

RADIO TEST REPORT

For

Shenzhen Huafurui Technology Co., Ltd.

Smartphone

Test Model: KINGKONG STAR 2

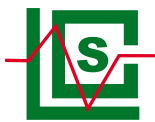
Prepared for : Shenzhen Huafurui Technology Co., Ltd.
Address : Unit 601-03, 6/F, Block A, Building 1, Ganfeng Technology Building, No. 993 Jiaxian Road, Xiangjiaotang Community, Bantian Street, Longgang District, Shenzhen, P.R. China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : July 17, 2024
Number of tested samples : 2
Sample No. : A240711041-1, A240711041-2
Serial number : Prototype
Date of Test : July 17, 2024 ~ August 22, 2024
Date of Report : August 23, 2024





RADIO TEST REPORT	
ETSI EN 301 908-1 V15.2.1 (2023-01) & DDraft ETSI EN 301 908-25 V15.0.0 (2024-07) & ETSI TS 138 521-1 V17.10.0 (2023-10)	
Report Reference No.	LCSA07124057EK
Date of Issue	August 23, 2024
Testing Laboratory Name	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □
Applicant's Name	Shenzhen Huafurui Technology Co., Ltd.
Address	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
Test Specification	
Standard	ETSI EN 301 908-1 V15.2.1 (2023-01) Draft ETSI EN 301 908-25 V15.0.0 (2024-07) ETSI TS 138 521-1 V17.10.0 (2023-10)
Test Report Form No	TRF-4-E-193 A/0
TRF Originator	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	Dated 2017-06
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Test Item Description : Smartphone	
Trade Mark	CUBOT
Test Model	KINGKONG STAR 2
Ratings	Please Refer to Page 9
Result	Positive

Compiled by:

Martin Lee/ Administrator

Supervised by:

Cary Luo/ Technique principal

Approved by:

Gavin Liang/ Manager

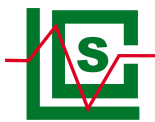


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RADIO -- TEST REPORT

Test Report No. : LCSA07124057EKAugust 23, 2024

Date of issue

Test Model..... : KINGKONG STAR 2

EUT..... : Smartphone

Applicant..... : Shenzhen Huafurui Technology Co., Ltd.

Address..... : 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

Telephone..... : /

Fax..... : /

Manufacturer..... : Shenzhen Huafurui Technology Co., Ltd.

Address..... : 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

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Factory..... : Shenzhen Huafurui Technology Co., Ltd.

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Telephone..... : /

Fax..... : /

Test Result**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Revision History

Report Version	Issue Date	Revision Content	Revised By
000	August 23, 2024	Initial Issue	---



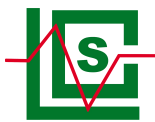
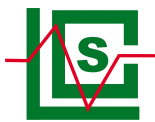


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1 TEST SUMMARY

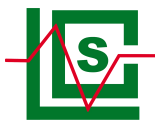
1.1 Test Standards

ETSI EN 301 908-1 V15.2.1 (2023-01)—IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 1: Introduction and common requirements; Release 15

Draft ETSI EN 301 908-25 V15.0.0 (2024-07)—IMT cellular networks; Harmonised Standard for access to radio spectrum; Part 25: New Radio (NR) User Equipment (UE) Release 15

ETSI TS 138 521-1 V17.10.0 (2023-10): 5G; NR; User Equipment (UE) conformance specification; Radio transmission and reception; Part 1: Range 1 standalone (3GPP TS 38.521-1 version 17.10.0 Release 17)





1.2 Test Description

ETSI EN 301 908-25 (SA Mode)

Clause No	Test Requirement Description	3GPP Test Case	Test Bandwidth	Result
4.1.2.2.1	Transmitter maximum output power	6.2	Lowest, Mid, Highest	Pass
4.1.2.3.1	Transmitter Minimum output power	6.3.1	Lowest, Mid, Highest	Pass
4.1.2.13	General ON/OFF time mask(Transmit OFF power)	6.3.2	Lowest, Mid, Highest	Pass
4.1.2.4.1	Transmitter spectrum emissions mask	6.5.2.2	Lowest, Mid, Highest	Pass
4.1.2.5.1	Transmitter adjacent channel leakage power ratio	6.5.2.4	Lowest, Mid, Highest	Pass
4.1.2.6.1	Transmitter spurious emissions	6.5.3	Lowest, Mid, Highest	Pass
4.1.2.7.1	Receiver Reference Sensitivity Level	7.3.2	Lowest, Mid, Highest	Pass
4.1.2.8.1	Receiver Adjacent Channel Selectivity (ACS)	7.5	Lowest, Mid, Highest	Pass
4.1.2.9.1.2.1	In-band blocking	7.6.2	Lowest, Mid, Highest	Pass
4.1.2.9.1.2.2	Out-band blocking	7.6.3	Lowest, Mid, Highest	Pass
4.1.2.9.1.2.3	Narrow band blocking	7.6.4	Lowest, Mid, Highest	Pass
4.1.2.10.1	Receiver spurious response	7.7	Lowest, Mid, Highest	Pass
4.1.2.11.1	Receiver intermodulation characteristics	7.8.2	Lowest, Mid, Highest	Pass
4.1.2.12.1	Receiver spurious emissions	7.9	Lowest, Mid, Highest	Pass

