

FCC TEST REPORT

(PART 27)

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	Redmi
Model Name:	25078RA3EL
FCC ID	2AFZZRA3EL
Date of tests	Apr. 17, 2025 ~ Apr. 28, 2025

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

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

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSZ-QBJ2504140315RF03	Original release	Apr. 28, 2025

1. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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

* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.



BUREAU VERITAS Test Report No.: PSZ-QBJ2504140315RF03

***Test Lab Information Reference**

Lab A:

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

Lab Address:

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

Accredited Test Lab Cert 6613.01

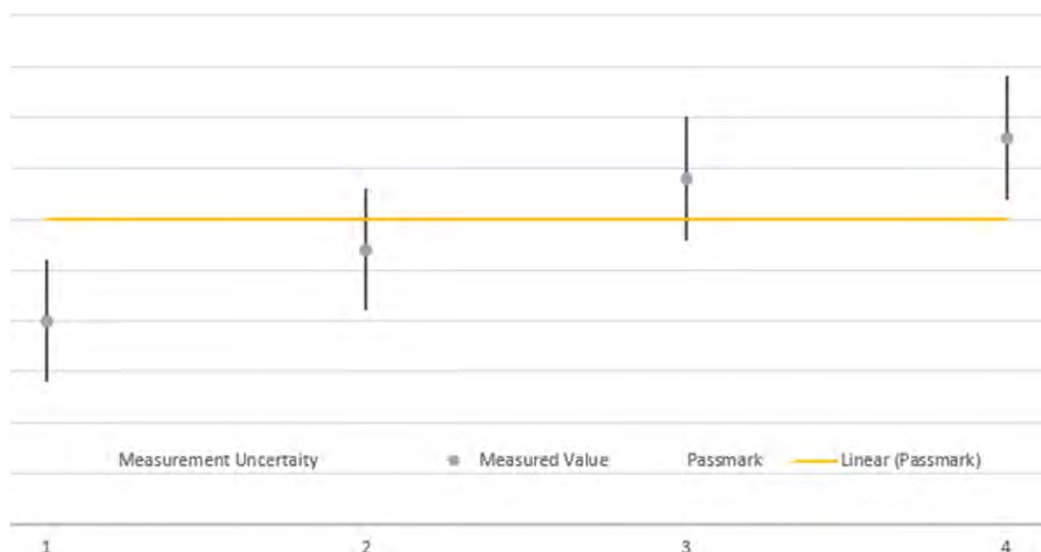
The FCC Site Registration No. is 434559; The Designation No. is CN1325.

1.1 MEASUREMENT UNCERTAINTY

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

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

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



The verdicts in this test report are given according the above diagram:

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

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



1.2 TEST SITE AND INSTRUMENTS

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

NOTE:

1. The calibration interval of the above test instruments is 12/ 24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 434559; The Designation No. is CN1325.



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT*	Mobile Phone	
BRAND NAME*	Redmi	
MODEL NAME*	25078RA3EL	
NOMINAL VOLTAGE*	5/3.6-11V dc (adapter or host equipment) 3.91Vdc (Li-ion, battery)	
MODULATION TECHNOLOGY	WCDMA IV	QPSK, 16QAM,
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	WCDMA IV	1712.4MHz ~ 1752.6MHz
	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
MAX. EIRP/ERP POWER -ANT1	WCDMA IV	195.88mW
	LTE Band 7 Channel Bandwidth: 5MHz	213.80mW
	LTE Band 7 Channel Bandwidth: 10MHz	212.32mW
	LTE Band 7 Channel Bandwidth: 15MHz	212.32mW
	LTE Band 7 Channel Bandwidth: 20MHz	217.77mW
	LTE Band 13 Channel Bandwidth: 5MHz	36.48mW
	LTE Band 13 Channel Bandwidth: 10MHz	36.73mW
MAX. EIRP/ERP POWER -ANT4	WCDMA IV	236.59mW
	LTE Band 7 Channel Bandwidth: 5MHz	228.56mW
	LTE Band 7 Channel Bandwidth: 10MHz	230.14mW
	LTE Band 7 Channel Bandwidth: 15MHz	224.91mW
	LTE Band 7 Channel Bandwidth: 20MHz	231.74mW



MAX. EIRP/ERP POWER -ANT4	LTE Band 13 Channel Bandwidth: 5MHz	32.96mW
	LTE Band 13 Channel Bandwidth: 10MHz	33.11mW
EMISSION DESIGNATOR	WCDMA IV LTE Band 7 Channel Bandwidth: 5MHz	4M17F9W
		QPSK: 4M50G7D
		16QAM: 4M49W7D
	LTE Band 7 Channel Bandwidth: 10MHz	QPSK:8M99G7D
		16QAM: 8M99W7D
		64QAM: 9M00W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM:13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 17M9G7D
		16QAM: 18M0W7D
		64QAM: 18M0W7D
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M52G7D
		16QAM: 4M53W7D
		64QAM: 4M52W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 9M01G7D
		16QAM: 9M01W7D
		64QAM: 9M01W7D
ANTENNA GAIN*	WCDMA IV	ant 1: -0.8dBi ant 4: 0.4dBi
	LTE BAND7	ant 1: -1.1dBi ant 4: -0.7dBi
	LTE BAND13	ant 1: -6.7dBi ant 4: -6.9dBi
ANTENNA TYPE*	Main Ant: PIFA Antenna Div Ant:PIFA Antenna	
HW VERSION*	13510P15A	
SW VERSION*	Xiaomi HyperOS 2.2	
I/O PORTS*	Refer to user's manual	



CABLE SUPPLIED*	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable3: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable4: non-shielded cable, with w/o ferrite core, 1.0 meter
EXTREME TEMPERATURE*	0~40℃
EXTREME VOLTAGE*	3.71V-4.3V

NOTE:

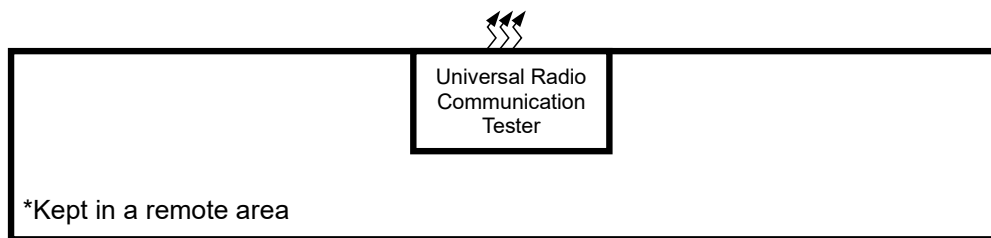
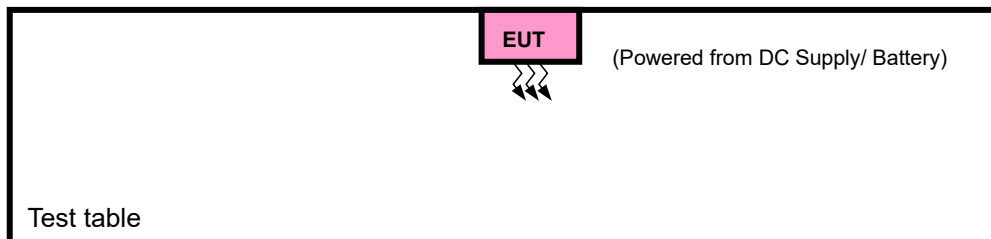
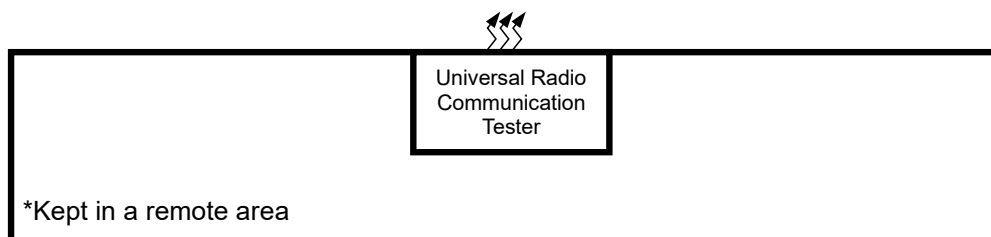
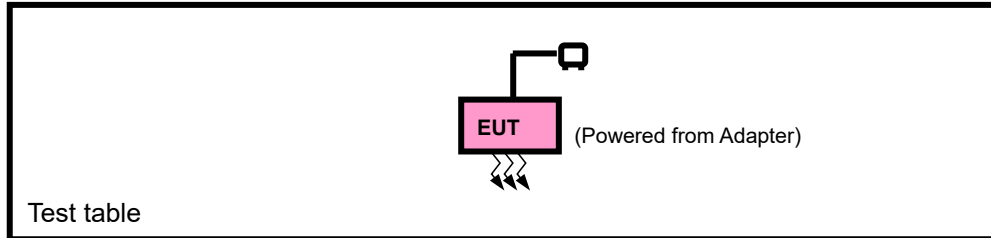
1. *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
WCDMA	1TX/1RX
LTE	1TX/1RX

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the test report.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST





2.3 DESCRIPTION OF SUPPORT UNITS

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

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Line: Shielded, Detachable 1m;

2.4 TEST ITEM AND TEST CONFIGURATION

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

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with WCDMA or LTE link
B	EUT + Battery with WCDMA or LTE link

WCDMA MODE				
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
B	FREQUENCY STABILITY	1312 to 1513	1312, 1413, 1513	WCDMA
A	OCCUPIED BANDWIDTH	1312 to 1513	1312, 1413, 1513	WCDMA
A	BAND EDGE	1312 to 1513	1312, 1513	WCDMA
A	PEAK TO AVERAGE RATIO	1312 to 1513	1312, 1413, 1513	WCDMA
A	CONDUCTED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA
A	RADIATED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA



LTE BAND 7 MODE						
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset
B	FREQUENCY STABILITY	20775 to 21425	20800, 21400	10MHz	QPSK	100 RB / 0 RB offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB offset
A	PEAK TO AVERAGE RATIO	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 100 RB / 0 RB offset
A	BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 25 RB / 0 RB offset
			21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB offset 25 RB / 0 RB offset
		20800 to 21400	20800	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 50 RB / 0 RB offset
			21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB offset 50 RB / 0 RB offset
		20825 to 21375	20825	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 75 RB / 0 RB offset
			21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB offset 75 RB / 0 RB offset
		20850 to 21350	20850	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 100 RB / 0 RB offset
			21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB offset 100 RB / 0 RB offset
A	CONDCUETED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB / 0 RB offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0RB offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK	1 RB / 0 RB offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB / 0 RB offset



A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0 RB offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB offset
		20850 to 21350	21100	20MHz	QPSK	1 RB / 0 RB offset

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

LTE BAND 13 MODE						
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset
B	FREQUENCY STABILITY	23230	23230	10MHz	QPSK	50 RB / 0 RB offset
A	OCCUPIED BANDWIDTH	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB offset
A	PEAK TO AVERAGE RATIO	23205 to 23255	23205, 20175, 23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 25 RB / 0 RB offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 50 RB / 0 RB offset
A	BAND EDGE	23205 to 23255	23205	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 25 RB / 0 RB offset
			23255	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB offset 25 RB / 0 RB offset
		23230	23230	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB offset 1 RB / 49 RB offset 50 RB / 0 RB offset
A	CONDCUDED EMISSION	23205 to 23255	23205, 20175, 23255	5MHz	QPSK	1 RB / 0 RB offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB offset
A	RADIATED EMISSION	23205 to 23255	23205, 20175, 23255	5MHz	QPSK	1 RB / 0 RB offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB offset

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

TEST CONDITION			
TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.71V/ 3.91V/ 4.3V By Battery	Hanwen Xu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu
BAND EDGE	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu
CONDCUDETED EMISSION	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5/3.6-11V dc By Adapter	Hanwen Xu

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC 47 CFR Part 2

FCC 47 CFR Part 27

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-D

ANSI/TIA/EIA-603-E

ANSI C63.26-2015

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



3. TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

§27.50(d)(4): WCMDAB4

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.

§27.50(h)(2) : LTEB7

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

§27.50(b)(10): LTEB13

Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

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

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

Where:

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

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

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

G_{T} = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_{C} = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

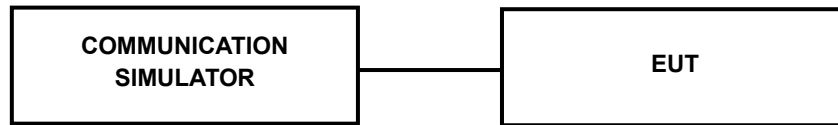
CONDUCTED POWER MEASUREMENT:

- The EUT was set up for the maximum power with 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

CONDUCTED POWER MEASUREMENT:



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



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

ANT1:

Band	WCDMA IV_ANT1		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	23.70	23.69	23.72
HSDPA Subtest-1	22.83	22.80	22.78
HSDPA Subtest-2	22.74	22.77	22.72
HSDPA Subtest-3	22.25	22.26	22.24
HSDPA Subtest-4	22.31	22.29	22.27
DC-HSDPA Subtest-1	22.84	22.82	22.80
DC-HSDPA Subtest-2	22.70	22.74	22.71
DC-HSDPA Subtest-3	22.26	22.21	22.19
DC-HSDPA Subtest-4	22.35	22.31	22.28
HSUPA Subtest-1	21.04	21.01	21.02
HSUPA Subtest-2	20.79	20.77	20.73
HSUPA Subtest-3	21.68	21.66	21.64
HSUPA Subtest-4	20.69	20.67	20.71
HSUPA Subtest-5	21.67	21.64	21.65
HSPA+ Subtest-1	21.02	21.03	21.06



LTE Band 7_ANT1						
Band/BW	Modulation	RB Size	RB offset	Low CH 20775	Mid CH 21100	High CH 21425
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz
7/ 5	QPSK	1	0	24.11	24.27	24.12
		1	12	24.27	24.34	24.40
		1	24	24.00	24.11	24.25
		12	0	23.22	23.43	23.39
		12	6	23.25	23.46	23.44
		12	13	23.24	23.25	23.28
		25	0	23.11	23.39	23.48
	16QAM	1	0	23.20	23.18	23.28
		1	12	23.46	23.58	23.59
		1	24	23.09	23.24	23.33
		12	0	22.08	22.34	22.35
		12	6	22.21	22.34	22.37
		12	13	22.22	22.27	22.27
		25	0	22.15	22.32	22.38
	64QAM	1	0	22.15	22.54	22.33
		1	12	22.40	22.15	22.60
		1	24	21.92	22.42	22.18
		12	0	21.02	21.26	21.37
		12	6	21.07	21.33	21.44
		12	13	21.08	21.32	21.24
		25	0	21.00	21.17	21.34
Band/BW	Modulation	RB Size	RB offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	24.20	24.13	24.21
		1	24	24.37	24.26	24.34
		1	49	24.14	24.10	24.23
		25	0	23.25	23.41	23.38
		25	12	23.32	23.36	23.49
		25	25	23.25	23.14	23.26
		50	0	23.08	23.40	23.45
	16QAM	1	0	23.16	23.25	23.40
		1	24	23.45	23.58	23.63
		1	49	23.03	23.32	23.39
		25	0	22.02	22.29	22.46
		25	12	22.27	22.29	22.43
		25	25	22.20	22.28	22.27
		50	0	22.10	22.26	22.41
	64QAM	1	0	22.15	22.51	22.25
		1	24	22.42	22.06	22.59
		1	49	21.96	22.43	22.19
		25	0	21.02	21.29	21.39
		25	12	21.18	21.28	21.45
		25	25	21.10	21.22	21.33
		50	0	21.06	21.22	21.28



LTE Band 7_ANT1

Band/BW	Modulation	RB Size	RB offset	Low CH 20825	Mid CH 21100	High CH 21375
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz
7/ 15	QPSK	1	0	24.10	24.27	24.14
		1	37	24.24	24.23	24.37
		1	74	24.05	24.06	24.11
		36	0	23.28	23.41	23.37
		36	19	23.28	23.43	23.44
		36	39	23.19	23.25	23.20
		75	0	23.09	23.31	23.45
	16QAM	1	0	23.15	23.30	23.40
		1	37	23.43	23.62	23.60
		1	74	23.06	23.23	23.36
		36	0	22.02	22.34	22.38
		36	19	22.23	22.39	22.38
		36	39	22.16	22.21	22.32
		75	0	22.08	22.34	22.35
	64QAM	1	0	22.21	22.50	22.25
		1	37	22.36	22.12	22.58
		1	74	21.89	22.39	22.24
		36	0	21.05	21.23	21.40
		36	19	21.19	21.35	21.43
		36	39	21.11	21.25	21.31
		75	0	21.04	21.29	21.42
Band/BW	Modulation	RB Size	RB offset	Low CH 20850	Mid CH 21100	High CH 21350
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz
7/ 20	QPSK	1	0	24.21	24.28	24.26
		1	50	24.38	24.35	24.48
		1	99	24.15	24.19	24.26
		50	0	23.29	23.44	23.49
		50	25	23.34	23.48	23.52
		50	50	23.26	23.29	23.35
		100	0	23.23	23.45	23.49
	16QAM	1	0	23.24	23.31	23.41
		1	50	23.52	23.63	23.74
		1	99	23.14	23.35	23.41
		50	0	22.17	22.43	22.48
		50	25	22.30	22.44	22.48
		50	50	22.27	22.34	22.42
		100	0	22.18	22.37	22.48
	64QAM	1	0	22.25	22.57	22.38
		1	50	22.46	22.20	22.67
		1	99	22.03	22.45	22.31
		50	0	21.13	21.38	21.47
		50	25	21.20	21.37	21.47
		50	50	21.21	21.33	21.34
		100	0	21.13	21.31	21.43



LTE Band 13_ANT1						
Band/BW	Modulation	RB Size	RB offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	24.27	24.36	24.47
		1	12	24.39	24.41	24.34
		1	24	24.13	24.28	24.29
		12	0	23.31	23.40	23.37
		12	6	23.48	23.55	23.36
		12	13	23.32	23.36	23.42
		25	0	23.50	23.48	23.39
	16QAM	1	0	23.74	23.88	23.68
		1	12	23.70	23.72	23.66
		1	24	23.38	23.57	23.46
		12	0	22.40	22.63	22.44
		12	6	22.60	22.53	22.59
		12	13	22.41	22.39	22.41
		25	0	22.28	22.47	22.26
	64QAM	1	0	22.58	22.66	22.65
		1	12	22.63	22.78	22.59
		1	24	22.56	22.48	22.54
		12	0	21.47	21.62	21.43
		12	6	21.38	21.42	21.47
		12	13	21.50	21.50	21.40
		25	0	21.32	21.46	21.38
Band/BW	Modulation	RB Size	RB offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	24.48	/
		1	24	/	24.50	/
		1	49	/	24.35	/
		25	0	/	23.52	/
		25	12	/	23.56	/
		25	25	/	23.48	/
		50	0	/	23.53	/
	16QAM	1	0	/	23.89	/
		1	24	/	23.76	/
		1	49	/	23.61	/
		25	0	/	22.61	/
		25	12	/	22.55	/
		25	25	/	22.54	/
		50	0	/	22.48	/
	64QAM	1	0	/	22.70	/
		1	24	/	22.82	/
		1	49	/	22.62	/
		25	0	/	21.58	/
		25	12	/	21.54	/
		25	25	/	21.52	/
		50	0	/	21.48	/

