



# **RADIO TEST REPORT**

## **EN 301 908-1 V13.1.1 (2019-11)**

## **EN 301 908-2 V13.1.1 (2020-06)**

**Product :** Smartphone

**Trade Mark :** CUBOT

**Model Name :** P60

**Family Model :** N/A

**Report No. :** S22081801405007

### **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

### **Prepared by**

Shenzhen NTEK Testing Technology Co., Ltd.

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

Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090

Website: <http://www.ntek.org.cn>



**Table of Contents**

**Page**

1 . SUMMARY OF TEST RESULTS	5
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
2 . GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 LIST OF TEST EQUIPMENTS	8
2.3 TEST ENVIRONMENT/CONDITIONS	9
2.4 TEST Mode	10
3 . SUMMARY OF TEST REPORT	11
4. TEST PROCEDURES AND RESULTLS	12
4.1 TERMS IN THE COLUMN “VERDICT” FOR THE TEST RESULTS LIST OF THISSECTION:	12
4.2 TABLE 1 EN REQUIREMENTS TABLE	12
4.3 EN 301 908-1 V13.1.1 (2019-11)	14
§4.3.1 – RADIATED EMISSIONS (UE)	14
Applicable Standard & Limits	14
Test Procedure	14
Test Data	14
§4.3.2 –Control and monitoring functions (UE)	19
Definition & Limits	19
Test method	19
Test Data	19
§4.3.3 —Out-of-synchronization handling of output power	20
Test Procedure	21
Test Data	21
5. PHOTOGRAPHS OF THE TEST SETUP	22



## 1. SUMMARY OF TEST RESULTS

### Leading Reference Documents For Testing:

No.	Identity	Document Title
1	EN 301 908-1	IMT cellular networks; Harmonised Standard covering the essential requirements of Radio Equipment Regulations (SI 2017/1206); Part 1: Introduction and common requirements
2	EN 301 908-2	IMT cellular networks; Harmonised Standard covering the essential requirements of Radio Equipment Regulations (SI 2017/1206); Part 2: CDMA Direct Spread (UTRA FDD) User Equipment (UE)

### Specific Reference Documents For Testing:

No.	Identity	Document Title
3	3GPP TS 34.121-1	3 <sup>rd</sup> Generation Partnership Project; Technical Specification Group Radio Access Network ; Terminal conformance specification; Radio transmission and reception (FDD)
4	3GPP TS 34.121-2	3 <sup>rd</sup> Generation Partnership Project; Technical Specification Group Radio Access Network User Equipment (UE) conformance specification; Radio transmission and reception (FDD); Part 2: Implementation Conformance Statement (ICS)

## 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:	P60
Family Model:	N/A
Model Difference:	N/A
Support Band:	<input checked="" type="checkbox"/> WCDMA Band I (2100MHz) <input type="checkbox"/> WCDMA Band II (1900MHz) <input type="checkbox"/> WCDMA Band V (850MHz) <input checked="" type="checkbox"/> WCDMA Band VIII(900MHz)
Release Version:	R99
Frequency Bands:	Uplink: WCDMA Band I :1920~1980MHz WCDMA Band VIII:880~915MHz
	Downlink: WCDMA Band I :2110~2170MHz WCDMA Band VIII:925~960MHz
Modulation Mode:	WCDMA(HSDPA/HSUPA):QPSK
Power Class:	3
SIM CARD :	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna Description:	PIFA antenna (Band I : -1.5dBi, Band VIII: -1.5dBi)
Adapter	Model: HJ-0502000-UK Input: 100-240V~50/60Hz, 0.3A Output: 5.0V---2.0A 10.0W
Battery	DC 3.85V, 5000mAh
Rating	DC 3.85V from battery or DC 5V from Adapter.
Hard Ware Version	A567-MB-V9.0
Soft Ware Version	CUBOT_P60_C061C_V01_20220811