NR Band	Duplex Mode	Uplink (MHz)	Downlink (MHz)	Support SCS & Bandwidth	
n1	FDD	1920MHz~1980MHz	2110MHz~2170MHz	15KHz	<input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input checked="" type="checkbox"/> 15MHz <input checked="" type="checkbox"/> 20MHz <input checked="" type="checkbox"/> 25MHz <input checked="" type="checkbox"/> 30MHz <input checked="" type="checkbox"/> 40MHz <input checked="" type="checkbox"/> 50MHz
n3	FDD	1710MHz~1785MHz	1805MHz~1880MHz	15KHz	<input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input checked="" type="checkbox"/> 15MHz <input checked="" type="checkbox"/> 20MHz <input checked="" type="checkbox"/> 25MHz <input checked="" type="checkbox"/> 30MHz <input checked="" type="checkbox"/> 40MHz
n7	FDD	2500MHz~2570MHz	2620MHz~2690MHz	15KHz	<input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input checked="" type="checkbox"/> 15MHz <input checked="" type="checkbox"/> 20MHz <input checked="" type="checkbox"/> 25MHz <input checked="" type="checkbox"/> 30MHz <input checked="" type="checkbox"/> 40MHz <input checked="" type="checkbox"/> 50MHz

ETSI EN 301 908-1

Clause No	Test Requirement Description	Result
4.2.2	Radiated Spurious Emissions (UE)	Pass
4.2.4	Control and monitoring functions (UE)	Pass

1.3 Test Facility

NVLAP Accreditation Code is 600167-0.

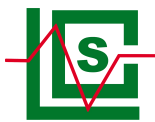
FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.



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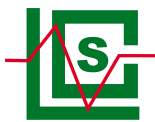


1.4 Measurement Uncertainty

Test Items	Measurement Uncertainty	Notes
Transmitter Maximum Output Power	$\pm 0.7\text{dB}$	(1)
Transmitter Spectrum Emissions Mask	$\pm 1.5\text{ dB}$	(1)
Transmitter Spurious Emissions	9 kHz < f ≤ 4 GHz: $\pm 0.9\text{ dB}$	(1)
	4 GHz < f ≤ 40 GHz: $\pm 3.4\text{dB}$	(1)
Transmitter Minimum Output Power	$\pm 0.7\text{dB}$	(1)
General ON/OFF time mask(Transmit OFF power)	$\pm 0.7\text{dB}$	(1)
Receiver Adjacent Channel Selectivity (ACS)	$\pm 1.1\text{ dB}$	(1)
Receiver Blocking Characteristics	1 MHz < finterferer ≤ 3 GHz $\pm 1.3\text{ dB}$	(1)
	3 GHz < finterferer ≤ 40 GHz $\pm 3.2\text{ dB}$	(1)
Receiver Spurious Response	1 MHz < finterferer ≤ 3 GHz $\pm 1.3\text{ dB}$	(1)
	3 GHz < finterferer ≤ 40 GHz $\pm 3.2\text{ dB}$	(1)
Receiver Intermodulation Characteristics	$\pm 2.4\text{ dB}$	(1)
Receiver Spurious Emissions	30 MHz ≤ f ≤ 4.0 GHz: $\pm 2.0\text{ dB}$	(1)
	4 GHz < f ≤ 40 GHz: $\pm 4.0\text{ dB}$	
Transmitter adjacent channel leakage power ratio	$\pm 0.7\text{ dB}$	(1)
Reference Sensitivity Level	$\pm 0.7\text{ dB}$	(1)
Radiated Spurious emission test(UE)	$\pm 2.20\text{ dB}$	(1)
Control and monitoring functions (UE)	$\pm 0.58\text{dB}$	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.