**ANT4:**

Band	WCDMA IV_ANT4		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	23.26	23.29	23.34
HSDPA Subtest-1	22.41	22.39	22.43
HSDPA Subtest-2	22.39	22.41	22.42
HSDPA Subtest-3	21.92	21.95	21.96
HSDPA Subtest-4	21.91	21.94	21.95
DC-HSDPA Subtest-1	22.39	22.37	22.41
DC-HSDPA Subtest-2	22.41	22.45	22.42
DC-HSDPA Subtest-3	21.96	21.93	21.98
DC-HSDPA Subtest-4	21.93	21.91	21.95
HSUPA Subtest-1	20.66	20.69	20.71
HSUPA Subtest-2	20.53	20.51	20.61
HSUPA Subtest-3	21.51	21.47	21.62
HSUPA Subtest-4	20.53	20.51	20.57
HSUPA Subtest-5	21.49	21.46	21.43
HSPA+ Subtest-1	20.91	20.88	20.85



LTE Band 7_ANT4						
Band/BW	Modulation	RB Size	RB offset	Low CH 20775	Mid CH 21100	High CH 21425
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz
7/ 5	QPSK	1	0	24.02	24.10	24.01
		1	12	24.29	24.05	24.13
		1	24	24.20	24.13	24.08
		12	0	23.10	23.17	23.11
		12	6	23.27	23.14	23.20
		12	13	23.19	23.19	23.11
		25	0	23.34	23.21	23.13
	16QAM	1	0	23.08	23.30	23.09
		1	12	23.46	23.28	23.40
		1	24	22.93	22.91	22.93
		12	0	22.15	22.20	22.09
		12	6	22.16	22.09	22.11
		12	13	22.09	22.05	22.02
		25	0	22.04	22.14	21.98
	64QAM	1	0	22.10	22.16	22.00
		1	12	22.29	22.44	22.36
		1	24	21.84	21.93	21.98
		12	0	21.15	21.26	21.01
		12	6	21.16	21.15	21.24
		12	13	21.15	21.01	21.04
		25	0	21.20	21.19	21.08
Band/BW	Modulation	RB Size	RB offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	24.06	24.07	24.07
		1	24	24.32	24.18	24.16
		1	49	24.10	24.11	23.99
		25	0	23.14	23.22	23.09
		25	12	23.31	23.14	23.10
		25	25	23.17	23.14	23.12
		50	0	23.29	23.20	23.09
	16QAM	1	0	23.12	23.29	23.14
		1	24	23.48	23.41	23.36
		1	49	23.02	22.98	22.96
		25	0	22.13	22.24	22.07
		25	12	22.22	22.07	22.09
		25	25	22.12	22.08	22.10
		50	0	22.09	22.14	21.97
	64QAM	1	0	22.06	22.17	21.96
		1	24	22.33	22.31	22.30
		1	49	21.94	21.85	22.07
		25	0	21.15	21.24	21.11
		25	12	21.16	21.28	21.15
		25	25	21.08	20.96	20.96
		50	0	21.18	21.23	21.09



LTE Band 7_ANT4

Band/BW	Modulation	RB Size	RB offset	Low CH 20825	Mid CH 21100	High CH 21375
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz
7/ 15	QPSK	1	0	23.96	24.05	24.01
		1	37	24.22	24.10	24.14
		1	74	24.18	24.09	24.06
		36	0	23.16	23.26	23.18
		36	19	23.29	23.27	23.18
		36	39	23.06	23.07	23.13
		75	0	23.21	23.13	23.08
	16QAM	1	0	23.07	23.28	23.07
		1	37	23.47	23.29	23.46
		1	74	22.97	22.98	22.89
		36	0	22.08	22.18	22.20
		36	19	22.19	22.08	22.02
		36	39	22.15	22.09	22.08
		75	0	22.03	22.08	22.02
	64QAM	1	0	22.10	22.13	21.98
		1	37	22.31	22.36	22.27
		1	74	21.82	21.95	22.01
		36	0	21.18	21.24	21.15
		36	19	21.27	21.17	21.26
		36	39	21.10	21.04	21.00
		75	0	21.09	21.14	21.06
Band/BW	Modulation	RB Size	RB offset	Low CH 20850	Mid CH 21100	High CH 21350
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz
7/ 20	QPSK	1	0	24.11	24.12	24.15
		1	50	24.35	24.19	24.18
		1	99	24.21	24.18	24.13
		50	0	23.22	23.27	23.20
		50	25	23.32	23.29	23.23
		50	50	23.20	23.21	23.19
		100	0	23.35	23.28	23.21
	16QAM	1	0	23.14	23.33	23.19
		1	50	23.54	23.43	23.48
		1	99	23.03	23.00	22.98
		50	0	22.20	22.26	22.21
		50	25	22.25	22.20	22.17
		50	50	22.21	22.15	22.16
		100	0	22.12	22.19	22.08
	64QAM	1	0	22.17	22.23	22.08
		1	50	22.35	22.45	22.37
		1	99	21.96	21.98	22.10
		50	0	21.24	21.32	21.16
		50	25	21.29	21.29	21.28
		50	50	21.18	21.09	21.09
		100	0	21.24	21.27	21.12



LTE Band 13_ANT4

Band/BW	Modulation	RB Size	RB offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	24.00	24.02	24.08
		1	12	24.13	24.17	24.20
		1	24	24.23	24.05	24.03
		12	0	23.22	23.35	23.17
		12	6	23.29	23.29	23.19
		12	13	23.13	23.04	23.20
		25	0	23.18	23.22	23.08
	16QAM	1	0	23.09	23.36	23.15
		1	12	23.53	23.30	23.47
		1	24	23.01	23.00	22.91
		12	0	22.07	22.14	22.18
		12	6	22.15	22.12	22.08
		12	13	22.19	22.09	22.18
		25	0	22.00	22.12	22.01
	64QAM	1	0	22.16	22.14	21.95
		1	12	22.40	22.37	22.25
		1	24	21.86	21.97	22.02
		12	0	21.23	21.31	21.23
		12	6	21.27	21.15	21.22
		12	13	21.06	21.08	21.01
		25	0	21.14	21.15	21.06
Band/BW	Modulation	RB Size	RB offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	24.16	/
		1	24	/	24.25	/
		1	49	/	24.09	/
		25	0	/	23.24	/
		25	12	/	23.29	/
		25	25	/	23.23	/
		50	0	/	23.29	/
	16QAM	1	0	/	23.39	/
		1	24	/	23.63	/
		1	49	/	23.49	/
		25	0	/	22.34	/
		25	12	/	22.28	/
		25	25	/	22.24	/
		50	0	/	22.24	/
	64QAM	1	0	/	22.44	/
		1	24	/	22.45	/
		1	49	/	22.41	/
		25	0	/	21.24	/
		25	12	/	21.32	/
		25	25	/	21.28	/
		50	0	/	21.23	/

EIRP

ANT1:

WCDMA IV						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	23.70	-0.8	22.9	194.98	1
1413	1732.6	23.69	-0.8	22.89	194.54	1
1513	1752.6	23.72	-0.8	22.92	195.88	1

LTE BAND 7						
5MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	24.27	-1.1	23.17	207.49	2
21100	2535	24.34	-1.1	23.24	210.86	2
21425	2567.5	24.40	-1.1	23.30	213.80	2

5MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.46	-1.1	22.36	172.19	2
21100	2535	23.58	-1.1	22.48	177.01	2
21425	2567.5	23.59	-1.1	22.49	177.42	2

5MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.40	-1.1	21.30	134.90	2
21100	2535	22.54	-1.1	21.44	139.32	2
21425	2567.5	22.60	-1.1	21.50	141.25	2



10MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	24.37	-1.1	23.27	212.32	2
21100	2535	24.26	-1.1	23.16	207.01	2
21400	2565	24.34	-1.1	23.24	210.86	2

10MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	23.45	-1.1	22.35	171.79	2
21100	2535	23.58	-1.1	22.48	177.01	2
21400	2565	23.63	-1.1	22.53	179.06	2

10MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	22.42	-1.1	21.32	135.52	2
21100	2535	22.51	-1.1	21.41	138.36	2
21400	2565	22.59	-1.1	21.49	140.93	2

15MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	24.24	-1.1	23.14	206.06	2
21100	2535	24.27	-1.1	23.17	207.49	2
21375	2562.5	24.37	-1.1	23.27	212.32	2

15MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.43	-1.1	22.33	171.00	2
21100	2535	23.62	-1.1	22.52	178.65	2
21375	2562.5	23.60	-1.1	22.50	177.83	2

15MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.36	-1.1	21.26	133.66	2
21100	2535	22.50	-1.1	21.40	138.04	2
21375	2562.5	22.58	-1.1	21.48	140.60	2

20MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	24.38	-1.1	23.28	212.81	2
21100	2535	24.35	-1.1	23.25	211.35	2
21350	2560	24.48	-1.1	23.38	217.77	2

20MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	23.52	-1.1	22.42	174.58	2
21100	2535	23.63	-1.1	22.53	179.06	2
21350	2560	23.74	-1.1	22.64	183.65	2

20MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	22.46	-1.1	21.36	136.77	2
21100	2535	22.57	-1.1	21.47	140.28	2
21350	2560	22.67	-1.1	21.57	143.55	2

LTE BAND 13

5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	24.39	-6.7	15.54	35.81	3
23230	782	24.41	-6.7	15.56	35.97	3
23255	784.5	24.47	-6.7	15.62	36.48	3

5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.74	-6.7	14.89	30.83	3
23230	782	23.88	-6.7	15.03	31.84	3
23255	784.5	23.68	-6.7	14.83	30.41	3

5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.63	-6.7	13.78	23.88	3
23230	782	22.78	-6.7	13.93	24.72	3
23255	784.5	22.65	-6.7	13.80	23.99	3

10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	24.50	-6.7	15.65	36.73	3

10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	23.89	-6.7	15.04	31.92	3

10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	22.82	-6.7	13.97	24.95	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



ANT4:

WCDMA IV						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1312	1712.4	23.26	0.4	23.66	232.27	1
1413	1732.6	23.29	0.4	23.69	233.88	1
1513	1752.6	23.34	0.4	23.74	236.59	1

LTE BAND 7						
5MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	24.29	-0.7	23.59	228.56	2
21100	2535	24.13	-0.7	23.43	220.29	2
21425	2567.5	24.13	-0.7	23.43	220.29	2

5MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	23.46	-0.7	22.76	188.80	2
21100	2535	23.30	-0.7	22.60	181.97	2
21425	2567.5	23.40	-0.7	22.70	186.21	2

5MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20775	2502.5	22.29	-0.7	21.59	144.21	2
21100	2535	22.44	-0.7	21.74	149.28	2
21425	2567.5	22.36	-0.7	21.66	146.55	2



10MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	24.32	-0.7	23.62	230.14	2
21100	2535	24.18	-0.7	23.48	222.84	2
21400	2565	24.16	-0.7	23.46	221.82	2

10MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	23.48	-0.7	22.78	189.67	2
21100	2535	23.41	-0.7	22.71	186.64	2
21400	2565	23.36	-0.7	22.66	184.50	2

10MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20800	2505	22.33	-0.7	21.63	145.55	2
21100	2535	22.31	-0.7	21.61	144.88	2
21400	2565	22.30	-0.7	21.60	144.54	2

15MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	24.22	-0.7	23.52	224.91	2
21100	2535	24.10	-0.7	23.40	218.78	2
21375	2562.5	24.14	-0.7	23.44	220.80	2

15MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	23.47	-0.7	22.77	189.23	2
21100	2535	23.29	-0.7	22.59	181.55	2
21375	2562.5	23.46	-0.7	22.76	188.80	2

15MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20825	2507.5	22.31	-0.7	21.61	144.88	2
21100	2535	22.36	-0.7	21.66	146.55	2
21375	2562.5	22.27	-0.7	21.57	143.55	2

20MHz QPSK						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	24.35	-0.7	23.65	231.74	2
21100	2535	24.19	-0.7	23.49	223.36	2
21350	2560	24.18	-0.7	23.48	222.84	2

20MHz 16QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	23.54	-0.7	22.84	192.31	2
21100	2535	23.43	-0.7	22.73	187.50	2
21350	2560	23.48	-0.7	22.78	189.67	2

20MHz 64QAM						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20850	2510	22.35	-0.7	21.65	146.22	2
21100	2535	22.45	-0.7	21.75	149.62	2
21350	2560	22.37	-0.7	21.67	146.89	2

LTE BAND 13

5MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	24.23	-6.9	15.18	32.96	3
23230	782	24.17	-6.9	15.12	32.51	3
23255	784.5	24.20	-6.9	15.15	32.73	3

5MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	23.53	-6.9	14.48	28.05	3
23230	782	23.36	-6.9	14.31	26.98	3
23255	784.5	23.47	-6.9	14.42	27.67	3

5MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23205	779.5	22.40	-6.9	13.35	21.63	3
23230	782	22.37	-6.9	13.32	21.48	3
23255	784.5	22.25	-6.9	13.20	20.89	3

10MHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	24.25	-6.9	15.20	33.11	3

10MHz 16QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	23.63	-6.9	14.58	28.71	3

10MHz 64QAM

Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _C (dB)	ERP (dBm)	ERP (mW)	Limit (W)
23230	782	22.45	-6.9	13.40	21.88	3

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

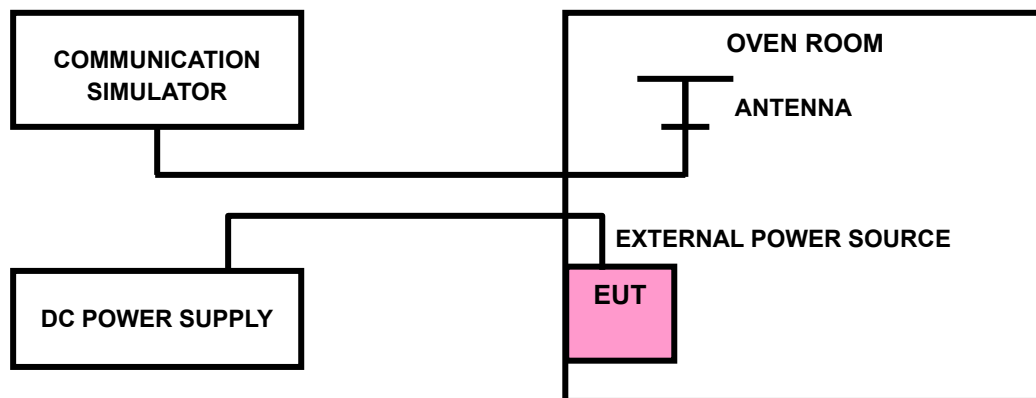
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

3.2.2 TEST PROCEDURE

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

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

3.3.3 TEST SETUP





3.2.3 TEST RESULTS

Please Refer to Appendix of this test report.

Note: VL = Low voltage(3.71V); VN/NV = Normal voltage(3.91V); VH = High voltage(4.3V);

NT = Normal temperature (25°C)

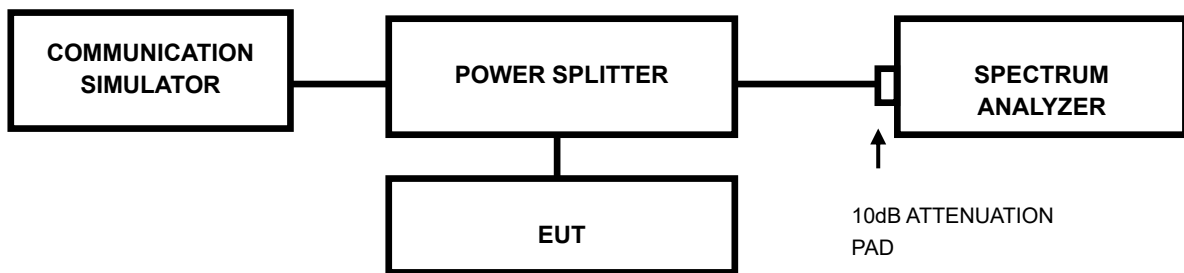


3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

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

3.3.2 TEST SETUP



3.3.3 TEST PROCEDURES

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

3.3.4 TEST RESULTS

Please Refer to Appendix of this test report.



3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

§27.53(h): WCMDAB4

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

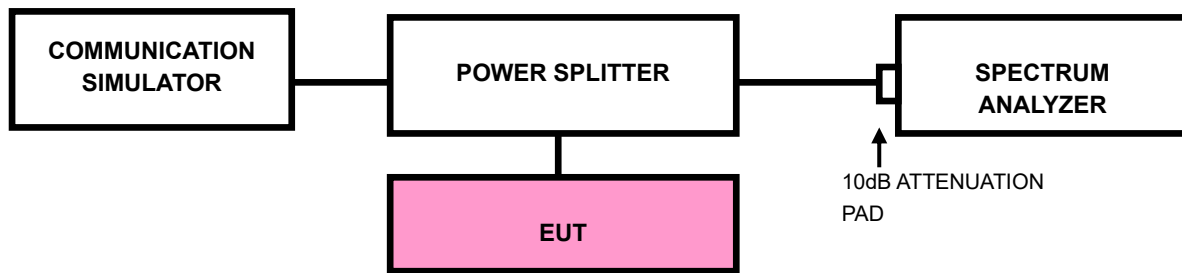
§27.53(m)(4):LTEB7

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

§27.53(c)(2)(4): LTEB13

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

3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a) All measurements were done at low and high operational frequency range
- b) Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
- c) Tune the analyzer to the nominal center frequency of the emission bandwidth
(EBW)
- d) .Set the resolution bandwidth (RBW) $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
- e) Beyond the 1MHz band from the band edge, RBW=1MHz was used.
- f) Set the video bandwidth (VBW) to $\geq 3 \times$ RBW.
- g) Select the average power (RMS) display detector.
- h) Set the number of measurement points to ≥ 1001 .
- i) Use auto-coupled sweep time.
- j) Perform the measurement over an interval of time when the transmission is continuous and at its maximum power level.
- k) The RF fundamental frequency should be excluded against the limit line in the operating frequency band and use RBW is 10KHz or 100KHz.
- l) Record the max trace plot into the test report.



3.4.4 TEST RESULTS

Please Refer to Appendix of this test report.



CONDUCTED SPURIOUS EMISSIONS

3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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

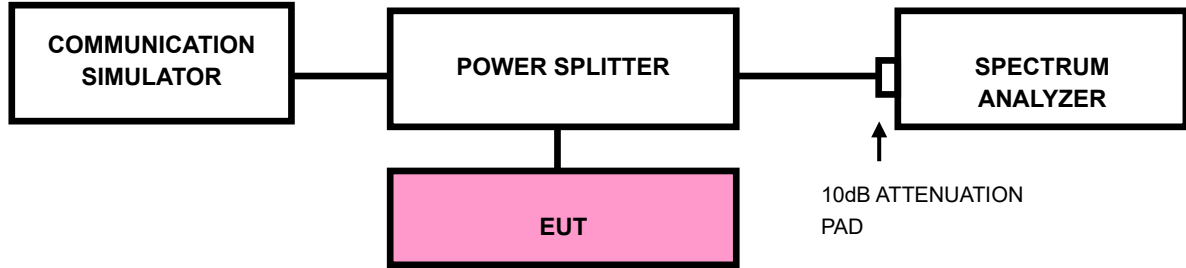
According to FCC 27.53(m)(4) specified that For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less 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. For mobile digital stations, in the 1-megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed.

