RF TEST REPORT

Report No.: SHATBL2512015W08

Applicant	:	Shenzhen Guangqun Communication Technology Co., Ltd.
Product Name	:	Tablet
Brand Name	:	POCKAM
Model Name	:	P13 Pro
Series Model	:	P12,P13 Plus,P13+,P13 Pro+,P13 Max,P13 Ultra
FCC ID	:	2BTXRP13PRO
Test Standard	:	47 CFR Part 2;47 CFR Part 90
Date of Sample Arrival	:	Dec.09, 2025
Date of Test	:	Dec.10, 2025~Dec.25, 2025
Issue Date	:	Dec.26, 2025

Report Prepared by : Emily

(Emily)

Report Approved by : Guozheng Li

(Guozheng Li)

Authorized Signatory : Terry Yang

(Terry Yang)

"Shanghai ATBL Technology Co., Ltd." hereby certifies that according to actual testing conditions. The test results or observations are provided in accordance with measured value, without taking risks caused by uncertainty into account. Without explicit stipulation in special agreements, standards or regulations, ATBL shall not assume any responsibility. The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material. This report will be void without authorized signature or special seal for testing report. Do not copied without authorization.

TABLE OF CONTENTS

REVISION HISTORY 3
DECLARATION OF REPORT 4
SUMMARY OF TEST RESULT 5
1. GENERAL DESCRIPTION 6
1.1. Applicant 6
1.2. Manufacturer 6
1.3. Factory 6
1.4. General Information of EUT 7
1.5. Equipment Specification 8
1.6. Maximum Conducted Power and Emission Designator 9
1.7. Environmental conditions 9
1.8. Modification of EUT 10
1.9. Laboratory Information 10
1.10. Applicable Standards 10
2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST 11
2.1. Test Mode 11
2.2. Connection Diagram of Test System 12
2.3. Support Unit used in test configuration and system 12
2.4. Frequency List of Low/Middle/High Channels 13
2.5. Equipment List 14
2.6. Measurement Uncertainty 15
3. TEST RESULT 16
3.1. Conducted Output Power and ERP/EIRP 16
3.2. Peak-to-Average Ratio 17
3.3. Occupied Bandwidth 18
3.4. Conducted Band Edge 20
3.5. Conducted Spurious Emission 22
3.6. Frequency Stability 23
3.7. Emission Mask 25
3.8. Modulation Characteristics 26
3.9. Radiated Spurious Emission 27
Radiated spurious emissions - MS allocated a channel: 29
4. TEST SETUP PHOTOGRAPHS 37
5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT 37

REVISION HISTORY

Rev.	Issue Date	Revisions	Revised by
00	Dec.26, 2025	Initial Release	

DECLARATION OF REPORT

1. The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the requirements of FCC Require. And it is applicable only to the tested sample identified in the report.

2. This report shall not be reproduced except in full, without the written approval of ATBL, this document only be altered or revised by ATBL, personal only, and shall be noted in the revision of the document.

3. The general information of EUT in this report is provided by the customer or manufacture, ATBL is only responsible for the test data but not for the information provided by the customer or manufacture.

4. The results in this report is only apply to the sample as tested under conditions. The customer or manufacturer is responsible for ensuring that the additional production units of this model have the same electrical and mechanical components.

SUMMARY OF TEST RESULT

For Band26

Test Item	FCC Rule No.	Limit	Result	Verdict (Note1)
Effective (Isotropic) Radiated Power Output Data	Part 2.1046, 90.635(b)	ERP ≤ 100 W	Pass	Appendix I1
Peak-Average Ratio	--	Limit≤13 dB	Pass	Appendix I2
Frequency Stability	Part 2.1055, 90.213	≤ ± 2.5 ppm.	Pass	Appendix I3
Occupied Bandwidth	Part 2.1049	OBW: No limit. EBW: No limit.	Pass	Appendix I4
Spurious Emission at Antenna Terminals	Part 2.1051, 90.691	≤ -13 dBm/1 MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Pass	Appendix I5
Band Edges Compliance	-	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Pass	Appendix I6
Emission Masks	Part 2.1051, 90.691	Mask B	Note 2	Note 2
Modulation Characteristics	Part 2.1047	Digital modulation	Pass	Appendix I8
Radiated Spurious Emissions	Part 2.1053, 90.691	≤ -13 dBm/1 MHz.	Pass	/

Note1:
For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.
Note2:
This test item is only performed for LTE Band 14。

1. GENERAL DESCRIPTION

1.1. Applicant

Name	:	Shenzhen Guangqun Communication Technology Co., Ltd.
Address	:	Room 537Z, 5th Floor, Building 522, Bagualing Industrial Zone, Futian District, Shenzhen.

1.2. Manufacturer

Name	:	Shenzhen Guangqun Communication Technology Co., Ltd.
Address	:	Room 537Z, 5th Floor, Building 522, Bagualing Industrial Zone, Futian District, Shenzhen.

1.3. Factory

Name	:	Shenzhen Guangqun Communication Technology Co., Ltd.
Address	:	Room 537Z, 5th Floor, Building 522, Bagualing Industrial Zone, Futian District, Shenzhen.

1.4. General Information of EUT

General Information	
Test Sample	202512012003
Product Name:	Tablet
Brand Name	POCKAM
Model Name	P13 Pro
Series Model	P12,P13 Plus,P13+,P13 Pro+,P13 Max,P13 Ultra
Model Difference	The only differences are in model naming, color, and memory, while all other aspects remain the same.
Power supply	DC 3.85V
Adapter	Input:AC100-240V~50/60Hz 0.6A Output:5.0V⎓ 3.0A 15.0W;9.0V⎓ 2.0A 18.0W;12.0V⎓ 1.5A 18.0W
Battery	DC 3.85V 12000mAh
Hardware Version	L30-T620-V1.0
Software Version	P13 Pro-EEA-Android-16.0-20251209
SIM Card Description:	The prototype supports dual cards
Connecting I/O Port(s)	Refer to the remark below.

Remark:

The above information of EUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.5. Equipment Specification

Standards-related Product Specification		
Frequency		
Band	**Tx Frequency Range**	**Rx Frequency Range**
☐ Band 14	788MHz ~ 798 MHz	758 MHz ~ 768 MHz
☑ Band 26	814 MHz ~ 824 MHz	869 MHz ~ 894 MHz
Bandwidth		
Band	**Bandwidth**	
☐ Band 14	5MHz / 10MHz / 15MHz / 20MHz	
☑ Band 26	1.4MHz / 3MHz / 5MHz / 10MHz	
Antenna Gain		
Band	**Antenna Gain**	
☐ Band 14	N/A	
☑ Band 26	-2.39dBi	
Maximum Output Power to Antenna		
Band	**Maximum Output Power**	
☐ Band 14	N/A	
☑ Band 26	24.81dBm	
Type of Modulation		
☑ QPSK ☑ 16QAM ☐ 64QAM ☐ 256QAM		

1.6. Maximum Conducted Power and Emission Designator

☑ LTE Band 26				
Bandwidth (MHz)	☑ QPSK		☑ 16QAM	
	Maximum Conducted Power (dBm)	Emission Designator (99% OBW)	Maximum Conducted Power (dBm)	Emission Designator (99% OBW)
1.4	23.94	1M08G7D	24.81	1M08W7D
3	23.93	2M70G7D	23.59	2M69W7D
5	24.26	4M49G7D	24.15	4M49W7D
10	23.86	8M94G7D	23.74	8M97W7D

1.7. Environmental conditions

Temperature	Normal Temperature(NT):	25°C
	High Temperature(HT):	55°C
	Low Temperature(LT):	-20°C
Voltage	Normal Voltage(NV):	3.85V
	High Voltage(HV):	4.75V
	Low Voltage(LV):	3.66V
Other	Relative Humidity	55 %
	Air Pressure	101 kPa

1.8. Modification of EUT

No modifications are made to the EUT during all test items.