1.5 Environmental environment

During the measurement the environmental conditions were within the listed ranges:

Conditions	Temperature	Voltage
Normal	21-25°C	DC 3.87V
Low extreme Temperature/Low extreme Voltage (TL/VL);	-20°C	DC 3.48V
Low extreme Temperature/High extreme Voltage (TL/VH);	-20°C	DC 4.45V
High extreme Temperature/Low extreme Voltage (TH/VL);	45°C	DC 3.48V
High extreme Temperature/High extreme Voltage (TH/VH).	45°C	DC 4.45V
Note1: For all conditions, the humidity range is: 25-75%, the pressure range is 86-106kPa. The High Voltage DC 4.45V and Low Voltage DC 3.48V was declared by manufacturer		
Note2: NVNT, NVLT, NVHT, HVLT, HVHT all of these were tested, only the worst NVNT test data was recorded in the report.		

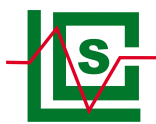
1.6 Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Shenzhen Huajin Electronics Co., Ltd	Fast Charger	HJ-PD33W-EU	---	CE

1.7 External I/O

I/O Port Description	Quantity	Cable
Type-C USB Port	1	USB Cable: 1.0m, unshielded
Headphone Port	1	Headphone Cable: 1.2m, unshielded





2 GENERAL INFORMATION

2.1 General Description of EUT

EUT	: Smartphone
Test Model	: KINGKONG STAR 2
Ratings	: Input: DC 5.0V, 3.0A For AC Adapter Input: 100-240V~, 50/60Hz, 0.8A Adapter Output: 5.0V=3.0A 15.0W OR 9.0V=3.0A 27.0W OR 12.0V=2.75A 33.0W MAX DC 3.87V by Rechargeable Li-ion Battery, 5100mAh
Hardware Version	: G3331P-ME-V1.0
Software Version	: CUBOT_KINGKONG STAR 2_E031C_V01
Bluetooth	:
Frequency Range	: 2402MHz~2480MHz
Channel Number	: 79 channels for Bluetooth V5.3 (BDR/EDR) 40 channels for Bluetooth V5.3 (BT LE/ BT 2LE)
Channel Spacing	: 1MHz for Bluetooth V5.3 (BDR/EDR) 2MHz for Bluetooth V5.3 (BT LE/ BT 2LE)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.3 (BDR/EDR) GFSK for Bluetooth V5.3 (BT LE/ BT 2LE)
Bluetooth Version	: V5.3
Antenna Description	: FPC Antenna, 0.33dBi(Max.)
WIFI(2.4G Band)	:
Frequency Range	: 2412MHz~2472MHz
Channel Spacing	: 5MHz
Channel Number	: 13 Channel for 20MHz bandwidth(2412~2472MHz) 9 channels for 40MHz bandwidth(2422~2462MHz)
Modulation Type	: 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant6: FPC Antenna, 0.33dBi(Max.) Ant7: FPC Antenna, 0.33dBi(Max.)
WIFI(5.2G Band)	:
Frequency Range	: 5180MHz~5240MHz
Channel Number	: 4 channels for 20MHz bandwidth(5180~5240MHz) 2 channels for 40MHz bandwidth(5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
Modulation Type	: 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant6: FPC Antenna, -1.07dBi(Max.) Ant7: FPC Antenna, -1.07dBi(Max.)



