

TEST REPORT

Applicant: Shanghai Notion Information Technology CO. LTD

Address of Applicant: Room 408,Building 2, Lane 666,Zhangheng Rd, Pudong New Area, Shanghai, China

Manufacturer: Shanghai Notion Information Technology Co.,Ltd

Address of Manufacturer: Room 408, Building 2, Grand Global R & D Center, Lane 666, Zhangheng Road, Pudong New Area, Shanghai, China

Equipment Under Test (EUT)

Product Name: LTE Wireless Router/LTE Mobile Wifi/LTE MiFi/4G MIFI

Model No.: M281T, M27, M271, M271s, M271T, M271Ts, M272, M272s, M272T, M272Ts, M28, M281, M281s, M281Ts, M29, M291, M291T, M291s, M291Ts, L28l, L27l, M281e, M271e, M291e, M6

FCC ID: 2AR45-M281T

Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 22
FCC CFR Title 47 Part 24
FCC CFR Title 47 Part 27

Date of sample receipt: April 09, 2024

Date of Test: April 09, 2024-June 12, 2024

Date of report issued: June 12, 2024

Test Result : PASS *

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:



Global United Technology Services Co., Ltd.
检验检测专用章
Inspection/Testing Services

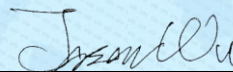
Robinson Luo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	June 12, 2024	Original

Prepared By:



Date:

June 12, 2024

Project Engineer

Check By:



Reviewer

Date:

June 12, 2024

3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
5 GENERAL INFORMATION	5
5.1 GENERAL DESCRIPTION OF EUT	5
5.2 RELATED SUBMITTAL(S) / GRANT (S)	8
5.3 TEST METHODOLOGY	8
5.4 TEST FACILITY	8
5.5 TEST LOCATION	8
6 TEST INSTRUMENTS LIST	9
7 SYSTEM TEST CONFIGURATION	11
7.1 TEST MODE	11
7.2 CONFIGURATION OF TESTED SYSTEM	11
7.3 CONDUCTED OUTPUT POWER & E.R.P. & E.I.R.P.	12
7.4 PEAK-TO-AVERAGE RATIO	13
7.5 OCCUPY BANDWIDTH	14
7.6 MODULATION CHARACTERISTIC	15
7.7 OUT OF BAND EMISSION AT ANTENNA TERMINALS	15
7.8 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT	16
7.9 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT	22
7.10 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT	23
8 TEST SETUP PHOTO	24
9 EUT CONSTRUCTIONAL DETAILS	24

4 Test Summary

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1033 Part 2.1046 Part 2.1055 Part 22.913 Part 24.232 Part 27.50 Part 27.54	Pass
Peak-to-Average Ratio	Part 22.913 Part 24.232 Part 27.50	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049	Pass
Spurious Emissions at Antenna Terminal	Part 2.1053 Part 22.917 Part 24.238 Part 27.53	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 Part 24.238 Part 27.53	Pass
Out of band emission, Band Edge	Part 2.1053 Part 22.917 Part 24.238 Part 27.53	Pass
Frequency stability vs. temperature	Part 2.1055	Pass
Frequency stability vs. voltage	Part 2.1055	Pass

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. N/A: Not applicable.