1.9. Laboratory Information

Company Name	:	Shanghai ATBL Technology Co., Ltd.
Address	:	5-6/F., Unit 1, No 8, Free Trade One Life Science and Sci-Tech Industrial Park No. 160, Basheng Road, Pudong New District Shanghai City, People's Republic of China
Telephone	:	+86(0)21-51298625
FCC-Registration Number:	:	485917
Designation Number:	:	CN1306
A2LA-Lab Cert. No.:	:	6184.01
ISED Designation Number:	:	27371

1.10. Applicable Standards

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

47 CFR Part 2, 90

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01;

KDB 971168 D02 Misc Rev Approv License Devices v02r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST

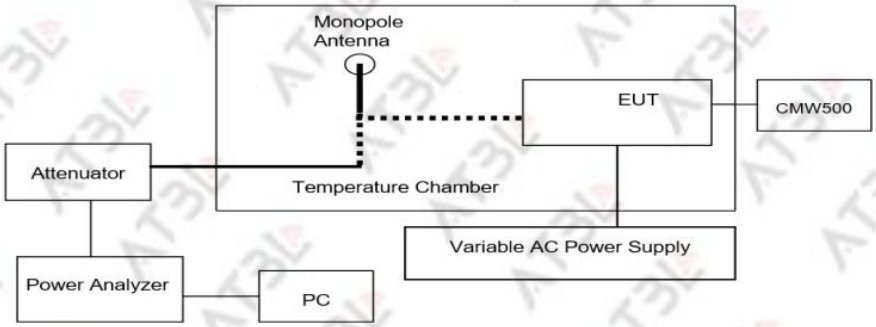
2.1. Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission. (X-Plane)

Test Items	Band	Bandwidth (MHz)						Modulation					RB #			Test Channel		
		1.4	3	5	10	15	20	PI/2 BPSK	QPSK	16 QAM	64 QAM	256 QAM	1	Half	Full	L	M	H
Max. Output Power	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√	√	√
Peak-to-Average Ratio	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√	√	√
26dB and 99% Bandwidth	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√	√	√
Conducted Band Edge	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√		√
Conducted Spurious Emission	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√	√	√
Frequency Stability	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√		√	√	√	√
E.R.P / E.I.R.P	14													-				
	26	√	√	√	√	-	-	-	√	-	-	-	√	-	√	√	√	√
Radiated Spurious Emission	14																	
	26	Worst Case														√	√	√
Note	/							1. The mark "√" means that this configuration is chosen for testing. 2. When a cell is empty, it means it is not supported or does not require testing. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.											

2.2. Connection Diagram of Test System



Remarks:
The Signal Analyzer could be connected to a Monopole antenna or directly connected to the EUT, if the EUT has already employing an antenna connector.

2.3. Support Unit used in test configuration and system

NO.	Unit	Brand	Model	Description
1	/	/	/	/
2	/	/	/	/

2.4. Frequency List of Low/Middle/High Channels

LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	--	26740	--
	Frequency(MHz)	--	819.0	--
5	Channel	26715	26740	26765
	Frequency(MHz)	816.5	819.0	821.5
3	Channel	26705	26740	26775
	Frequency(MHz)	815.5	819.0	822.5
1.4	Channel	26697	26740	26783
	Frequency(MHz)	814.7	819.0	823.3

2.5. Equipment List

2.5.1. For Conducted Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	Calibrated due until	Cal. Interval
Power sensor-Card reader	Cesheng	smu 1003	16I00054SN016	2025.03.19	2026.03.18	1 year
Adjustable Attenuator	Agilent	8494B	MY42144015	2025.07.28	2026.07.27	1 year
Adjustable Attenuator	Agilent	8496B	MY42143776	2025.07.28	2026.07.27	1 year
Environmental Test Chamber	KSON	THS-B6C-150	9159K	2025.03.17	2026.03.16	1 year
Signal analyzer	Keysight	N9020A	MY50510136	2025.07.18	2026.07.17	1 year
Vector signal generator	Agilent	N5182A	MY48180764	2025.07.18	2026.07.17	1 year
Analog signal generator	Keysight	N5182B	MY57300196	2025.07.18	2026.07.17	1 year
Wideband radio communication tester	R&S	CMW500	101331	2025.07.28	2026.07.27	1 year
Switch Box	Cesheng	smu 1003	WCS20221215	2025.03.19	2026.03.18	1 year
Thermometer	DeLi	N/A	N/A	2025.08.01	2026.07.31	1 year
Test Software	Cesheng	WCS-WCN	N/A	N/A	N/A	N/A

2.5.2. For Radiated Spurious Emission

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	Calibrated due until	Cal. Interval
Signal analyzer	Agilent	N9020A	MY50200811	2025.03.17	2026.03.16	1 year
Amplifier	JPT	JPA0118-55-303A	1910001800055000	2025.03.24	2026.03.23	1 year
Amplifier	JPT	JPA-10M1G32	21010100035001	2025.03.17	2026.03.16	1 year
Antenna/Turn table Controller	Brilliant	N/A	N/A	N/A	N/A	N/A
Loop Antenna(9kHz-30MHz)	Daze	ZN30900C	20077	2025.05.13	2026.05.12	1 year
Bilog Antenna	SCHWARZBECK	VULB 9168	01174	2025.05.20	2026.05.19	1 year
Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120D	02334	2025.05.20	2026.05.19	1 year
Horn Antenna	COM-POWER	AH-1840	10100008	2025.07.28	2026.07.27	1 year
Thermometer	DeLi	N/A	N/A	2025.08.01	2026.07.31	1 year
Test Software	FALA	EMC-RI(Ver.4A2)	N/A	N/A	N/A	N/A
Wideband radio communication tester	R&S	CMW500	101331	2025.07.28	2026.07.27	1 year
Spectrum analyzer	R&S	FSV40-N	101761	2025.07.28	2026.07.27	1 year
Vector signal generator	Keysight	N5182B	MY50200811	2025.07.28	2026.07.27	1 year
Alternative Horn Antenna	Schwarzbeck	BBHA 9120D	2802	2025.07.28	2026.07.27	1 year
Filter Box	XingBo	EZSVFU1&EZSVFU2	N/A	2025.07.28	2026.07.27	1 year
Substitute antenna Bilog Antenna	SCHWARZBECK	VULB 9168	1449	2025.05.20	2026.05.19	1 year
Substitute antenna Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120D	2659	2025.05.20	2026.05.19	1 year