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WIFI(5.8G Band)	:
Frequency Range	: 5745MHz~5825MHz
Channel Number	: 5 channels for 20MHz bandwidth(5745~5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	: 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Ant6: FPC Antenna, -0.66dBi(Max.) Ant7: FPC Antenna, -0.66dBi(Max.)
2G	:
Support Band	: <input checked="" type="checkbox"/> GSM 900 (EU-Band) <input checked="" type="checkbox"/> DCS 1800 (EU-Band) <input checked="" type="checkbox"/> GSM 850 (U.S.-Band) <input checked="" type="checkbox"/> PCS 1900 (U.S.-Band)
Release Version	: R99
GPRS Class	: Class 12
EGPRS Class	: Class 12
Uplink	: GSM 900: 880MHz~915MHz DCS 1800: 1710MHz~1785MHz
Downlink	: GSM 900: 925MHz~960MHz DCS 1800: 1805MHz~1880MHz
Type Of Modulation	: GMSK for GSM/GPRS; GMSK/8PSK for EGPRS
Antenna Description	: Ant0: FPC Antenna -2.34dBi (max.) For GSM 900 -1.18dBi (max.) For DCS 1800
Power Class	: GSM 900: Level 5, DCS 1800: Level 0 EGPRS 900: Level 8, EGPRS 1800: Level 2
3G	:
Support Band	: <input checked="" type="checkbox"/> WCDMA Band I (EU-Band) <input checked="" type="checkbox"/> WCDMA Band VIII (EU-Band)
Release Version	: R8
Uplink	: WCDMA Band I: 1920MHz~1980MHz WCDMA Band VIII: 880MHz~915MHz
Downlink	: WCDMA Band I: 2110MHz~2170MHz WCDMA Band VIII: 925MHz~960MHz
Type Of Modulation	: QPSK/16QAM
Antenna Description	: Ant0: FPC Antenna 0.46dBi (max.) For WCDMA Band I -2.34dBi (max.) For WCDMA Band VIII
Power Class	: Level 3
LTE	:
Support Band	: <input checked="" type="checkbox"/> E-UTRA Band 1(EU-Band) <input checked="" type="checkbox"/> E-UTRA Band 3(EU-Band) <input checked="" type="checkbox"/> E-UTRA Band 7(EU-Band) <input checked="" type="checkbox"/> E-UTRA Band 8(EU-Band)





- ☒ E-UTRA Band 20(EU-Band)
- ☒ E-UTRA Band 28(EU-Band)
- ☒ E-UTRA Band 38(EU-Band)
- ☒ E-UTRA Band 40(EU-Band)

LTE Release Version : R12

FDD Band : Uplink: E-UTRA Band 1: 1920MHz~1980MHz
E-UTRA Band 3: 1710MHz~1785MHz
E-UTRA Band 7: 2500MHz~2570MHz
E-UTRA Band 8: 880MHz~915MHz
E-UTRA Band 20: 832MHz~862MHz
E-UTRA Band 28: 703MHz~748MHz
Downlink: E-UTRA Band 1: 2110MHz~2170MHz
E-UTRA Band 3: 1805MHz~1880MHz
E-UTRA Band 7: 2620MHz~2690MHz
E-UTRA Band 8: 925MHz~960MHz
E-UTRA Band 20: 791MHz~821MHz
E-UTRA Band 28: 758MHz~803MHz

TDD Band : E-UTRA Band 38: 2570MHz ~ 2620MHz
E-UTRA Band 40: 2300MHz ~ 2400MHz

Type Of Modulation : QPSK/16QAM

Antenna Description : Ant0: FPC Antenna
Ant2: FPC Antenna
Ant3: FPC Antenna
Ant4: FPC Antenna
0.46dBi (max.) For E-UTRA Band 1
-1.18dBi (max.) For E-UTRA Band 3
1.93dBi (max.) For E-UTRA Band 7
-2.34dBi (max.) For E-UTRA Band 8
-5.25dBi (max.) For E-UTRA Band 20
-1.56dBi (max.) For E-UTRA Band 28
-1.97dBi (max.) For E-UTRA Band 38
1.74dBi (max.) For E-UTRA Band 40

Power Class : Class 3

NR :

Operation Band : n1: UL: 1920MHz~1980MHz, DL: 2110MHz~2170MHz
n3: UL: 1710MHz~1785MHz, DL: 1805MHz~1880MHz
n7: UL: 2500MHz~2570MHz, DL: 2620MHz~2690MHz

Support Type : ☒ SA

Sub carrier Spacing : 15KHz

Modulation Type : DFT-BPSK, DFT-QPSK, DFT-16QAM, DFT-64QAM, DFT-256QAM,
CP-QPSK, CP-16QAM, CP-64QAM, CP-256QAM

NR Release Version : 15

Power Class : NR Band 1/3/7: PC3

Antenna Description : Ant2: FPC Antenna
Ant3: FPC Antenna
Ant4: FPC Antenna
Ant5: FPC Antenna



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n1: 0.46dBi Max
n3: -1.18dBi Max
n7: 1.93dBi Max

GPS Receiver

Receive Frequency : 1575.42MHz
Channel Number : 1
Antenna Description : FPC Antenna, 0.79dBi(Max.)

GLONASS Receiver

Receive Frequency : 1602.5625MHz
Channel Number : 1
Antenna Description : FPC Antenna, 0.79dBi(Max.)

Galileo Receiver

Receive Frequency : 1589.74MHz
Channel Number : 1
Antenna Description : FPC Antenna, 0.79dBi(Max.)

