



RF Test Report

FCC ID: 2BNK2-XK001-XXX

Test Report No.: RF250509006-01-001
Product(s) Name.: 4G Outdoor Smart PTZ Camera
Model(s).: xk001-E10
Trade Mark.: xkbox
Applicant.: Hangzhou Kedang Technology Co., LTD.
Address.: Kedang Building, No. 666, Fuxian Road, Yinqu Street,
Fuyang District, Hangzhou
Receipt Date.: 2025.05.27
Test Date.: 2025.05.30~2025.06.16
Issued Date.: 2025.06.17
Standards.: 47 CFR FCC Part 2
47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
ANSI C63.26-2015
ANSI/TIA/EIA-603-E-2016
FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
Testing Laboratory.: Shenzhen Haiyun Standard Technical Co., Ltd.

Prepared By:	Checked By:	Approved By:	
Jason Huang	Black Ding	Tim Zhang	
Jason Huang	Black Ding	Tim Zhang	

Table of Contents

REPORT ISSUED HISTORY	4
1 . SUMMARY OF TEST RESULTS	5
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
1.3 TEST ENVIRONMENT CONDITIONS	7
2 . GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF EUT	8
2.2 DESCRIPTION OF SUPPORT UNITS	9
3 . TEST RESULT	10
3.1 CONDUCTED OUTPUT POWER MEASUREMENT	10
3.1.1 LIMIT	10
3.1.2 TEST PROCEDURE	10
3.1.3 TEST SETUP LAYOUT	10
3.1.4 TEST DEVIATION	10
3.1.5 TEST RESULTS	11
3.2 RADIATED SPURIOUS EMISSIONS MEASUREMENT	12
3.2.1 LIMIT	12
3.2.2 TEST PROCEDURES	12
3.2.3 TEST SETUP LAYOUT	13
3.2.4 TEST RESULTS (9KHZ TO 30MHZ)	14
3.2.5 TEST RESULTS (30MHZ TO 1000MHZ)	14
3.2.6 TEST RESULTS (ABOVE 1000MHZ)	14
3.3 CONDUCTED SPURIOUS EMISSIONS	15
3.3.1 LIMIT	15
3.3.2 TEST PROCEDURES USED	15
3.3.3 TEST SETTINGS	15
3.3.4 TEST SETUP LAYOUT	15
3.3.5 TEST RESULTS	15
3.4 OCCUPIED BANDWIDTH	16
3.4.1 LIMIT	16
3.4.2 TEST PROCEDURES USED	16
3.4.3 TEST SETTINGS	16
3.4.4 TEST SETUP LAYOUT	16
3.4.5 TEST RESULTS	16
3.5 BAND EDGE MEASUREMENTS	17
3.5.1 TEST PROCEDURES USED	17
3.5.2 TEST SETTINGS	17
3.5.3 TEST SETUP LAYOUT	17
3.5.4 TEST RESULTS	17
3.6 PEAK TO AVERAGE RATIO	18
3.6.1 TEST PROCEDURES USED	18



3.6.2 TEST SETTINGS	18
3.6.3 TEST SETUP LAYOUT	18
3.6.4 TEST RESULTS	18
3.7 FREQUENCY STABILITY	19
3.7.1 TIME PERIOD AND PROCEDURE:	19
3.7.2 TEST PROCEDURES USED	19
3.7.3 TEST SETUP LAYOUT	19
3.7.4 TEST RESULTS	19
4. LIST OF MEASUREMENT EQUIPMENTS	20
APPENDIX A - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)	21
APPENDIX B - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1GHZ)	22
APPENDIX C - RADIATED SPURIOUS EMISSIONS (ABOVE 1GHZ)	30

REPORT ISSUED HISTORY

Original Report Issue Date: 2025.06.17

- No additional attachment
- Additional attachments were issued following record

Attachment No.	Issue Date	Description

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 2 & Part 22 & Part 24 & Part 27			
Standard(s) Section	Test Item	Judgment	Remark
2.1046 22.913(a) 24.232(c) 27.50(c) 27.50(d) 27.50(h)(2) 27.50(j)	Output Power & Equivalent Isotropic Radiated Power & Equivalent Radiated Power	PASS	-----
2.1049	Occupied Bandwidth	PASS	-----
2.1051 22.917(a) 27.53(m)(4) 24.238(a) 27.53(h)	Conducted Spurious Emissions	PASS	-----
2.1051 2.1053 22.917(a) 24.238(a) 27.53(m)(4)	Radiated Spurious Emissions	PASS	-----
2.1051 22.917(a) 24.238(a) 27.53(h) 27.53(g) 27.53(m)(4)	Band Edge	PASS	-----
22.913(d) 24.232(d) 27.50(d) 27.50(j)	Peak To Average Ratio	PASS	-----
2.1055 22.355 24.235 27.54	Frequency Stability	PASS	-----
2.1047	Modulation Characteristics	PASS	-----

Note:

(1) "N/A" denotes test is not applicable in this test report.

1.1 TEST FACILITY

Company:	Shenzhen Haiyun Standard Technical CO., Ltd.
Address:	No. 110, 111, 112, 113, 115, 116, Block B, Jinyuan business Building, No. 302, Xixiang Avenue, Laodong Community, Xixiang Street, Bao'an District, Shenzhen P.R.C.
CNAS Registration Number:	CNAS L18252
CAB identifier:	CN0145
Company Number	30427
A2LA Certificate Number:	6823.01
Telephone:	0755-26024411

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Uncertainty	
Parameter	Uncertainty
Conducted emission(9kHz~30MHz) AC main	±2.68dB
Radiated emission(9kHz~30MHz)	±3.50dB
Radiated emission (30MHz ~ 1GHz)	±4.20dB
Radiated emission (1GHz ~ 18GHz)	±5.10dB
Radiated emission (18GHz ~ 40GHz)	±5.26dB
Frequency error uncertainty	±80.66Hz
Uncertainty in power testing	±0.64dB
Phase uncertainty of transmitter	±0.35°
Uncertainty of power time relationship (-7dB~+1dB)	±0.58dB
Uncertainty of power time relationship (-20dB~-7dB)	±1.2dB
Uncertainty of power time relationship (-32dB~-20dB)	±2.3dB
Uncertainty of power time relationship (-50dB~-32dB)	±3.2dB
Uncertainty of power time relationship (-60dB~-50dB)	±3.5dB
Sensitivity	±1.24%
The transmitter conducts stray signals with uncertainty	±1.464dB

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Conducted Output Power & ERP & EIRP	23.3°C	49%	DC 4.2V	Albert Fan
Occupied Bandwidth	23.3°C	49%	DC 4.2V	Albert Fan
Conducted Spurious Emissions	23.3°C	49%	DC 4.2V	Albert Fan
Band Edge	23.3°C	49%	DC 4.2V	Albert Fan
Peak To Average Ratio	23.3°C	49%	DC 4.2V	Albert Fan
Frequency Stability	23.3°C	49%	DC 4.2V	Albert Fan
Radiated Spurious Emissions (9 kHz to 30 MHz)	24.1°C	51%	AC 120V/60Hz	Lemon He
Radiated Spurious Emissions (30 MHz to 1000 MHz)	24.1°C	51%	AC 120V/60Hz	Lemon He
Radiated Spurious Emissions (Above 1000 MHz)	24.1°C	51%	AC 120V/60Hz	Lemon He

Note: Adapter supply voltage AC 120V/60Hz.

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product No.	POC250509006-S001	
Equipment	4G Outdoor Smart PTZ Camera	
Trade Mark	xkbox	
Test Model	xk001-E10	
Power Source	DC 3.7V from battery or DC 5V from adapter	
Modulation Type	QPSK	
Operation Band	LTE Band 2 / 4 / 5 / 12 / 13 / 66 / 71	
Frequency Range	LTE Band 2	Tx: 1850MHz - 1910MHz Rx: 1930MHz - 1990MHz
	LTE Band 4	Tx: 1710MHz - 1755MHz Rx: 2110MHz - 2155MHz
	LTE Band 5	Tx: 824MHz - 849MHz Rx: 869MHz - 894MHz
	LTE Band 12	Tx: 699MHz - 716MHz Rx: 729MHz - 746MHz
	LTE Band 13	Tx: 777MHz - 787MHz Rx: 746MHz - 756MHz
	LTE Band 66	Tx: 1710MHz - 1780MHz Rx: 2110MHz - 2200MHz
	LTE Band 71	Tx: 663MHz - 698MHz Rx: 617MHz - 652MHz
Channel Bandwidth	LTE Band 2	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	LTE Band 4	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	LTE Band 5	1.4MHz, 3MHz, 5MHz, 10MHz
	LTE Band 12	1.4MHz, 3 MHz, 5 MHz, 10MHz
	LTE Band 13	5 MHz, 10MHz
	LTE Band 66	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
	LTE Band 71	5MHz, 10MHz, 15MHz, 20MHz
Antenna Type	External Antenna	
Antenna Gain	LTE Band 2	2.28 dBi
	LTE Band 4	2.28 dBi
	LTE Band 5	1.38 dBi
	LTE Band 12	1.38 dBi
	LTE Band 13	1.38 dBi
	LTE Band 66	2.28 dBi
	LTE Band 71	1.38 dBi



2.2 DESCRIPTION OF SUPPORT UNITS

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

Support Equipment				
No.	Equipment	Manufacturer	Model Name	Remarks
1	SIM Card	/	LTE 4G Card	/
2	Adapter	MDY-11-EM	millet	/

3. TEST RESULT

3.1 CONDUCTED OUTPUT POWER MEASUREMENT

3.1.1 LIMIT

FCC § 22.913 (a) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.
FCC § 24.232 (c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.
FCC § 27.50 (c) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.
FCC § 27.50 (d) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.
FCC § 27.50 (h) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
FCC § 27.50 (j) Mobile and portable stations are limited to 1 Watt EIRP. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

3.1.2 TEST PROCEDURE

The testing follows FCC KDB 971168 v03r01 Section 5.

EIRP:

EIRP = Output Power + Antennal gain

ERP:

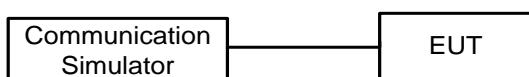
ERP = EIRP-2.15

Output Power:

The EUT was set up for the maximum power with WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 TEST SETUP LAYOUT

Output Power Measurement



3.1.4 TEST DEVIATION

No deviation.



3.1.5 TEST RESULTS

Band	Max Value (dBm)	Max EIRP (dBm)	Max ERP (dBm)
LTE Band 2	22.86	25.14	/
LTE Band 4	23.12	25.4	/
LTE Band 5	19.17	20.55	18.4
LTE Band 12	18.51	19.89	17.74
LTE Band 13	19.61	20.99	18.84
LTE Band 66	22.89	25.17	/
LTE Band 71	19.32	20.7	18.55

For details, please refer to Appendix D.LTE.

3.2 RADIATED SPURIOUS EMISSIONS MEASUREMENT

3.2.1 LIMIT

FCC§ 22.917(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC§ 24.238 (a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

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

FCC§ 27.53 (h) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $60 + 10 \log(P)$ dB.