## 2.2 LIST OF TEST EQUIPMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2022.04.06	2023.04.05	1 year
2	Test Receiver	R&S	ESPI7	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Spectrum Analyzer	Agilent	N9020A	MY46471732	2022.04.06	2023.04.05	1 year
6	Horn Antenna	EM	EM-AH-20180	2011071402	2022.03.31	2023.03.30	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.04.06	2023.04.05	1 year
8	Amplifier	EMC	EMC051835S E	980246	2022.06.17	2023.06.16	1 year
9	Loop Antenna	ARA	PLA-2030/B	1029	2022.04.06	2023.04.05	1 year
10	Temperature & Humidity Chamber	GIANT FORCE	GTH-056P	GF-94454-1	2022.06.16	2023.06.15	1 year
11	LTE Wireless Communications Test Set	R&S	CMW500	1100.008.02	2022.06.17	2023.06.16	1 year
12	Power Splitter	Mini-Circuits	ZN2PD-63-S+	SF025101428	2020.04..07	2023.04.06	3 year
13	Wireless Communication Test	Anritsu	MT8821C	6262192315	2021.11.04	2022.11.03	1 year
14	Power Meter	DARE	RPR3006W	15I00041SNO8 4	2022.06.16	2023.06.15	1 year
15	ESG VETCTOR SIGNAL GENERAROR	Agilent	E4438C	MY45093347	2022.04.06	2023.04.05	1 year
16	Spectrum Analyzer	R&S	FSV40	101417	2022.04.06	2023.04.05	1 year

### 2.3 TEST ENVIRONMENT/CONDITIONS

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Extreme Temperature:	Low Temperature (LT) = -10°C High Temperature (HT) = 40°C
Extreme Voltage of the EUT (Declared by manufacturer):	Normal Voltage (NV) = DC 3.85V Low Voltage (LV) = DC 3.4V High Voltage (HV) = DC 4.2V

**Note:**

The High Voltage 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage. The High temperature and Low temperature was declared by manufacturer.

### 2.4 TEST Mode

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (1.7/-3.7) 12.2kps RMC is used for this testing. Power control set to All bits up. A summary of these settings are illustrated below:

Test Mode	Test Channel
WCDMA Band I mode	Low:Ch 9612
	Mid:Ch 9750
	High:Ch 9888

Test Mode	Test Channel
WCDMA Band VIII mode	Low:Ch 2712
	Mid:Ch 2788
	High:Ch 2863

### 3. SUMMARY OF TEST REPORT

EN 301 908-1 V13.1.1	Description of Test	Test Result
§4.2.2	Radiated emissions (UE)	Pass
§4.2.3	Radiated emissions (BS and repeater)	N/A
§4.2.4	Control and monitoring functions (UE)	Pass

EN 301 908-2 V13.1.1	Description of Test	Test Result
§4.2.2	Transmitter maximum output power	Pass
§4.2.3	Transmitter spectrum emission mask	Pass
§4.2.4	Transmitter spurious emissions	Pass
§4.2.5	Transmitter minimum output power	Pass
§4.2.6	Receiver Adjacent Channel Selectivity (ACS)	Pass
§4.2.7	Receiver blocking characteristics	Pass
§4.2.8	Receiver spurious response	Pass
§4.2.9	Receiver intermodulation characteristics	Pass
§4.2.10	Receiver spurious emissions	Pass
§4.2.11	Out-of-synchronization handling of output power	Pass
§4.2.12	Transmitter Adjacent Channel Leakage power Ratio (ACLR)	Pass
§4.2.13	Receiver Reference Sensitivity level	Pass
§4.2.14	Receiver Total Radiated Sensitivity (TRS)	N/A <sub>3</sub>
§4.2.15	Total Radiated Power (TRP)	N/A <sub>3</sub>

Note:

- (1) N/A: Test not applicable
- (2) PASS: EUT Pass this test case
- (3) The TRS and TRP requirement applies to handheld phones/DUTs that are narrower than 72 mm. The wider of this DUT is 82mm.

### 4. TEST PROCEDURES AND RESULTLS

4.1 TERMS IN THE COLUMN “VERDICT” FOR THE TEST RESULTS LIST OF THISSECTION:

Verdict	Description
PASS	EUT passed this test case
FAIL	EUT failed this test case
Decl.	“Declaration”: NTEK has received documents from the applicant and/or manufacturer which show conformity to the applied standards for this test case.
N/A	Test case not applicable for the EUT, please see the column “Note” for detailed

4.2 TABLE 1 EN REQUIREMENTS TABLE

Testcase in ETSI EN 301 908-2 V13.1.1	Description	Condition	Band I		Band VIII		Test Data
			Sample	Result	Sample	Result	
Section 4.2.2	Transmitter maximum output power	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
		LT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		LT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
Section 4.2.3	Transmitter spectrum emission mask	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.4	Transmitter spurious emissions	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.5	Transmitter minimum output power	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
		LT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		LT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
Section 4.2.6	Receiver Adjacent Channel Selectivity (ACS)	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.7	Receiver blocking characteristics	NT / NV	A01	PASS	A01	PASS	Appendix C - WCDMA –blocking