5 General Information

5.1 General Description of EUT

Product Name:	LTE Wireless Router/LTE Mobile Wifi/LTE MiFi/4G MIFI
Model No.:	M281T, M27, M271, M271s, M271T, M271Ts, M272, M272s, M272T, M272Ts, M28, M281, M281s, M281Ts, M29, M291, M291T, M291s, M291Ts, L28I, L27I, M281e, M271e, M291e, M6
Test Model No.:	M281T
Remark: Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
Tested Sample(s) ID:	GTS2024040098-1
Sample(s) Status:	Engineer sample
S/N:	N/A
Support Bands:	LTE Band 2/4/5/7/38/41
Channel Bandwidth:	LTE Band 2: 1.4MHz; 3MHz; 5MHz; 10MHz; 15MHz; 20MHz LTE Band 4: 1.4MHz; 3MHz; 5MHz; 10MHz; 15MHz; 20MHz LTE Band 5: 1.4MHz; 3MHz; 5MHz; 10MHz LTE Band 7: 5MHz; 10MHz; 15MHz; 20MHz LTE Band 38: 5MHz; 10MHz; 15MHz; 20MHz LTE Band 41: 5MHz; 10MHz; 15MHz; 20MHz
TX Frequency:	LTE Band 2: 1850MHz-1910MHz LTE Band 4: 1710MHz-1755MHz LTE Band 5: 824MHz-849MHz LTE Band 7: 2500MHz-2570MHz LTE Band 38: 2570MHz ~2620MHz LTE Band 41: 2535MHz ~2655MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	Band 2: 2.67dbi Band 4: 2.67dbi Band 5: 1.39dbi Band 7: 2.53dbi Band 38: 2.53dbi Band 41: 2.53dbi
Power supply:	DC 3.8V 3000mAh Li-ion Battery The battery is charged via USB DC5V

Remark:

1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

Test Frequency

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 2	1.4M	Channel 18607	Channel 18900	Channel 19193
		1850.7 MHz	1880 MHz	1909.3 MHz
	3M	Channel 18615	Channel 18900	Channel 19185
		1851.5 MHz	1880 MHz	1908.5 MHz
	5M	Channel 18625	Channel 18900	Channel 19175
		1852.5 MHz	1880 MHz	1907.5 MHz
	10M	Channel 18650	Channel 18900	Channel 19150
		1855 MHz	1880 MHz	1905 MHz
	15M	Channel 18675	Channel 18900	Channel 19125
		1857.5 MHz	1880 MHz	1902.5 MHz
	20M	Channel 18700	Channel 18900	Channel 19100
		1860 MHz	1880 MHz	1900 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 4	1.4M	Channel 19957	Channel 20175	Channel 20393
		1710.7 MHz	1732.5 MHz	1754.3 MHz
	3M	Channel 19965	Channel 20175	Channel 20385
		1711.5 MHz	1732.5 MHz	1753.5 MHz
	5M	Channel 19975	Channel 20175	Channel 20375
		1712.5 MHz	1732.5 MHz	1752.5 MHz
	10M	Channel 20000	Channel 20175	Channel 20350
		1715 MHz	1732.5 MHz	1750 MHz
	15M	Channel 20025	Channel 20175	Channel 20325
		1717.5 MHz	1732.5 MHz	1747.5 MHz
	20M	Channel 20050	Channel 20175	Channel 20300
		1720 MHz	1732.5 MHz	1745 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 5	1.4M	824.7 MHz	836.5 MHz	848.3 MHz
	3M	825.5 MHz	836.5 MHz	847.5 MHz
	5M	826.5 MHz	836.5 MHz	846.5 MHz
	10M	829.0 MHz	836.5 MHz	844.0 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 7	5M	2502.5 MHz	2535 MHz	2567.5 MHz
	10M	2505 MHz	2535 MHz	2565 MHz
	15M	2507.5 MHz	2535 MHz	2562.5 MHz
	20M	2510 MHz	2535 MHz	2560 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 38	5M	2572.5 MHz	2595.0 MHz	2617.5 MHz
	10M	2575.0 MHz	2595.0 MHz	2615.0 MHz
	15M	2577.5 MHz	2595.0 MHz	2612.5 MHz
	20M	2580.0 MHz	2595.0 MHz	2610.0 MHz

Test Mode	Channel Bandwidth	RF Channel		
		Lowest channel	Middle channel	Highest channel
LTE Band 41	5M	2537.5 MHz	2590.0 MHz	2652.5 MHz
	10M	2540.0 MHz	2590.0 MHz	2650.0 MHz
	15M	2542.5 MHz	2590.0 MHz	2647.5 MHz
	20M	2545.0 MHz	2590.0 MHz	2645.0 MHz

5.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22/27 of the FCC CFR 47 Rules.

