MPE TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Mobile Phone

ISSUED TO
Guangdong OPPO Mobile Telecommunications Corp., Ltd.

NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

Tested by: Xu Rui
Date Feb. 07, 2022

Approved by: Wei Yanquan
(Chief Engineer)
Date Feb. 07, 2022

Report No.:	BL-SZ2190589-702
EUT Name:	Mobile Phone
Model Name:	CPH2307
Brand Name:	OPPO
Test Standard:	47 CFR Part 1.1307
	47 CFR Part 1.1310
FCC ID:	R9C-CPH2307
Test Conclusion:	Pass
Test Date:	Jan. 20, 2022
Date of Issue:	Feb. 07, 2022

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Jan. 27, 2022	Initial Issue
Rev. 02	Feb. 07, 2022	Revised the description for EUT stage in page 6. Revised the description for EUT charging mode in page 11.

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China.
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Test Environment Condition

Ambient Temperature	21 to 23 ℃
Ambient Relative Humidity	40 to 50%
Ambient Pressure	100 to 102 KPa

1.4 Announce

(1) The test report reference to the report template version v1.2.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) 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.

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

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

2.2 Manufacturer Information

Manufacturer	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

2.3 Factory Information

Factory	Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address	NO.18 Haibin Road, Wusha Village, Chang'an Town, Dongguan City, Guangdong, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Phone
Model Name Under Test	CPH2307
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	0
Software Version	ColorOS V12.1
Dimensions (Approx.)	160.3*72.6*8.68mm
Weight (Approx.)	196g (with battery)

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	OPPO
	Model No.	BLP891
	Serial No.	N/A
	Capacity	Rated: 2340mAh/18.11Wh Typical: 2400mAh/18.57Wh
	Rated Voltage	7.74 V
	Limit Charge Voltage	8.90 V

2.6 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EDGE 850/1900 MHz 3G Network WCDMA/HSDPA/HSUPA/DC-HSDPA/HSPA+ Band 2/4/5 4G Network LTE FDD Band 2/4/5/7/12/13/17/25/26/66 LTE TDD Band 38/41 LTE CA Uplink (UL): CA_7C, CA_38C, CA_41C 5G Network SA: NR n5/n7/n12/n13/n26/n38/n41/n66 NSA: DC_5A_n7A, DC_7A_n5A, DC_7A_n66A, DC_25A_n41A, DC_26A_n41A, DC_66A_n7A Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20/40), 802.11ac(VHT20/40), 802.11ax(HE20/40) 5G WIFI 802.11a, 802.11n(HT20/40), 802.11ac(VHT20/40/80/160), 802.11ax(HE20/40/80/160) U-NII-1/2A/2C/3 GPS, GLONASS, Beidou, Galileo, NFC, QI

The requirement for the following technical information of the EUT was tested in this report:

Operating Frequency	110 ~ 148.5 kHz	
Antenna Type	Coil Antenna	
About Product	Only Qi was tested in this report.	
Exposure Category	General Population/Uncontrolled exposure	
EUT Stage	Mobile Device	
Product	Type	
	☒ Production unit	☐ Identical prototype

3 STANDARD INFORMATION

3.1 Test Standard

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	KDB 680106 D01	RF Exposure Considerations for Low Power Consumer Wireless Power Transfer Applications

3.2 Radiofrequency Radiation Exposure Limit

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW / cm ^{2})	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f^2	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f^2	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30
*f = frequency in MHz * = Plane-wave equivalent power density*				

NOTE:

Limits: According KDB 680106 D01, emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

General Population/Uncontrolled Exposure: Locations where there is the exposure of individuals who have no knowledge or control of their exposure. General population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Occupational/Controlled Exposure: Locations where there is exposure that may be incurred by persons who are aware of the potential for exposure. In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

3.3 Measurement Uncertainly

Measurement uncertainly evaluation for electric filed strength and magnetic filed strength test

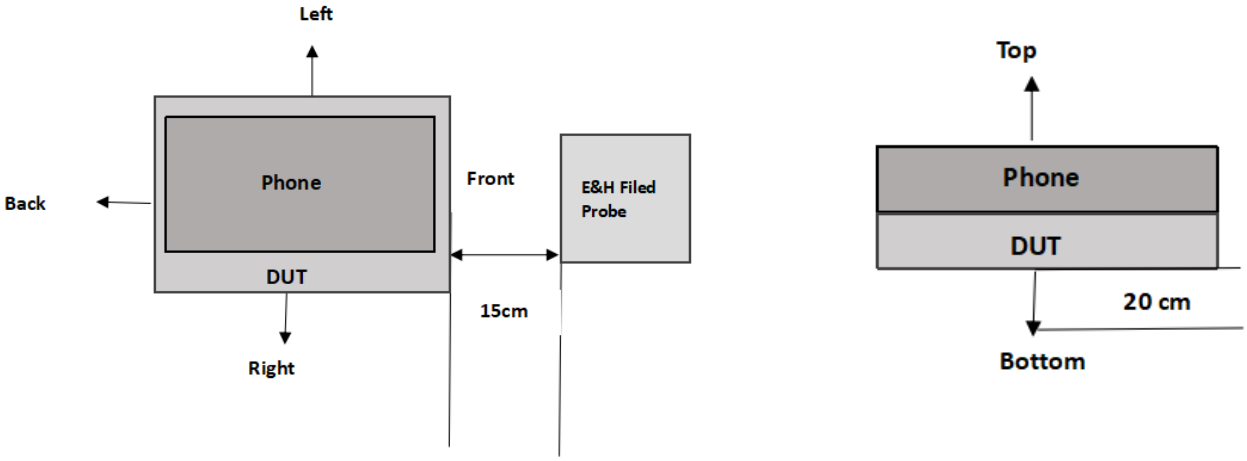
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Electric Filed Strength	1.13 dB
Magnetic Filed Strength	1.18 dB