Testcase in ETSI EN 301 908-2 V13.1.1	Description	Condition	Band I		Band VIII		Test Data
			Sample	Result	Sample	Result	
Section 4.2.8	Receiver spurious response	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.9	Receiver intermodulation characteristics	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.10	Receiver spurious emissions	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
Section 4.2.11	Out-of-synchronization handling of output power	NT / NV	A01	PASS	A01	PASS	See section 4.3.3 of this report
Section 4.2.12	Transmitter Adjacent Channel Leakage power Ratio (ACLR)	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal
		LT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		LT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / LV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
		HT / HV	A01	PASS	A01	PASS	Appendix B - WCDMA -Extreme
Section 4.2.13	Receiver Reference Sensitivity level	NT / NV	A01	PASS	A01	PASS	Appendix A - WCDMA -Normal

4.3 EN 301 908-1 V13.1.1 (2019-11)

§4.3.1 – RADIATED EMISSIONS (UE)

Applicable Standard & Limits

The frequency boundary and reference bandwidths for the detailed transitions of the limits between the requirements for out-of-band emissions and spurious emissions are based on ITU-R

Recommendations SM.329-10 [3] and SM.1539-1 [4].

The requirements shown in table 4.2.2.2-1 are only applicable for frequencies in the spurious domain.

**Table 4.2.2.2-1: Radiated spurious emissions requirements (UE)**

Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-57 dBm/100 kHz	-36 dBm/100 kHz	All
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All
$f_c - 2.5 \times 5 \text{ MHz} < f < f_c + 2.5 \times 5 \text{ MHz}$		Not defined	UTRA FDD, UTRA TDD, 3,84 Mcps option, cdma2000, spreading rate 3
$f_c - 2.5 \times BW_{\text{Channel}} \text{ MHz} < f < f_c + 2.5 \times BW_{\text{Channel}} \text{ MHz}$		Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WiMAX, UMB
$f_c - 2.5 \times 10 \text{ MHz} < f < f_c + 2.5 \times 10 \text{ MHz}$		Not defined	UTRA TDD, 7,68 Mcps option
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$		Not defined	UTRA TDD, 1,28 Mcps option cdma2000, spreading rate 1
$f_c - 500 \text{ kHz} < f < f_c + 500 \text{ kHz}$		Not defined	UWC 136, 200 kHz option
$f_c - 250 \text{ kHz} < f < f_c + 250 \text{ kHz}$		Not defined	UWC 136, 30 kHz option

NOTE:  $f_c$  is the UE transmit centre frequency.

Test Procedure

Test Data

Environmental Conditions

Temperature	18~22° C
Relative Humidity	45~66%
ATM Pressure	101.1~101.7kPa

Test Result: Pass.

Please refer to following data table.

**Idle Mode**

WCDMA2100

Frequency (MHz)	Polar (H/V)	Level (dBm)	Factor	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
<b>operation frequency:Low channel</b>						
2666.118	H	-92.23	12.49	-79.74	-47.00	-32.74
3644.89	H	-82.55	12.98	-69.57	-47.00	-22.57
2887.825	V	-77.68	9.90	-67.78	-47.00	-20.78
4146.4	V	-94.05	21.59	-72.46	-47.00	-25.46
<b>operation frequency:Middle channel</b>						
2522.559	H	-70.95	5.40	-65.55	-47.00	-18.55
4185.293	H	-78.26	13.15	-65.11	-47.00	-18.11
2802.324	V	-72.98	11.30	-61.68	-47.00	-14.68
5229.189	V	-70.47	14.74	-55.73	-47.00	-8.73
<b>operation frequency: High channel</b>						
2191.125	H	-97.86	8.14	-89.72	-47.00	-42.72
3414.603	H	-83.5	17.08	-66.42	-47.00	-19.42
2675.663	V	-74.31	6.29	-68.02	-47.00	-21.02
4630.843	V	-91.06	18.85	-72.21	-47.00	-25.21

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Detector Type
V	98.651	-92.34	4.33	-88.01	-57	-31.01	peak
V	113.156	-86.07	2.83	-83.24	-57	-26.24	peak
V	319.727	-94.29	20.49	-73.80	-57	-16.80	peak
V	555.013	-78.37	14.18	-64.19	-57	-7.19	peak
V	771.563	-94.95	3.13	-91.82	-57	-34.82	peak
H	94.687	-78.99	1.34	-77.65	-57	-20.65	peak
H	180.016	-80.92	11.44	-69.48	-57	-12.48	peak
H	457.035	-83.26	10.68	-72.58	-57	-15.58	peak
H	644.112	-84.48	6.94	-77.54	-57	-20.54	peak
H	727.052	-77.87	8.42	-69.45	-57	-12.45	peak