5.3 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on ANSI C63.26:2015 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC —Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

- **ISED—Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	June 23, 2021	June 22, 2024
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 13, 2024	April 12, 2025
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 19, 2023	March 18, 2025
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 13, 2024	April 12, 2025
8	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 13, 2023	Nov.12, 2024
9	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 13, 2024	April 12, 2025
10	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 13, 2024	April 12, 2025
11	Horn Antenna (18-26.5GHz)	/	UG-598A/U	GTS664	Oct. 29, 2023	Oct. 28, 2024
12	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 29, 2023	Oct. 28, 2024
13	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	April 13, 2024	April 12, 2025
14	Amplifier	/	LNA-1000-30S	GTS650	April 13, 2024	April 12, 2025
15	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 08, 2023	Nov.07, 2024
16	Wideband Amplifier	/	WDA-01004000-15P35	GTS602	April 13, 2024	April 12, 2025
17	Thermo meter	JINCHUANG	GSP-8A	GTS643	April 18, 2024	April 17, 2025
18	RE cable 1	GTS	N/A	GTS675	July 31. 2023	July 30. 2024
19	RE cable 2	GTS	N/A	GTS676	July 31. 2023	July 30. 2024
20	RE cable 3	GTS	N/A	GTS677	July 31. 2023	July 30. 2024
21	RE cable 4	GTS	N/A	GTS678	July 31. 2023	July 30. 2024
22	RE cable 5	GTS	N/A	GTS679	July 31. 2023	July 30. 2024
23	RE cable 6	GTS	N/A	GTS680	July 31. 2023	July 30. 2024
24	RE cable 7	GTS	N/A	GTS681	July 31. 2023	July 30. 2024
25	RE cable 8	GTS	N/A	GTS682	July 31. 2023	July 30. 2024

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 13, 2024	April 12, 2025
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 13, 2024	April 12, 2025
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	April 13, 2024	April 12, 2025
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 13, 2024	April 12, 2025
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 13, 2024	April 12, 2025
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 13, 2024	April 12, 2025
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 13, 2024	April 12, 2025
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 13, 2024	April 12, 2025
9	Thermo meter	JINCHUANG	GSP-8A	GTS641	April 18, 2024	April 17, 2025
10	EXA Signal Analyzer	Keysight	N9010B	MY60241168	Nov. 03, 2023	Nov. 02, 2024
11	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 13, 2024	April 12, 2025

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	KUMAO	SF132	GTS647	April 18, 2024	April 17, 2025

