



# TEST REPORT

No. I21N01062-EMC-UMTS

for

**Rootcloud technology CO.,LTD**

**T-AMS PRO**

**Model Name: LI1520-DC-T-GL PRO**

**FCC ID: 2AO7J-LI1520**

**with**

**Hardware Version: V1.0**

**Software Version: V1.0**

**Issued Date: 2021-07-01**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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No. I21N01062-EMC-UMTS

## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I21N01062-EMC-UMTS	Rev.0	1st edition	2021-07-01

Note: the latest revision of the test report supersedes all previous version

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## 1. SUMMARY OF TEST REPORT

### 1.1. Test Items

Description	T-AMS PRO
Model Name	LI1520-DC-T-GL PRO
Applicant's name	Rootcloud technology CO.,LTD
Manufacturer's Name	Rootcloud technology CO.,LTD

### 1.2. Test Standards

FCC Part 2/22/24/27	10-1-19 Edition
ANSI C63.26	2015
KDB971168 D01	v03r01

### 1.3. Test Result

Total test 2 items, pass 2 items. Please refer to "6 Summary of Test Results" for detail.

### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000

### 1.5. Project Data

Testing Start Date: 2020-05-21      Testing End Date: 2021-06-28

### 1.6. Signature



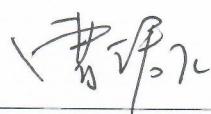
Liang Yong

(Prepared this test report)



Zhang Yunzhan

(Reviewed this test report)



Cao Junfei

(Approved this test report)



## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: Rootcloud technology CO.,LTD  
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Email: Huiyan.wu@rootcloud.com  
Tel.: +86 18306678502

### **2.2. Manufacturer Information**

Company Name: Rootcloud technology CO.,LTD  
Address: Room 303-309, No. 3, East Road, Pazhou Avenue, Haizhu District, Guangzhou 510335  
Contact: Joyce Wu  
Email: Huiyan.wu@rootcloud.com  
Tel.: +86 18306678502

### **3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)**

#### **3.1. About EUT**

Description	T-AMS PRO
Model Name	LI1520-DC-T-GL PRO
FCC ID	2AO7J-LI1520
Frequency Bands	WCDMA Band 2,4,5
Antenna	External antenna
Power Source	DC12V/DC 24V
Condition of EUT as received	No abnormality in appearance

#### **3.2. Internal Identification of EUT used during the test**

EUT ID*	IMEI	HW Version	SW Version	Sample Arrival Date
UT03aa	867698042521149	V1.0	V1.0	2021-04-08

\*EUT ID: is used to identify the test sample in the lab internally.

UT05aa is used for conduction test, UT11aa is used for radiation test.

#### **3.3. Internal Identification of AE used during the test**

AE ID*	Description
AE1	Battery
AE1	
Model	WT340
Manufacturer	Guangdong Fenghua New Energy Co.,Ltd
Capacity	4900mAh
Nominal Voltage	3.85V

\*AE ID: is used to identify the test sample in the lab internally.

### **3.4. General Description**

The Equipment under Test (EUT) is a model of T-AMS PRO with external antenna.

It consists of normal options: GPS/4G Antenna.

Manual and specifications of the EUT were provided to fulfill the test.

Samples (EUT+AE) undergoing test were selected by the client. Relevant information is provided by the client.

This report is based on LTE Module EG25-G, EG25-G MINIPCIE for for conformance test.

According to the declaration by manufacturer, the following tests need to be performed.

NO.	Test item	EUT Operating Mode
1	Out power	WCDMA
2	Field strength of spurious radiation	WCDMA

Other results are cited from the report of LTE Module EG25-G, EG25-G.