2.5.3. For AC Power-Line Conducted Emission

Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	Calibrated due until	Cal. Interval
EMI Test Receiver	R&S	ESPI	100679	2025.03.17	2026.03.16	1 year
LISN	R&S	ENV216	101300	2025.03.17	2026.03.16	1 year
LISN	R&S	ENV216	100333	2025.03.17	2026.03.16	1 year
CE Cable	Chuangcexing	2M	EMI0014	N/A	N/A	N/A
Temperature & Humidity	Deli	Deli	EMI0015	2025.08.01	2026.07.31	1 year
Testing Software	FALA	EZ-EMC(Ver.EMC-CON 3A1.1)	EMI0044	N/A	N/A	N/A
Wideband radio communication tester	R&S	CMW500	101331	2025.07.28	2026.07.27	1 year

2.6. Measurement Uncertainty

The reported uncertainty of measurement y±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Occupied Channel Bandwidth	±4%
2	Transmitter power conducted	±0.56 dB
3	Transmitter power Radiated	±2.20 dB
4	Conducted spurious emission	±1.60 dB
5	Radiated spurious emission	±2.20 dB
6	Temperature	±0.6℃
7	Humidity	±2%
8	DC and low frequency voltages	±0.05%
9	Radio frequency error	$\pm 3\times 10^{-8}$

3. TEST RESULT

3.1. Conducted Output Power and ERP/EIRP

3.1.1. Test Setup

3.1.2. Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 100 Watts for LTE Band 26.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 14.

According to KDB 412172 D01 Power Approach, EIRP = $P_T + G_T - L_C$, ERP = EIRP -2.15, where P_T = transmitter output power in dBm, G_T = gain of the transmitting antenna in dBi, L_C= signal attenuation in the connecting cable between the transmitter and antenna in dB.

3.1.3. Test Procedures

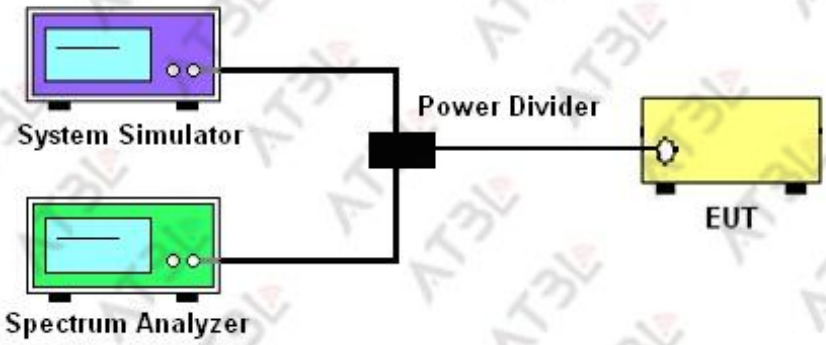
1. The testing follows ANSI C63.26 Section 5.2.
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.1.4. Test Result of Conducted Output Power and ERP/EIRP

Please refer to the Appendix I1.

3.2. Peak-to-Average Ratio

3.2.1. Test Setup



3.2.2. Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

3.2.3. Test Procedures

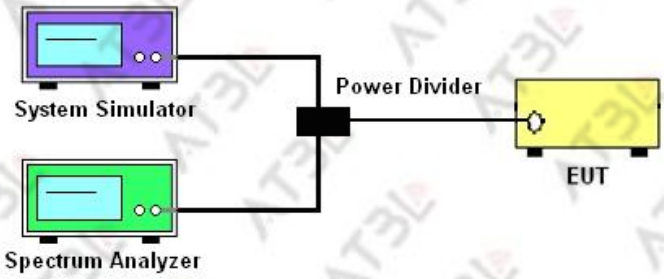
1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.2.4. Test Result of Peak-to-Average Ratio

Please refer to the Appendix I2.

3.3. Occupied Bandwidth

3.3.1. Test Setup



3.3.2. Description of Occupied Bandwidth Measurement

The occupied bandwidth is 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 transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.3.3. Test Procedures

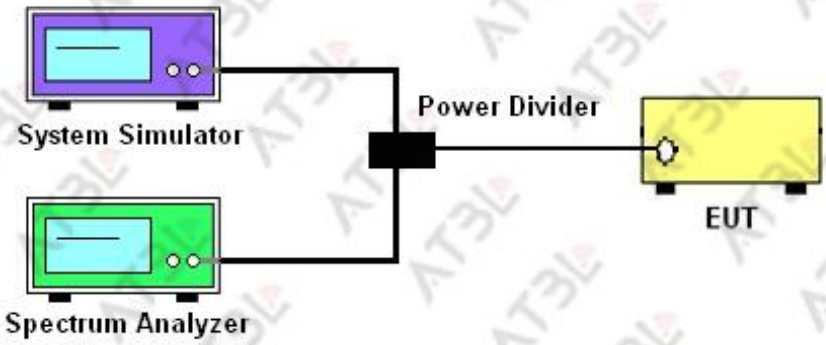
1. The testing follows ANSI C63.26 Section 5.4.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.(this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.3.4. Test Result of Occupied Bandwidth

Please refer to the Appendix I3.

3.4. Conducted Band Edge

3.4.1. Test Setup



3.4.2. Description of Conducted Band Edge Measurement

For operations in the 758-768 MHz and the 788-798 MHz bands:
(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.

3.4.3. Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

   Example:

   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

   = P(W)- [43 + 10log(P)] (dB)

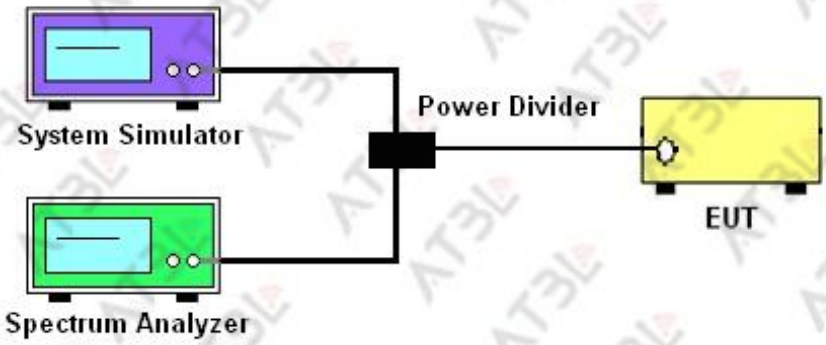
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm
9. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.4.4. Test Result of Conducted Band Edge

Please refer to the Appendix I4.

3.5. Conducted Spurious Emission

3.5.1. Test Setup



3.5.2. Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.5.3. Test Procedures

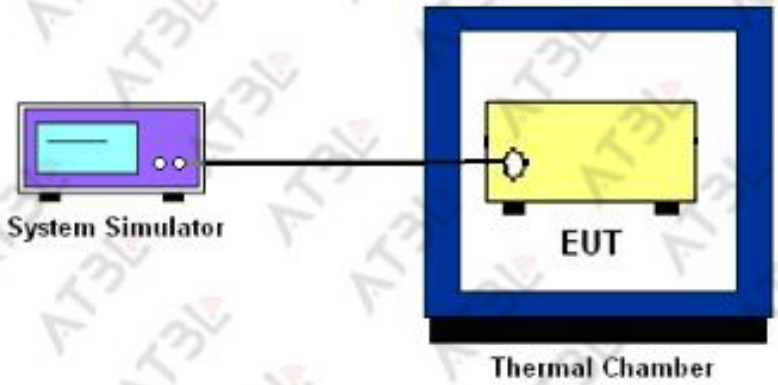
1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.