47 CFR 27.53(c)(2) : On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

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

Please Refer to Appendix of this test report.



3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

47 CFR 27.53(c)(2) : On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB;

3.6.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G.
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
$$\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$$

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

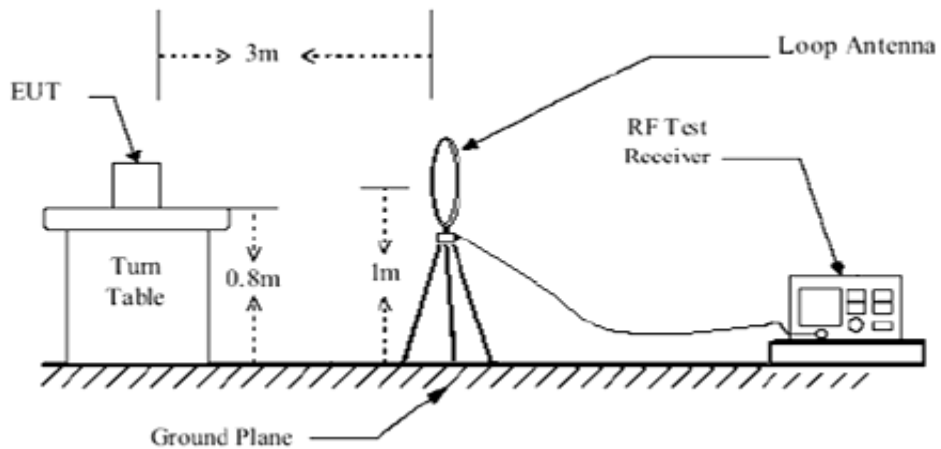
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

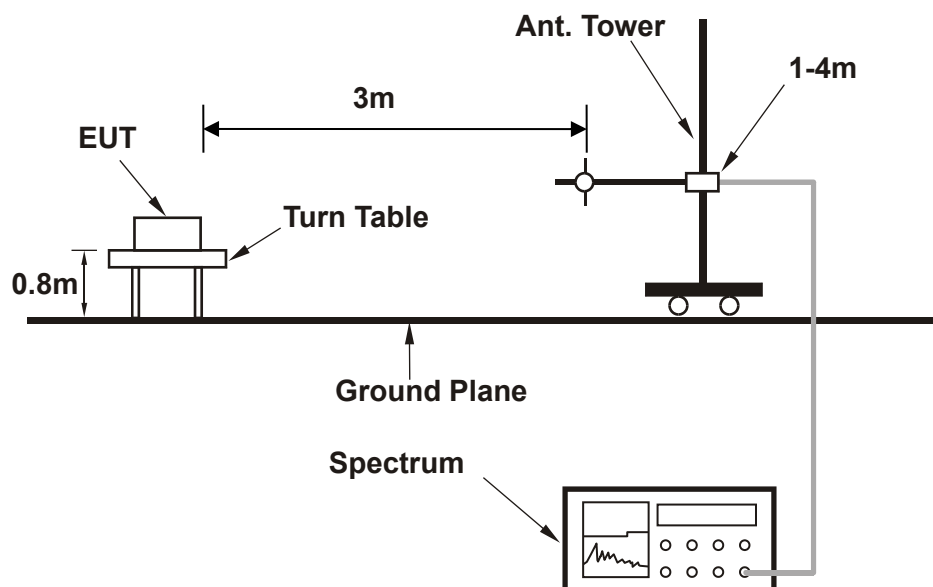


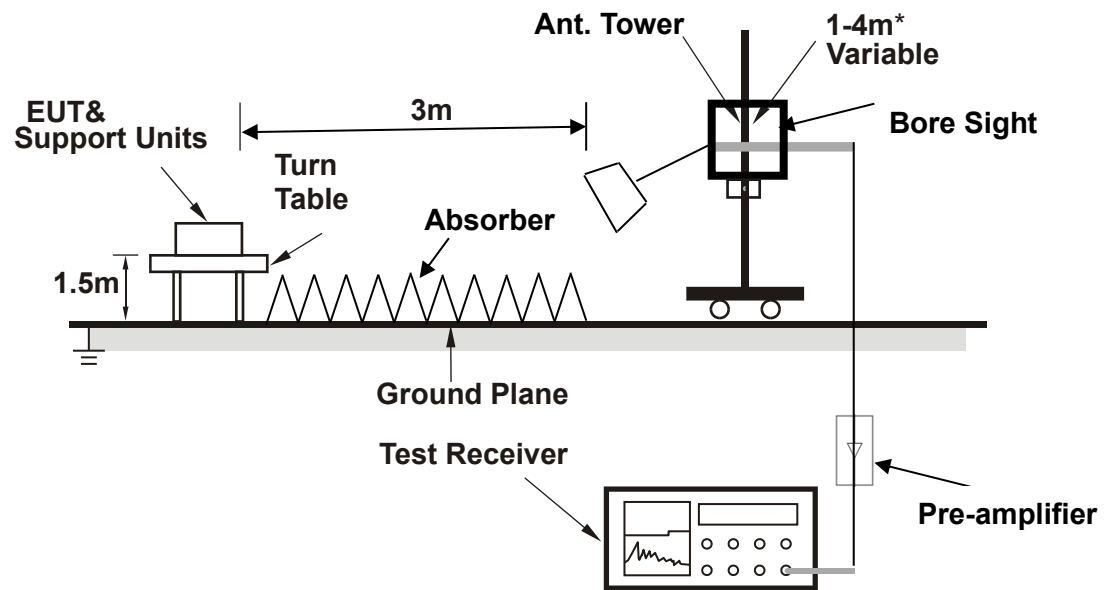
3.6.4 TEST SETUP

< Frequency Range below 30MHz >



< Frequency Range 30MHz~1GHz >





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

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

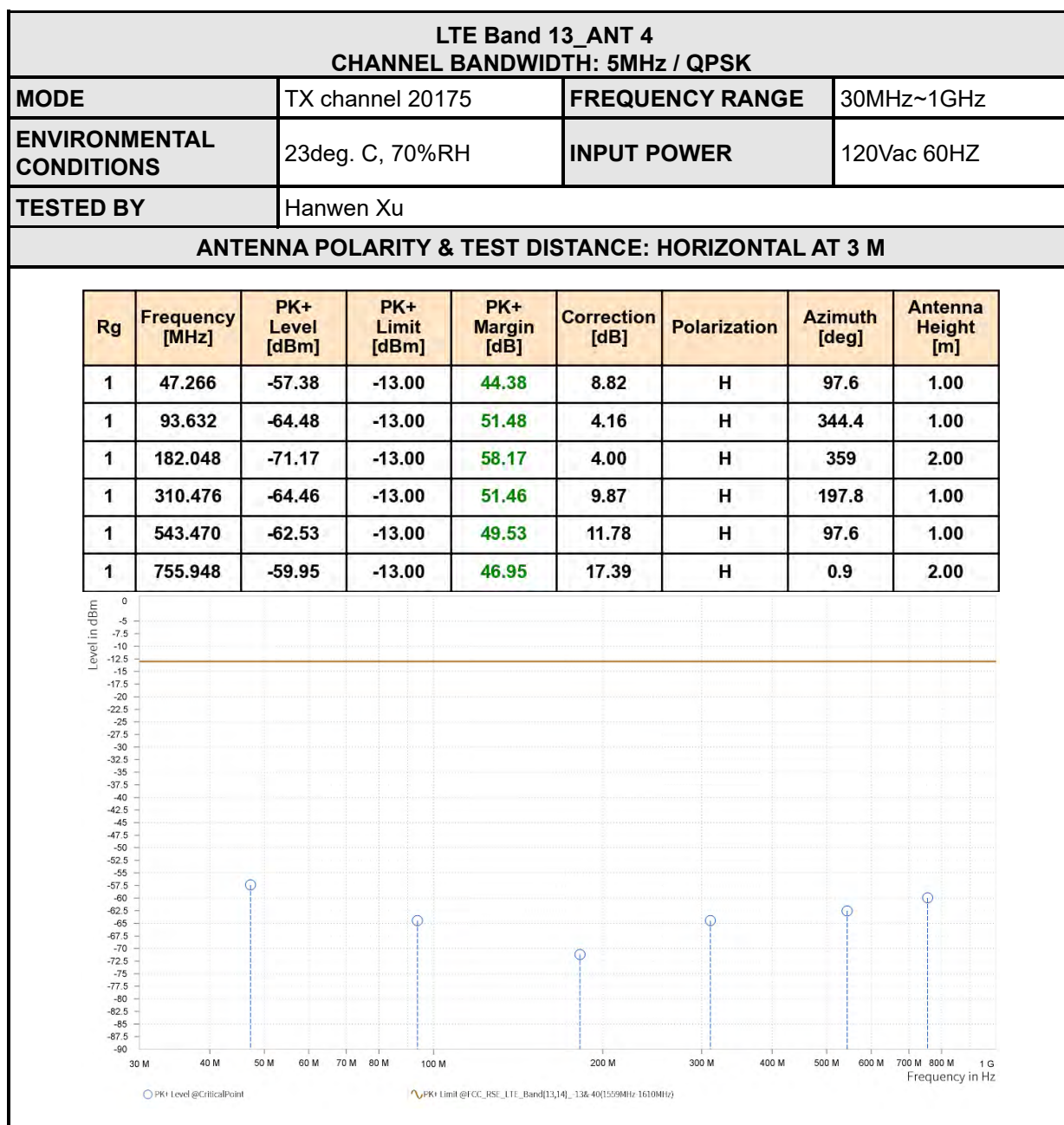


3.6.5 TEST RESULTS

NOTE : 1.The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

2. All antennas have been tested, the report only shown the worst-case data.

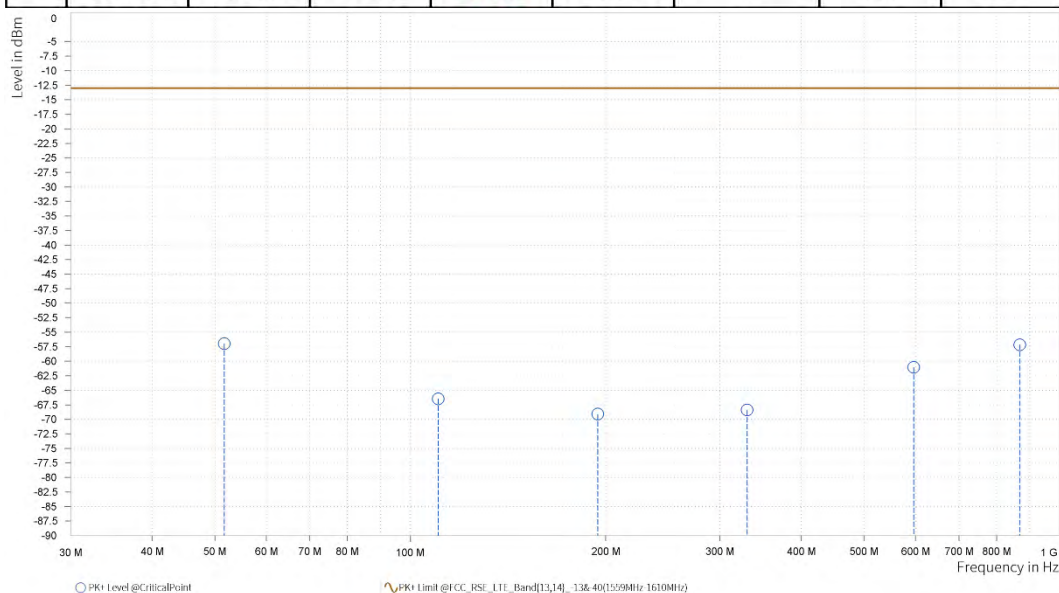
BELOW 1GHz WORST-CASE DATA





MODE	TX channel 20175	FREQUENCY RANGE	30MHz~1GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	51.680	-56.95	-13.00	43.95	10.72	V	359	2.00
1	110.365	-66.46	-13.00	53.46	6.34	V	314	2.00
1	194.367	-69.10	-13.00	56.10	5.51	V	1	1.00
1	330.264	-68.40	-13.00	55.40	8.80	V	359	2.00
1	596.383	-61.06	-13.00	48.06	14.09	V	163.4	2.00
1	868.468	-57.16	-13.00	44.16	18.91	V	355	2.00





ABOVE 1GHz

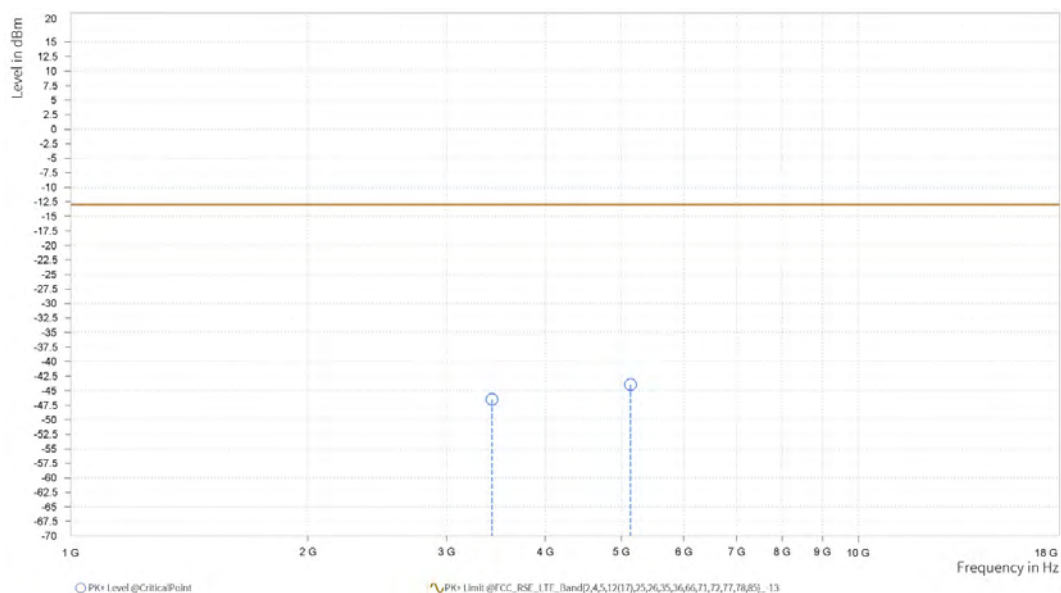
Note: For higher frequency, the emission is too low to be detected.

WCDMA Band IV_ANT 1

MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

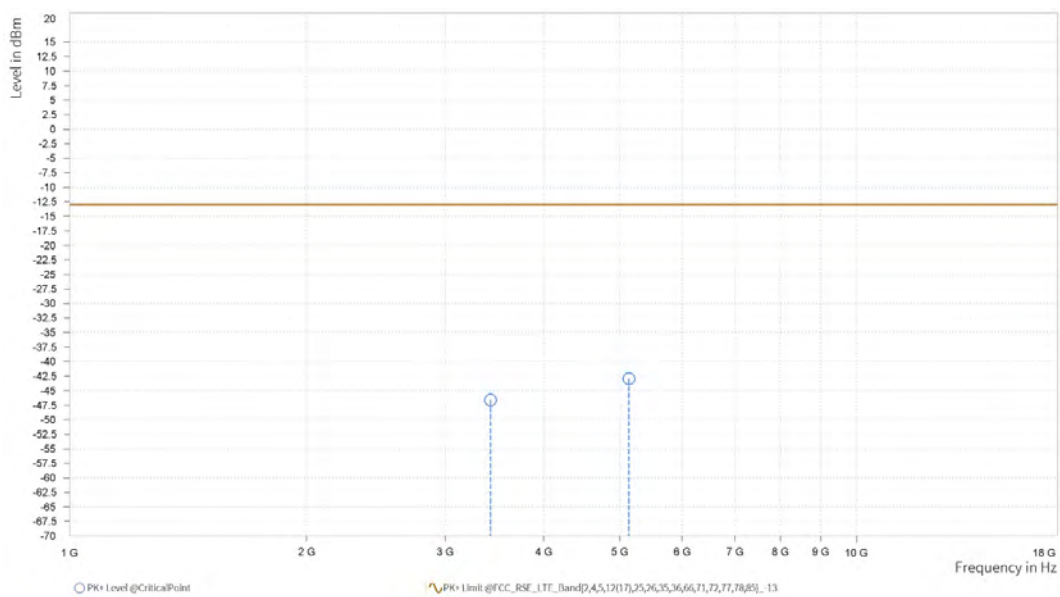
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-46.53	-13.00	33.53	27.41	H	1	1.00
4	5,137.200	-43.94	-13.00	30.94	31.19	H	0.9	2.00





MODE	TX channel 1312	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

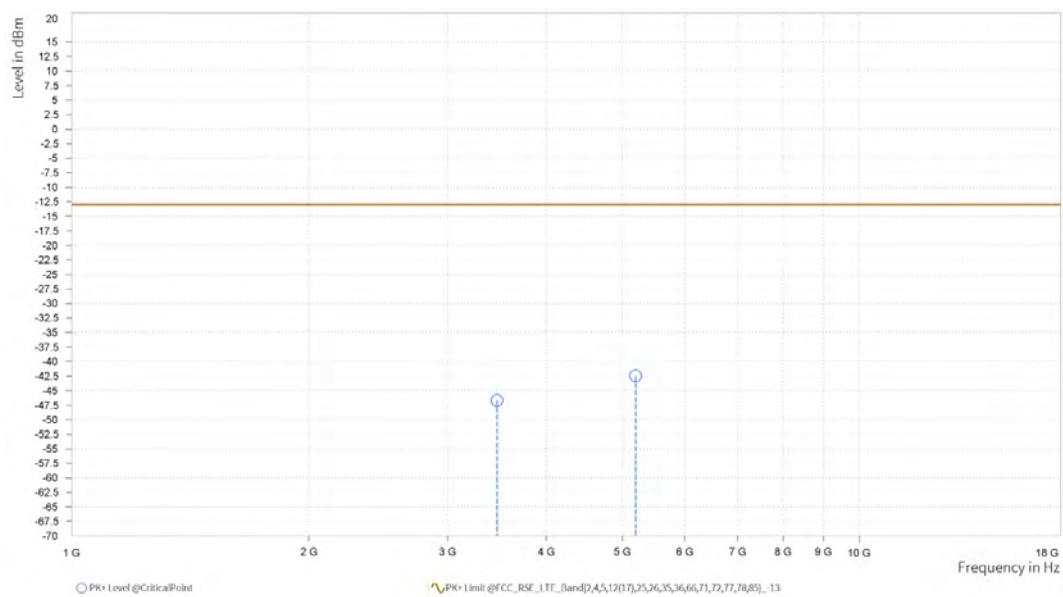
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,424.800	-46.61	-13.00	33.61	27.19	V	0.9	2.00
4	5,137.200	-42.95	-13.00	29.95	31.06	V	359	1.00





MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

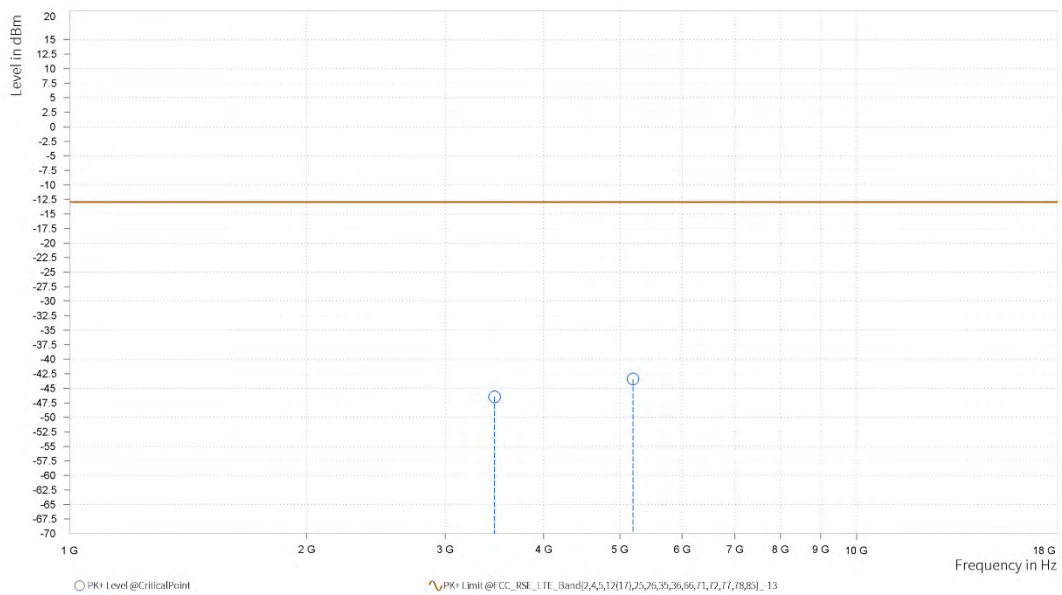
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-46.65	-13.00	33.65	26.80	H	126.2	2.00
4	5,197.800	-42.46	-13.00	29.46	32.06	H	359	2.00





MODE	TX channel 1413	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

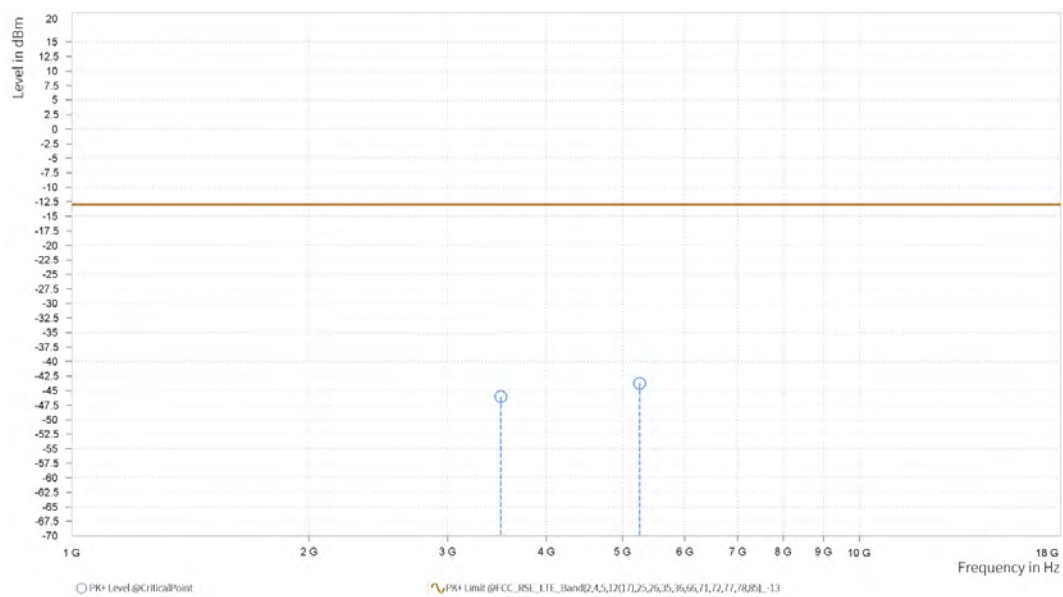
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,465.200	-46.46	-13.00	33.46	26.52	V	0.9	2.00
4	5,197.800	-43.41	-13.00	30.41	32.02	V	0.9	2.00





MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

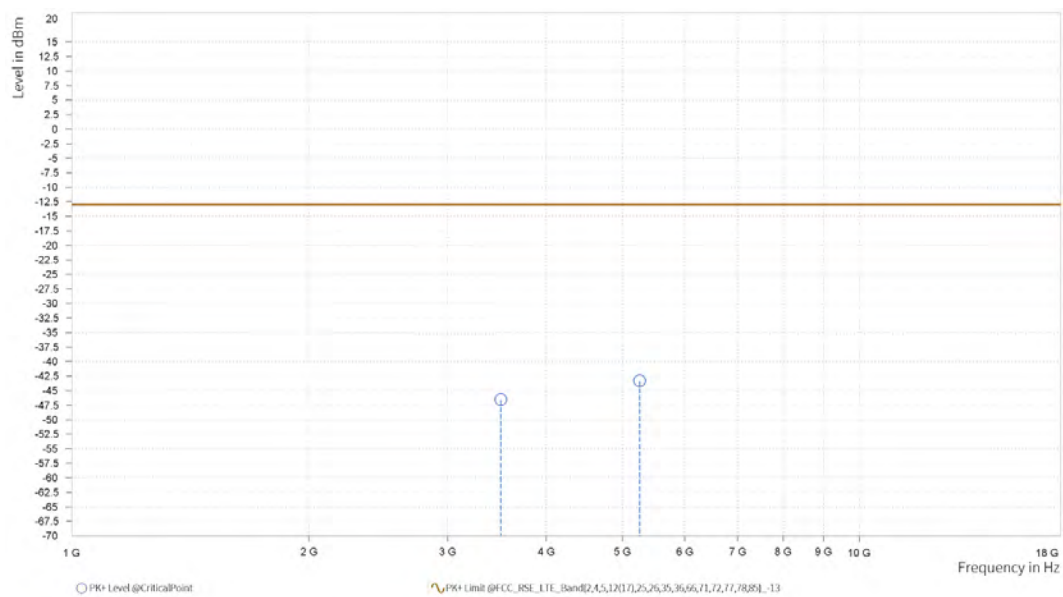
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-46.02	-13.00	33.02	27.01	H	1	1.00
4	5,257.800	-43.75	-13.00	30.75	31.85	H	1	1.00

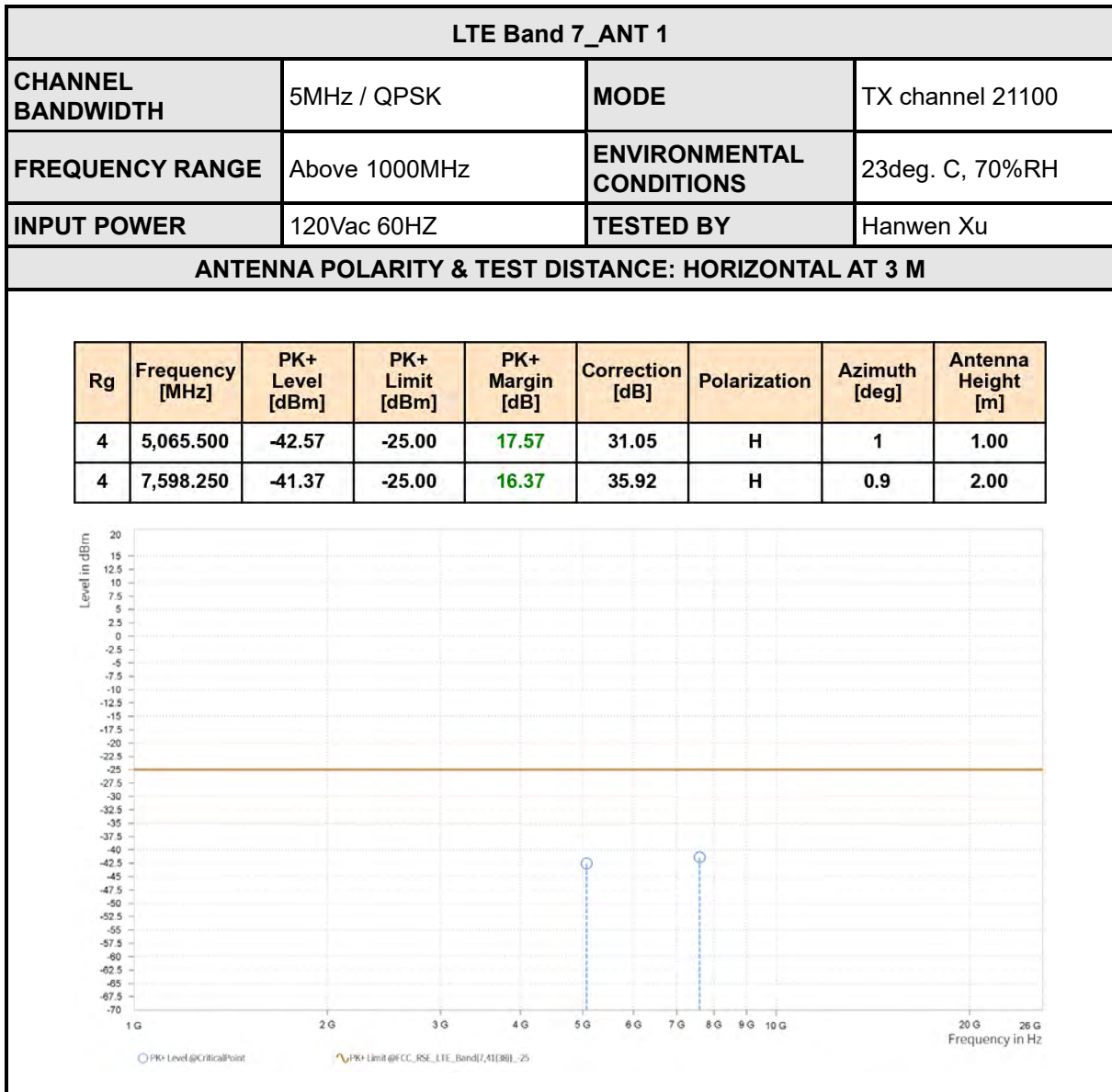




MODE	TX channel 1513	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,505.200	-46.53	-13.00	33.53	26.83	V	247	1.00
4	5,257.800	-43.32	-13.00	30.32	31.79	V	247	1.00



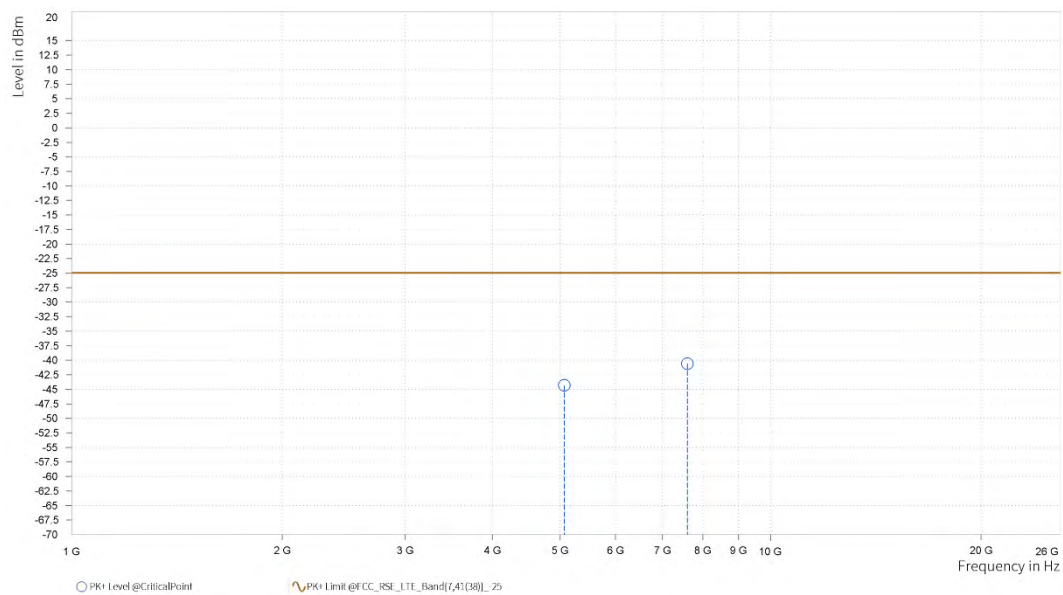




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,065.500	-44.31	-25.00	19.31	30.82	V	0.9	2.00
4	7,598.250	-40.57	-25.00	15.57	35.94	V	0.9	2.00



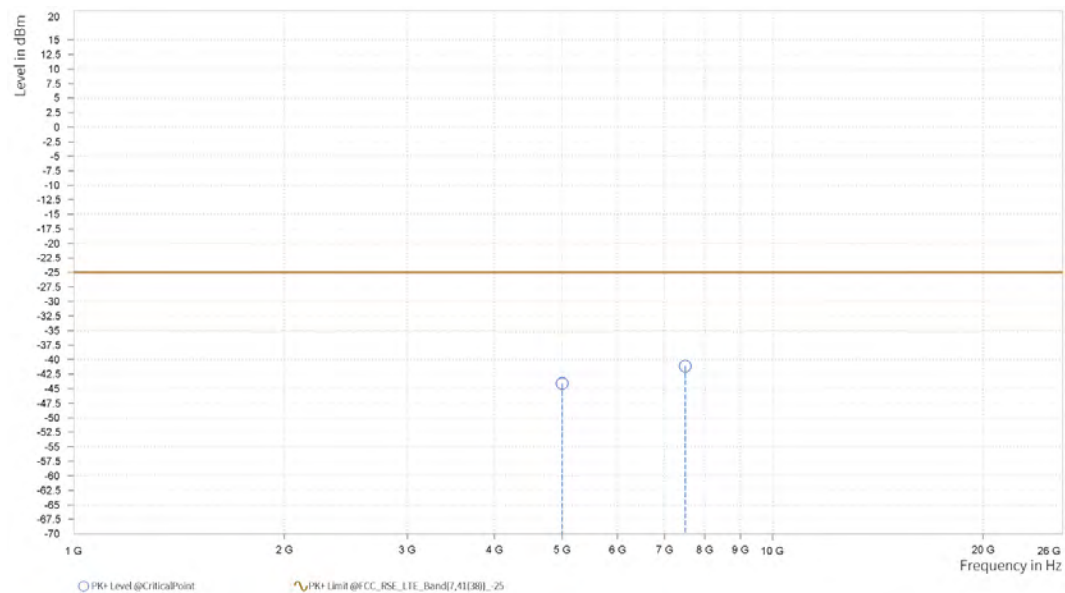


CH20800

CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 20800
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,001.000	-44.11	-25.00	19.11	29.99	H	0.9	2.00
4	7,501.500	-41.13	-25.00	16.13	35.66	H	101.2	2.00

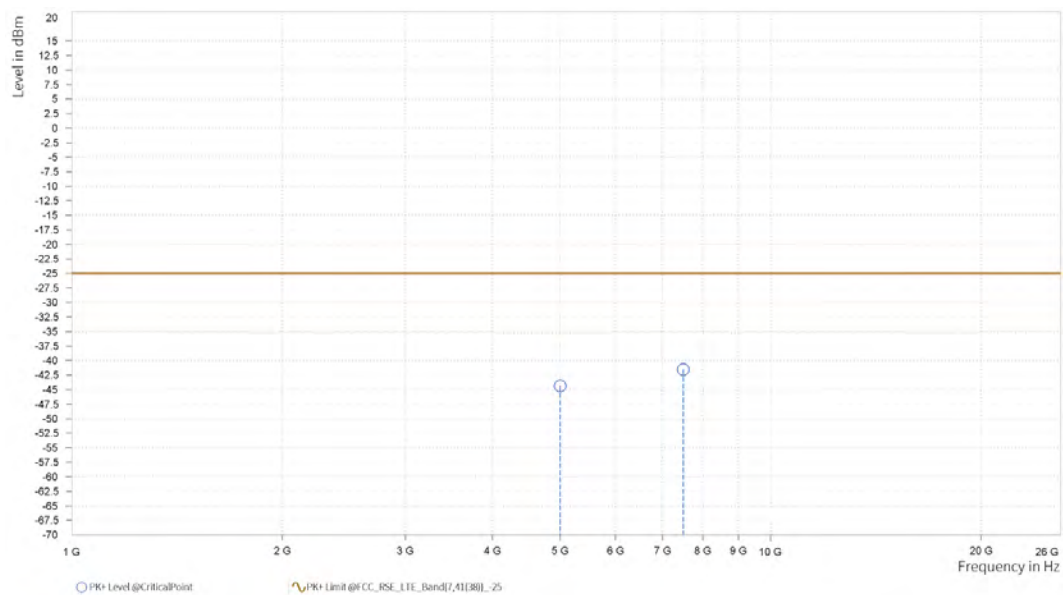




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 20800
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,001.000	-44.37	-25.00	19.37	29.84	V	359	2.00
4	7,501.500	-41.53	-25.00	16.53	35.83	V	1	2.00

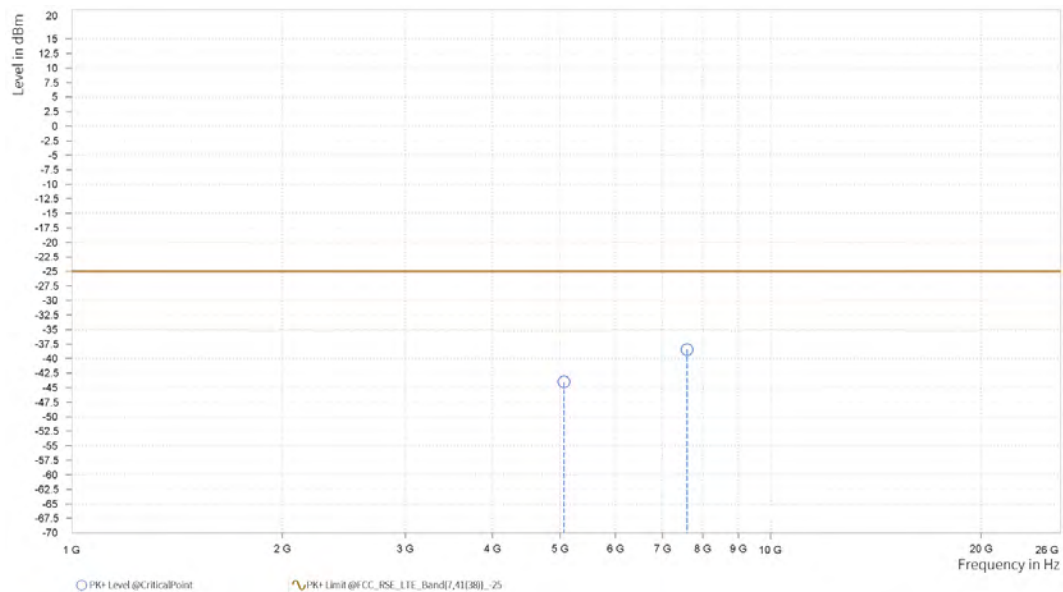




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,061.000	-44.02	-25.00	19.02	31.50	H	0.9	2.00
4	7,591.500	-38.47	-25.00	13.47	36.45	H	359	2.00

