Certificate #6613.01

FCC TEST REPORT

(PART 27)
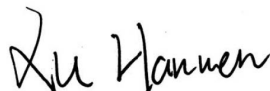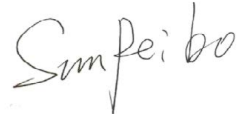
Applicant:	Beijing InHand Networks Technology Co., Ltd.
Address:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China

Manufacturer or Supplier:	Beijing InHand Networks Technology Co., Ltd.
Address:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing China
Product:	CPE02
Brand Name:	inhand
Model Name:	CPE02
FCC ID:	2AANY-CPE02
Date of tests:	Feb. 11, 2025 ~ Feb. 28, 2025

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 27** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Prepared by Hanwen Xu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
Date: Feb. 28, 2025	Date: Feb. 28, 2025

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2502170213RF03	Original release	Feb. 28, 2025

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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**TEST LAB***
§2.1046	Conducted Output Power	Compliance	A
§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13) (Band 17) (Band 71)	Compliance	A
§27.50(d)(4) §27.50(h)(2) §27.50(a)(3)	Equivalent Isotropically Radiated Power (Band 7)(Band 30)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Conducted Band Edge Measurements (Band 7) (Band 12) (Band 13) (Band 17) (Band 30) (Band 71)	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Conducted Spurious Emissions (Band 7) (Band 12) (Band 13) (Band 17) (Band 30) (Band 71)	Compliance	A
§2.1053 §27.53(c)(2)(4) §27.53(f) §27.53(g) §27.53(h) §27.53(m)(4)(6) §27.53(a)(4)	Radiated Spurious Emissions (Band 7) (Band 12) (Band 13) (Band 17) (Band 30) (Band 71)	Compliance	A
NA	Peak to average ratio	Compliance	A

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*Test Lab Information Reference

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province, China

Accredited Test Lab Cert 6613.01

The FCC Site Registration No. is 434559; The Designation No. is CN1325.

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1.1 MEASREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
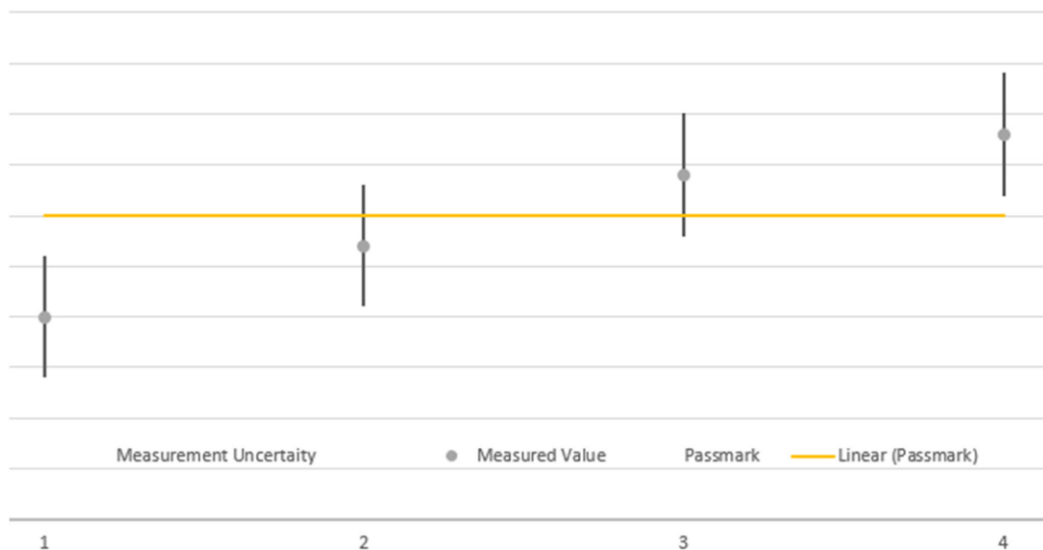
The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,23	Aug.29,25
Pre-Amplifier	R&S	SCU08F1	101028	Jan.22,24	Jan.21,26
Vector Signal Generator	R&S	SMBV100B	102176	Mar.29,24	Mar.28,26
Signal Generator	R&S	SMB100A	182185	Mar.29,24	Mar.28,26
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Mar.28,24	Mar.27,26
EMI TEST Receiver	R&S	ESW44	101973	Mar.28,24	Mar.27,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Dec.26,23	Dec.25,25
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,23	Aug.21,25
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Jul.15,24	Jul.14,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,23	Aug.21,25
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,23	Feb.22,25
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,25	Feb.21,27
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.19,24	Jun.18,26
Test Software	EMC32	EMC32	N/A	N/A	N/A
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	N/A	N/A
DC Source	HYELEC	HY3010B	551016	Aug.31,23	Aug.30,25
Hygrothermograph	DELI	20210528	SZ014	Sep.06,23	Sep.05,25
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	W12.14	N/A	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.27,24	Apr.26,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.27,24	Apr.26,25
Temperature Chamber	votsch	VT4002	58566078100050	May.30,24	May.29,26

NOTE: 1. The calibration interval of the above test instruments is 12 / 24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.

3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	CPE02	
BRAND NAME**	inhand	
MODEL NAME*	CPE02	
NOMINAL VOLTAGE*	12.0Vdc(adapter or host equipment)	
MODULATION TECHNOLOGY*	LTE	QPSK, 16QAM, 64QAM,256 QAM
FREQUENCY RANGE	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 12 Channel Bandwidth: 1.4MHz	699.7MHz ~ 715.3MHz
	LTE Band 12 Channel Bandwidth: 3MHz	700.5MHz ~ 714.5MHz
	LTE Band 12 Channel Bandwidth: 5MHz	701.5MHz ~ 713.5MHz
	LTE Band 12 Channel Bandwidth: 10MHz	704MHz ~ 711MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 17 Channel Bandwidth: 5MHz	706.5MHz ~ 713.5MHz
	LTE Band 17 Channel Bandwidth: 10MHz	709MHz ~ 711 MHz
	LTE Band 30 Channel Bandwidth: 5MHz	2307.5MHz ~ 2312.5MHz
	LTE Band 30 Channel Bandwidth: 10MHz	2310MHz
	LTE Band 71 Channel Bandwidth: 5MHz	665.5MHz ~ 695.5MHz
	LTE Band 71 Channel Bandwidth: 10MHz	668MHz ~ 693MHz
	LTE Band 71 Channel Bandwidth: 15MHz	670.5MHz ~ 690.5MHz
	LTE Band 71 Channel Bandwidth: 20MHz	673MHz ~ 688MHz