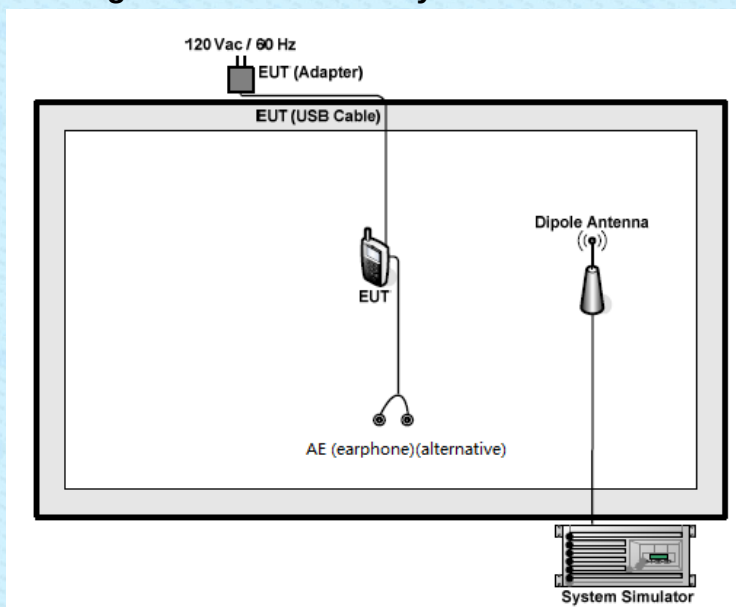
7 System test configuration

7.1 Test mode

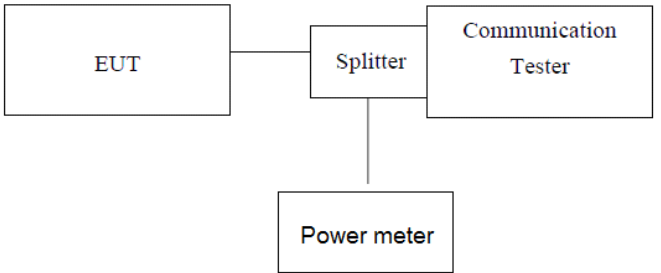
During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes		
Band	Radiated	Conducted
LTE Band 2	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 4	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 5	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 7	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 38	■ QPSK and 16QAM link	■ QPSK and 16QAM link
LTE Band 41	■ QPSK and 16QAM link	■ QPSK and 16QAM link

7.2 Configuration of Tested System

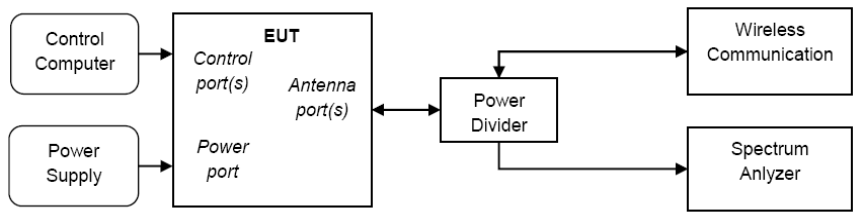


7.3 Conducted Output Power & E.R.P. & E.I.R.P.

Test Requirement:	FCC Part 2.1033, Part 2.1046, Part 2.1055, Part 22.913, Part 24.232, Part 27.50
Test Method:	FCC KDB 971168 D01 V03r01 & ANSI C63.26
Limit:	LTE Band 4: 1W LTE Band 5: 7W LTE Band 2/7/38/41: 2W
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

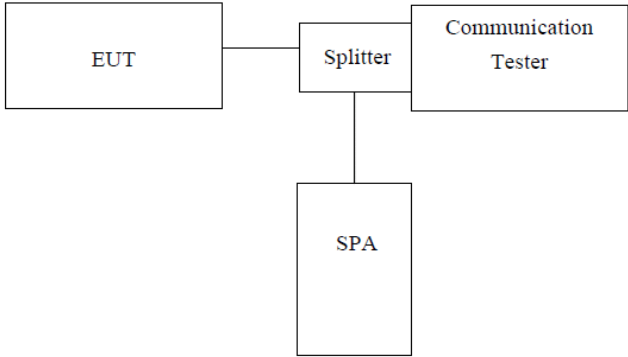
Measurement Data: The detailed test data see Appendix

7.4 Peak-to-Average Ratio

Test Requirement:	FCC part 2.1046, Part 22.913, Part 24.232 & Part 27.50
Test Method:	FCC KDB 971168 D01 V03r01 & ANSI C63.26
Limit:	13db
Test setup:	 <pre> graph LR CC[Control Computer] --> EUT_Control[EUT Control port(s)] PS[Power Supply] --> EUT_Power[EUT Power port] EUT_Antenna[EUT Antenna port(s)] <--> PD[Power Divider] PD --> WC[Wireless Communication] PD --> SA[Spectrum Analyzer] </pre>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 7.1 for details
Test results:	Pass