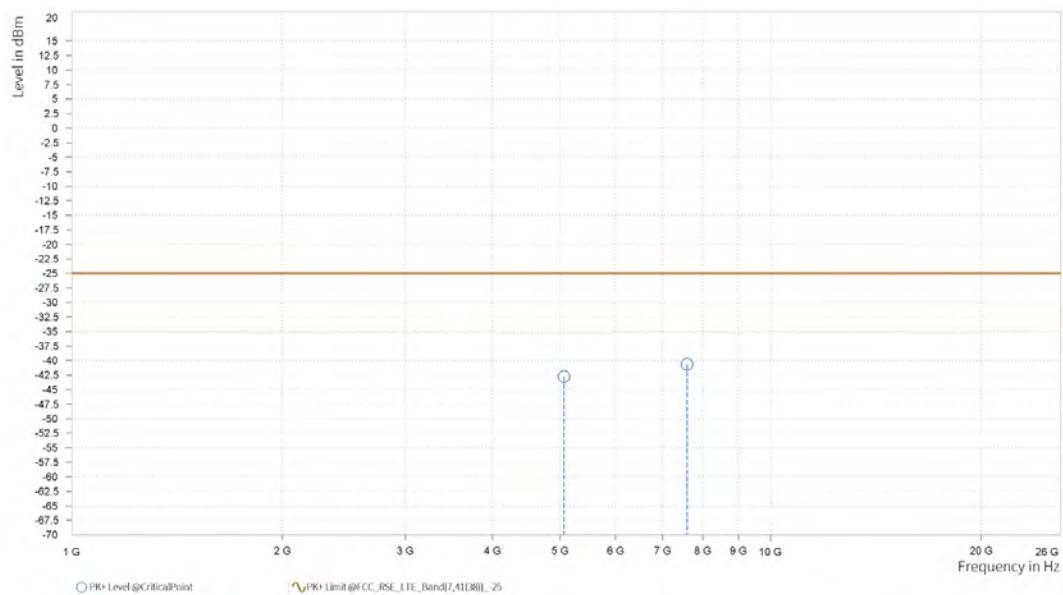




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,061.000	-42.74	-25.00	17.74	31.27	V	359	2.00
4	7,591.500	-40.62	-25.00	15.62	36.48	V	100	2.00

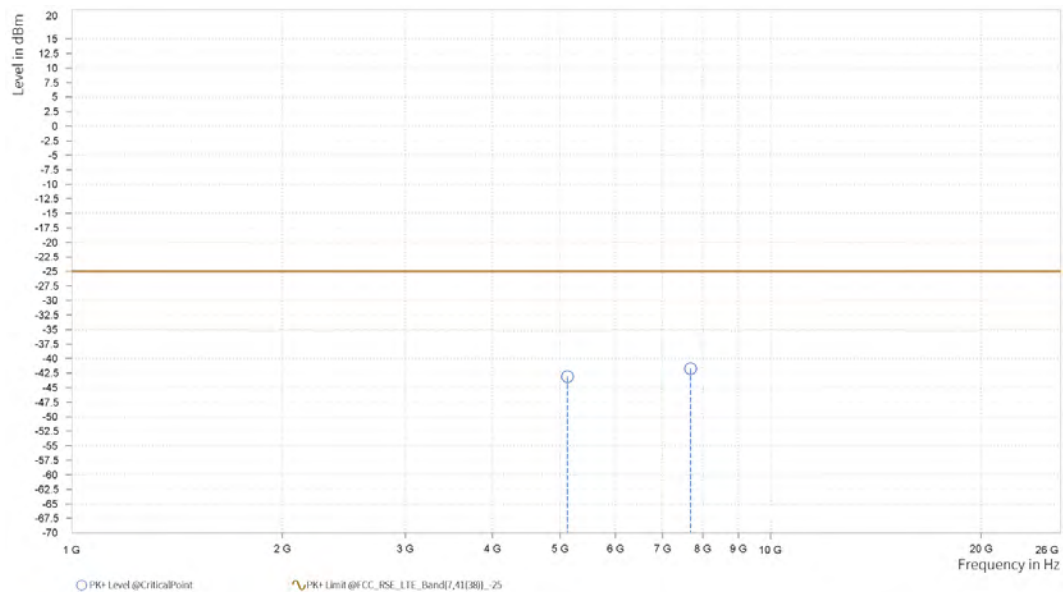




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 21400
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,121.000	-43.12	-25.00	18.12	31.30	H	1	1.00
4	7,681.500	-41.76	-25.00	16.76	35.84	H	359	2.00

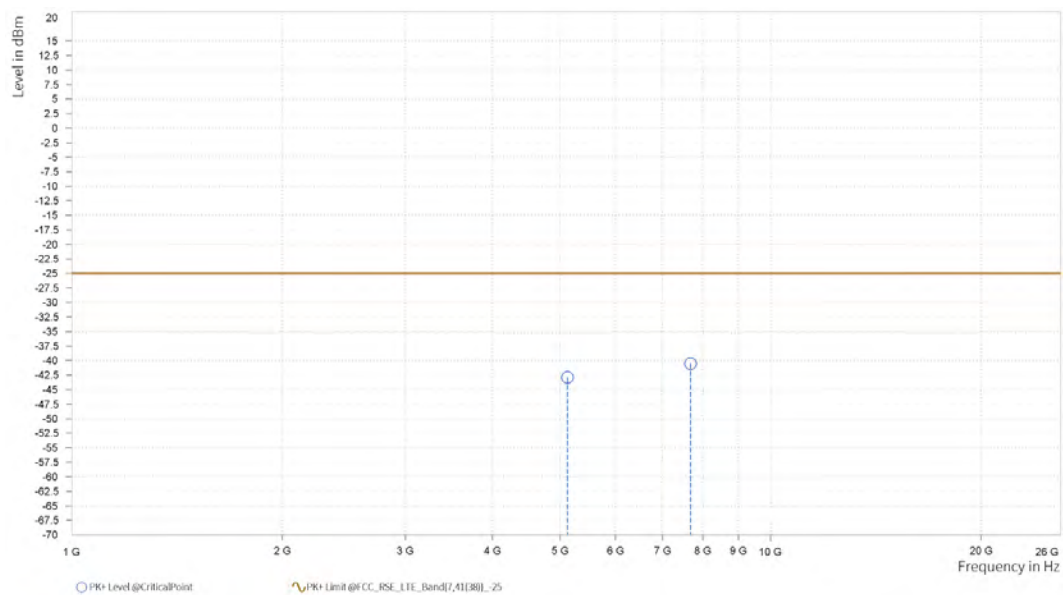




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 21400
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,121.000	-42.92	-25.00	17.92	31.15	V	71.2	2.00
4	7,681.500	-40.52	-25.00	15.52	35.80	V	71.2	2.00

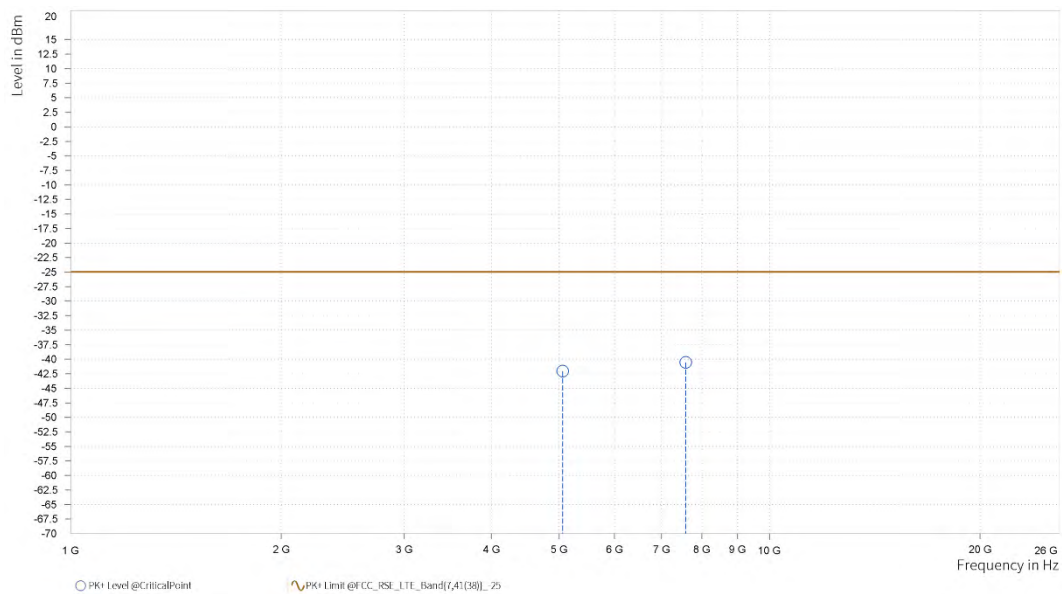




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,056.500	-42.07	-25.00	17.07	31.91	H	101.2	2.00
4	7,584.750	-40.55	-25.00	15.55	36.76	H	101.2	2.00

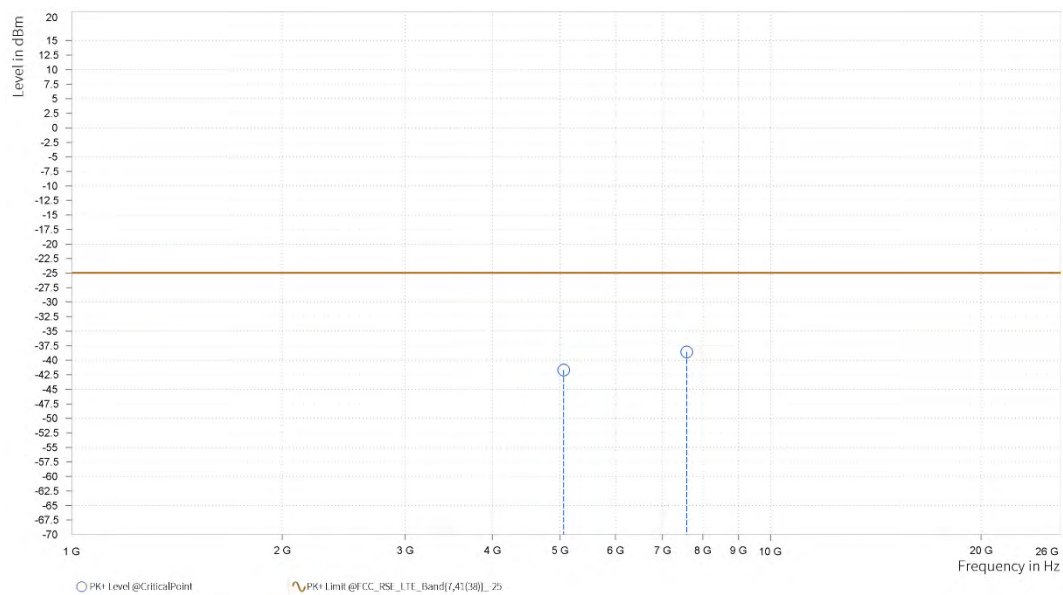




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,056.500	-41.68	-25.00	16.68	31.69	V	359.1	1.00
4	7,584.750	-38.56	-25.00	13.56	36.80	V	0.9	2.00

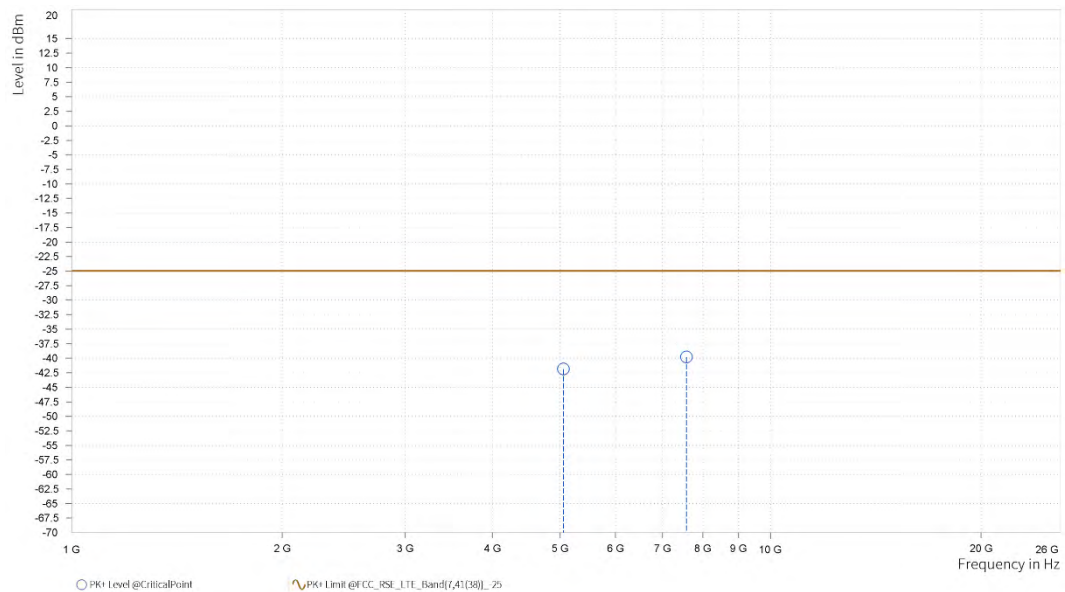




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,052.000	-41.84	-25.00	16.84	32.31	H	1	1.00
4	7,578.000	-39.79	-25.00	14.79	36.69	H	30.6	2.00

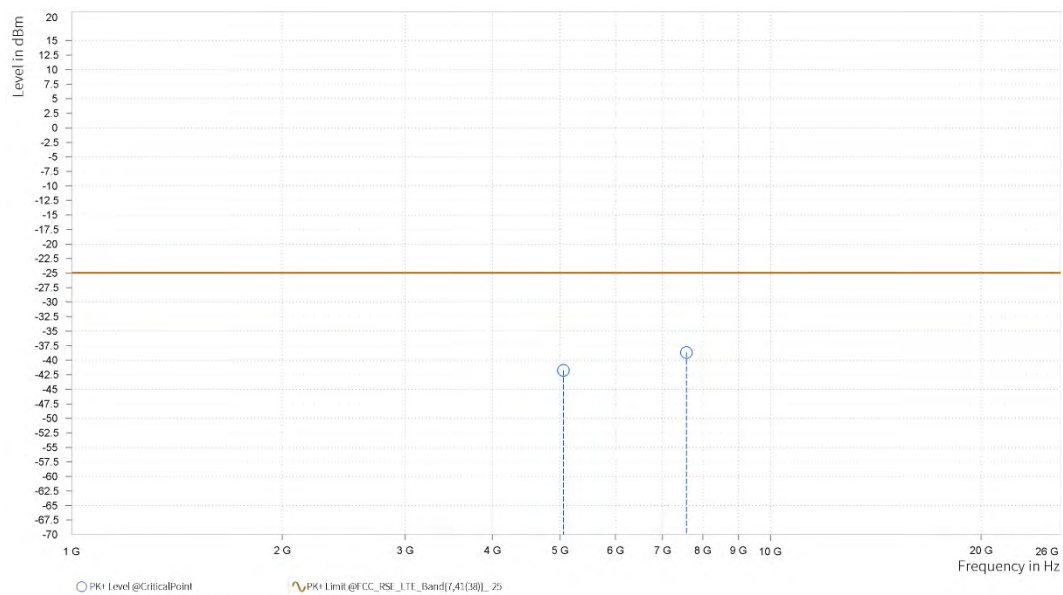




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 21100
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	5,052.000	-41.74	-25.00	16.74	32.10	V	359	2.00
4	7,578.000	-38.66	-25.00	13.66	36.74	V	0.9	2.00





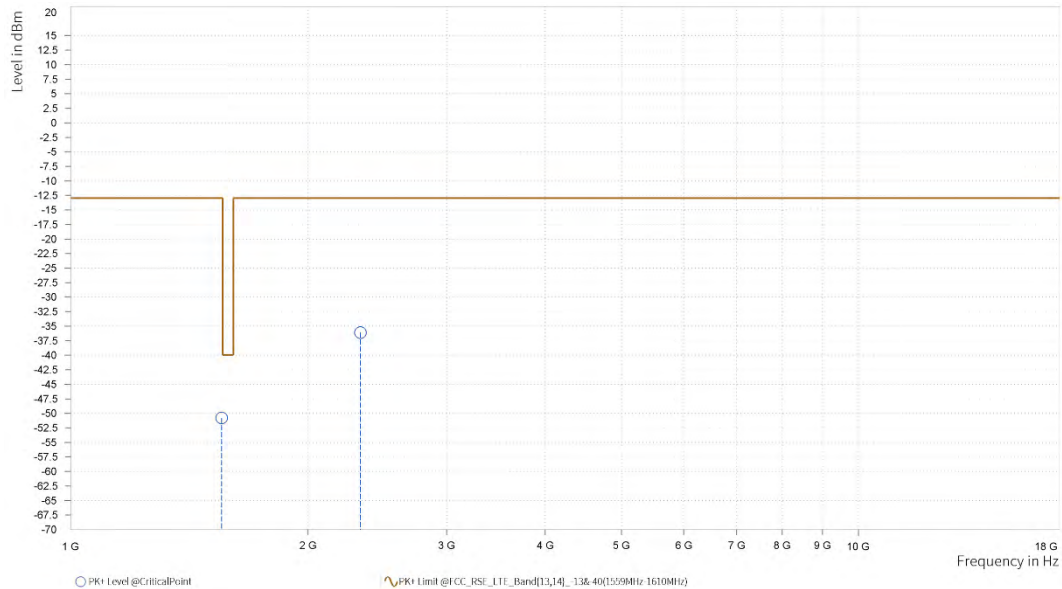
LTE B13_ANT 4

CH23205

CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23205
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,554.500	-50.80	-13.00	37.80	17.16	H	1	1.00
3	2,331.750	-36.10	-13.00	23.10	24.27	H	1	2.00