#### **4. REFERENCE DOCUMENTS**

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-19 Edition
FCC Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	10-1-19 Edition
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	10-1-19 Edition
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	10-1-19 Edition
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB971168 D01	Power Meas License Digital Systems	v03r01

## 5. LABORATORY ENVIRONMENT

**Fully-anechoic chamber** did not exceed following limits along the EMC testing

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz > 60 dB; 1MHz-18000MHz > 90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

## 6. SUMMARY OF TEST RESULTS

Abbreviations used in this clause:		
Verdict Column	P	Pass
	F	Fail
	NA	Not applicable
	NM	Not measured

### WCDMA Band II

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/24.232	A.1	P
2	Field Strength of Spurious Radiation	2.1053/24.238	A.2	P

### WCDMA Band V

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/22.913	A.1	P
2	Field Strength of Spurious Radiation	2.1053/22.917	A.2	P

### WCDMA Band IV

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	2.1046/27.50(d)	A.1	P
2	Field Strength of Spurious Radiation	2.1053/27.53(h)	A.2	P

## **7. STATEMENT**

Since the client provides the information of samples in this report, the laboratory is not responsible for the authenticity of sample information.

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

## 8. TEST EQUIPMENTS UTILIZED

NO.	Description	TYPE	Manufacture	series number	CAL DUE DATE
1	Test Receiver	ESR7	R&S	101676	2021-11-25
2	BiLog Antenna	3142E	ETS-Lindgren	0224831	2024-05-24
3	Horn Antenna	3117	ETS-Lindgren	00066577	2022-04-02
4	Horn Antenna	QSH-SL-18 -26-S-20	Q-par	17013	2023-01-06
5	Antenna	BBHA 9120D	Schwarzbeck	1593	2022-12-05
6	Antenna	VUBA 9117	Schwarzbeck	207	2023-07-15
7	Antenna	QWH-SL-18 -40-K-SG	Q-par	15979	2023-01-06
8	preamplifier	83017A	Agilent	MY39501110	/
9	Signal Generator	SMB100A	R&S	179725	2021-11-25
10	Fully Anechoic Chamber	FACT3-2.0	ETS-Lindgren	1285	2021-07-19
11	Spectrum Analyzer	FSV40	R&S	101192	2022-01-13
12	Universal Radio Communication Tester	CMU200	R&S	114545	2022-01-13

### Test software

Item	Name	Vesion
Radiated	EMC32	Version 10.50.40

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 OUTPUT POWER**

#### **Reference**

FCC: CFR Part 2.1046, 22.913, 24.232, 27.50(d)

#### **A.1.1 Summary**

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200 or CMW500) to ensure max power transmission and proper modulation.

This result contains max output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

#### **A.1.1 Radiated**

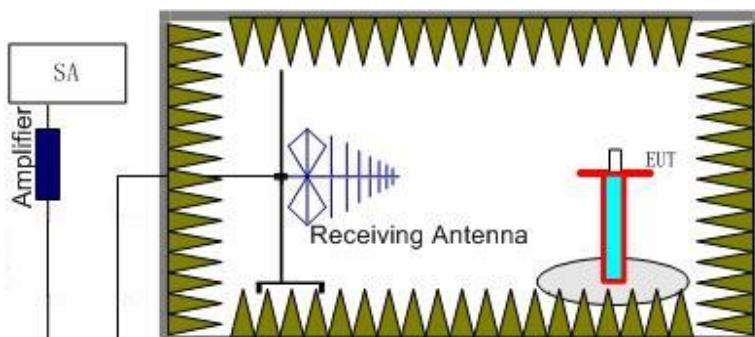
##### **A.1.1.1 Description**

This is the test for the maximum radiated power from the EUT.