3.2.2 TEST PROCEDURES

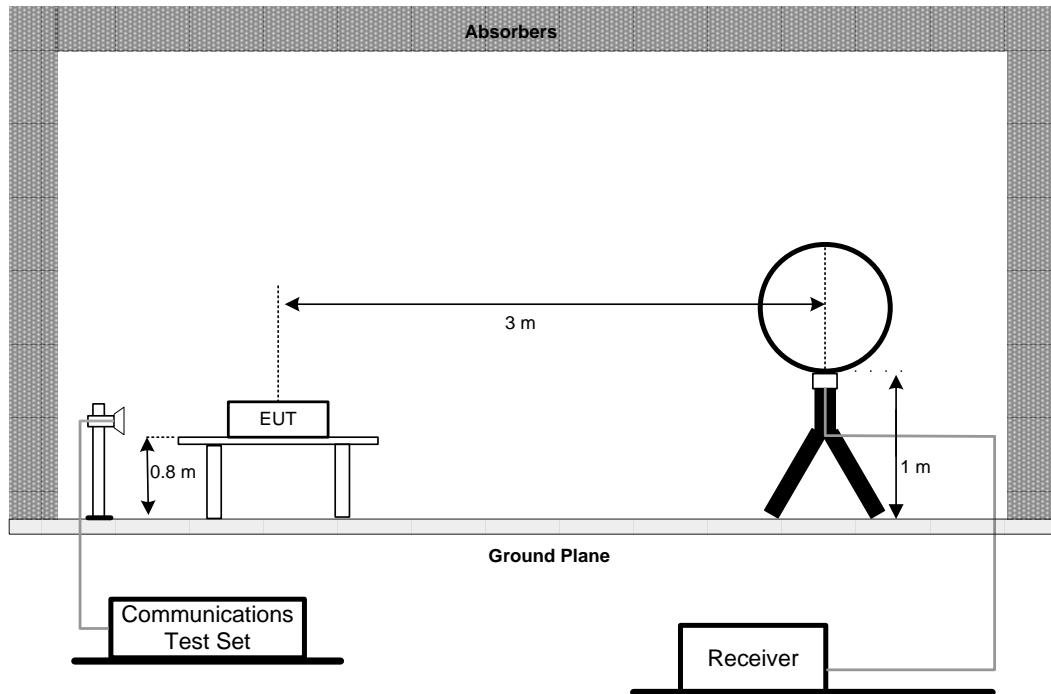
The testing follows FCC KDB 971168 v03r01 Section 6.2.

1. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G
3. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
4. ERP can be calculated from EIRP by subtracting the gain of dipole, $ERP = EIPR - 2.15\text{dBi}$.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

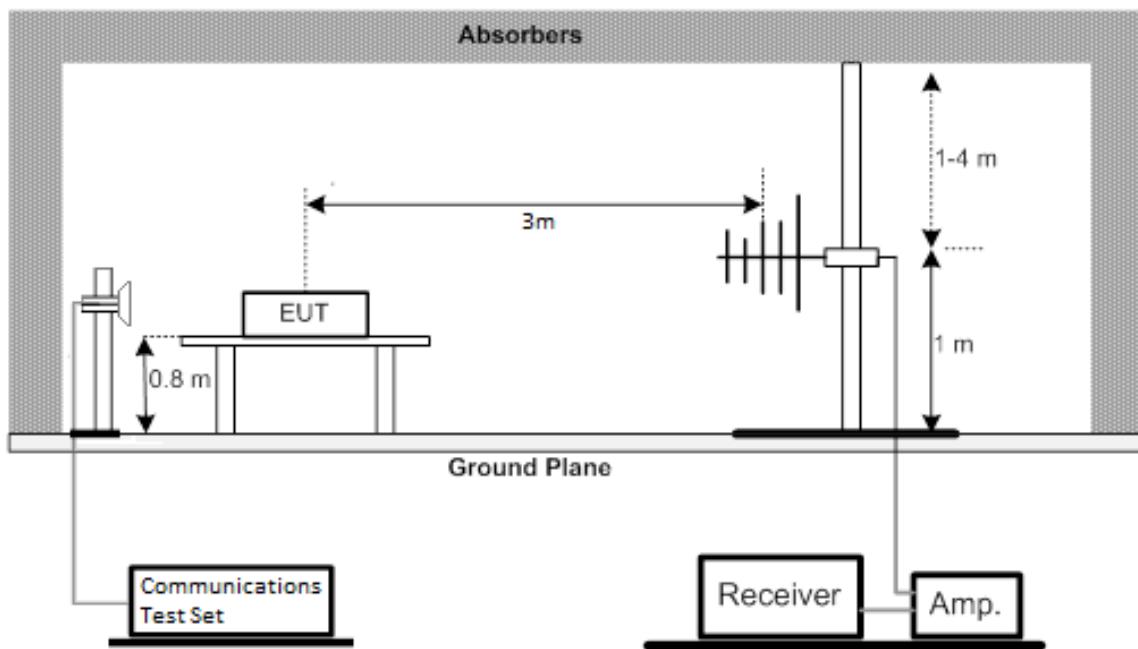


3.2.3 TEST SETUP LAYOUT

Below 30MHz

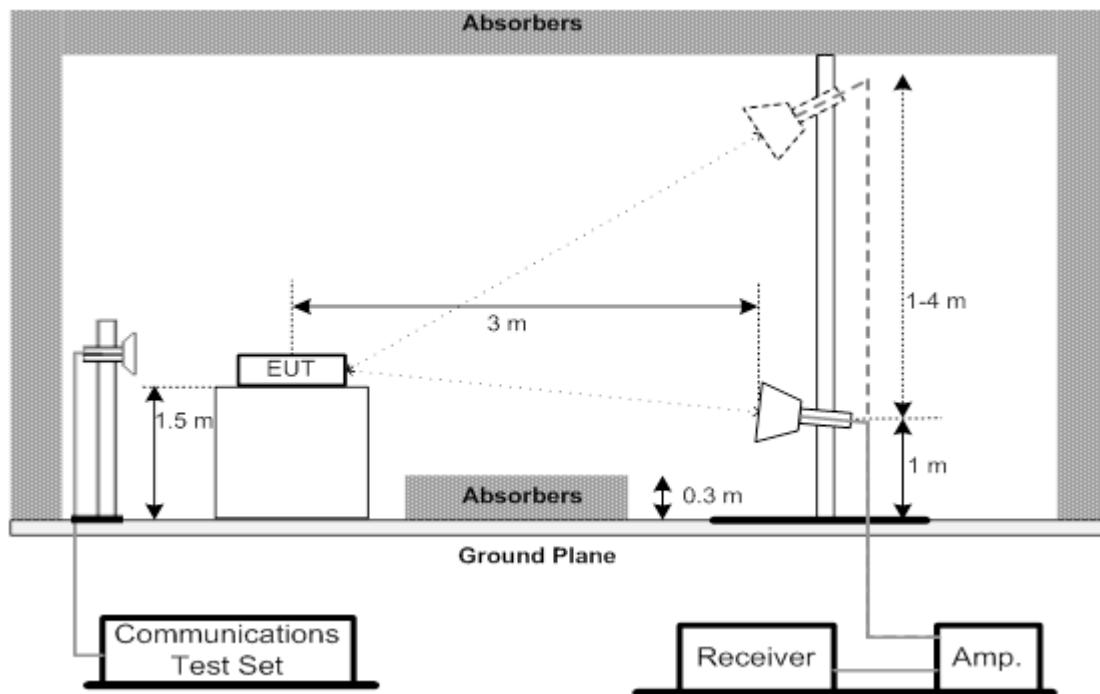


30MHz to 1GHz





Above 1GHz



3.2.4 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX A.

3.2.5 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX B.

3.2.6 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX C.

Note:

1. For radiated emission above 1 GHz test, the spurious points of 1GHz~18GHz and 18GHz~27GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
2. Pre-scan all test modes and channels, worst case for mid channel was recorded.

Worst case for

Band	Bandwidth	Modulation	RB Configuration	Spurious Emissions Level[dBm]
LTE Band 2	20MHz	QPSK	100RB	-51.04
LTE Band 4	20MHz	QPSK	100RB	-54.00
LTE Band 5	10MHz	QPSK	50RB	-56.39
LTE Band 12	10MHz	QPSK	50RB	-55.24
LTE Band 13	10MHz	QPSK	50RB	-54.84
LTE Band 66	20MHz	QPSK	100RB	-51.58
LTE Band 71	20MHz	QPSK	100RB	-56.58



3.3 CONDUCTED SPURIOUS EMISSIONS

3.3.1 LIMIT

FCC§ 24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. FCC§ 24.238 (b) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

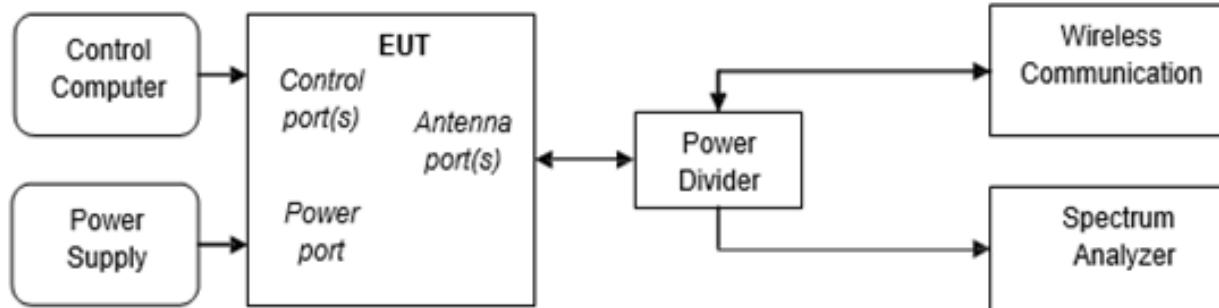
3.3.2 TEST PROCEDURES USED

KDB 971168 v03r01-Section 6.1

3.3.3 TEST SETTINGS

1. 9kHz~150kHz, RBW = 1kHz, VBW $\geq 3 \times$ RBW,
150kHz~30MHz, RBW = 10kHz, VBW $\geq 3 \times$ RBW,
30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz.
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.
2. Detector: Peak
3. Trace mode= max hold.

3.3.4 TEST SETUP LAYOUT



3.3.5 TEST RESULTS

Please refer to the Appendix D.LTE.

3.4 OCCUPIED BANDWIDTH

3.4.1 LIMIT

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Many of the individual rule parts specify a relative OBW in lieu of the 99 % OBW. In such cases, the OBW is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least X dB below the transmitter power, where the value of X is typically specified as 26.

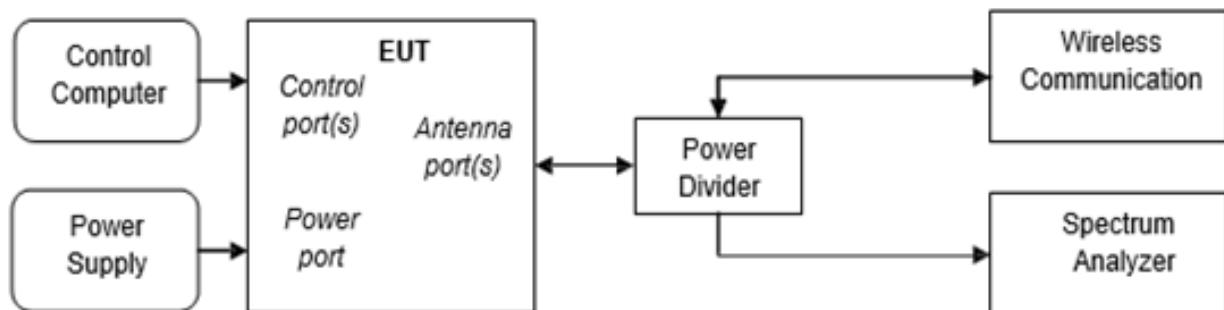
3.4.2 TEST PROCEDURES USED

KDB 971168 v03r01-Section 4

3.4.3 TEST SETTINGS

1. SET RBW=1-5% of OBW
2. SET VBW \geq 3*RBW
3. Detector: Peak
4. Trace mode= max hold.
5. Sweep= auto couple
6. Steps 1-5 were repeated after it is stable

3.4.4 TEST SETUP LAYOUT



3.4.5 TEST RESULTS

Please refer to the Appendix D.LTE.



3.5 BAND EDGE MEASUREMENTS

FCC§ 22.917 (a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC§ 24.238 (a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

FCC§ 27.53 (h) Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

FCC§ 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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

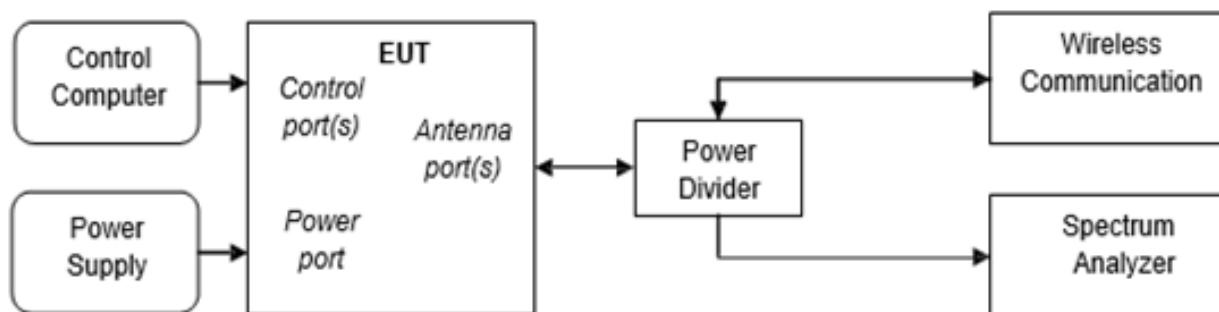
3.5.1 TEST PROCEDURES USED

KDB 971168 v03r01-Section 6

3.5.2 TEST SETTINGS

1. SET RBW $\geq 1\%$ of Emission BW.
2. SET VBW about three times of RBW
3. Detector: RMS
4. Trace mode= max hold.
5. Span= 2MHz

3.5.3 TEST SETUP LAYOUT



3.5.4 TEST RESULTS

Please refer to the Appendix D.LTE.