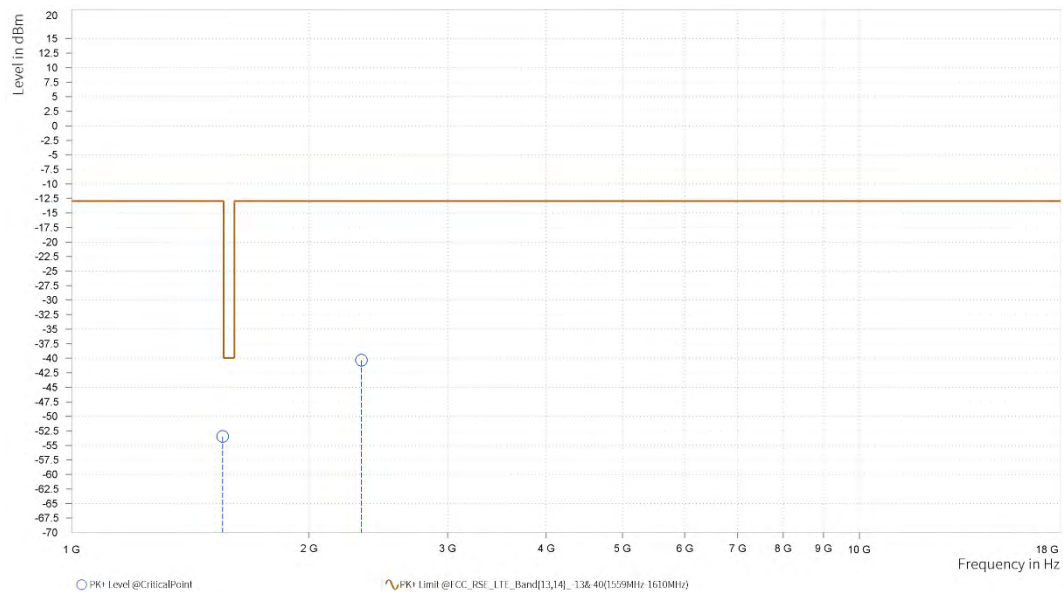




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23205
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,554.500	-53.48	-13.00	40.48	16.78	V	1	1.00
3	2,331.750	-40.35	-13.00	27.35	23.78	V	217	2.00



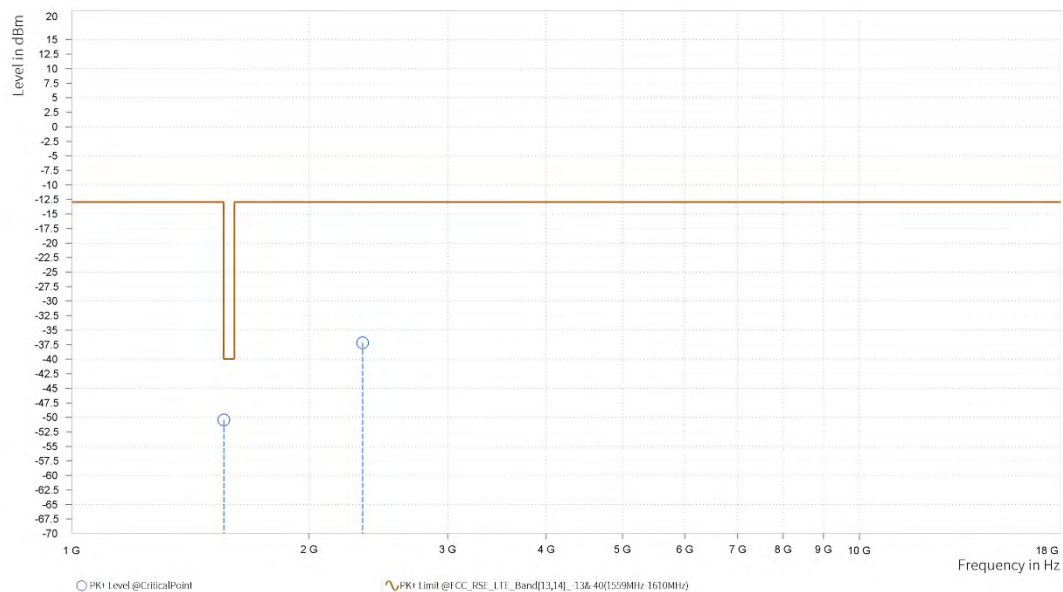


CH23230

CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23230
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,559.500	-50.46	-40.00	10.46	17.19	H	358.2	1.00
3	2,339.250	-37.15	-13.00	24.15	24.42	H	227.9	2.00

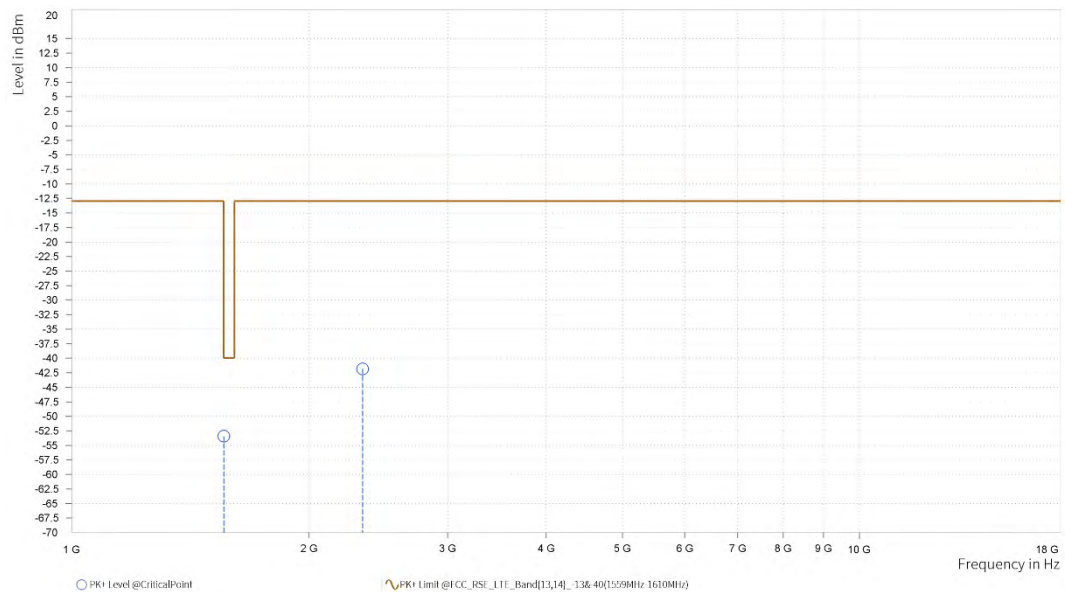




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23230
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,559.500	-53.42	-40.00	13.42	16.86	V	1	1.00
3	2,339.250	-41.84	-13.00	28.84	23.97	V	1	1.00



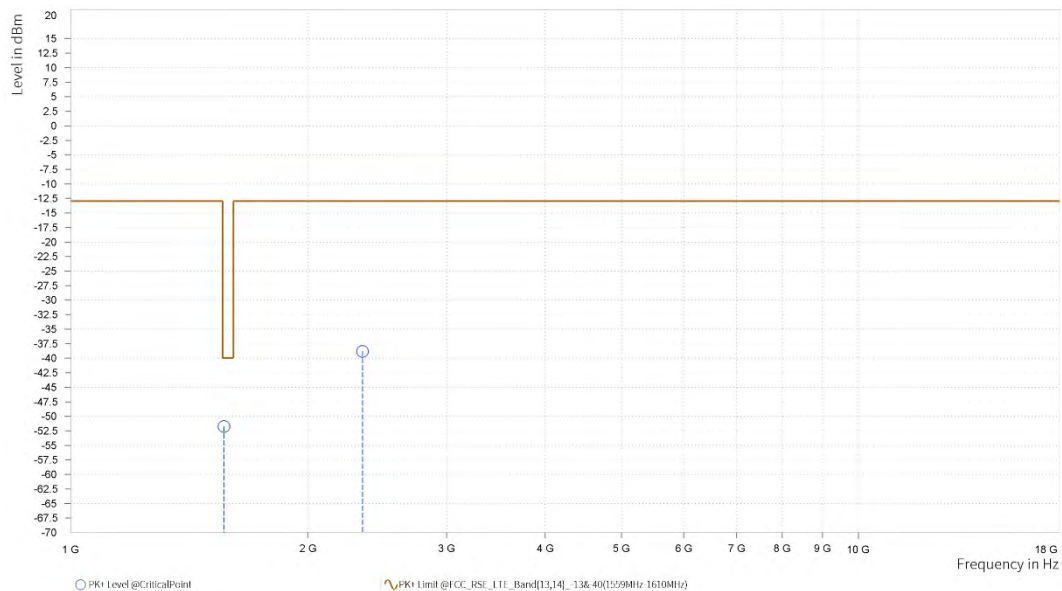


CH23255

CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23255
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,564.500	-51.73	-40.00	11.73	17.15	H	359	2.00
3	2,346.750	-38.82	-13.00	25.82	24.45	H	220.7	2.00

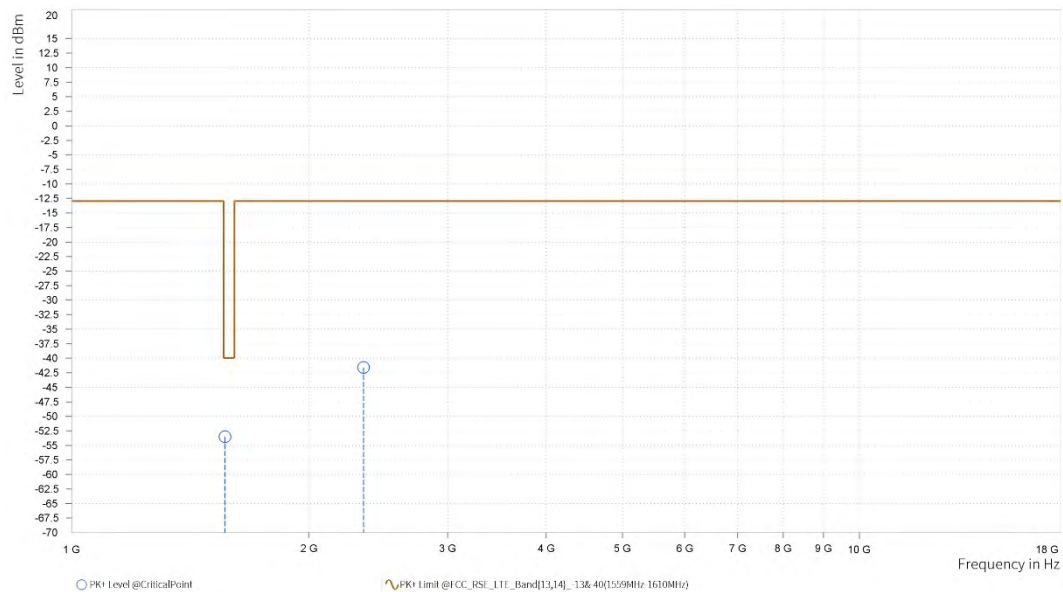




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 23255
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,564.500	-53.51	-40.00	13.51	16.86	V	359	2.00
3	2,346.750	-41.59	-13.00	28.59	24.05	V	1	1.00

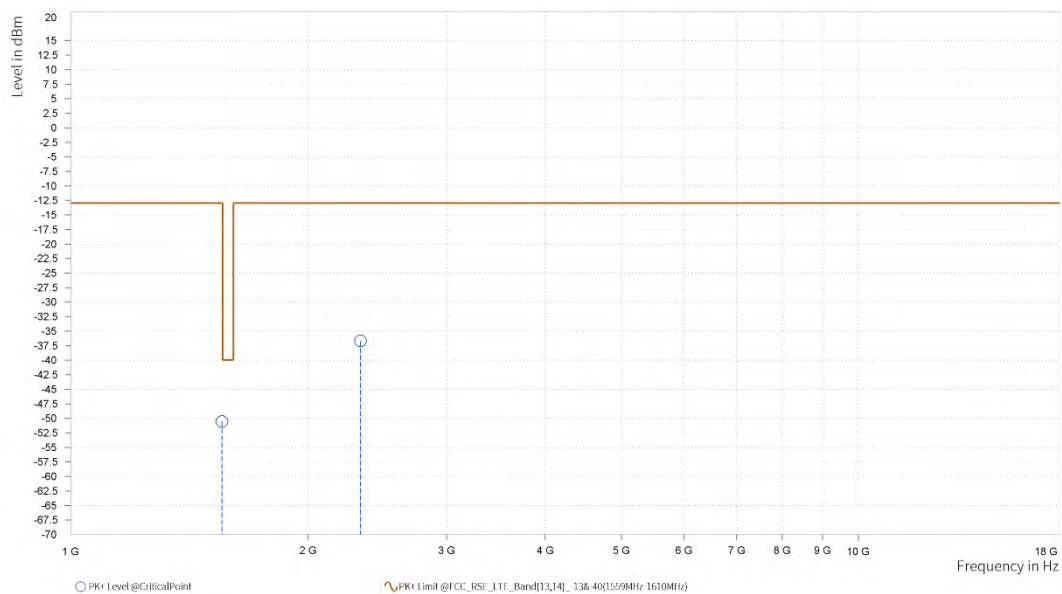




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 23230
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,555.000	-50.54	-13.00	37.54	17.16	H	122.6	1.00
3	2,332.500	-36.68	-13.00	23.68	24.28	H	0.9	2.00

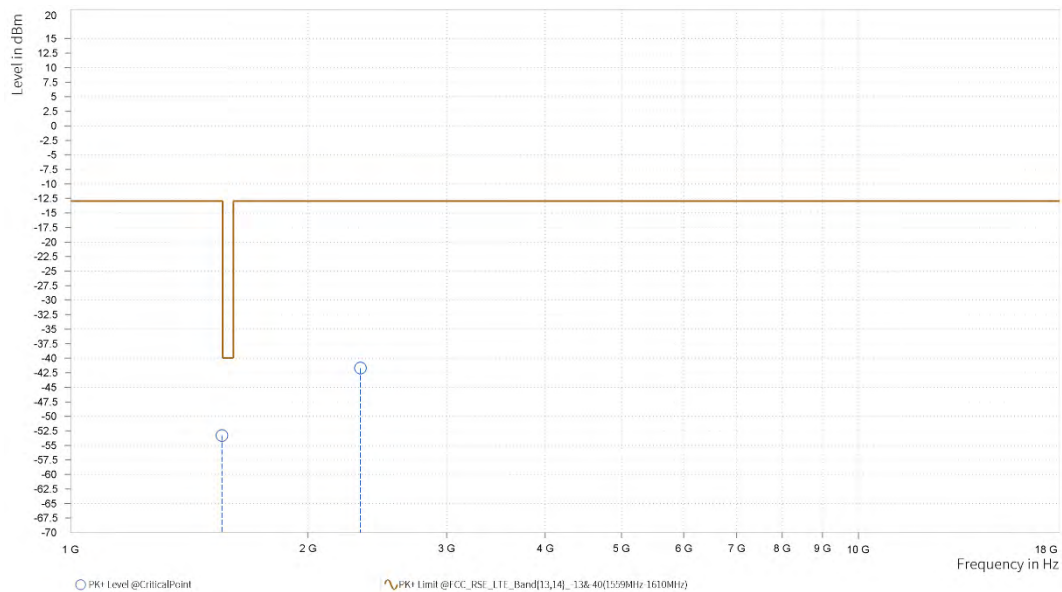




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 23230
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,555.000	-53.29	-13.00	40.29	16.80	V	1	2.00
3	2,332.500	-41.70	-13.00	28.70	23.80	V	1	1.00

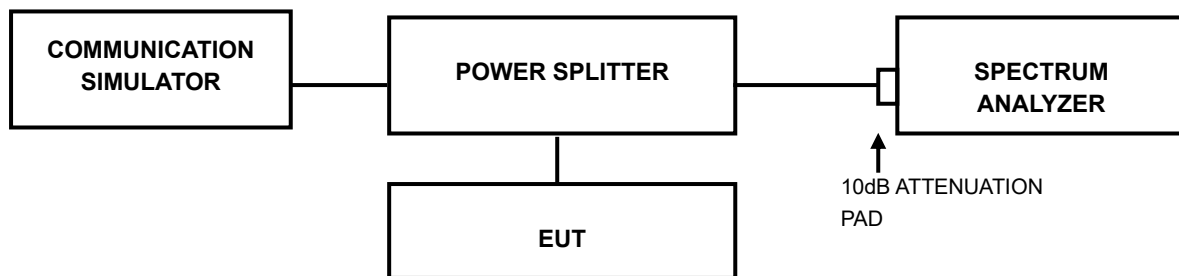


3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

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

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

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

3.7.4 TEST RESULTS

Please Refer to Appendix of this test report.