MAX. EIRP POWER	LTE Band 7 **Channel Bandwidth: 10MHz**	223.87mW
	LTE Band 12 **Channel Bandwidth: 10MHz**	177.83mW
	LTE Band 13 **Channel Bandwidth: 5MHz**	172.98mW
	LTE Band 17 **Channel Bandwidth: 5MHz**	183.23mW
	LTE Band 30 **Channel Bandwidth: 10MHz**	170.61mW
	LTE Band 71 **Channel Bandwidth: 5MHz**	175.79mW
ANTENNA TYPE*	Built-in cellular Antenna with 2.86dBi gain for LTE B7 Built-in cellular Antenna with 0.84dBi gain for LTE B12 Built-in cellular Antenna with 1.86dBi gain for LTE B13 Built-in cellular Antenna with 1.86dBi gain for LTE B17 Built-in cellular Antenna with 1.28dBi gain for LTE B30 Built-in cellular Antenna with 0.69dBi gain for LTE B71	
HW VERSION	V1.6	
SW VERSION**	V2.0	
I/O PORTS*	Refer to user's manual	
EXTREME TEMPERATURE*	0°C~40 °C	
EXTREME VOLTAGE*	9 Vdc~14Vdc	

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 revaluated the spectrum of radiated emissions and EIRP.

For module RM520N-NA: Report No.: 2303RSU050-U7

FCC ID：XMR2023RG520NNA

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NOTE2:
1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
5. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST

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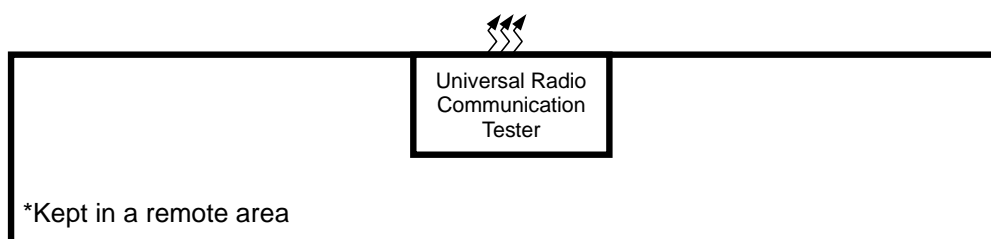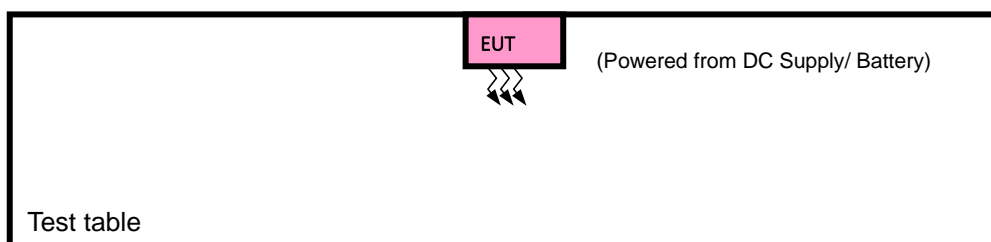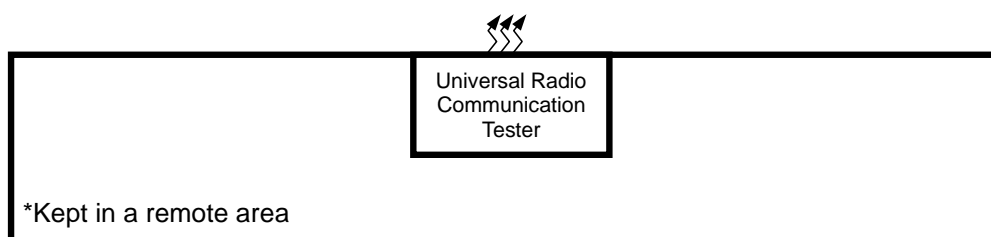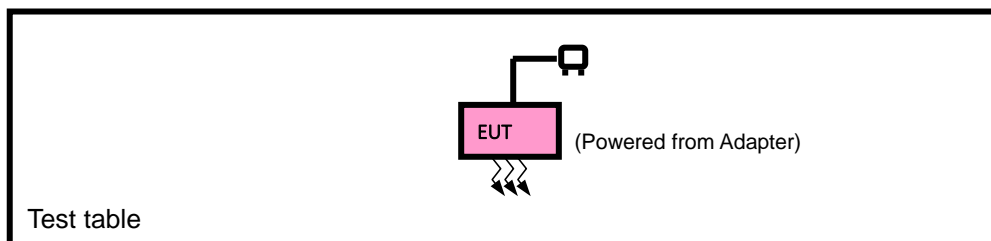
2.3   DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	DC Source	HYELEC	HY3010B	551016	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.8m

2.4   TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	**EUT + Adapter + USB Cable with LTE link**
B	**EUT + DC Supply with LTE link**

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LTE BAND 7 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 12 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23017 to 23173	23017, 23095 , 23173	1.4MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		23025 to 23165	23025, 23095 ,23165	3MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		23035 to 23155	23035, 23095 ,23155	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23017 to 23173	23095	1.4MHz	QPSK	1 RB / 0 RB Offset
		23025 to 23165	23095	3MHz	QPSK	1 RB / 0 RB Offset
		23035 to 23155	23095	5MHz	QPSK	1 RB / 0 RB Offset
		23060 to 23130	23060, 23095 ,23130	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

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LTE BAND 13 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	23230	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 17 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23755 to 23825	23755, 23790, 23825	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		23780 to 23800	23780, 23790, 23800	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset

Note: 1.This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 17 are covered by LTE Band 12, Because it is a subset of LTE Band 12 with the same output power and supported bandwidths, So the conducted test data and RSE test data please refer to LTE Band 12

LTE BAND 30

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	27685 to 27735	27685, 27710, 27735	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		27710	27710	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	27685 to 27735	27685, 27710, 27735	5MHz	QPSK	1 RB / 0 RB Offset
		27710	27710	10MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE BAND 71

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	133147 to 133447	133147, 133297, 133447	5MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		133197 to 133397	133197, 133297, 133397	15MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
		133222 to 133372	133222, 133322, 133372	20MHz	QPSK,16QAM, 64QAM,256 QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	133147 to 133447	133297	5MHz	QPSK	1 RB / 0 RB Offset
		133172 to 133422	133172, 133297 133422	10MHz	QPSK	1 RB / 0 RB Offset
		133197 to 133397	133297	15MHz	QPSK	1 RB / 0 RB Offset
		133222 to 133372	133322	20MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC12V By Adapter	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC12V By Adapter	Hanwen Xu

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that "User stations are limited to 2 watts" and 27.50(i) specific that "Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage."

