RF TEST REPORT

Applicant	COOSEA GROUP (HK) COMPANY LIMITED
FCC ID	2A28USL112
Product	Smart Phone
Model	SL112A; SL112C
Report No.	R2212A1312-R4
Issue Date	March 16, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2022)/FCC CFR 47 Part 90R (2022)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Xu Ying *Approved by: Xu Kai*

TA Technology (Shanghai) Co., Ltd.

Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
TEL: +86-021-50791141/2/3
FAX: +86-021-50791141/2/3-8000

TABLE OF CONTENT

1. Test Laboratory 4
1.1. Notes of the Test Report 4
1.2. Test Facility 4
1.3. Testing Location 4
2. General Description of Equipment Under Test 5
2.1. Applicant and Manufacturer Information 5
2.2. General Information 5
3. Applied Standards 6
4. Test Configuration 7
5. Test Case 8
5.1. RF Power Output and Effective Radiated Power 8
5.2. Occupied Bandwidth 9
5.3. Band Edge Compliance 10
5.4. Peak-to-Average Power Ratio (PAPR) 12
5.5. Frequency Stability 13
5.6. Spurious Emissions at Antenna Terminals 15
5.7. Radiated Spurious Emission 17
6. Test Result 20
6.1. RF Power Output and Effective Radiated Power 20
6.2. Occupied Bandwidth 23
6.3. Band Edge Compliance 26
6.4. Peak-to-Average Power Ratio (PAPR) 30
6.5. Frequency Stability 31
6.6. Spurious Emissions at Antenna Terminals 32
6.7. Radiated Spurious Emission 33
7. Main Test Instruments 34
ANNEX A: The EUT Appearance 35
ANNEX B: Test Setup Photos 36

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Summary of Measurement Results

No.	Test Case	Clause in FCC rules	Verdict
1	RF power output and Effective Radiated Power	2.1046/90.635 (b)/ 90.542	PASS
2	Occupied Bandwidth	2.1049/ 90.209	PASS
3	Emission Masks	2.1051 / 90.543	PASS
4	Peak-to-Average Power Ratio	KDB 971168 D01(5.7)	PASS
5	Frequency Stability	90.539 (c)	PASS
6	Spurious Emissions at Antenna Terminals	90.543 (e)	PASS
7	Radiated Spurious Emission	90.543 (e)	PASS
Date of Testing: January 18, 2023 ~ February 6, 2023 Date of Sample Received: January 11, 2023			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	COOSEA GROUP (HK) COMPANY LIMITED
Applicant address	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL, HONG KONG, CHINA
Manufacturer	COOSEA GROUP (HK) COMPANY LIMITED
Manufacturer address	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL, HONG KONG, CHINA

2.2. General Information

EUT Description			
Model	SL112A; SL112C		
IMEI	351384680003616		
Hardware Version	1.0		
Software Version	SL112A10010		
Power Supply	Battery / AC adapter		
Antenna Type	PIFA Antenna		
Antenna Gain	Frequency(MHz)	Gain(dBi)	
	790	-3.56	
	800	-3.21	
Test Mode(s)	LTE Band 14		
Test Modulation	QPSK, 16QAM, 64QAM;		
Maximum E.R.P.	18.74dBm		
Rated Power Supply Voltage	3.85V		
Operating Voltage	Minimum: 3.6V Maximum: 4.4V		
Operating Temperature	Lowest: -10°C Highest: +55°C		
Testing Temperature	Lowest: -30°C Highest: +50°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	LTE Band 14	788 ~ 798	758 ~ 768
EUT Accessory			
Adapter	Manufacturer: ShenZhen BaiJunDa Electronic Co., Ltd Model: UT-592A-5200ZY		
Battery	Manufacturer: Huizhou Highpower Technology Co., Ltd Model: BL-A50CT		
USB Cable	Manufacturer: Shenzhen Yihuaxing Electronics Co.Ltd.. Model: K342-002		

Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.
2. The customer claims that SL112A and SL112C are only different in model, and the others are the same. This report only tests SL112A.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:
FCC CFR 47 Part 90R (2022)
ANSI C63.26-2015

Reference standard:
FCC 47 CFR Part 2 (2022)
KDB 971168 D01 Power Meas License Digital Systems v03r01

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions were investigated.
The following testing in LTE is set based on the maximum RF Output Power.

Test modes are chosen as the worst case configuration below for LTE Band 14

Test items	Bandwidth (MHz)		Modulation		RB			Test Channel		
	5	10	QPSK	16QAM/ 64QAM	1	50%	100%	L	M	H
RF Power Output and Effective Radiated Power	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	-	-	-	O	-
Spurious Emissions at Antenna Terminals	O	O	O	-	O	-	-	O	O	O
Radiated Spurious Emission	O	O	O	-	O	-	-	-	O	-
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing.									

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5. Test Case

5.1. RF Power Output and Effective Radiated Power

Ambient Condition

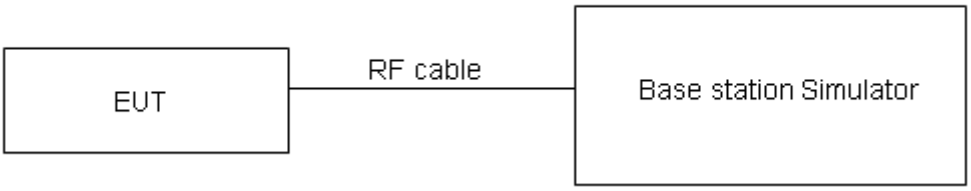
Temperature	Relative humidity
20°C ~25°C	45%~50%

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:
EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)
EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

Test Setup



Limits

Part 90.635 (b) the maximum output power of the transmitter for mobile stations is 100 watts.

90.542(7) Portable stations (hand-held devices) transmitting in the 758-768 MHz band and the 788-798 MHz band are limited to 3 watts ERP.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB for RF power output, *k* = 2, *U*= 1.19 dB for ERP.

Test Results

Refer to the section 6.1 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.2. Occupied Bandwidth

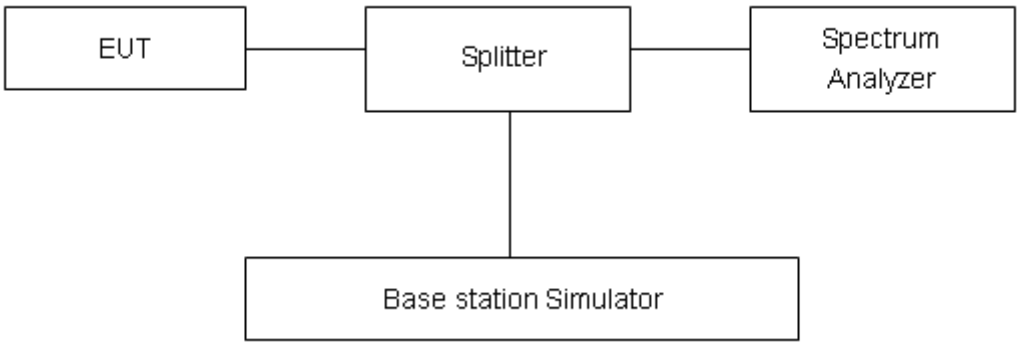
Ambient Condition

Temperature	Relative humidity
20°C ~25°C	45%~50%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.
RBW is set to ≥1%EBW, VBW is set to 3x RBW.
99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.
Part 90.209 (a) Each authorization issued to a station licensed under this part will show an emission designator representing the class of emission authorized. The designator will be prefixed by a specified necessary bandwidth. This number does not necessarily indicate the bandwidth occupied by the emission at any instant. In those cases where part 2.202 of this chapter does not provide a formula for the computation of necessary bandwidth, the occupied bandwidth, as defined in part 2 of this chapter, may be used in lieu of the necessary bandwidth.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 624Hz.

Test Results

Refer to the section 6.2 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.3. Band Edge Compliance

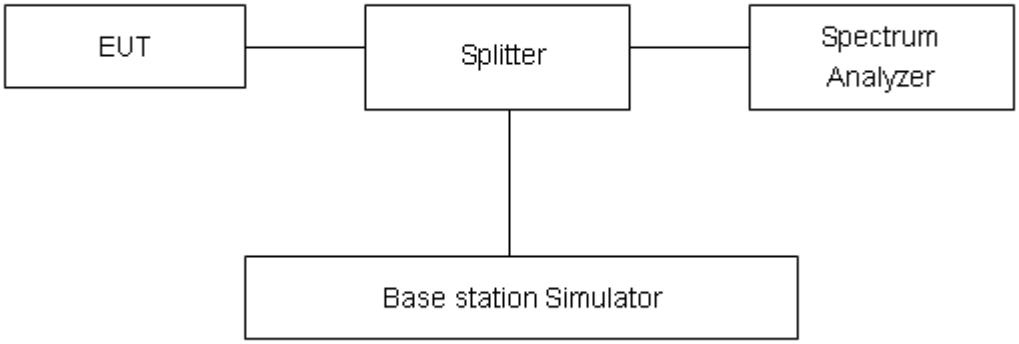
Ambient Condition

Temperature	Relative humidity
20°C ~25°C	45%~50%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured.
The testing follows KDB 971168 v03r01 Section 6.0
1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
RBW is set to ≥1%EBW, VBW is set to 3x RBW.
3. Set spectrum analyzer with RMS detector.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. Checked that all the results comply with the emission limit line.

Test Setup



Limits

90.543 Emission limitations (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Results

Refer to the section 6.3 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.4. Peak-to-Average Power Ratio (PAPR)

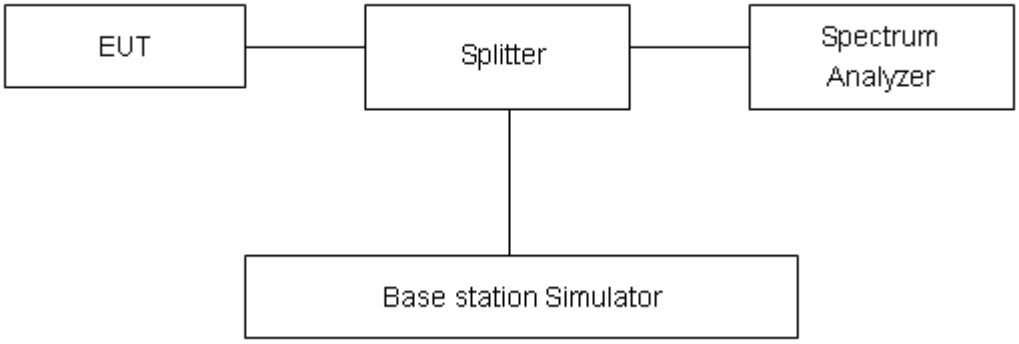
Ambient Condition

Temperature	Relative humidity
20°C ~25°C	45%~50%

Methods of Measurement

Measure the total peak power and record as P_{Pk}. And measure the total average power and record as P_{Avg}. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peakto-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.4 dB.

