



# RADIO TEST REPORT

## ETSI EN 303 413 V1.1.1 (2017-06)

**Product :** Smartphone

**Trade Mark :** CUBOT

**Model Name :** KINGKONG 5

**Family Model :** N/A

**Report No. :** S21042201103008

### Prepared for

Shenzhen Huafurui Technology Co., Ltd.

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

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**TEST RESULT CERTIFICATION**

**Applicant's 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

**Manufacturer's 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 description**

**Product name**..... Smartphone  
**Trademark** ..... CUBOT  
**Model and/or type reference** ..... KINGKONG 5  
**Family Model** ..... N/A

**Standards** ..... ETSI EN 303 413 V1.1.1 (2017-06)

This device described above has been tested by Shenzhen NTEK, and the test results show that the equipment under test (EUT) is in compliance with the article 3.2 of Directive 2014/53/EU requirements. And it is applicable only to the tested sample identified in the report.

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**Date of Test** .....

Date (s) of performance of tests ..... Apr 22, 2021 ~May 19, 2021

Date of Issue..... May 19, 2021

Test Result..... **Pass**

Testing Engineer : Cheng Jiawen  
 (Cheng Jiawen)

Technical Manager : Jason Chen  
 (Jason Chen)

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:  
ETSI EN 303 413 V1.1.1 (2017-06)

Clause	Description of Test Item	Remarks	Results
Receiver Parameters			
4.2.1	GUE adjacent frequency band selectivity performance	Conducted	Pass
4.2.2	Spurious emissions	Radiated	Pass

### 1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd.

Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China

FCC Registered No.: 463705 IC Registered No.:9270A-1

CNAS Registration No.:L5516

### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95 %**.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

**2. GENERAL INFORMATION**

**2.1 GENERAL DESCRIPTION OF EUT**

Equipment	Smartphone	
Trade Mark	CUBOT	
Model Name	KINGKONG 5	
Family Model	N/A	
Model Difference	N/A	
Product Description	Operation Frequency:	1.57542GHz
	Modulation Type:	BPSK modulation
	Antenna Designation:	FPC Antenna
	Antenna Gain(Peak):	1.58 dBi
	The product only receives.	
Channel List	Refer to below	
Adapter	Model: HJ-0502000W2-EU Input: AC 100-240V~50/60Hz 0.3A Output: DC 5V---2.0A 10.0W	
Battery	DC 3.85V, 5000mAh, 19.25Wh	
Rating	DC 3.85V from battery or DC 5V from Adapter.	
Hardware Version	TE826_MAIN_PCB_V1.1	
Software Version	CUBOT_KINGKONG 5_B023C_V02_20210513	

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User’s Manual.

Table for Filed Antenna

Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
N/A	N/A	FPC Antenna	N/A	1.58dBi	Antenna

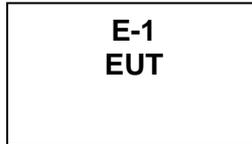
**2.2 DESCRIPTION OF TEST CONDITIONS**

Pretest Mode	Description
Mode 1	RX(CH01)

<b>For Conducted Test</b>	
Final Test Mode	Description
Mode 1	RX(CH01)

<b>For Radiated Test</b>	
Final Test Mode	Description
Mode 1	RX(CH01)

**2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED**



## 2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Model/Type No.	Series No.	Note
E-1	Smartphone	KINGKONG 5	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” or “with ferrite core”; “NO” means “unshielded” or “without ferrite core”