3.5.4. Test Result of Conducted Spurious Emission

Please refer to the Appendix I5.

3.6. Frequency Stability

3.6.1. Test Setup



3.6.2. Description of Frequency Stability Measurement

Part 90.210:

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00015% (±1.5ppm) of the center frequency.

Part 90.691:

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.6.3. Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.6.4. Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage

to the battery operating end point, which shall be specified by the manufacturer.

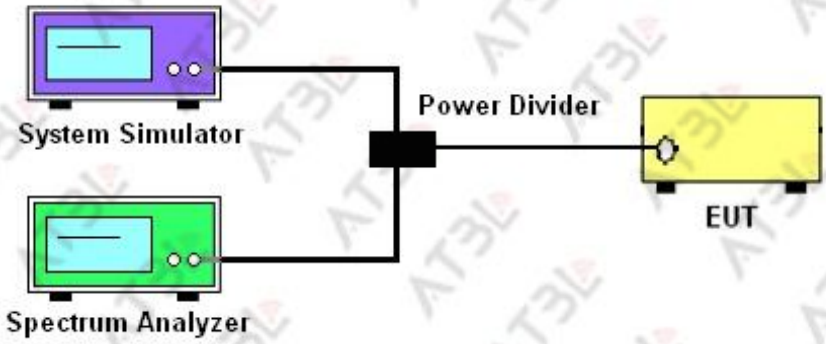
5. The variation in frequency was measured for the worst case.

3.6.5. Test Result of Frequency Stability

Please refer to the Appendix I6.

3.7. Emission Mask

3.7.1. Test Setup



3.7.2. Description Measurement

<Emission Mask B>.

Part 90.210:

For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43+10 log (P) dB.

Part 90.691:

For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Logo(f/6.1) decibels or 50 + 10Logio(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Logio(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

3.7.3. Test Procedures

1.The EUT was connected to spectrum analyzer and system simulator via a power divider.

2.The power of the modulated signal was measured on a spectrum analyzer using an RMS and 10 second sweep time in order to maximize the level.

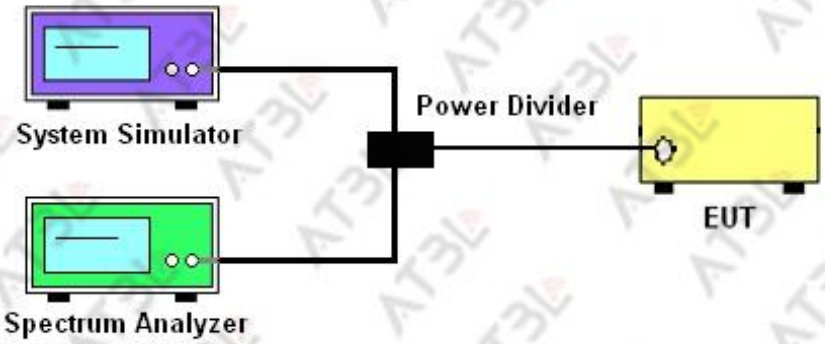
3.The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7.4. Test Result

Note: This test item is only performed for LTE Band 14.

3.8. Modulation Characteristics

3.8.1. Test Setup



3.8.2. Description Measurement

Part 2.1047:

(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.

(c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of § 2.1049 for the occupied bandwidth tests.

(d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

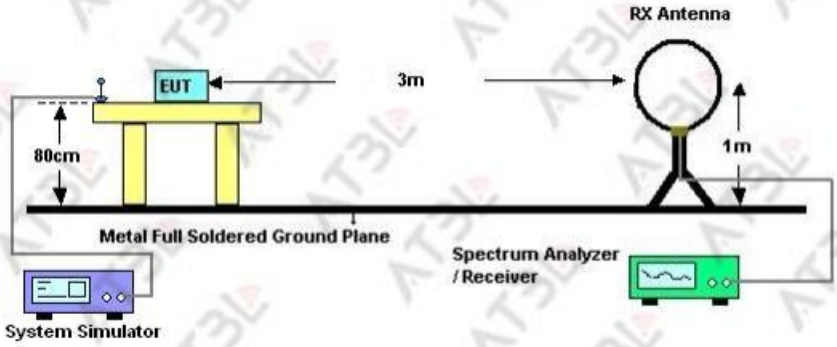
3.8.3. Test Result

Please refer to the Appendix I8.

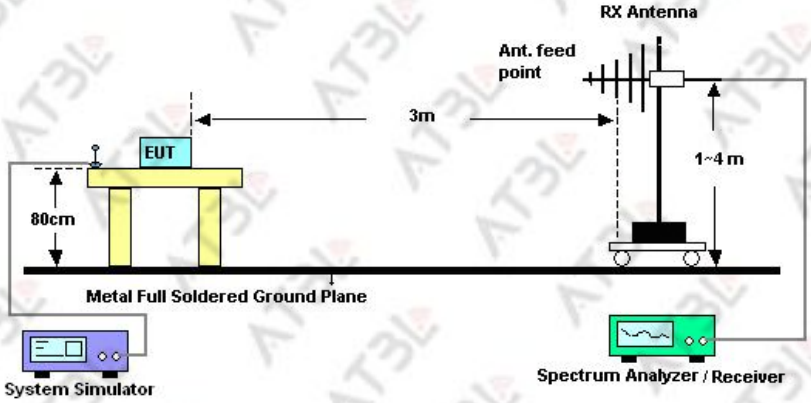
3.9. Radiated Spurious Emission

3.9.1. Test Setup

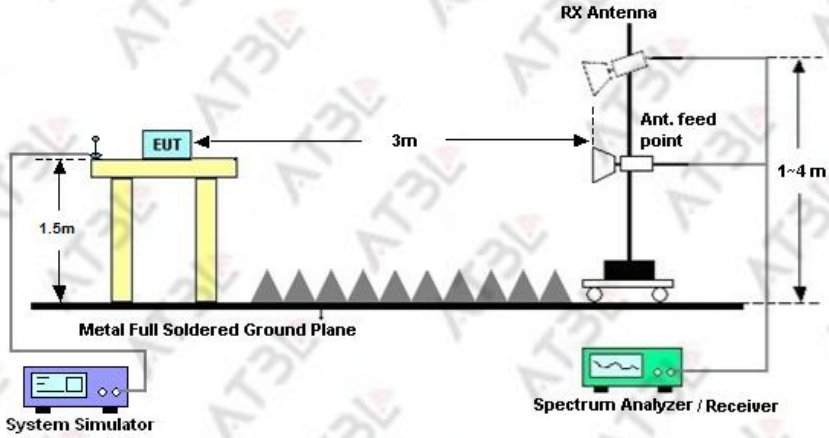
3.9.1.1. For radiated test below 30MHz



3.9.1.2. For radiated test from 30MHz to 1GHz



3.9.1.3. For radiated test above 1GHz



3.9.2. Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.9.3. Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

    = P(W)- [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

    = -13dBm.

