

BUREAU
VERITAS

Test Report No.: PSU-NQN2412090210RF07



Certificate #6613.01

FCC TEST REPORT

(PART 24)

Applicant:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland

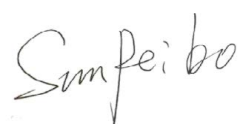
Manufacturer or Supplier:	HMD Global Oy
Address:	Bertel Jungin aukio 9, 02600 Espoo, Finland
Product:	Mobile phone
Brand Name:	HMD
Model Name:	H1715V
FCC ID	2AJOTTA-1715
Date of tests	Jan. 13, 2025 ~ Mar. 20, 2025

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

☒ **FCC PART 24, Subpart E**
☒ **FCC PART 2**
☒ **ANSI/TIA/EIA-603-D**

☒ **ANSI/TIA/EIA-603-E**
☒ **ANSI C63.26-2015**

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: Mar. 20, 2025	Date: Mar. 20, 2025

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-NQN2412090210RF07	Original release	Mar. 20, 2025



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	Test lab*
§2.1046	Conducted Output Power	Compliance	A
§24.232(c)	Equivalent Isotropic Radiated Power	Compliance	A
§2.1055 §24.235	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§24.232(d)	Peak to average ratio*	Compliance	A
§24.238(a)(b)	Band Edge Measurements	Compliance	A
§2.1051 §24.238(a)(b)	Conducted Spurious Emissions	Compliance	A
§2.1053 §24.238(a)(b)	Radiated Spurious Emissions	Compliance	A

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

*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

Accredited Test Lab Cert 6613.01

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

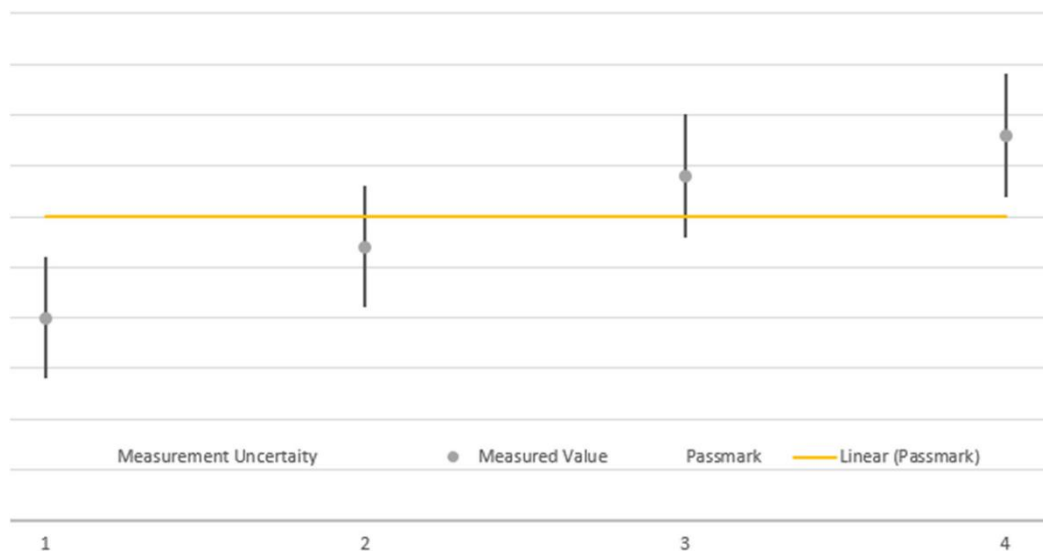


1.1 MEASUREMENT UNCERTAINTY

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	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions & Radiated Power (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions & Radiated Power (1GHz ~6GHz)	$\pm 4.70\text{dB}$
Radiated emissions (6GHz ~18GHz)	$\pm 4.60\text{dB}$
Radiated emissions (18GHz ~40GHz)	$\pm 4.12\text{dB}$
Conducted emissions	$\pm 4.01\text{dB}$
Occupied Channel Bandwidth	$\pm 43.58\text{KHz}$
Conducted Output power	$\pm 2.06\text{dB}$
Band Edge Measurements	$\pm 4.70\text{dB}$
Peak to average ratio	$\pm 0.76\text{dB}$

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.29,24	Aug.28,26
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
Vector Signal Generator	R&S	SMBV100B	102176	Feb.15,24	Feb.14,26
Signal Generator	R&S	SMB100A	182185	Feb.15,24	Feb.14,26
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	Feb.24,24	Feb.23,26
EMI TEST Receiver	R&S	ESW44	101973	Feb.24,24	Feb.23,26
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.27,24	Feb.26,26
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.21,24	Aug.20,26
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.22,24	Feb.21,26
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.21,24	Aug.20,26
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.22,24	Feb.21,26
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.26,24	Jun.25,26
Test Software	EMC32	EMC32	N/A	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Sep.30,24	Sep.39,26
DC Source	HYELEC	HY3010B	551016	Aug.30,24	Aug.29,26
Hygrothermograph	DELI	20210528	SZ014	Sep.05,24	Sep.04,26
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.26,24	Oct.25,25
CABLE	R&S	W12.14	N/A	Apr.26,24	Oct.25,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.26,24	Oct.25,25
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.26,24	Oct.25,25
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*	HMD	
MODEL NAME*	H1715V	
NOMINAL VOLTAGE*	3.87Vdc(Battery) 5.0Vdc(Adapter)	
MODULATION TYPE*	GSM/GPRS: GMSK EDGE: 8PSK WCDMA: QPSK, 16QAM LTE Band 2: QPSK, 16QAM, 64QAM, 256QAM	
FREQUENCY RANGE	GPRS, EDGE	1850.2MHz ~ 1909.8MHz
	WCDMA	1852.4MHz ~ 1907.6MHz
	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5MHz ~ 1908.5MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~ 1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855.0MHz ~ 1905.0MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5MHz ~ 1902.5MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860.0MHz ~ 1900.0MHz
MAX. EIRP POWER	GSM/GPRS	916.22mW
	EDGE	370.68mW
	WCDMA	226.46mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	182.72mW
	LTE Band 2 Channel Bandwidth: 3MHz	184.93mW
	LTE Band 2 Channel Bandwidth: 5MHz	181.55mW
	LTE Band 2 Channel Bandwidth: 10MHz	182.81mW



	LTE Band 2 Channel Bandwidth: 15MHz	184.08mW
	LTE Band 2 Channel Bandwidth: 20MHz	188.36mW
EMISSION DESIGNATOR	GSM/GPRS	245KGXW
	EDGE	245KG7W
	WCDMA	4M16F9W
	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M10G7D
		16QAM: 1M10W7D
		64QAM: 1M10W7D
		256QAM: 1M10W7D
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M70G7D
		16QAM: 2M70W7D
		64QAM: 2M70W7D
		256QAM: 2M71W7D
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 4M50G7D
		16QAM: 4M49W7D
		64QAM: 4M49W7D
		256QAM: 4M50W7D
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 9M00G7D
		16QAM: 8M98W7D
		64QAM: 8M99W7D
		256QAM: 8M98W7D
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
		256QAM: 13M5W7D
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
		64QAM: 18M0W7D
		256QAM: 18M0W7D
ANTENNA GAIN*	GSM1900	-0.8dBi
	WCDMA II	-0.8dBi
	LTE B2	-0.8dBi
ANTENNA TYPE*	PIFA	
HW VERSION*	V1.0	
SW VERSION*	000T_0_310	


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I/O PORTS*	Refer to user's manual
CABLE SUPPLIED*	N/A
EXTREME TEMPERATURE*	-10°C -55°C
EXTREME VOLTAGE*	3.6V-4.45V

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 receivers.

MODULATION MODE	TX FUNCTION
GSM/GPRS/EDGE	1TX/1RX
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 test report.
5. The power of single LTE band is larger than that in LTE CA, so single LTE band can cover the RSE risk of LTE CA part.
6. The differences between the sample 1 and sample 2 as Listings below, others are the same. And only the worst case was shown in the test report.

Object	Sample 1 1st source		Sample 2 2nd source	
	Specifications	Supplier	Specifications	Supplier
Display	JL-P067P003-05	Jinglong	Y92321	Digital
Memory (RAM) Memory (ROM)	FLXC2004G-N1	Longsys	BWCGBX32N2A-32G	Biwin
	MEMDNN064G-M1D03	Longsys	BWCTAMV11X64G	Biwin
Motor	C0830H-C138ZN-021	KunWang	CY0830-05-FPC-182	Chaoying
FPS Side fingerprint	SA-FC15X00-1470-B0	Shenao	HT.ZN-2832B	Huate
Mic	SM2718B381YR2-01	Rayking	S150B381-155	Goertek
GPS LNA	AW5005EDNR	AWINIC	WS7916DE	WILL

List of Accessory:

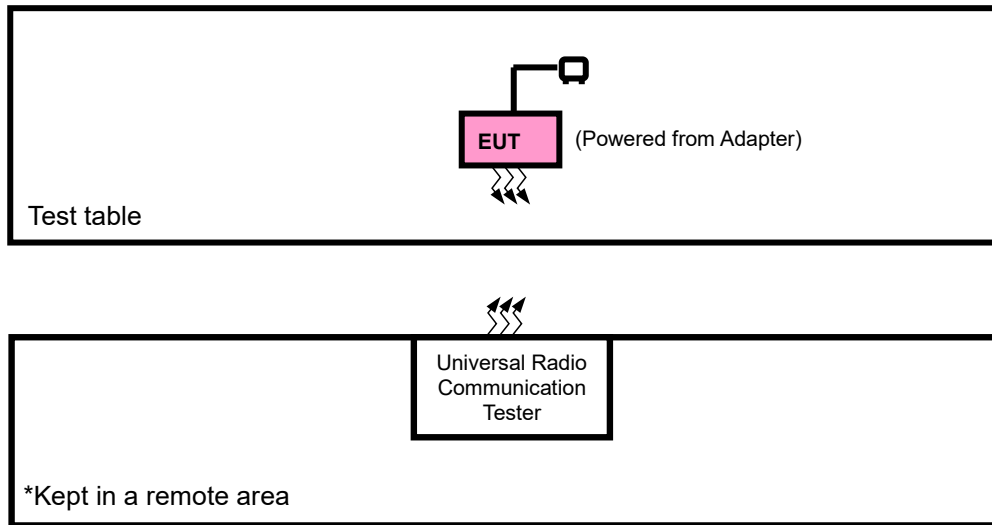
ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
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Battery	HMD	HUNAN GAOYUAN BATTERY CO.,LTD	CH426385	Capacity : 3.87Vdc, 4000mAh
USB Cable	Saibao	Saibao (Jiangxi) Industry Co.,Ltd.	SZN-A046A	Signal Line,1.0meter
USB Cable	Juwei	Huizhou Juwei Electronics Co.,Ltd	JWUB1913-ZN01H	Signal Line,1.0meter
Adapter	HMD	Shenzhen Baijunda Electronic Co., Ltd.	HAD-010U	I/P: 100- 240 Vac, 50/60Hz, 0.35 A, O/P: 5.0 Vdc, 2.0A 10.0W



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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	Laptop	Lenovo	ThinkPad E14	HRSW00024	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

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 in EIRP and radiated emission was found when positioned on X-plane for GSM/EDGE/ LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with GSM or WCDMA or LTE link
B	EUT + DC Supply with GSM or WCDMA or LTE link

GSM MODE				
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	512 to 810	512, 661, 810	GSM,EDGE
B	FREQUENCY STABILITY	512 to 810	512, 661, 810	GSM,EDGE
A	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM,EDGE
A	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM,EDGE
A	BAND EDGE	512 to 810	512, 810	GSM,EDGE
A	CONDCUDED EMISSION	512 to 810	512, 661, 810	GSM,EDGE
A	RADIATED EMISSION	512 to 810	512, 661, 810	GSM,EDGE



WCDMA				
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
B	FREQUENCY STABILITY	9262 to 9538	9262, 9400, 9538	WCDMA
A	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA
A	PEAK TO AVERAGE RATIO	9262 to 9538	9262, 9400, 9538	WCDMA
A	BAND EDGE	9262 to 9538	9262, 9538	WCDMA
A	CONDCUDED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA
A	RADIATED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA

LTE BAND 2 MODE						
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	EIRP	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM,64QAM,256QAM	1 RB / 0 RB offset
B	FREQUENCY STABILITY	18650 to 19150	18650, 18900, 19150	10MHz	QPSK	Full RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM	Full RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM	Full RB / 0 RB Offset



A	PEAK TO AVERAGE RATIO	18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB / 0 RB Offset Full RB / 0 RB Offset
A	BAND EDGE	18607 to 19193	18607	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19193	1.4MHz	QPSK,16QAM	1 RB / 5 RB Offset Full RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19185	3MHz	QPSK,16QAM	1 RB / 14 RB Offset Full RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19175	5MHz	QPSK,16QAM	1 RB / 24 RB Offset Full RB / 0 RB Offset
		18650 to 19150	18650	10MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19150	10MHz	QPSK,16QAM	1 RB / 49 RB Offset Full RB / 0 RB Offset
		18675 to 19125	18675	15MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19125	15MHz	QPSK,16QAM	1 RB / 74 RB Offset Full RB / 0 RB Offset
		18700 to 19100	18700	20MHz	QPSK,16QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19100	20MHz	QPSK,16QAM	1 RB / 99 RB Offset Full RB / 0 RB Offset



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A	CONDCUDED EMISSION	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	18607 to 19193	18900	1.4MHz	QPSK	1 RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK	1 RB / 0 RB Offset
		18625 to 19175	18900	5MHz	QPSK	1 RB / 0 RB Offset
		18650 to 19150	18900	10MHz	QPSK	1 RB / 0 RB Offset
		18675 to 19125	18900	15MHz	QPSK	1 RB / 0 RB Offset
		18700 to 19100	18900	20MHz	QPSK	1 RB / 0 RB Offset

Note: 1.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 3.87V By Battery	Hanwen Xu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.87V By Battery	Hanwen Xu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 3.87V By Battery	Hanwen Xu
BAND EDGE	23deg. C, 70%RH	DC 3.87V By Battery	Hanwen Xu
CONDCUDED EMISSION	23deg. C, 70%RH	DC 3.87V By Battery	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	AC 120V/60MHz	Hanwen Xu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 3.87V By Battery	Hanwen Xu



2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

2.6 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 24

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

Mobile and portable stations are limited to 2 watts EIRP.