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP

According to the specific rule Part 27.50(b)(10) and 27.50(c)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 698-746 MHz, 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth.For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

ERP or EIRP = $P_{Meas} + G_T - L_C$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

CONDUCTED POWER MEASUREMENT:

a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.

b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3   TEST SETUP

CONDUCTED POWER MEASUREMENT:

COMMUNICATION SIMULATOR	EUT
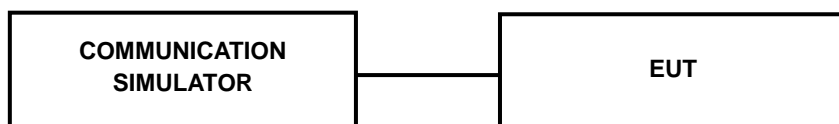
For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

LTE Band 7

MAX Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
2565	10	1	24	23.50	26.36	< 33.01
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
2560	20	1	99	23.46	26.32	< 33.01
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
2505	10	1	24	23.38	26.24	< 33.01
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
2510	20	1	49	23.13	25.99	< 33.01
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

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Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK						
2502.50				23.01	25.87	< 33.01
2535.00	5	1	0	23.21	26.07	< 33.01
2567.50				23.43	26.29	< 33.01
2502.50				23.09	25.95	< 33.01
2535.00	5	1	12	23.25	26.11	< 33.01
2567.50				23.46	26.32	< 33.01
2502.50				23.04	25.90	< 33.01
2535.00	5	1	24	23.20	26.06	< 33.01
2567.50				23.24	26.10	< 33.01
2502.50				22.63	25.49	< 33.01
2535.00	5	25	0	22.77	25.63	< 33.01
2567.50				22.99	25.85	< 33.01
2505.00				22.38	25.24	< 33.01
2535.00	10	1	0	23.31	26.17	< 33.01
2565.00				23.40	26.26	< 33.01
2505.00				22.68	25.54	< 33.01
2535.00	10	1	24	23.27	26.13	< 33.01
2565.00				23.50	26.36	< 33.01
2505.00				23.24	26.10	< 33.01
2535.00	10	1	49	23.12	25.98	< 33.01
2565.00				23.23	26.09	< 33.01
2505.00				22.99	25.85	< 33.01
2535.00	10	50	0	22.24	25.10	< 33.01
2565.00				22.82	25.68	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
QPSK						
2507.50				23.40	26.26	< 33.01
2535.00	15	1	0	22.54	25.40	< 33.01
2562.50				23.30	26.16	< 33.01
2507.50				23.50	26.36	< 33.01
2535.00	15	1	37	23.01	25.87	< 33.01
2562.50				23.15	26.01	< 33.01
2507.50				23.28	26.14	< 33.01
2535.00	15	1	74	23.01	25.87	< 33.01
2562.50				23.14	26.00	< 33.01
2507.50				22.95	25.81	< 33.01
2535.00	15	75	0	22.65	25.51	< 33.01
2562.50				22.76	25.62	< 33.01
2510.00				23.14	26.00	< 33.01
2535.00	20	1	0	22.56	25.42	< 33.01
2560.00				23.12	25.98	< 33.01
2510.00				23.24	26.10	< 33.01
2535.00	20	1	49	23.01	25.87	< 33.01
2560.00				23.16	26.02	< 33.01
2510.00				23.20	26.06	< 33.01
2535.00	20	1	99	23.05	25.91	< 33.01
2560.00				23.46	26.32	< 33.01
2510.00				22.89	25.75	< 33.01
2535.00	20	100	0	22.70	25.56	< 33.01
2560.00				22.63	25.49	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM						
2502.50				22.56	25.42	< 33.01
2535.00	5	1	0	23.05	25.91	< 33.01
2567.50				23.32	26.18	< 33.01
2502.50				22.41	25.27	< 33.01
2535.00	5	1	12	22.95	25.81	< 33.01
2567.50				23.38	26.24	< 33.01
2502.50				22.60	25.46	< 33.01
2535.00	5	1	24	23.01	25.87	< 33.01
2567.50				22.82	25.68	< 33.01
2502.50				21.54	24.40	< 33.01
2535.00	5	25	0	21.81	24.67	< 33.01
2567.50				21.99	24.85	< 33.01
2505.00				23.32	26.18	< 33.01
2535.00	10	1	0	22.00	24.86	< 33.01
2565.00				22.98	25.84	< 33.01
2505.00				23.38	26.24	< 33.01
2535.00	10	1	24	21.74	24.60	< 33.01
2565.00				23.01	25.87	< 33.01
2505.00				22.82	25.68	< 33.01
2535.00	10	1	49	22.87	25.73	< 33.01
2565.00				23.04	25.90	< 33.01
2505.00				21.99	24.85	< 33.01
2535.00	10	50	0	21.46	24.32	< 33.01
2565.00				21.85	24.71	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
16QAM						
2507.50				23.09	25.95	< 33.01
2535.00	15	1	0	21.72	24.58	< 33.01
2562.50				22.81	25.67	< 33.01
2507.50				23.31	26.17	< 33.01
2535.00	15	1	37	22.90	25.76	< 33.01
2562.50				22.77	25.63	< 33.01
2507.50				22.66	25.52	< 33.01
2535.00	15	1	74	22.72	25.58	< 33.01
2562.50				23.04	25.90	< 33.01
2507.50				22.01	24.87	< 33.01
2535.00	15	75	0	21.66	24.52	< 33.01
2562.50				21.76	24.62	< 33.01
2510.00				22.86	25.72	< 33.01
2535.00	20	1	0	21.87	24.73	< 33.01
2560.00				22.90	25.76	< 33.01
