

Test report No:
2530986R.701B

FCC TEST REPORT

Product Name	5G CPE
Trademark	inhand
Model and /or type reference	CPE02
FCC ID	2AANY-CPE02
Applicant's name / address	Beijing InHand Networks Technology Co., Ltd. Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China
Test method requested, standard	47 CFR FCC Part 96
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Tim Cao / Project Manager 
Approved by (name / position & signature)	Frank He / Technical Manager 
Date of issue	2025-04-18
Report Version	V1.0
Report template No	Template_FCC Part 96-RF-V1.0

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COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Mar. 26, 2025
Date (start test)	Mar. 27, 2025
Date (finish test)	Apr. 07, 2025

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
T_x	: Transmitter
R_x	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2530986R.701B	V1.0	Initial issue of report.	2025-04-18

REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. This report is a limited report on the installation of a test module in a host, and the customer declares that the RF parameters of the module installed in the host computer are exactly the same as those of the certified module. We verified the RF output power and radiated emissions of the equipment, and verified that the results were all within the limits and therefore had no impact on the test results. For other test data, please refer to the RM520N-NA module , For module RM520N-NA: Report No.: 2303RSU050-U7;FCC ID: XMR2023RG520NNA.These test results on a sample of the device are for the purpose of demonstrating Compliance with 47 CFR FCC Part 96.
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.
7. DEKRA declines any responsibility with the following test data provided by customer that may affect the validity of result:
 - Chapter 1.1 General Description of the Item(s);
 - Chapter 1.2 Antenna Information;
 - Chapter 1.3 Channel List.

USED EQUIPMENT

RF Output Power / TR7							
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software Version
Wideband Radio Communication Tester	R&S	CMW 500	158243	2024.05.15	2025.05.14	X 4.0.62.11	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2024.04.03	2025.04.02	N/A	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2025.04.03	2026.04.02	N/A	N/A
Signal analyzer	R&S	FSV30	104212	2024.07.06	2025.07.05	3.40	N/A
ESG Vector Signal Generator	Agilent	E4438C	MY49070163	2024.12.11	2025.12.10	C.05.85	N/A
RF Control Unit	Tonscend	JS0806-1	168060022	2024.08.28	2025.08.27	N/A	N/A
PSG Analog Signal Generator	Keysight	E8257D	MY60020890	2025.03.09	2026.03.08	C.06.27	N/A
High and low temperature and fast temperature change test box	ASTUOD	ASTD-FBT-225K	N/A	2024.04.21	2025.04.20	N/A	N/A
Filter box	Tonscend	N/A	N/A	2024.12.09	2025.12.08	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-036	2024.05.17	2025.05.16	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-037	2024.05.17	2025.05.16	N/A	N/A
Test Software	Tonscend	JS1120	JS1120-8	N/A	N/A	N/A	V3.1.46

Radiated Emissions (9KHz-1GHz) / AC2							
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date	Firmware Version	Software version
Wideband Radio Communication Tester	R&S	CMW 500	158243	2024.05.15	2025.05.14	X 4.0.62.11	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2024.04.03	2025.04.02	N/A	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2025.04.03	2026.04.02	N/A	N/A
EMI Test Receiver	R&S	ESCI	100573	2025.02.06	2026.02.05	4.42 SP3	N/A
Loop Antenna	R&S	HFH2-Z2E	101149	2025.03.27	2026.03.26	N/A	N/A

Bilog Antenna	Teseq GmbH	CBL6112 D	27611	2025.03.20	2026.03.19	N/A	N/A
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2024.04.27	2025.04.26	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-021	2024.05.17	2025.05.16	N/A	N/A
Dekra test software	Dekra	N/A	N/A	N/A	N/A	N/A	3