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage." Rule Part 22.913(a) specifies "The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

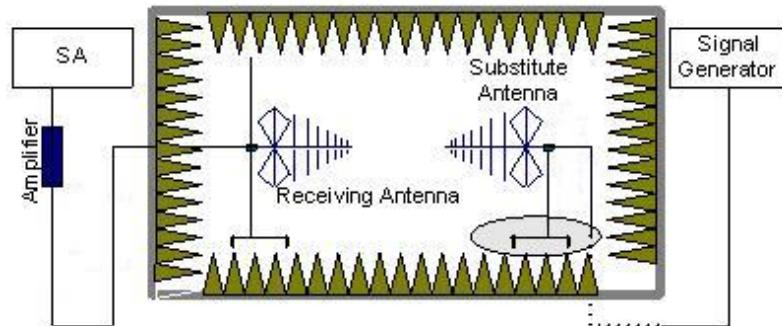
##### **A.1.2.2 Method of Measurement**

1. For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, EUT was placed on a 80 cm high non-conductive stand at a 3 meter test distance from the receive antenna. For radiated measurements performed at frequencies above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Receiving antenna was placed on the antenna mast 3 meters from the EUT. For emission measurements. The receiving antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

- The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna.

The cable loss ( $P_{cl}$ ), the Substitution Antenna Gain(dBi) ( $G_a$ ) and the Amplifier Gain ( $P_{Ag}$ ) should be recorded after test.

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = P_{Mea} - P_{Ag} - P_{cl} + G_a$$

- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dB}$ .

**A.1.2.3 Measurement result**
**WCDMA Band II-EIRP**
**Limits**

		Burst Peak EIRP (dBm)
WCDMA Band II		≤33dBm (2W)

**Measurement result**
**QPSK**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1852.40	-16.39	-29.30	8.10	21.01	33.00	H
1880.00	-17.17	-29.40	8.10	20.33	33.00	H
1907.60	-16.78	-29.30	8.10	20.62	33.00	H

**16QAM**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
<b>1852.40</b>	<b>-16.10</b>	<b>-29.30</b>	<b>8.10</b>	<b>21.30</b>	<b>33.00</b>	<b>H</b>
1880.00	-17.14	-29.40	8.10	20.36	33.00	H
1907.60	-16.23	-29.30	8.10	21.17	33.00	H

Frequency: 1852.40MHz

 Peak EIRP(dBm)= PMea(-16.10dBm)-(Pcl+P<sub>Ag

**ANALYZER SETTINGS: RBW = VBW = 5MHz**

**WCDMA Band V-ERP**

**Limits**

		Burst Peak ERP (dBm)
WCDMA Band V		≤38.45dBm

**Measurement result**

**QPSK**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	Correction(dB)	ERP(dBm)	Limit(dBm)	Polarization
826.40	-13.33	-33.60	-0.84	2.15	17.28	38.45	H
836.60	-12.71	-33.50	-0.74	2.15	17.90	38.45	H
846.60	-12.22	-33.50	-0.73	2.15	18.40	38.45	H

**16QAM**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	Correction (dB)	ERP(dBm)	Limit(dBm)	Polarization
826.40	-13.31	-33.60	-0.84	2.15	17.30	38.45	H
836.60	-12.75	-33.50	-0.74	2.15	17.86	38.45	H
<b>846.60</b>	<b>-12.13</b>	<b>-33.50</b>	<b>-0.73</b>	<b>2.15</b>	<b>18.49</b>	<b>38.45</b>	<b>H</b>

Frequency: 846.60MHz

Peak ERP(dBm)= PMea(-12.13dBm)-(Pcl+P<sub>Ag

**ANALYZER SETTINGS: RBW = VBW = 5MHz**

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**WCDMA Band IV-EIRP**
**Limits**

		Burst Peak EIRP (dBm)
WCDMA Band IV		≤30.00dBm

**Measurement result**
**QPSK**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.40	-18.47	-29.60	8.10	19.23	30.00	H
<b>1740.00</b>	<b>-17.94</b>	<b>-29.50</b>	<b>8.10</b>	<b>19.66</b>	<b>30.00</b>	<b>H</b>
1752.60	-17.66	-29.50	8.10	19.94	30.00	H