Measurement data: The detailed test data see Appendix

7.5 Occupy Bandwidth

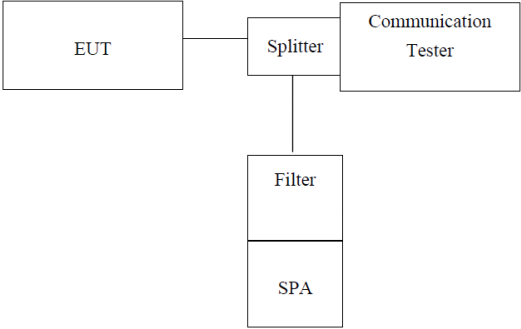
Test Requirement:	FCC Part 2.1049
Test Method:	FCC KDB 971168 D01 V03r01
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.6 MODULATION CHARACTERISTIC

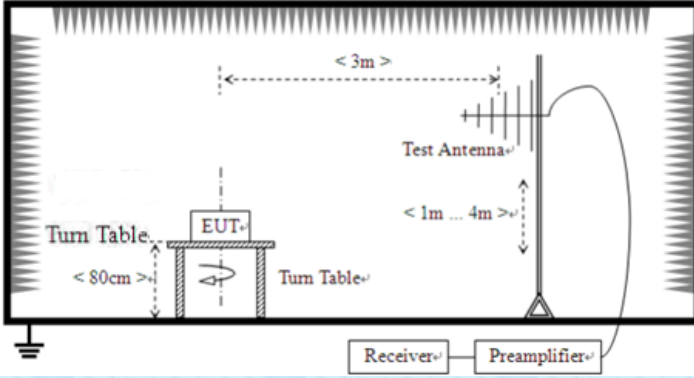
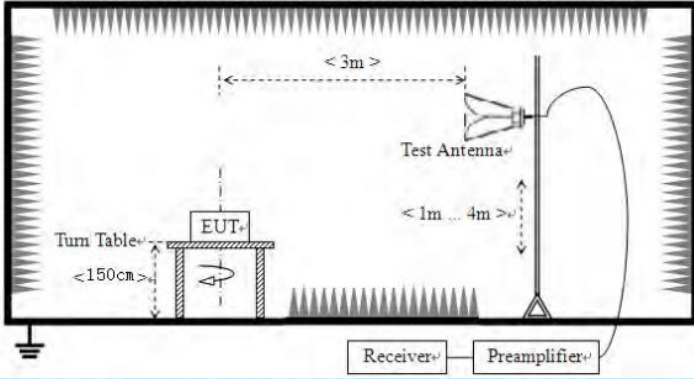
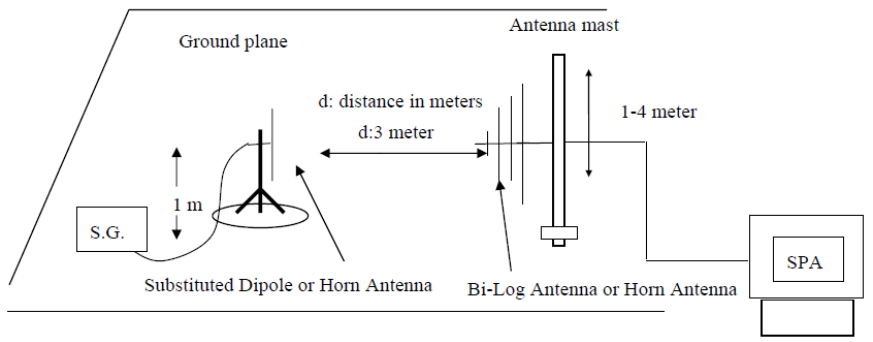
According to FCC § 2.1047(d), Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

7.7 Out of band emission at antenna terminals

Test Requirement:	FCC Part 24.238, Part 27.53 & Part 22.917
Test Method:	FCC Part 2.1051 & FCC KDB 971168 D01 V03r01
Test setup:	 <i>Note: Measurement setup for testing on Antenna connector</i>
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.8 Field strength of spurious radiation measurement

Test Requirement:	FCC Part 22.917, Part 24.238, Part 27.53
Test Method:	FCC Part 2.1053 and ANSI C63.26:2015
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data:

All condition were test, only report worst case.