Radiated Emissions (1GHz-40GHz)/ AC5

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Date	Cal. Version	Firmware Version	Software version
Wideband Radio Communication Tester	R&S	CMW 500	158243	2024.05.15	2025.05.14	X	4.0.62.11	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2024.04.03	2025.04.02	N/A	N/A	N/A
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2025.04.03	2026.04.02	N/A	N/A	N/A
EXA Spectrum Analyzer	Keysight	N9020B	MY60112218	2024.11.08	2025.11.07	A.31.05	N/A	N/A
Pre-Amplifier	SKET	EMC184045SE	980263	2024.07.14	2025.07.13	N/A	N/A	N/A
DRG Horn Antenna	ETS-Lindgren	3117	123988	2024.11.07	2025.11.06	N/A	N/A	N/A
Filter Switch Box	MVE	MSW-F196	C070001S	2024.04.20	2025.04.19	N/A	N/A	N/A
Coaxial Cable	ROSENBERGER	LA1-C011-2000/3000	AC5-40G-2	2024.05.26	2025.05.25	N/A	N/A	N/A
Cable	Rosenberger	LA1-C011-1000	0523	2024.05.26	2025.05.25	N/A	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-001	2024.08.25	2025.08.24	N/A	N/A	N/A
Temperature/Humidity Meter	RTS	RTS-1909	THM-024	2024.05.17	2025.05.16	N/A	N/A	N/A
Dekra test software	Dekra	N/A	N/A	N/A	N/A	N/A	N/A	3

UNCERTAINTY

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The Uncertainties is comply with standard required as below.

Test item	Uncertainty
RF Output Power	± 1.2 dB
Radiated Emissions	± 3.2 dB

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

EUT Description:	5G CPE	
Model No.:	CPE02	
Trade Mark:	inhand	
Hardware Version:	V1.6	
Software Version:	V2.0	
Extreme temperature*	0°C~40 °C	
Extreme voltage*	9 Vdc~14Vdc	
Manufacturer:	Beijing InHand Networks Technology Co., Ltd.	
Manufacturer address:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China	
Power Supply:	12.0Vdc(adapter or host equipment)	
Modulation technology:	LTE	QPSK, 16QAM, 64QAM,256 QAM
Modulation technology:	5G NR	DFT-s-OFDM(Pi/2BPSK,QPSK,16QAM,64QAM ,256QAM); CP-OFDM(QPSK,16QAM,64QAM,256QAM);
Frequency Range:	LTE Band 48 Channel Bandwidth: 5MHz	3552.5MHz ~ 3697.5MHz
	LTE Band 48 Channel Bandwidth: 10MHz	3555MHz ~ 3695MHz
	LTE Band 48 Channel Bandwidth: 15MHz	3557.5MHz ~ 3692.5MHz
	LTE Band 48 Channel Bandwidth: 20MHz	3560MHz ~ 3690MHz
	LTE Band CA_48C Channel Bandwidth: 5MHz+20MHz	3553.3MHz ~ 3690MHz
	LTE Band CA_48C Channel Bandwidth: 20MHz +5MHz	3560MHz ~ 3696.7MHz
	LTE Band CA_48C Channel Bandwidth: 10MHz +20MHz	3555.5MHz ~ 3690MHz
	LTE Band CA_48C Channel Bandwidth: 20MHz +10MHz	3560MHz ~ 3694.5MHz
	LTE Band CA_48C Channel Bandwidth: 15MHz +20MHz	3557.8MHz ~ 3690MHz
	LTE Band CA_48C Channel Bandwidth: 20MHz +15MHz	3560MHz ~ 3692.2MHz
	LTE Band CA_48C Channel Bandwidth: 20MHz +20MHz	3560MHz ~ 3690MHz



	NR Band n48	3550 MHz ~ 3700 MHz
Antenna Gain*	Built-in cellular Antenna with 0.08dBi gain for LTE B48 Built-in cellular Antenna with 0.08dBi gain for NR 48 Built-in cellular Antenna with 0.08dBi gain for LTE CA 48C	
Note1: This product uses the module model RM520N-NA and supports LTE frequency bands 2/4/5/7/12/13/14/17/25/26/30/38/41/48/66/71. Therefore, for this product, we referred to the test data reported by the RM520N-NA module and reevaluated the spectrum of radiated emissions and EIRP. For module RM520N-NA: Report No.: 2303RSU050-U7 ; FCC ID: XMR2023RG520NNA		

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Test mode:	Mode 1: Transmit by LTE Band 48
	Mode 2: Transmit by LTE Band CA_48C
	Mode 3: Transmit by NR Band n48

Notes :

1. For portable device, radiated tests was verified over X, Y, Z axis, and shown the worst case on this report.
2. We evaluated and tested all bandwidths, RB configurations and modulations and the EUT had been tested with all conditions, but only the worst case was represented in the report.