2510.00				23.13	25.99	< 33.01
2535.00	20	1	49	22.76	25.62	< 33.01
2560.00				23.08	25.94	< 33.01
2510.00				22.67	25.53	< 33.01
2535.00	20	1	99	22.68	25.54	< 33.01
2560.00				22.85	25.71	< 33.01
2510.00				21.87	24.73	< 33.01
2535.00	20	100	0	21.70	24.56	< 33.01
2560.00				21.75	24.61	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
64QAM						
2502.50	5	1	0	21.42	24.28	< 33.01
2535.00				21.93	24.79	< 33.01
2567.50				21.95	24.81	< 33.01
2502.50	5	1	12	21.47	24.33	< 33.01
2535.00				21.91	24.77	< 33.01
2567.50				22.10	24.96	< 33.01
2502.50	5	1	24	21.72	24.58	< 33.01
2535.00				21.93	24.79	< 33.01
2567.50				22.03	24.89	< 33.01
2502.50	5	25	0	20.58	23.44	< 33.01
2535.00				20.67	23.53	< 33.01
2567.50				20.93	23.79	< 33.01
2505.00	10	1	0	21.78	24.64	< 33.01
2535.00				21.93	24.79	< 33.01
2565.00				21.97	24.83	< 33.01
2505.00	10	1	24	21.39	24.25	< 33.01
2535.00				22.04	24.90	< 33.01
2565.00				22.12	24.98	< 33.01
2505.00	10	1	49	21.82	24.68	< 33.01
2535.00				22.01	24.87	< 33.01
2565.00				22.25	25.11	< 33.01
2505.00	10	50	0	20.79	23.65	< 33.01
2535.00				20.73	23.59	< 33.01
2565.00				20.85	23.71	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
64QAM						
2507.50				21.03	23.89	< 33.01
2535.00	15	1	0	21.76	24.62	< 33.01
2562.50				21.79	24.65	< 33.01
2507.50				21.94	24.80	< 33.01
2535.00	15	1	37	21.93	24.79	< 33.01
2562.50				21.91	24.77	< 33.01
2507.50				21.66	24.52	< 33.01
2535.00	15	1	74	21.59	24.45	< 33.01
2562.50				21.73	24.59	< 33.01
2507.50				20.54	23.40	< 33.01
2535.00	15	75	0	20.62	23.48	< 33.01
2562.50				20.73	23.59	< 33.01
2510.00				21.18	24.04	< 33.01
2535.00	20	1	0	21.81	24.67	< 33.01
2560.00				21.61	24.47	< 33.01
2510.00				21.46	24.32	< 33.01
2535.00	20	1	49	21.83	24.69	< 33.01
2560.00				21.91	24.77	< 33.01
2510.00				21.70	24.56	< 33.01
2535.00	20	1	99	21.69	24.55	< 33.01
2560.00				21.96	24.82	< 33.01
2510.00				20.63	23.49	< 33.01
2535.00	20	100	0	20.75	23.61	< 33.01
2560.00				20.86	23.72	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
256QAM						
2502.50				18.75	21.61	< 33.01
2535.00	5	1	0	18.54	21.40	< 33.01
2567.50				19.09	21.95	< 33.01
2502.50				18.69	21.55	< 33.01
2535.00	5	1	12	18.87	21.73	< 33.01
2567.50				19.13	21.99	< 33.01
2502.50				18.63	21.49	< 33.01
2535.00	5	1	24	18.98	21.84	< 33.01
2567.50				19.07	21.93	< 33.01
2502.50				18.71	21.57	< 33.01
2535.00	5	25	0	18.76	21.62	< 33.01
2567.50				19.00	21.86	< 33.01
2505.00				18.69	21.55	< 33.01
2535.00	10	1	0	18.93	21.79	< 33.01
2565.00				19.12	21.98	< 33.01
2505.00				18.90	21.76	< 33.01
2535.00	10	1	24	19.11	21.97	< 33.01
2565.00				19.30	22.16	< 33.01
2505.00				18.57	21.43	< 33.01
2535.00	10	1	49	19.08	21.94	< 33.01
2565.00				19.26	22.12	< 33.01
2505.00				18.66	21.52	< 33.01
2535.00	10	50	0	18.83	21.69	< 33.01
2565.00				18.99	21.85	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	EIRP (dBm)	Limit (dBm)
256QAM						
2507.50				18.72	21.58	< 33.01
2535.00	15	1	0	18.93	21.79	< 33.01
2562.50				19.01	21.87	< 33.01
2507.50				18.91	21.77	< 33.01
2535.00	15	1	37	18.17	21.03	< 33.01
2562.50				18.80	21.66	< 33.01
2507.50				18.70	21.56	< 33.01
2535.00	15	1	74	18.72	21.58	< 33.01
2562.50				18.77	21.63	< 33.01
2507.50				18.57	21.43	< 33.01
2535.00	15	75	0	18.71	21.57	< 33.01
2562.50				18.74	21.60	< 33.01
2510.00				18.59	21.45	< 33.01
2535.00	20	1	0	18.50	21.36	< 33.01
2560.00				18.84	21.70	< 33.01
2510.00				18.78	21.64	< 33.01
2535.00	20	1	49	18.87	21.73	< 33.01
2560.00				18.66	21.52	< 33.01
2510.00				18.89	21.75	< 33.01
2535.00	20	1	99	18.79	21.65	< 33.01
2560.00				18.99	21.85	< 33.01
2510.00				18.63	21.49	< 33.01
2535.00	20	100	0	18.62	21.48	< 33.01
2560.00				18.87	21.73	< 33.01
Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)						

LTE Band 12

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

LTE Band 13

MAX Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
784.5	5	1	12	22.38	22.09	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
782	10	1	0	22.37	22.08	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
64QAM						
779.5	5	1	12	22.44	22.15	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
782	10	1	24	22.05	21.76	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