4 INFORMATION ON THE TESTING LABORATORIES

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

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

Lab Address:

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

Accredited Test Lab Cert 6613.01

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

Suzhou EMC/RF Lab:

Tel: +86 (0557) 368 1008

5 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

6 Appendix

WCDMA B4

PEAK-TO-AVERAGE RATIO

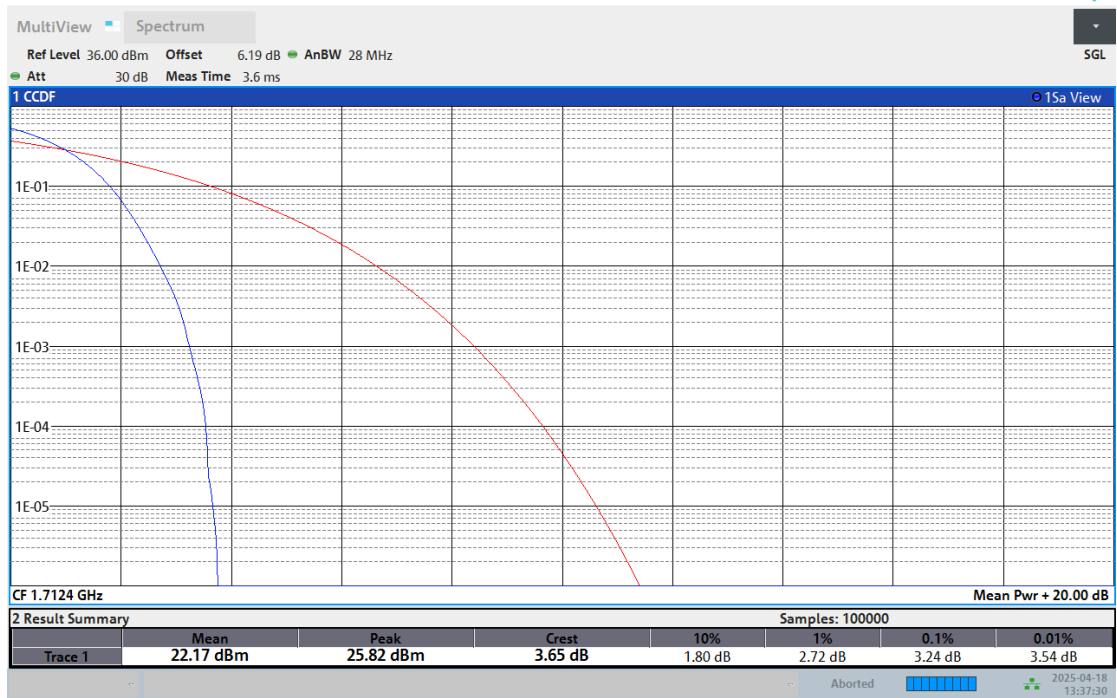
Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band4	1312	3.24	13	PASS
Band4	1413	3.20	13	PASS
Band4	1513	3.20	13	PASS

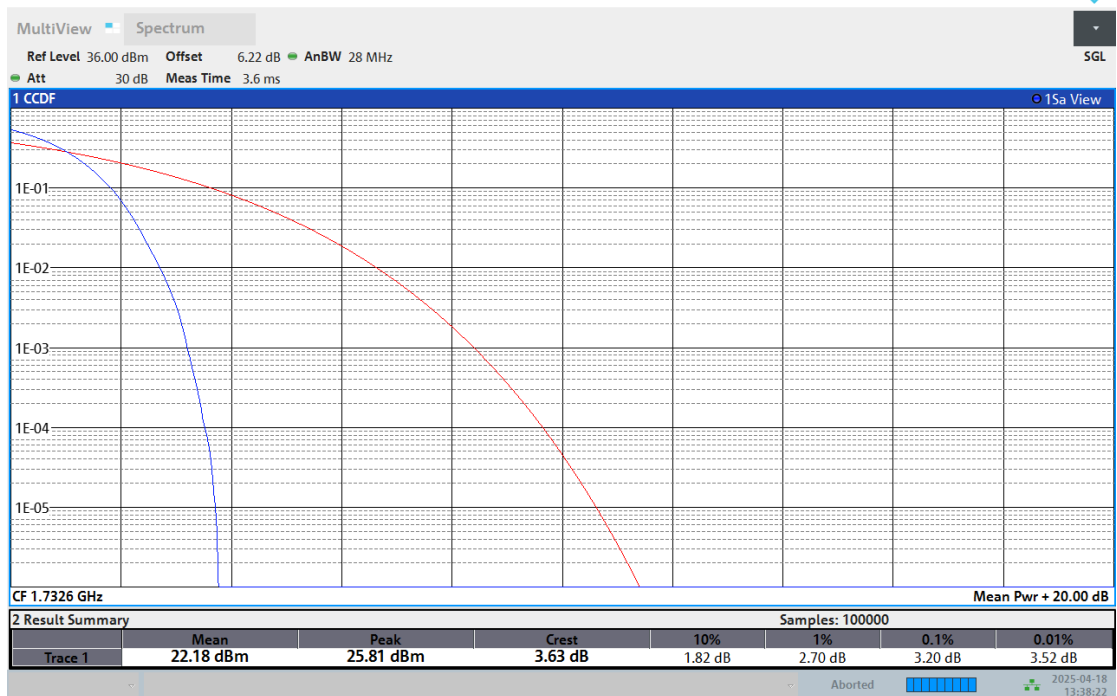


Test Graphs

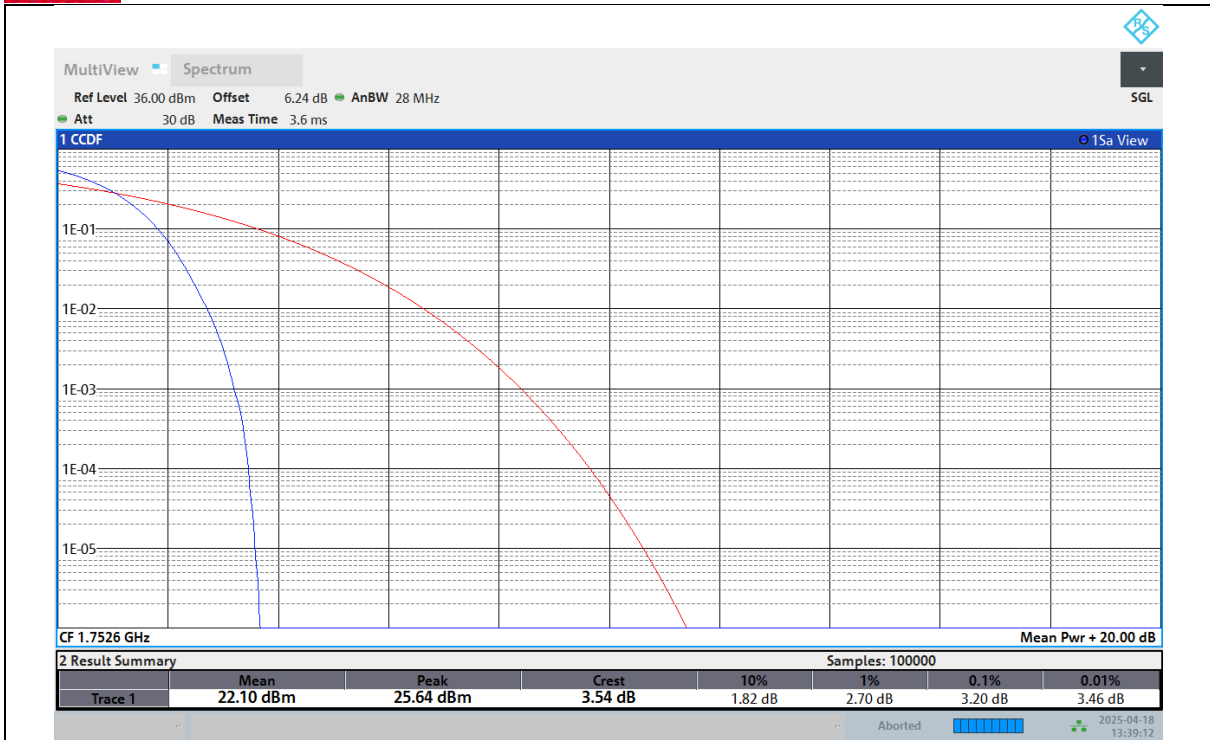
Band4-1312



Band4-1413



Band4-1513



26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

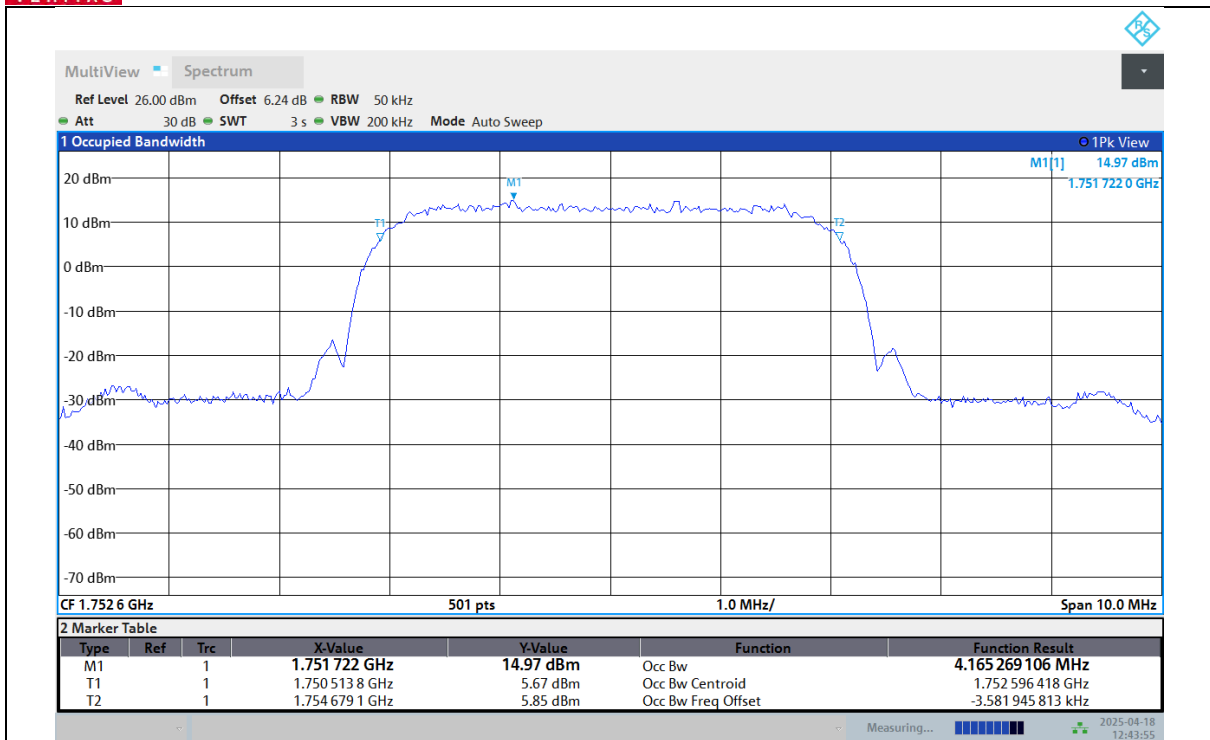
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band4	1312	4.160	4.66	PASS
Band4	1413	4.161	4.67	PASS
Band4	1513	4.165	4.67	PASS



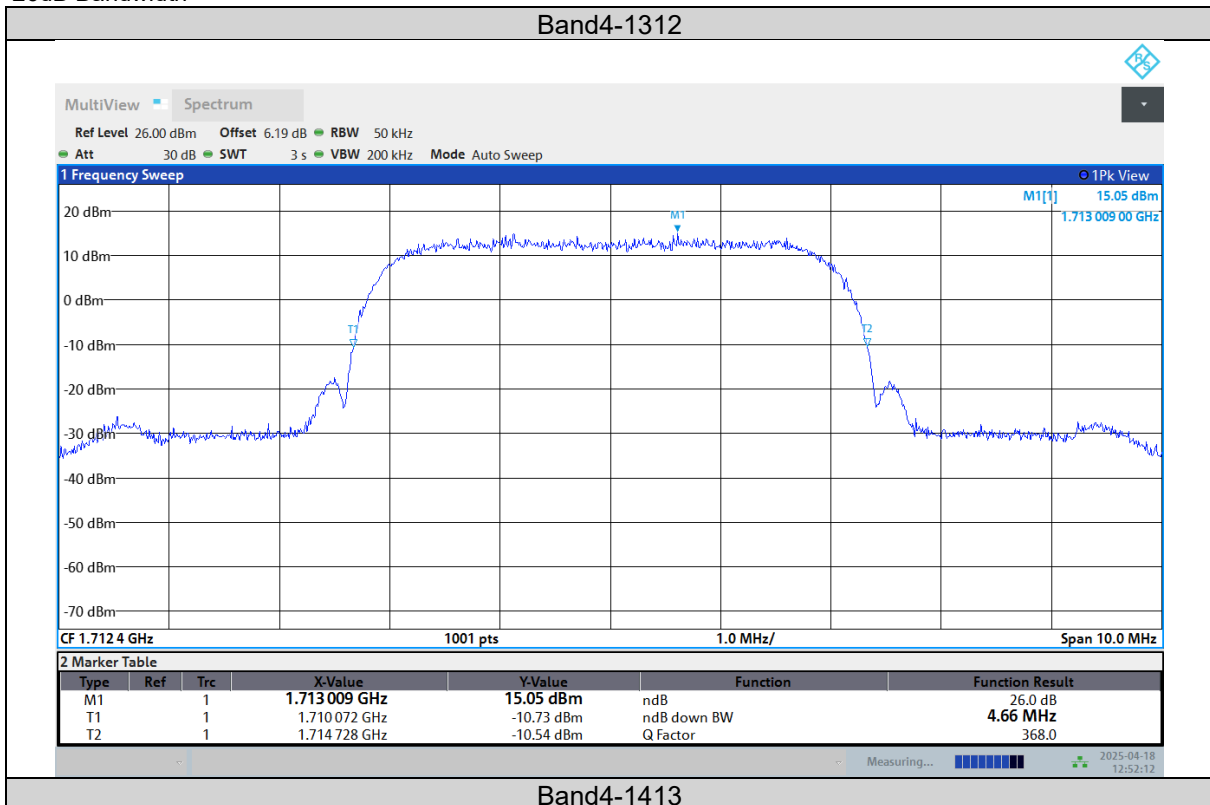
Test Graphs

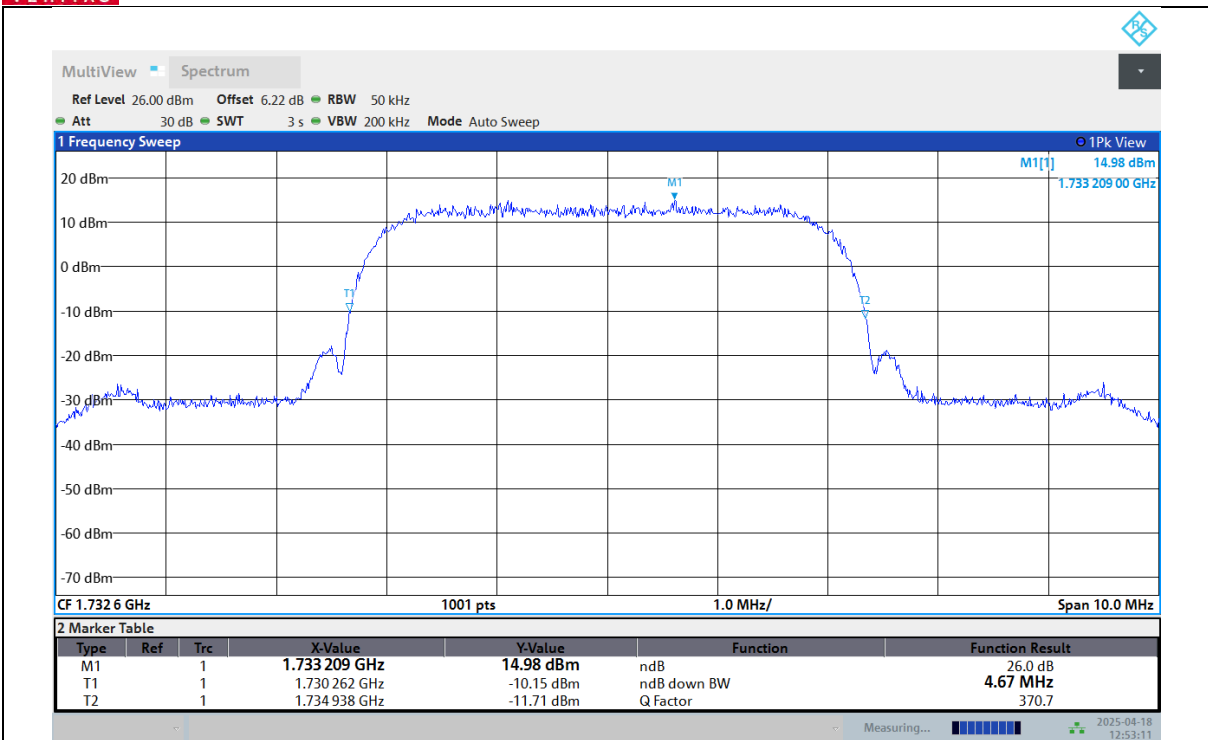
Occupied Bandwidth



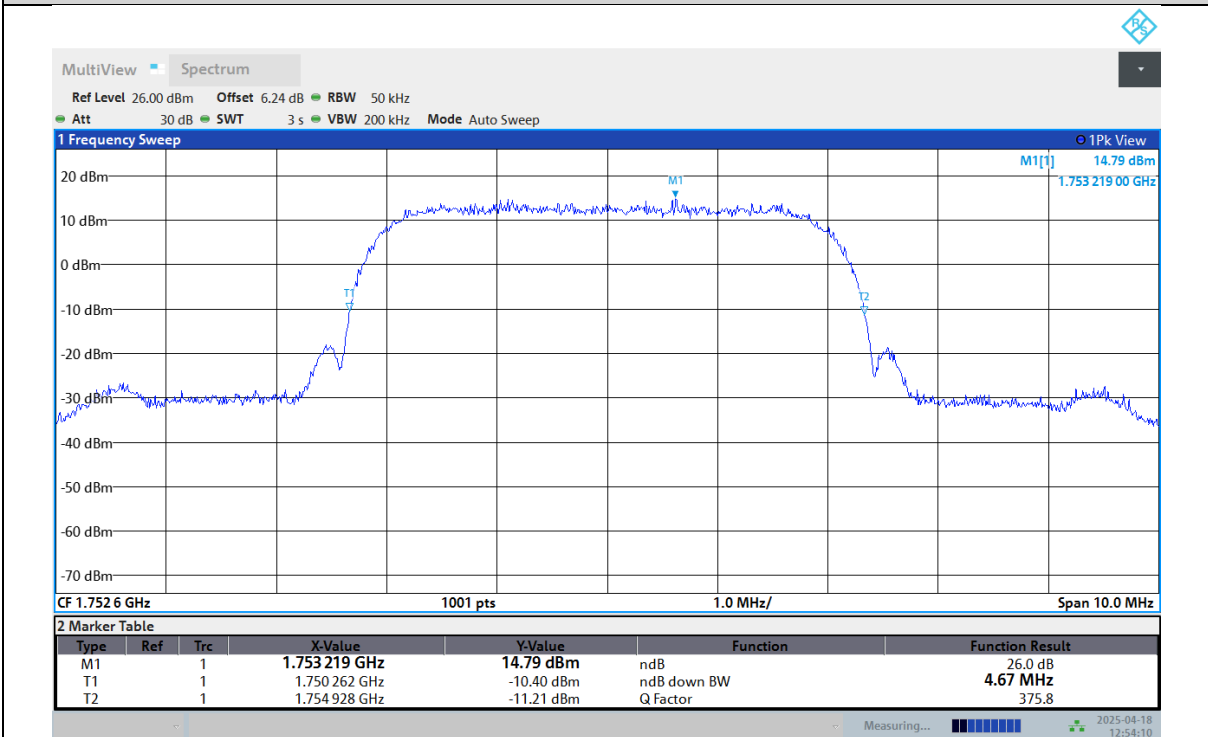


26dB Bandwidth





Band4-1513



BAND EDGE

Test Result

Band	Channel	Result (dBm)	Limit(dBm)	Verdict
Band4	1312	See Graph	-13	PASS
Band4	1513	See Graph	-13	PASS