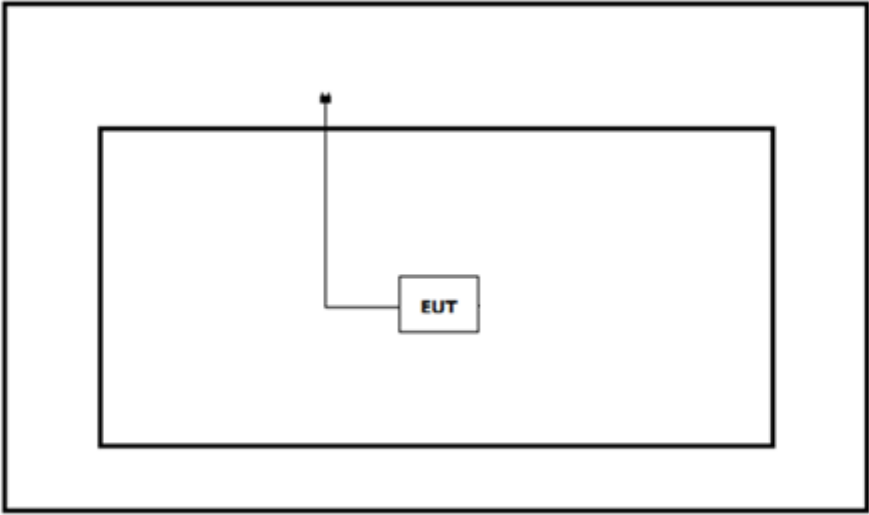
2.2 Auxiliary equipment / Test software for the EUT

Auxiliary equipment	Type / Version	Manufacturer	Supplied by
N/A	N/A	N/A	N/A
software	Type / Version	Manufacturer	Supplied by
N/A	N/A	N/A	N/A

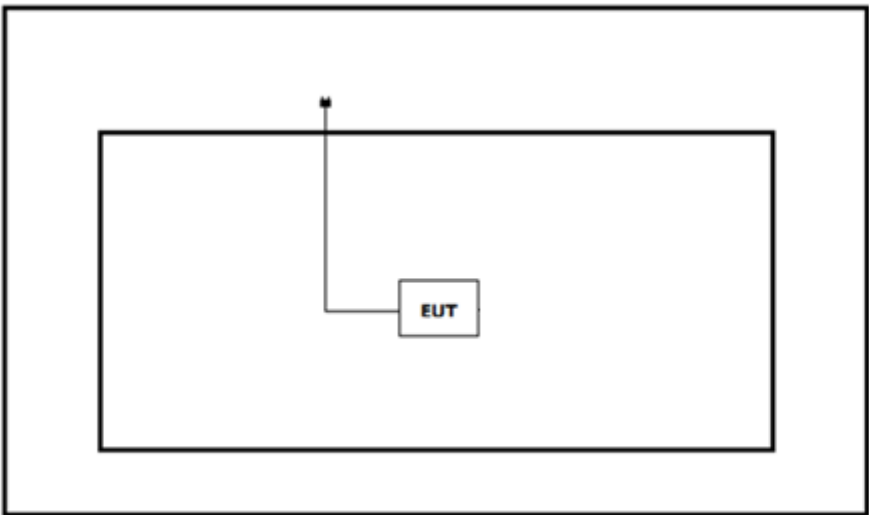
Accessories Information	Cable		
	Length used during test [m]	Attached during test	Shielded
(2)USB Control Cable	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(3)USB Control Cable	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

2.3 Test Configuration / Block diagram used for tests

Test setup Diagram- Conducted test



Test setup Diagram- Radiated Emission



2.4 Testing process

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT Communicate with CMW 500, then select channel to test.