3.6 PEAK TO AVERAGE RATIO

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

3.6.1 LIMIT

The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

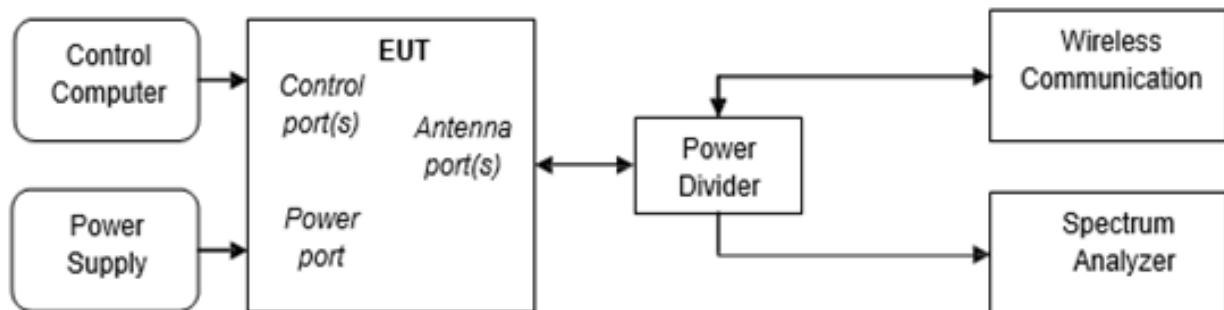
3.6.2 TEST PROCEDURES USED

KDB 971168 v03r01-Section 5.7

3.6.3 TEST SETTINGS

1. The signal analyzer's CCDF measurement profile enabled
2. Frequency= carrier center frequency
3. Measurement BW > EBW of signal
4. for continuous transmissions, set to 1ms
5. Record the maximum PAPR level associated with a probability of 0.1%.

3.6.4 TEST SETUP LAYOUT



3.6.5 TEST RESULTS

The limit value is:

Band	Max Result(dB)	Limit(dB)
LTE Band 2	10.44	13
LTE Band 4	8.37	13
LTE Band 5	12.94	13
LTE Band 12	8.38	13
LTE Band 13	8.38	13
LTE Band 66	8.38	13
LTE Band 71	11.54	13

For details, please refer to Appendix D.LTE.

3.7 FREQUENCY STABILITY

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. The frequency stability of the transmitter is measured by:

- Temperature: The temperature is varied from -30°C to +65°C in 10°C increments using an environmental chamber.
- 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.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

3.7.1 TIME PERIOD AND PROCEDURE:

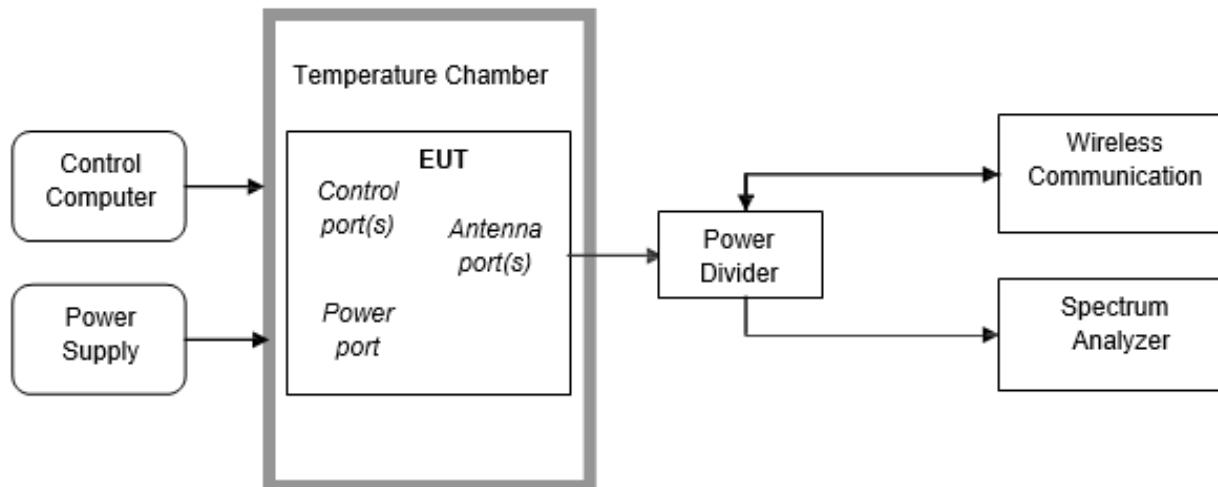
The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference). The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

3.7.2 TEST PROCEDURES USED

KDB 971168 v03r01-Section 9

3.7.3 TEST SETUP LAYOUT



3.7.4 TEST RESULTS

Please refer to the Appendix D.LTE.



4. LIST OF MEASUREMENT EQUIPMENTS

No.	Name of Equipment	Manufacturer	Model Number	Serial Number	Inventory No.	Last Calibration	Due Calibration
Radiated Emission							
1	Test receiver	Rohde&Schwarz	ESU	100184	JLE011	2025/3/1	2026/2/28
2	Log periodic antenna	Schwarzbeck	VULB 9168	1151	JLE012	2025/4/12	2026/4/11
3	Low frequency amplifier	/	LNA 0920N	2014	JLE023	2025/3/1	2026/2/28
4	High frequency amplifier	Schwarzbeck	BBV 9718	9718-284	JLE024	2025/3/1	2026/2/28
5	Horn Antenna	SCHWARZBECK	BBHA 9120 D	02670	JLE028	2025/4/12	2026/4/11
6	Temp&Humidity Recorder	Meideshi	JR900	/	JLE021	2025/4/15	2026/4/14
7	Horn Antenna	SCHWARZBECK	BBHA 9170	9170#685	JLE029	2024/7/15	2025/7/14
8	Loop Antenna	SCHWARZBECK	FMZB1519B	00029	JLE030	2024/7/15	2025/7/14
9	Broadband preamplifier	Schwarzbeck	BBV9721	9721-019	JLE025	2025/3/1	2026/2/28
10	Test software	Farad Technology Co., Ltd	EZ-EMC Ver.TW-03A2				
RF Conducted Emissions							
1	MXA Signal Analyzer	Keysight	N9021B	MY60080169	JLE050	2025/3/1	2026/2/28
2	RF Control Unit	dsusoft	JS0806-2	21G8060449	JLE058	2025/3/1	2026/2/28
3	power supply unit	dsusoft	JS0806-4ADC	N/A	JLE055	2025/3/1	2026/2/28
4	VXG Signal Generator	Keysight	N5182B	MY59100855	JLE068	2025/4/15	2026/4/14
5	EXG Analog Signal Generator	Keysight	N5173B	MY59101282	JLE052	2025/3/1	2026/2/28
6	Wideband Radio Communication Tester	Rohde&Schwarz	CMW500	1201.0002K5 0-116064-Dt	JLE054	2025/3/1	2026/2/28
7	Band Reject Filter Group	dsusoft	JS0806-F	21H8060461	JLE069	2025/3/1	2026/2/28
8	Test software	dsusoft	JS1120-3 Ver.3.3.10				



APPENDIX A - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)

Radiated emission: 9KHz-30MHz

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

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

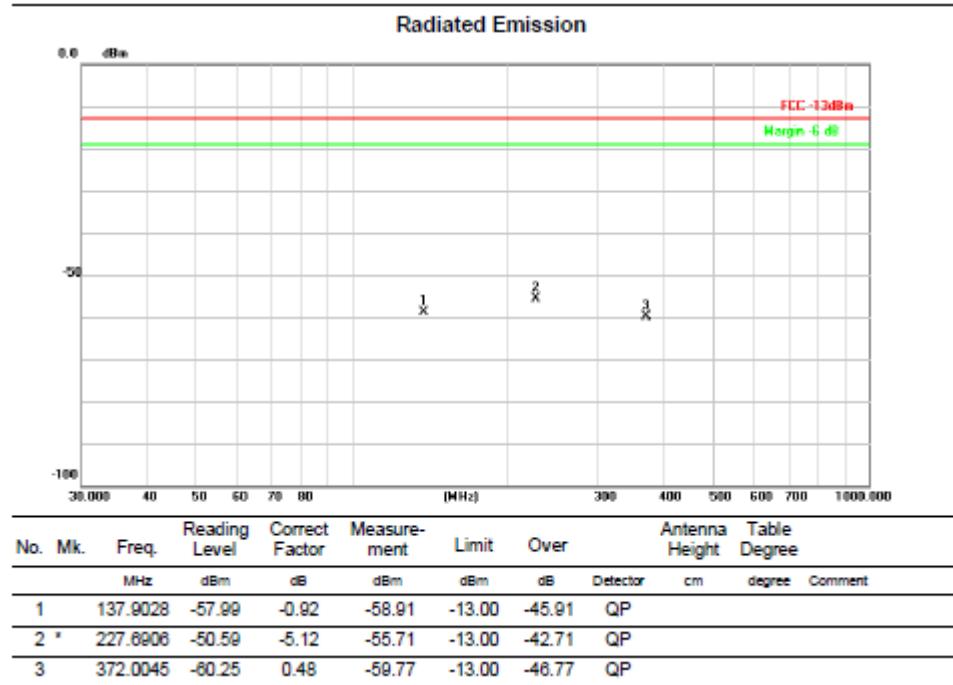


APPENDIX B - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1GHZ)

