



WPT TEST REPORT

No. 24T04Z101591-014

for

Guangdong OPPO Mobile Telecommunications Corp., Ltd.

Mobile Phone

Model Name: CPH2659

FCC ID: R9C-OP23216

with

Hardware Version: 11

Software Version: Color OS 15.0

Issued Date: 2024-09-19

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

CTTL-Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04Z101591-014	Rev.0	1 st edition	2024-09-19

Note: the latest revision of the test report supersedes all previous version.

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1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China 100191

1.3. Testing Environment

Normal Temperature: 15-35°C
Extreme Temperature: -10/+55°C
Relative Humidity: 20-75%

1.4. Project data

Testing Start Date: 2024-09-18
Testing End Date: 2024-09-18

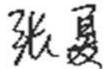
1.5. Signature



Wang Xue
(Prepared this test report)



Zhang Ying
(Reviewed this test report)



Zhang Xia
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address /Post: NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City,
Guangdong Province, P.R. China
Contact: Xiong Bo
Telephone: (86)76986076999
E-Mail: xiongbo@oppo.com

2.2. Manufacturer Information

Company Name: Guangdong OPPO Mobile Telecommunications Corp., Ltd.
Address /Post: NO.18 HaiBin Road, Wusha Village, Chang'an Town, DongGuan City,
Guangdong Province, P.R. China
Contact: Xiong Bo
Telephone: (86)76986076999
E-Mail: xiongbo@oppo.com

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Mobile Phone
Model name	CPH2659
FCC ID	R9C-OP23216
WPT traffic frequency	135kHz-148.5kHz

3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	866185070033131	11	Color OS 15.0
EUT2	866185070033115	11	Color OS 15.0

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

AE ID*	Description	Model	Manufacture
AE1	Battery	BLPB05	Dongguan NVT Technology Co., Ltd

*AE ID: is used to identify the test sample in the lab internally.

3.4. EUT set-ups

EUT set-up No.	Combination of EUT and AE	Remarks
Set.WPT1	EUT1 + AE1 + AE2 + EUT2	WPT mode

4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

EUT parameters are supplied by the customer, which are the bases of testing. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results (for example, antenna gain and loss of customer supplied cable).

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
47 CFR Part15	Wireless Power Transfer Devices	2023

For devices authorized under Part 18 such load modulation may not be used to communicate any other information, such as prioritization of devices for charging and the transfer of any other data, for example extended system data, images or music. For such designs, both Part 15 and Part 18 requirements must be satisfied for equipment approval. Similarly, devices that use a secondary frequency for load management, control and data functions must be authorized according to both Part 15 and Part 18 requirements, as appropriate.

5. Test Results

5.1. Abbreviations

Abbreviations used in this clause:		
Verdict Column	P	Pass
	F	Fail
	BR	Re-use test data from basic model report.
	NA	Not applicable
	NM	Not measured

5.2. Summary of Measurement Results of Emissions

See **ANNEX C** for detail.

TEST ITEMS	Sub-clause	VERDICT	Test Location
Occupied Bandwidth	2.1049	P	CTTL(huayuan North Road)
Radiated emission	15.205	P	CTTL(huayuan North Road)
Conducted emission	15.207	NA	/

Test Conditions:

For this report, all the test cases listed above were tested under normal Temperature, Voltage, humidity and Air Pressure except the Frequency Tolerance test case.

6. Test Facilities Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1.	Loop Antenna	HFH2-Z2	829324/007	R&S	2025-01-04	1 Year
2.	Test Receiver	ESW 44	103015	R&S	2025-01-18	1 Year
3.	EMI Antenna	VULB9163	01222	Schwarzbeck	2025-07-30	1 Year

Test Item	Test Software	Software Vendor
Radiated Emission	EMC32 V11.50.00	R&S

7. Measurement Uncertainty

Location 1: CTTL(huayuan North Road)

Test item	Frequency ranges	Measurement uncertainty(k=2)
Radiated Emission	9kHz-30MHz	4.92dB(k=2)
	30MHz-1GHz	4.72dB(k=2)

ANNEX A: EUT parameters

Disclaimer: The antenna gain (for example, antenna gain and loss of customer supplied cable) provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom. CAICT is not responsible for the accuracy of customer supplied technical information that may affect the test results.