Test Results

Refer to the section 6.4 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.5. Frequency Stability

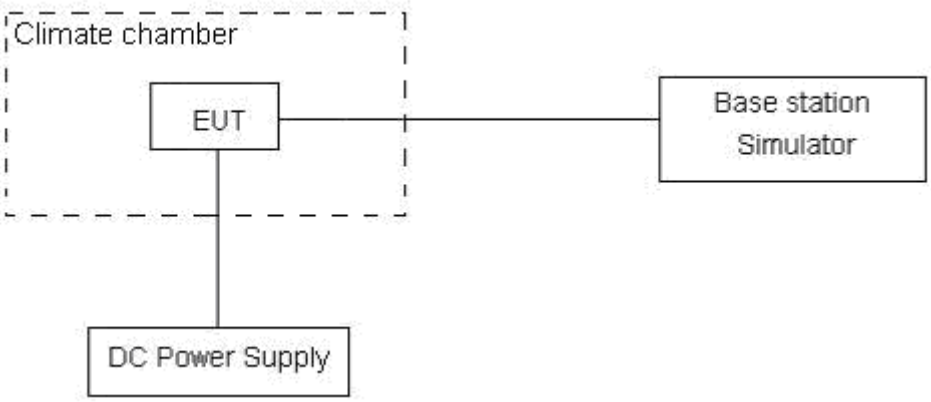
Ambient Condition

Temperature	Relative humidity
20°C ~25°C	45%~50%

Method of Measurement

1. Frequency Stability (Temperature Variation)
   The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,
   (1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.
   (2) Measure the carrier frequency with the test equipment in a "call mode". These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.
   (3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.
2. Frequency Stability (Voltage Variation)
   The frequency stability shall be measured with variation of primary supply voltage as follows:
   Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.
   This transceiver is specified to operate with an input voltage of between 3.6 V and 4.4 V, with a nominal voltage of 3.85V.

Test Setup



This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

Limits

90.539 (c) The frequency stability of mobile, portable, and control transmitters operating in the narrowband segment must be 400 parts per billion or better when AFC is locked to the base station. When AFC is not locked to the base station, the frequency stability must be at least 1.0 ppm for 6.25 kHz, 1.5 ppm for 12.5 kHz (2 channel aggregate), and 2.5 ppm for 25 kHz (4 channel aggregate).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor k = 3,U= 0.01ppm.

Test Results

Refer to the section 6.5 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.6. Spurious Emissions at Antenna Terminals

Ambient Condition

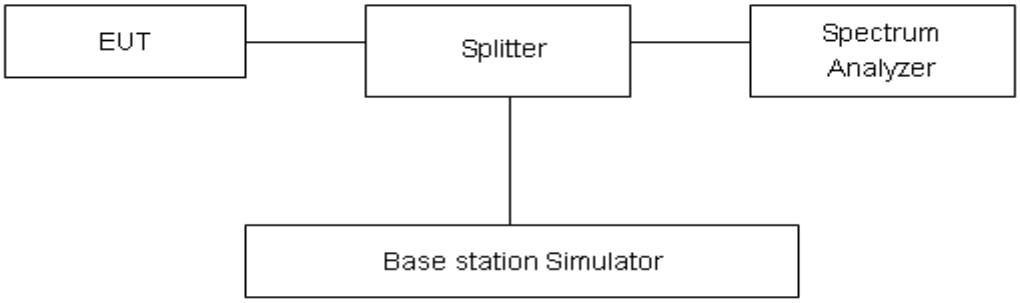
Temperature	Relative humidity
20°C ~25°C	45%~50%

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. Set RBW 1MHz and VBW 3MHz， Sweep is set to ATUO.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

Test Setup



Limits

90.543 Emission limitations (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-10GHz	1.407 dB

Test Results

Refer to the section 6.6 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

5.7. Radiated Spurious Emission

Ambient Condition

Temperature	Relative humidity
20°C ~25°C	45%~50%

Method of Measurement

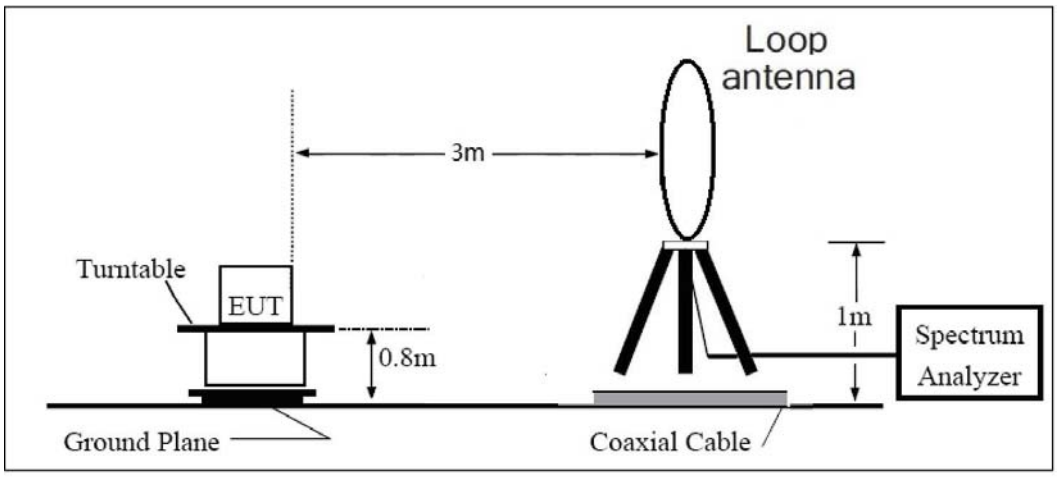
1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8 and ANSI C63.26.
2. Above 30MHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100KHz, VBW=300KHz for all frequency, and the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. 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 (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. 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 (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. 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-2.15dBi.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

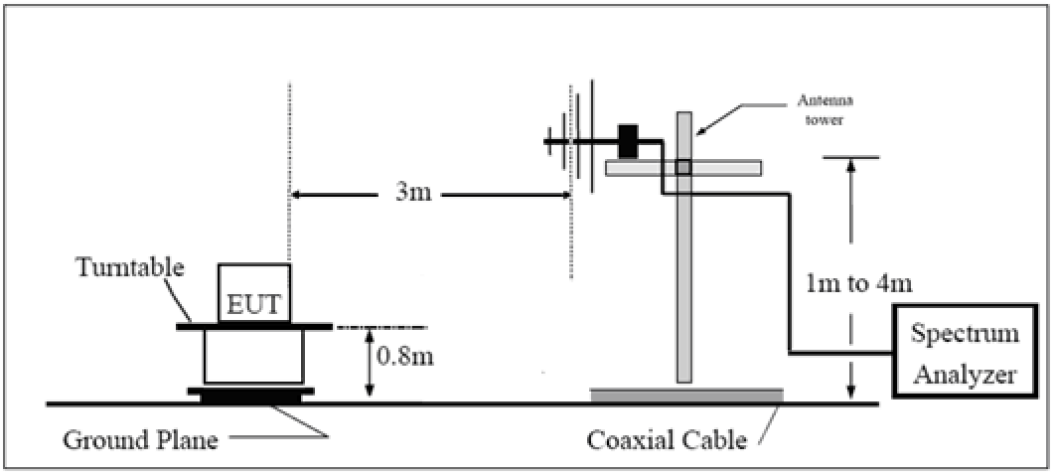
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

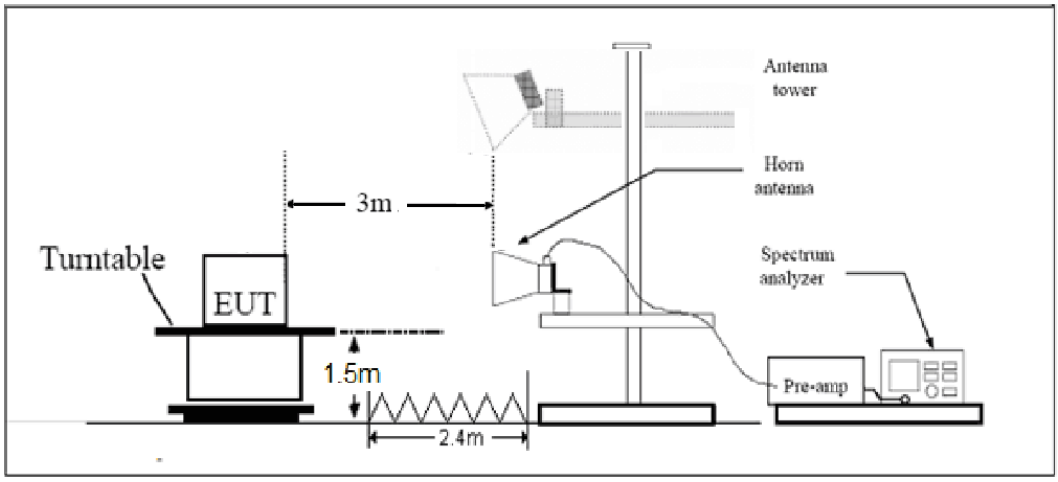
9KHz ~ 30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

90.543 Emission limitations (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor k = 1.96, U= 3.55 dB.

Test Results

Refer to the section 6.7 of this report for test data.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6. Test Result

