

FCC Test Report

Report No.: AGC02129220803FE10

FCC ID	:	2AGPDZEAPMO3	
APPLICATION PURPOSE		Original Equipment	
PRODUCT DESIGNATION	:	4-in-1 Modular Charging Station	
BRAND NAME	:	Zens	
MODEL NAME	:	ZEAPMO3/00, ZEAPMO3/06	
APPLICANT	:	Zens International B.V.	
DATE OF ISSUE	:	Aug. 30, 2022	
STANDARD(S)	:	FCC Part 15 Subpart C	
REPORT VERSION	:	V 1.0	
Attestation of Global Compliance (Shenzhen) Co., Ltd			
<u>Attestation of</u>	<u>G101</u>	<u>Dar Compliance (Snenznen) Co., Ltd</u>	





REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 30, 2022	Valid	Initial Release



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1. GENERAL INFORMATION

Applicant	Zens International B.V.		
Address	High Tech Campus 85, 5656 AG Eindhoven, The Netherlands		
Manufacturer	Zens International B.V.		
Address	High Tech Campus 85, 5656 AG Eindhoven, The Netherlands		
Factory	Huizhou SPEED Wireless Technology Co.,Ltd.		
Address	No.138 Huize Road, Hi-Tech Industrial Park of East River, Zhongkai Hi-tech District, Huizhou City, Guangdong Province, China		
Product Designation	4-in-1 Modular Charging Station		
Brand Name	Zens		
Test Model	ZEAPMO3/00		
Series Model	ZEAPMO3/06		
Difference description	All the same except the model name.		
Deviation from Standard	No any deviation from the test method		
Date of Test	Aug. 05, 2022~Aug. 24, 2022		
Test Result	Pass		
Test Report Form No	AGCTR-ER-FCC-WPTV1.0		

Prepared By

Bibo zhang

Bibo Zhang (Project Engineer)

Aug. 24, 2022

Reviewed By

Calvin Liu (Reviewer) Aug. 30, 2022

Approved By

Max Zhang

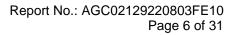
Max Zhang Authorized Officer

Aug. 30, 2022

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Attestation of Global Compliance(Shenzhen)Co., Ltd Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

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2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

Hardware Version	WLT0065-BPP-V10	
Software Version	WLT0070-V01	
Frequency Band	WPT_1:110.5KHz-148KHz WPT_2: 325KHz-330KHz WPT_3: 360KHz-365KHz	
Operation Frequency	147.1KHz, 360.0KHz, 326.5KHz,	
Modulation Type	ASK	
Number of channels	2	
Field Strength of Fundamental	67.72dBuV/m (Max)	
Antenna Designation	Coil Antenna	
Antenna Gain	0dBi	
Power Supply Input:DC 24V-2.7A Output1:MagSafe Charger 15W Max Output2:Qi Charger 5W Max Output3:USB-C 5V-3A/9V-3A/12V-3A/15V-3A/20V-3A M Output4: Pogopin 15V-0.87A(can extend Apple Wacth Charger 2)		
Adapter Information	Input: AC 100V-240V, 50/60Hz, 1.5A Output: DC 24.0V, 2.7A	

2.2 TEST FREQUENCY LIST

For AirPods Pro Case:

Frequency Band	Channel Number	Frequency
110.5~148KHz	01	147.1KHz

For New Apple Wacth:

Frequency Band	Channel Number	Frequency
325~330KHz	01	326.5KHz

For Apple Mobile Phone:

Frequency Band	Channel Number	Frequency
360~365KHz	01	360.0KHz



2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: **2AGPDZEAPMO3**, 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 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.

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 CONDITIONS
Temperature range (°C)	15 - 35	-20 - 50
Relative humidty range	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	FARA	EZ-EMC(Ver.RA-0 3A)	N/A	N/A	N/A



4.SYSTEM TEST CONFIGURATION

4.1 EUT CONFIGURATION

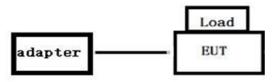
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

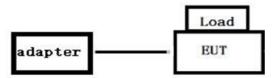
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

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

Item	Equipment	Model No.	Identifier	Note
4	Wireless Load	N/A	N/A	Accessories
5	Apple Mobile Phone	iPhone 12	N/A	Accessories
6	New Apple Watch	Series 7	N/A	Accessories

☐ Test Accessories Come From The Manufacturer

Item	Equipment	Model No.	Identifier	Note
1	4-in-1 Modular Charging Station	ZEAPMO3/00	2AGPDZEAPMO3	EUT
2	USB Cable	N/A	1.5m, Shielded	Accessories
3	Adapter	GJ60WD-2400270DP	Input:AC100V-240V, 50/60Hz, 1.5A Output:DC24.0V, 2.7A	Accessories