ANNEX B: Detailed Test Results

B.1 Measurement Methods

B.1.1. Radiated Measurement Methods

B.1.1.1. Reference ANSI C63.10-2013

Test Condition

Set the unlicensed wireless device to operate in continuous transmit mode. For unlicensed wireless devices unable to be configured for 100% duty cycle even in test mode, configure the system for the maximum duty cycle supported.

When required for unlicensed wireless devices, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Test Setup

Tabletop devices shall be placed on a non-conducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane.

At frequencies below 30 MHz, the measurement antenna shall be positioned with its plane perpendicular to the ground at the specified distance. When perpendicular to the ground plane, the lowest height of the magnetic antenna shall be 1 m above the ground and shall be positioned at the specified distance from the EUT. When the EUT contains a loop antenna that can only be placed in a vertical axis, normal measurements shall be made aligning the measurement antenna along the site axis, and then orthogonal to the axis. For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable. When the EUT contains a loop antenna that can be placed in a horizontal or vertical axis, normal measurements shall be made aligning the measurement antenna along the site axis, orthogonal to the axis, and then with the measurement antenna horizontal. For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

At frequencies at or above 30 MHz, the measurements shall be made with the antenna positioned in both horizontal and vertical of polarizations. The measurement antenna shall be varied in height above the reference ground plane to obtain the maximum signal strength. The measurement antenna height shall be varied from 1 m to 4 m. These height scans apply for both horizontal and

vertical polarizations, except that for vertical polarization, the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the lowest antenna element clears the site reference ground plane by at least 25 cm.

Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required. For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of test. If either antenna height or EUT azimuth are not fully measured during exploratory testing, then complete testing can be required at the OATS or semi-anechoic chamber when the final full spectrum testing is performed.

Final radiated emissions measurements

The final measurements are using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement.

For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The any unwanted emissions level shall not exceed the fundamental emission level.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100KHz/300KHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

B.2. Test Result

B.2.1 Occupied Bandwidth

Reference

See Clause 6.4, 6.5 of ANSI C63.10-2013 generally.

See 47 CFR Part 2: 2.1049

Measurement Result:

