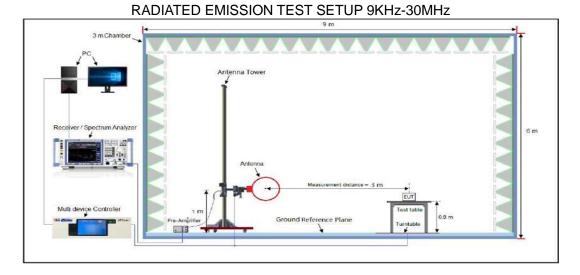
 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC [dB] - GPA [dB] + AFE [dB(m-1)] - 51.5 [dB\Omega]$

where AFE is the "electric" antenna factor, as provided by the antenna calibration laboratory.

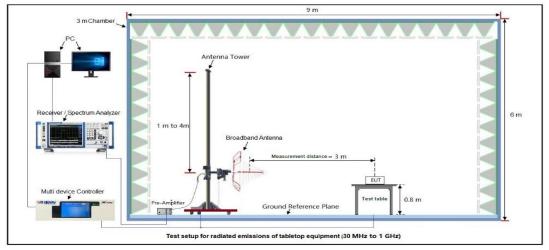
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6.4 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



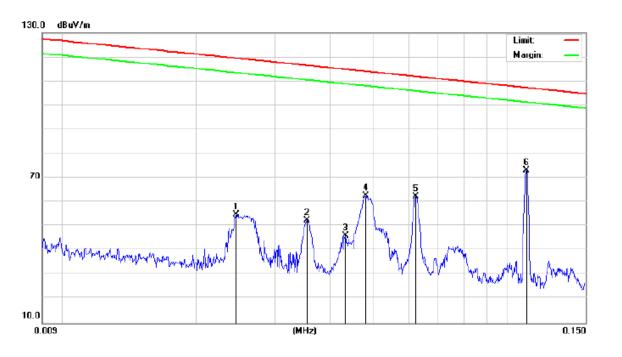
The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.



6.5 MEASUREMENT RESULTS

ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 9KHz-150KHz

EUT	Magnetic wireless power bank	Model Name	L-WP-05A5-V3
Temperature	24° C	Relative Humidity	57%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Face



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	0.0246	27.52	27.25	54.77	119.4	-64.66	peak
2	0.0354	25.92	26.44	52.36	116.4	-64.12	peak
3	0.0432	20.27	25.86	46.13	114.8	-68.74	peak
4	0.0480	37.16	25.50	62.66	114.0	-51.36	peak
5	0.0621	37.87	24.45	62.32	111.9	-49.61	peak
6 *	0.1103	51.45	21.60	73.05	107.2	-34.23	peak

RESULT: PASS



UT		Magn	etic wirele	ss power l	bank l	Model Nam	е	L-WF	P-05A5-V
emperature		24° (Relative Hu		57%	
Pressure		960h				Test Voltage			nal Voltaç
							-		
est Mode		Mode	9 1			Antenna		Side	
130.0	dBu¥/n	1							
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10.0]9			Reading	(MHz) Correct	Measure-			
10.0]9	MWWWW	Freq.	Reading	(MH2) Correct Factor	Measure- ment	Limit	Over	
10.0			Freq. MHz	Reading Level dBuV	(MHz) Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over	Detector
10.0	¹⁹ No.	Mk.	Freq. MHz 0.0256	Reading Level dBuV 26.33	(MHz) Correct Factor dB 27.18	Measure- ment dBuV/m 53.51	Limit dBuV/m 119.1	Over dB -65.60	Detector
10.0	NO.	Mk.	Freq. MHz 0.0256 0.0354	Reading Level dBuV 26.33 25.81	(MHz) Correct Factor dB 27.18 26.44	Measure- ment dBuV/m 53.51 52.25	Limit dBuV/m 119.1 116.4	Over dB -65.60 -64.23	Detector peak peak
10.0	No.	Mk.	Freq. MHz 0.0256 0.0354 0.0434	Reading Level dBuV 26.33 25.81 19.81	(MHz) Correct Factor dB 27.18 26.44 25.85	Measure- ment dBuV/m 53.51 52.25 45.66	Limit dBuV/m 119.1 116.4 114.8	Over dB -65.60 -64.23 -69.17	Detector peak peak peak
10.0	No.	Mk.	Freq. MHz 0.0256 0.0354 0.0434 0.0483	Reading Level dBuV 26.33 25.81 19.81 37.02	(MHz) Correct Factor dB 27.18 26.44 25.85 25.48	Measure- ment dBuV/m 53.51 52.25 45.66 62.50	Limit dBuV/m 119.1 116.4 114.8 113.9	Over dB -65.60 -64.23 -69.17 -51.47	Detector peak peak peak peak
10.0	No.	Mk.	Freq. MHz 0.0256 0.0354 0.0434	Reading Level dBuV 26.33 25.81 19.81	(MHz) Correct Factor dB 27.18 26.44 25.85	Measure- ment dBuV/m 53.51 52.25 45.66	Limit dBuV/m 119.1 116.4 114.8	Over dB -65.60 -64.23 -69.17	Detector peak peak peak

ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 9KHz-150KHz

RESULT: PASS



UT	Magnetic wire	less power b	ank	Model Nan	ne	L-W	L-WP-05A5-V3		
emperature	24° C			Relative H	umidity	57%)		
ressure	960hPa			Test Voltag	je	Norr	nal Voltag	ge	
est Mode	Mode 1			Antenna		Face	Э		
120.0 dBu									
50							Limit: - Margin: -		
		3			5				
0.0 0.150		WHANNIN WANNA	(MHz)	Measure-	5	(h. siyaaniy)			
0.0	Murulu mynynyn	hannennen		Measure- ment	5	Over			
0.0	0. Mk. Freq. MHz	Reading Level	(MHz) Correct Factor dB	Measure- ment dBuV/m	5 Limit dBuV/m	Over			
0.0 0.150 No	0.5 0. Mk. Freq.	Reading Level	(MHz) Correct Factor	Measure- ment	5 Limit	Over	3		
0.0 0.150 	0. Mk. Freq. MHz 0.2220 2 0.3302	Reading Level dBuV 7.88 23.26	(MHz) Correct Factor dB 21.39 21.19	Measure- ment dBuV/m 29.27 44.45	5 Limit dBuV/m 101.1 97.46	Over dB -71.88 -53.01	Detector peak peak		
0.0 0.150 	0. Mk. Freq. MHz 0.2220 2 0.3302 3 * 0.5523	Reading Level dBuV 7.88 23.26 13.43	(MHz) Correct Factor dB 21.39	Measure- ment dBuV/m 29.27 44.45 34.35	5 Limit dBuV/m 101.1 97.46 72.76	Over dB -71.88 -53.01 -38.41	Detector peak peak		
0.0 0.150	0. Mk. Freq. MHz 0.2220 2 0.3302	Reading Level dBuV 7.88 23.26	(MHz) Correct Factor dB 21.39 21.19	Measure- ment dBuV/m 29.27 44.45	5 Limit dBuV/m 101.1 97.46	Over dB -71.88 -53.01	Detector peak peak	0.00	
0.0 0.150	0. Mk. Freq. MHz 0.2220 2 0.3302 3 * 0.5523	Reading Level dBuV 7.88 23.26 13.43 4.93	(мнz) Соггесt Factor dB 21.39 21.19 20.92	Measure- ment dBuV/m 29.27 44.45 34.35	5 Limit dBuV/m 101.1 97.46 72.76	Over dB -71.88 -53.01 -38.41	Detector peak peak peak		

ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 150KHz-30MHz

RESULT: PASS



EUT	Magr	netic wirele	ss power b	ank	Model Nam	е	L-WF	P-05A5-V3
Temperature	24°	С			Relative Hu	imidity	57%	
Pressure	960h	Pa			Test Voltag	e	Norm	nal Voltage
Test Mode	Mode	ə 1			Antenna		Face)
120.0 dBu	//m							
								Limit. — Margin: —
60								
	2			4		5		5
Nulha/			nuruwym	นี้ก _า กและเพิ่มไม	ywrddinghandarthff M	when the test of test	in management	hulermither manufa
			nurrun	(MHz)		wloodhandaly	man ^{na} warding	\$ hull+1%. 30.0
0.0 0.150		noprilliping	Reading				Over	
0.0 0.150	i Min N	0.5	Reading	(MHz) Correct	Measure-	5		
0.0 0.150	i Min N	n.5	Reading	(MHz) Correct Factor	Measure- ment	5 Limit	Over	30.0
0.0 0.150	io. Mk.	0.5	Reading Level dBuV	(MHz) Correct Factor dB	Measure- ment dBuV/m	5 Limit dBuV/m	Over	30.00
0.0 0.150	1 1 1	0.5 Freq. MHz 0.2207	Reading Level dBuV 7.21	(MHz) Correct Factor dB 21.40	Measure- ment dBuV/m 28.61	Limit dBuV/m 101.2	Over dB -72.60	30.00 Detector peak
0.0 0.150	1 2	0.5 Freq. MHz 0.2207 0.3302	Reading Level dBuV 7.21 22.46	(MHz) (MHz) Correct Factor dB 21.40 21.19	Measure- ment dBuV/m 28.61 43.65	5 Limit dBuV/m 101.2 97.46	Over dB -72.60 -53.81	30.00 Detector peak peak
0.0 0.150	1 2 3	0.5 0.5 0.5 0.3 0.5 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	Reading Level dBuV 7.21 22.46 11.16	(MHz) (MHz) Correct Factor dB 21.40 21.19 20.92	Measure- ment dBuV/m 28.61 43.65 32.08	5 Limit dBuV/m 101.2 97.46 72.76	Over dB -72.60 -53.81 -40.68	30.00 Detector peak peak peak

ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 150KHz-30MHz

RESULT: PASS

NOTES:

- 1. Quasi-Peak detector is used for frequency below 30MHz.
- 2. Negative value in the margin column shows emission below limit.
- 3. All measurements were made with 0.6m loop antenna at 3m distance. All emissions are below the QP limit.
- 4. Corr. Factor= Antenna Factor (dB/m) + Cable Loss (dB)
- 5. Loop antenna is used for the emission under 30MHz.

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			-					EMISSIC				<u> </u>						
EUT			Ν	lagn	etic	wirele	ss po	ower bank	I	Mode	l Na	me			L-V	VP-()5A	5-V
Femperature			2	4° (2					Relati	ive ⊦	lumi	dity	;	579	%		
Pressure			9	60hF	⊃a				-	Test Voltage					Normal Voltage			
Fest Mode			N	lode	1					Antenna Horizontal					ntal			
72.0	dBu¥/m																	
															Lin Ma	nit: Irgin:	-	
				_					_						PR G			-
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-8)0 40]	50	60	70	80		(MHz)			300	40	0 !	500 (600	700	10	00.0
	0 40)	50	60	70	80		(MHz)			300	40	0 !	500 (600	700	10	00.0
				60	70 :	Read	Jing	(MHz) Correct	Me	easure	e-					700	10	00.0
	00 40 			60 Fre						easure	e-	40 Limit		500 Over		700	10	-
					eq.	Read	el	Correct	r		e-				r	700 Dete		-
			ι.	Fre	eq. Iz	Read Lev dBu	el	Correct Factor	r dE	nent	e- I	Limit	m	Over	r		ctor	-
	No.		4	Fre	eq. Iz	Read Lev dBu	el ⊮ 33	Correct Factor dB	r dE 1	nent BuV/m	e- 0 4	Limit 1Bu∨/r	m 	Over dB	r 1	Dete	ctor	- - -
	No.		45	Fre MH	eq. Iz 55	Read Lev dBu 5.3	el ⊮ 33	Correct Factor dB 14.36	r dE 1 2	nent 3uV/m 9.69	e- 0 4 4	Limit 1Bu∨/r 10.00	m 	Over dB 20.3	r 1 8	Dete pea	ector ak ak	- - -
	No.		45 68 110	Fre MH 5.37	eq. Iz 55 07 95	Read Lev dBu 5.3	el 1V 33 51 24	Correct Factor dB 14.36 17.01	r dE 1 2 2	ment BuV/m 9.69 1.52	e- 0 4 4	Limit 1BuV/r 10.00	m 	Over dB 20.3 18.4	r 1 8 0	Dete pea	ector ak ak ak	- - - -
	No.		45 68 110	Fre MH 5.37 8.390 6.94	eq. 1z 55 07 95 25	Read Lev dBu 5.3 4.4 8.3 13.3	el 1V 33 51 24	Correct Factor dB 14.36 17.01 17.46	r dE 1 2 2 3	ment 3uV/m 9.69 1.52 5.70	e- 4 4 4	Limit 1BuV/r 10.00	m 	Over dB 20.3 18.4 17.8	r 1 8 0 2	Dete pea pea	ector ak ak ak ak	- - - - -