6.1. RF Power Output and Effective Radiated Power

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	ERP (dBm)
LTE Band14	5	23305	1	#0	QPSK	24.00	18.29
LTE Band14	5	23305	1	#Mid	QPSK	23.98	18.27
LTE Band14	5	23305	1	#Max	QPSK	23.84	18.13
LTE Band14	5	23305	12	#0	QPSK	23.16	17.45
LTE Band14	5	23305	12	#Mid	QPSK	23.14	17.43
LTE Band14	5	23305	12	#Max	QPSK	22.99	17.28
LTE Band14	5	23305	25	#0	QPSK	23.11	17.40
LTE Band14	5	23305	1	#0	16QAM	23.32	17.61
LTE Band14	5	23305	1	#Mid	16QAM	23.29	17.58
LTE Band14	5	23305	1	#Max	16QAM	23.19	17.48
LTE Band14	5	23305	12	#0	16QAM	22.12	16.41
LTE Band14	5	23305	12	#Mid	16QAM	22.14	16.43
LTE Band14	5	23305	12	#Max	16QAM	22.01	16.30
LTE Band14	5	23305	25	#0	16QAM	22.13	16.42
LTE Band14	5	23330	1	#0	QPSK	23.89	18.18
LTE Band14	5	23330	1	#Mid	QPSK	23.98	18.27
LTE Band14	5	23330	1	#Max	QPSK	24.00	18.29
LTE Band14	5	23330	12	#0	QPSK	22.91	17.20
LTE Band14	5	23330	12	#Mid	QPSK	23.05	17.34
LTE Band14	5	23330	12	#Max	QPSK	23.00	17.29
LTE Band14	5	23330	25	#0	QPSK	23.01	17.30
LTE Band14	5	23330	1	#0	16QAM	23.18	17.47
LTE Band14	5	23330	1	#Mid	16QAM	23.33	17.62
LTE Band14	5	23330	1	#Max	16QAM	23.30	17.59
LTE Band14	5	23330	12	#0	16QAM	22.00	16.29
LTE Band14	5	23330	12	#Mid	16QAM	21.98	16.27
LTE Band14	5	23330	12	#Max	16QAM	22.00	16.29
LTE Band14	5	23330	25	#0	16QAM	22.04	16.33
LTE Band14	5	23355	1	#0	QPSK	23.91	18.55
LTE Band14	5	23355	1	#Mid	QPSK	24.10	18.74
LTE Band14	5	23355	1	#Max	QPSK	24.08	18.72
LTE Band14	5	23355	12	#0	QPSK	23.09	17.73
LTE Band14	5	23355	12	#Mid	QPSK	23.08	17.72
LTE Band14	5	23355	12	#Max	QPSK	23.10	17.74
LTE Band14	5	23355	25	#0	QPSK	23.14	17.78
LTE Band14	5	23355	1	#0	16QAM	23.13	17.77
LTE Band14	5	23355	1	#Mid	16QAM	23.33	17.97

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band14	5	23355	1	#Max	16QAM	23.26	17.90
LTE Band14	5	23355	12	#0	16QAM	22.05	16.69
LTE Band14	5	23355	12	#Mid	16QAM	22.00	16.64
LTE Band14	5	23355	12	#Max	16QAM	22.02	16.66
LTE Band14	5	23355	25	#0	16QAM	22.11	16.75
LTE Band14	10	23330	1	#0	QPSK	24.12	18.41
LTE Band14	10	23330	1	#Mid	QPSK	24.15	18.44
LTE Band14	10	23330	1	#Max	QPSK	24.06	18.35
LTE Band14	10	23330	25	#0	QPSK	23.11	17.40
LTE Band14	10	23330	25	#Mid	QPSK	23.13	17.42
LTE Band14	10	23330	25	#Max	QPSK	23.13	17.42
LTE Band14	10	23330	50	#0	QPSK	23.11	17.40
LTE Band14	10	23330	1	#0	16QAM	23.38	17.67
LTE Band14	10	23330	1	#Mid	16QAM	23.39	17.68
LTE Band14	10	23330	1	#Max	16QAM	23.41	17.70
LTE Band14	10	23330	25	#0	16QAM	22.17	16.46
LTE Band14	10	23330	25	#Mid	16QAM	22.16	16.45
LTE Band14	10	23330	25	#Max	16QAM	22.21	16.50
LTE Band14	10	23330	50	#0	16QAM	22.14	16.43
LTE Band14	5	23305	1	#0	64QAM	23.05	17.34
LTE Band14	5	23305	1	#Mid	64QAM	23.02	17.31
LTE Band14	5	23305	1	#Max	64QAM	22.87	17.16
LTE Band14	5	23305	12	#0	64QAM	21.87	16.16
LTE Band14	5	23305	12	#Mid	64QAM	21.87	16.16
LTE Band14	5	23305	12	#Max	64QAM	21.72	16.01
LTE Band14	5	23305	25	#0	64QAM	21.83	16.12
LTE Band14	5	23330	1	#0	64QAM	22.99	17.28
LTE Band14	5	23330	1	#Mid	64QAM	23.04	17.33
LTE Band14	5	23330	1	#Max	64QAM	23.04	17.33
LTE Band14	5	23330	12	#0	64QAM	21.71	16.00
LTE Band14	5	23330	12	#Mid	64QAM	21.66	15.95
LTE Band14	5	23330	12	#Max	64QAM	21.69	15.98
LTE Band14	5	23330	25	#0	64QAM	21.77	16.06
LTE Band14	5	23355	1	#0	64QAM	22.88	17.52
LTE Band14	5	23355	1	#Mid	64QAM	23.06	17.70
LTE Band14	5	23355	1	#Max	64QAM	23.04	17.68
LTE Band14	5	23355	12	#0	64QAM	21.78	16.42
LTE Band14	5	23355	12	#Mid	64QAM	21.69	16.33
LTE Band14	5	23355	12	#Max	64QAM	21.74	16.38
LTE Band14	5	23355	25	#0	64QAM	21.85	16.49
LTE Band14	10	23330	1	#0	64QAM	23.16	17.45
LTE Band14	10	23330	1	#Mid	64QAM	23.17	17.46
LTE Band14	10	23330	1	#Max	64QAM	23.14	17.43
LTE Band14	10	23330	25	#0	64QAM	21.90	16.19

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band14	10	23330	25	#Mid	64QAM	21.87	16.16
LTE Band14	10	23330	25	#Max	64QAM	21.92	16.21
LTE Band14	10	23330	50	#0	64QAM	21.83	16.12

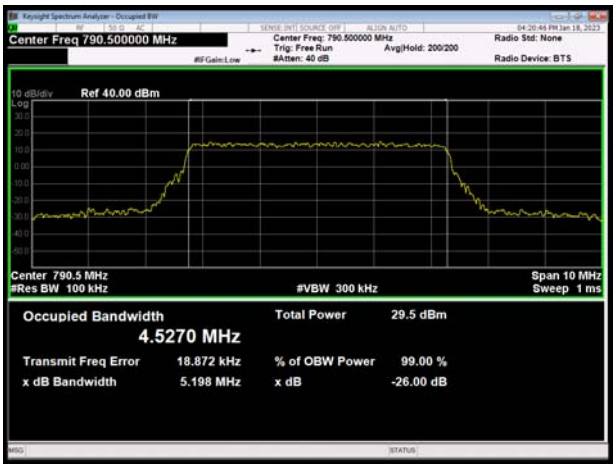
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6.2. Occupied Bandwidth

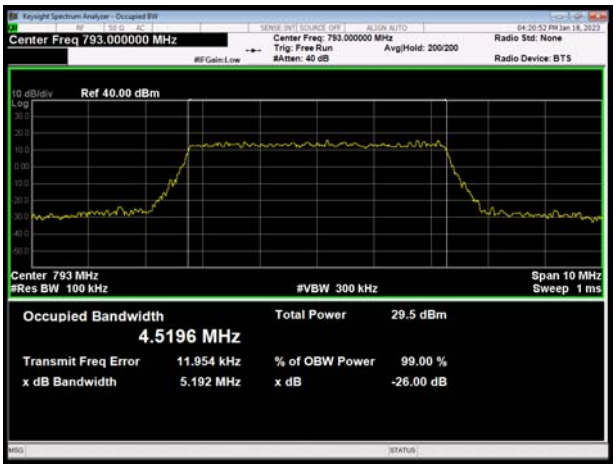
LTE Band 14						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	5	23305	790.5	4.517	5.051
			23330	793	4.516	5.082
			23355	795.5	4.523	5.214
		10	23330	793	9.006	10.108
	16QAM	5	23305	790.5	4.527	5.198
			23330	793	4.520	5.192
			23355	795.5	4.544	5.129
		10	23330	793	8.995	10.040
	64QAM	5	23305	790.5	4.525	5.171
			23330	793	4.512	5.086
			23355	795.5	4.533	5.209
		10	23330	793	8.995	10.040