Set up	Mode	Graph Result
Set.WPT1	WPT mode	See Fig. 1

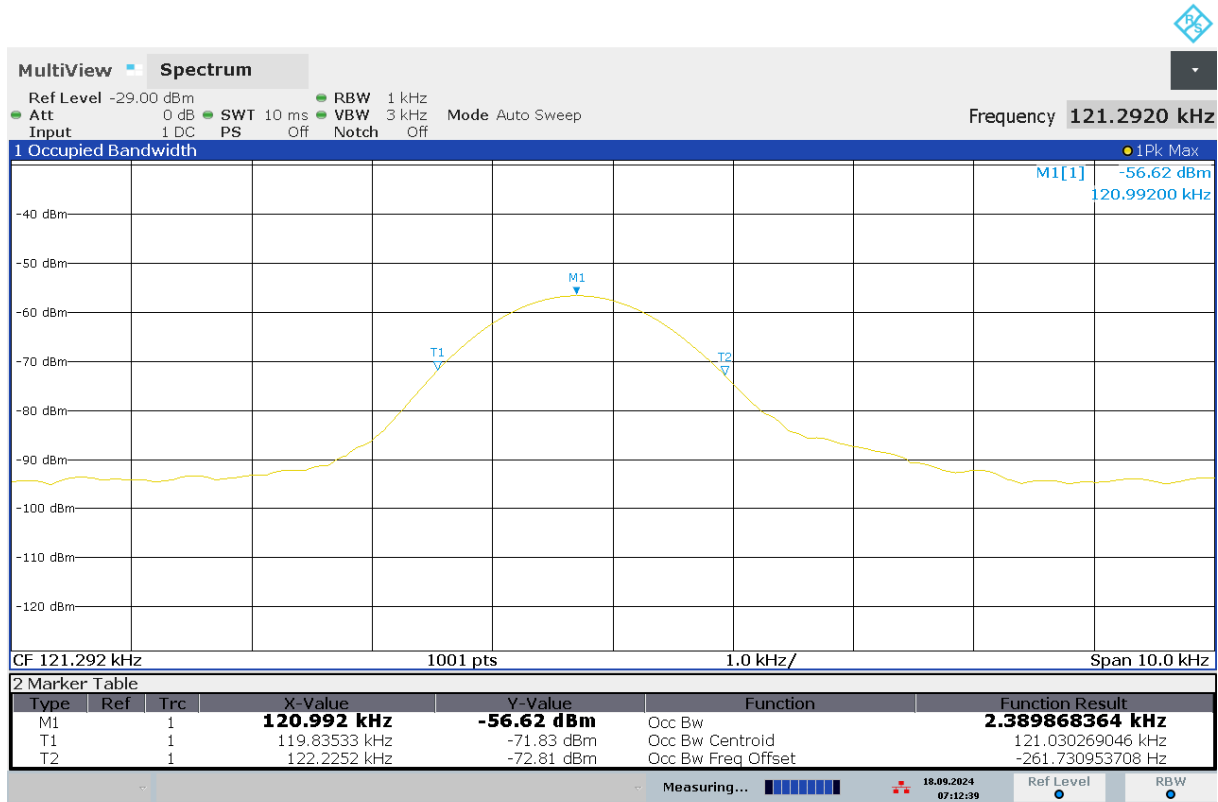


Fig. 1 Occupied Bandwidth (Set.WPT1)

B.2.2 Radiated Emission

Reference

See Clause 6.4, 6.5 of ANSI C63.10-2013 generally.

See 47 CFR Part15: 15.205, 15.209

Limit:

Frequency (MHz)	Field strength(μ V/m)	Measurement distance (m)	E-field Strength Limit @ 3m (dB μ V/m)
0.009 - 0.490	2400/F(kHz)	300	129-94
0.490 - 1.705	24000/F(kHz)	30	74-63
1.705 – 30.0	30	30	70

Frequency of emission (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	E-field Strength Limit @ 10m (dB μ V/m)
30–88	100	3	30
88–216	150	3	33.5
216–960	200	3	36
Above 960	500	3	44

Measurement Result:

Set up	Frequency range	Mode	Conclusion	Graph Result
Set.WPT1	0.009 - 30.0 MHz	WPT	P	See Fig. 2

Set up	Frequency range	Mode	Conclusion	Graph Result
Set.WPT1	30.0 MHz-1GHz	WPT	P	See Fig. 3

*For the test results, only the worst cases were shown in test report.

Full Spectrum

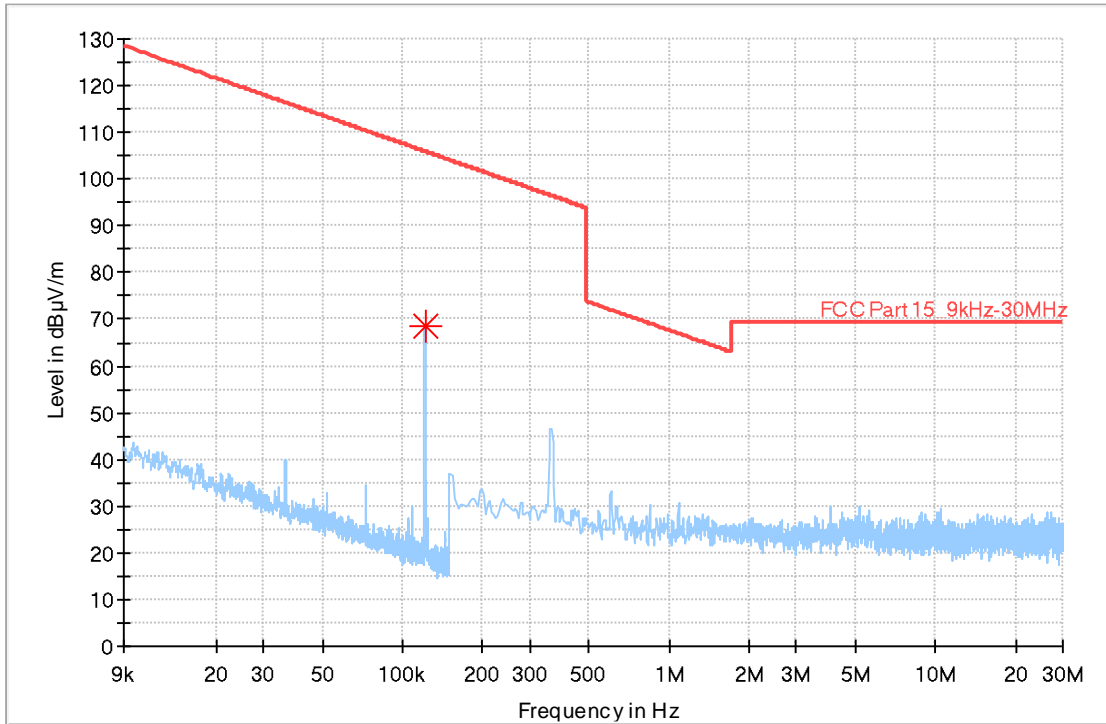


Fig. 2 Radiated Emission (Set.WPT1)

Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Pol	Azimuth (deg)	Corr. (dB/m)
0.121292	68.45	105.92	37.47	---	V	270.0	

Full Spectrum

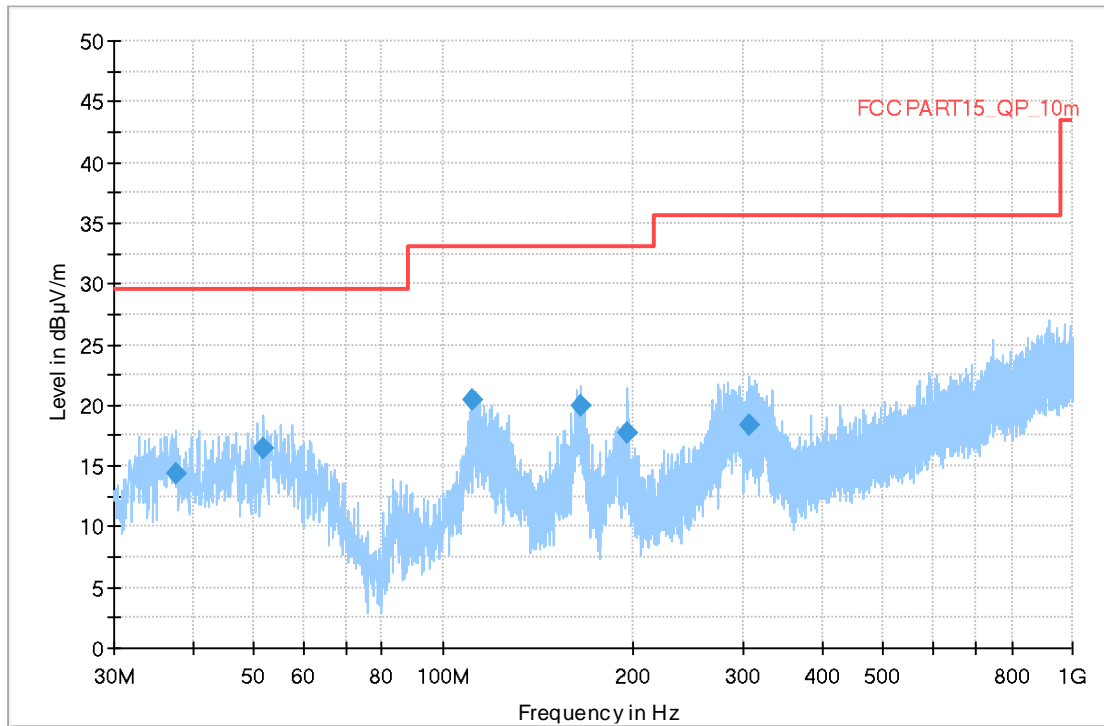


Fig. 3 Radiated Emission (Set.WPT1)

Critical_Freqs

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
37.566000	14.31	29.54	15.23	120.000	225.0	V	45.0
51.873500	16.42	29.54	13.12	120.000	110.0	V	45.0
111.043500	20.37	33.06	12.69	120.000	176.0	V	-7.0
165.363500	20.00	33.06	13.06	120.000	101.0	V	-7.0
195.773000	17.72	33.06	15.34	120.000	125.0	V	69.0
307.371500	18.39	35.56	17.17	120.000	104.0	V	47.0

ANNEX C: Persons involved in this testing

Test Item	Tester
Occupied Bandwidth	Zhang Tianli
Radiated Emission	Zhang Tianli

ANNEX D: Antenna Requirements

According to FCC 47 CFR § 15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section."

- (1) The antennas of the EUT are permanently attached.
- (2) The EUT complies with the requirement of §15.203.

*****END OF REPORT*****