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_ASK
Radiated&Conducted Test Cases	Mode 1: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <1%) +Wireless load (Full Load) Mode 2: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Full Load) Mode 3: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Full Load) Mode 4: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <1%) +Wireless load (Half Load) Mode 5: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Half Load) Mode 6: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Half Load) Mode 6: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Half Load) Mode 7: AC/DC Adapter + EUT + Mobile Phone+Watch (Battery Status: <1%) +Wireless load (Null Load) Mode 8: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Null Load) Mode 10: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Null Load)
AC Conducted Emission	Mode 1: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <1%) +Wireless load (Full Load) Mode 2: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Full Load) Mode 3: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Full Load) Mode 4: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <1%) +Wireless load (Half Load) Mode 5: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Half Load) Mode 6: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Half Load) Mode 6: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Half Load) Mode 7: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Null Load) Mode 8: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <1%) +Wireless load (Null Load) Mode 8: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: <50%) +Wireless load (Null Load) Mode 9: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%) +Wireless load (Null Load) Mode 10: AC/DC Adapter + EUT + Mobile Phone+ Watch (Battery Status: 100%)

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. 3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- The manufacturer provides wireless charging equipment for testing and evaluation (Apple Phone, New Apple Wacth), and the wireless load replaces the AirPods Pro Case.



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: U(dP(x)/m) = V(dP(x)/n) + C(dP) = CPA(dP) + AFU(dP(x/m))

 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC [dB] - GPA [dB] + AFH [dB(S/m)]$

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:

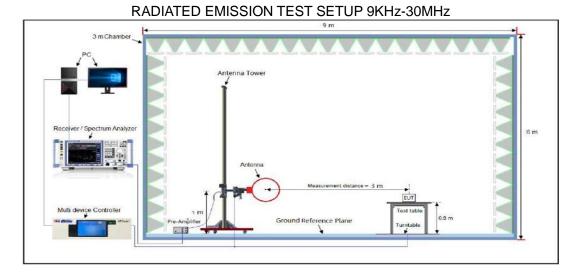
 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC [dB] - GPA [dB] + AFE [dB(m-1)] - 51.5 [dB\Omega]$

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

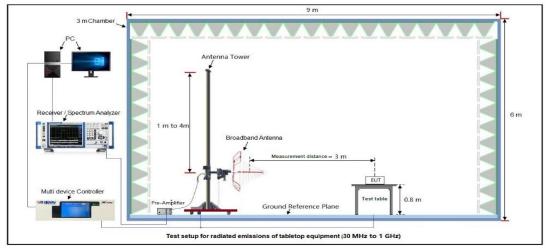
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6.4 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



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

1	ELECTRIC FIELD TEST IN THE FRE	QUEINCT RAINGE SKITZ	-IJUKHZ
EUT	4-in-1 Modular Charging Station	Model Name	ZEAPMO3/00
Temperature	22° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Face
130.0 dBuV/r	n		
			Limit: — Margin: —
70			a
			×
100	1	3 4	
(CONTRACTOR)	a manufacture and the supermedian	wert the and applied and wert hat sign	Mr. warmen
10.0			
0.009	(MHz)		0.150

No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	0.0119	7.94	28.20	36.14	125.3	-89.17	peak
2	0.0240	2.02	27.29	29.31	119.6	-90.32	peak
3	0.0480	4.06	25.50	29.56	114.0	-84.46	peak
4	0.0690	6.70	23.93	30.63	111.0	-80.45	peak
5	0.1101	6.63	21.60	28.23	107.3	-79.07	peak
6 *	0.1471	46.19	21.53	67.72	104.9	-37.23	peak