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Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
779.5				22.19	21.90	< 34.77
782.0	5	1	0	22.34	22.05	< 34.77
784.5				22.26	21.97	< 34.77
779.5				22.25	21.96	< 34.77
782.0	5	1	12	22.34	22.05	< 34.77
784.5				22.38	22.09	< 34.77
779.5				22.15	21.86	< 34.77
782.0	5	1	24	22.22	21.93	< 34.77
784.5				22.19	21.90	< 34.77
779.5				21.89	21.60	< 34.77
782.0	5	25	0	21.68	21.39	< 34.77
784.5				21.86	21.57	< 34.77
782.0		1	0	22.37	22.08	< 34.77
782.0		1	24	22.28	21.99	< 34.77
782.0	10	1	49	22.32	22.03	< 34.77
782.0		50	0	21.79	21.50	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
779.5	5	1	0	21.89	21.60	< 34.77
782.0				21.89	21.60	< 34.77
784.5				22.10	21.81	< 34.77
779.5	5	1	12	21.93	21.64	< 34.77
782.0				22.04	21.75	< 34.77
784.5				22.13	21.84	< 34.77
779.5	5	1	24	22.20	21.91	< 34.77
782.0				21.94	21.65	< 34.77
784.5				22.06	21.77	< 34.77
779.5	5	25	0	20.84	20.55	< 34.77
782.0				20.77	20.48	< 34.77
784.5				20.75	20.46	< 34.77
782.0	10	1	0	21.82	21.53	< 34.77
782.0		1	24	22.05	21.76	< 34.77
782.0		1	49	21.93	21.64	< 34.77
782.0		50	0	20.85	20.56	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
64QAM						
779.5	5	1	0	20.80	20.51	< 34.77
782.0				21.10	20.81	< 34.77
784.5				21.09	20.80	< 34.77
779.5	5	1	12	22.44	22.15	< 34.77
782.0				21.02	20.73	< 34.77
784.5				20.94	20.65	< 34.77
779.5	5	1	24	20.96	20.67	< 34.77
782.0				20.90	20.61	< 34.77
784.5				21.07	20.78	< 34.77
779.5	5	25	0	19.90	19.61	< 34.77
782.0				19.90	19.61	< 34.77
784.5				19.93	19.64	< 34.77
782.0	10	1	0	20.92	20.63	< 34.77
782.0		1	24	21.16	20.87	< 34.77
782.0		1	49	20.91	20.62	< 34.77
782.0		50	0	20.03	19.74	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

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Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
256QAM						
779.5	5	1	0	17.81	17.52	< 34.77
782.0				18.22	17.93	< 34.77
784.5				17.80	17.51	< 34.77
779.5	5	1	12	18.12	17.83	< 34.77
782.0				17.98	17.69	< 34.77
784.5				18.20	17.91	< 34.77
779.5	5	1	24	17.93	17.64	< 34.77
782.0				18.15	17.86	< 34.77
784.5				18.04	17.75	< 34.77
779.5	5	25	0	17.95	17.66	< 34.77
782.0				17.97	17.68	< 34.77
784.5				17.97	17.68	< 34.77
782.0	10	1	0	17.92	17.63	< 34.77
782.0		1	24	18.24	17.95	< 34.77
782.0		1	49	18.27	17.98	< 34.77
782.0		50	0	18.09	17.80	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

LTE Band 17

MAX Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
713.5	5	1	0	22.61	22.32	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
711	10	1	0	22.47	22.18	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
713.5	5	1	12	22.63	22.34	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
711	10	1	49	22.15	21.86	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

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Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
QPSK						
706.5				22.29	22.00	< 34.77
710.0	5	1	0	22.46	22.17	< 34.77
713.5				22.61	22.32	< 34.77
706.5				22.29	22.00	< 34.77
710.0	5	1	12	22.44	22.15	< 34.77
713.5				22.51	22.22	< 34.77
706.5				22.36	22.07	< 34.77
710.0	5	1	24	22.42	22.13	< 34.77
713.5				22.34	22.05	< 34.77
706.5				21.99	21.70	< 34.77
710.0	5	25	0	21.89	21.60	< 34.77
713.5				21.84	21.55	< 34.77
709.0				22.43	22.14	< 34.77
710.0	10	1	0	22.40	22.11	< 34.77
711.0				22.47	22.18	< 34.77
709.0				22.44	22.15	< 34.77
710.0	10	1	24	22.39	22.10	< 34.77
711.0				22.40	22.11	< 34.77
709.0				22.40	22.11	< 34.77
710.0	10	1	49	22.32	22.03	< 34.77
711.0				22.27	21.98	< 34.77
709.0				21.89	21.60	< 34.77
710.0	10	50	0	21.92	21.63	< 34.77
711.0				21.91	21.62	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
16QAM						
706.5				22.22	21.93	< 34.77
710.0	5	1	0	22.22	21.93	< 34.77
713.5				22.27	21.98	< 34.77
706.5				22.01	21.72	< 34.77
710.0	5	1	12	22.16	21.87	< 34.77
713.5				22.63	22.34	< 34.77
706.5				22.02	21.73	< 34.77
710.0	5	1	24	22.00	21.71	< 34.77
713.5				22.05	21.76	< 34.77
706.5				20.94	20.65	< 34.77
710.0	5	25	0	20.99	20.70	< 34.77
713.5				20.88	20.59	< 34.77
709.0				21.90	21.61	< 34.77
710.0	10	1	0	22.07	21.78	< 34.77
711.0				21.90	21.61	< 34.77
709.0				22.08	21.79	< 34.77
710.0	10	1	24	22.07	21.78	< 34.77
711.0				21.91	21.62	< 34.77
709.0				21.91	21.62	< 34.77
710.0	10	1	49	21.71	21.42	< 34.77
711.0				22.15	21.86	< 34.77
709.0				21.01	20.72	< 34.77
710.0	10	50	0	20.93	20.64	< 34.77
711.0				20.79	20.50	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
64QAM						
706.5				21.39	21.10	< 34.77
710.0	5	1	0	21.58	21.29	< 34.77
713.5				21.40	21.11	< 34.77
706.5				21.20	20.91	< 34.77
710.0	5	1	12	21.27	20.98	< 34.77
713.5				21.24	20.95	< 34.77
706.5				20.93	20.64	< 34.77
710.0	5	1	24	21.31	21.02	< 34.77
713.5				21.03	20.74	< 34.77
706.5				20.13	19.84	< 34.77
710.0	5	25	0	20.08	19.79	< 34.77
713.5				20.08	19.79	< 34.77
709.0				21.16	20.87	< 34.77
710.0	10	1	0	21.14	20.85	< 34.77
711.0				21.13	20.84	< 34.77
709.0				21.18	20.89	< 34.77
710.0	10	1	24	21.11	20.82	< 34.77
711.0				21.22	20.93	< 34.77
709.0				21.04	20.75	< 34.77
710.0	10	1	49	21.17	20.88	< 34.77
711.0				21.23	20.94	< 34.77
709.0				20.19	19.90	< 34.77
710.0	10	50	0	20.03	19.74	< 34.77
711.0				20.05	19.76	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Output Power (dBm)	ERP (dBm)	Limit (dBm)
256QAM						
706.5				18.16	17.87	< 34.77
710.0	5	1	0	18.31	18.02	< 34.77
713.5				18.31	18.02	< 34.77
706.5				18.16	17.87	< 34.77
710.0	5	1	12	18.22	17.93	< 34.77
713.5				18.18	17.89	< 34.77
706.5				17.89	17.60	< 34.77
710.0	5	1	24	18.17	17.88	< 34.77
713.5				18.06	17.77	< 34.77
706.5				18.22	17.93	< 34.77
710.0	5	25	0	18.12	17.83	< 34.77
713.5				18.05	17.76	< 34.77
709.0				18.08	17.79	< 34.77
710.0	10	1	0	18.25	17.96	< 34.77
711.0				18.26	17.97	< 34.77
709.0				18.27	17.98	< 34.77
710.0	10	1	24	18.16	17.87	< 34.77
711.0				18.10	17.81	< 34.77
709.0				18.12	17.83	< 34.77
710.0	10	1	49	18.27	17.98	< 34.77
711.0				18.12	17.83	< 34.77
709.0				18.24	17.95	< 34.77
710.0	10	50	0	18.09	17.80	< 34.77
711.0				18.19	17.90	< 34.77
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15						