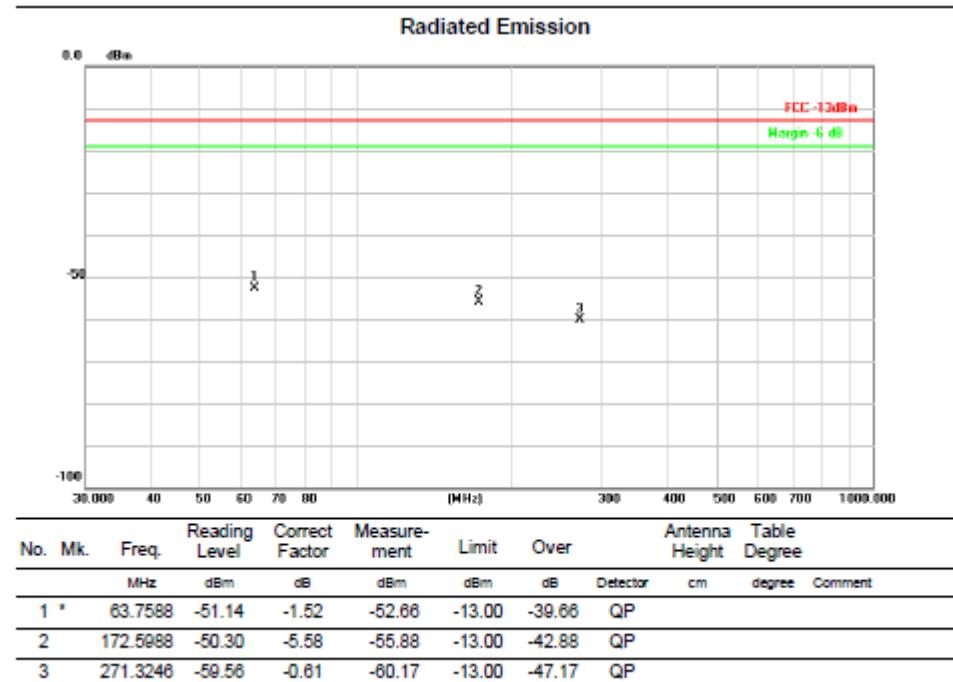


海蕴
HAIYUN

Test Mode	LTE-B2_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



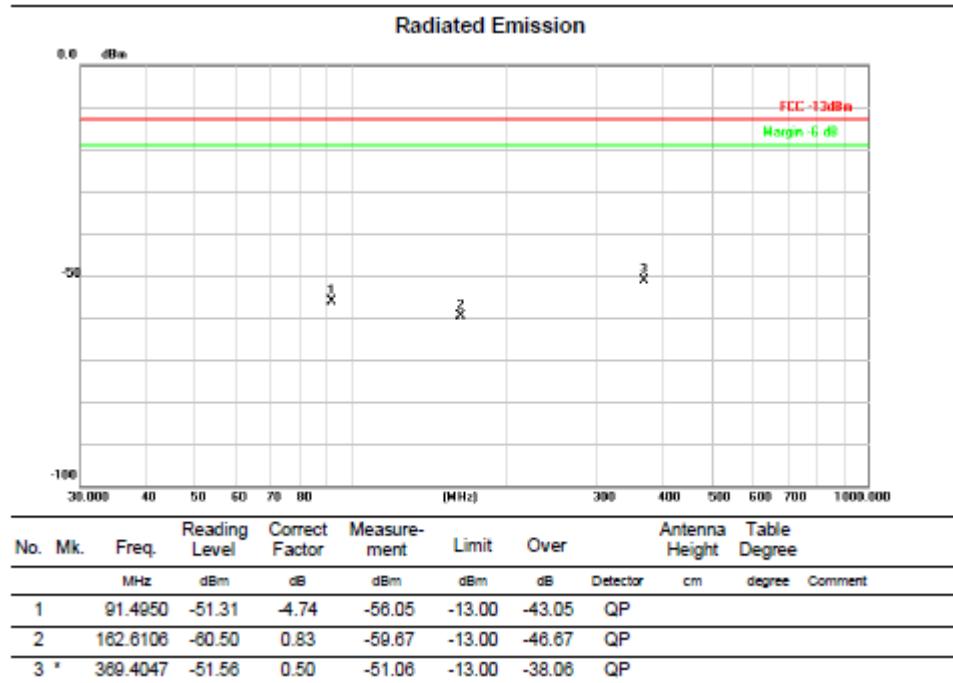
Test Mode	LTE-B2_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------



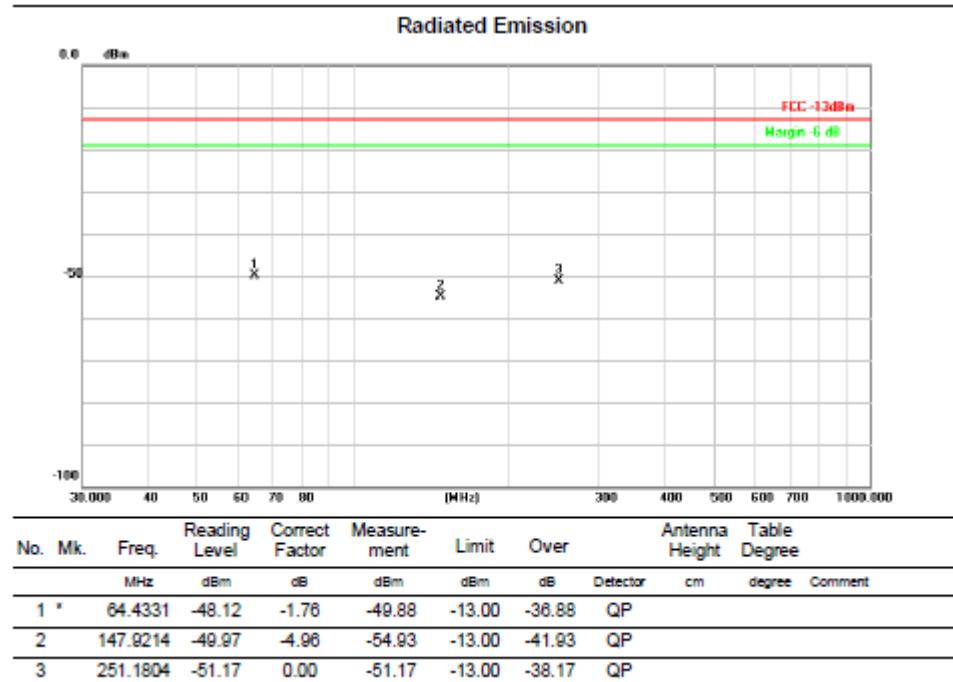


海蕴
HAIYUN

Test Mode	LTE-B4_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



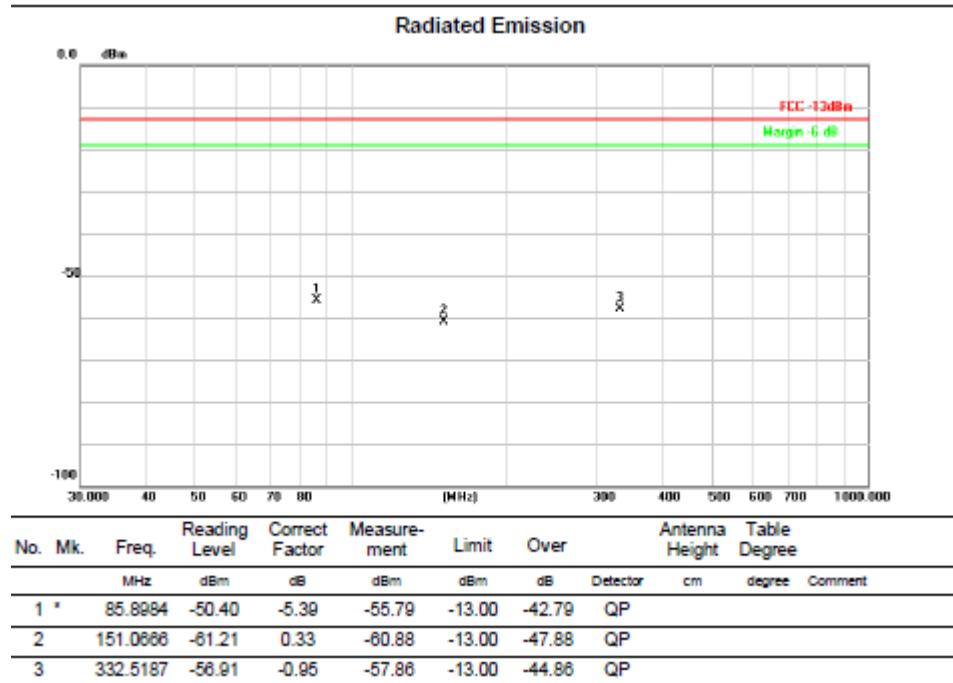
Test Mode	LTE-B4_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------



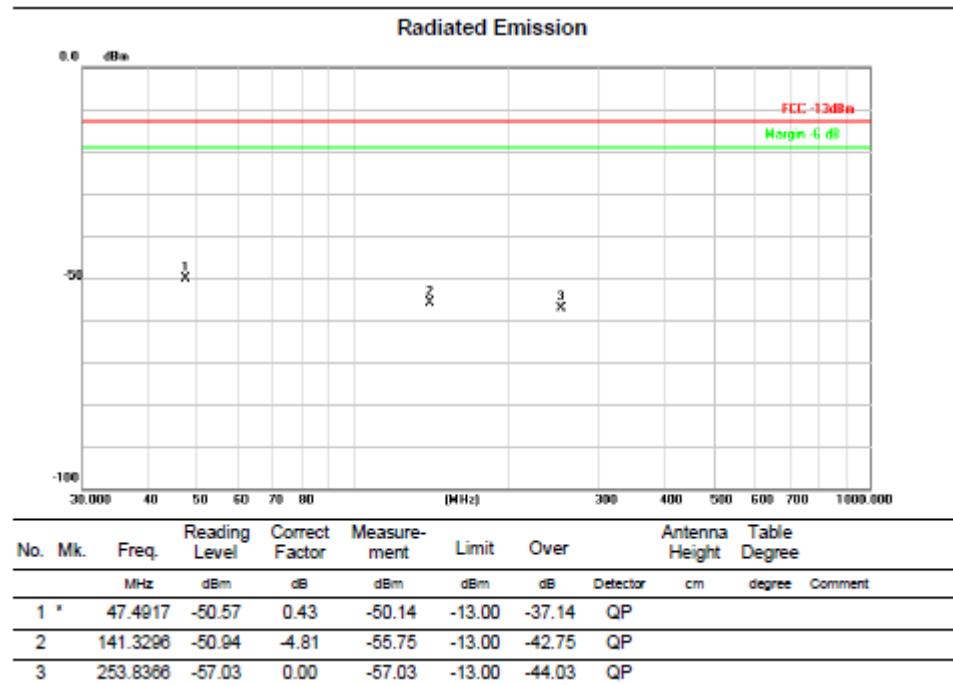


海蕴
HAIYUN

Test Mode	LTE-B5_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



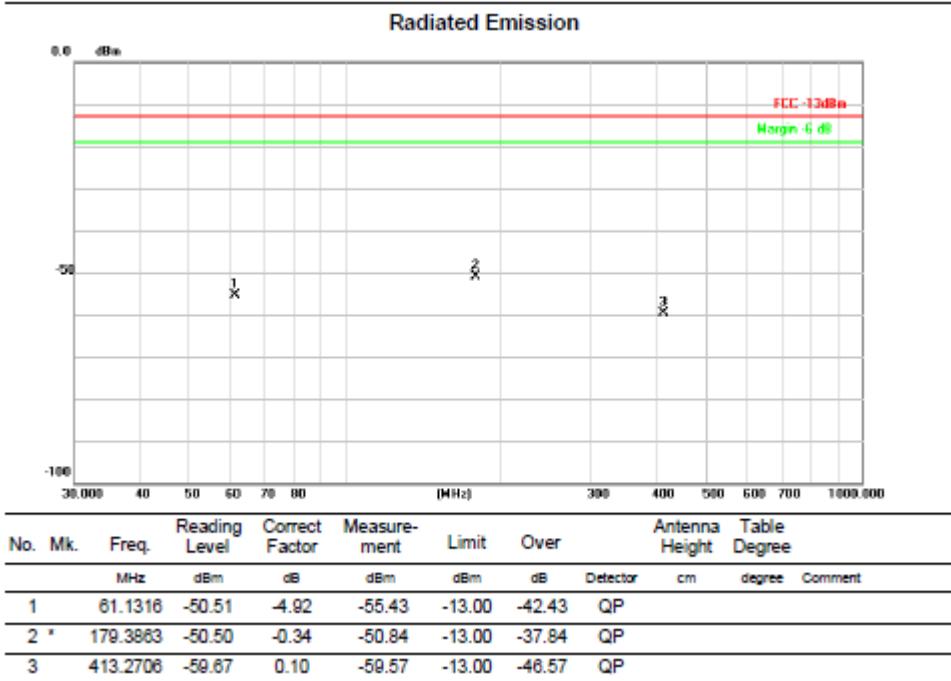
Test Mode	LTE-B5_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------