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 2	2024	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
FCC CFR Title 47 Part 96	2024	CITIZENS BROADBAND RADIO SERVICE
ANSI C63.26	2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
ANSI TIA-603-E	2016	Land Mobile FM or PM Communications Equipment Measurement and performance Standards
KDB971168 D01 v03r01	2018	Measurement Guidance for Certification of Licensed Digital Transmitters
KDB971168 D02 v02r02	2023	Miscellaneous and Basic Review and Approval Items for Transmitting Equipment Used in Licensed Radio Services

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

(Please define the deviations from the standard(s) if applicable)

3.3 Overview of results

Requirement – Test case	Basic standard(s)	Verdict	Remark
RF Output Power	FCC Part 96	PASS	Test data please refer to Appendix A
Radiated Emissions	FCC Part 96	PASS	Test data please refer to Appendix B

3.4 Test Facility

USA : FCC Designation Number: CN1199

4 TEST RESULTS

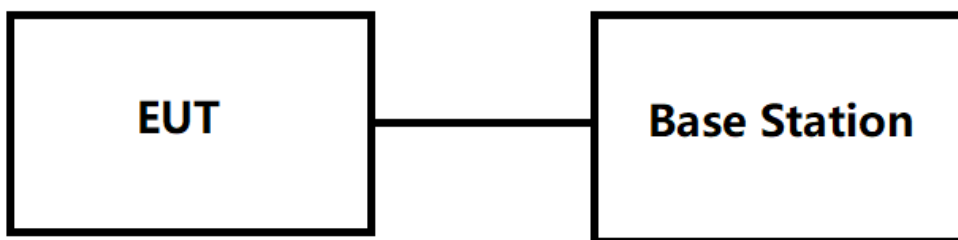
4.1 Effective (Isotropic) Radiated Power Output

VERDICT: PASS

4.1.1 Limit

Device	Maximum EIRP (dBm/10 MHz)
End User Device	23
Category A CBSD	30
Category B CBSD	47

4.1.2 Test Setup



4.1.3 Test Procedure

	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.26-2015	5.2	RF output power measurement procedures

The conducted RF Output Power measurements were made at the RF output terminals of the EUT using the power meter of the Universal Radio Communication tester R&S CMW500, selecting maximum transmission power of the EUT and different modes of modulation.

Peak to average ratio(PAPR) is used equation $PAPR(dB) = PPK(dBm) - PAVG(dBm)$, where PPK is measured peak power, and PAVG is measured average power.

The maximum equivalent isotropically radiated power(e.i.r.p.) is calculated by adding the declared maximum antenna gain(dBi).

The maximum effective radiated power e.r.p. is calculated form the maximum equivalent isotropically radiated power(e.i.r.p.) by subtracting 2.15 dB: $E.R.P = E.I.R.P. - 2.15 dB$