**Remark:**

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

WCDMA900

Frequency (MHz)	Polar (H/V)	Level (dBm)	Factor	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
<b>operation frequency:Low channel</b>						
2408.921	H	-96.73	14.81	-81.92	-47.00	-34.92
3945.819	H	-95.55	19.18	-76.37	-47.00	-29.37
2474.861	V	-72.83	14.96	-57.87	-47.00	-10.87
3802.306	V	-95.98	17.37	-78.61	-47.00	-31.61
<b>operation frequency:Middle channel</b>						
2664.295	H	-78.5	13.20	-65.30	-47.00	-18.30
3076.708	H	-81.54	12.58	-68.96	-47.00	-21.96
2556.145	V	-82.33	5.34	-76.99	-47.00	-29.99
5476.203	V	-94.99	15.26	-79.73	-47.00	-32.73
<b>operation frequency: High channel</b>						
2617.35	H	-98.99	9.04	-89.95	-47.00	-42.95
4731.69	H	-79.03	21.90	-57.13	-47.00	-10.13
2802.297	V	-83.65	7.97	-75.68	-47.00	-28.68
3328.952	V	-69.03	13.52	-55.51	-47.00	-8.51

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Detector Type
V	65.396	-92.06	20.09	-71.97	-57	-14.97	peak
V	165.809	-90.93	17.20	-73.73	-57	-16.73	peak
V	384.604	-98.81	15.59	-83.22	-57	-26.22	peak
V	572.556	-95.84	16.50	-79.34	-57	-22.34	peak
V	715.45	-97.49	15.18	-82.31	-57	-25.31	peak
H	42.59	-82.01	1.67	-80.34	-57	-23.34	peak
H	167.771	-88.68	3.74	-84.94	-57	-27.94	peak
H	462.148	-79.1	18.60	-60.50	-57	-3.50	peak
H	602.989	-97.64	20.83	-76.81	-57	-19.81	peak
H	874.763	-77.83	2.19	-75.64	-57	-18.64	peak

**Remark:**

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

**Traffic Mode**  
**WCDMA2100**

Frequency (MHz)	Polar (H/V)	Level (dBm)	Factor	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
operation frequency:Low channel						
2702.519	H	-63.81	5.94	-57.87	-30.00	-27.87
4215.875	H	-77.14	18.26	-58.88	-30.00	-28.88
2333.849	V	-77.26	11.62	-65.64	-30.00	-35.64
5453.943	V	-75.62	13.37	-62.25	-30.00	-32.25
operation frequency:Middle channel						
2755.625	H	-71.24	7.86	-63.38	-30.00	-33.38
5532.377	H	-69.72	16.50	-53.22	-30.00	-23.22
2466.878	V	-77.64	6.74	-70.90	-30.00	-40.90
3463.466	V	-69.33	16.02	-53.31	-30.00	-23.31
operation frequency: High channel						
2475.069	H	-71.11	9.66	-61.45	-30.00	-31.45
4547.072	H	-59.4	18.03	-41.37	-30.00	-11.37
2451.904	V	-75.65	8.05	-67.60	-30.00	-37.60
5606.751	V	-75.59	16.37	-59.22	-30.00	-29.22

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Detector Type
	V	31.932	-64.97	7.32	-57.65	-36	
V	157.571	-60.86	19.36	-41.50	-36	-5.50	peak
V	667.029	-61.93	11.06	-50.87	-36	-14.87	peak
V	701.822	-67.27	12.00	-55.27	-36	-19.27	peak
H	72.022	-61.04	11.62	-49.42	-36	-13.42	peak
H	224.598	-67.23	19.83	-47.40	-36	-11.40	peak
H	549.449	-64.89	15.69	-49.20	-36	-13.20	peak
H	554.995	-65.07	9.90	-55.17	-36	-19.17	peak