**2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	160400005	2020.05.11 2021.04.27	2021.05.10 2022.04.26	1 year
2	Test Receiver	R&S	ESPI7	101318	2020.05.11 2021.04.27	2021.05.10 2022.04.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Spectrum Analyzer	ADVANTES T	R3132	150900201	2020.07.13	2021.07.12	1 year
6	Horn Antenna	EM	EM-AH-20180	2011071402	2021.03.29	2022.03.28	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.05.11 2021.04.27	2021.05.10 2022.04.26	1 year
8	Pre-Amplifier	EMC	EMC051835SE	980246	2020.07.13	2021.07.12	1 year
9	Loop Antenna	ARA	PLA-2030/B	1029	2020.07.13	2021.07.12	1 year
10	USB RF Power Sensor	DARE	RPR3006W	15I00041SN084	2020.07.13	2021.07.12	1 year
11	Signal Generator	R&S	SMT 06	832080/007	2020.07.13	2021.07.12	1 year
12	Temperature & Humidity Chamber	GIANT FORCE	GTH-056P	GF-94454-1	2020.07.13	2021.07.12	1 year
13	Power Sensor	R&S	URV5-Z4	0395.1619.05	2020.07.13	2021.07.12	1 year
14	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2020.05.11 2021.04.27	2021.05.10 2022.04.26	1 year
15	LTE Wireless Communications Test Set	R&S	CMW500	1100.008.02	2020.07.13	2021.07.12	1 year
16	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2020.05.11 2021.04.27	2021.05.10 2022.04.26	1 year
17	Power Splitter	Mini-Circuits	ZN2PD-63-S	SF025101618	2020.07.13	2021.07.12	1 year

**3. GUE ADJACENT FREQUENCY BAND SELECTIVITY**

**3.1 APPLIED PROCEDURES / LIMIT**

The limits please refer to ETSI EN 303 413 V1.1.1 (2017-06) V4.2.1.2.

Clause	Test Item	Limit
4.2.1	GUE adjacent frequency band selectivity	$\Delta C/N_0 \leq 1 \text{ dB}$

**3.2 TEST FREQUENCY & SIGNAL**

According to ETSI EN 303 413 V1.1.1 the test wanted signal please see the below Table B-1, Table B-2, Table B-3, And the unwanted signal please see the Table 4-1, Table 4-2, Table 4-4.

**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 4-4: 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	

**Table B-1: GNSS, GNSS signals and relative signal levels**

	Galileo		GPS/Modernized GPS		GLONASS		SBAS		BDS (see note 2)		
	Signal	Level	Signal	Level	Signal	Level	Signal	Level	Signal	Level	Signal
Signal levels relative to reference power levels (see note 1)	E1	0 dB	L1 C/A	0 dB	G1	0 dB	L1	0 dB	B1I	D1	0 dB
										D2	+5 dB
	E6	+2 dB	L1C	+1,5 dB	G2	-6 dB					
	E5	+2 dB	L2C	-1,5 dB							
			L5	+3,6 dB							

NOTE 1: The signal levels represent the total signal power of the satellite per channel, not for example pilot and data channels separately.

NOTE 2: For BDS, D1 represents MEO/IGSO satellites B1I signal type and D2 represents GEO satellites B1I signal type.

**Table B-2: Relative signal levels for each GNSS supported**

GNSS	Relative signal level for all satellites (see note)
GPS	0 dB
Galileo	+1,5 dB
GLONASS	-2,5 dB
SBAS	-2,5 dB
BDS	-4,5 dB

NOTE: GPS is used as the reference GNSS. If GPS is not supported then values shall be adjusted and referenced to another supported GNSS.

**Table B-3: (Maximum) signal levels for each GNSS supported**

GNSS	Parameters	Value
GPS	(Maximum) signal level	-128,5 dBm
Galileo	(Maximum) signal level	-127 dBm
GLONASS	(Maximum) signal level	-131 dBm
SBAS	(Maximum) signal level	-131 dBm
BDS	(Maximum) signal level	-133 dBm

**3.3 TEST PROCEDURE**

According to ETSI EN 303 413 V1.1.1 Clause 5.4& Annex B.2.

Measurement	
<input checked="" type="checkbox"/> Conducted measurement	<input type="checkbox"/> Radiated measurement

- 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<sub>0</sub> value(s) reported by the EUT. Sufficient filtering shall be used to obtain a stable value. C/N<sub>0</sub> may be averaged across all the satellites in view for each GNSS constellation. However, C/N<sub>0</sub> shall not be averaged across satellite signals in different GNSS constellations. For a multi-GNSS EUT, there shall be a separate C/N<sub>0</sub> 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/N<sub>0</sub> 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/N<sub>0</sub> 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<sub>0</sub> 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<sub>0</sub> 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.