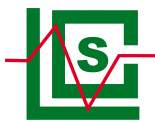
BDS Receiver

Receive Frequency : 1561.098MHz
Channel Number : 1
Antenna Description : FPC Antenna, 0.79dBi(Max.)

NFC

Frequency Range : 13.56MHz
Modulation Type : ASK
Antenna Description : FPC Antenna, 0dBi(Max.)





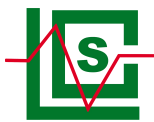
2.2 Description of Test Modes

The EUT has been tested under typical operating condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

2.3 Measurement Instruments List

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	LTE Test Software	Tonscend	JS1120-1	N/A	N/A	N/A
2	RF Control Unit	Tonscend	JS0806-1	158060009	2023-10-18	2024-10-17
3	MXA Signal Analyzer	Agilent	N9020A	MY5125090 5	2023-10-18	2024-10-17
4	DC Power Supply	Agilent	E3642A	N/A	2023-10-18	2024-10-17
5	MXG Vector Signal Generator	Agilent	N5182A	MY4707115 1	2024-06-06	2025-06-05
6	PSG Analog Signal Generator	Agilent	E8257D	MY4520521	2024-06-06	2025-06-05
7	Temperature & Humidity Chamber	GUANGZHOU GOGNWEN	GDS-100	70932	2023-10-05	2024-10-04
8	EMI Test Software	Farad	EZ	/	N/A	N/A
9	3m Full Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2022-08-17	2025-08-16
10	Positioning Controller	Max-Full	MF7802BS	MF7802085 86	N/A	N/A
11	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2024-07-13	2027-07-12
12	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
13	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
14	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2021-08-29	2024-08-28
15	Broadband Preamplifier	SCHWARZBECK	BBV9719	9719-025	2021-08-29	2024-08-28
16	EMI Test Receiver	R&S	ESR 7	101181	2024-06-06	2025-06-05
17	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2024-06-06	2025-06-05
18	Low-frequency amplifier	SchwarzZBECK	BBV9745	00253	2023-10-18	2024-10-17
19	High-frequency amplifier	JS Denki Pte	PA0118-43	JSPA21009	2023-10-18	2024-10-17
20	WIDEBAND RADIO COMMUNICATION TESTER	R&S	CMW 500	103818	2024-06-06	2025-06-05
21	RADIO COMMUNICATION TESTER	Anritsu	MT8821C	6262257865	2024-05-18	2025-05-17
22	RADIO COMMUNICATION TESTER	Anritsu	MT8000A	6262208376	2024-05-18	2025-05-17
23	Signal Analyzer	Anritsu	MS2840A	6201591940	2024-06-06	2025-06-05
24	Signal Generator	Anritsu	MG3710E	6262204211	2024-06-06	2025-06-05
25	Signal Generator	Anritsu	MG3692C	222804	2023-09-01	2024-08-31
26	RF Filter	Micro-Tronics	BRC50718	017	2023-10-18	2024-10-17
27	RF Filter	Micro-Tronics	BRC50719	011	2023-10-18	2024-10-17
28	RF Filter	Micro-Tronics	BRC50720	011	2023-10-18	2024-10-17
29	RF Filter	Micro-Tronics	BRC50721	013	2023-10-18	2024-10-17
30	RF Filter	Micro-Tronics	BRM50702	195	2024-06-06	2025-06-05
31	6dB Attenuator	/	100W/6dB	1172040	2024-06-06	2025-06-05
32	3dB Attenuator	/	2N-3dB	/	2023-10-18	2024-10-17





3 RADIATED SPURIOUS EMISSIONS

3.1 LIMIT

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 Recommendations ITU-R SM.329-12 [1] and SM.1539-1 [i.6]. 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)