3.9.4. Test Result of Radiated Spurious Emission

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Radiated spurious emissions - MS allocated a channel：

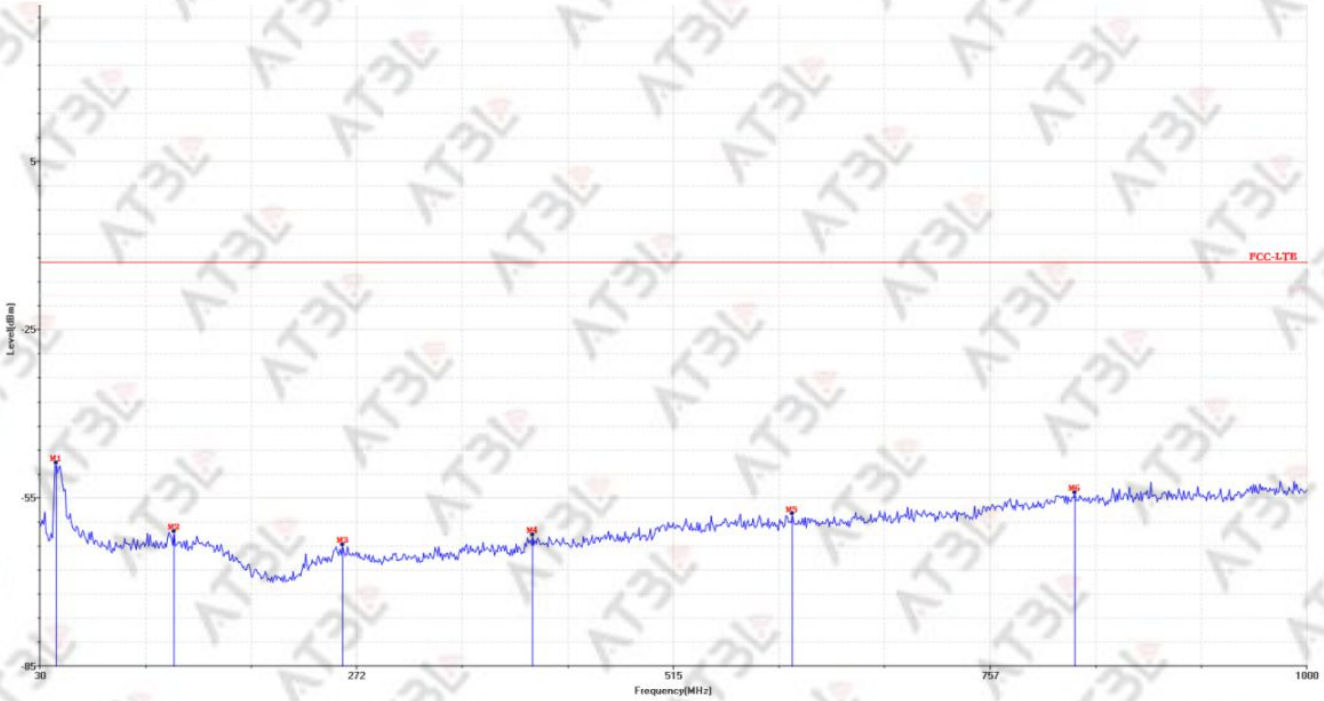
Below 1GHz:

Note:Only the worst data high channel is recorded in the 30MHz-1GHz report.

Test Mode	LTE Band 26_Traffic Mode_High CH_Main antenna
Test Bandwidth	5MHz

Horizontal

30MHz -1000MHz



Test Summary Result

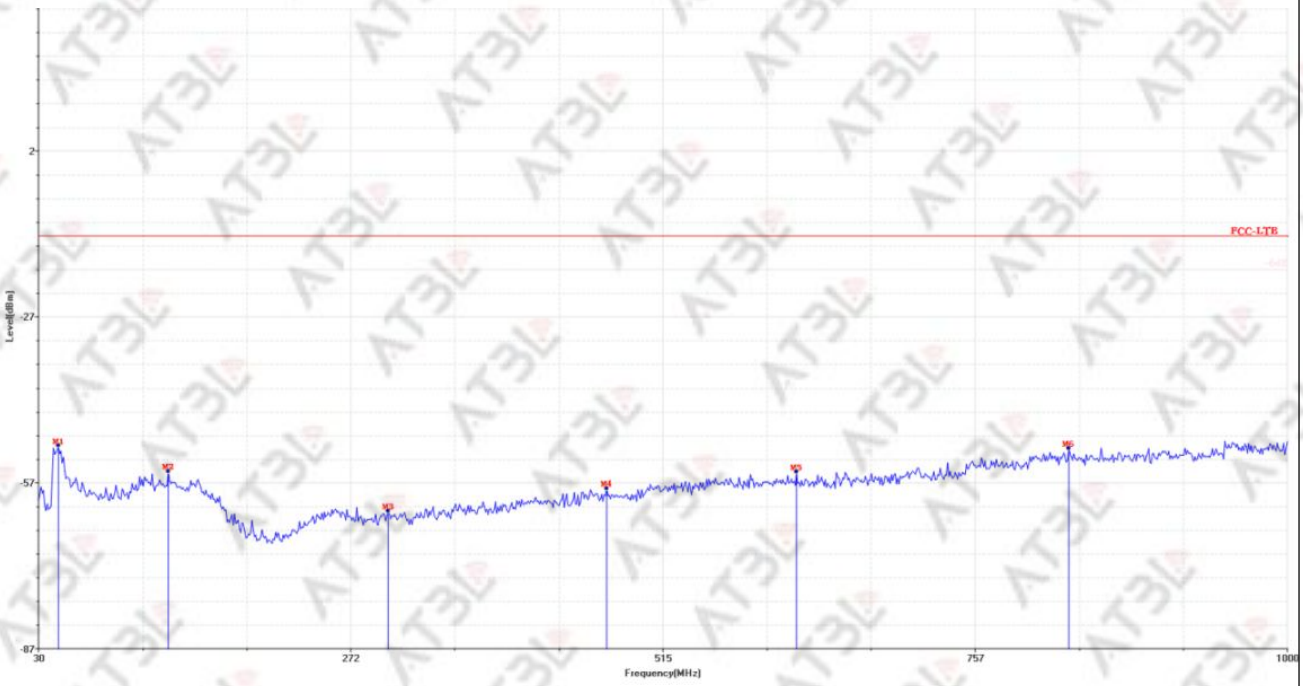
Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
*42.61	-48.01	-0.78	-48.79	-13.00	-35.79	0.00	Horizontal
132.82	-47.62	-13.41	-61.03	-13.00	-48.03	0.00	Horizontal
261.83	-48.10	-15.29	-63.39	-13.00	-50.39	0.00	Horizontal
407.33	-48.05	-13.56	-61.61	-13.00	-48.61	0.00	Horizontal
606.18	-47.82	-10.01	-57.83	-13.00	-44.83	0.00	Horizontal
822.49	-48.32	-5.79	-54.11	-13.00	-41.11	0.00	Horizontal