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

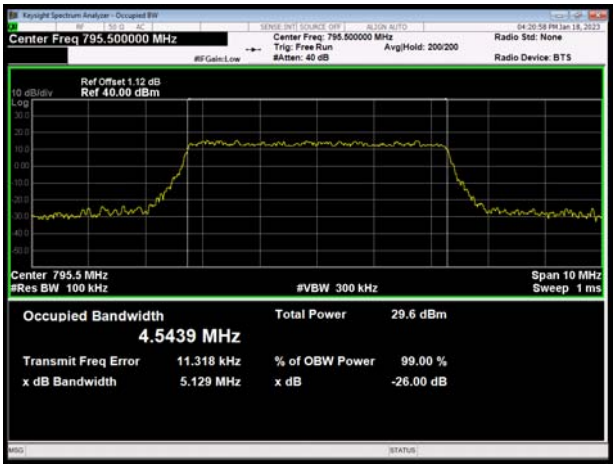
LTE Band 14 QPSK 5MHz CH-Low



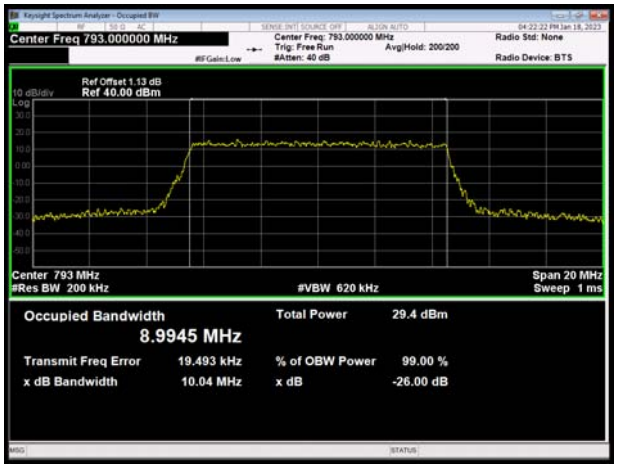
LTE Band 14 QPSK 5MHz CH-Middle



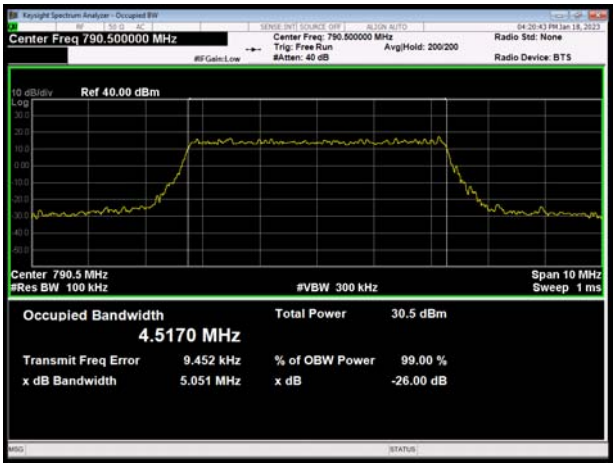
LTE Band 14 QPSK 5MHz CH-High



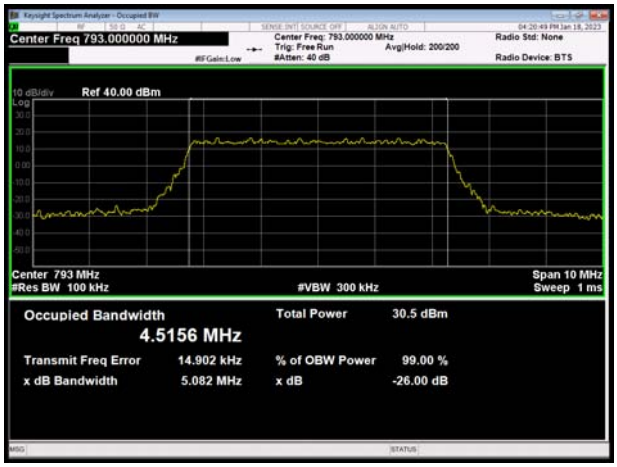
LTE Band 14 QPSK 10MHz CH-Middle



LTE Band 14 16QAM 5MHz CH-Low

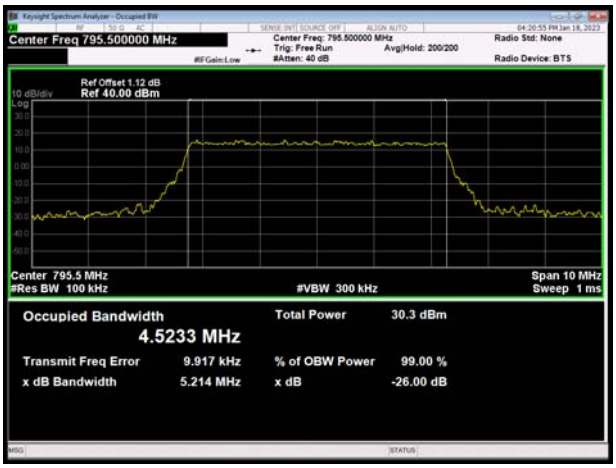


LTE Band 14 16QAM 5MHz CH-Middle

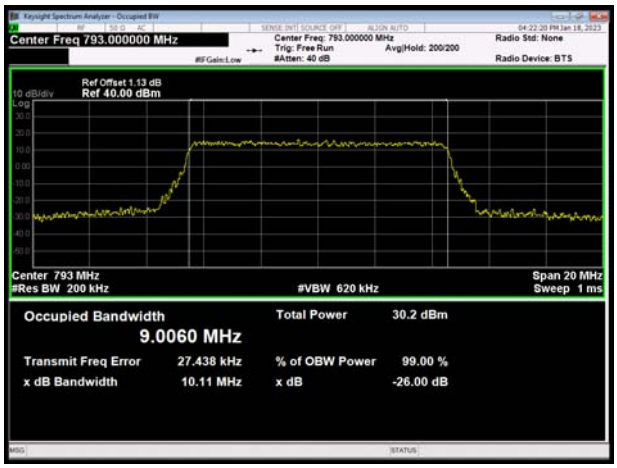


This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

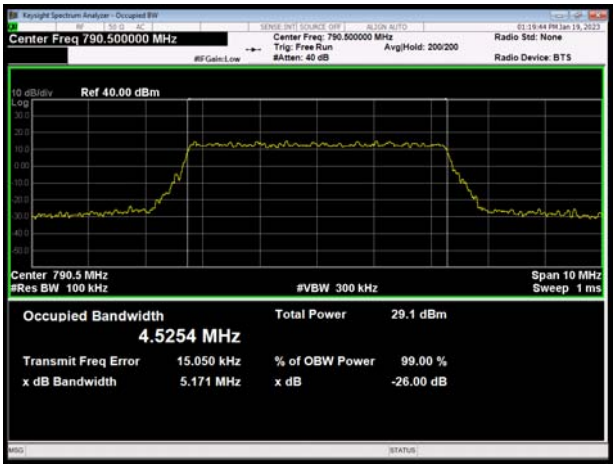
LTE Band 14 16QAM 5MHz CH-High



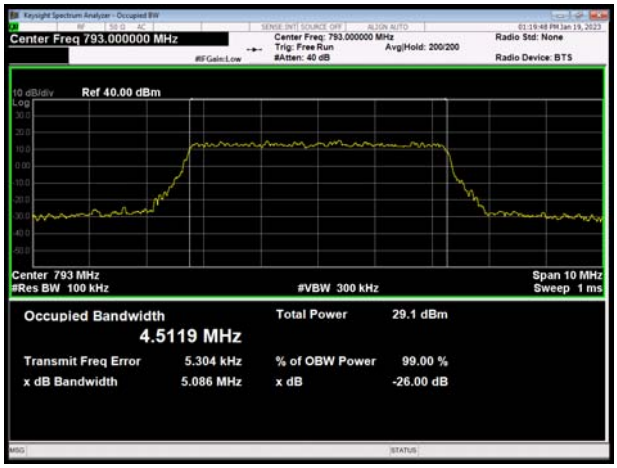
LTE Band 14 16QAM 10MHz CH-Middle



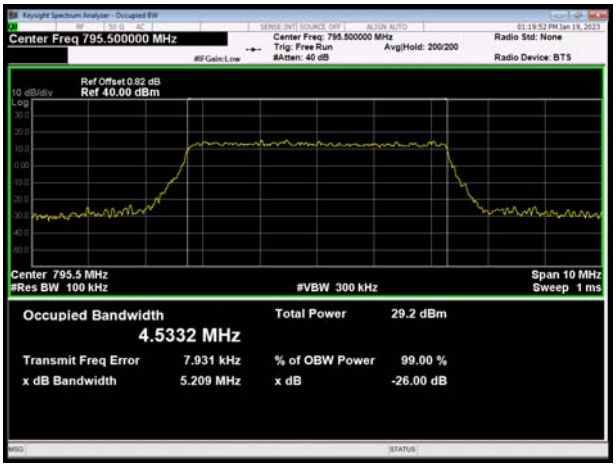
LTE Band 14 64QAM 5MHz CH-Low



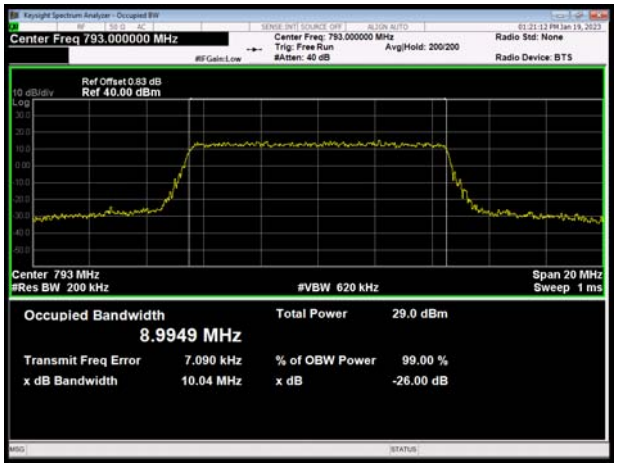
LTE Band 14 64QAM 5MHz CH-Middle



LTE Band 14 64QAM 5MHz CH-High



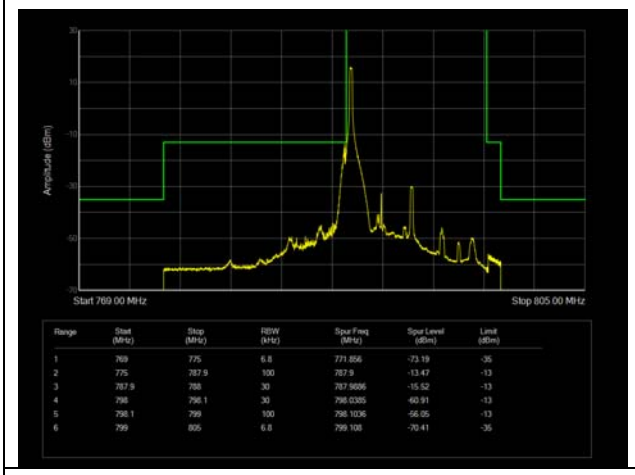
LTE Band 14 64QAM 10MHz CH-Middle



This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

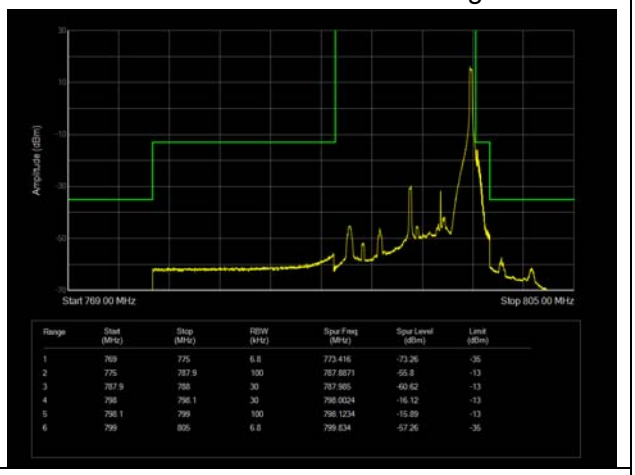
6.3. Band Edge Compliance

LTE Band 14 QPSK 5MHz CH-Low 1 RB



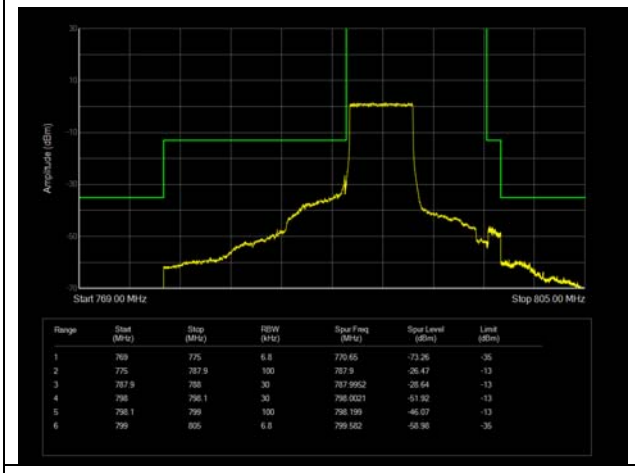
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	771.856	-73.19	-35
2	775	787.9	100	787.9	-13.47	-13
3	787.9	788	30	787.9686	-15.52	-13
4	798	798.1	30	798.0365	-60.91	-13
5	798.1	799	100	798.1006	-56.05	-13
6	799	805	6.8	799.108	-70.41	-35