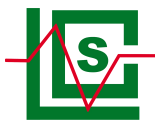
Frequency	Minimum requirement (e.r.p.)/ reference bandwidth idle mode	Minimum requirement (e.r.p.)/ reference bandwidth traffic mode	Applicability
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-57 dBm/100 kHz	-36 dBm/100 kHz	All
$1 \text{ GHz} \leq f < 12.75 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All
$12.75 \text{ GHz} \leq f < 5^{\text{th}}$ harmonic of the upper frequency edge of the Uplink operating band in GHz	-47 dBm/1 MHz	-30 dBm/1 MHz	All (note 3)
$12.75 \text{ GHz} < f < 26 \text{ GHz}$	-47 dBm/1 MHz	-30 dBm/1 MHz	All (note 4)
$f_c - 2.5 \times 5 \text{ MHz} < f < f_c + 2.5 \times 5 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA FDD, UTRA TDD, 3.84 Mcps option, cdma2000, spreading rate 3
$f_c - 2.5 \times \text{BW}_{\text{Channel}} \text{ MHz} < f < f_c + 2.5 \times \text{BW}_{\text{Channel}} \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	E-UTRA FDD, E-UTRA TDD, Mobile WiMAX™
$f_c - (1.5 \times \text{BW}_{\text{Channel}} + 5) \text{ MHz} < f < f_c + (1.5 \times \text{BW}_{\text{Channel}} + 5) \text{ MHz}$ (note 1)	Not defined	Not defined	NR operating in FR1
$f_c - 2.5 \times 10 \text{ MHz} < f < f_c + 2.5 \times 10 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA TDD, 7.68 Mcps option
$f_c - 4 \text{ MHz} < f < f_c + 4 \text{ MHz}$ (note 1 and note 2)	Not defined	Not defined	UTRA TDD, 1.28 Mcps option cdma2000, spreading rate 1

NOTE 1: f_c is the UE transmit centre frequency.
NOTE 2: This frequency range is not in the spurious domain, no requirement is then defined for this frequency range.
NOTE 3: Applies for Band that the upper frequency edge of the Uplink Band more than 2.69 GHz.
NOTE 4: Applies for Band that the upper frequency edge of the Uplink Band more than 5.2 GHz.

3.2 Test Results Summary

According to the recorded data in following table, the EUT complied with the ETSI EN 301 908-1 V15.2.1 (2023-01)