LTE Band 30

MAX Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Power Density (dBm/5MHz)	EIRP Density (dBm/5MHz)	Limit (dBm /5MHz)
QPSK						
2307.5	5	25	0	22.32	23.60	< 23.98
2310.0	10	50	0	19.70	20.98	< 23.98
16QAM						
2307.5	5	25	0	21.38	22.66	< 23.98
2310.0	10	1	0	18.83	20.11	< 23.98
Note: The EIRP Density (dBm/5MHz) = Power Density (dBm/5MHz) + Antenna Gain (dBi)						

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Power

Frequency (MHz)	Channel Bandwidth (MHz)	RB Size	RB Offset	Power Density (dBm/5MHz)	EIRP Density (dBm/5MHz)	Limit (dBm /5MHz)
QPSK						
2307.5				22.32	23.60	< 23.98
2310.0	5	25	0	22.28	23.56	< 23.98
2312.5				22.32	23.60	< 23.98
2310.0	10	50	0	19.70	20.98	< 23.98
16QAM						
2307.5				21.38	22.66	< 23.98
2310.0	5	25	0	21.29	22.57	< 23.98
2312.5				21.35	22.63	< 23.98
2310.0	10	1	0	18.83	20.11	< 23.98
64QAM						
2307.5				20.33	21.61	< 23.98
2310.0	5	25	0	20.33	21.61	< 23.98
2312.5				20.34	21.62	< 23.98
2310.0	10	50	0	17.75	19.03	< 23.98
256QAM						
2307.5				18.38	19.66	< 23.98
2310.0	5	25	0	18.30	19.58	< 23.98
2312.5				18.41	19.69	< 23.98
2310.0	10	50	0	15.83	17.11	< 23.98
Note: The EIRP Density (dBm/5MHz) = Power Density (dBm/5MHz) + Antenna Gain (dBi)						

LTE Band 71

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

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3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP
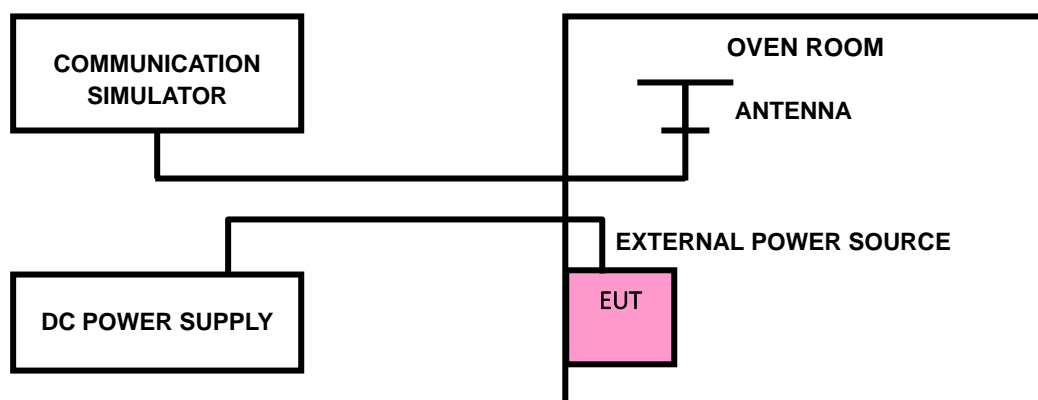
3.2.4 TEST RESULTS

Please Refer to module RM520N-NA report.

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP

```
┌──────────────┐     ┌──────────────┐          ┌──────────────┐
│ COMMUNICATION│─────│POWER SPLITTER│──────────│  SPECTRUM    │
│  SIMULATOR   │     │              │          │  ANALYZER    │
└──────────────┘     └──────────────┘          └──────────────┘
                     ┌──────────────┐          10dB ATTENUATION
                     │     EUT      │          PAD
                     └──────────────┘
```
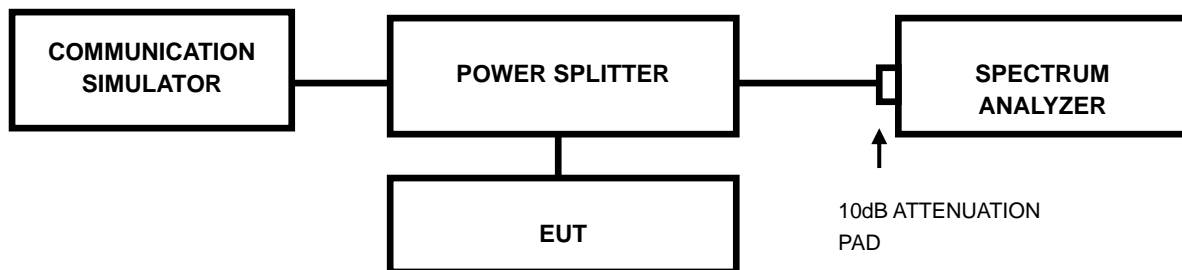
3.3.3 TEST PROCEDURES

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

3.3.4

Please Refer to module RM520N-NA report.

3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 27.53(c) specified that For operations in the 746-758 MHz band and the 776-788 MHz band , the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.In addition, the power of any unwanted emission in an 6.25kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power,P(dBW),by at least 65 +10log10p(P),dB,for mobile and portable equipment.