Note : The test worse case was marked with the " * " in front of frequency

Test Mode	LTE Band 26_Traffic Mode_High CH_Main antenna
Test Bandwidth	5MHz

Vertical

30MHz -1000MHz



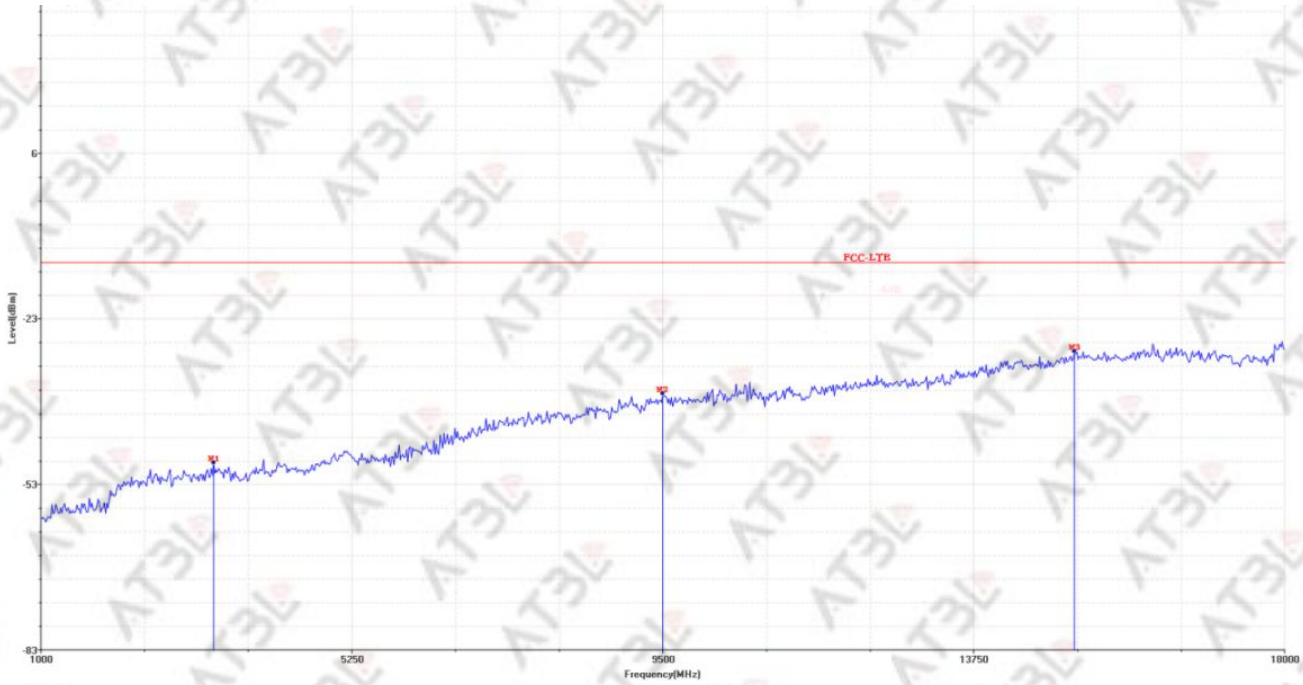
Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
*45.52	-49.28	-1.60	-50.88	-13.00	-37.88	0.00	Vertical
130.88	-47.29	-8.24	-55.53	-13.00	-42.53	0.00	Vertical
301.60	-48.14	-14.57	-62.71	-13.00	-49.71	0.00	Vertical
471.35	-48.21	-10.43	-58.64	-13.00	-45.64	0.00	Vertical
618.79	-47.54	-8.08	-55.62	-13.00	-42.62	0.00	Vertical
830.25	-47.64	-3.74	-51.38	-13.00	-38.38	0.00	Vertical

Note : The test worse case was marked with the " * " in front of frequency.

Above1GHz:

Test Mode	LTE Band 26_Traffic Mode_High CH_Main antenna
Test Bandwidth	5MHz

Horizontal



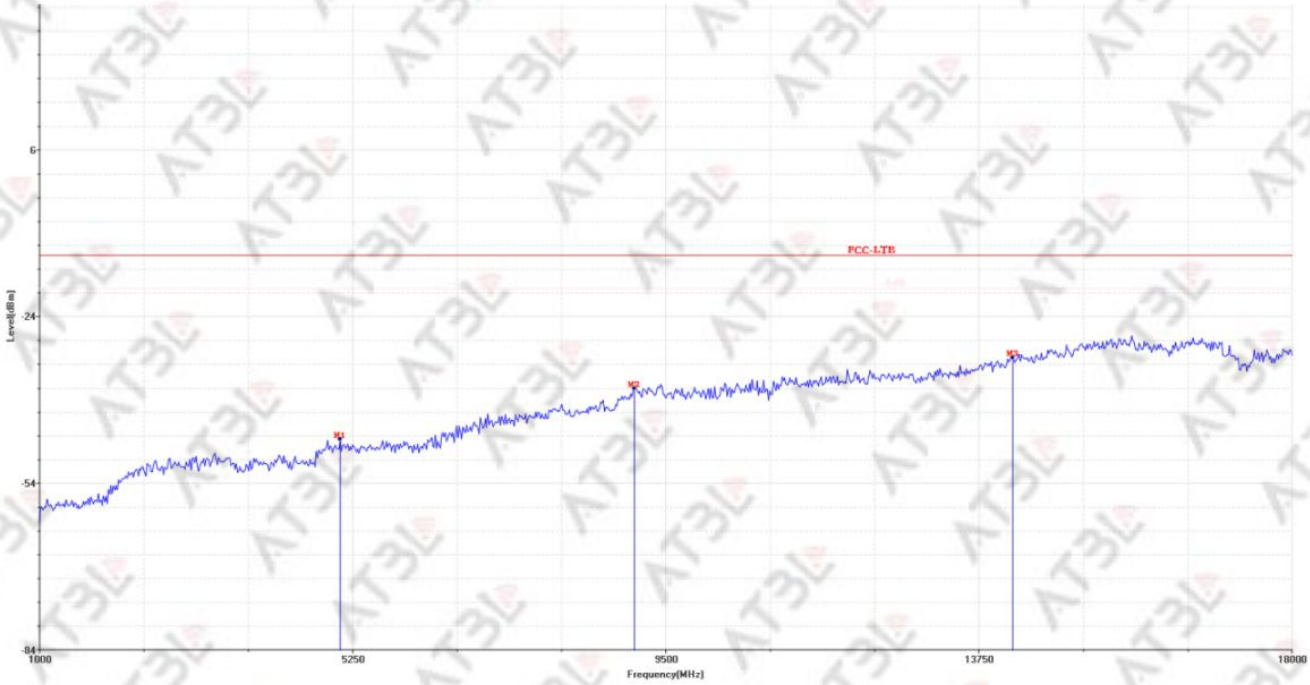
Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
3363.00	-54.46	5.17	-49.29	-13.00	-36.29	0.00	Vertical
9500.00	-56.25	19.49	-36.76	-13.00	-23.76	0.00	Vertical
*15127.00	-52.78	23.67	-29.11	-13.00	-16.11	0.00	Vertical

Note : The test worse case was marked with the " * " in front of frequency.