**16QAM**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	P <sub>cl</sub> (dB)+ P <sub>Ag</sub> (dB)	Ga Antenna Gain(dBi)	EIRP(dBm)	Limit(dBm)	Polarization
1712.40	-18.54	-29.60	8.10	19.16	30.00	H
1740.00	-18.34	-29.50	8.10	19.26	30.00	H
1752.60	-17.88	-29.50	8.10	19.72	30.00	H

Frequency: 1740.00MHz

Peak EIRP(dBm)= PMea(-17.94dBm)-(Pcl+PAG)(-29.50dB)+Ga (8.10dB)=19.66dBm

**ANALYZER SETTINGS: RBW = VBW = 5MHz**

Note: The maximum value of expanded measurement uncertainty for this test item is  $U = 2.72\text{dB}(30\text{MHz}-3\text{GHz})/3.60\text{dB}(3\text{GHz}-18\text{GHz})/3.58\text{dB}(18\text{GHz}-40\text{GHz})$ ,  $k = 2$

**Note: Both of Vertical and Horizontal polarizations are evaluated, but only the worst case is recorded in this report.**

## **A.2 FIELD STRENGTH OF SPURIOUS RADIATION**

### **Reference**

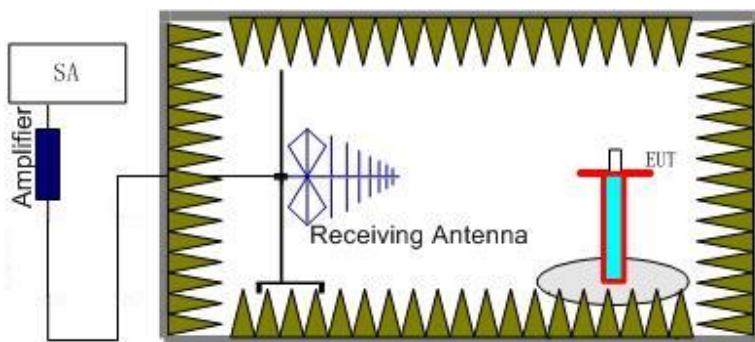
FCC: CFR 2.1053, 22.917, 24.238, 27.53(h).

#### **A.2.1 Measurement Method**

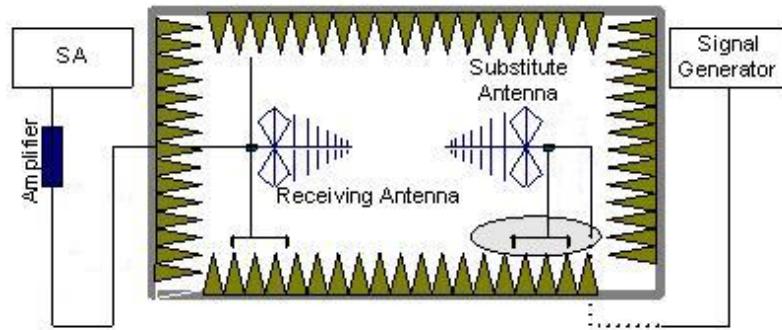
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238, Part 22.917 and Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band II, WCDMA Band V and WCDMA Band IV.

#### **The procedure of radiated spurious emissions is as follows:**

1. For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, EUT was placed on a 80 cm high non-conductive stand at a 3 meter test distance from the receive antenna. For radiated measurements performed at frequencies above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Receiving antenna was placed on the antenna mast 3 meters from the EUT. For emission measurements. The receiving antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power ( $P_{Mea}$ ) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded ( $P_r$ ). The power of signal source ( $P_{Mea}$ ) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss ( $P_{pl}$ ) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain(dBi) ( $G_a$ ) should be recorded after test.

A amplifier should be connected in for the test.

The Path loss ( $P_{pl}$ ) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = P_{Mea} - P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15\text{dB}$ .