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:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

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:

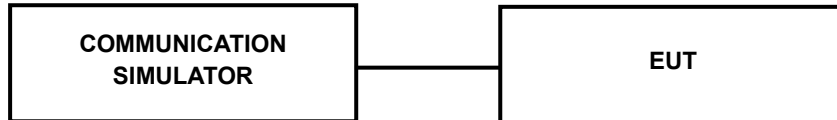
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm) :

Band	GSM1900(ANT1)		
Channel	512	661	810
Frequency	1850.2	1880	1909.8
GSM	30.40	29.32	29.21
GPRS 1Tx Slot	30.42	29.34	29.28
GPRS 2Tx Slot	28.53	27.65	27.51
GPRS 3Tx Slot	26.54	25.47	25.42
GPRS 4Tx Slot	25.60	24.36	24.04
EDGE 1Tx Slot	26.49	25.42	25.48
EDGE 2Tx Slot	24.98	24.01	24.08
EDGE 3Tx Slot	21.73	21.77	22.53
EDGE 4Tx Slot	20.28	20.31	21.35

Band	WCDMA II (ANT1)		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	24.35	24.31	24.34
HSDPA Subtest-1	23.31	23.41	23.32
HSDPA Subtest-2	23.40	23.31	23.34
HSDPA Subtest-3	22.81	22.83	22.80
HSDPA Subtest-4	22.72	22.77	22.78
DC-HSDPA Subtest-1	23.28	23.25	23.28
DC-HSDPA Subtest-2	23.25	23.26	23.31
DC-HSDPA Subtest-3	22.72	22.74	22.75
DC-HSDPA Subtest-4	22.63	22.62	22.77
HSUPA Subtest-1	23.40	23.48	23.40
HSUPA Subtest-2	22.87	22.84	22.81
HSUPA Subtest-3	23.32	23.29	23.32
HSUPA Subtest-4	23.27	23.24	23.27
HSUPA Subtest-5	23.29	23.27	23.25



LTE Band 2 (Ant1)

BW: 1.4M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18607	18900	19193
		Frequency (MHz)		1850.70	1880	1909.30
1.4M	QPSK	1	0	23.37	23.37	23.29
		1	2	23.33	23.35	23.12
		1	5	23.27	23.17	23.19
		3	0	23.09	23.09	23.08
		3	1	22.98	23.02	23.12
		3	3	23.16	23.06	23.14
		6	0	22.25	22.29	22.43
	16QAM	1	0	22.37	22.68	22.34
		1	2	22.61	22.50	22.52
		1	5	22.44	22.44	22.51
		3	0	22.05	22.04	22.17
		3	1	22.10	22.06	22.01
		3	3	22.17	22.26	22.06
		6	0	21.30	21.31	21.27
	64QAM	1	0	21.39	21.35	21.32
		1	2	21.43	21.53	21.24
		1	5	21.33	21.60	21.40
		3	0	21.09	21.10	21.08
		3	1	21.15	21.05	21.12
		3	3	21.14	21.07	21.12
		6	0	20.22	20.36	20.32
	256QAM	1	0	18.24	18.61	18.52
		1	2	18.40	18.48	18.40
		1	5	18.55	18.34	18.40
		3	0	19.21	19.19	19.11
		3	1	19.28	19.23	19.19
		3	3	19.25	19.17	19.22
		6	0	18.42	18.40	18.40



BW: 3M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18615	18900	19185
		Frequency (MHz)		1851.50	1880	1908.50
3M	QPSK	1	0	23.29	23.47	23.18
		1	7	23.31	23.46	23.25
		1	14	23.26	23.15	23.23
		8	0	22.38	22.23	22.35
		8	3	22.24	22.18	22.25
		8	7	22.42	22.24	22.41
		15	0	22.38	22.28	22.32
		1	0	22.37	22.65	22.46
	16QAM	1	7	22.69	22.47	22.54
		1	14	22.46	22.35	22.59
		8	0	21.18	21.25	21.35
		8	3	21.35	21.25	21.23
		8	7	21.25	21.37	21.25
		15	0	21.28	21.20	21.34
		1	0	21.44	21.42	21.40
		1	7	21.48	21.52	21.37
	64QAM	1	14	21.35	21.59	21.41
		8	0	20.25	20.27	20.20
		8	3	20.34	20.30	20.19
		8	7	20.33	20.31	20.30
		15	0	20.25	20.23	20.35
		1	0	18.30	18.62	18.51
		1	7	18.37	18.47	18.44
		1	14	18.41	18.37	18.35
	256QAM	8	0	18.40	18.36	18.40
		8	3	18.39	18.30	18.29
		8	7	18.47	18.36	18.41
		15	0	18.50	18.46	18.52



BW: 5M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18625	18900	19175
		Frequency (MHz)		1852.50	1880	1907.50
5M	QPSK	1	0	23.38	23.39	23.23
		1	12	23.25	23.33	23.11
		1	24	23.35	23.22	23.27
		12	0	22.35	22.26	22.24
		12	6	22.24	22.17	22.21
		12	13	22.36	22.33	22.36
		25	0	22.33	22.22	22.37
		25	0	22.33	22.22	22.37
	16QAM	1	0	22.43	22.68	22.38
		1	12	22.59	22.56	22.52
		1	24	22.49	22.38	22.49
		12	0	21.22	21.23	21.35
		12	6	21.32	21.25	21.27
		12	13	21.27	21.31	21.32
		25	0	21.30	21.26	21.09
		25	0	21.30	21.26	21.09
	64QAM	1	0	21.45	21.35	21.31
		1	12	21.44	21.53	21.24
		1	24	21.27	21.50	21.50
		12	0	20.24	20.28	20.27
		12	6	20.36	20.28	20.23
		12	13	20.28	20.34	20.31
		25	0	20.17	20.27	20.32
		25	0	20.17	20.27	20.32
	256QAM	1	0	18.25	18.57	18.57
		1	12	18.41	18.35	18.31
		1	24	18.44	18.41	18.36
		12	0	18.38	18.38	18.41
		12	6	18.45	18.34	18.34
		12	13	18.47	18.35	18.29
		25	0	18.54	18.48	18.46
		25	0	18.54	18.48	18.46



BW: 10M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	23.38	23.42	23.21
		1	24	23.35	23.32	23.17
		1	49	23.26	23.26	23.30
		25	0	22.32	22.26	22.28
		25	12	22.16	22.13	22.26
		25	25	22.35	22.22	22.34
		50	0	22.32	22.31	22.36
		50	0	22.32	22.31	22.36
	16QAM	1	0	22.39	22.68	22.35
		1	24	22.62	22.54	22.48
		1	49	22.49	22.39	22.47
		25	0	21.25	21.26	21.36
		25	12	21.29	21.18	21.19
		25	25	21.35	21.35	21.26
		50	0	21.39	21.33	21.27
		50	0	21.39	21.33	21.27
	64QAM	1	0	21.37	21.44	21.44
		1	24	21.39	21.60	21.28
		1	49	21.37	21.57	21.50
		25	0	20.21	20.23	20.31
		25	12	20.33	20.22	20.28
		25	25	20.26	20.26	20.24
		50	0	20.25	20.34	20.23
		50	0	20.25	20.34	20.23
	256QAM	1	0	18.22	18.59	18.55
		1	24	18.32	18.45	18.31
		1	49	18.45	18.39	18.41
		25	0	18.32	18.30	18.28
		25	12	18.39	18.41	18.28
		25	25	18.47	18.41	18.42
		50	0	18.50	18.39	18.49
		50	0	18.50	18.39	18.49



BW: 15M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18675	18900	19125
		Frequency (MHz)		1857.50	1880	1902.50
15M	QPSK	1	0	23.33	23.41	23.20
		1	37	23.36	23.45	23.12
		1	74	23.32	23.19	23.31
		36	0	22.36	22.37	22.29
		36	19	22.28	22.26	22.17
		36	39	22.42	22.29	22.30
		75	0	22.34	22.22	22.43
		75	0	22.34	22.22	22.43
	16QAM	1	0	22.42	22.62	22.42
		1	37	22.67	22.55	22.41
		1	74	22.44	22.45	22.52
		36	0	21.22	21.16	21.25
		36	19	21.41	21.26	21.23
		36	39	21.25	21.44	21.20
		75	0	21.32	21.21	21.30
		75	0	21.32	21.21	21.30
	64QAM	1	0	21.46	21.40	21.40
		1	37	21.45	21.51	21.32
		1	74	21.34	21.57	21.38
		36	0	20.25	20.30	20.20
		36	19	20.44	20.34	20.26
		36	39	20.40	20.30	20.23
		75	0	20.25	20.33	20.30
		75	0	20.25	20.33	20.30
	256QAM	1	0	18.36	18.58	18.56
		1	37	18.33	18.38	18.34
		1	74	18.52	18.35	18.41
		36	0	18.36	18.34	18.33
		36	19	18.48	18.41	18.40
		36	39	18.52	18.33	18.41
		75	0	18.46	18.38	18.47
		75	0	18.46	18.38	18.47



BW: 20M

BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	23.51	23.55	23.42
		1	50	23.50	23.51	23.41
		1	99	23.42	23.43	23.39
		50	0	22.45	22.46	22.41
		50	25	22.47	22.48	22.46
		50	50	22.48	22.49	22.47
		100	0	22.41	22.42	22.40
		100	0	22.41	22.42	22.40
	16QAM	1	0	22.58	22.73	22.57
		1	50	22.74	22.76	22.61
		1	99	22.71	22.63	22.65
		50	0	21.41	21.41	21.43
		50	25	21.47	21.43	21.42
		50	50	21.45	21.54	21.44
		100	0	21.55	21.37	21.38
		100	0	21.55	21.37	21.38
	64QAM	1	0	21.54	21.52	21.55
		1	50	21.52	21.65	21.42
		1	99	21.48	21.71	21.60
		50	0	20.44	20.49	20.48
		50	25	20.57	20.44	20.32
		50	50	20.47	20.54	20.51
		100	0	20.46	20.48	20.46
		100	0	20.46	20.48	20.46
	256QAM	1	0	18.37	18.66	18.61
		1	50	18.46	18.50	18.46
		1	99	18.56	18.44	18.47
		50	0	18.43	18.43	18.43
		50	25	18.52	18.45	18.42
		50	50	18.54	18.46	18.43
		100	0	18.57	18.51	18.55
		100	0	18.57	18.51	18.55



BUREAU VERITAS Test Report No.: PSU-NQN2412090210RF07

EIRP POWER (dBm)

GSM1900_Ant1							
Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
GPRS	512	1850.2	30.42	-0.8	29.62	916.22	2
	661	1880	29.34	-0.8	28.54	714.5	2
	810	1909.8	29.28	-0.8	28.48	704.69	2
EDGE	512	1850.2	26.49	-0.8	25.69	370.68	2
	661	1880	25.42	-0.8	24.62	289.73	2
	810	1909.8	25.48	-0.8	24.68	293.76	2

WCDMA II_Ant1						
Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
9262	1852.4	24.35	-0.8	23.55	226.46	2
9400	1880	24.31	-0.8	23.51	224.39	2
9538	1907.6	24.34	-0.8	23.54	225.94	2