According to FCC 27.53(g) specified that For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC 27.53(h) specified that For operations in the 1710-1755 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. For mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

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According to FCC 27.53(a)(4) specified that For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

3.4.2   TEST SETUP
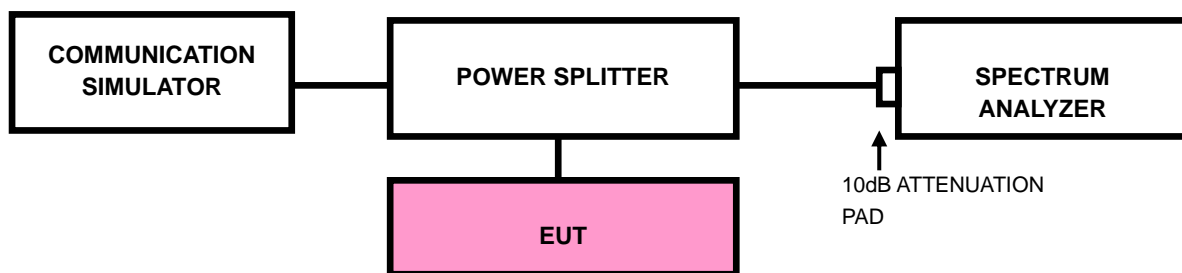
3.4.3 TEST PROCEDURES

a) All measurements were done at low and high operational frequency range

b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.

c) Tune the analyzer to the nominal center frequency of the emission bandwidth

(EBW)

d) .Set the resolution bandwidth (RBW) $\geqq$ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.

e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.

f) Set the video bandwidth (VBW) to $\geqq$3 x RBW.

g) Select the average power (RMS) display detector.

h) Set the number of measurement points to $\geqq$ 1001.

i) Use auto-coupled sweep time.

j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.

k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.

l) Record the max trace plot into the test report.

3.4.4 TEST RESULTS

Please Refer to module RM520N-NA report.

3.5 CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 emission limit equal to –13dBm.
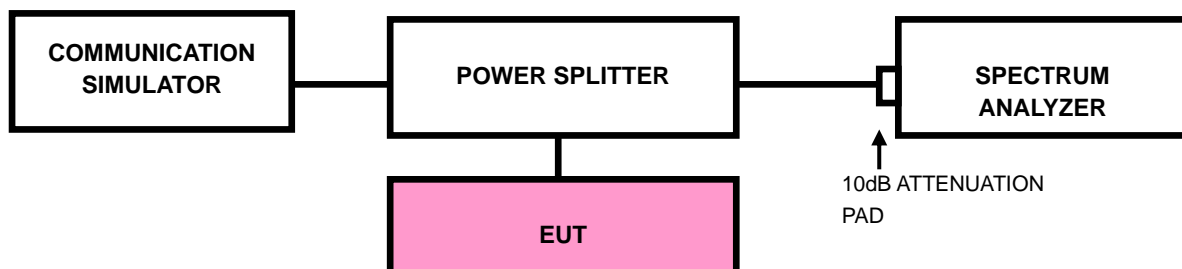
For: LTE Band7

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $55 + 10 \log10(P)$ dB. The limit of emission is equal to -25dBm.

For: LTE Band30

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $70 + 10 \log10(P)$ dB. The limit of emission is equal to -40dBm.

3.5.2 TEST PROCEDURE

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP

3.5.4 TEST RESULTS

Please Refer to module RM520N-NA report.

3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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 emission limit equal to –13dBm.

For: LTE Band7/ Band41

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 55 +10 log10(P) dB. The limit of emission is equal to -25dBm.

.

3.6.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G.

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

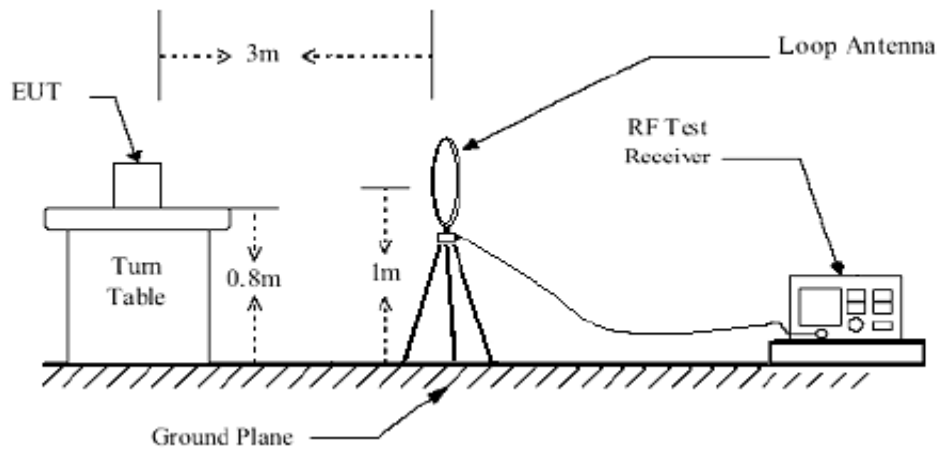**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