Below 1GHz

Band 2 (Lowest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
39.44	-47.29	25.44	0.65	33.74	-54.94	-13.00	-41.94	Vertical
55.81	-51.08	25.44	0.82	33.65	-58.47	-13.00	-45.47	Vertical
88.96	-56.78	25.13	1.10	33.60	-64.15	-13.00	-51.15	Vertical
183.20	-54.93	22.36	1.75	33.28	-64.10	-13.00	-51.10	Vertical
440.20	-55.66	28.93	3.05	32.73	-56.41	-13.00	-43.41	Vertical
739.66	-52.02	32.73	4.24	31.84	-46.89	-13.00	-33.89	Vertical
41.28	-48.29	25.44	0.68	33.72	-55.89	-13.00	-42.89	Horizontal
56.99	-55.15	25.44	0.84	33.65	-62.52	-13.00	-49.52	Horizontal
77.59	-55.41	21.65	1.01	33.60	-66.35	-13.00	-53.35	Horizontal
131.76	-53.83	23.18	1.45	33.28	-62.48	-13.00	-49.48	Horizontal
264.75	-56.63	25.71	2.19	32.73	-61.46	-13.00	-48.46	Horizontal
572.61	-54.55	31.11	3.62	31.84	-51.66	-13.00	-38.66	Horizontal

Band 4 (Lowest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
38.89	-45.98	25.44	0.65	33.74	-53.63	-13.00	-40.63	Vertical
61.13	-46.05	25.44	0.87	33.65	-53.39	-13.00	-40.39	Vertical
104.54	-50.55	25.13	1.23	33.60	-57.79	-13.00	-44.79	Vertical
252.95	-56.48	25.13	2.14	33.28	-62.49	-13.00	-49.49	Vertical
441.74	-55.79	28.93	3.06	32.73	-56.53	-13.00	-43.53	Vertical
556.77	-55.45	30.70	3.55	31.84	-53.04	-13.00	-40.04	Vertical
40.28	-47.14	25.44	0.66	33.73	-54.77	-13.00	-41.77	Horizontal
67.44	-45.39	21.65	0.92	33.65	-56.47	-13.00	-43.47	Horizontal
113.32	-54.31	23.18	1.31	33.60	-63.42	-13.00	-50.42	Horizontal
245.95	-56.02	25.13	2.10	33.28	-62.07	-13.00	-49.07	Horizontal
520.89	-54.63	30.29	3.39	32.73	-53.68	-13.00	-40.68	Horizontal
739.66	-53.94	32.73	4.24	31.84	-48.81	-13.00	-35.81	Horizontal

Band 5 (Lowest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
38.48	-45.63	25.44	0.65	33.74	-53.28	-13.00	-40.28	Vertical
68.39	-44.81	21.65	0.93	33.65	-55.88	-13.00	-42.88	Vertical
147.92	-50.65	21.23	1.56	33.60	-61.46	-13.00	-48.46	Vertical
192.42	-55.41	23.28	1.80	33.28	-63.61	-13.00	-50.61	Vertical
394.86	-55.49	28.16	2.83	32.73	-57.23	-13.00	-44.23	Vertical
572.61	-55.46	31.11	3.62	31.84	-52.57	-13.00	-39.57	Vertical
40.28	-46.81	25.44	0.66	33.73	-54.44	-13.00	-41.44	Horizontal
75.71	-55.48	21.65	0.99	33.65	-66.49	-13.00	-53.49	Horizontal
145.86	-51.64	21.23	1.54	33.60	-62.47	-13.00	-49.47	Horizontal
355.43	-55.09	27.07	2.64	33.28	-58.66	-13.00	-45.66	Horizontal
549.02	-54.56	30.70	3.52	32.73	-53.07	-13.00	-40.07	Horizontal
684.75	-54.08	31.91	4.04	31.84	-49.97	-13.00	-36.97	Horizontal

