
RF Test Report

Report No.: AGC00552200704EE06

PRODUCT DESIGNATION : Smart Phone
BRAND NAME : CUBOT
MODEL NAME : NOTE 20 PRO
APPLICANT : Shenzhen Huafurui Technology Co., Ltd
DATE OF ISSUE : Jul 24, 2020
STANDARD(S) : ETSI EN 303 413 V1.1.1 2017-06
REPORT VERSION : V1.0

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 24, 2020	Valid	Initial release

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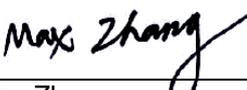
1. TEST REPORT CERTIFICATION

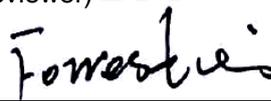
Applicant	Shenzhen Huafurui Technology Co., Ltd.
Address	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen,P.R. China
Manufacturer	Shenzhen Huafurui Technology Co., Ltd.
Address	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen,P.R. China
Factory Name	Shenzhen Huafurui Technology Co., Ltd.
Address	Unit 1401 &1402, 14/F, Jinqi zhigu mansion (No. 4 building of Chongwen Garden), Crossing of the Liuxian street and Tangling road, Taoyuan street, Nanshan district, Shenzhen,P.R. China
Product Designation	Smart Phone
Brand Name	CUBOT
Test Model	NOTE 20 PRO
Date of test	Jul. 13, 2020~Jul. 24, 2020
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-EC-SRD1/RF

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the European Standard ETSI EN 303 413. The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

The test results of this report relate only to the tested sample identified in this report.

Prepared By 
 Calvin Liu
 (Project Engineer) Jul. 24, 2020

Reviewed By 
 Max Zhang
 (Reviewer) Jul. 24, 2020

Approved By 
 Forrest Lei
 (Authorized Officer) Jul. 24, 2020

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2. GENERAL INFORMATION

Details of technical specification refer to the description in follows:

Test Mode	GPS Mode(Only receive)
Hardware Version	LV966_MB_V1.0
Software Version	CUBOT_NOTE 20 PRO_A013C_V02_20200729
Receiver Frequency	(GPS)1575.42MHz
Modulation Type	BPSK
Antenna Gain	1.0dBi
Antenna type	PIFA Antenna
Power Supply	DC 3.85V

Note: For more details, please refer to the user's manual.

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3. MEASUREMENT UNCERTAINTY

All the measurement equipments and accessories have been carefully selected to meet the maximum measurement uncertainty specified below:

Parameters	Uncertainty
Radio frequency	$\pm 1 \cdot 10^{-7}$
Radiated emission of receiver, valid to 26.5GHz	$\pm 6\text{dB}$
Radiated emission of receiver, valid between 26.5GHz and 66GHz	$\pm 8\text{dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
Voltage (DC)	$\pm 1\%$
Voltage (AC, < 10kHz)	$\pm 2\%$

Note: For radiated emissions above 26.5GHz it may not be possible to achieve measurement uncertainties complying with the levels specified in this table. In these cases alone it is acceptable to employ the alternative interpretation procedure specified in clause 10.1

For the test methods, according to the present document the uncertainty figures shall be calculated according to the methods described in the TR 100 028 [i.4] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

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4. TEST MODE

NO.	TEST MODE DESCRIPTION
1	RX(Operating Channel)
2	Standby

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5. IDENTIFICATION OF THE RESPONSIBLE TESTING LOCATION

Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao 'an District, Shenzhen, Guangdong, China

LIST OF EQUIPMENTS USED

Description	Manufacturer	Model No.	S/N	Calibration Date	Calibration Due.
EMI TEST RECEIVER	R&S	ESCI	10096	May 15, 2020	May 14, 2022
WIDEBAND REQUENCY ANTENNA	SCHWARZBECK	VULB9168	D69250	Jan. 09, 2019	Jan. 08, 2021
Amplifier	CHENGYI	EMC184045S E	980508	Sep. 23, 2019	Sep. 22, 2020
Double-Ridged Waveguide Horn Antenna	ETS LINDGREN	3117	00034609	Oct. 26, 2019	Oct. 25, 2020
Climate Chamber	ESPEC	EL-10KA	/	June 23, 2020	June 22, 2021
Horn Antenna	A.H. Systems Inc.	SAS-574	/	May 15, 2020	May 14, 2021
Signal Generator	Aglient	N5182B	MY53050647	Sep. 18, 2019	Sep. 17. 2020
Signal Generator	Aglient	E8257D	MY45141029	Sep. 18, 2019	Sep. 17. 2020