**Remark:**

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

WCDMA900

Frequency (MHz)	Polar (H/V)	Level (dBm)	Factor	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
<b>operation frequency:Low channel</b>						
2042.805	H	-59.08	9.99	-49.09	-30.00	-19.09
4926.53	H	-65.38	19.73	-45.65	-30.00	-15.65
2128.875	V	-62	9.73	-52.27	-30.00	-22.27
3374.085	V	-61.26	19.54	-41.72	-30.00	-11.72
<b>operation frequency:Middle channel</b>						
2107.997	H	-68.9	8.68	-60.22	-30.00	-30.22
5784.493	H	-78.33	15.57	-62.76	-30.00	-32.76
2326.776	V	-75.3	13.10	-62.20	-30.00	-32.20
4001.509	V	-67.37	14.21	-53.16	-30.00	-23.16
<b>operation frequency: High channel</b>						
2960.711	H	-76.42	9.92	-66.50	-30.00	-36.50
4618.487	H	-78.91	12.12	-66.79	-30.00	-36.79
2049.716	V	-78.2	5.84	-72.36	-30.00	-42.36
5597.152	V	-63.99	21.52	-42.47	-30.00	-12.47

Polar (H/V)	Frequency (MHz)	Meter Reading (dBm)	Factor (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Detector Type
V	89.15	-68.09	2.47	-65.62	-36	-29.62	peak
V	176.865	-65.15	0.43	-64.72	-36	-28.72	peak
V	540.932	-64.18	16.71	-47.47	-36	-11.47	peak
V	597.919	-62.19	3.73	-58.46	-36	-22.46	peak
H	36.093	-63.66	7.55	-56.11	-36	-20.11	peak
H	230.817	-64.59	3.80	-60.79	-36	-24.79	peak
H	593.731	-65.58	13.14	-52.44	-36	-16.44	peak
H	716.821	-62.23	8.44	-53.79	-36	-17.79	peak

**Remark:**

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

§4.3.2 –Control and monitoring functions (UE)

Definition & Limits

This requirement, together with other control and monitoring technical requirements identified in the table of cross references in the applicable part, verifies that the control and monitoring functions of the UE prevent it from transmitting in the absence of a valid network.

This test is applicable to radio communications equipment and ancillary equipment in the operating band defined in the applicable part of this multi-part harmonised standard.

This test shall be performed on the radio communications equipment and/or a representative configuration of the ancillary equipment.

Limits:

The maximum measured power during the duration of the test shall not exceed -30 dBm.

Test method

- a) At the start of the test, the UE shall be switched off. The UE antenna connector shall be connected to a power measuring equipment, with the following characteristics:
  - the RF bandwidth shall exceed the total operating transmit frequency range of the UE for operation with an applicable part;
  - the response time of the power measuring equipment shall be such that the measured power has reached within 1 dB of its steady state value within 100 μs of a CW signal being applied;
  - it shall record the maximum power measured.

NOTE: The equipment may include a video low pass filter to minimize its response to transients or Gaussian noise peaks.

- b) The UE shall be switched on for a period of approximately fifteen minutes, and then switched off.
- c) The EUT shall remain switched off for a period of at least thirty seconds, and shall then be switched on for a period of approximately one minute.
- d) The maximum power emitted from the UE throughout the duration of the test shall be recorded. The results obtained shall be compared to the limits in clause 4.2.4.2 in order to prove compliance.

Test Data

Test Condition	Monitoring band	Max Measured Power(dBm)	Limit(dBm)	Result
Normal	The whole band range	-42.57	-30	Pass

§4.3.3 —Out-of-synchronization handling of output power

Definition

The UE shall monitor the DPCCH quality in order to detect a loss of the signal on Layer 1. The threshold  $Q_{out}$  specifies at what DPCCH quality levels the UE shall shut its power off. The threshold is not defined explicitly, but is defined by the conditions under which the UE shall shut its transmitter off, as stated in this clause.

The DPCCH quality shall be monitored in the UE and compared to the threshold  $Q_{out}$  for the purpose of monitoring synchronization. The threshold  $Q_{out}$  should correspond to a level of DPCCH quality where no reliable detection of the TPC commands transmitted on the downlink DPCCH can be made. This can be at a TPC command error ratio level of e.g. 20 %.

Limits

When the UE estimates the DPCCH quality over the last 160 ms period to be worse than a threshold  $Q_{out}$ , the UE shall shut its transmitter off within 40 ms.

The quality level at the thresholds  $Q_{out}$  correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in table 4.2.11.2-1, a signal with the quality at the level  $Q_{out}$  can be generated by a  $DPCCH_{Ec}/I_{or}$  ratio of -25 dB. The DL reference measurement channel 12,2 kbit/s is specified in ETSI TS 134 121-1 [1], clause C.3.1 and with static propagation conditions. The downlink physical channels, other than those specified in table 4.2.11.2-1, are as specified in table E.3.3 of annex E in ETSI TS 134 121-1 [1].