LTE Band 14 QPSK 5MHz CH-High 1 RB



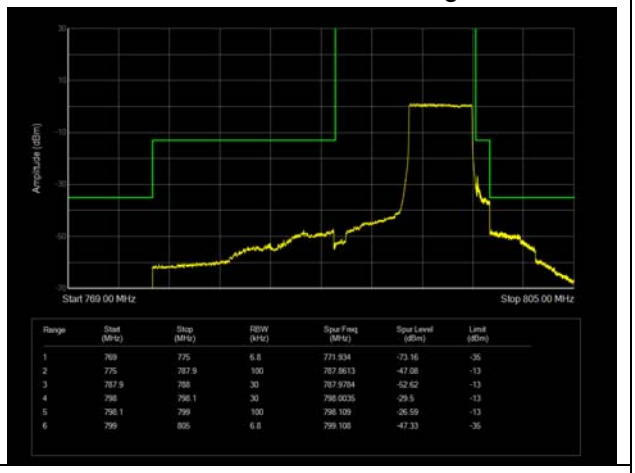
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	773.416	-73.26	-35
2	775	787.9	100	787.8871	-55.8	-13
3	787.9	788	30	787.985	-60.62	-13
4	798	798.1	30	798.0024	-16.12	-13
5	798.1	799	100	798.1234	-15.89	-13
6	799	805	6.8	799.634	-57.26	-35

LTE Band 14 QPSK 5MHz CH-Low 100%RB



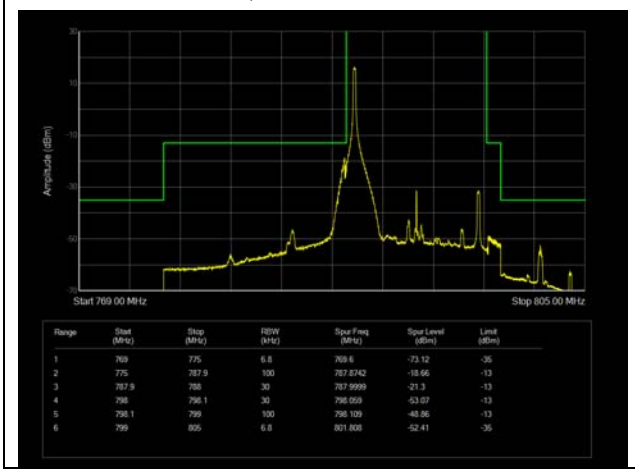
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	770.65	-73.26	-35
2	775	787.9	100	787.9	-26.47	-13
3	787.9	788	30	787.9952	-26.64	-13
4	798	798.1	30	798.0021	-51.92	-13
5	798.1	799	100	798.199	-46.07	-13
6	799	805	6.8	799.582	-58.98	-35

LTE Band 14 QPSK 5MHz CH-High 100%RB



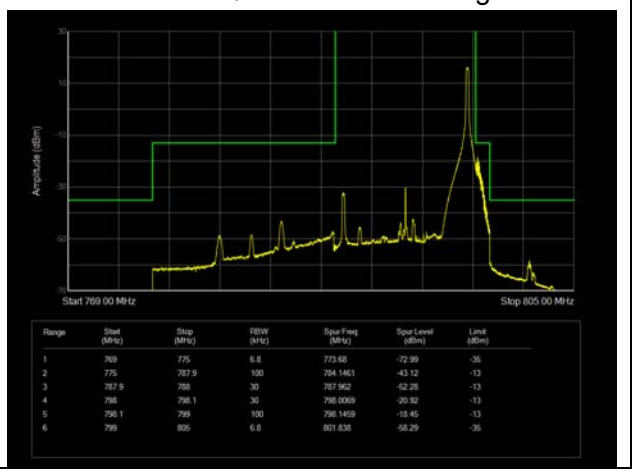
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	771.934	-73.16	-35
2	775	787.9	100	787.8613	-47.08	-13
3	787.9	788	30	787.9784	-52.62	-13
4	798	798.1	30	798.0035	-29.5	-13
5	798.1	799	100	798.109	-26.59	-13
6	799	805	6.8	799.108	-47.33	-35

LTE Band 14 QPSK 10MHz CH-Low 1 RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	769.6	-73.12	-35
2	775	787.9	100	787.8742	-18.66	-13
3	787.9	788	30	787.9999	-21.3	-13
4	798	798.1	30	798.059	-53.07	-13
5	798.1	799	100	798.109	-48.86	-13
6	799	805	6.8	801.808	-52.41	-35

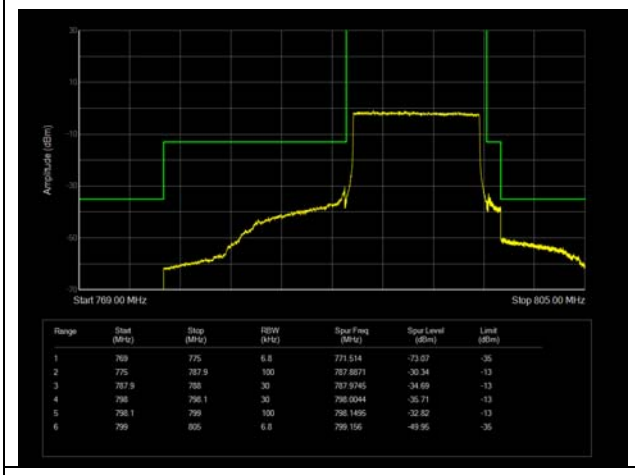
LTE Band 14 QPSK 10MHz CH-High 1 RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	773.68	-72.99	-35
2	775	787.9	100	784.1461	-43.12	-13
3	787.9	788	30	787.962	-52.28	-13
4	798	798.1	30	798.0069	-20.92	-13
5	798.1	799	100	798.1459	-18.45	-13
6	799	805	6.8	801.838	-58.29	-35

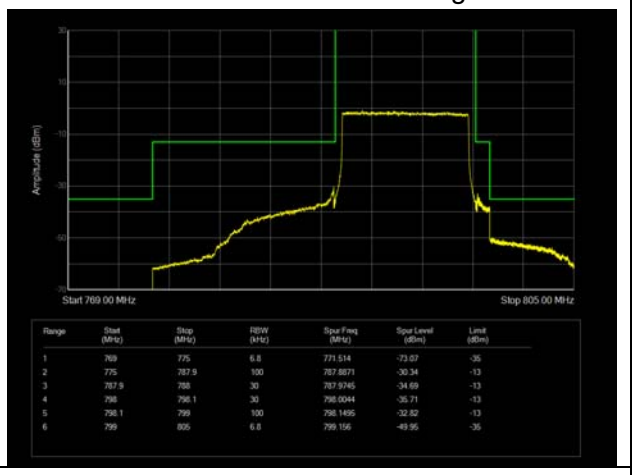
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 14 QPSK 10MHz CH-Low 100%RB



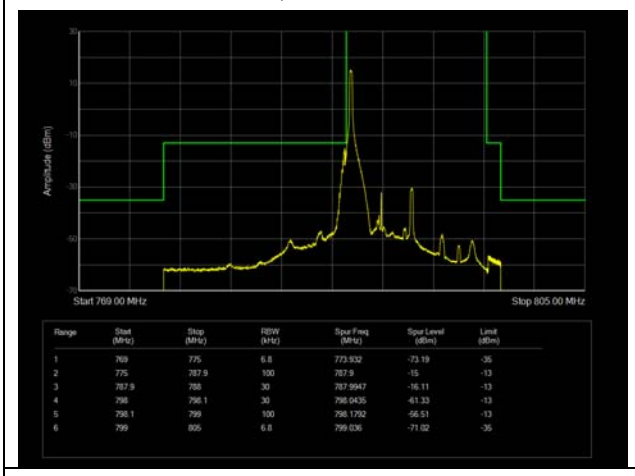
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	771.514	-73.07	-35
2	775	787.9	100	787.8871	-30.34	-13
3	787.9	788	30	787.9745	-34.69	-13
4	798	798.1	30	798.0044	-35.71	-13
5	798.1	799	100	798.1495	-32.82	-13
6	799	805	6.8	799.156	-49.95	-35

LTE Band 14 QPSK 10MHz CH-High 100%RB



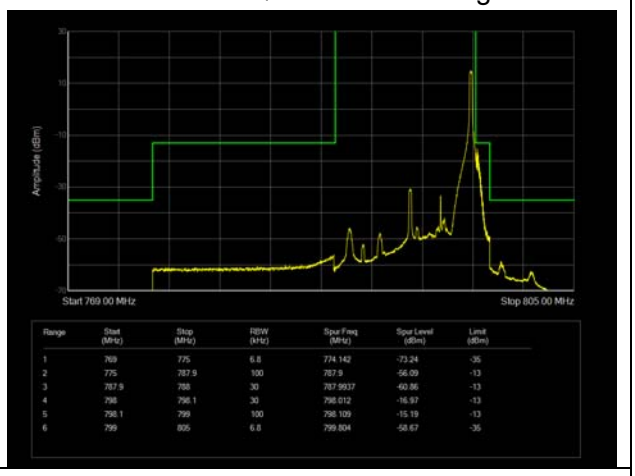
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	771.514	-73.07	-35
2	775	787.9	100	787.8871	-30.34	-13
3	787.9	788	30	787.9745	-34.69	-13
4	798	798.1	30	798.0044	-35.71	-13
5	798.1	799	100	798.1495	-32.82	-13
6	799	805	6.8	799.156	-49.95	-35