BUREAU VERITAS Test Report No.: PSU-NQN2412090210RF07

LTE Band 2_Ant1							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20M-QPSK	18700	1860	23.51	-0.8	22.71	186.64	2
	18900	1880	23.55	-0.8	22.75	188.36	2
	19100	1900	23.42	-0.8	22.62	182.81	2
20M-16QAM	18700	1860	22.74	-0.8	21.94	156.31	2
	18900	1880	22.76	-0.8	21.96	157.04	2
	19100	1900	22.65	-0.8	21.85	153.11	2
20M-64QAM	18700	1860	21.54	-0.8	20.74	118.58	2
	18900	1880	21.71	-0.8	20.91	123.31	2
	19100	1900	21.60	-0.8	20.80	120.23	2
20M- 256QAM	18700	1860	18.57	-0.8	17.77	59.84	2
	18900	1880	18.66	-0.8	17.86	61.09	2
	19100	1900	18.61	-0.8	17.81	60.39	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
15M-QPSK	18675	1857.5	23.36	-0.8	22.56	180.30	2
	18900	1880	23.45	-0.8	22.65	184.08	2
	19125	1902.5	23.31	-0.8	22.51	178.24	2
15M-16QAM	18675	1857.5	22.67	-0.8	21.87	153.82	2
	18900	1880	22.62	-0.8	21.82	152.05	2
	19125	1902.5	22.52	-0.8	21.72	148.59	2
15M-64QAM	18675	1857.5	21.46	-0.8	20.66	116.41	2
	18900	1880	21.57	-0.8	20.77	119.40	2
	19125	1902.5	21.40	-0.8	20.60	114.82	2
15M- 256QAM	18675	1857.5	18.52	-0.8	17.72	59.16	2
	18900	1880	18.58	-0.8	17.78	59.98	2
	19125	1902.5	18.56	-0.8	17.76	59.70	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
10M-QPSK	18650	1855	23.38	-0.8	22.58	181.13	2
	18900	1880	23.42	-0.8	22.62	182.81	2
	19150	1905	23.30	-0.8	22.50	177.83	2
10M-16QAM	18650	1855	22.62	-0.8	21.82	152.05	2
	18900	1880	22.68	-0.8	21.88	154.17	2
	19150	1905	22.48	-0.8	21.68	147.23	2
10M-64QAM	18650	1855	21.39	-0.8	20.59	114.55	2



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	18900	1880	21.60	-0.8	20.80	120.23	2
	19150	1905	21.50	-0.8	20.70	117.49	2
10M-256QAM	18650	1855	18.50	-0.8	17.70	58.88	2
	18900	1880	18.59	-0.8	17.79	60.12	2
	19150	1905	18.55	-0.8	17.75	59.57	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
5M-QPSK	18625	1852.5	23.38	-0.8	22.58	181.13	2
	18900	1880	23.39	-0.8	22.59	181.55	2
	19175	1907.5	23.27	-0.8	22.47	176.60	2
5M-16QAM	18625	1852.5	22.59	-0.8	21.79	151.01	2
	18900	1880	22.68	-0.8	21.88	154.17	2
	19175	1907.5	22.52	-0.8	21.72	148.59	2
5M-64QAM	18625	1852.5	21.45	-0.8	20.65	116.14	2
	18900	1880	21.53	-0.8	20.73	118.30	2
	19175	1907.5	21.50	-0.8	20.70	117.49	2
5M-256QAM	18625	1852.5	18.54	-0.8	17.74	59.43	2
	18900	1880	18.57	-0.8	17.77	59.84	2
	19175	1907.5	18.57	-0.8	17.77	59.84	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
3M-QPSK	18615	1851.5	23.31	-0.8	22.51	178.24	2
	18900	1880	23.47	-0.8	22.67	184.93	2
	19185	1908.5	23.25	-0.8	22.45	175.79	2
3M-16QAM	18615	1851.5	22.69	-0.8	21.89	154.53	2
	18900	1880	22.65	-0.8	21.85	153.11	2
	19185	1908.5	22.59	-0.8	21.79	151.01	2
3M-64QAM	18615	1851.5	21.48	-0.8	20.68	116.95	2
	18900	1880	21.59	-0.8	20.79	119.95	2
	19185	1908.5	21.41	-0.8	20.61	115.08	2
3M-256QAM	18615	1851.5	18.50	-0.8	17.70	58.88	2
	18900	1880	18.62	-0.8	17.82	60.53	2
	19185	1908.5	18.52	-0.8	17.72	59.16	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1.4M-QPSK	18607	1850.7	23.37	-0.8	22.57	180.72	2
	18900	1880	23.37	-0.8	22.57	180.72	2
	19193	1909.3	23.29	-0.8	22.49	177.42	2



1.4M- 16QAM	18607	1850.7	22.61	-0.8	21.81	151.71	2
	18900	1880	22.68	-0.8	21.88	154.17	2
	19193	1909.3	22.52	-0.8	21.72	148.59	2
1.4M- 64QAM	18607	1850.7	21.43	-0.8	20.63	115.61	2
	18900	1880	21.60	-0.8	20.80	120.23	2
	19193	1909.3	21.40	-0.8	20.60	114.82	2
1.4M- 256QAM	18607	1850.7	19.28	-0.8	18.48	70.47	2
	18900	1880	19.23	-0.8	18.43	69.66	2
	19193	1909.3	19.22	-0.8	18.42	69.50	2



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

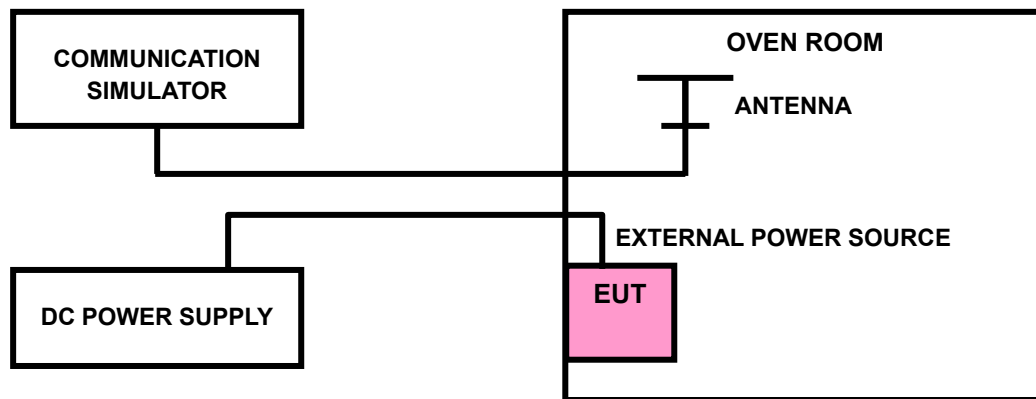
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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.

3.2.3 TEST SETUP



3.2.4 TEST RESULTS

Please Refer to Appendix of this test report.

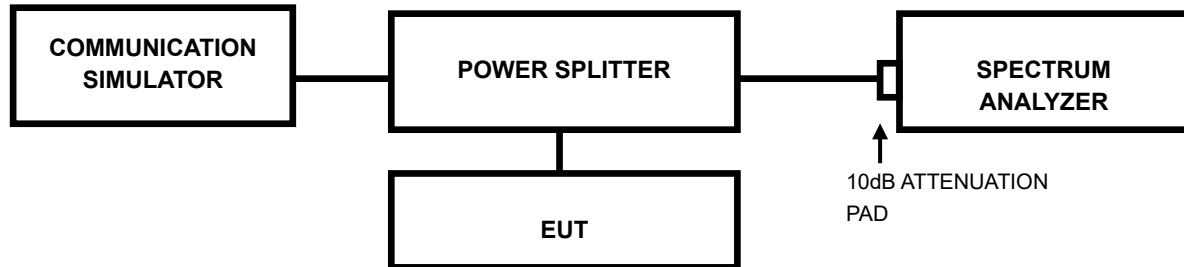


3.3 OCCUPIED BANDWIDTH MEASUREMENT

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.

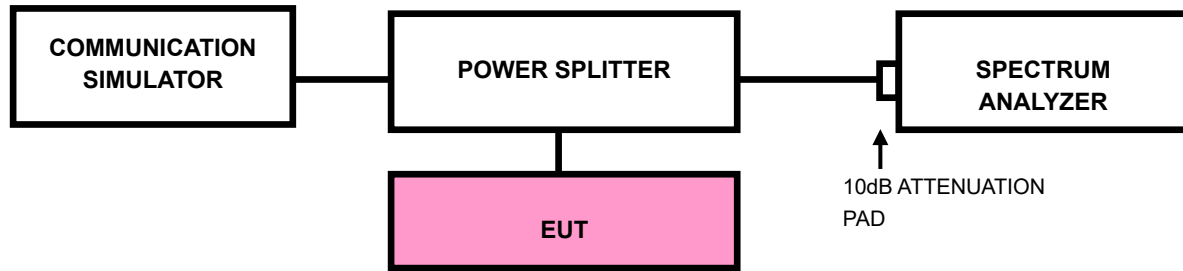


3.4 BAND EDGE MEASUREMENTC

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

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. 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.

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.



3.5 CONDUCTED SPURIOUS EMISSIONS

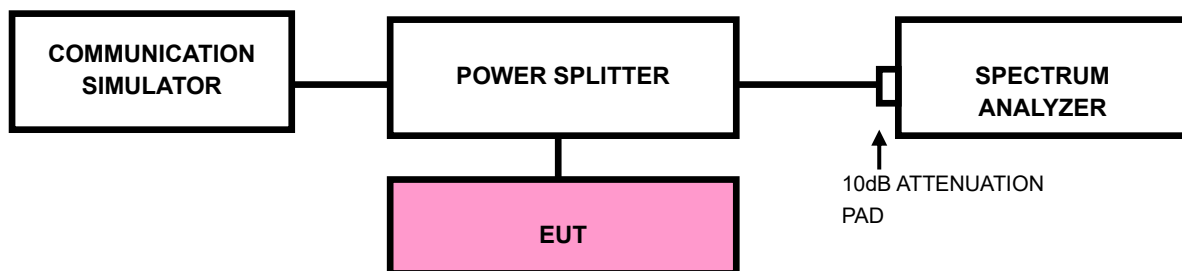
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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. The emission limit equal to -13dBm .

3.5.2 TEST PROCEDURE

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 30MHz 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

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. The emission limit equal to -13dBm .

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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

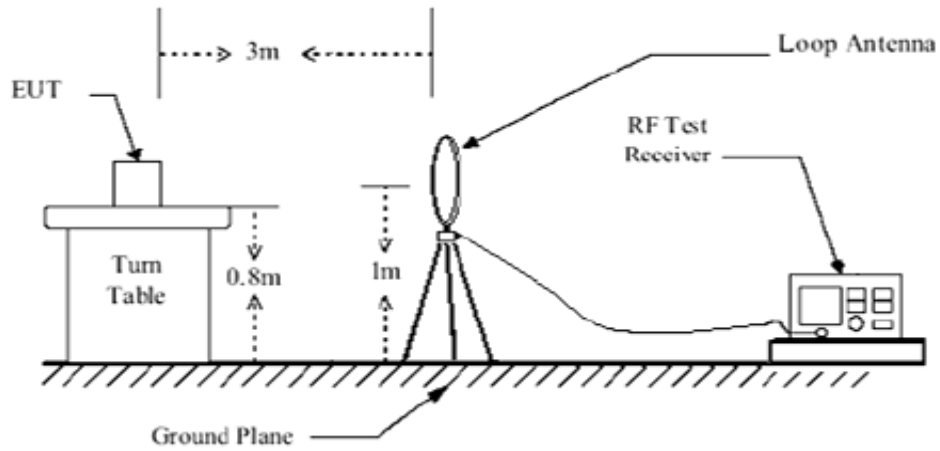
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