RESULT: PASS



	4-in	-1 Modular C	Charging St	ation	Model Na	ne	ZE	APMO3/00
Femperature	22°	С			Relative H	lumidity	55	%
Pressure	960	hPa			Test Volta	ge	No	rmal Volta
Fest Mode	Moc	le 1			Antenna		Sic	le
100.0	lBuV/m							
130.0	18 UV7 IN							Limit: — Margin: —
								_
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10.0	Windling	MMMAN	an and the second s	r	Margan	www.www.	www	
	Windhy	manapapan	an a	(MHz)	may and work	VAN ANNA	Manghan	MmAM 0.150
10.0	Www.how	Manapa		(MHz)			an a	
10.0	No. M		Reading Level	r	Measure- ment		Over	
10.0			Reading	(MHz) Correct	Measure-			
10.0		k. Freq.	Reading	(MHz) Correct Factor	Measure- ment	Limit	Over	0.150
10.0	No. M	lk. Freq. MHz	Reading Level dBuV	(MHz) Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	0.150 Detector
10.0	No. M	Ik. Freq. MHz 0.0120	Reading Level dBuV 9.26	(MHz) Correct Factor dB 28.19	Measure- ment dBuV/m 37.45	Limit dBuV/m 125.2	Over dB -87.79	0.150 Detector peak
10.0	No. M	k. Freq. MHz 0.0120 0.0309	Reading Level dBuV 9.26 4.58	(MHz) Correct Factor dB 28.19 26.78	Measure- ment dBuV/m 37.45 31.36	Limit dBuV/m 125.2 117.5	Over dB -87.79 -86.22	0.150 Detector peak peak
10.0	No. M	Ik. Freq. MHz 0.0120 0.0309 0.0354	Reading Level dBuV 9.26 4.58 5.67	(MHz) Correct Factor dB 28.19 26.78 26.44	Measure- ment dBuV/m 37.45 31.36 32.11	Limit dBuV/m 125.2 117.5 116.4	Over dB -87.79 -86.22 -84.37	0.150 Detector peak peak peak

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

RESULT: PASS



EUT	4-in-1	Modular C	Charging St	ation	Model Nar	ne	ZE	EAPMO3	/00
Temperature	22° C	;			Relative H	umidity	55	5%	
Pressure	960hF	' a			Test Voltag	ge	N	ormal Vo	ltage
Test Mode	Mode	1			Antenna		Fa	ace	
50								Limit: Margin: 	
hilly	in Myrm r	4	hr.m.huslayir	nandudinan	and the plant	na ana	h-Million	Animatica Maria	ANIA
1		4	hr-mhuila _{gh} r	(MHz)	n.M.M		h-mmm		.√\\\\\ 30.000
-10		WAT MANN	Reading Level				Over		
-10	W. W. on Mr	0.5	Reading	(MHz)	Measure-				30.000
-10	No. Mk.	0.5 Freq. 0.1547	Reading Level dBuV 3.90	(MHz) Correct Factor dB 21.52	Measure- ment dBuV/m 25.42	Limit dBuV/m 104.5	Over dB -79.09	Detector	30.000
-10	No. Mk.	0.1547 0.3234	Reading Level dBuV 3.90 23.80	(MHz) Correct Factor dB 21.52 21.21	Measure- ment dBuV/m 25.42 45.01	Limit dBuV/m 104.5 97.66	Over dB -79.09 -52.65	Detector	30.000
-10	No. Mk.	0.5 Freq. MHz 0.1547 0.3234 0.3613	Reading Level dBuV 3.90 23.80 23.32	(мнг) Correct Factor dB 21.52 21.21 21.14	Measure- ment dBuV/m 25.42 45.01 44.46	Limit dBuV/m 104.5	Over dB -79.09 -52.65 -52.17	Detector peak peak peak	30.000
-10	No. Mk.	0.1547 0.3234	Reading Level dBuV 3.90 23.80	(MHz) Correct Factor dB 21.52 21.21	Measure- ment dBuV/m 25.42 45.01	Limit dBuV/m 104.5 97.66	Over dB -79.09 -52.65 -52.17 -70.00	Detector peak peak peak	30.000
-10	No. Mk.	0.5 Freq. MHz 0.1547 0.3234 0.3613	Reading Level dBuV 3.90 23.80 23.32	(мнг) Correct Factor dB 21.52 21.21 21.14	Measure- ment dBuV/m 25.42 45.01 44.46	Limit dBuV/m 104.5 97.66 96.63	Over dB -79.09 -52.65 -52.17	Detector peak peak peak	30.000

