

TEST REPORT

Report No.: BCTC2504944206-11E

Applicant: Shenzhen Huafurui Technology Co., Ltd.

Product Name: Smartphone

Test Model: KINGKONG ES 3

Tested Date: 2025-04-09 to 2025-05-26

Issued Date: 2025-05-30

Shenzhen BCTC Testing Co., Ltd.



Product Name: Smartphone

Trademark: CUBOT

Model/Type reference: KINGKONG ES 3

Prepared For: Shenzhen Huafului Technology Co., Ltd.
Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China

Address:

Manufacturer: Shenzhen Huafului Technology Co., Ltd.
Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China

Address:

Prepared By: Shenzhen BCTC Testing Co., Ltd.
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Address:

Sample Received Date: 2025-04-09

Sample tested Date: 2025-04-07 to 2025-05-21

Issue Date: 2025-05-30

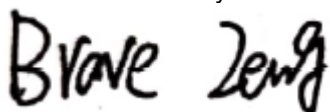
Report No.: BCTC2504944206-11E

Test Standards: ETSI EN 303 413 V1.2.1 (2021-04)

Test Results: PASS

Remark: This is GPS radio test report.

Tested by:



Brave Zeng/ Project Handler

Approved by:



Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

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(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2504944206-11E	2025-05-30	Original	Valid

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2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No	Results
1	Adjacent signal selectivity	4.2.1	PASS
2	Spurious emissions	4.2.2	PASS



3. Product Information And Test Setup

3.1 Product Information

Model/Type reference:	KINGKONG ES 3
Model differences:	N/A
GPS:	Support
Hardware Version:	S17F-MB-V2.0
Software Version:	CUBOT_KINGKONG_ES_3_F071C_V01
Operation Frequency:	GPS: 1.57542GHz
Antenna Type:	GPS: Internal antenna 4.85 dBi
Antenna Gain:	Remark: <input checked="" type="checkbox"/> The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information. <input type="checkbox"/> The antenna gain of the product is provided by the customer, and the test data is affected by the customer information.
Ratings:	DC 9V from adapter/DC 3.87V from battery
Adapter 1 Information:	Model: TD-203G200170VF01 Input: 100-240V~50/60Hz 0.6A Output: DC 5V 3A DC 9V 3A DC 12V 2.5A DC 15V 2A DC 20V 1.5A PPS: 3.3V-16V/2A 3.3V-11V/3A Total output power: 33W Max
Adapter 2 Information:	Model: HJ-PD33W-EU Input: 100-240V~50/60Hz 0.8A Output: DC 5.0V 3.0A 15.0W OR DC 9.0V 3.0A 27.0W OR DC 12.0V 2.75A 33.0W MAX.

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	Yes/No	---
2	--	--	BCTC	--	Yes/No	--

3.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

3.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1.	Adapter	/	TD-203G200170VF01	---	---
2.	Adapter	/	HJ-PD33W-EU	---	---
3.	TF card	SanDisk	32G		

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3.4 Channel List

N/A

3.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test Mode	Channel Frequency	Test Voltage
Rx	1.57542GHz	DC 3.87V

4. Test Facility and test Instrument Used

4.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

4.2 Test Instrument Used

Radiated Emissions Test (966 Chamber#01)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026
Receiver	R&S	ESRP	101154	May 16, 2024	May 15, 2025
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 16, 2024	May 15, 2025
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 16, 2024	May 15, 2025
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	May 21, 2024	May 20, 2025
Horn Antenna	schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2025
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Radiated Emissions Test (966 Chamber#01)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026
Receiver	R&S	ESRP	101154	May 14, 2025	May 13, 2026
Receiver	R&S	ESR	102075	May 08 2025	May 07, 2026
Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 14, 2025	May 13, 2026
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 14, 2025	May 13, 2026
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	May 21, 2024	May 20, 2026
Horn Antenna	schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2026
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

RF Conducted Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power metter	Keysight	E4419	\	May 16, 2024	May 15, 2025
Power Sensor (AV)	Keysight	E9300A	\	May 16, 2024	May 15, 2025
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 16, 2024	May 15, 2025
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 16, 2024	May 15, 2025
Radio frequency control box	MAIWEI	MW100-RFC B	\	\	\
Software	MAIWEI	MTS 8310	\	\	\

RF Conducted Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Power metter	Keysight	E4419	\	May 14, 2025	May 13, 2026
Power Sensor (AV)	Keysight	E9300A	\	May 14, 2025	May 13, 2026
Signal Analyzer20kHz-26.5GHz	Keysight	N9020A	MY49100060	May 14, 2025	May 13, 2026
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 14, 2025	May 13, 2026
Communication test set	R&S	CMW500	126173	May 14, 2025	May 13, 2026

5. GUE Adjacent Frequency Band Selectivity Performance

5.1 Limit

The C/N0 metric reported by the GUE for all GNSS and GNSS signals given in table 4-1 and supported by the GUE shall not degrade by more than the value given in equation 4-1 when an adjacent frequency signal is applied. The adjacent frequency signal is defined in table 4-4, with the frequencies and power levels defined in table 4-2 and/or in table 4-3 depending on the RNSS bands supported by the GUE.