### A.2.2 Measurement Limit

Part 24.238 , Part 22.917 and Part 27.50 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

### A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of WCDMA Band II (1852.4 MHz, 1880.0MHz and 1907.6MHz), WCDMA Band V(826.4MHz, 836.6MHz and 846.6MHz) and WCDMA Band IV (1712.4MHz, 1740.0MHz and 1752.6MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the WCDMA Band II,WCDMA Band V and WCDMA Band IV into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

**A.2.4 Measurement Results Table**

Frequency	Channel	Frequency Range	Result
WCDMA Band V	Low	30MHz-10GHz	Pass
	Middle	30MHz-10GHz	Pass
	High	30MHz-10GHz	Pass
WCDMA Band II	Low	30MHz-20GHz	Pass
	Middle	30MHz-20GHz	Pass
	High	30MHz-20GHz	Pass
WCDMA Band IV	Low	30MHz-20GHz	Pass
	Middle	30MHz-20GHz	Pass
	High	30MHz-20GHz	Pass

**A.2.5 Sweep Table**

Working Frequency	Subrange (GHz)	RBW	VBW	Sweep time (s)
WCDMA Band V	0.03~1	100KHz	300KHz	10
	1~2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~10	1 MHz	3 MHz	3
WCDMA Band II	0.03~1	100KHz	300KHz	10
	1~2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~11	1 MHz	3 MHz	3
	11~14	1 MHz	3 MHz	3
	14~18	1 MHz	3 MHz	3
	18~20	1 MHz	3 MHz	2
WCDMA Band IV	0.03~1	100KHz	300KHz	10
	1~2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~11	1 MHz	3 MHz	3
	11~14	1 MHz	3 MHz	3
	14~18	1 MHz	3 MHz	3
	18~20	1 MHz	3 MHz	3

**WCDMA BAND II Mode Channel 9662/1932.4MHz (QPSK)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2962.40	-46.63	1.00	10.70	-36.93	-13.00	V
8732.00	-60.79	2.00	12.00	-50.79	-13.00	H
9261.00	-57.37	2.10	11.60	-47.87	-13.00	V
12034.50	-57.80	2.70	12.60	-47.90	-13.00	H
15000.00	-56.51	2.40	12.40	-46.51	-13.00	H
17953.50	-52.80	3.20	12.80	-43.20	-13.00	H

**WCDMA BAND II Mode Channel 9800/1960MHz (QPSK)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2995.73	-46.00	1.00	10.70	-36.30	-13.00	V
5642.50	-62.13	1.30	13.10	-50.33	-13.00	V
9396.00	-52.29	2.10	11.60	-42.79	-13.00	V
12043.00	-57.82	2.70	12.60	-47.92	-13.00	V
15040.50	-56.83	2.40	12.40	-46.83	-13.00	H
17866.00	-53.25	3.60	12.80	-44.05	-13.00	H

**WCDMA BAND II Mode Channel 9938/1987.6MHz (QPSK)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2960.53	-46.13	1.00	10.70	-36.43	-13.00	V
5726.00	-60.75	1.50	13.10	-49.15	-13.00	V
9542.50	-53.62	2.10	11.20	-44.52	-13.00	V
11633.50	-56.58	2.60	11.00	-48.18	-13.00	V
14874.50	-55.10	2.70	11.20	-46.60	-13.00	V
17932.00	-52.58	3.20	12.80	-42.98	-13.00	H

**WCDMA BAND II Mode Channel 9662/1932.4MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2962.40	-46.63	1.00	10.70	-36.93	-13.00	V
8753.00	-60.66	1.90	12.00	-50.56	-13.00	H
9267.00	-55.80	2.10	11.60	-46.30	-13.00	V
12006.00	-57.53	2.60	12.60	-47.53	-13.00	V
15035.50	-56.32	2.40	12.40	-46.32	-13.00	H
17945.00	-53.12	3.20	12.80	-43.52	-13.00	H