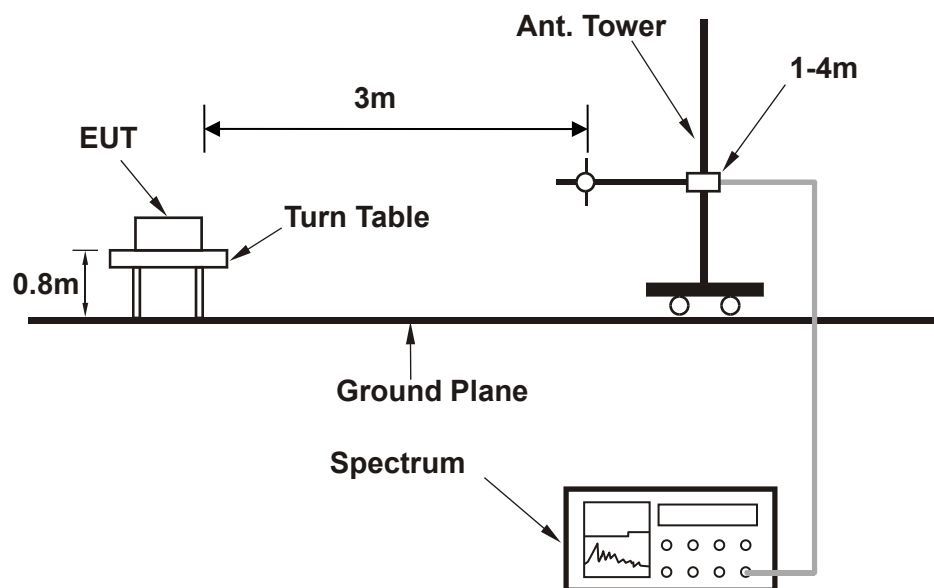


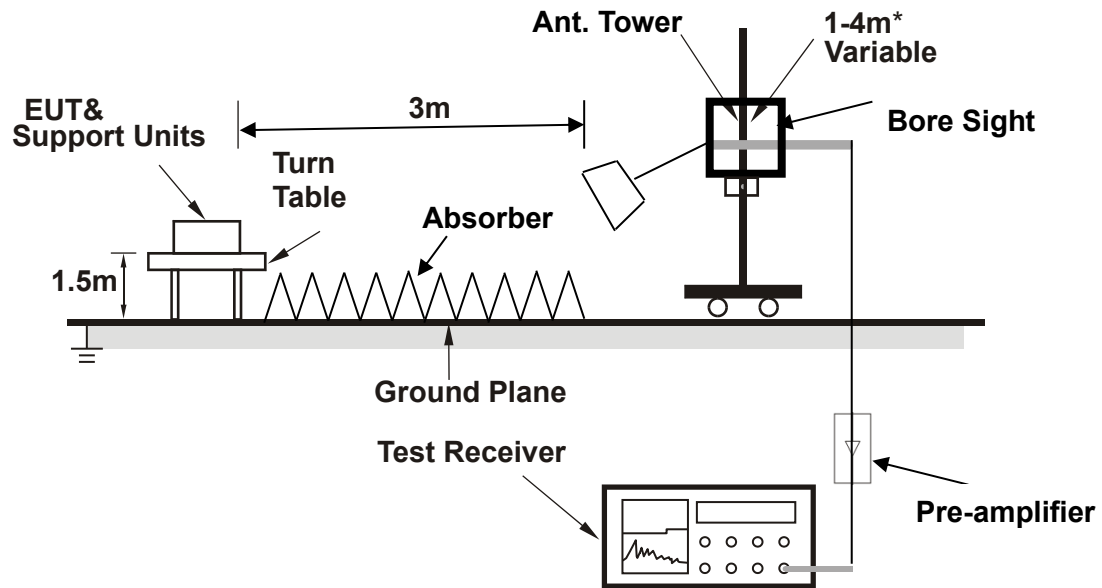
3.6.4 TEST SETUP

< 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.

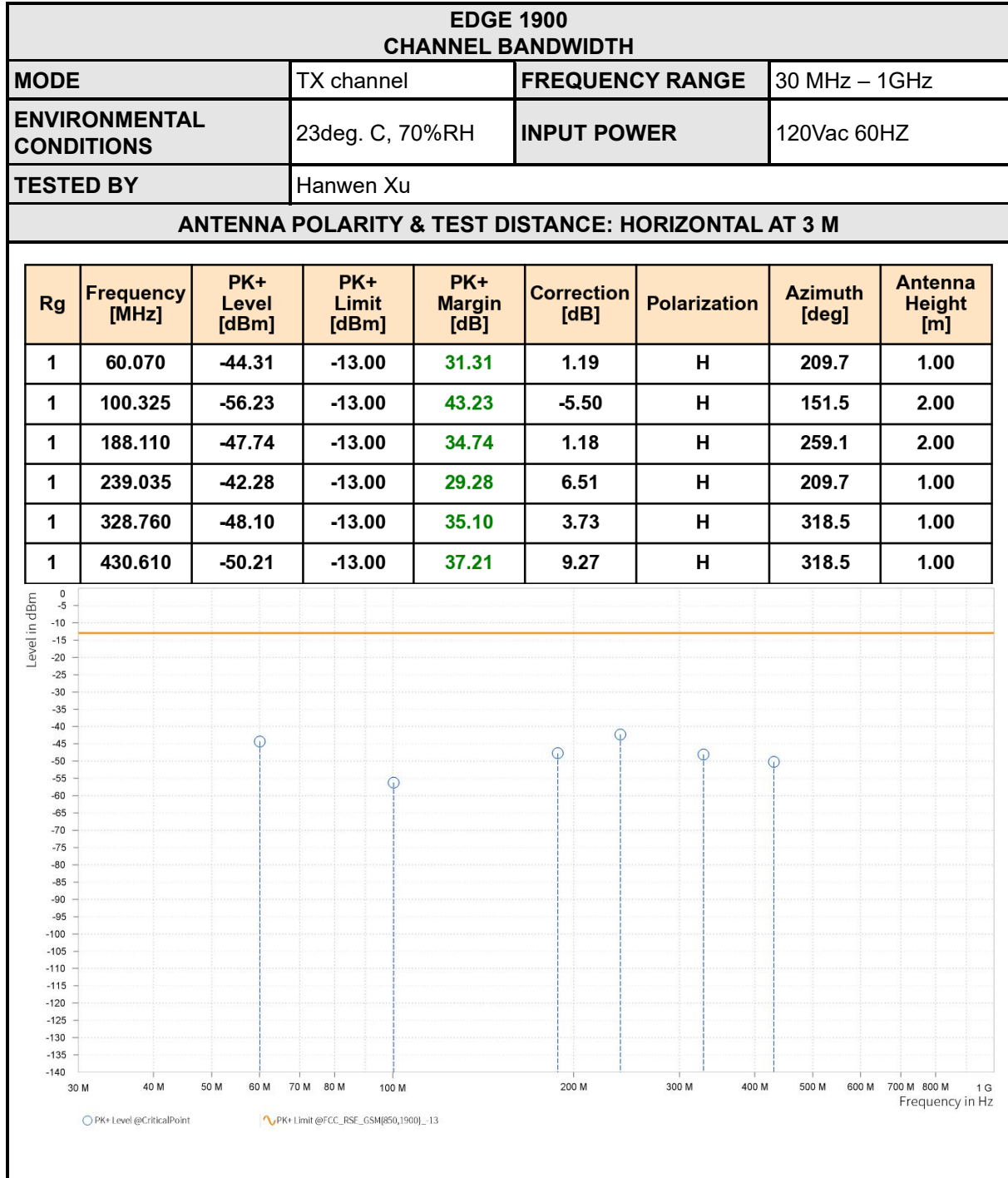
For the actual test configuration, please refer to the attached file (Test Setup Photo).



3.6.5 TEST RESULTS

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

BELOW 1GHz WORST-CASE DATA

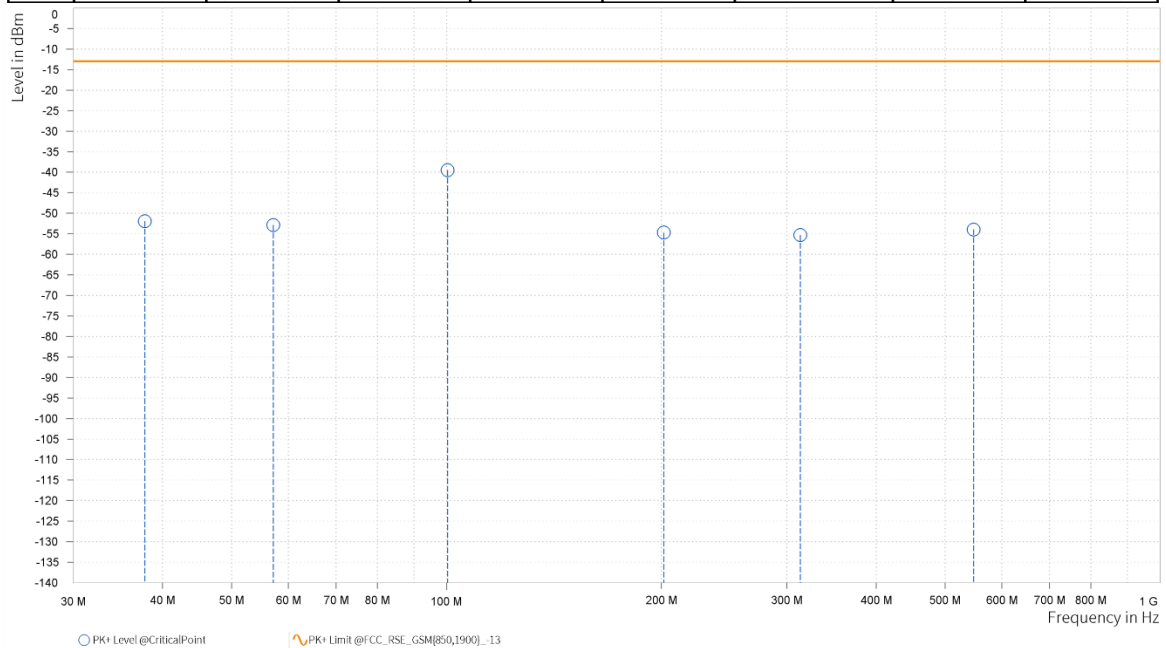




MODE	TX channel 810	FREQUENCY RANGE	30 MHz – 1GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	37.760	-51.90	-13.00	38.90	-2.02	V	212.1	1.00
1	57.160	-52.86	-13.00	39.86	-1.30	V	105.7	1.00
1	100.325	-39.46	-13.00	26.46	10.51	V	212.1	1.00
1	201.690	-54.69	-13.00	41.69	0.33	V	1	1.00
1	313.240	-55.33	-13.00	42.33	4.40	V	355.8	2.00
1	547.980	-53.94	-13.00	40.94	6.22	V	212.1	1.00





ABOVE 1GHz DATA

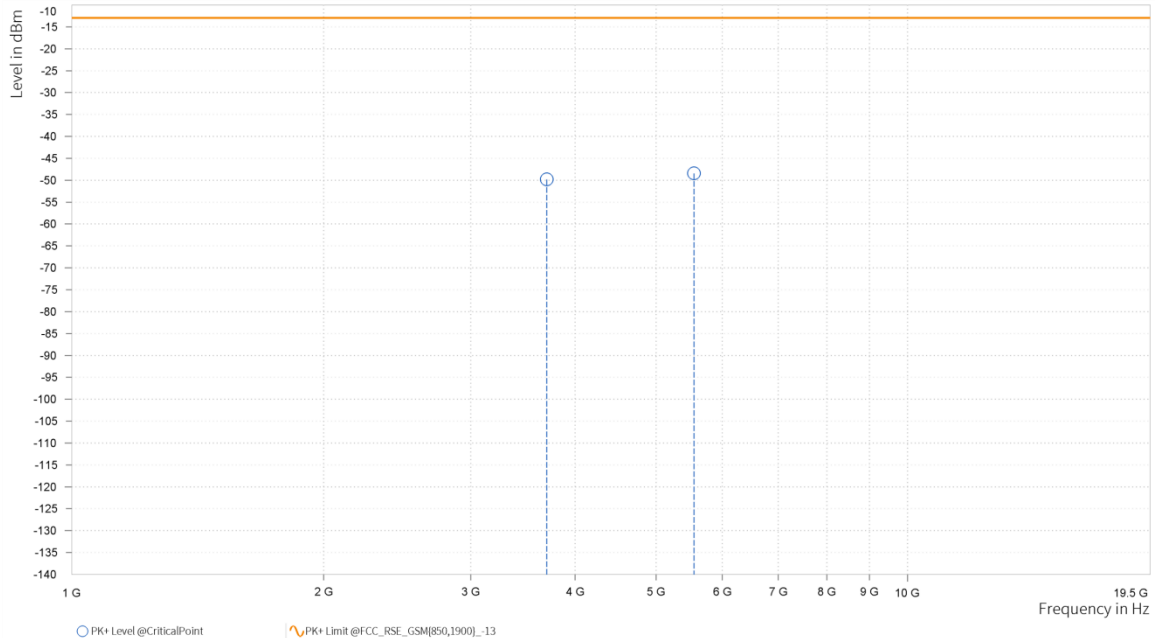
Note: For higher frequency, the emission is too low to be detected.