Test Mode	LTE Band 26_Traffic Mode_High CH_Main antenna
Test Bandwidth	5MHz

Vertical



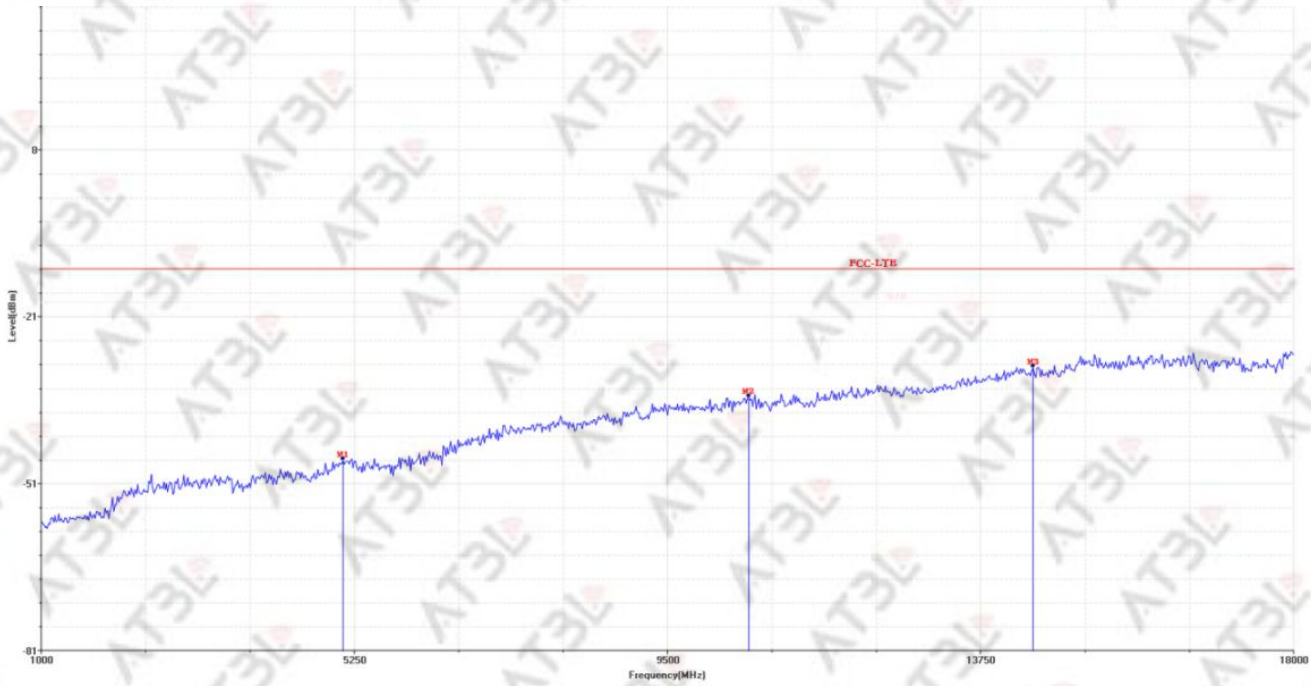
Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
5080.00	-55.94	9.84	-46.10	-13.00	-33.10	0.00	Horizontal
9075.00	-56.86	19.89	-36.97	-13.00	-23.97	0.00	Horizontal
*14209.00	-53.82	22.39	-31.43	-13.00	-18.43	0.00	Horizontal

Note : The test worse case was marked with the " * " in front of frequency.

Test Mode	LTE Band 26_Traffic Mode_Mid CH_Main antenna
Test Bandwidth	5MHz

Horizontal



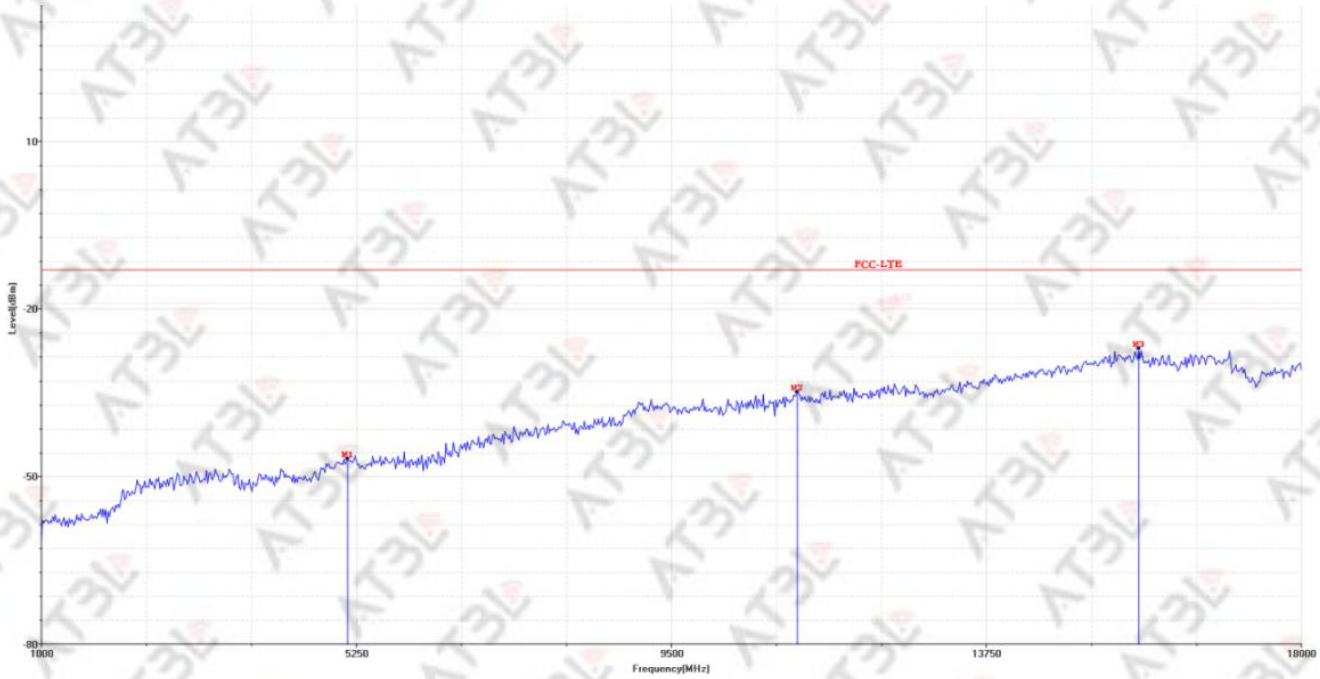
Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
5097.00	-56.31	9.20	-47.11	-13.00	-34.11	0.00	Vertical
10605.00	-56.57	20.73	-35.84	-13.00	-22.84	0.00	Vertical
*14464.00	-53.04	22.60	-30.44	-13.00	-17.44	0.00	Vertical

Note : The test worse case was marked with the " * " in front of frequency.