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

RESULT: PASS



EUT			harging Sta		Model Nan			APMO3/0	0
Temperature	22° C				Relative Humidity			%	
Pressure	960hPa	a			Test Voltag	je	No	rmal Volta	ige
Test Mode	Mode 1	1			Antenna		Sic	le	
110.0 dBu 50 -10 0.150	NON NON	0.5		(MHz)	YuryuMyM 5				
-	No. Mk. 1 2 3 4 5 *	Freq. MHz 0.1539 0.3266 0.3613 0.5262 1.9079	Reading Level dBuV 2.96 23.54 25.09 -1.15 -2.33	Correct Factor dB 21.52 21.20 21.14 20.90 22.03	Measure- ment dBuV/m 24.48 44.74 46.23 19.75 19.70	Limit dBuV/m 104.5 97.57 96.63 73.18 69.54	Over dB -80.08 -52.83 -50.40 -53.43 -49.84	Detector peak peak 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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т		4-in-1	Modular C	Charging Station	Model Name		ZEAF	ZEAPMO3/00	
nperature		22° C				Relative Humidity		55%	
ssure		960hF	DhPa Test Voltage Norma		Normal Voltage				
t Mode		Mode	1		Antenna		Horiz	ontal	
72.0 dl	Bu∀/m								
							Limit: Margin:	_	
								f	
								4. yrs	
32			2 3 4		5	S .	have when the sea	W. Allanda and	
6		Ť MM		- MA Mul	Munning	w Whenterhand	hand		
MY	M	mV.		man May man					
-8	V ^M	m/V		mond a new prove					
-8 30.000	40	50 60	70 80	(MHz)	300	400	500 600 700	1000.000	
	40	50 60	70 80	(MHz)			500 600 700	1000.000	
30.000	40 Mk.	50 60 Freq.		(MHz)	300 Measure- ment		500 600 700 Over	1000.000	
30.000			70 80 Readin	(MHz)	Measure-		Over	0 1000.000	
30.000	Mk.	Freq.	70 80 Readin Level	(MH₂) ng Correct Factor dB	Measure- ment	Limit	Over		
30.000 No.	Mk.	Freq. MHz	70 80 Readin Level dBuV	(MHz) ing Correct Factor dB 6.90	Measure- ment dBuV/m	Limit dBuV/n	Over n dB	Detector	
30.000 No.	Mk.	Freq. MHz 54.2610	70 80 Readin Level dBuV 17.54	(MHz) mg Correct Factor dB 6.90 18.60	Measure- ment dBuV/m 24.44	Limit dBuV/n 40.00	Over n dB -15.56	Detector peak	
30.000 No.	Mk.	Freq. MHz 54.2610 72.3376	70 80 Readin Level dBuV 17.54 8.44	(MHz) (MHz) ng Correct Factor dB 6.90 18.60 3 16.94	Measure- ment dBuV/m 24.44 27.04	Limit dBuV/n 40.00 40.00	Over n dB -15.56 -12.96 -12.68	Detector peak peak	
30.000 No. 1 2 3	Mk.	Freq. MHz 54.2610 72.3376 80.6442	70 80 Readin Level dBuV 17.54 8.44 10.38	(MHz) (MHz) ng Correct Factor dB 6.90 18.60 16.94 3 16.87	Measure- ment dBuV/m 24.44 27.04 27.32	Limit dBuV/n 40.00 40.00	Over n dB -15.56 -12.96 -12.68 -16.60	Detector peak peak peak	

DADIATED EMISSION DEL OW 104-

RESULT: PASS



	RADIATED	EMISSION E	ELOW 1GH	z		
UT	4-in-1 Modular Charg	ing Station	Model Name Relative Humidity		ZEAPI	MO3/00
emperature	22° C				55%	55%
ressure	960hPa		Test Voltag	ge	Norma	al Voltage
est Mode	Mode 1 Anter				Vertica	al
72.0 dBuV/m						
					Limit: Margin:	
32 -8 30.000 40 5		5 6 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	300	400 500	600 700	1000.000
No. Mk.	Reading Freq. Level	Correct Factor	Measure- ment	Limit	Over	
	MHz dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1 3	30.7454 20.49	13.18	33.67	40.00	-6.33	peak
2 5	56.3947 11.98	16.61	28.59	40.00	-11.41	peak
	17.7724 15.83	18.42	34.25	43.50	-9.25	, peak
	27.2176 14.73	20.87	35.60	43.50	-7.90	peak
	35.5062 14.37	23.05	37.42	43.50	-6.08	, peak
6 18	82.5592 12.95	17.61	30.56	43.50	-12.94	peak

ADIATED EMICCION DEL OW ACH

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	0.1471	0.814	0.936	N/A	Pass				
ASK	0.3600	0.805	0.950	N/A	Pass				
ASK	0.3265	0.805	0.913	N/A	Pass				





Test Graphs of Occupied Bandwidth

Test Graphs of Occupied Bandwidth









8. AC POWER LINE CONDUCTED EMISSION TEST

8.1 LIMITS OF LINE CONDUCTED EMISSION TEST

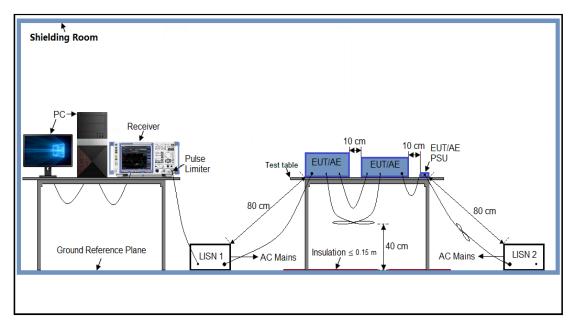
En anno an	Maximum RF Line Voltage					
Frequency	Q.P. (dBµV)	Average (dBµV)				
150kHz~500kHz	66-56	56-46				
500kHz~5MHz	56	46				
5MHz~30MHz	60	50				

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 24V 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.