ADIATED EMICCION DEL OW ACH

RESULT: PASS



				RADIATED	EMISSION	BELOW '	1GHz			
EUT		Mag	Inetic	c wireless po	ower bank	Model	Name	L	WP-05A	5-V:
Temperature		24°	С			Relativ	ve Humidi	ty 5	57%	
Pressure		960	hPa			Test Ve	oltage	١	Normal Voltag	
Test Mode		Mod	le 1			Anten	าล	١	/ertical	
72.0 dBu∀/n		<u>.</u>								
									Limit: — Margin: —	-
										f
32					- 5		_			
n de la companya de l	2×	Å	turney (hr.)	mana	harm have	home the stand of the	S.	hlinend and and an	Aller and a second a	
-8 30.000 4	40 5	50 60	70	80	(MHz)	3	300 400	500 6	00 700 10	00.00
No.	. Mk.	F	req.	Reading Level	Correct Factor	Measure ment	- Limit	Over		-
		N	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	-
1		32.8	637	9.59	12.26	21.85	40.00	-18.15	5 peak	-
2		42.8	998	11.41	14.59	26.00	40.00	-14.00) peak	-
3		55.2	207	12.62	15.20	27.82	40.00	-12.18	B peak	-
4	*	119.4	361	19.42	17.83	37.25	43.50	-6.25	peak	-
5		150.5	378	15.86	17.16	33.02	43.50	-10.48	3 peak	-
0		100.0								

RADIATED EMISSION BELOW 1GHz

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

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

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



7. 20 dB BANDWIDTH

7.1 PROVISIONS APPLICABLE

N/A

7.2 MEASUREMENT PROCEDURE

Set the parameters of SPA as below:

- 1. The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
- 2. Centre frequency = Operation Frequency
- 3. The resolution bandwidth of 300 Hz and the video bandwidth of 1 kHz were used.
- 4. Span: 3kHz, Sweep time: Auto
- 5. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the "N dB down" function of SPA to define the bandwidth.
- 6. Measured the spectrum width with power higher than 20dB below carrier.
- 7. Measured the 99% OBW.
- 8. Record the plots and Reported.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



Spectrum Analyzer



7.4 MEASUREMENT RESULTS

Test Data of Occupied Bandwidth and -20dB Bandwidth								
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (kHz)	-20dB Bandwidth (kHz)	Limits (MHz)	Pass or Fail			
ASK	0.1103	0.688	0.811	N/A	Pass			

Test Graphs of Occupied Bandwidth&-20dB Bandwidth

Agilent Spectrum Analyzer - Occupied BW V L RF 50 Q AC Center Freq 110.300 kHz #II	·	SENSE:PULSE Center Freq: 110.300 kl Trig: Free Run #Atten: 10 dB	ALIGN AUTO Hz Avg Hold:>10/10	09:43:59 A Radio Std: Radio Dev		Fr	equency
10 dB/div Ref 10.00 dBm Log			1				
-10.0						C	enter Freq 110.300 kHz
-20.0							
-40.0							
-60.0							
-80.0 Center 110.3 kHz					an 3 kHz		CF Step
#Res BW 300 Hz Occupied Bandwidth		#VBW 1 kHz	ver -11.	Sweep 0 dBm	40.87 ms	<u>Auto</u>	300 Hz Man
Occupied Dandwidth	688 Hz					I	Freq Offset
Transmit Freq Error	38 H	z OBW Por	wer 9	9.00 %			0 Hz
x dB Bandwidth	811 H	lz x d B	-20).00 dB			
ISG			STAT	us <u>!</u> AC cou	pled: Accy u	nspec'd	< 10MHz



8. AC POWER LINE CONDUCTED EMISSION TEST

8.1 LIMITS OF LINE CONDUCTED EMISSION TEST

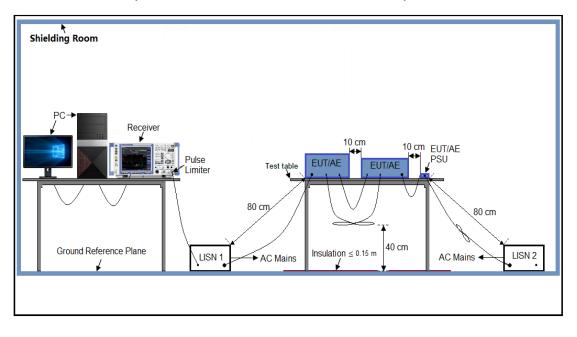
En anno an	Maximum RF Line Voltage				
Frequency	Q.P. (dBµV)	Average (dBµV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

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.