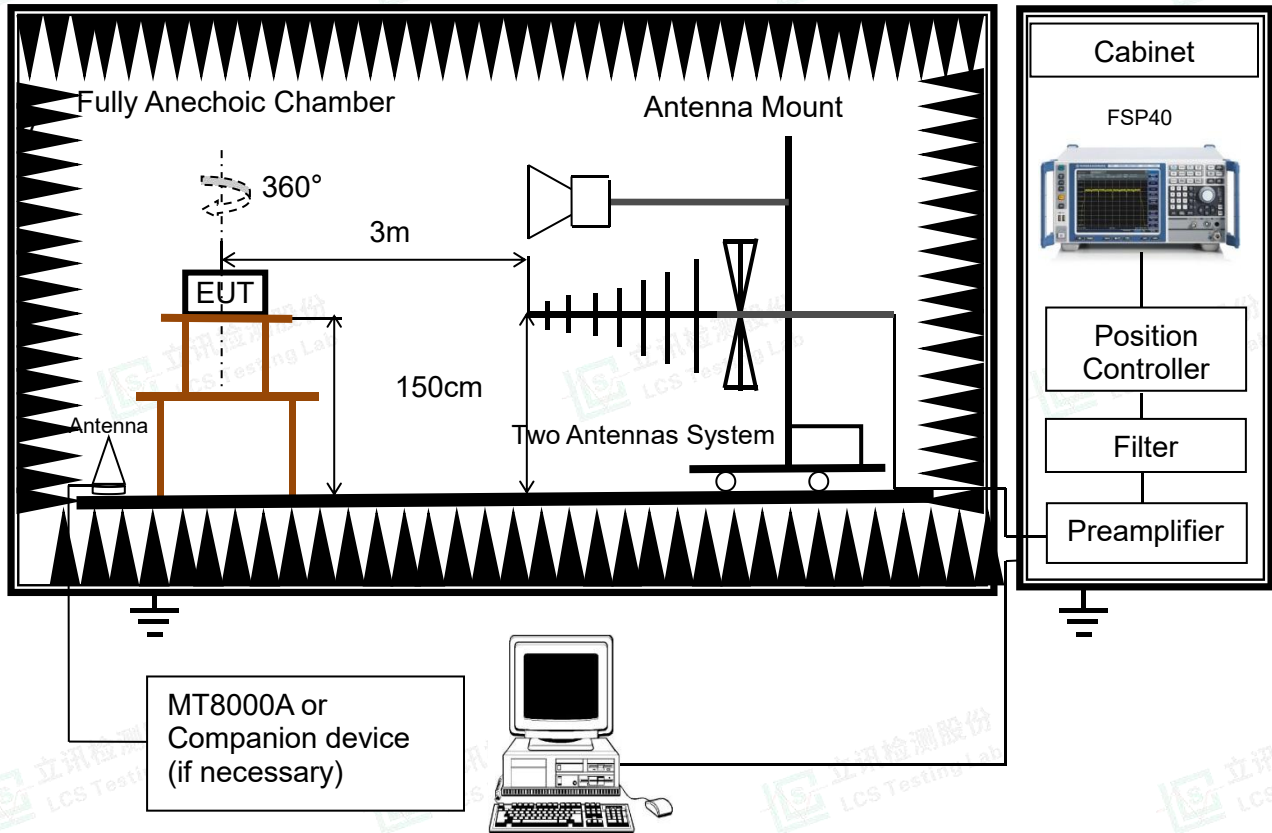
3.3 TEST PROCEDURE

1. The EUT was placed on the top of the turntable in fully anechoic chamber.
2. The test shall be made in the transmitting mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. For 30~1000MHz spurious emissions measurement, the broad band bi-log receiving antenna was placed 3 meters far away from the turntable. For >1GHz carrier frequency measurement, the receiving Horn antenna was placed 3 meters far away from the turntable.
4. The broadband receiving antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization. Each recorded suspected value is indicated as Read Level (Raw).
5. Replace the EUT by standard antenna and feed the RF port by signal generator.
6. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
7. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
8. The level of the spurious emission is the power level of (7) plus the gain of the standard antenna in dBi and minus the loss of the cable used between the signal generator and the standard antenna.
9. The measurement shall be repeated at the lowest, middle and the highest channel of the stated frequency range



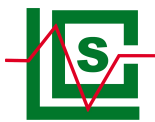
3.4 TEST SETUP

Radiated Measurement Test Setup



1. For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration).
2. The equipment was configured to operate under its worst case situation with respect to output power.
3. The test setup has been constructed as the normal use condition. Controlling software has been activated to set the EUT on specific status.



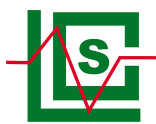
**TEST RESULTS**

n1(CBW 5MHz CP-QPSK)	
Carrier centre(ARFCN)	Carrier centre(MHz)
384500	1922.5
390000	1950.0
395500	1977.5

n3(CBW 5MHz CP-QPSK)	
Carrier centre(ARFCN)	Carrier centre(MHz)
342500	1712.5
349500	1747.5
356500	1782.5

n7(CBW 5MHz CP-QPSK)	
Carrier centre(ARFCN)	Carrier centre(MHz)
524500	2502.5
531000	2535.0
537500	2567.5





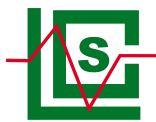
n1 Traffic mode:

Operation Frequency: Low Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
59.60	Horizontal	-73.64	-36.00	Pass
978.31	H	-73.07	-36.00	
3845.00	H	-64.43	-30.00	
5767.50	H	-55.69	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
56.08	Vertical	-78.09	-36.00	Pass
757.96	V	-73.20	-36.00	
3845.00	V	-69.93	-30.00	
5767.50	V	-54.16	-30.00	

Operation Frequency: Middle Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
59.63	Horizontal	-70.84	-36.00	Pass
817.00	H	-80.41	-36.00	
3900.00	H	-65.00	-30.00	
5850.00	H	-51.28	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
56.35	Vertical	-75.58	-36.00	Pass
843.39	V	-71.46	-36.00	
3900.00	V	-61.63	-30.00	
5850.00	V	-52.96	-30.00	

Operation Frequency: High Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
52.37	Horizontal	-78.44	-36.00	Pass
973.93	H	-80.56	-36.00	
3955.00	H	-66.97	-30.00	
5932.5	H	-60.70	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
60.65	Vertical	-70.87	-36.00	Pass
741.26	V	-79.27	-36.00	
3955.00	V	-61.93	-30.00	
5932.5	V	-56.16	-30.00	





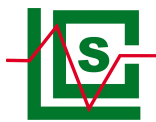
n3 Traffic mode:

Operation Frequency: Low Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
50.25	Horizontal	-73.53	-36.00	Pass
855.83	H	-79.89	-36.00	
3425.00	H	-67.85	-30.00	
5137.50	H	-57.10	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
50.98	Vertical	-75.43	-36.00	Pass
922.59	V	-74.67	-36.00	
3425.00	V	-60.29	-30.00	
5137.50	V	-52.34	-30.00	

Operation Frequency: Middle Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
59.12	Horizontal	-80.64	-36.00	Pass
992.03	H	-75.28	-36.00	
3495.00	H	-68.12	-30.00	
5242.50	H	-56.37	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
57.01	Vertical	-76.80	-36.00	Pass
907.80	V	-72.67	-36.00	
3495.00	V	-69.11	-30.00	
5242.50	V	-50.40	-30.00	