PCS 1900

MODE	TX channel 512	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	3,700.400	-49.83	-13.00	36.83	21.11	H	0.9	2.00
4	5,550.600	-48.45	-13.00	35.45	24.26	H	126.4	2.00

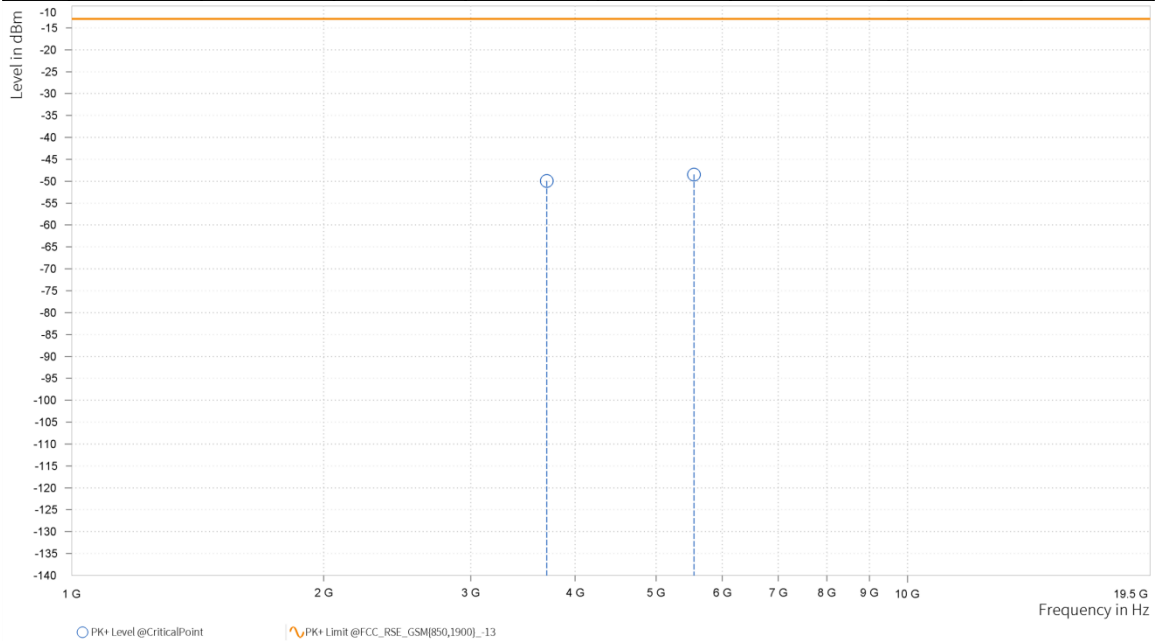




MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	3,700.400	-49.93	-13.00	36.93	21.71	V	124.1	2.00
4	5,550.600	-48.48	-13.00	35.48	24.96	V	359	2.00

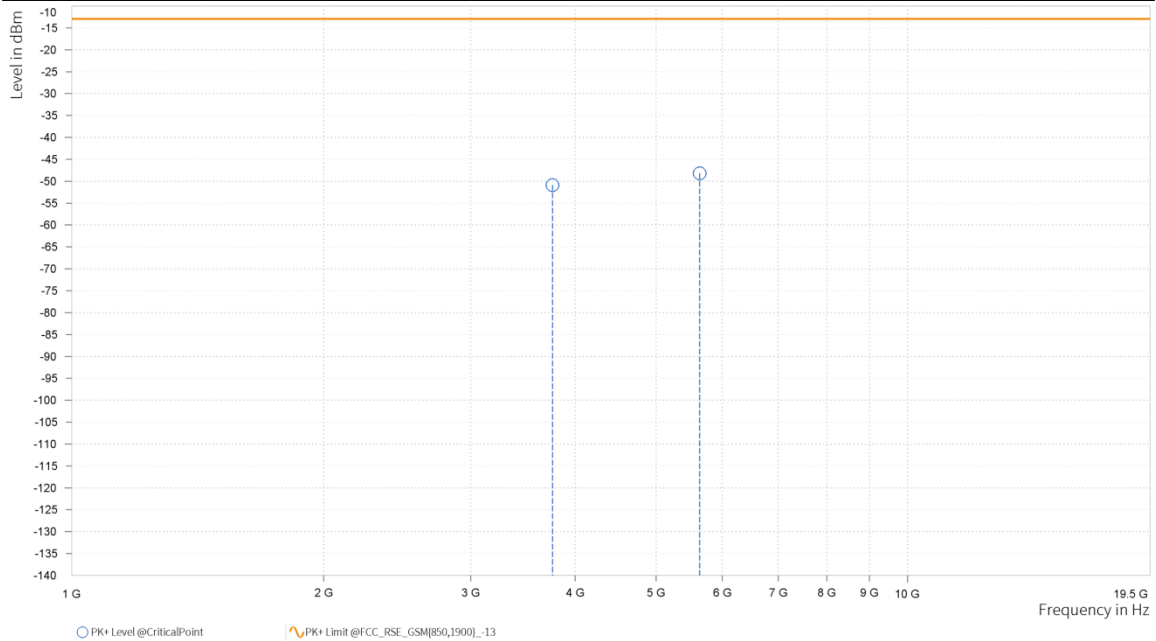




MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

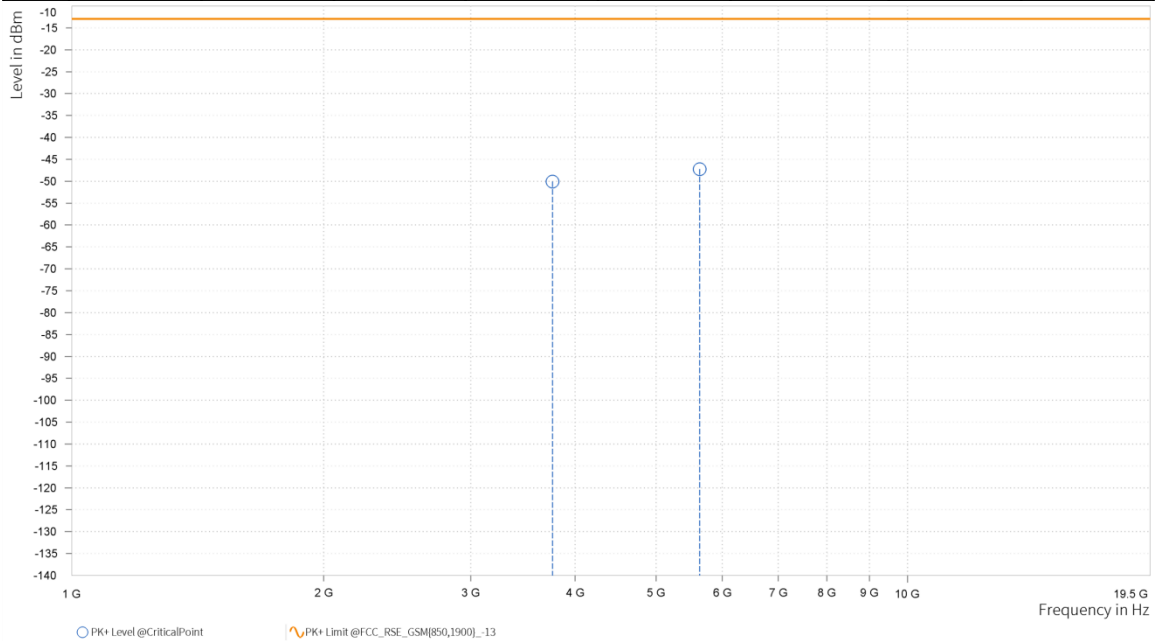
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-50.87	-13.00	37.87	21.64	H	7.8	2.00
4	5,640.000	-48.18	-13.00	35.18	24.79	H	359	1.00





MODE	TX channel 661	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	3,760.000	-50.07	-13.00	37.07	22.13	V	359	1.00
4	5,640.000	-47.23	-13.00	34.23	25.13	V	122.8	2.00

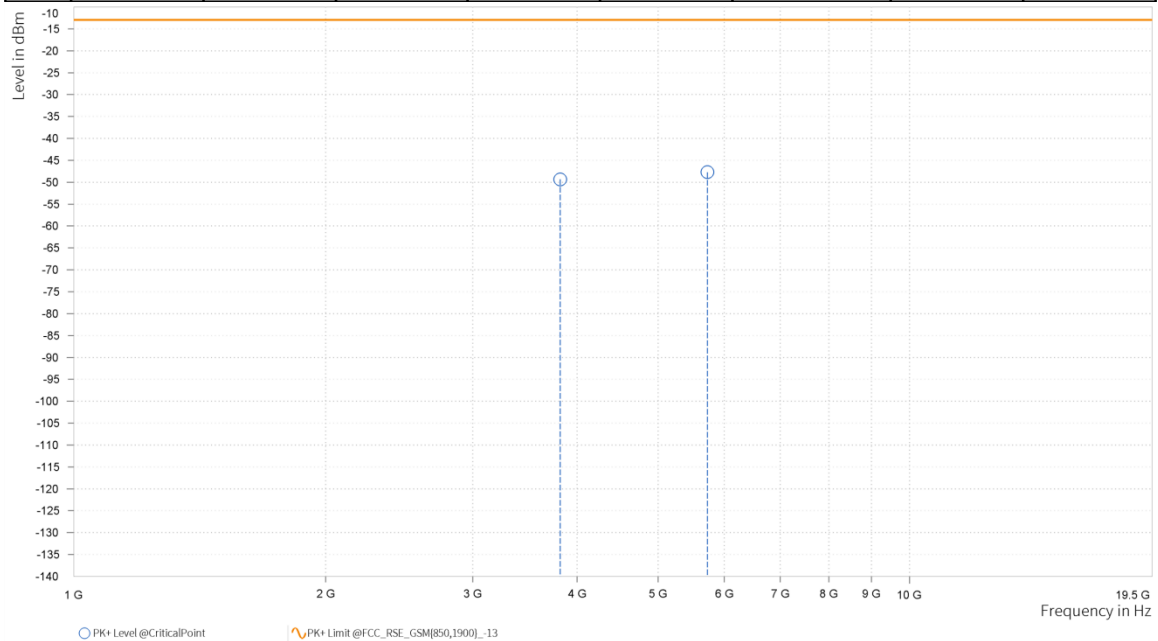




MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

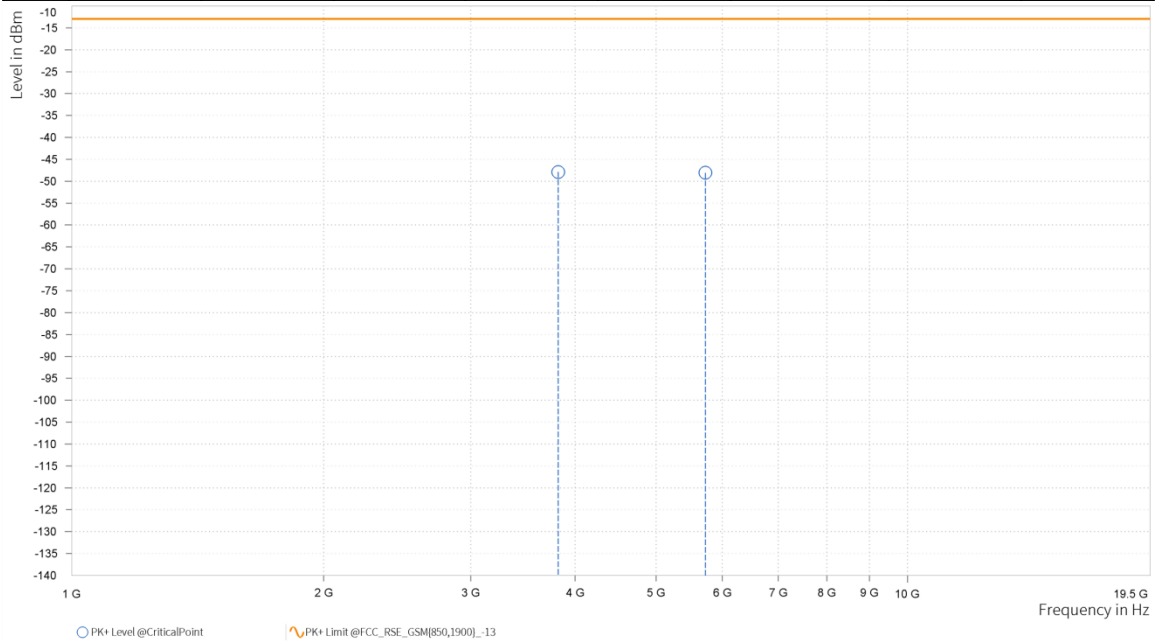
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,819.600	-49.33	-13.00	36.33	22.23	H	125.2	2.00
4	5,729.400	-47.72	-13.00	34.72	25.33	H	0.9	2.00