4 TEST SETUP

4.1 Test Setup Photo

Maximum H-field and E-filed measurements were made on each of five sides of the EUT that could come in contact with a user. The five sides are defined as follows: Front, Back, Left, Right, Top and Bottom. Refer to the test position diagram below.



4.2 Measurement procedure

1. The RF exposure test was performed in anechoic chamber.
2. The measurement probe was placed at test distance 15 cm for Front, Back, Left, Right and 20cm for Top and Bottom which is between the edge of the charger and the geometric edge of probe.
3. The highest emission level was recorded and compared with limit as soon as measurement of each points were completed.
4. The EUT was measured according the dictates of KDB 680106 D01v03r01.

4.3 Mobile Condition

Probe	Condition	Test Distance (cm) Front, Back, Left, Right	Test Distance (cm) Top, Bottom
H-field	Mobile	15	20
E-field	Mobile	15	20

4.4 Equipment Approval Considerations item 5.2 of KDB 680106 D01 v03r01.

1. Power transfer frequency is less than 1 MHz.
   - The device operates at a frequency 110KHz ~ 148.5 kHz

2. Output power from each primary coil is less than or equal to 15 watts.
   - Output power from primary coil 10 watts.

3. The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.
   - The transfer system including a charging system with one coils that is able to detect receiver device.

4. Client device is placed directly in contact with the transmitter.
   - Client device is placed directly in contact with the transmitter.

5. Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).
   - According safety guide, on the wireless power sharing function this this DUT should be operate with a minimum distance of 20cm between the DUT and human body, so this EUT only support mobile exposure condition.

6. The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
   - Refer to following test results.
   The EUT E-Field Strength levels at 15 cm < 50 % of the MPE E-Field Strength limit 307.0 V/m
   0.399 V/m (Max. at 15 cm) < 307 V/m
   The EUT H-Field Strength levels at 15 cm< 50 % of the MPE H-Field Strength limit
   0.068 A/m (Max. at 15 cm) < 0.815 A/m

4.5 Test Equipment

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
E&H-field Probe	Narda	EPH-200A	180ZX10220	2021.08.02	2022.08.01
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20
Mobile	Apple	iphone 13 Pro	HQN3LPVFXH	N/A	N/A

4.6 Test Configuration

To check all kinds of possible modes, the EUT was support reverse charging function, so the EUT was evaluated in reverse charge mode with appropriate client and under each charging condition as the below table:

Test Mode NO.	Description	
1	Charging Mode	EUT(reverse charging mode) + Mobile Phone which has Less than 10 % of battery
2	Charging Mode	EUT(reverse charging mode) + Mobile Phone which has Less than 50 % of battery
3	Charging Mode	EUT(reverse charging mode) + Mobile Phone which has 90 % of battery

5 TEST RESULT

5.1 H-field

Distance (cm)	Test Mode	EUT Edges						Limit (A/m)
		Front (A/m)	Back (A/m)	Left (A/m)	Right (A/m)	Bottom (Screen) (A/m)	Top (A/m)	
15	1	0.060	0.066	0.058	**0.068**	--	--	1.63
15	2	0.059	0.061	0.060	0.063	--	--	
15	3	0.066	0.061	0.062	0.066	--	--	
20	1	--	--	--	--	0.057	0.060	
20	2	--	--	--	--	0.059	0.057	
20	3	--	--	--	--	0.055	0.061	

5.2 E-field

Distance (cm)	Test Mode	EUT Edges						Limit (V/m)
		Front (V/m)	Back (V/m)	Left (V/m)	Right (V/m)	Bottom (Screen) (V/m)	Top (V/m)	
15	1	0.385	0.038	0.384	0.385	--	--	614
	2	0.393	0.041	0.375	**0.399**	--	--	
	3	0.366	0.045	0.388	0.397	--	--	
20	1	--	--	--	--	0.365	0.355	
20	2	--	--	--	--	0.351	0.363	
20	3	--	--	--	--	0.377	0.346	

6 Test Conclusion

6.1 H-field

Distance (cm)	Worst-case Test Mode	EUT Edge Right (A/m)	Limit (A/m)	50% Limit (A/m)	Verdict
15	1	0.068	1.63	0.815	Pass

6.2 E-field

Distance (cm)	Worst-case Test Mode	EUT Edge Right (V/m)	Limit (V/m)	50% Limit (V/m)	Verdict
0	1	0.399	614	307	Pass

According KDB 680106 D01v03r01, the EUT is compliant with the 50% of the MPE limits.

Note: Test setup photos please refer the document “BL-SZ2190589-AS-2 SAR test setup photo.pdf”.

--END OF REPORT--