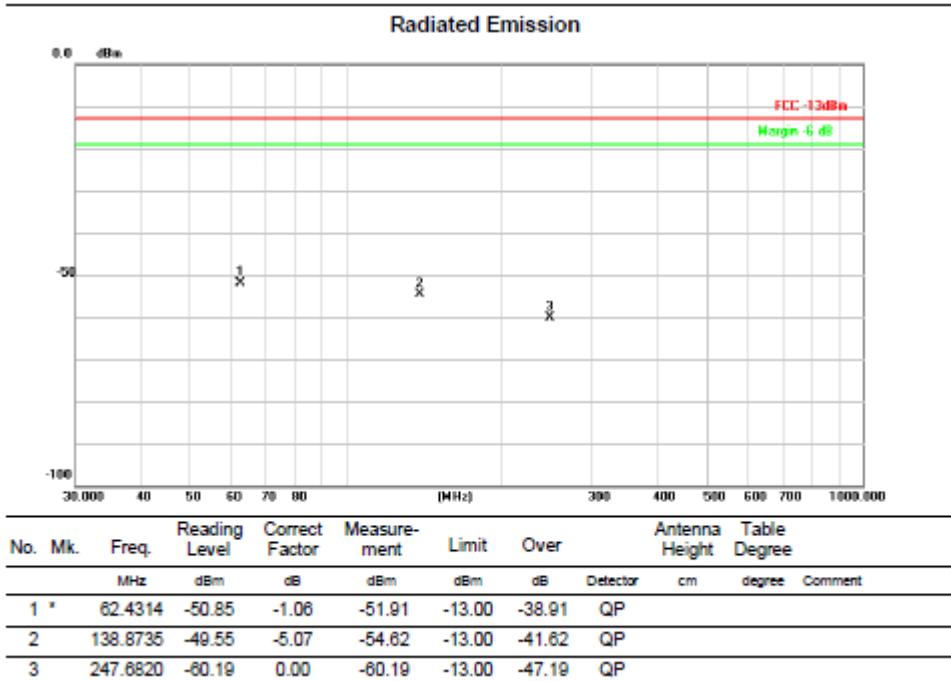


海蕴
HAIYUN

Test Mode	LTE-B12_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



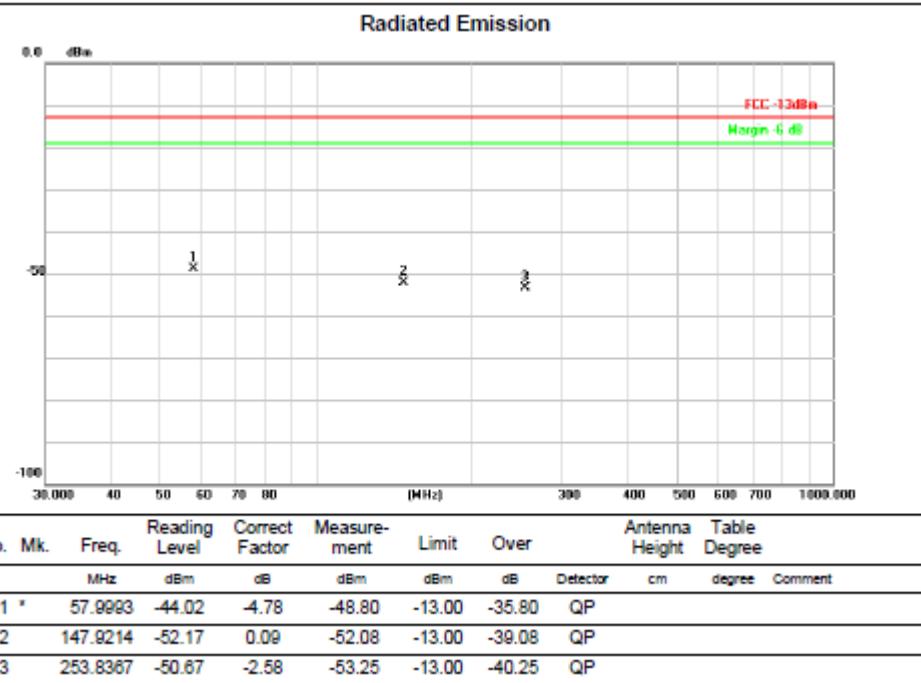
Test Mode	LTE-B12_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------



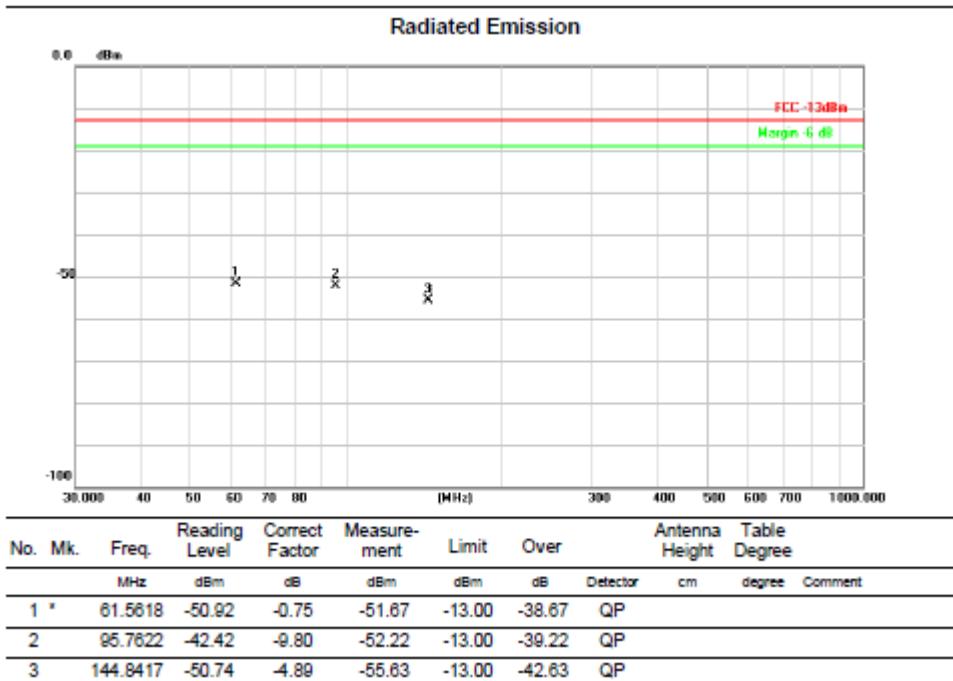


海蕴
HAIYUN

Test Mode	LTE-B13_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



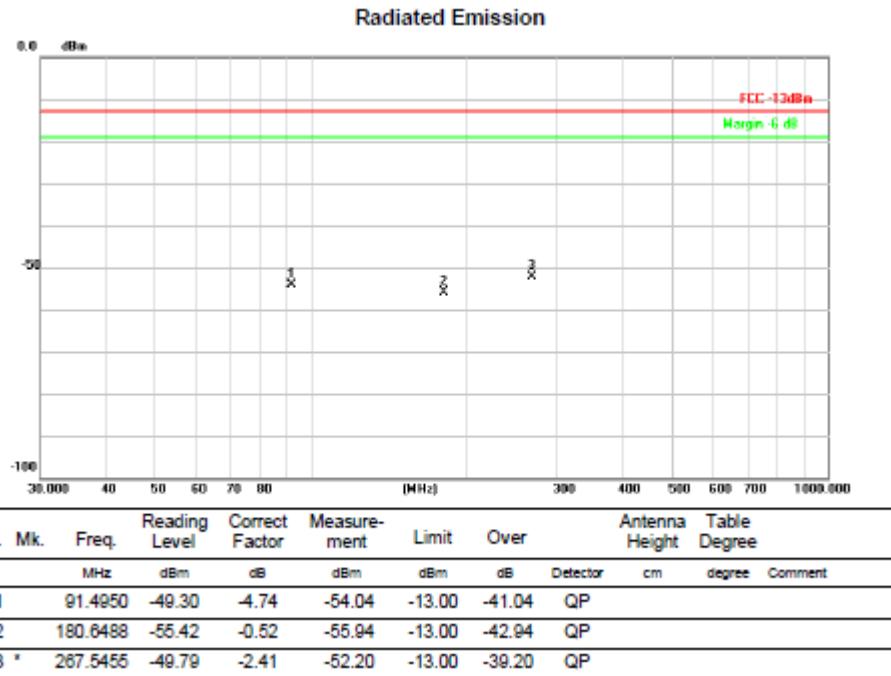
Test Mode	LTE-B13_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------



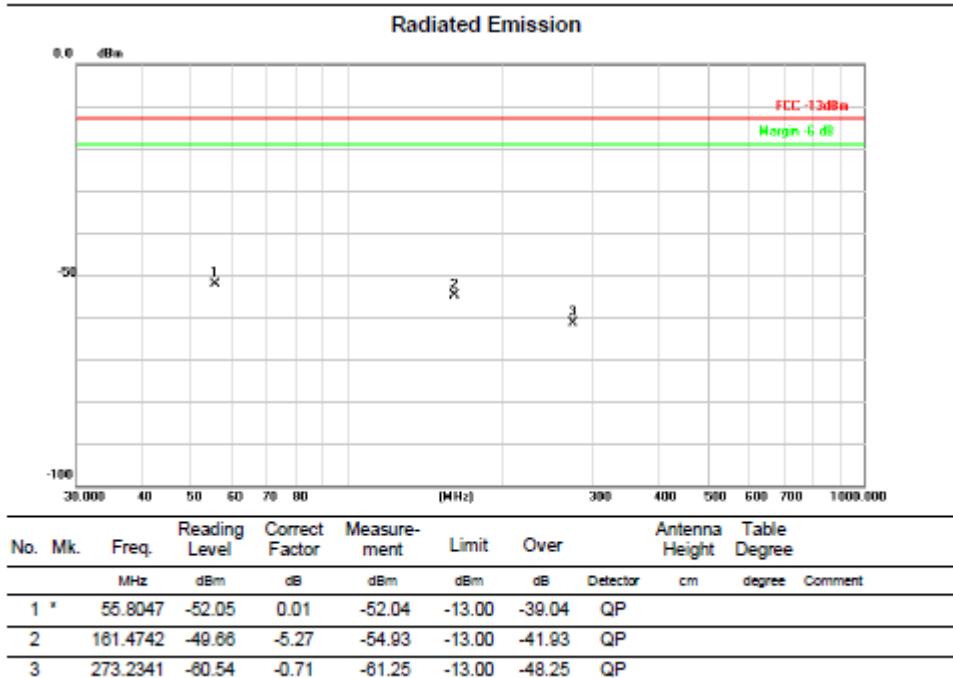


海蕴
HAIYUN

Test Mode	LTE-B66_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



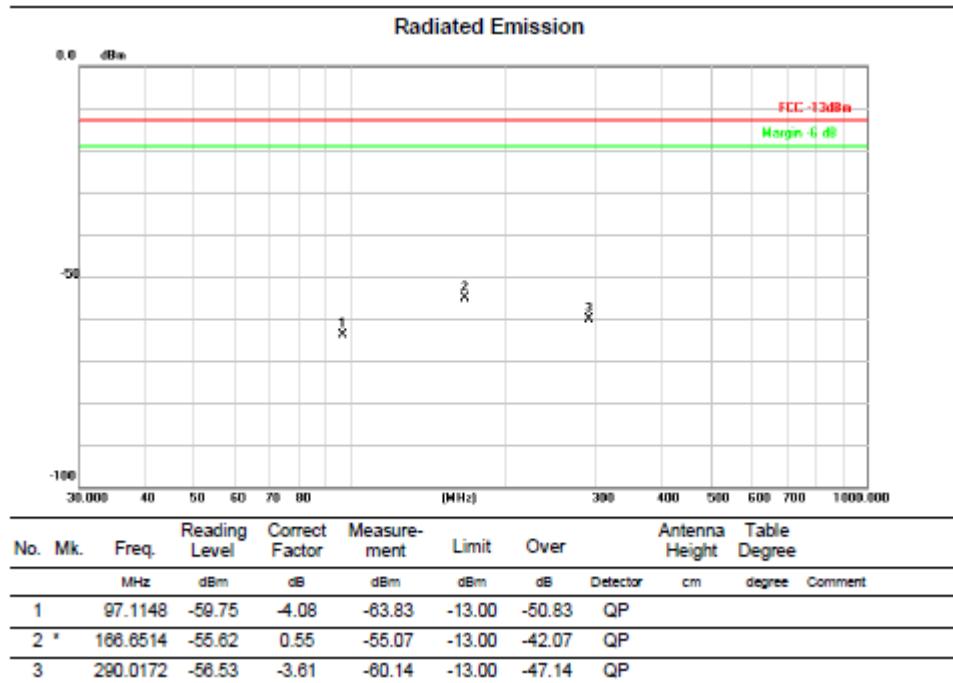
Test Mode	LTE-B66_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------