LTE Band 14 16QAM 5MHz CH-Low 1 RB



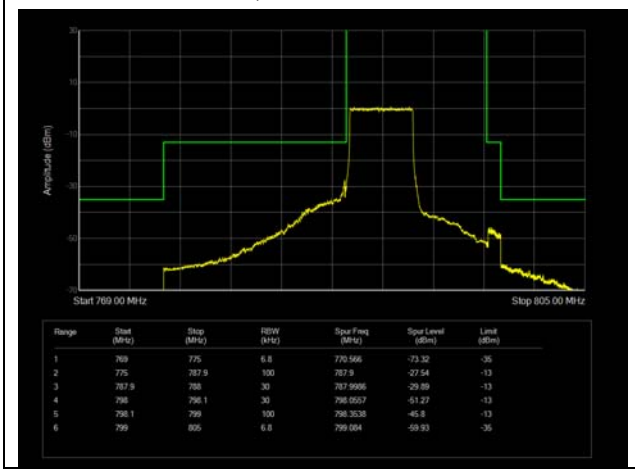
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	773.932	-73.19	-35
2	775	787.9	100	787.9	-15	-13
3	787.9	788	30	787.9947	-16.11	-13
4	798	798.1	30	798.0435	-61.33	-13
5	798.1	799	100	798.1792	-56.51	-13
6	799	805	6.8	799.036	-71.02	-35

LTE Band 14 16QAM 5MHz CH-High 1 RB



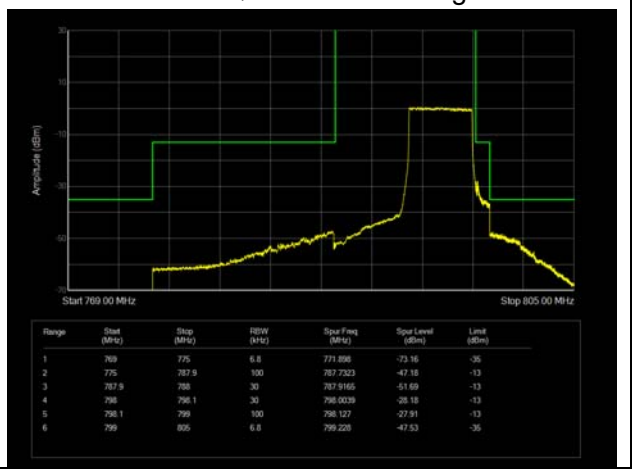
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	774.142	-73.24	-35
2	775	787.9	100	787.9	-56.09	-13
3	787.9	788	30	787.9937	-60.86	-13
4	798	798.1	30	798.012	-16.97	-13
5	798.1	799	100	798.109	-15.19	-13
6	799	805	6.8	799.804	-58.67	-35

LTE Band 14 16QAM 5MHz CH-Low 100%RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	770.566	-73.32	-35
2	775	787.9	100	787.9	-27.54	-13
3	787.9	788	30	787.9986	-29.89	-13
4	798	798.1	30	798.0557	-51.27	-13
5	798.1	799	100	798.3538	-45.8	-13
6	799	805	6.8	799.084	-59.93	-35

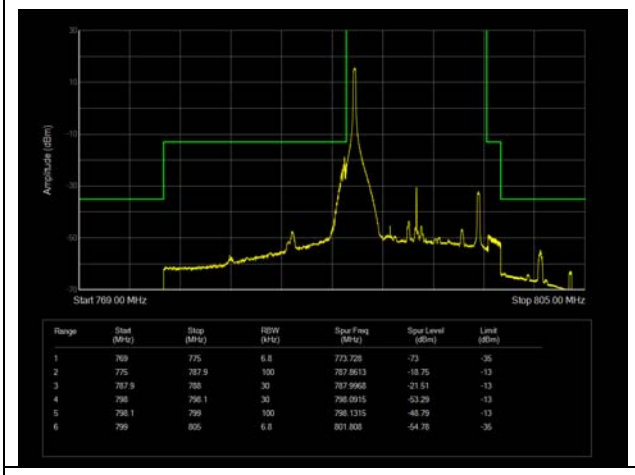
LTE Band 14 16QAM 5MHz CH-High 100%RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	771.898	-73.16	-35
2	775	787.9	100	787.7323	-47.18	-13
3	787.9	788	30	787.9165	-51.69	-13
4	798	798.1	30	798.0039	-28.18	-13
5	798.1	799	100	798.127	-27.91	-13
6	799	805	6.8	799.228	-47.53	-35

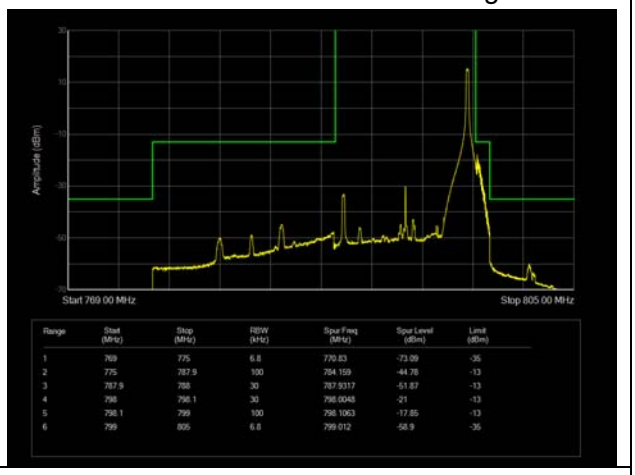
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 14 16QAM 10MHz CH-Low 1 RB



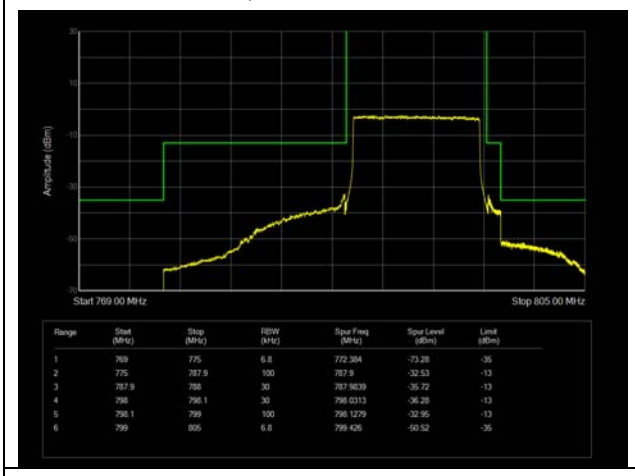
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	773.728	-73	-35
2	775	787.9	100	787.8613	-18.75	-13
3	787.9	788	30	787.9968	-21.51	-13
4	798	798.1	30	798.0915	-53.29	-13
5	798.1	799	100	798.1315	-48.79	-13
6	799	805	6.8	801.808	-54.78	-35

LTE Band 14 16QAM 10MHz CH-High 1 RB



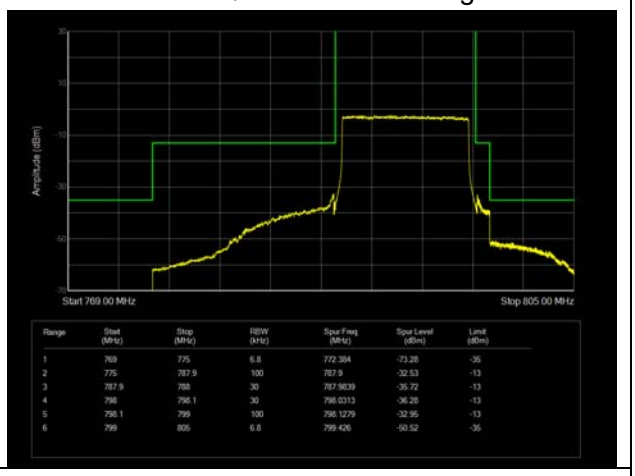
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	770.83	-73.09	-35
2	775	787.9	100	784.159	-44.78	-13
3	787.9	788	30	787.9317	-51.87	-13
4	798	798.1	30	798.0048	-21	-13
5	798.1	799	100	798.1063	-17.85	-13
6	799	805	6.8	799.012	-58.9	-35

LTE Band 14 16QAM 10MHz CH-Low 100%RB



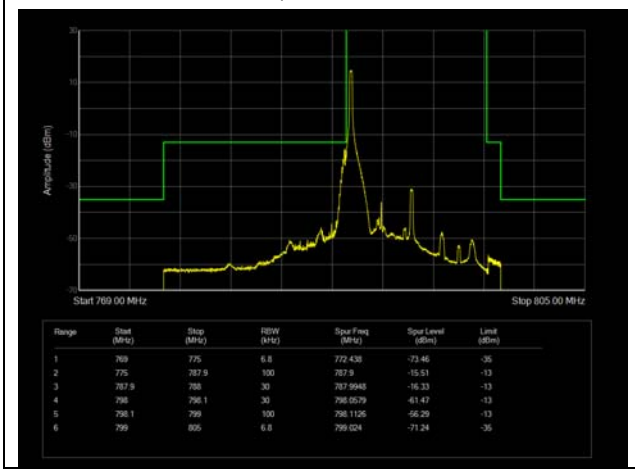
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.384	-73.28	-35
2	775	787.9	100	787.9	-32.53	-13
3	787.9	788	30	787.9639	-35.72	-13
4	798	798.1	30	798.0313	-36.28	-13
5	798.1	799	100	798.1279	-32.95	-13
6	799	805	6.8	799.426	-50.52	-35

LTE Band 14 16QAM 10MHz CH-High 100%RB



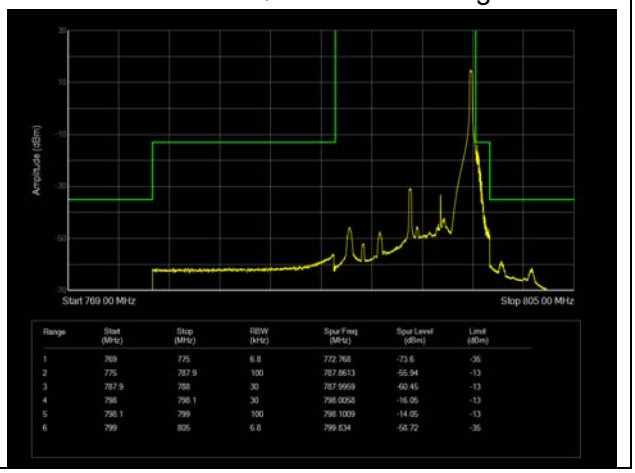
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.384	-73.28	-35
2	775	787.9	100	787.9	-32.53	-13
3	787.9	788	30	787.9639	-35.72	-13
4	798	798.1	30	798.0313	-36.28	-13
5	798.1	799	100	798.1279	-32.95	-13
6	799	805	6.8	799.426	-50.52	-35