8.2 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)





8.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 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 equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from 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 50ohm 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.

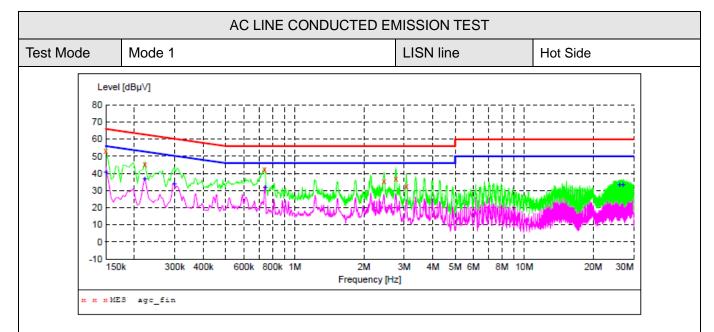
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

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.
- 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.



8.5 MEASUREMENT RESULTS



MEASUREMENT RESULT: "agc_fin"

2022/7/22 2	0:57					
Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000 0.222000 0.738000 2.450000 2.754000 3.066000	45.20 42.30 35.40 37.00	6.9 6.4 5.4 6.5 6.5 6.5		13.7 20.6	QP QP	L1 L1 L1 L1 L1 L1

MEASUREMENT RESULT: "agc fin2"

2022/7/22 20:	57					
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	40.80	6.9	56	15.2	AV	L1
0.222000	37.00	6.4	53	15.7	AV	L1
0.298000	33.90	6.0	50	16.4	AV	L1
0.742000	31.90	5.4	46	14.1	AV	L1
26.062000	33.60	9.3	50	16.4	AV	L1
26.942000	33.60	9.3	50	16.4	AV	ь1

RESULT: PASS

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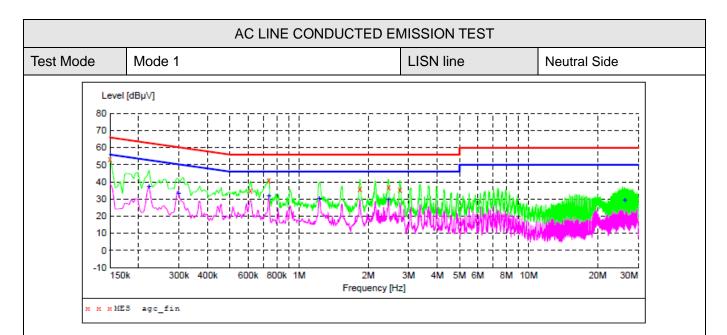
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MEASUREMENT RESULT: "agc_fin"

2022/7/22 2						
Frequency MH2		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	53.30	6.9	66		QP	Ν
0.614000	35.00	5.4	56	21.0	QP	N
0.738000	40.80	5.4	56		QP	N
1.842000	35.90	6.4	56	20.1	QP	N
2.454000	37.00	6.5	56	19.0	QP	N
2.750000	35.30	6.5	56	20.7	QP	Ν

MEASUREMENT RESULT: "agc_fin2"

2022/7/22 20:51								
Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line		
0.222000	37.30	6.4	53	15.4	AV	N		
0.298000	33.70	6.0	50	16.6	AV	Ν		
0.738000	32.00	5.4	46	14.0	AV	Ν		
1.226000	30.50	5.7	46	15.5	AV	Ν		
2.446000	29.80	6.5	46	16.2	AV	N		
26.286000	29.60	9.3	50	20.4	AV	Ν		

RESULT: PASS

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APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC03946220709AP02

APPENDIX II: PHOTOGRAPHS OF TEST EUT

Refer to the Report No.: AGC03946220709AP03

-----END OF REPORT-----



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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.