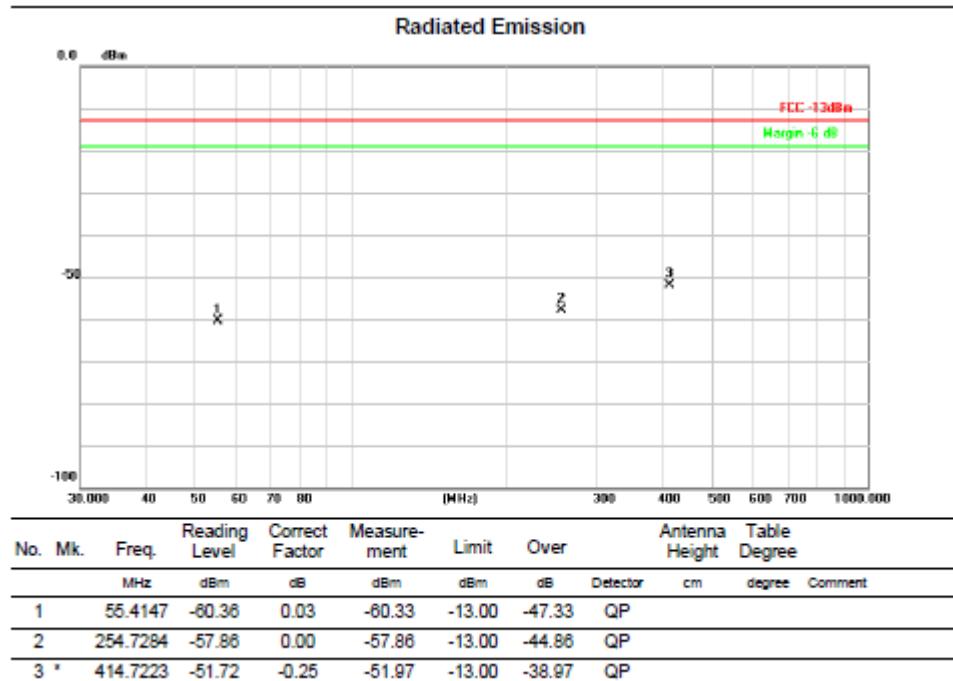


海蕴
HAIYUN

Test Mode	LTE-B71_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



Test Mode	LTE-B71_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------



REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.



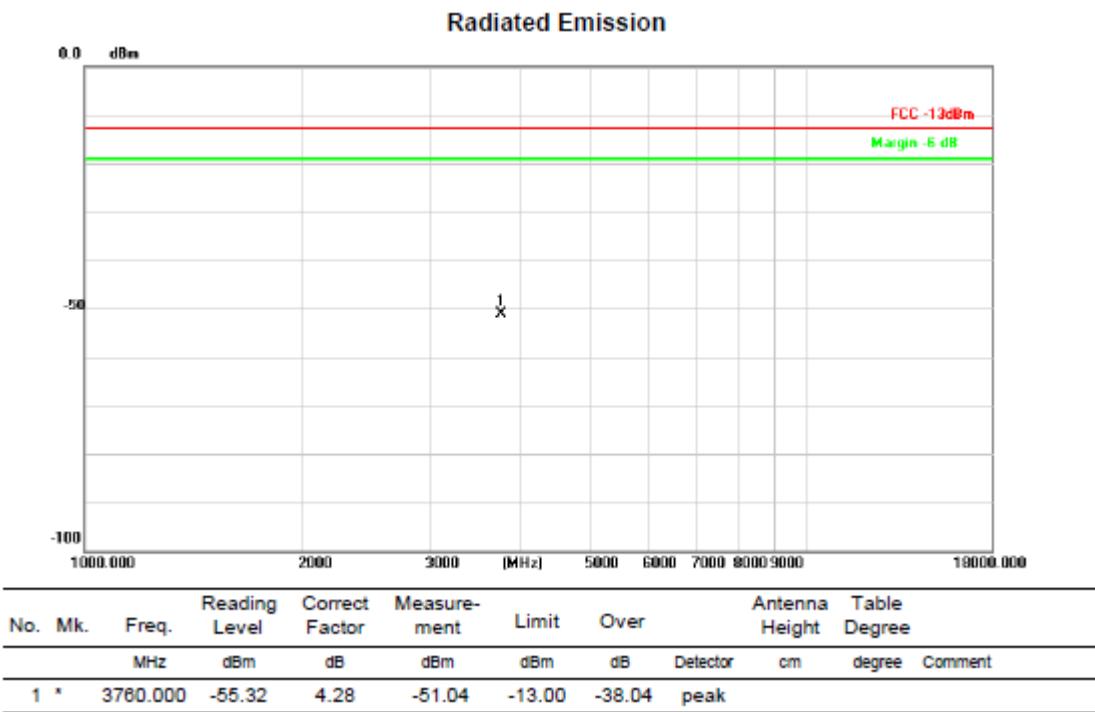
海蕴
HAIYUN

APPENDIX C - RADIATED SPURIOUS EMISSIONS (ABOVE 1GHZ)

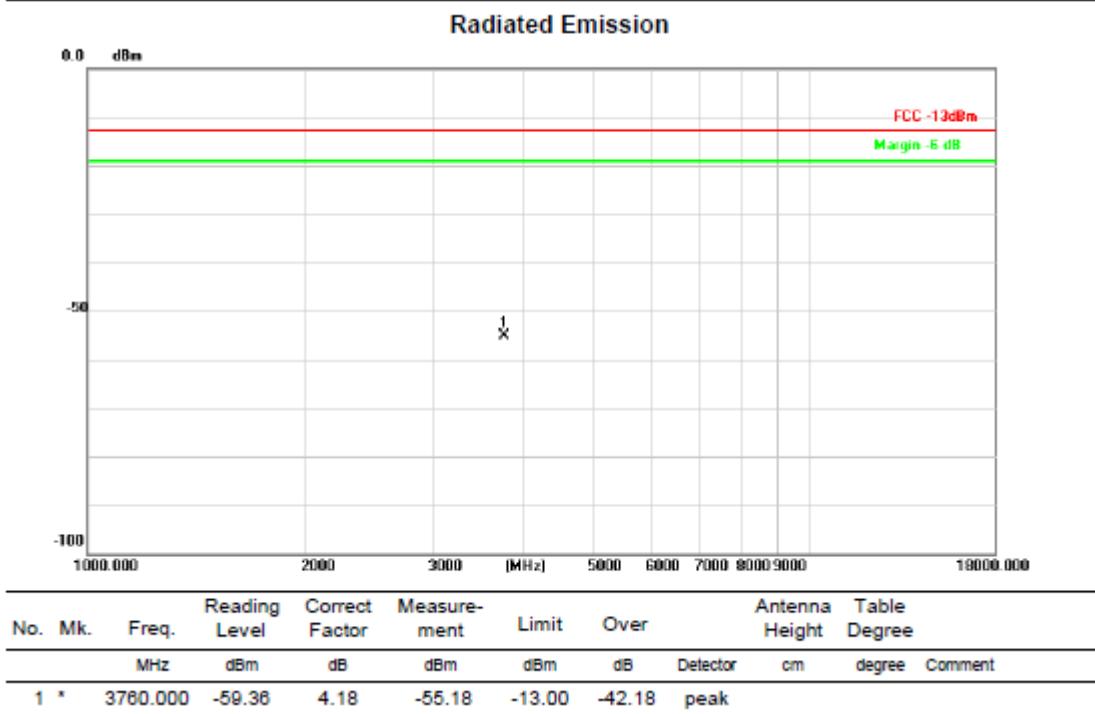


海蕴
HAIYUN

Test Mode	LTE-B2_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



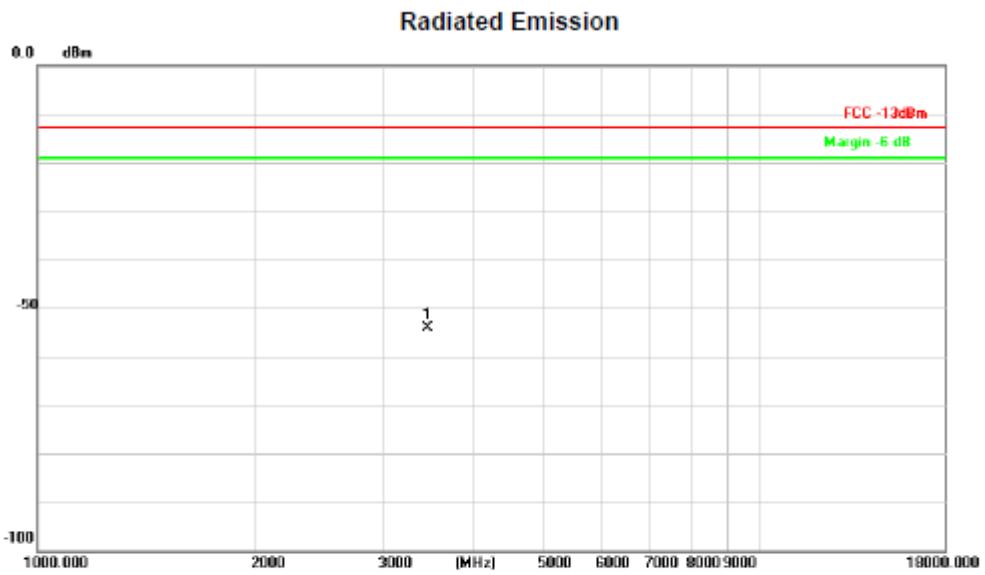
Test Mode	LTE-B2_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------





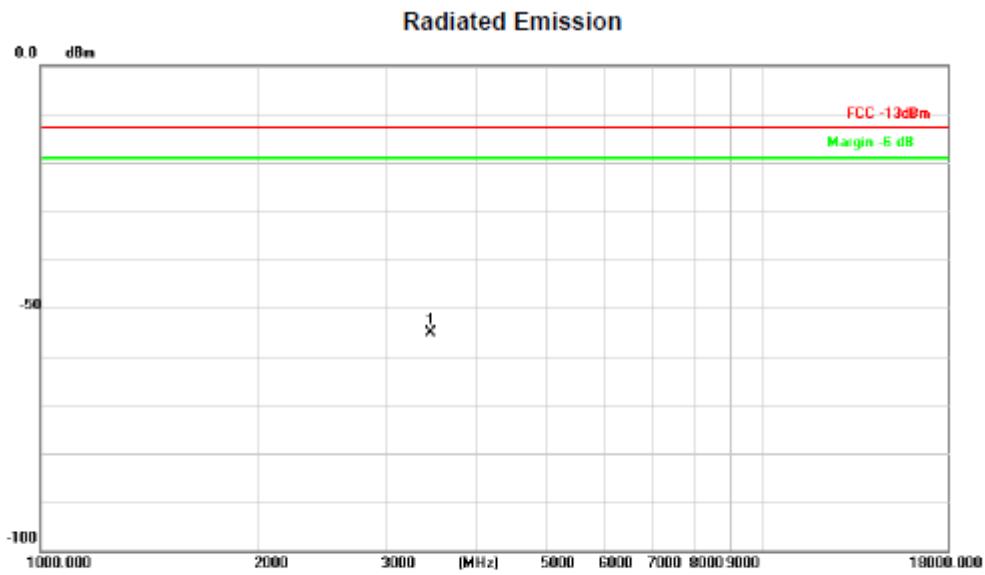
海蕴
HAIYUN

Test Mode	LTE-B4_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	3465.000	-56.99	2.99	-54.00	-13.00	-41.00	peak		