Equation 4-1: Maximum degradation in C/N0

$$\Delta C/N0 \leq 1 \text{ dB.}$$

Table 4-1: GNSS, GNSS signals and RNSS frequency bands

GNSS	GNSS Signal Designations	RNSS Frequency Band (MHz)
BDS	B1I	1 559 to 1 610
Galileo	E1	1 559 to 1 610
	E5a	1 164 to 1 215
	E5b	1 164 to 1 215
	E6	1 215 to 1 300
GLONASS	G1	1 559 to 1 610
	G2	1 215 to 1 300
GPS	L1	1 559 to 1 610
	L2	1 215 to 1 300
	L5	1 164 to 1 215
SBAS	L1	1 559 to 1 610
	L5	1 164 to 1 215

Table 4-2: Frequency bands, adjacent frequency signal test point centre frequencies and power levels for the 1 559 MHz to 1 610 MHz RNSS band

Frequency band (MHz)	Test point centre frequency (MHz)	Adjacent frequency signal power level (dBm)	Comments
1 518 to 1 525	1 524	-65	MSS (space-to-Earth) band
1 525 to 1 549	1 548	-95	MSS (space-to-Earth) band
1 549 to 1 559	1 554	-105	MSS (space-to-Earth) band
1 559 to 1 610		GUE RNSS band under test	
1 610 to 1 626	1 615	-105	MSS (Earth-to-space) band
1 626 to 1 640	1 627	-85	MSS (Earth-to-space) band

Table 4-3: Frequency bands, adjacent frequency signal test point centre frequencies and power levels for the 1 164 MHz to 1 300 MHz RNSS band

Frequency band (MHz)	Test point centre frequency (MHz)	Adjacent frequency signal power level (dBm)	Comments
960 to 1 164	1 154	-75	AM(R)S, ARNS band
1 164 to 1 215		GUE RNSS band under test	
1 215 to 1 260		GUE RNSS band under test	
1 260 to 1 300		GUE RNSS band under test	
1 300 to 1 350	1 310	-85	Radiolocation, ARNS, RNSS (Earth-to-space) band

Table 4-4: Adjacent frequency signal

Parameter	Value	Comments
Frequency	See table 4-2 and table 4-3	
Power level	See table 4-2 and table 4-3	
Bandwidth	1 MHz	See clause B.1 for details
Format	AWGN	

Annex B contains details of the adjacent frequency signal and the GNSS signals that shall be used in performing the conformance tests. Annex C contains a detailed explanation of the C/N₀ metric. Clause C.3 describes the calculation of the nominal bounding value for the adjacent frequency signal power level at the points closest to the operating band given in table 4-2.

5.2 Test Procedure

- 1) Configure the GNSS signal generator to simulate those GNSS and GNSS signals from table 4-1 declared as supported by the GUE, with power levels and other details as specified in clause B.2.
 - 2) With the adjacent frequency signal switched off, the EUT shall be given sufficient time to acquire all simulated satellites from the declared GNSS system(s).
 - 3) Record the baseline C/N₀ value(s) reported by the EUT. Sufficient filtering shall be used to obtain a stable value. C/N₀ may be averaged across all the satellites in view for each GNSS constellation. However, C/N₀ shall not be averaged across satellite signals in different GNSS constellations. For a multi-GNSS EUT, there shall be a separate C/N₀ value recorded for each GNSS constellation and each GNSS signal supported.
 - 4) The adjacent frequency signal generator shall be configured to generate the signal defined in table 4-4, at the first test point centre frequency and signal power level as specified in table 4-2.
 - 5) The adjacent frequency signal shall be switched on, and the EUT's C/N₀ value(s) recorded as in step 3) to measure the degradation with respect to the baseline value(s) recorded in step 3).
 - 6) Test point Pass/Fail Criteria: If the C/N₀ degradation from step 5) does not exceed the value in equation 4-1, then this test point is set to "pass". If the C/N₀ degradation exceeds the value in equation 4-1, then this test point is set to "fail." For a multi-GNSS and multi-signal EUT, there shall be a separate pass/fail determination for each GNSS and for each GNSS signal supported. If the C/N₀ degradation exceeds the value in equation 4-1 for any supported GNSS or supported GNSS signal, then this test point is set to "fail".
 - 7) Step 1) through step 6) shall be repeated for all test point centre frequencies (and associated signal power level) specified in table 4-2.
- If the EUT passes the C/N₀ degradation test for all test points for all GNSS constellations and all GNSS signals declared as supported from table 4-1, the EUT shall be deemed to "pass". If the C/N₀ degradation test fails for any GNSS constellation or GNSS signal at any of the test points, the EUT shall be deemed to "fail".