Band 7 (Lowest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
41.28	-50.47	25.44	0.68	33.72	-58.07	-25.00	-33.07	Vertical
59.44	-48.39	25.44	0.86	33.65	-55.74	-25.00	-30.74	Vertical
103.08	-49.75	25.13	1.22	33.60	-57.00	-25.00	-32.00	Vertical
178.76	-54.90	22.36	1.73	33.28	-64.09	-25.00	-39.09	Vertical
416.18	-55.23	28.55	2.93	32.73	-56.48	-25.00	-31.48	Vertical
593.05	-54.65	31.51	3.70	31.84	-51.28	-25.00	-26.28	Vertical
39.44	-46.88	25.44	0.65	33.74	-54.53	-25.00	-29.53	Horizontal
71.58	-52.81	21.65	0.95	33.65	-63.86	-25.00	-38.86	Horizontal
150.01	-50.73	21.23	1.57	33.60	-61.53	-25.00	-36.53	Horizontal
257.42	-56.73	25.13	2.16	33.28	-62.72	-25.00	-37.72	Horizontal
508.26	-54.75	29.89	3.34	32.73	-54.25	-25.00	-29.25	Horizontal
763.38	-53.09	32.94	4.32	31.84	-47.67	-25.00	-22.67	Horizontal

Band 38 (Lowest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
40.56	-48.77	25.44	0.67	33.73	-56.39	-25.00	-31.39	Vertical
62.00	-43.92	25.44	0.88	33.65	-51.25	-25.00	-26.25	Vertical
98.14	-49.53	25.13	1.18	33.60	-56.82	-25.00	-31.82	Vertical
142.32	-51.25	21.23	1.52	33.28	-61.78	-25.00	-36.78	Vertical
247.68	-56.36	25.13	2.11	32.73	-61.85	-25.00	-36.85	Vertical
389.36	-54.79	28.16	2.80	31.84	-55.67	-25.00	-30.67	Vertical
39.72	-48.30	25.44	0.66	33.73	-55.93	-25.00	-30.93	Horizontal
65.34	-52.20	21.65	0.90	33.65	-63.30	-25.00	-38.30	Horizontal
110.57	-57.55	25.13	1.28	33.60	-64.74	-25.00	-39.74	Horizontal
195.82	-56.84	23.28	1.82	33.28	-65.02	-25.00	-40.02	Horizontal
393.47	-55.09	28.16	2.82	32.73	-56.84	-25.00	-31.84	Horizontal
547.10	-54.81	30.70	3.51	31.84	-52.44	-25.00	-27.44	Horizontal

Band 41 (Highest channel)

Frequency (MHz)	Read Level (dBm)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarity
39.16	-46.51	25.44	0.65	33.74	-54.16	-25.00	-29.16	Vertical
60.49	-44.82	25.44	0.86	33.65	-52.17	-25.00	-27.17	Vertical
93.77	-52.90	25.13	1.14	33.60	-60.23	-25.00	-35.23	Vertical
133.62	-54.11	23.18	1.46	33.28	-62.75	-25.00	-37.75	Vertical
266.61	-56.06	25.71	2.21	32.73	-60.87	-25.00	-35.87	Vertical
437.12	-56.15	28.93	3.03	31.84	-56.03	-25.00	-31.03	Vertical
40.99	-47.69	25.44	0.67	33.73	-55.31	-25.00	-30.31	Horizontal
75.98	-53.74	21.65	0.99	33.65	-64.75	-25.00	-39.75	Horizontal
120.28	-52.57	23.18	1.36	33.60	-61.63	-25.00	-36.63	Horizontal
189.74	-55.39	23.28	1.79	33.28	-63.60	-25.00	-38.60	Horizontal
300.37	-56.77	26.16	2.36	32.73	-60.98	-25.00	-35.98	Horizontal
480.53	-53.94	29.41	3.22	31.84	-53.15	-25.00	-28.15	Horizontal

Above 1GHz

LTE Band 2 @20MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	3760	H	-39.08	-5.67	-13.00	-31.75	Pass
	5640	H	-44.69	-2.34	-13.00	-34.03	Pass
	3760	V	-38.50	-5.67	-13.00	-31.17	Pass
	5640	V	-43.81	-2.34	-13.00	-33.15	Pass