**3.4 TEST SETUP**

Please see the below figure 5-1:

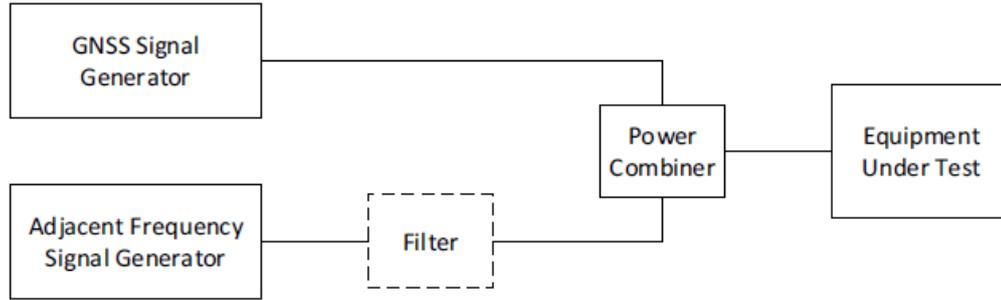


Figure 5-1: Conducted measurement setup for EUT adjacent frequency band selectivity

### 3.5 TEST RESULTS

EUT :	Smartphone	Model Name :	KINGKONG 5
Temperature :	26°C	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	DC 3.85V (Normal)
Test Mode :	GPS RX		

Test point centre frequency	signal power level	C/N <sub>0</sub> value ( adjacent frequency signal switched off)	C/N <sub>0</sub> value ( adjacent frequency signal switched on)	Δ C/N <sub>0</sub>	Limit(Δ C/N <sub>0</sub> )	Results
(MHz)	( dBm )				(dB)	(P/F)
1575.42	-128.5					
1524	-65	32.70	33.10	0.40	≤ 1 dB	PASS
1548	-95	32.84	33.42	0.58	≤ 1 dB	PASS
1554	-105	33.46	33.62	0.16	≤ 1 dB	PASS
1615	-105	33.43	32.54	0.89	≤ 1 dB	PASS
1627	-85	33.12	33.82	0.70	≤ 1 dB	PASS

Note: We test the C/N0 value for each GNSS, but the report just reported the worst Δ C/N<sub>0</sub> values.

**4. SPURIOUS EMISSIONS**

**4.1 APPLIED PROCEDURES / LIMIT**

The limits please refer to ETSI EN 303 413 V1.1.1 (2017-06) clause 4.2.2.2.

**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

**4.2 TEST PROCEDURES**

According to ETSI EN 303 413 V1.1.1 Clause 5.5.

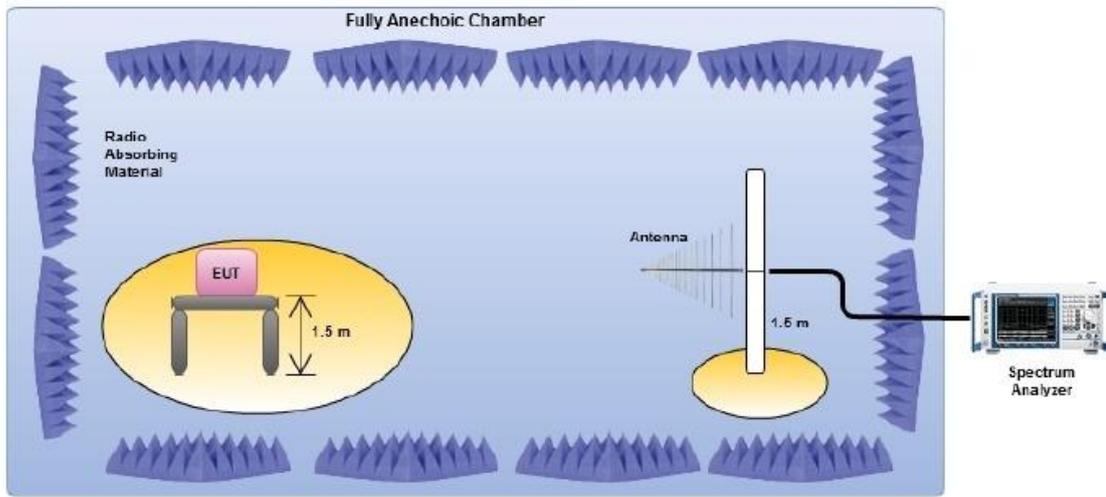
Measurement	
<input type="checkbox"/> Conducted measurement	<input checked="" type="checkbox"/> Radiated measurement