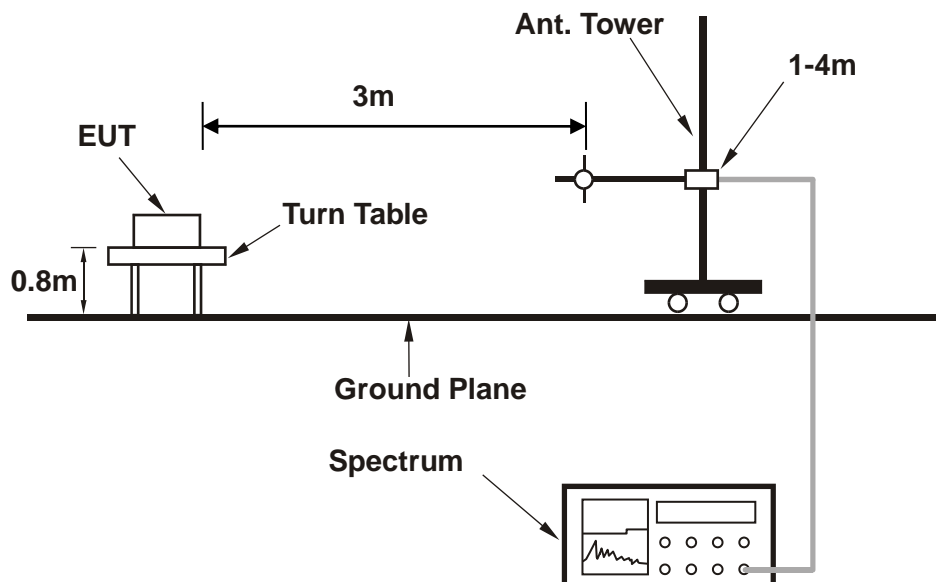### 3.6.3 DEVIATION FROM TEST STANDARD

No deviation

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3.6.4 TEST SETUP

< Frequency Range below 30MHz >

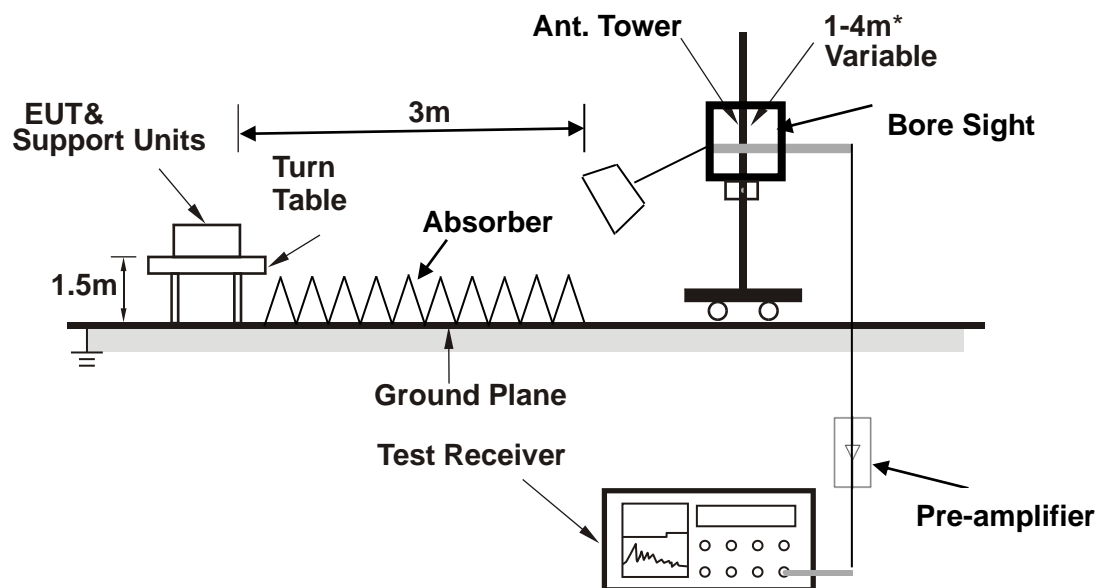**< Frequency Range 30MHz~1GHz >**

<Frequency Range above 1GHz>

Note: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.6.5 TEST RESULTS

NOTE1 ：The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

NOTE2：The measurement range is 30M to the tenth harmonic of the highest funda mental frequency, For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report

LTE band 7

Test result：

ANT2 Channel ： 21100

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1172.20	-79.42	-25.00	Vertical
1505.40	-75.96	-25.00	Vertical
2402.09	-69.61	-25.00	Vertical
3102.00	-81.77	-25.00	Vertical
3555.00	-79.75	-25.00	Vertical
4683.00	-87.59	-25.00	Vertical

LTE band 12

Test result：

ANT0 Channel ： 23095

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1168.00	-79.53	-13.00	Vertical
1487.20	-76.04	-13.00	Vertical
2454.02	-77.30	-13.00	Vertical
3099.00	-81.69	-13.00	Vertical
3576.00	-79.81	-13.00	Vertical
4713.00	-87.99	-13.00	Vertical

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LTE band 13

Test result：

ANT0 Channel ：23230

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1147.00	-79.64	-13.00	Vertical
1499.80	-75.90	-13.00	Vertical
2402.00	-74.57	-13.00	Vertical
3117.00	-81.88	-13.00	Vertical
3576.00	-79.83	-13.00	Vertical
4728.00	-87.96	-13.00	Vertical

LTE band 17

Test result：

ANT0 Channel ：23790

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1186.20	-79.67	-13.00	Vertical
1519.40	-75.94	-13.00	Vertical
2402.51	-74.52	-13.00	Vertical
3084.00	-82.20	-13.00	Vertical
3549.00	-79.91	-13.00	Vertical
4695.00	-87.40	-13.00	Vertical

LTE band 30
Test result

ANT2 Channel ：27710

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1149.80	-79.60	-13.00	Vertical
1504.00	-75.91	-13.00	Vertical
2479.83	-76.84	-13.00	Vertical
3111.00	-81.90	-13.00	Vertical
3570.00	-79.74	-13.00	Vertical
4725.00	-88.03	-13.00	Vertical

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LTE band 71
Test result

ANT0 Channel ：133297

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1180.60	-79.65	-13.00	Vertical
1494.20	-75.82	-13.00	Vertical
2457.62	-77.56	-13.00	Vertical
3084.00	-81.93	-13.00	Vertical
3561.00	-79.90	-13.00	Vertical
4701.00	-87.31	-13.00	Vertical

3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP
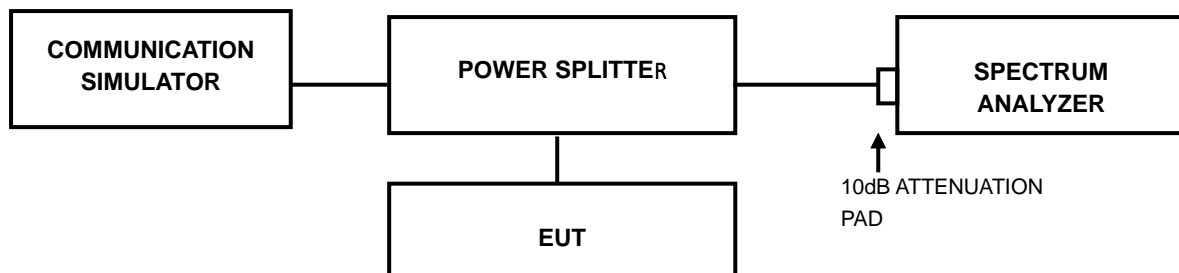
3.7.3 TEST PROCEDURES

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1%.

3.7.4 TEST RESULTS

Please Refer to module RM520N-NA report.

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4 INFORMATION ON THE TESTING LABORATORIES

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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Lab Address:
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Accredited Test Lab Cert 6613.01

If you have any comments, please feel free to contact us at the following:

 Suzhou EMC/RF Lab:
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5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

6 APPENDIX

Please Refer to module RM520N-NA report.

---END---