Test Mode	LTE-B4_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------

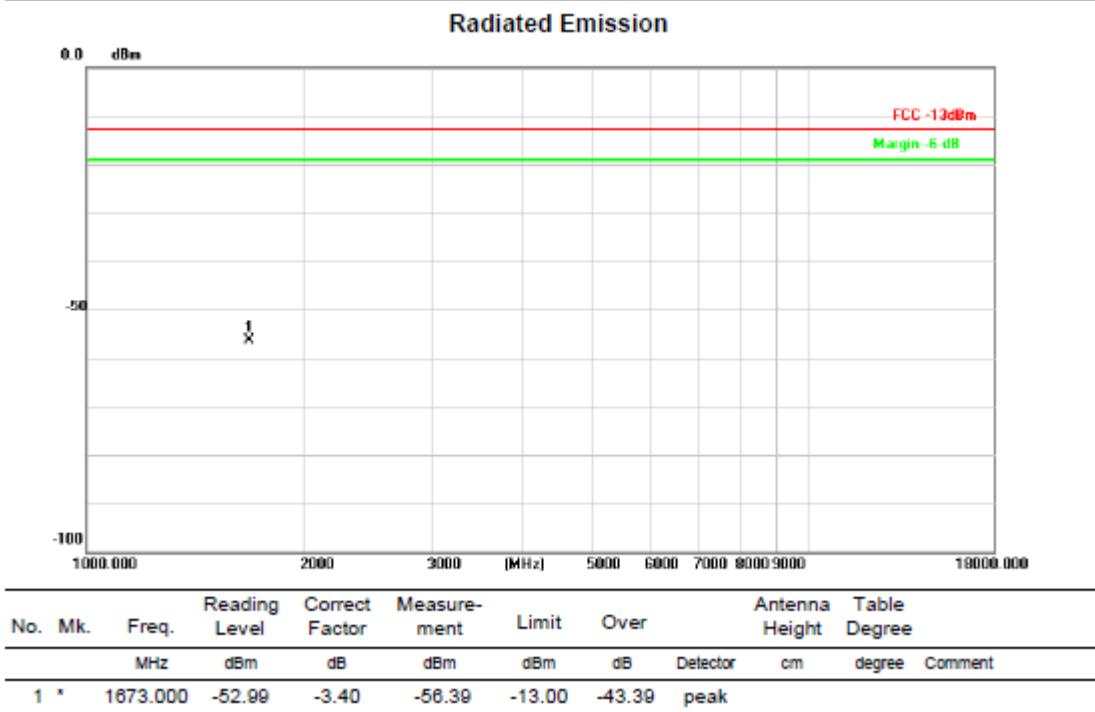


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	3465.000	-57.73	2.72	-55.01	-13.00	-42.01	peak		

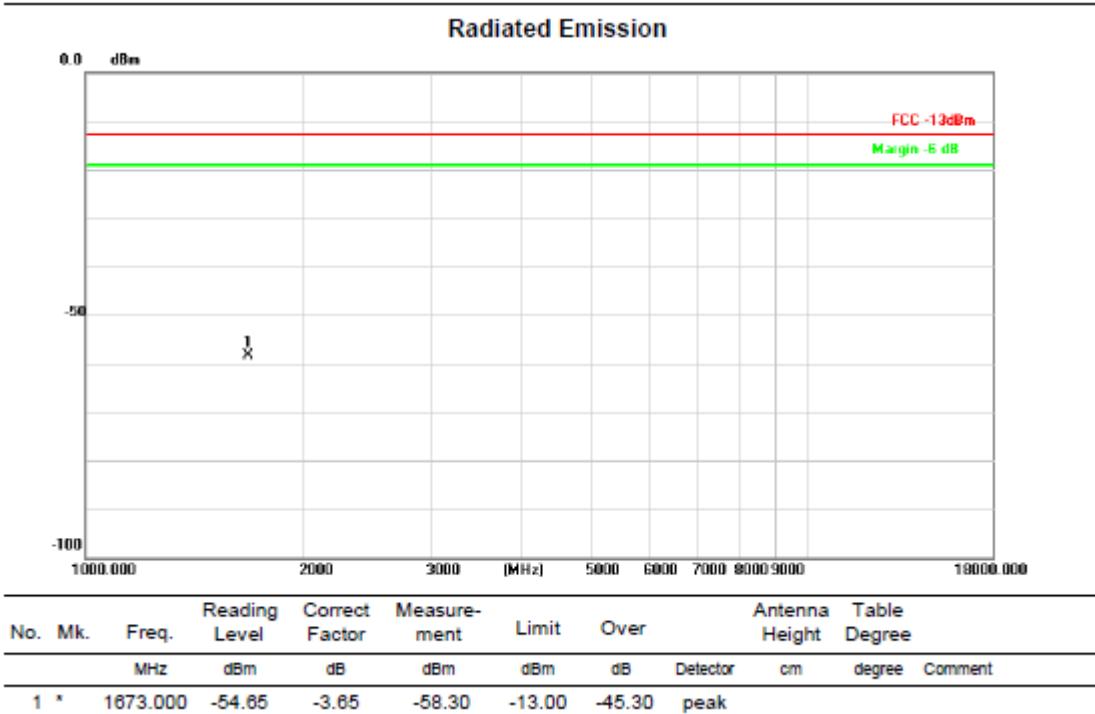


海蕴
HAIYUN

Test Mode	LTE-B5_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



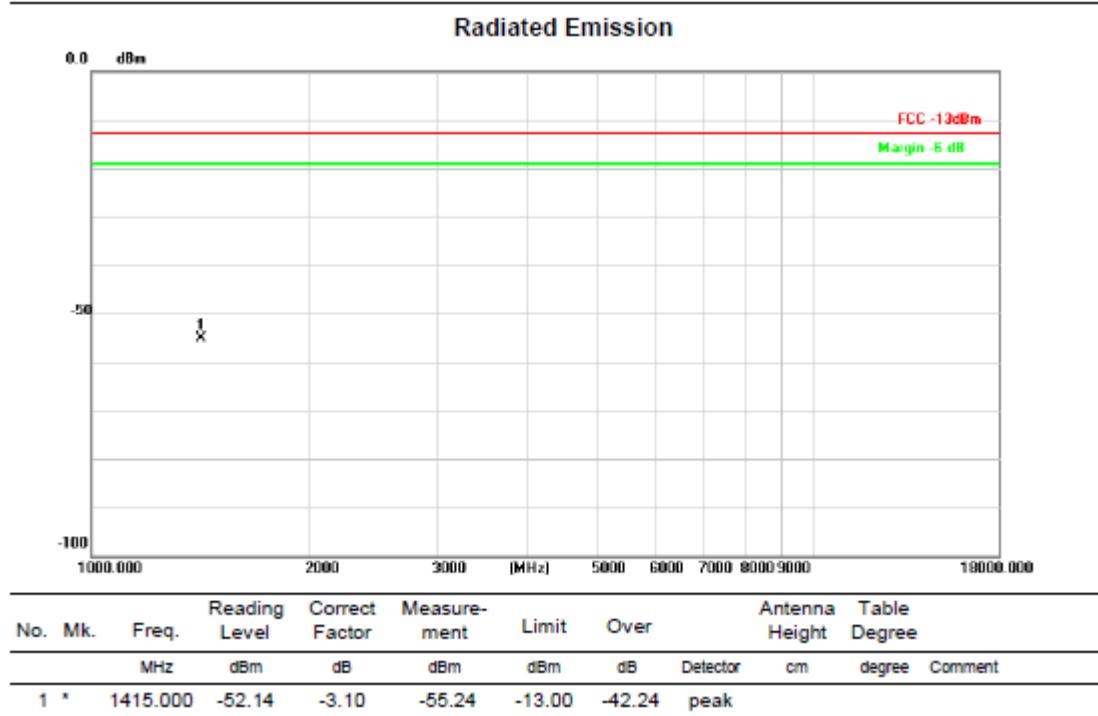
Test Mode	LTE-B5_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------



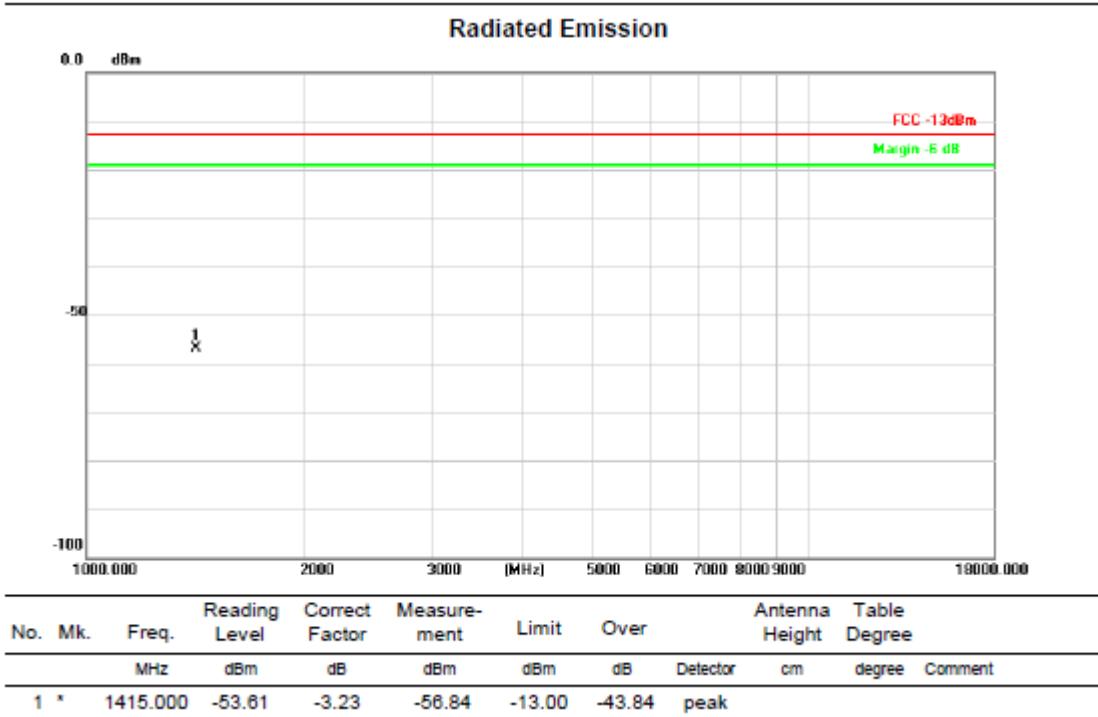


海蕴
HAIYUN

Test Mode	LTE-B12_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



Test Mode	LTE-B12_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------

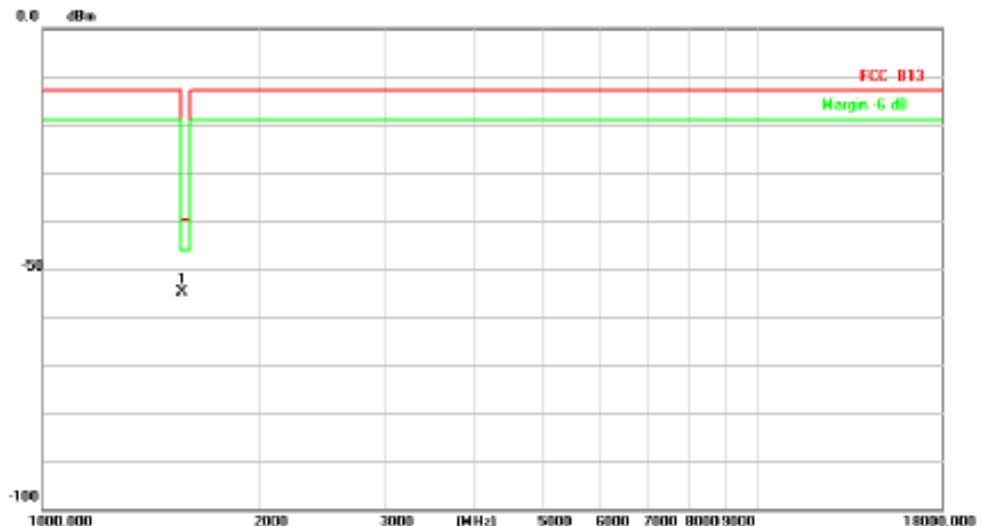




海蕴
HAIYUN

Test Mode	LTE-B13_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------

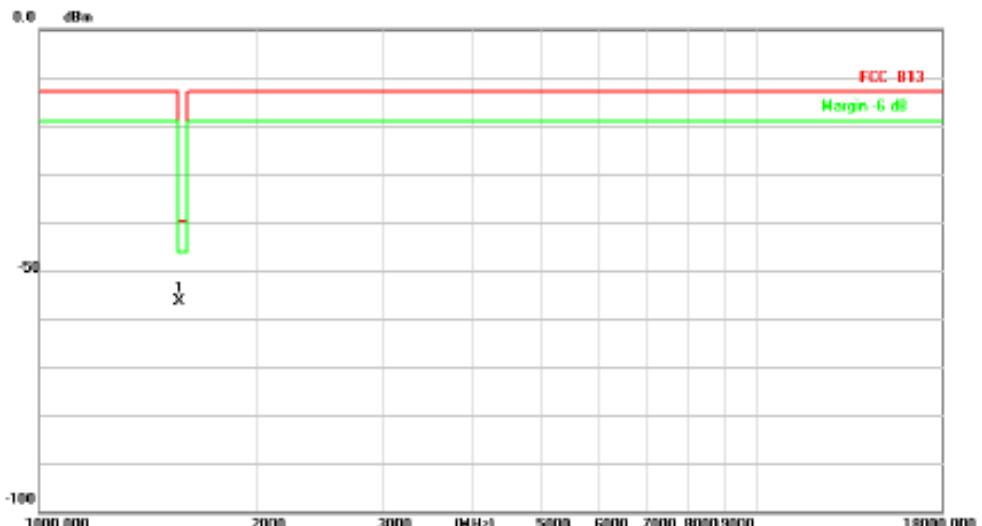
Radiated Emission



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1564.000	-51.56	-3.28	-54.84	-40.00	-14.84	peak		