**WCDMA BAND II Mode Channel 9800/1960MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2968.00	-46.63	1.00	10.70	-36.93	-13.00	H
7524.50	-58.07	1.90	11.30	-48.67	-13.00	V
9405.00	-52.82	2.10	11.60	-43.32	-13.00	V
12249.00	-58.06	2.60	12.60	-48.06	-13.00	V
15013.50	-56.52	2.40	12.40	-46.52	-13.00	H
17872.00	-52.83	3.60	12.80	-43.63	-13.00	H

**WCDMA BAND II Mode Channel 9938/1987.6MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2963.20	-45.68	1.00	10.70	-35.98	-13.00	V
7627.00	-56.41	1.80	11.30	-46.91	-13.00	V
9542.50	-54.66	2.10	11.20	-45.56	-13.00	V
12223.00	-57.53	2.60	12.60	-47.53	-13.00	V
14873.50	-55.11	2.70	11.20	-46.61	-13.00	H
17919.50	-53.38	3.20	12.80	-43.78	-13.00	H

**WCDMA BAND V Mode Channel 4357/871.4 MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
2953.07	-45.93	1.00	10.70	-38.38	-13.00	V
8637.50	-60.48	2.00	12.00	-52.63	-13.00	H
10509.50	-57.41	2.30	10.80	-51.06	-13.00	H
12021.00	-57.44	2.60	12.60	-49.59	-13.00	H
14296.50	-55.37	2.60	11.90	-48.22	-13.00	H
17791.50	-52.19	3.60	12.80	-45.14	-13.00	H

**WCDMA BAND V Mode Channel 4408/881.6MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dB m)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
1671.63	-34.08	0.80	8.10	-28.93	-13.00	H
8349.50	-60.24	1.80	11.30	-52.89	-13.00	H
10036.00	-58.24	2.20	11.30	-51.29	-13.00	H
11949.00	-56.29	2.60	11.00	-50.04	-13.00	V
14930.50	-55.36	2.70	11.20	-49.01	-13.00	H
17815.50	-51.67	3.60	12.80	-44.62	-13.00	H

**WCDMA BAND V Mode Channel 4458/891.6MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dB m)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
1692.17	-46.30	0.80	8.10	-41.15	-13.00	H
8550.50	-60.47	2.10	12.00	-52.72	-13.00	H
9852.50	-58.09	2.30	11.20	-51.34	-13.00	H
11944.00	-55.84	2.60	11.00	-49.59	-13.00	H
15041.00	-56.31	2.40	12.40	-48.46	-13.00	H
17827.00	-52.83	3.60	12.80	-45.78	-13.00	H

**WCDMA BAND V Mode Channel 4357/871.4 MHz (16QAM)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
2955.47	-45.81	1.00	10.70	-38.26	-13.00	H
6116.50	-62.42	1.60	13.10	-53.07	-13.00	V
6825.00	-62.31	1.80	12.40	-53.86	-13.00	V
7500.50	-61.03	1.90	11.30	-53.78	-13.00	H
8395.00	-60.95	1.80	11.30	-53.60	-13.00	V
9490.00	-59.36	2.10	11.60	-52.01	-13.00	H

**WCDMA BAND V Mode Channel 4408/881.6MHz (16QAM)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
1673.10	-44.98	0.80	8.10	-39.83	-13.00	H
6574.50	-61.75	1.70	12.40	-53.20	-13.00	V
7411.50	-62.59	1.90	12.00	-54.64	-13.00	V
8167.50	-59.42	2.20	11.30	-52.47	-13.00	H
8790.50	-60.21	1.90	12.00	-52.26	-13.00	H
9505.50	-59.69	2.10	11.20	-52.74	-13.00	H

**WCDMA BAND V Mode Channel 4458/891.6MHz (16QAM)**

Frequency(MHz)	PMea(dB m)	Path loss	Antenna Gain(dBi)	Peak ERP(dBm)	Limit(dB m)	Polarization
1692.53	-45.86	0.80	8.10	-40.71	-13.00	H
6401.50	-63.97	1.60	13.10	-54.62	-13.00	H
6740.50	-62.09	1.70	12.40	-53.54	-13.00	H
7210.50	-62.21	1.80	12.00	-54.16	-13.00	V
7973.50	-61.43	1.90	11.30	-54.18	-13.00	H
8485.50	-60.00	1.80	11.30	-52.65	-13.00	H