Parameter	Value	Unit
$I_{or}/I_{oc}$	-1	dB
$I_{oc}$	-60	dBm/3,84 MHz
$\frac{DPDCH_{Ec}}{I_{or}}$	See figure 4.2.11.2-1: Before point A: <ul style="list-style-type: none"> <li>-16,6 for UEs not supporting enhanced receiver performance type 1 for DCH</li> <li>-19,6 for UEs supporting enhanced receiver performance type 1 for DCH</li> </ul> After point A not defined	dB
$\frac{DPCCH_{Ec}}{I_{or}}$	See figure 4.2.11.2-1	dB
Information Data Rate	12,2	kbit/s

Figure 4.2.11.2-1 and table 4.2.11.2-2 show an example scenario where the  $DPCCH_{Ec}/I_{or}$  ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below  $Q_{out}$  where the UE shall shut its power off.

Test Procedure

Initial conditions

Test environment: normal (see annex B).

The frequencies to be tested are mid range as defined in ETSI TS 134 108 [2], clause 5.1:

- 1) Connect the SS to the UE antenna connector.
- 2) A call is set up according to the Generic call setup procedure, with the following exception according to table 5.3.10.1.1-1 for information elements in System Information Block type 1 found in ETSI TS 134 108 [2].

**Table 5.3.10.1.1-1: System Information Block type 1 message**

Information Element	Value
UE Timers and constants in connected mode	
- T313	15 s
- N313	200

- 3) RF parameters are set up according to table 4.2.11.2-1 with DPCCH\_Ec/Ior ratio level according To table 4.2.11.2-2, 'before A'.
- 4) Enter the UE into loopback test mode and start the loopback test using the procedure defined in ETSI TS 134 109 [3], clause 5.3.

Test Data

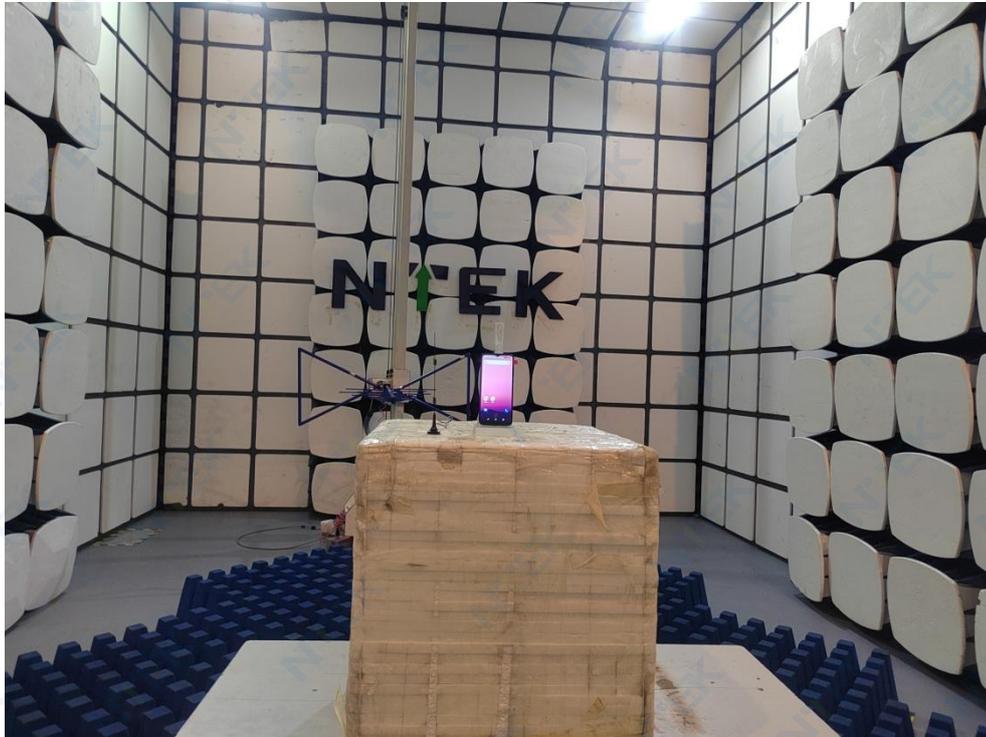
Environmental Conditions

Temperature	18~22° C
Relative Humidity	45~66%
ATM Pressure	101.1~101.7kPa

Test Result: Pass.

5. PHOTOGRAPHS OF THE TEST SETUP

Radiated Spurious Emission Test



END OF REPORT