Test Graphs





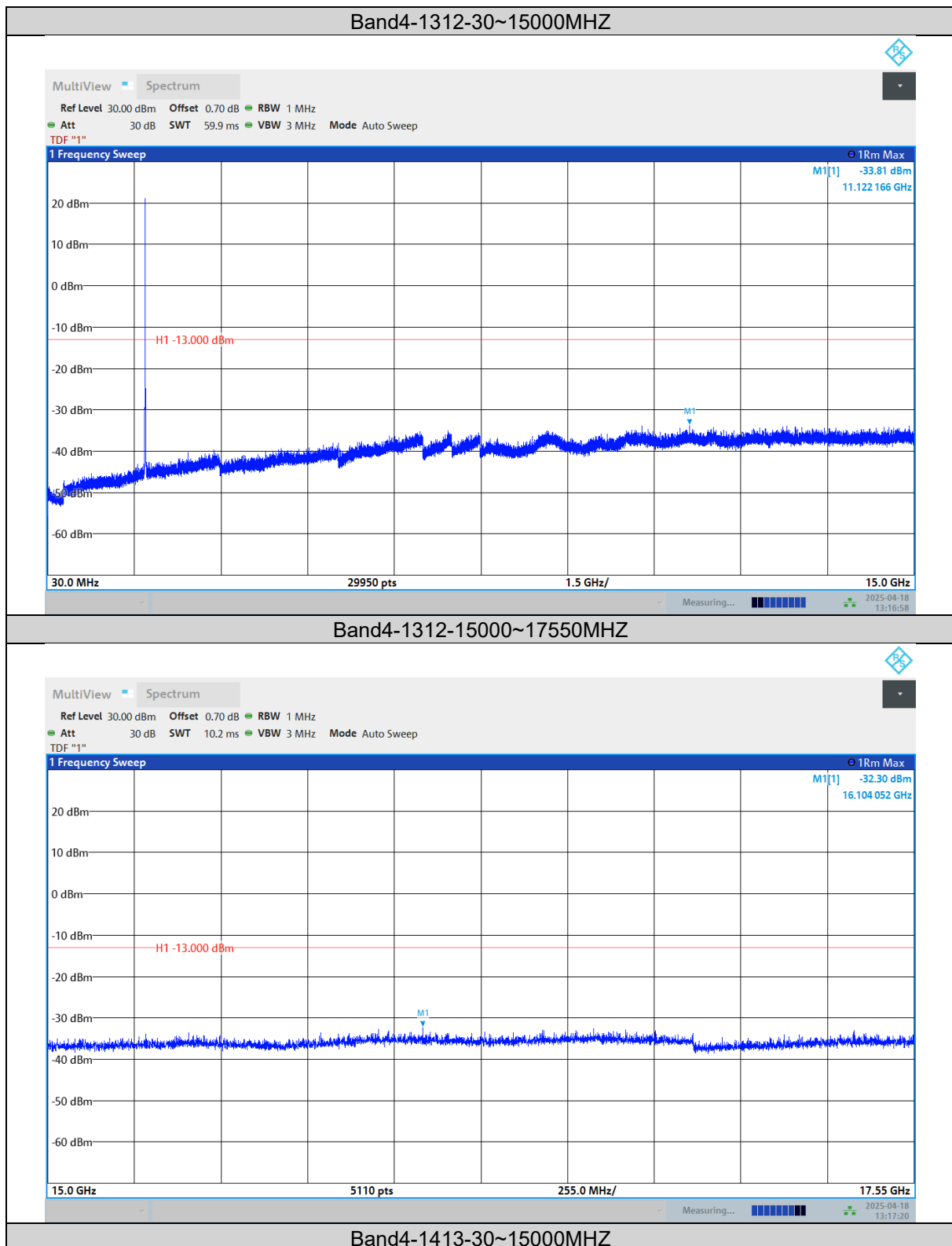
CONDUCTED SPURIOUS EMISSION

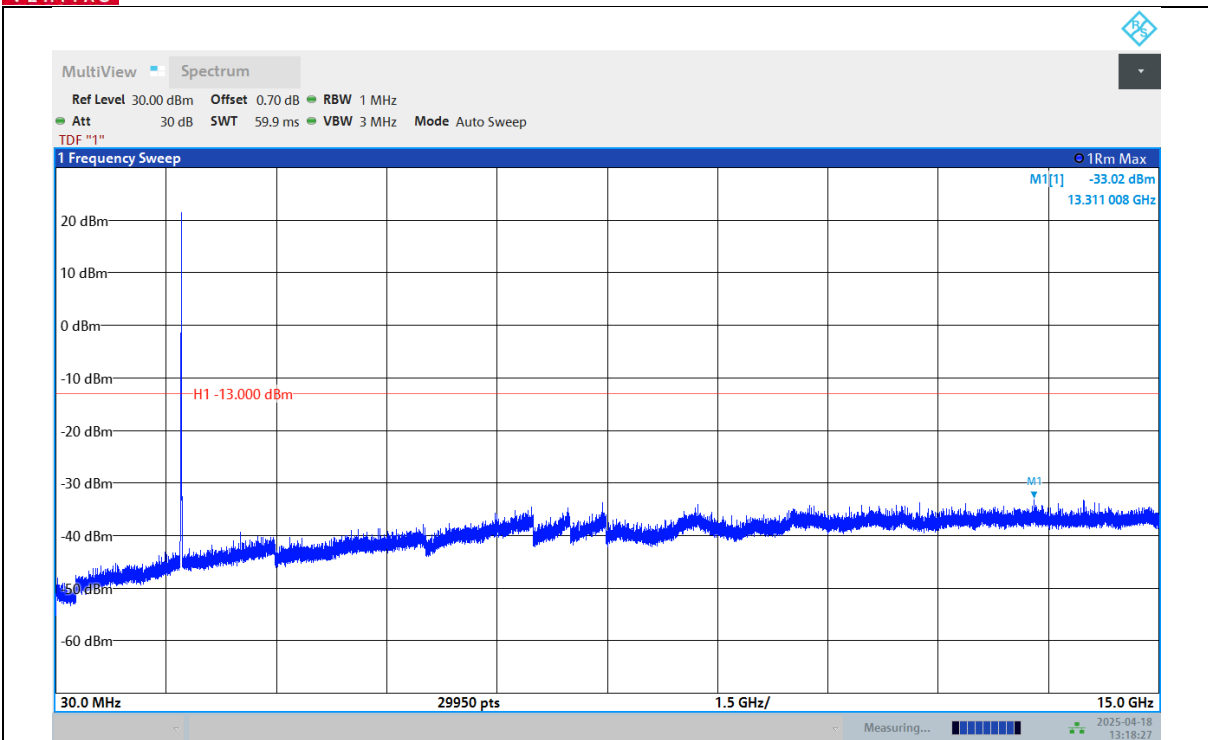
Test Result

Band	Channel	Frequency Range (Mhz)	Result (dBm)	Limit (dBm)	Verdict
Band4	1312	30~15000MHZ	See Graph	-13	PASS
Band4	1312	15000~17550MHZ	See Graph	-13	PASS
Band4	1413	30~15000MHZ	See Graph	-13	PASS
Band4	1312	15000~17550MHZ	See Graph	-13	PASS
Band4	1513	30~15000MHZ	See Graph	-13	PASS
Band4	1312	15000~17550MHZ	See Graph	-13	PASS

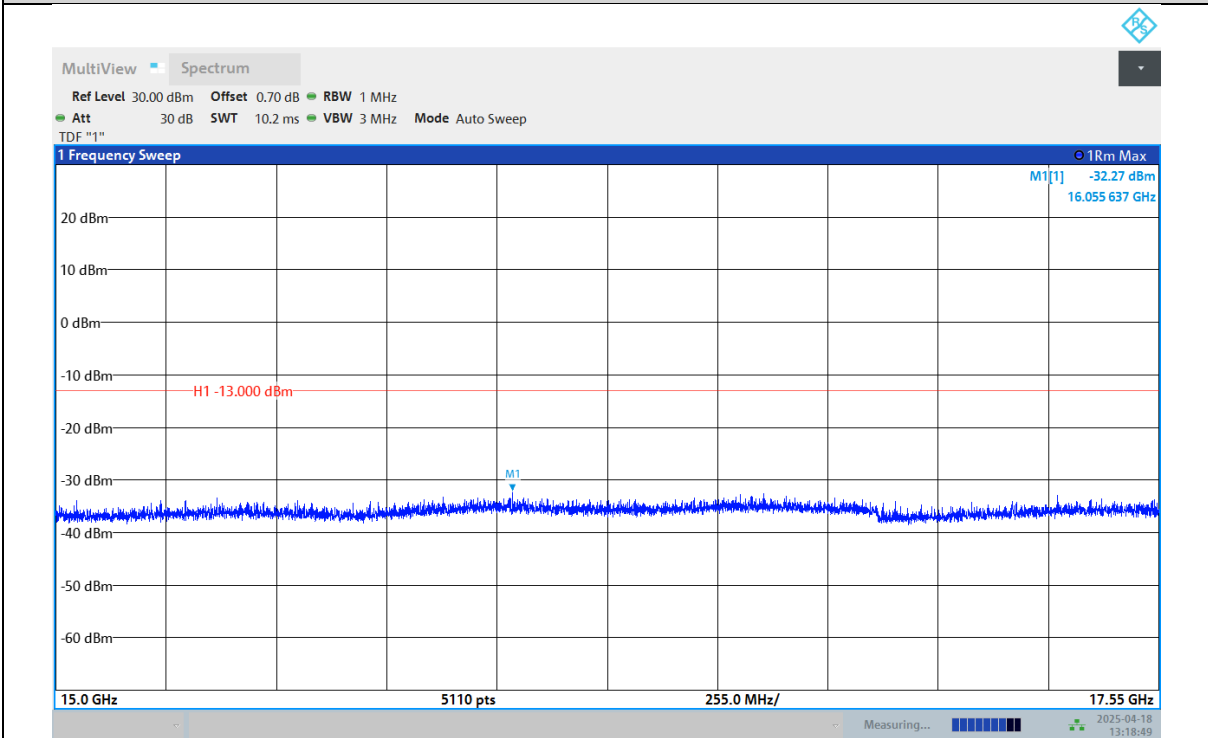


Test Graphs

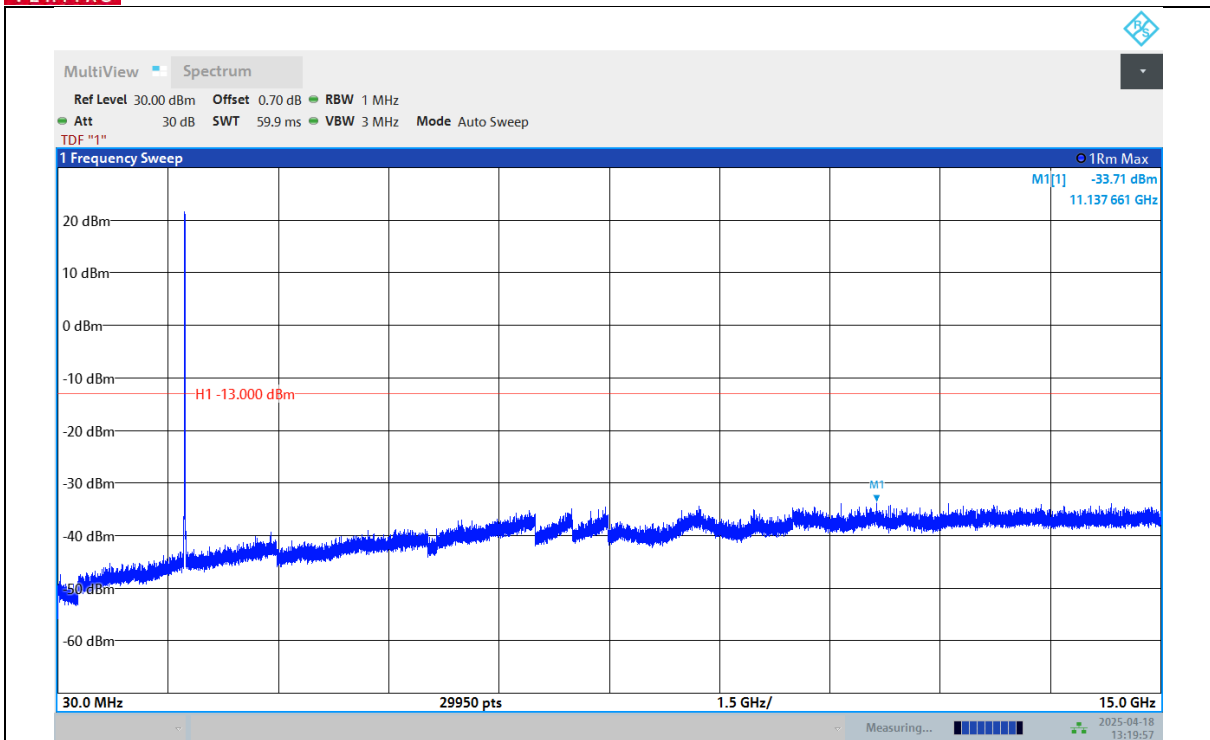




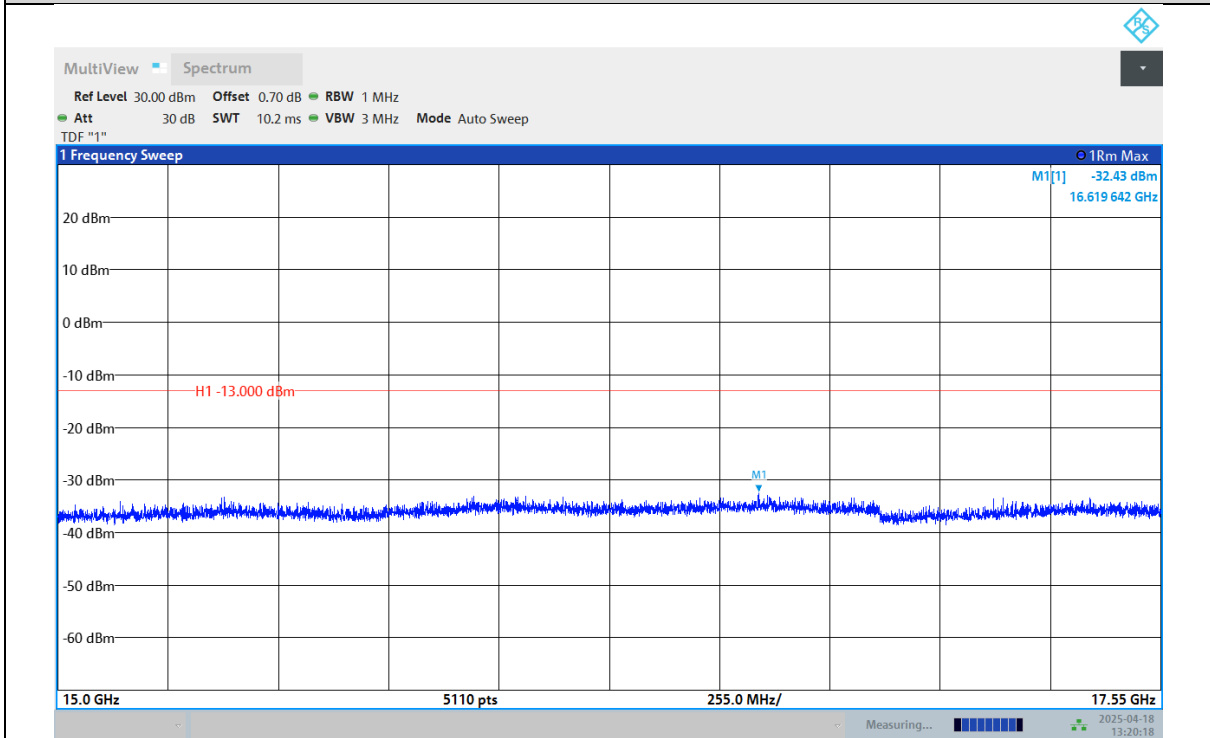
Band4-1413-15000~17550MHZ



Band4-1513-30~15000MHZ



Band4-1513-15000~17550MHZ



FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band4	1312	VL	NT	-40.98	-0.0239	±2.5	PASS
Band4	1312	VN	NT	-20.89	-0.0122	±2.5	PASS
Band4	1312	VH	NT	-5.57	-0.0033	±2.5	PASS
Band4	1413	VL	NT	-24.54	-0.0140	±2.5	PASS
Band4	1413	VN	NT	-1.70	-0.0010	±2.5	PASS
Band4	1413	VH	NT	-31.27	-0.0179	±2.5	PASS
Band4	1513	VL	NT	-6.02	-0.0034	±2.5	PASS
Band4	1513	VN	NT	-33.14	-0.0186	±2.5	PASS
Band4	1513	VH	NT	-45.95	-0.0258	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band4	1312	NV	-30	7.82	0.0046	±2.5	PASS
Band4	1312	NV	-20	-19.19	0.0009	±2.5	PASS
Band4	1312	NV	0	-7.48	-0.0044	±2.5	PASS
Band4	1312	NV	-10	2.08	0.0012	±2.5	PASS
Band4	1312	NV	10	-49.39	-0.0288	±2.5	PASS
Band4	1312	NV	20	-10.14	-0.0059	±2.5	PASS
Band4	1312	NV	30	-9.18	-0.0054	±2.5	PASS
Band4	1312	NV	40	-18.18	-0.0106	±2.5	PASS
Band4	1312	NV	50	-29.60	-0.0173	±2.5	PASS
Band4	1413	NV	-30	-40.35	-0.0231	±2.5	PASS
Band4	1413	NV	-20	-31.80	-0.0182	±2.5	PASS
Band4	1413	NV	-10	2.28	0.0013	±2.5	PASS
Band4	1413	NV	0	-1.26	-0.0007	±2.5	PASS
Band4	1413	NV	10	-28.61	-0.0164	±2.5	PASS
Band4	1413	NV	20	5.95	0.0034	±2.5	PASS
Band4	1413	NV	30	-16.00	-0.0092	±2.5	PASS
Band4	1413	NV	40	-23.92	-0.0137	±2.5	PASS
Band4	1413	NV	50	-12.32	-0.0070	±2.5	PASS
Band4	1513	NV	-30	-6.06	-0.0034	±2.5	PASS
Band4	1513	NV	-20	-23.82	-0.0134	±2.5	PASS
Band4	1513	NV	-10	-38.91	-0.0218	±2.5	PASS
Band4	1513	NV	0	-7.99	-0.0045	±2.5	PASS
Band4	1513	NV	10	-5.63	-0.0032	±2.5	PASS
Band4	1513	NV	20	-26.43	-0.0148	±2.5	PASS
Band4	1513	NV	30	-11.35	-0.0064	±2.5	PASS
Band4	1513	NV	40	-44.72	-0.0251	±2.5	PASS
Band4	1513	NV	50	-2.38	-0.0013	±2.5	PASS

BAND7

PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band7	20MHz	QPSK	20850	1RB#0	4.60	13	PASS
Band7	20MHz	QPSK	20850	100RB#0	5.25	13	PASS
Band7	20MHz	QPSK	21100	1RB#0	4.53	13	PASS
Band7	20MHz	QPSK	21100	100RB#0	5.18	13	PASS
Band7	20MHz	QPSK	21350	1RB#0	4.65	13	PASS
Band7	20MHz	QPSK	21350	100RB#0	5.10	13	PASS
Band7	20MHz	64QAM	20850	1RB#0	4.59	13	PASS
Band7	20MHz	64QAM	20850	100RB#0	5.20	13	PASS
Band7	20MHz	64QAM	21100	1RB#0	4.55	13	PASS
Band7	20MHz	64QAM	21100	100RB#0	5.18	13	PASS
Band7	20MHz	64QAM	21350	1RB#0	4.62	13	PASS
Band7	20MHz	64QAM	21350	100RB#0	5.09	13	PASS
Band7	20MHz	16QAM	20850	1RB#0	5.56	13	PASS
Band7	20MHz	16QAM	20850	100RB#0	6.08	13	PASS
Band7	20MHz	16QAM	21100	1RB#0	5.40	13	PASS
Band7	20MHz	16QAM	21100	100RB#0	6.06	13	PASS
Band7	20MHz	16QAM	21350	1RB#0	5.45	13	PASS
Band7	20MHz	16QAM	21350	100RB#0	6.01	13	PASS



Test Graphs