Operation Frequency: High Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
55.42	Horizontal	-73.76	-36.00	Pass
993.62	H	-76.91	-36.00	
3565.00	H	-64.20	-30.00	
5347.50	H	-60.96	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
56.80	Vertical	-72.17	-36.00	Pass
870.54	V	-76.14	-36.00	
3565.00	V	-67.00	-30.00	
5347.50	V	-52.77	-30.00	





n7 Traffic mode:

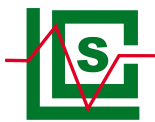
Operation Frequency: Low Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
52.14	Horizontal	-71.36	-36.00	Pass
782.75	H	-80.43	-36.00	
5005.00	H	-64.78	-30.00	
7507.50	H	-55.39	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
53.65	Vertical	-71.60	-36.00	Pass
977.19	V	-76.53	-36.00	
5005.00	V	-69.66	-30.00	
7507.50	V	-50.84	-30.00	

Operation Frequency: Middle Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
57.44	Horizontal	-73.02	-36.00	Pass
876.99	H	-73.20	-36.00	
5070.00	H	-60.82	-30.00	
7605.50	H	-51.11	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
60.99	Vertical	-73.87	-36.00	Pass
801.26	V	-79.21	-36.00	
5070.00	V	-65.12	-30.00	
7605.50	V	-53.29	-30.00	

Operation Frequency: High Channel				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
60.48	Horizontal	-75.11	-36.00	Pass
922.45	H	-80.28	-36.00	
5135.00	H	-63.24	-30.00	
7702.50	H	-60.72	-30.00	
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
50.11	Vertical	-78.46	-36.00	Pass
922.81	V	-80.51	-36.00	
5135.00	V	-61.67	-30.00	
7702.50	V	-55.83	-30.00	

Note: The report only recorded the worst result.



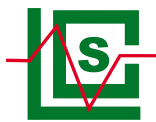


Idle Mode(Worst Case)

n3: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
57.05	Horizontal	-77.50	-57.00	Pass
927.07	H	-77.06	-57.00	
1799.36	H	-61.88	-47.00	
2706.98	H	-56.93	-47.00	
3613.97	H	-73.34	-47.00	
n3: Middle Channel, Normal condition				
Frequency (MHz)	Radiated Spurious Emission		Limit (dBm)	Test Result
	Polarization	Level(dBm)		
54.46	Vertical	-76.96	-57.00	Pass
720.48	V	-79.77	-57.00	
1790.73	V	-58.21	-47.00	
2706.51	V	-60.40	-47.00	
3617.29	V	-75.01	-47.00	

Note: The report only recorded the worst result.





4 Control and monitoring functions

4.1 LIMIT

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

4.2 Test Results Summary

According to the recorded data in following table, the EUT complied with the ETSI EN 301 908-1 V15.2.1 (2023-01).

TEST RESULTS

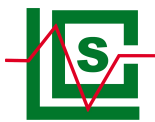
n1(CBW 5MHz CP-QPSK)				
Carrier centre(ARFCN)	Carrier centre(MHz)	Maximum Measured Power (dBm)	Limits (dBm)	Result
384500	1922.5	-45.10	≤-30	Pass
390000	1950.0	-44.84	≤-30	Pass
395500	1977.5	-41.15	≤-30	Pass

n3(CBW 5MHz CP-QPSK)				
Carrier centre(ARFCN)	Carrier centre(MHz)	Maximum Measured Power (dBm)	Limits (dBm)	Result
342500	1712.5	-41.11	≤-30	Pass
349500	1747.5	-44.45	≤-30	Pass
356500	1782.5	-44.96	≤-30	Pass

n7(CBW 5MHz CP-QPSK)				
Carrier centre(ARFCN)	Carrier centre(MHz)	Maximum Measured Power (dBm)	Limits (dBm)	Result
524500	2502.5	-43.93	≤-30	Pass
531000	2535.0	-48.21	≤-30	Pass
537500	2567.5	-42.12	≤-30	Pass

Note: The report only recorded the worst result.





5 Requirement of 3GPP TS 38.521

Refer to NR Annex Data

6 PHOTOGRAPHS OF TEST SETUP

Please refer to separated files Appendix D for Photographs of Test Setup_RF.

7 PHOTOGRAPHS OF THE EUT

Please refer to separated files Appendix C for Photographs of The EUT.

-----THE END OF REPORT-----