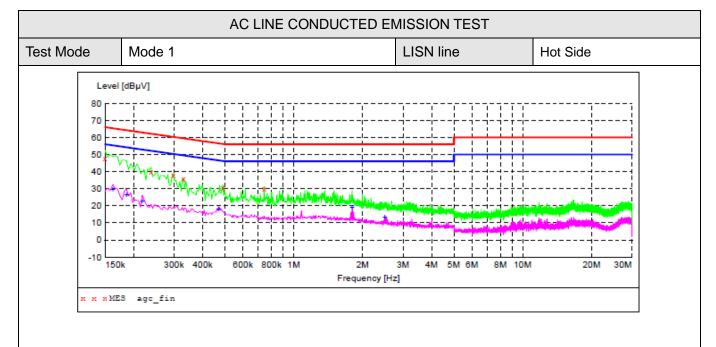
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

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"

2022/8/19 0: Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.150000	47.70	6.9	66	18.3	QP	L1
0.238000	40.10	6.3	62	22.1	QP	L1
0.298000	38.20	6.0	60	22.1	QP	L1
0.330000	36.00	5.9	60	23.5	QP	L1
0.490000	30.60	5.4	56	25.6	QP	L1
0.742000	30.20	5.4	56	25.8	QP	L1

MEASUREMENT RESULT: "agc fin2"

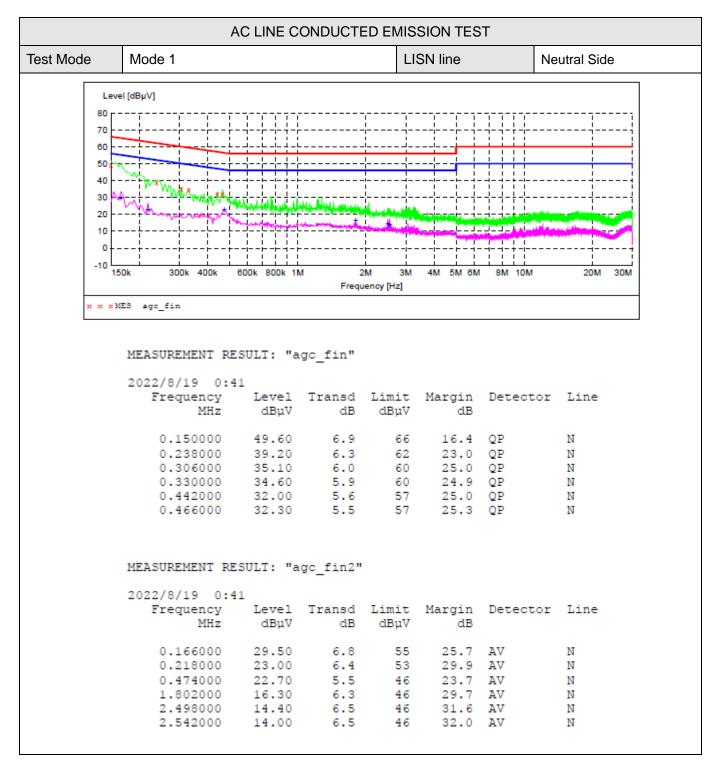
2022/8/19	0:44							
Frequen M	icy IHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	
0.1620	00	29.70	6.8	55	25.7	AV	L1	1
0.1860	00	26.60	6.6	54	27.6	AV	L1	1
0.2180	00	22.60	6.4	53	30.3	AV	L1	1
0.4700	00	17.90	5.5	47	28.6	AV	L1	1
1.7980	00	19.20	6.3	46	26.8	AV	L1	1
2.4980	00	13.30	6.5	46	32.7	AV	L1	1

RESULT: PASS

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RESULT: PASS



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APPENDIX I: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC02129220803AP02

APPENDIX II: PHOTOGRAPHS OF TEST EUT

Refer to the Report No.: AGC02129220803AP03

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



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