The test site as described in ETSI EN 300 328 [1], annex B and the applicable measurement procedures as described in ETSI EN 300 328 [1], annex C shall be used.

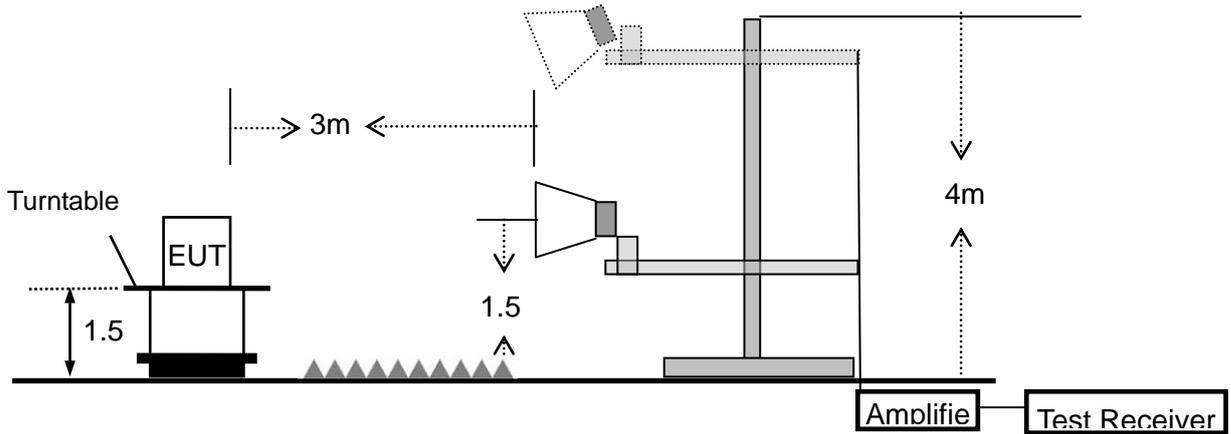
The test procedure is further described in clause 5.5.2.1.

**4.3 TEST SETUP**

**(A) Radiated Emission Test Set-Up Frequency Below 1 GHz**



**(B) Radiated Emission Test Set-Up Frequency Above 1GHz**



**4.4 EUT OPERATION DURING TEST**

The EUT was programmed to be in receiving mode.

**4.5 TEST RESULTS (1GHz ~ 8.3GHz)**

EUT :	Smartphone	Model Name :	KINGKONG 5
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Power :	DC 3.85V
Test Mode :	Mode 1		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
H	2091.876	-75.62	11.44	-64.18	-47	-17.18	peak
H	2663.393	-79.27	7.27	-72.00	-47	-25.00	peak
H	4245.969	-75.82	9.91	-65.91	-47	-18.91	peak
H	5400.129	-78.29	7.41	-70.88	-47	-23.88	peak
H	7471.836	-80.69	14.45	-66.24	-47	-19.24	peak
V	3110.481	-66.01	6.11	-59.90	-47	-12.90	peak
V	4118.545	-69.94	5.96	-63.98	-47	-16.98	peak
V	5525.233	-71.30	11.12	-60.18	-47	-13.18	peak
V	6473.369	-74.24	10.48	-63.76	-47	-16.76	peak
V	7582.218	-75.72	13.94	-61.78	-47	-14.78	peak

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

All the modes had been tested, but only the worst data recorded in the report.