MODE	TX channel 810	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			

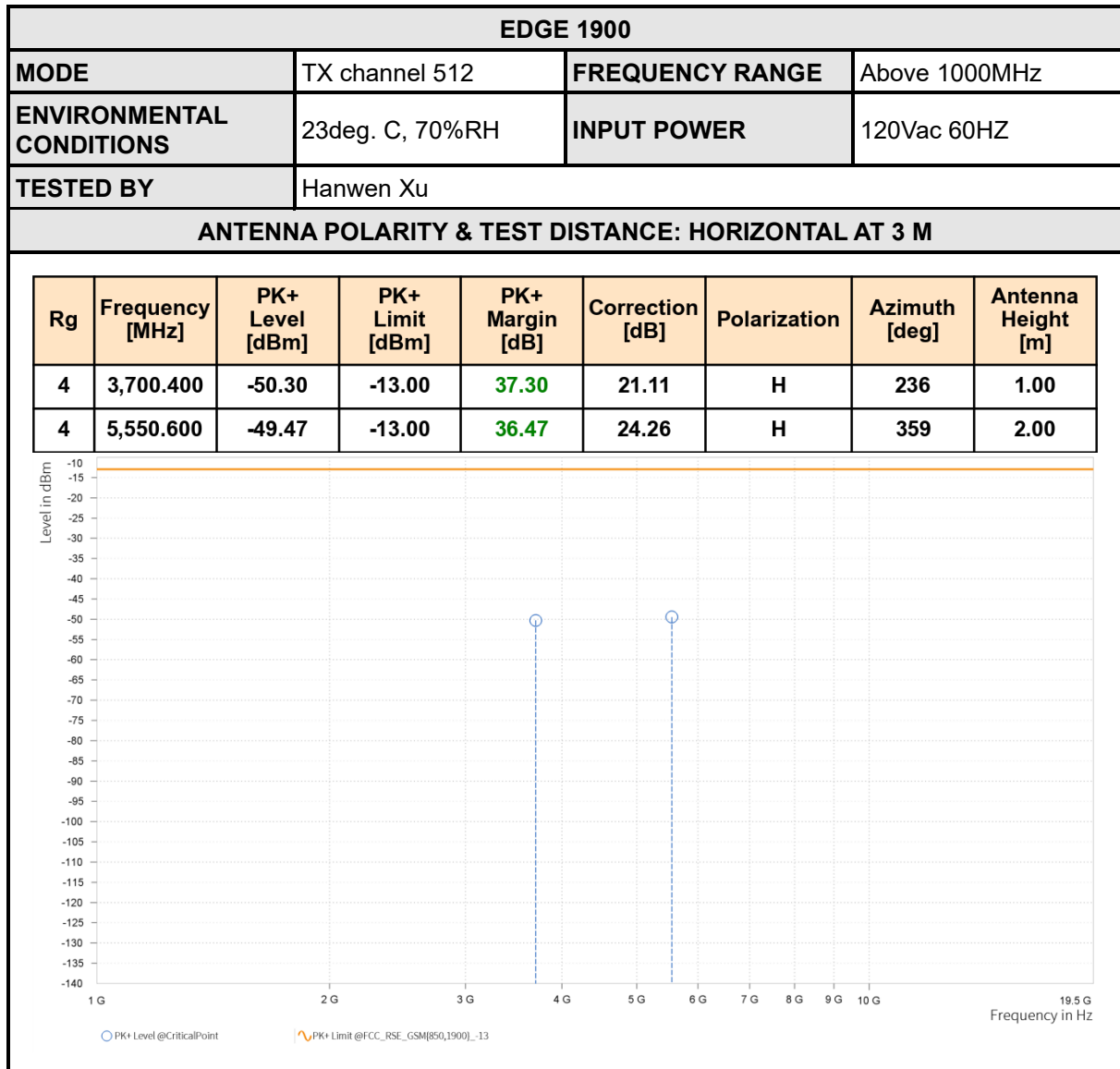
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,819.600	-47.90	-13.00	34.90	22.58	V	359	2.00
4	5,729.400	-48.09	-13.00	35.09	25.79	V	359	2.00





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VERITAS

Test Report No.: PSU-NQN2412090210RF07

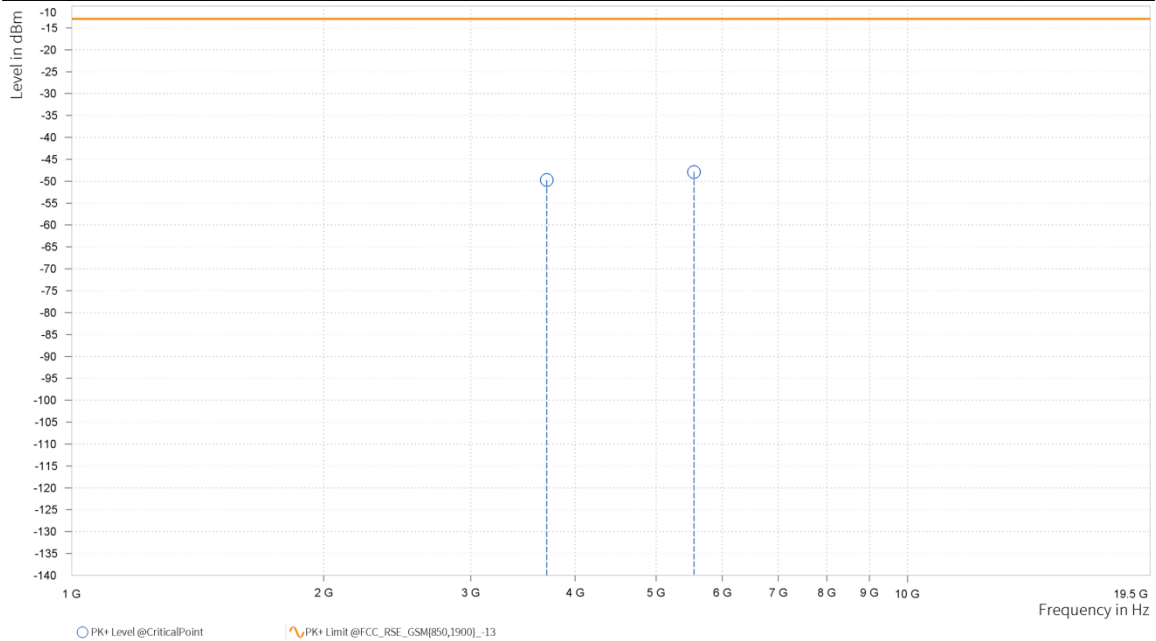




MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

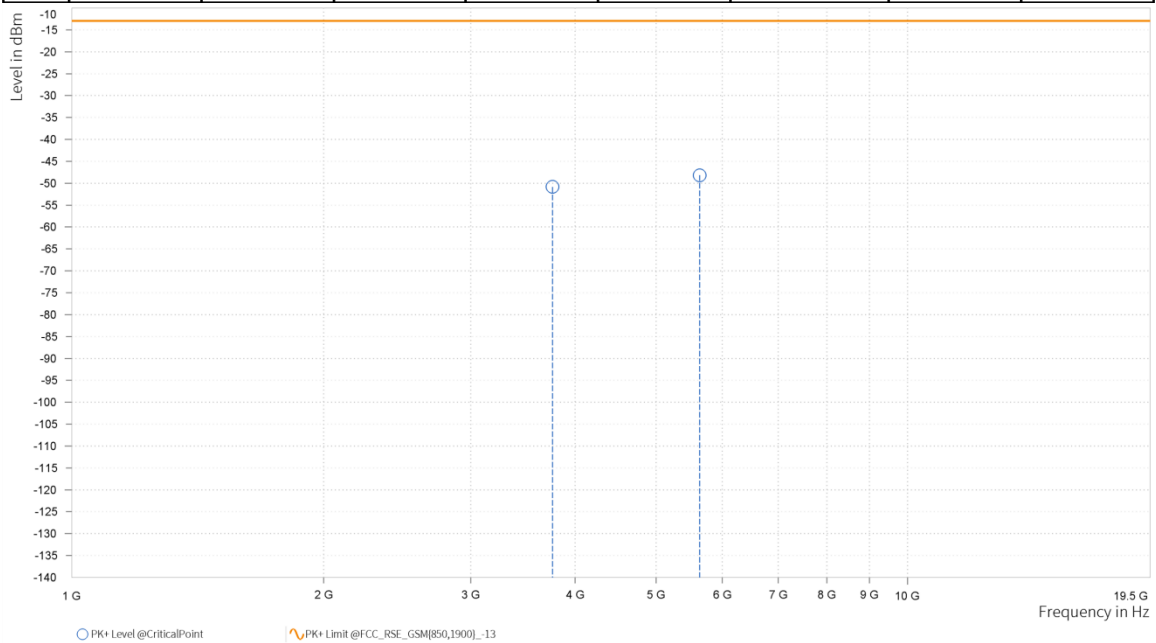
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,700.400	-49.76	-13.00	36.76	21.71	V	122.8	2.00
4	5,550.600	-47.91	-13.00	34.91	24.96	V	237.1	1.00





MODE	TX channel 661	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			

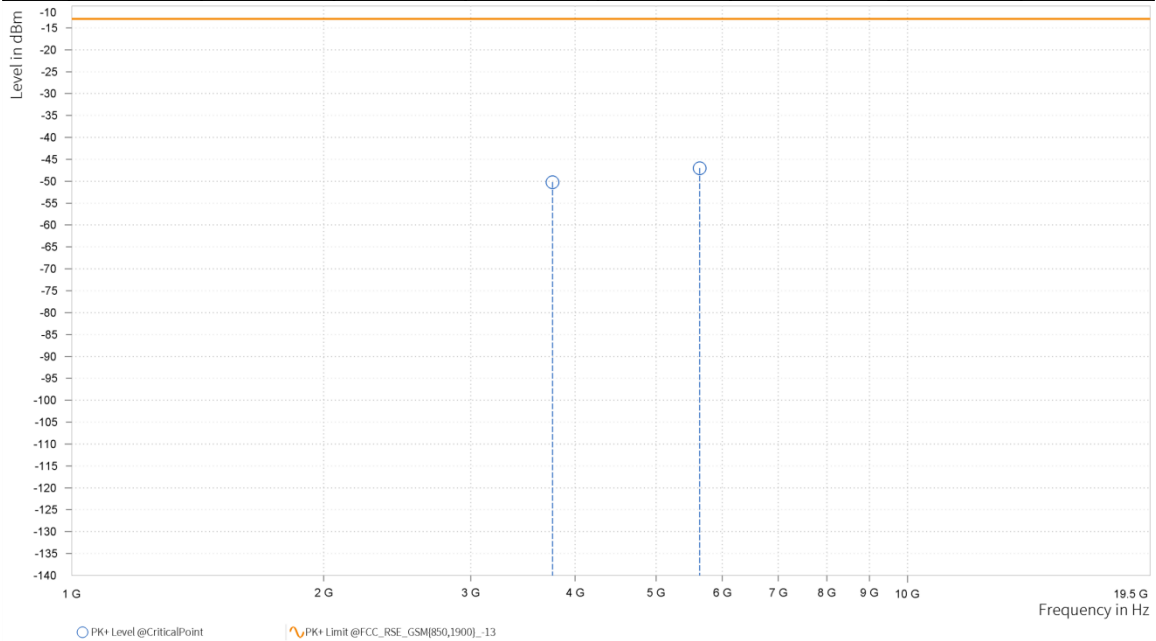
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-50.85	-13.00	37.85	21.64	H	279	1.00
4	5,640.000	-48.17	-13.00	35.17	24.79	H	0.9	2.00





MODE	TX channel 661	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	3,760.000	-50.23	-13.00	37.23	22.13	V	1	2.00
4	5,640.000	-47.01	-13.00	34.01	25.13	V	1	1.00