LTE Band 14 64QAM 5MHz CH-Low 1 RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.438	-73.46	-35
2	775	787.9	100	787.9	-15.51	-13
3	787.9	788	30	787.9943	-16.33	-13
4	798	798.1	30	798.0579	-61.47	-13
5	798.1	799	100	798.1126	-56.29	-13
6	799	805	6.8	799.024	-71.24	-35

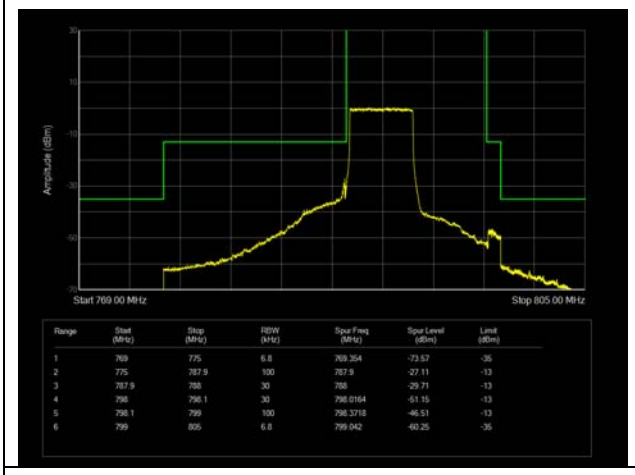
LTE Band 14 64QAM 5MHz CH-High 1 RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.768	-73.6	-35
2	775	787.9	100	787.8613	-55.94	-13
3	787.9	788	30	787.9959	-60.45	-13
4	798	798.1	30	798.0058	-16.05	-13
5	798.1	799	100	798.1009	-14.05	-13
6	799	805	6.8	799.634	-58.72	-35

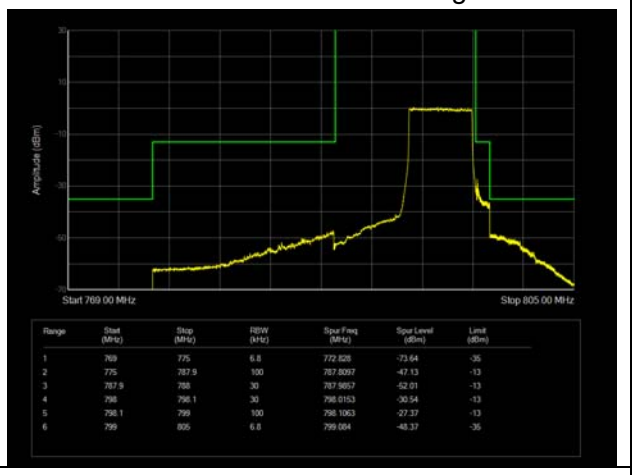
This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

LTE Band 14 64QAM 5MHz CH-Low 100%RB



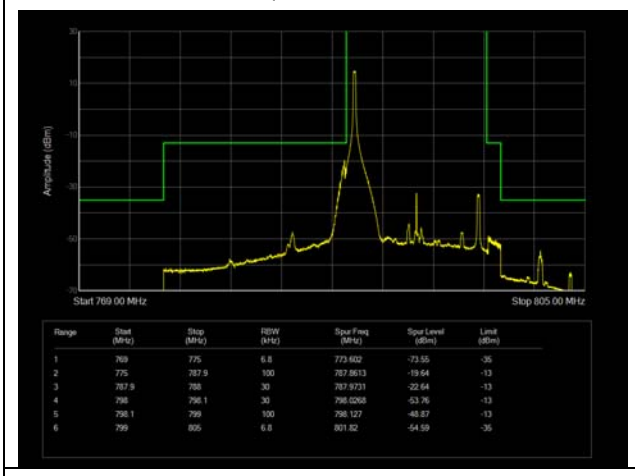
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	769.354	-73.57	-35
2	775	787.9	100	787.9	-27.11	-13
3	787.9	788	30	788	-29.71	-13
4	798	798.1	30	798.0164	-51.15	-13
5	798.1	799	100	798.3718	-46.51	-13
6	799	805	6.8	799.042	-60.25	-35

LTE Band 14 64QAM 5MHz CH-High 100%RB



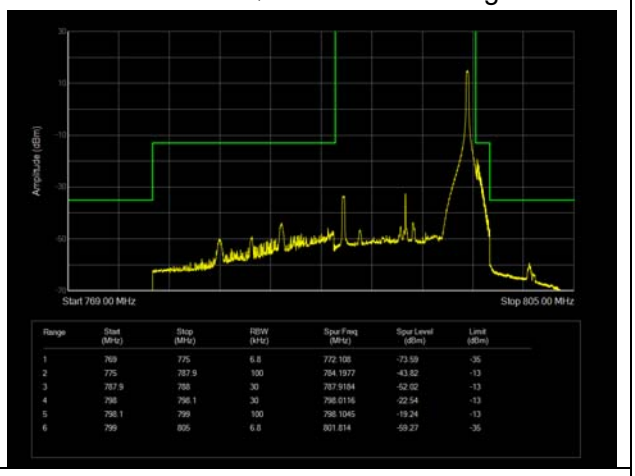
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.828	-73.64	-35
2	775	787.9	100	787.8097	-47.13	-13
3	787.9	788	30	787.9857	-52.01	-13
4	798	798.1	30	798.0153	-30.54	-13
5	798.1	799	100	798.1063	-27.37	-13
6	799	805	6.8	799.084	-48.37	-35

LTE Band 14 64QAM 10MHz CH-Low 1 RB



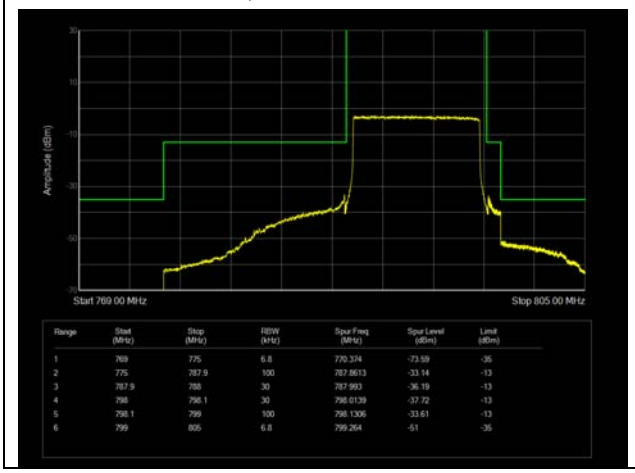
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	773.602	-73.55	-35
2	775	787.9	100	787.8613	-19.64	-13
3	787.9	788	30	787.9731	-22.64	-13
4	798	798.1	30	798.0268	-53.76	-13
5	798.1	799	100	798.127	-48.87	-13
6	799	805	6.8	801.82	-54.59	-35

LTE Band 14 64QAM 10MHz CH-High 1 RB



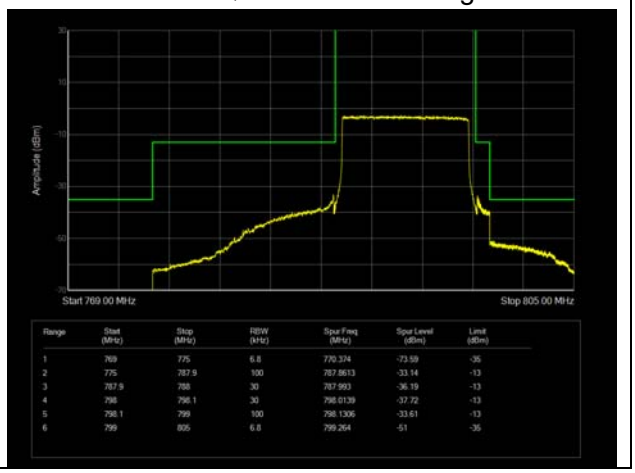
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	772.108	-73.59	-35
2	775	787.9	100	784.1977	-43.82	-13
3	787.9	788	30	787.9184	-52.02	-13
4	798	798.1	30	798.0116	-22.54	-13
5	798.1	799	100	798.1045	-19.24	-13
6	799	805	6.8	801.814	-59.27	-35

LTE Band 14 64QAM 10MHz CH-Low 100%RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	770.374	-73.59	-35
2	775	787.9	100	787.8613	-33.14	-13
3	787.9	788	30	787.993	-36.19	-13
4	798	798.1	30	798.0139	-37.72	-13
5	798.1	799	100	798.1306	-33.61	-13
6	799	805	6.8	799.264	-51	-35

LTE Band 14 64QAM 10MHz CH-High 100%RB



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	769	775	6.8	770.374	-73.59	-35
2	775	787.9	100	787.8613	-33.14	-13
3	787.9	788	30	787.993	-36.19	-13
4	798	798.1	30	798.0139	-37.72	-13
5	798.1	799	100	798.1306	-33.61	-13
6	799	805	6.8	799.264	-51	-35

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6.4. Peak-to-Average Power Ratio (PAPR)

LTE Band 14								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	5	23305	790.5	27.97	22.48	5.49	≤13	PASS
		23330	793	27.94	22.40	5.54	≤13	PASS
		23355	795.5	27.86	22.50	5.36	≤13	PASS
	10	23330	793	27.89	22.51	5.38	≤13	PASS
16QAM	5	23305	790.5	27.76	21.49	6.27	≤13	PASS
		23330	793	27.63	21.42	6.21	≤13	PASS
		23355	795.5	27.62	21.52	6.10	≤13	PASS
	10	23330	793	27.69	21.50	6.19	≤13	PASS
64QAM	5	23305	790.5	27.38	21.15	6.23	≤13	PASS
		23330	793	27.28	21.07	6.21	≤13	PASS
		23355	795.5	27.26	21.17	6.09	≤13	PASS
	10	23330	793	27.36	21.16	6.20	≤13	PASS