LTE Band 4 @20MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	3465	H	-39.29	-6.04	-13.00	-32.33	Pass
	5197.5	H	-44.06	-1.56	-13.00	-32.62	Pass
	3465	V	-38.52	-6.04	-13.00	-31.56	Pass
	5197.5	V	-43.24	-1.56	-13.00	-31.80	Pass

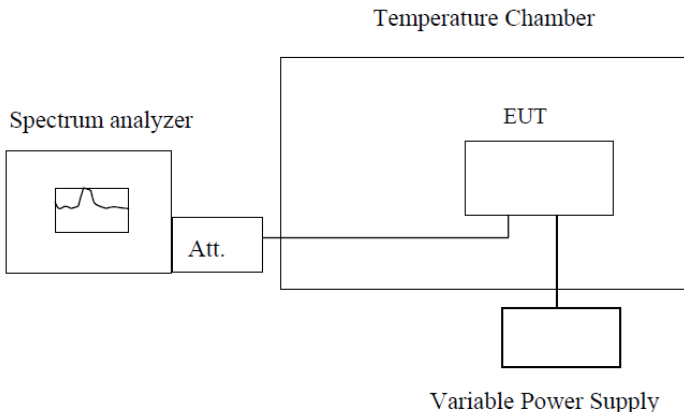
LTE Band 5 @10MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	1673	H	-35.07	-1.35	-13.00	-23.42	Pass
	2509.5	H	-39.39	-5.91	-13.00	-32.30	Pass
	1673	V	-36.43	-1.35	-13.00	-24.78	Pass
	2509.5	V	-41.09	-5.91	-13.00	-34.00	Pass

LTE Band 7 @10MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	5070.00	H	-40.45	-1.82	-25.00	-17.27	Pass
	7605.00	H	-41.31	7.03	-25.00	-9.28	Pass
	5070.00	V	-41.23	-1.82	-25.00	-18.05	Pass
	7605.00	V	-43.61	7.03	-25.00	-11.58	Pass

LTE Band 38 @5MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	5190.00	H	-40.15	-0.12	-25.00	-15.27	Pass
	7785.00	H	-41.88	7.26	-25.00	-9.62	Pass
	5190.00	V	-41.56	-0.12	-25.00	-16.68	Pass
	7785.00	V	-44.03	7.26	-25.00	-11.77	Pass

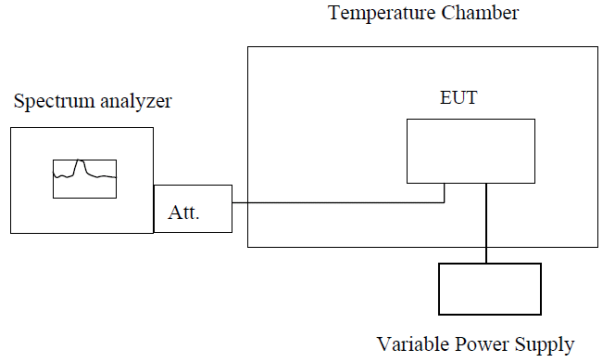
LTE Band 41 @20MHz, QPSK							
Channel	Frequency (MHz)	Ant. Pol.	Result (dBm)	Factor (dB)	Limit (dBm)	Margin (dB)	verdict
Middle	5180.00	H	-40.91	-0.11	-25.00	-16.02	Pass
	7770.00	H	-42.16	7.25	-25.00	-9.91	Pass
	5180.00	V	-41.8	-0.11	-25.00	-16.91	Pass
	7770.00	V	-43.35	7.25	-25.00	-11.10	Pass

7.9 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part2.1055
Test Method:	FCC Part2.1055
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

7.10 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055
Test Method:	FCC Part2.1055
Limit:	2.5ppm
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 6.1 for details
Test results:	Pass

Measurement Data: The detailed test data see Appendix

8 Test setup photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----