Test Mode	LTE-B13_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------

Radiated Emission

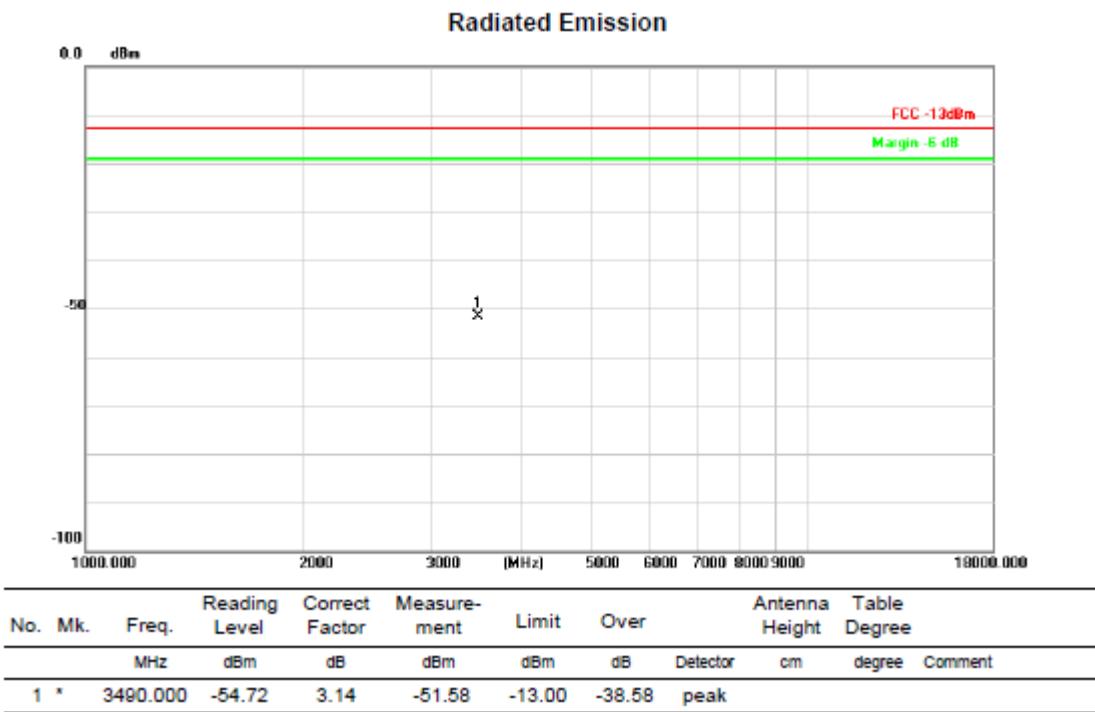


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Antenna Height	Table Degree	Comment
		MHz	dBm	dB	dBm	dBm	dB	Detector	cm	degree
1	*	1564.000	-52.63	-3.68	-56.31	-40.00	-16.31	peak		

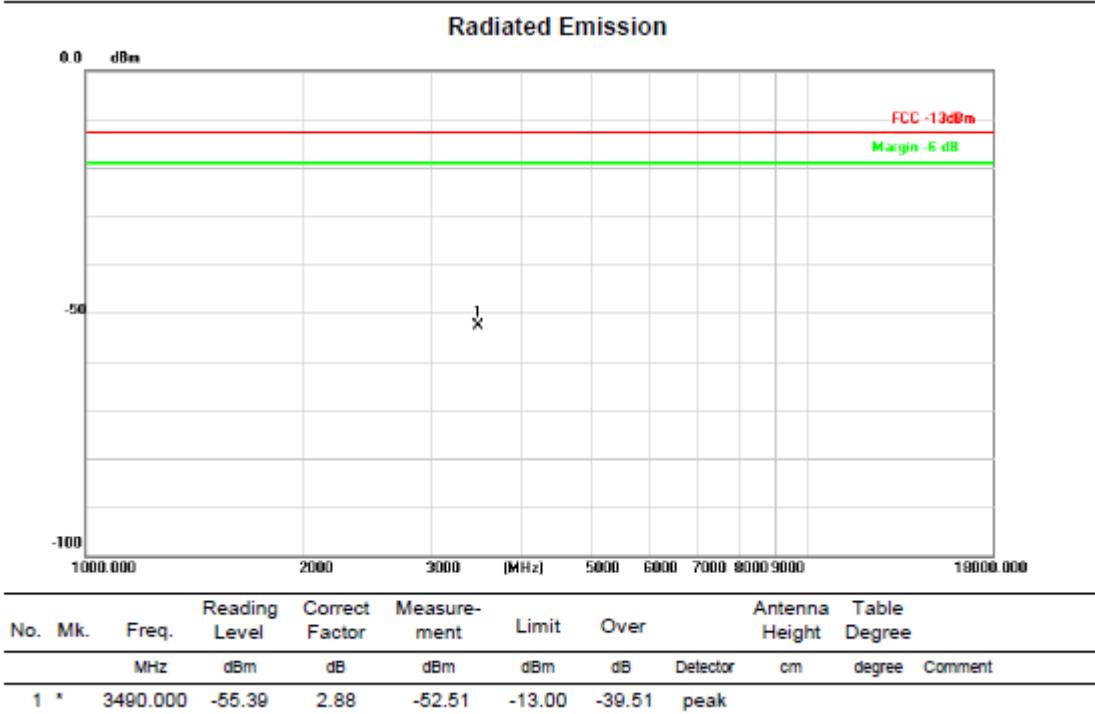


海蕴
HAIYUN

Test Mode	LTE-66_TX Mid CH	Polarization	Vertical
-----------	------------------	--------------	----------



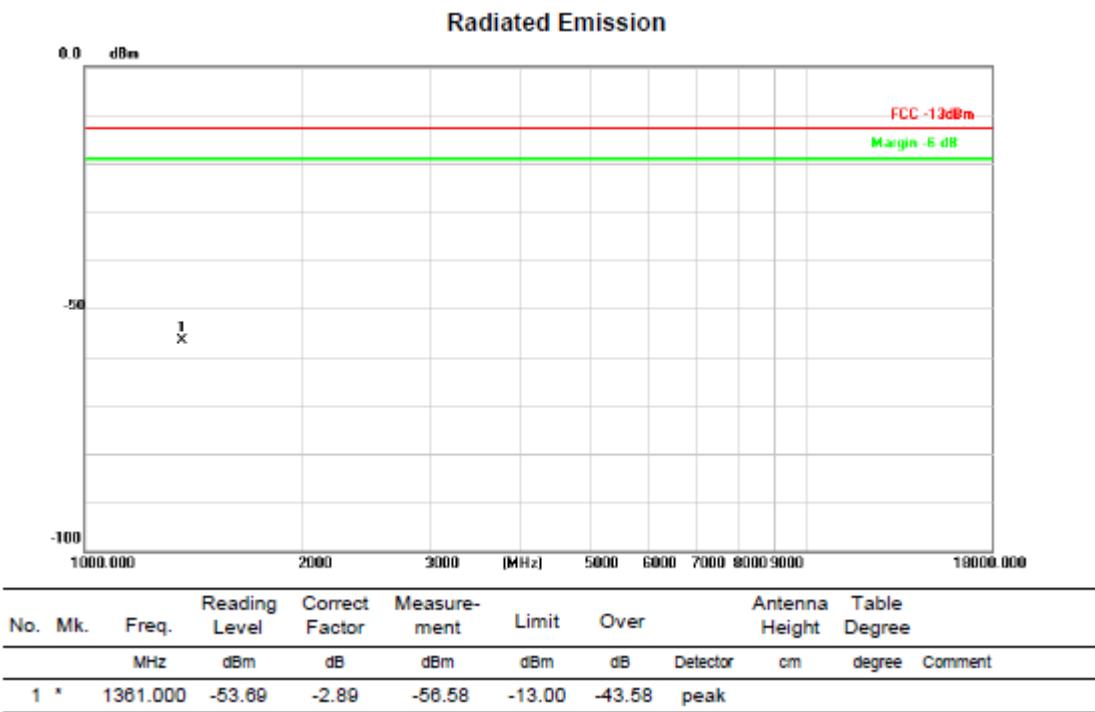
Test Mode	LTE-66_TX Mid CH	Polarization	Horizontal
-----------	------------------	--------------	------------



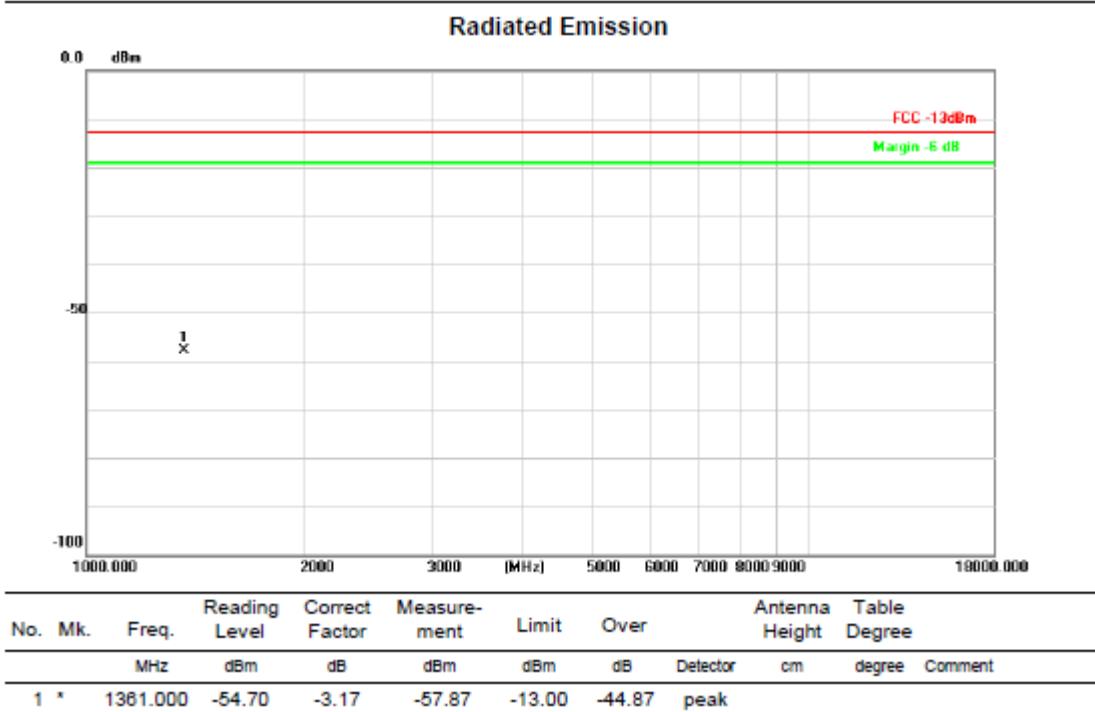


海蕴
HAIYUN

Test Mode	LTE-B71_TX Mid CH	Polarization	Vertical
-----------	-------------------	--------------	----------



Test Mode	LTE-B71_TX Mid CH	Polarization	Horizontal
-----------	-------------------	--------------	------------



REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technical Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technical Co., Ltd.

Address: Room 110, 111, 112, 113, 115, 116, Block B, Jinyuan Business Building, No. 302, Xixiang Avenue, Labor Community, Xixiang Street, Baoan District, Shenzhen, China

Tel: 0755-26024411

Email: service@hy-lab.cn

End of Test Report