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6.5. Frequency Stability

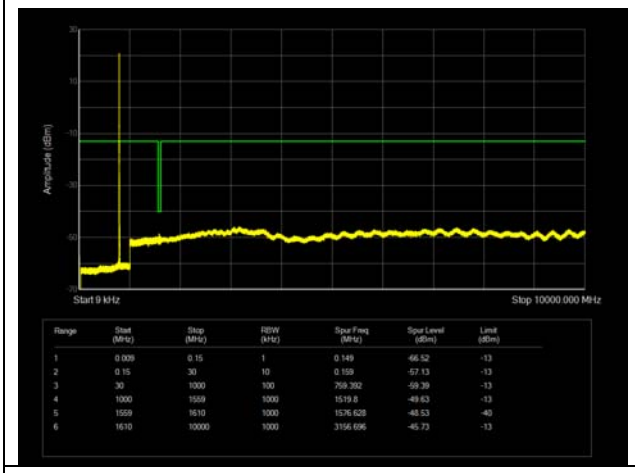
LTE Band 14								
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	3.59	12.91	8.98	0.00453	0.01628	0.01133	PASS
Extreme(50℃)		4.40	12.01	14.58	0.00555	0.01515	0.01839	PASS
Extreme(40℃)		11.19	17.69	10.41	0.01411	0.02231	0.01313	PASS
Extreme(30℃)		8.82	17.84	12.69	0.01113	0.02250	0.01600	PASS
Extreme(20℃)		5.08	2.75	8.47	0.00640	0.00347	0.01068	PASS
Extreme(10℃)		9.04	15.65	14.72	0.01140	0.01974	0.01856	PASS
Extreme(0℃)		6.12	3.04	16.82	0.00772	0.00384	0.02120	PASS
Extreme(-10℃)		1.04	7.38	7.07	0.00131	0.00930	0.00892	PASS
Extreme(-20℃)		4.71	6.28	6.54	0.00594	0.00792	0.00825	PASS
Extreme(-30℃)		9.03	7.75	4.77	0.01139	0.00977	0.00601	PASS
25℃	LV	4.81	3.34	3.69	0.00607	0.00422	0.00466	PASS
	HV	4.08	2.40	11.34	0.00514	0.00302	0.01429	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stabilit (ppm)	Verdict
BANDWIDTH	10MHz							
Temperature	Voltage	64QAM	16QAM	QPSK	64QAM	16QAM	QPSK	
Normal(25℃)	Normal	1.09	3.76	7.82	0.00138	0.00474	0.00986	PASS
Extreme(50℃)		4.52	4.71	1.45	0.00570	0.00594	0.00183	PASS
Extreme(40℃)		17.21	7.20	16.12	0.02171	0.00908	0.02033	PASS
Extreme(30℃)		8.56	7.69	13.98	0.01080	0.00970	0.01763	PASS
Extreme(20℃)		3.56	12.22	6.01	0.00448	0.01541	0.00758	PASS
Extreme(10℃)		6.79	13.51	3.06	0.00857	0.01704	0.00385	PASS
Extreme(0℃)		8.08	12.20	8.21	0.01018	0.01539	0.01035	PASS
Extreme(-10℃)		12.31	2.58	13.28	0.01552	0.00325	0.01675	PASS
Extreme(-20℃)		3.10	3.98	2.24	0.00390	0.00502	0.00283	PASS
Extreme(-30℃)		15.34	11.22	11.17	0.01934	0.01415	0.01409	PASS
25℃	LV	14.18	1.83	10.35	0.01788	0.00230	0.01305	PASS
	HV	1.10	13.19	4.99	0.00139	0.01664	0.00629	PASS

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6.6. Spurious Emissions at Antenna Terminals

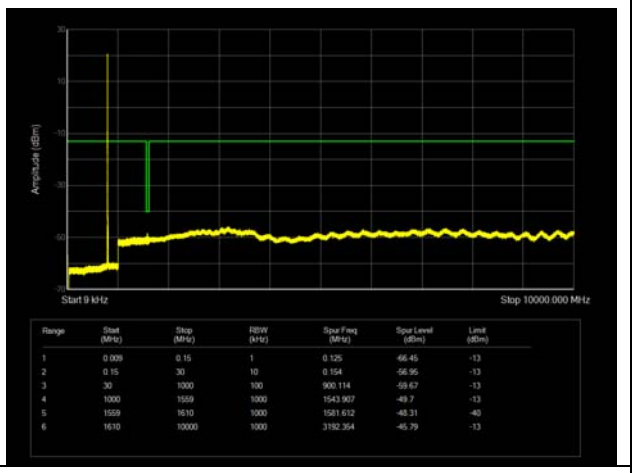
If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.
The signal beyond the limit is carrier.

LTE Band 14 5MHz CH-Low 9kHz~10GHz



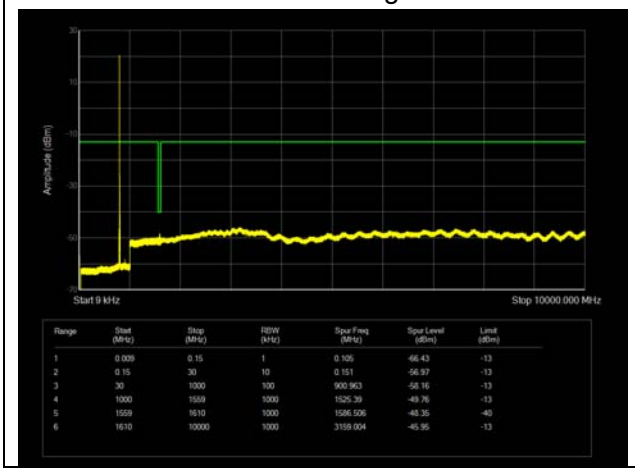
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.149	-66.52	-13
2	0.15	30	10	0.159	-57.13	-13
3	30	1000	100	759.392	-59.39	-13
4	1000	1559	1000	1519.8	-49.63	-13
5	1559	1610	1000	1576.628	-48.53	-40
6	1610	10000	1000	3156.696	-45.73	-13

LTE Band 14 5MHz CH- Middle 9kHz~10GHz



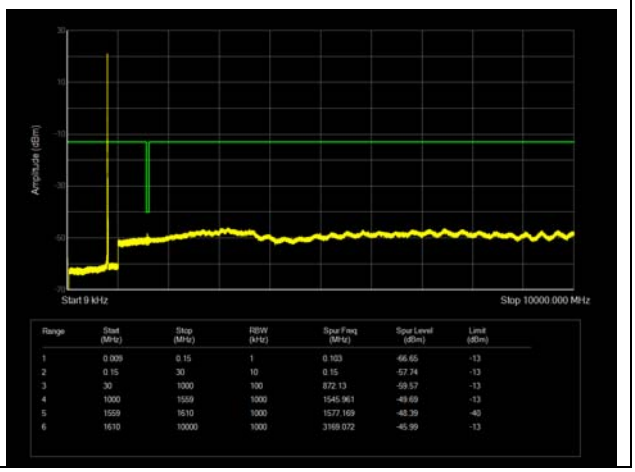
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.125	-66.45	-13
2	0.15	30	10	0.154	-56.95	-13
3	30	1000	100	900.114	-59.67	-13
4	1000	1559	1000	1543.907	-49.7	-13
5	1559	1610	1000	1581.612	-48.31	-40
6	1610	10000	1000	3192.354	-45.79	-13

LTE Band 14 5MHz CH-High 9kHz~10GHz



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.105	-66.43	-13
2	0.15	30	10	0.151	-56.97	-13
3	30	1000	100	900.963	-58.16	-13
4	1000	1559	1000	1525.39	-49.76	-13
5	1559	1610	1000	1586.506	-48.35	-40
6	1610	10000	1000	3158.004	-45.95	-13

LTE Band 14 10MHz CH- Middle 9kHz~10GHz



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.103	-66.65	-13
2	0.15	30	10	0.15	-57.74	-13
3	30	1000	100	872.13	-59.57	-13
4	1000	1559	1000	1545.961	-49.69	-13
5	1559	1610	1000	1577.169	-48.39	-40
6	1610	10000	1000	3168.072	-45.99	-13

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

6.7. Radiated Spurious Emission

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 14 QPSK 5MHz CH- Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1581.00	-63.71	1.70	8.70	Horizontal	-58.86	-40.00	18.86	45
3	2371.50	-55.61	2.30	12.00	Horizontal	-48.06	-13.00	35.06	135
4	3162.00	-65.98	2.30	13.10	Horizontal	-57.33	-13.00	44.33	135
5	3952.50	-64.26	2.90	12.50	Horizontal	-56.81	-13.00	43.81	225
6	4743.00	-62.09	3.10	12.50	Horizontal	-54.84	-13.00	41.84	0
7	5533.50	-60.14	3.30	12.50	Horizontal	-53.09	-13.00	40.09	90
8	6324.00	-59.40	3.80	11.50	Horizontal	-53.85	-13.00	40.85	180
9	7114.50	-58.81	4.20	11.80	Horizontal	-53.36	-13.00	40.36	135
10	7905.00	-56.18	4.40	12.30	Horizontal	-50.43	-13.00	37.43	315
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

LTE Band 14 QPSK 10MHz CH-Middle, RB 1

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1576.00	-63.78	1.70	8.70	Horizontal	-58.93	-40.00	18.93	135
3	2364.00	-57.46	2.30	12.00	Horizontal	-49.91	-13.00	36.91	45
4	3152.00	-64.53	2.30	13.10	Horizontal	-55.88	-13.00	42.88	45
5	3940.00	-63.73	2.90	12.50	Horizontal	-56.28	-13.00	43.28	135
6	4728.00	-61.09	3.10	12.50	Horizontal	-53.84	-13.00	40.84	135
7	5516.00	-59.82	3.30	12.50	Horizontal	-52.77	-13.00	39.77	180
8	6304.00	-58.92	3.80	11.50	Horizontal	-53.37	-13.00	40.37	45
9	7092.00	-59.09	4.20	11.80	Horizontal	-53.64	-13.00	40.64	90
10	7880.00	-56.41	4.40	12.30	Horizontal	-50.66	-13.00	37.66	225
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2. The worst emission was found in the antenna is Horizontal position.									

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Climatic Chamber	WEISS	VT 4002	58226119450010	2022-05-14	2023-05-13
Base Station Simulator	R&S	CMW500	150415	2022-05-14	2023-05-13
Spectrum Analyzer	Keysight	N9020A	MY50510203	2022-05-14	2023-05-13
Signal Analyzer	R&S	FSV30	103591	2022-05-14	2023-05-13
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2022-05-14	2023-05-13
Signal Analyzer	R&S	FSV30	100815	2022-12-10	2023-12-09
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	01439	2021-06-30	2024-06-29
Horn Antenna	Schwarzbeck	BBHA 9120D	01799	2022-09-01	2025-08-31
Software	R&S	EMC32	10.35.10	/	/

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

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

This report shall not be reproduced except in full, without the written approval of TA Technology (Shanghai) Co., Ltd.