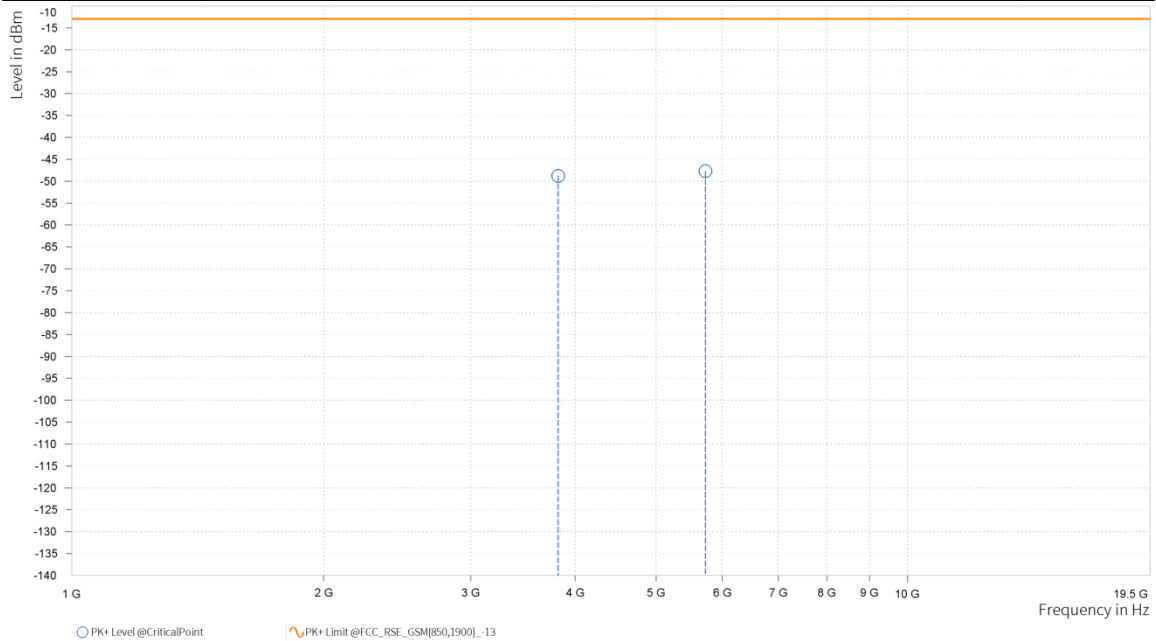




MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

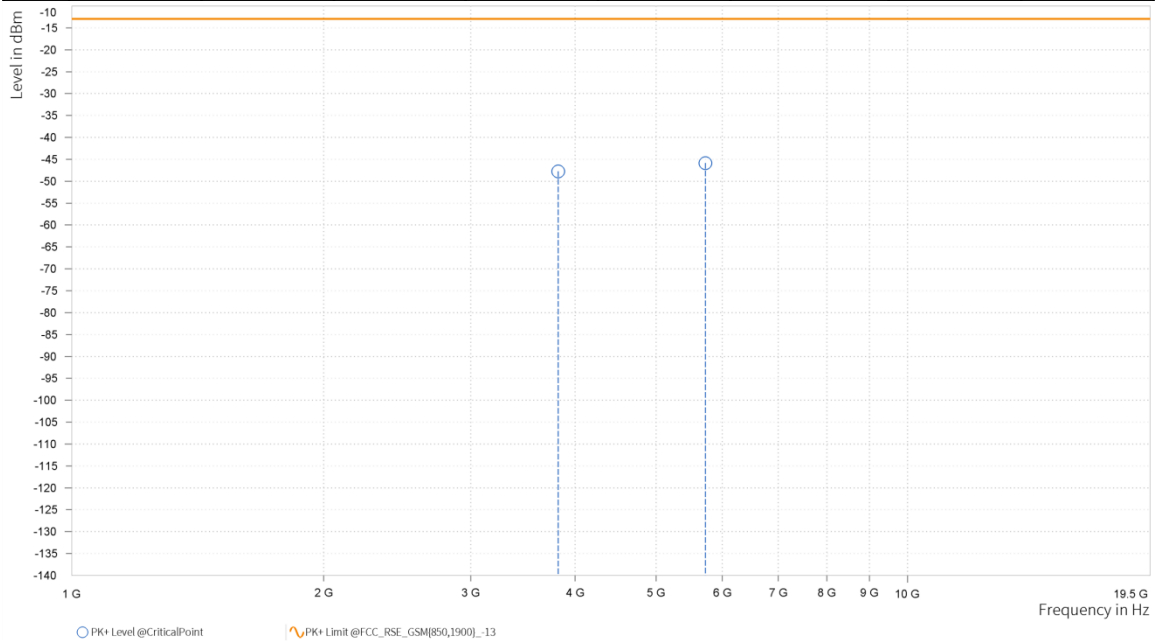
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,819.600	-48.78	-13.00	35.78	22.23	H	124	2.00
4	5,729.400	-47.70	-13.00	34.70	25.33	H	359	1.00

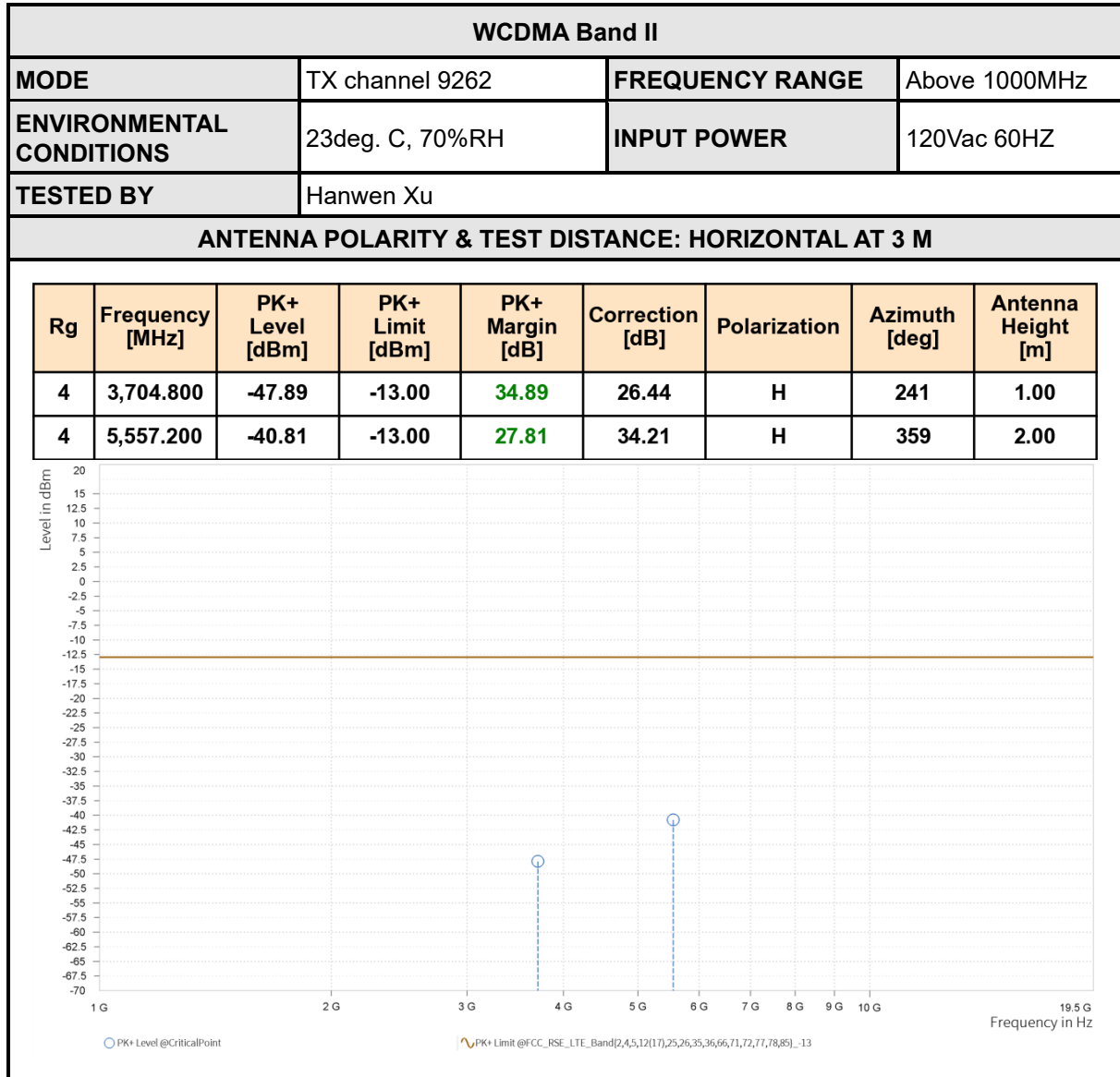




MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,819.600	-47.74	-13.00	34.74	22.58	V	235.9	1.00
4	5,729.400	-45.87	-13.00	32.87	25.79	V	122.8	2.00



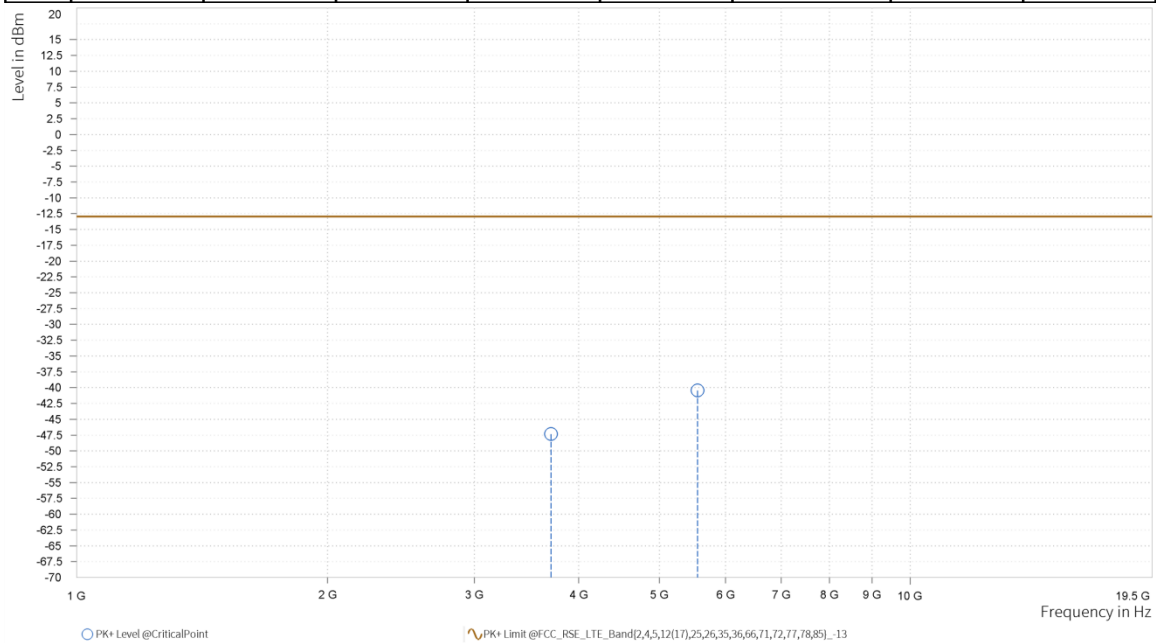




MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

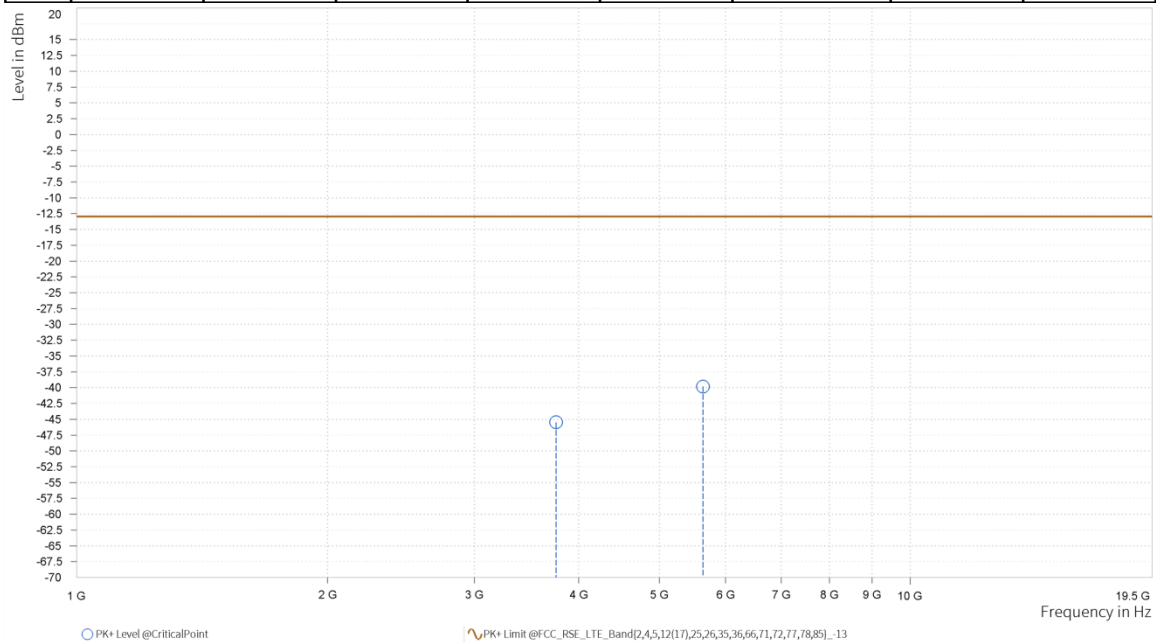
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,704.800	-47.34	-13.00	34.34	26.25	V	359	2.00
4	5,557.200	-40.45	-13.00	27.45	33.96	V	1	1.00





MODE	TX channel 9400	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			

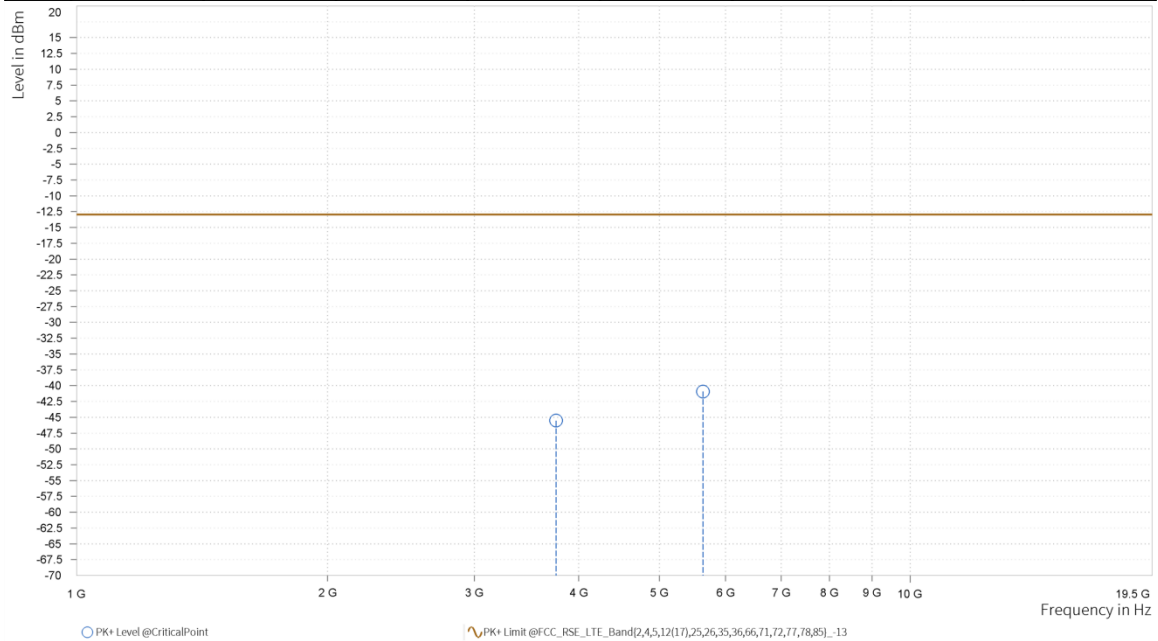
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-45.47	-13.00	32.47	28.21	H	359	2.00
4	5,640.000	-39.81	-13.00	26.81	34.24	H	17.8	2.00