5.3 Test Results

Temperature:	26 °C	Relative Humidity:	54%
Test Mode:	RX	Remark:	N/A

Frequency (MHz)	C/N ₀ (dB/Hz)	Adjacent frequency (MHz)	Adjacent frequency signal power level (dBm)	Add adjacent channel signals C/N ₀ (dB/Hz)	ΔC/N ₀ Result (dB)	ΔC/N ₀ Limit (dB)
1575.42	37.5	1524	-65	37.7	0.2	≤1
		1548	-95	37.6	0.1	
		1554	-105	37.8	0.3	
		1615	-105	37.2	0.3	
		1627	-85	37.4	0.1	

6. Receiver Spurious Emissions

6.1 Limit

The spurious emissions of the GUE shall not exceed the values given in table 4-5.

In case of a GUE with an external antenna connector, these limits apply to emissions at the antenna port (conducted).

For emissions radiated by the cabinet or for emissions radiated by a GUE with an integral antenna (without an antenna connector), these limits are e.r.p. for emissions up to 1 GHz and e.i.r.p. for emissions above 1 GHz.

Table 4-5: Spurious emission limits

Frequency range	Maximum power	Bandwidth
30 MHz to 1 GHz	-57 dBm	100 kHz
1 GHz to 8,3 GHz	-47 dBm	1 MHz

6.2 Test Procedure

- 1) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT is compliant with all installation combinations.
- 2) All data was recorded in the peak detection mode if the test data under the limit 6dB.
- 3) Scan from 30M to 9 GHz, find the maximum radiation frequency to measure.
- 4) Test the EUT in continuously receive mode, 1.5m high above groundplane.
- 5) The final qualification test and the configuration was used to represent the worst case results.

6.3 Test Results

Frequency (MHz)	Receiver Reading (dBm)	Turn table Angle Degree	RX Antenna		Correct Factor (dB)	Absolute Level (dBm)	Result	
			Height (m)	Polar (H/V)			Limit (dBm)	Margin (dB)
310.45	-35.58	314	1.1	H	-28.90	-64.48	-57.00	-7.48
310.45	-35.49	261	1.6	V	-28.90	-64.39	-57.00	-7.39
484.63	-35.56	67	1.6	H	-28.21	-63.77	-57.00	-6.77
484.63	-36.93	284	1.8	V	-28.21	-65.14	-57.00	-8.14
2435.48	-37.41	205	1.6	H	-25.29	-62.70	-47.00	-15.70
2435.48	-41.46	150	2.0	V	-25.29	-66.75	-47.00	-19.75
3425.17	-39.72	169	1.7	H	-22.75	-62.47	-47.00	-15.47
3425.17	-39.52	67	1.2	V	-22.75	-62.27	-47.00	-15.27

7. EUT Photographs

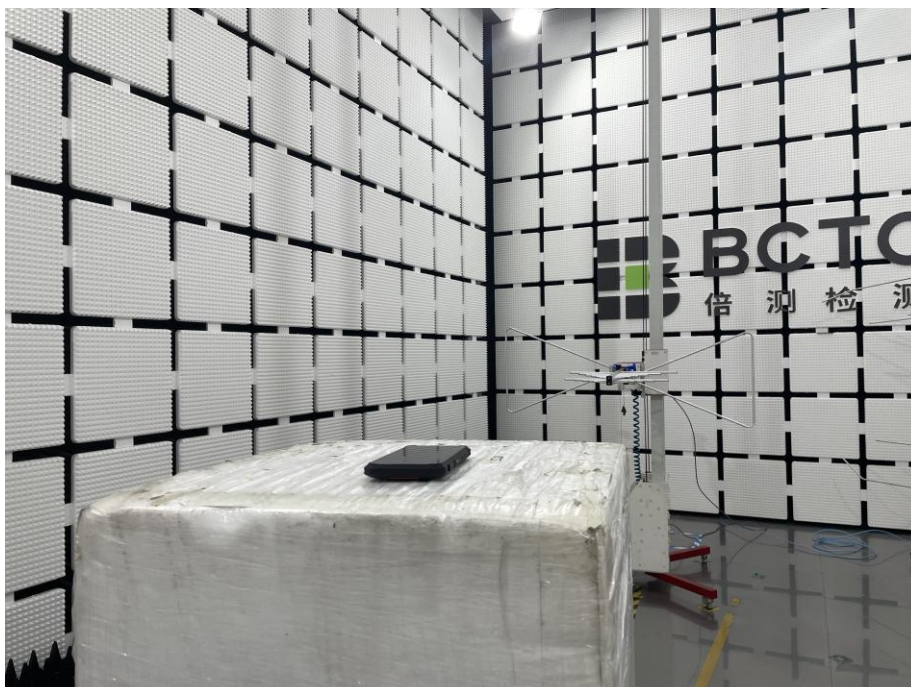
EUT Photo 1



NOTE: Appendix-Photographs Of EUT Constructional Details

8. EUT Test Setup Photographs

GPS



STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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***** END *****