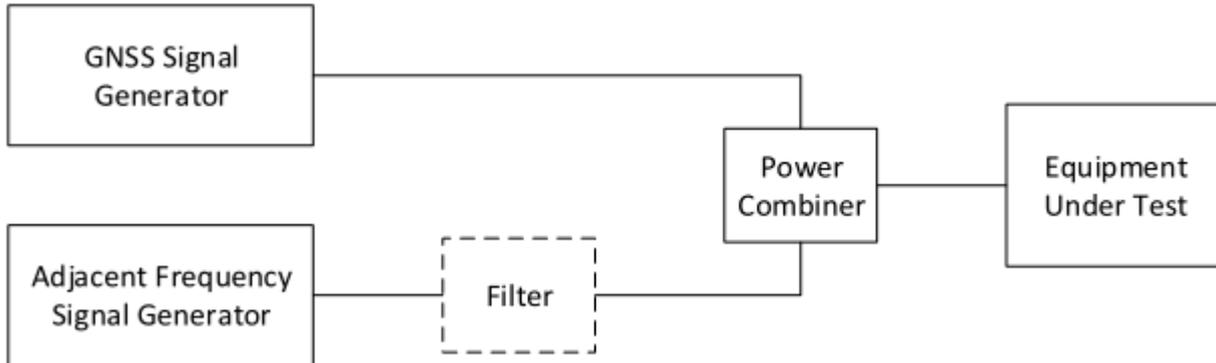
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6. REQUIREMENT TO RECEIVER

6.1 ETSI EN 303 413 SUB. 4.2.1: ADJACENT CHANNEL BAND SELECTIVITY

TEST SETUP:



Specifications:

The C/N_0 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.

Equation 4-1: Maximum degradation in C/N_0

$$\Delta C/N_0 \leq 1 \text{ dB}$$

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

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/N_0 value(s) reported by the EUT. Sufficient filtering shall be used to obtain a stable value. C/N_0 may be averaged across all the satellites in view for each GNSS constellation. However, C/N_0 shall not be averaged across satellite signals in different GNSS constellations. For a multi-GNSS EUT, there shall be a separate C/N_0 value recorded for each GNSS constellation and each GNSS signal supported.
4. The adjacent frequency signal shall be switched on, and the EUT's C/N_0 value(s) recorded as in step 3) to measure the degradation with respect to the baseline value(s) recorded in step 3).

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5. Test point Pass/Fail Criteria: If the C/N_0 degradation from step 5) does not exceed the value in equation 4-1, then this test point is set to "pass". If the C/N_0 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/N_0 degradation exceeds the value in equation 4-1 for any supported GNSS or supported GNSS signal, then this test point is set to "fail".

TEST RESULT:

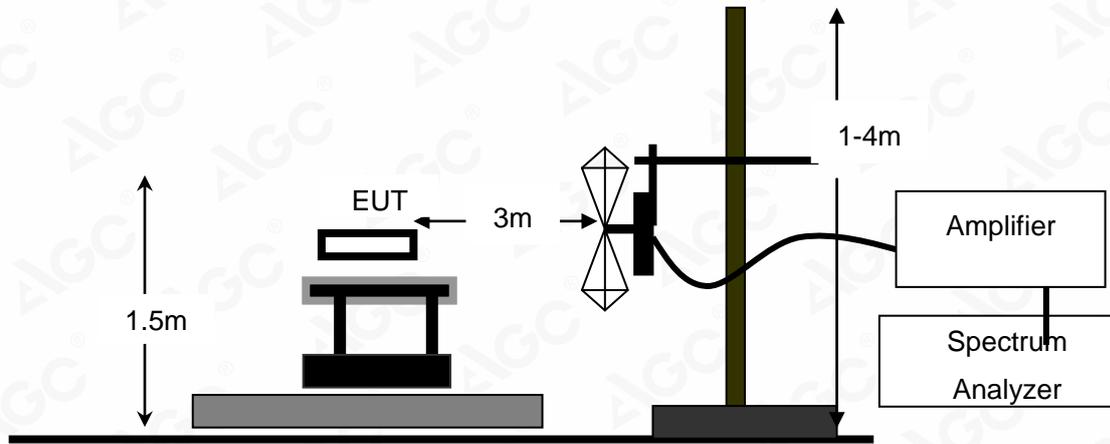
Test point centre frequency (MHz)	Adjacent frequency signal power level (dBm)	No interfering signal	With interfering signal	Limit	Measurement value (Max Hold) (dB)	Result
1 554MHz	-105 dBm	41.05	40.95	Decrease \leq 1 dB	0.10	Pass
1 615MHz	-105 dBm	41.05	40.9	Decrease \leq 1 dB	0.15	Pass
1 548MHz	-95 dBm	41.05	40.96	Decrease \leq 1 dB	0.09	Pass
1 627MHz	-85 dBm	41.05	40.92	Decrease \leq 1 dB	0.13	Pass
1 524MHz	-65 dBm	41.05	40.93	Decrease \leq 1 dB	0.12	Pass

If the EUT passes the C/N_0 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".