**WCDMA BAND IV Mode Channel 1537/1753.4MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2958.67	-45.64	1.00	10.70	-35.94	-13.00	V
8292.50	-60.45	1.90	11.30	-51.05	-13.00	H
10418.00	-58.21	2.30	11.30	-49.21	-13.00	H
12266.00	-57.86	2.60	12.60	-47.86	-13.00	H
15044.50	-56.08	2.40	12.40	-46.08	-13.00	H
17346.00	-54.29	3.20	14.50	-42.99	-13.00	H

**WCDMA BAND IV Mode Channel 1638/1777.6MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2992.80	-46.46	1.00	10.70	-36.76	-13.00	V
8659.00	-58.26	2.00	12.00	-48.26	-13.00	V
10065.50	-58.58	2.00	11.30	-49.28	-13.00	H
12240.50	-57.67	2.60	12.60	-47.67	-13.00	H
15044.50	-56.12	2.40	12.40	-46.12	-13.00	H
17859.00	-53.19	3.60	12.80	-43.99	-13.00	H

**WCDMA BAND IV Mode Channel 1738/1797.6MHz (QPSK)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2945.33	-45.96	1.00	10.70	-36.26	-13.00	V
8758.50	-58.29	1.90	12.00	-48.19	-13.00	V
10509.50	-56.58	2.30	10.80	-48.08	-13.00	V
12349.50	-57.45	2.60	12.60	-47.45	-13.00	V
14417.00	-55.74	2.60	11.90	-46.44	-13.00	H
17828.00	-52.84	3.60	12.80	-43.64	-13.00	H

**WCDMA BAND IV Mode Channel 1537/1753.4MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2841.07	-45.56	1.00	10.70	-35.86	-13.00	V
8417.50	-59.44	1.80	11.30	-49.94	-13.00	H
10393.50	-57.99	2.30	11.30	-48.99	-13.00	H
11949.50	-56.34	2.60	11.00	-47.94	-13.00	H
14294.00	-55.11	2.60	11.90	-45.81	-13.00	H
17807.00	-53.18	3.60	12.80	-43.98	-13.00	H

**WCDMA BAND IV Mode Channel 1638/1777.6MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2970.40	-46.50	1.00	10.70	-36.80	-13.00	V
8657.50	-58.32	2.00	12.00	-48.32	-13.00	V
10464.50	-58.36	2.30	11.30	-49.36	-13.00	H
11954.50	-55.61	2.60	11.00	-47.21	-13.00	H
15042.00	-56.10	2.40	12.40	-46.10	-13.00	H
17945.50	-52.61	3.20	12.80	-43.01	-13.00	H

**WCDMA BAND IV Mode Channel 1738/1797.6MHz (16QAM)**

Frequency(MHz)	P <sub>Mea</sub> (dBm)	Path loss	Antenna Gain(dBi)	Peak EIRP(dBm)	Limit(dB m)	Polarization
2958.13	-46.50	1.00	10.70	-36.80	-13.00	V
8758.50	-59.41	1.90	12.00	-49.31	-13.00	V
10511.00	-56.97	2.30	10.80	-48.47	-13.00	V
12067.00	-57.78	2.70	12.60	-47.88	-13.00	V
15045.00	-56.51	2.40	12.40	-46.51	-13.00	V
17819.50	-52.69	3.60	12.80	-43.49	-13.00	H

Note: The maximum value of expanded measurement uncertainty for this test item is U =

2.72dB(30MHz-3GHz)/3.60dB(3GHz-18GHz)/3.58dB(18GHz-40GHz), k = 2

**\*\*\*END OF REPORT\*\*\***