4.2 Radiated Emissions

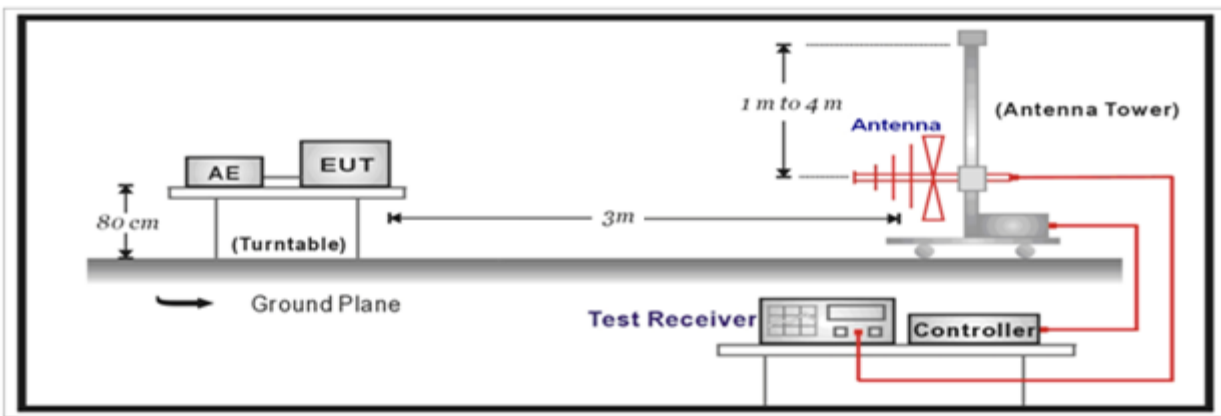
VERDICT: PASS

4.2.1 Limit

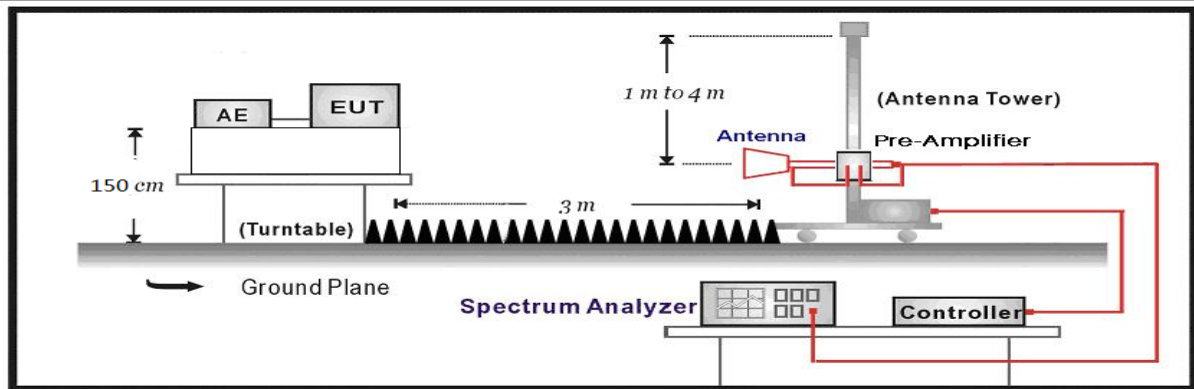
The power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

4.2.2 Test Setup

30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.2.3 Test Procedure

	Reference Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.26	5.5	Radiated emissions testing

The spectrum was scanned from 9 kHz to the 10th harmonic of the highest frequency generated within the equipment.

Emissions below 18 GHz were measured at a 3 meter test distance.

The EUT was tested in three orthogonal axes and in all possible test configurations and poisoning when measurement antenna is oriented in both horizontal and vertical polarization, the worst case emissions was showed in the report.

Radiated emissions were used the substitution method described in ANSI/TIA-603-E-2016.

Radiated emissions were measured with 100kHz RBW below 1GHz and 1MHz RBW above 1GHz.

According to specification, the power of emissions shall be attenuated below the transmitter power (P) by a factor of at least $X + 10 \log (P)$ dB. P in watts. The specification can be interpreted as an absolute limit when the specified attenuation is actually subtracted from the maximum permissible transmitter power [i.e., $10 \log P - \{X + 10 \log P\}$], resulting in an absolute level of -X dBW [or $(-X + 30)$ dBm].

5 TEST SETUP PHOTO AND EUT PHOTO

Remark: The test setup photo and EUT Photo please see appendix.

6 TEST RESULT

Appendix A: Output Power

Note: The gain of this product is smaller than that of the module used, so the power reported in the original module report was referenced, please refer to the referenced module report for all power.

Appendix B: Radiated Emissions

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

LTE band 48:ANT2 Channel:55990

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
7250.00	-53.09	-40.00	Horizontal
10875.00	-51.44	-40.00	Horizontal
7250.00	-53.83	-40.00	Vertical
10875.00	-52.88	-40.00	Vertical

LTE band CA_48C:ANT0 Frequency with 3621.65MHz and BW=5+20MHz

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
7243.30	-51.84	-40.00	Horizontal
10864.95	-51.56	-40.00	Horizontal
7243.30	-54.47	-40.00	Vertical
10864.95	-51.57	-40.00	Vertical

SA N48:ANT2 Channel : 641666 Frequency : 3624.99MHz

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
7250.00	-53.89	-40.00	Horizontal
10875.00	-51.49	-40.00	Horizontal
7250.00	-54.63	-40.00	Vertical
10875.00	-53.85	-40.00	Vertical

_____ The End _____