Test Mode	LTE Band 26_Traffic Mode_Mid CH_Main antenna
Test Bandwidth	5MHz

Vertical



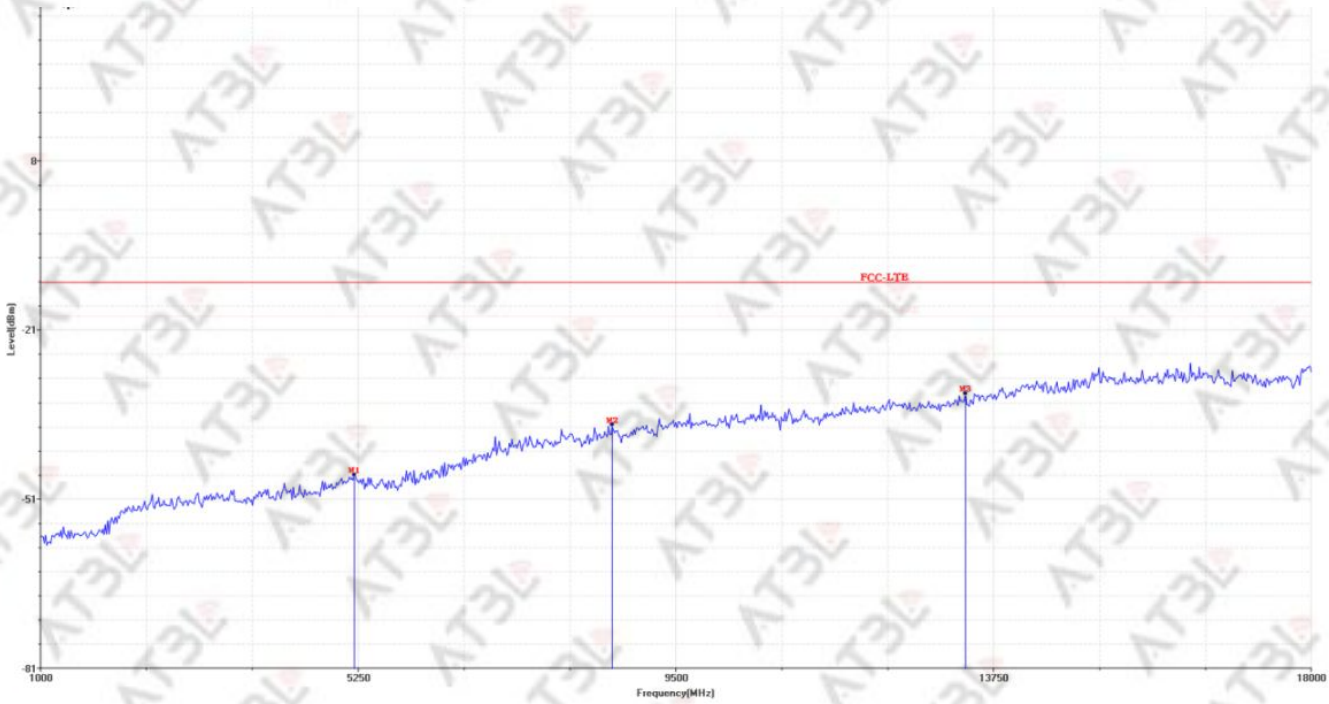
Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
5131.00	-56.78	9.90	-46.88	-13.00	-33.88	0.00	Horizontal
11200.00	-55.37	20.44	-34.93	-13.00	-21.93	0.00	Horizontal
*15807.00	-51.82	24.74	-27.08	-13.00	-14.08	0.00	Horizontal

Note : The test worse case was marked with the " * " in front of frequency.

Test Mode	LTE Band 26_Traffic Mode_Low CH_Main antenna
Test Bandwidth	5MHz

Horizontal



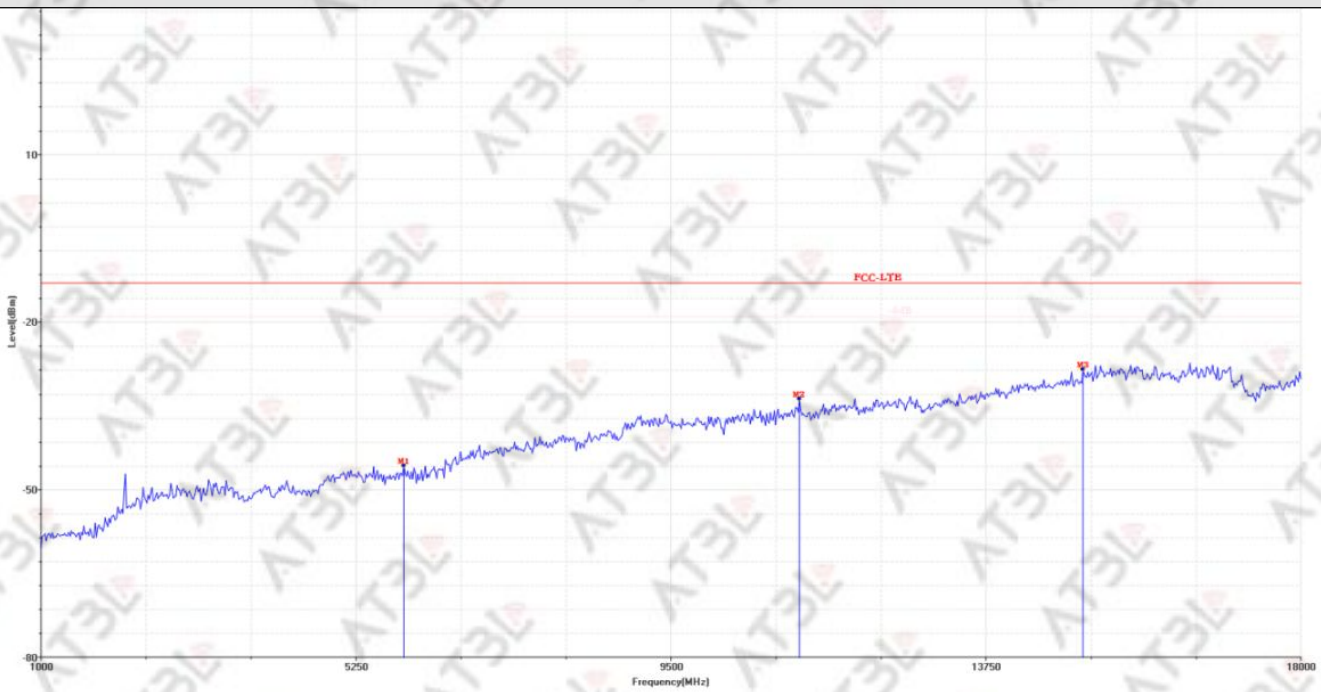
Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
5199.00	-56.69	9.55	-47.14	-13.00	-34.14	0.00	Vertical
8650.00	-55.59	17.38	-38.21	-13.00	-25.21	0.00	Vertical
*13376.00	-53.43	20.74	-32.69	-13.00	-19.69	0.00	Vertical

Note : The test worse case was marked with the " * " in front of frequency.

Test Mode	LTE Band 26_Traffic Mode_Low CH_Main antenna
Test Bandwidth	5MHz

Vertical



Test Summary Result

Frequency (MHz)	Read_Level (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Table(o)	Pol/Phase
5896.00	-56.19	10.47	-45.72	-13.00	-32.72	0.00	Horizontal
11234.00	-54.18	20.44	-33.74	-13.00	-20.74	0.00	Horizontal
*15059.00	-52.56	24.09	-28.47	-13.00	-15.47	0.00	Horizontal

Note : The test worse case was marked with the " * " in front of frequency.

4. TEST SETUP PHOTOGRAPHS

Please refer to the Appendix J_Test Setup Template.

5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

External Photos Please refer to the Appendix K_ External Photos of the EUT.

Internal Photos Please refer to the Appendix K_ Internal Photos of the EUT.

※※※※※END OF THE REPORT※※※※※