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**6.2 ETSI EN 303 413 SUB. 4.2.2: SPURIOUS EMISSIONS
TEST SETUP:**



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TEST LIMITS:

The power of any spurious emission shall not exceed 2 nW in the range 25 MHz to 1 GHz and shall not exceed 20 nW on frequencies above 1 GHz.

THE PROCEDURE:

EUT was placed on a 1.5m outdoor wooden table. The search antenna is placed at 3m distances from the EUT and search antenna height is from 1-4m. With the transmitter operating at continuously mode, the turntable was slowly rotated to locate the direction of maximum emission. Once maximum direction is determined, the search antenna was raised and lowered in both vertical and horizontal polarizations.

The EUT was removed from the turntable and replaced with a linearly polarized antenna connected to a calibrated RF signal generator. The RF generator was set to a measured emission frequency and the search antenna was raised and lowered to produce a maximum received reading. The generator output was increased to match the radiated emission reading measured previously, and the result expressed in dB EIRP or ERP, correcting for substitution antenna gain at each frequency.

TEST RESULTS:

Frequency (MHz)	Antenna Polarity	Reading (dBm)	Total Factor (dB)	Corrected Power (dBm)	Limit (dBm)
239.135	H	-85.74	12.88	-72.86	-57
1458.206	H	-81.26	12.37	-68.89	-47
3863.007	H	-75.43	11.14	-64.29	-47
358.037	V	-82.74	12.45	-70.29	-57
1817.392	V	-78.95	12.26	-66.69	-47
3152.986	V	-72.28	12.01	-60.27	-47
Other (25-1000)	~	~	~	~	-57
Other (1G-26G)	~	~	~	~	-47

Note:

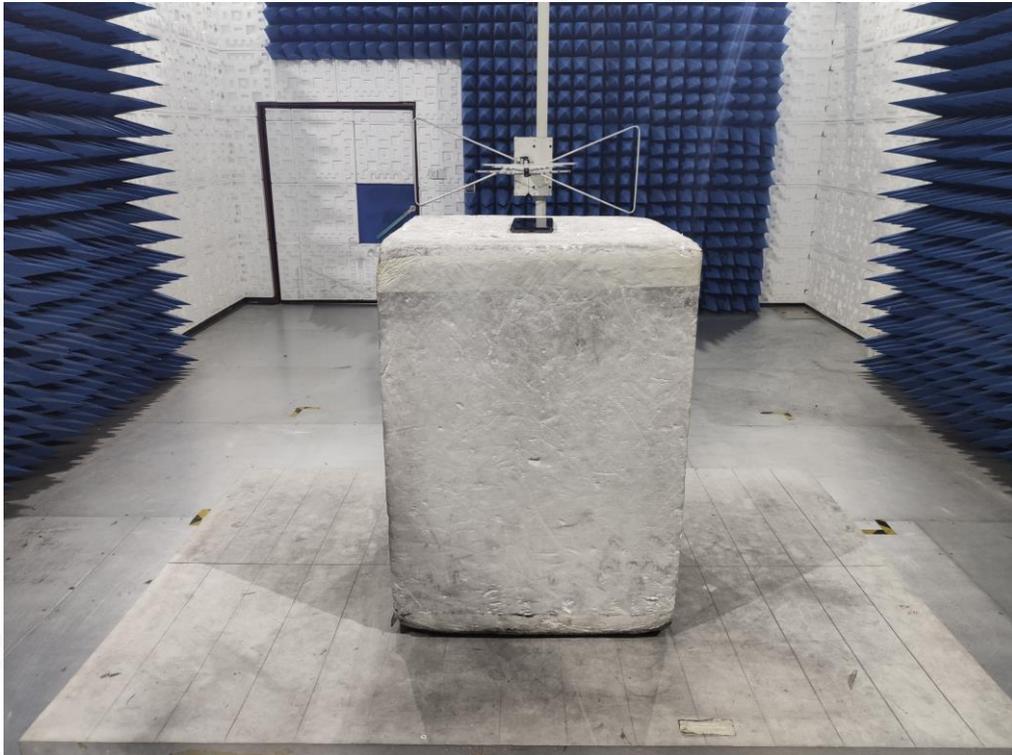
“~” in the table above means that the emissions are too small to be measured and are at least 20 dB below the limit. The frequency range below 1GHz is 30MHz to 1GHz and the frequency range above 1GHz is 1GHz to 26GHz.

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APPENDIX A: PHOTOGRAPHS OF TEST SETUP
RADIATED SPURIOUS EMISSION TEST SETUP



RADIATED SPURIOUS EMISSION ABOVE 1G TEST SETUP



----END OF REPORT----

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2. Any report issued by Company as a result of this application for testing services (the “Report”) shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.
3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. The non-CMA report issued by AGC is only permitted to be used by the client as internal reference use and shall not be used for public demonstration purpose.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.

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