Note: Only the worst case recorded in the report.

**4.6 TEST RESULTS (30MHZ ~ 1000MHZ)**

EUT :	Smartphone	Model Name :	KINGKONG 5
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Power :	DC 3.85V
Test Mode :	Mode 1		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
H	162.460	-80.46	10.02	-70.44	-57	-13.44	peak
H	336.984	-88.61	19.30	-69.31	-57	-12.31	peak
H	442.240	-97.14	19.64	-77.50	-57	-20.50	peak
H	534.856	-94.62	22.59	-72.03	-57	-15.03	peak
H	762.835	-94.65	29.57	-65.08	-57	-8.08	peak
V	193.141	-89.03	13.49	-75.54	-57	-18.54	peak
V	183.387	-91.72	8.94	-82.78	-57	-25.78	peak
V	461.713	-102.42	21.77	-80.65	-57	-23.65	peak
V	583.647	-92.67	25.93	-66.74	-57	-9.74	peak
V	702.457	-102.18	29.55	-72.63	-57	-15.63	peak

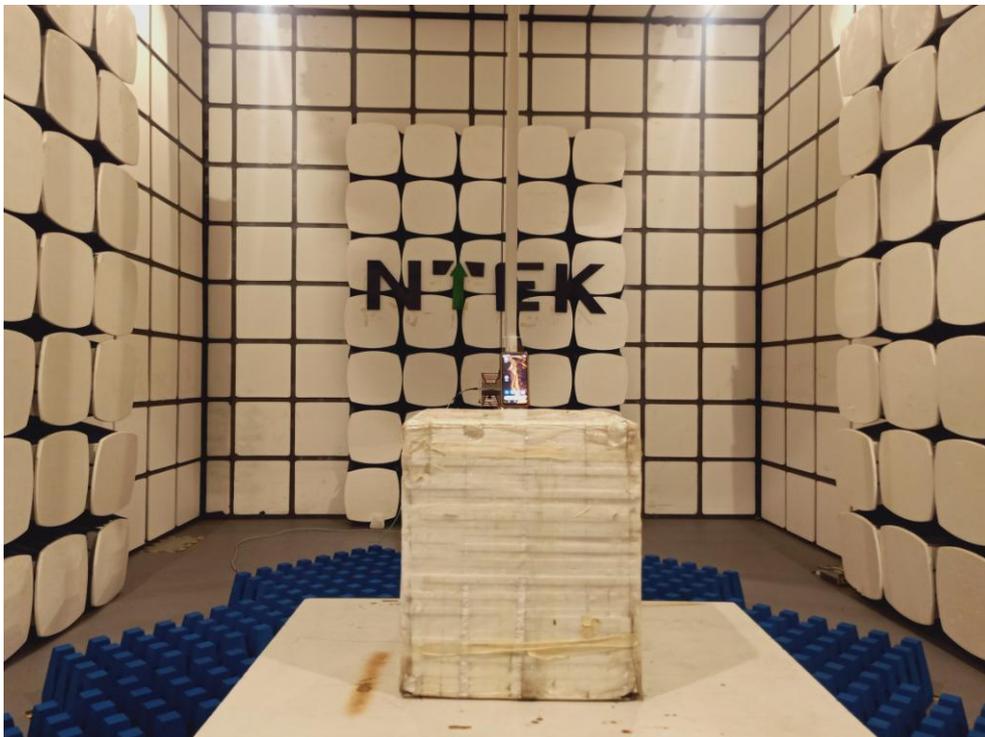
**Remark:**

Emission Level = Meter Reading + Factor, Margin= Emission Level - Limit

Note: Only the worst case recorded in the report.

5. EUT TEST PHOTO

Radiated Measurement Photos



END OF REPORT