MODE	TX channel 9400	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			

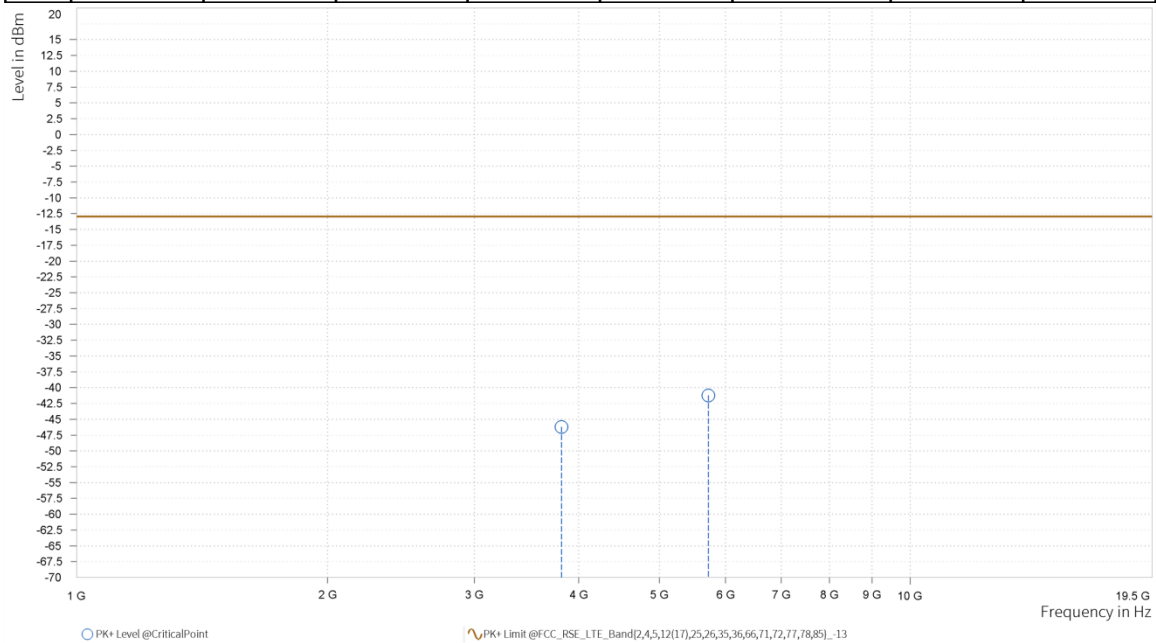
Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
4	3,760.000	-45.52	-13.00	32.52	27.89	V	66.4	2.00
4	5,640.000	-40.94	-13.00	27.94	33.97	V	359	1.00





MODE	TX channel 9538	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	3,815.200	-46.20	-13.00	33.20	27.79	H	245.8	1.00
4	5,722.800	-41.24	-13.00	28.24	34.60	H	1	1.00

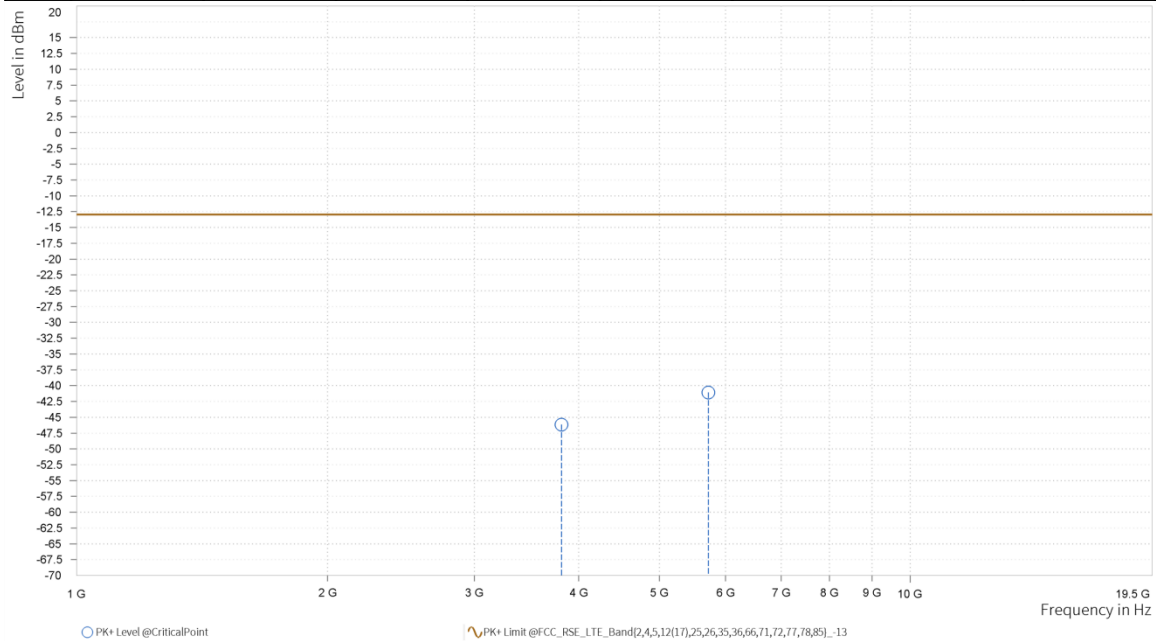


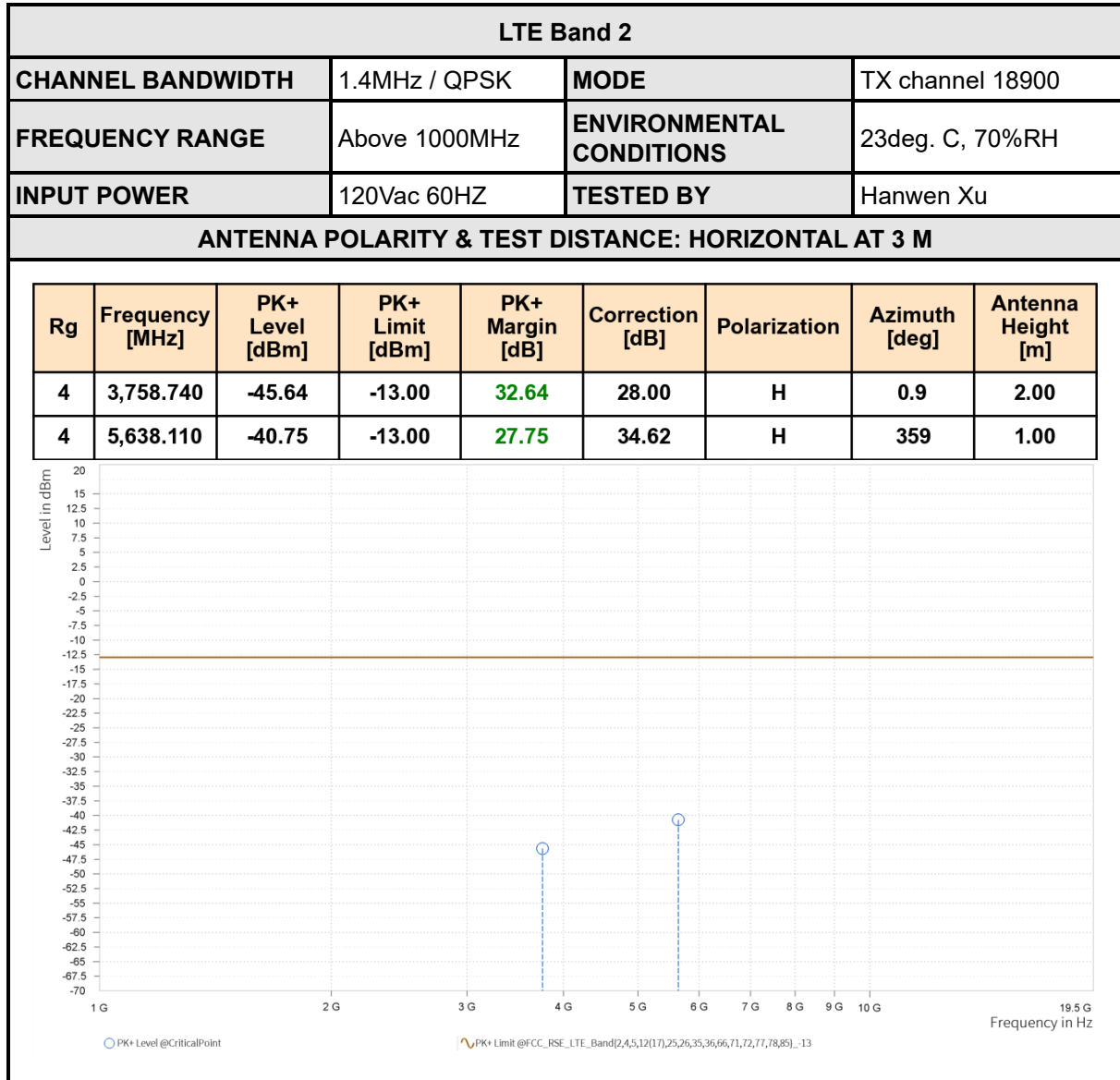


MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	3,815.200	-46.17	-13.00	33.17	27.50	V	114.3	2.00
4	5,722.800	-41.08	-13.00	28.08	34.34	V	0.8	2.00



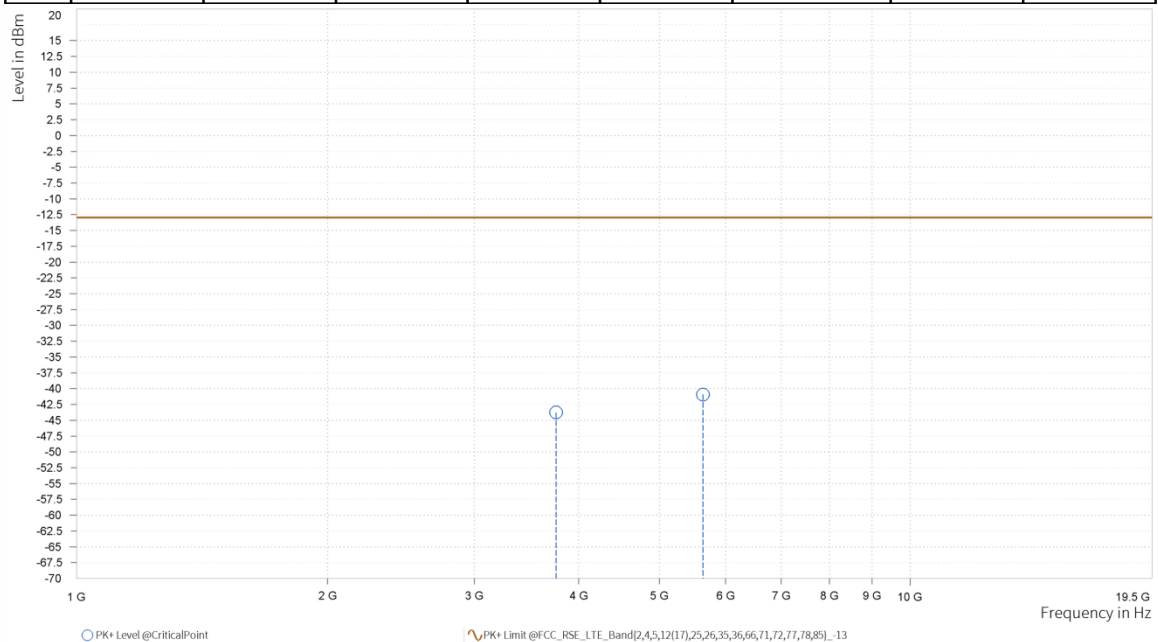




CHANNEL BANDWIDTH	1.4MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,758.740	-43.77	-13.00	30.77	27.69	V	359.1	1.00
4	5,638.110	-40.94	-13.00	27.94	34.35	V	359.1	1.00

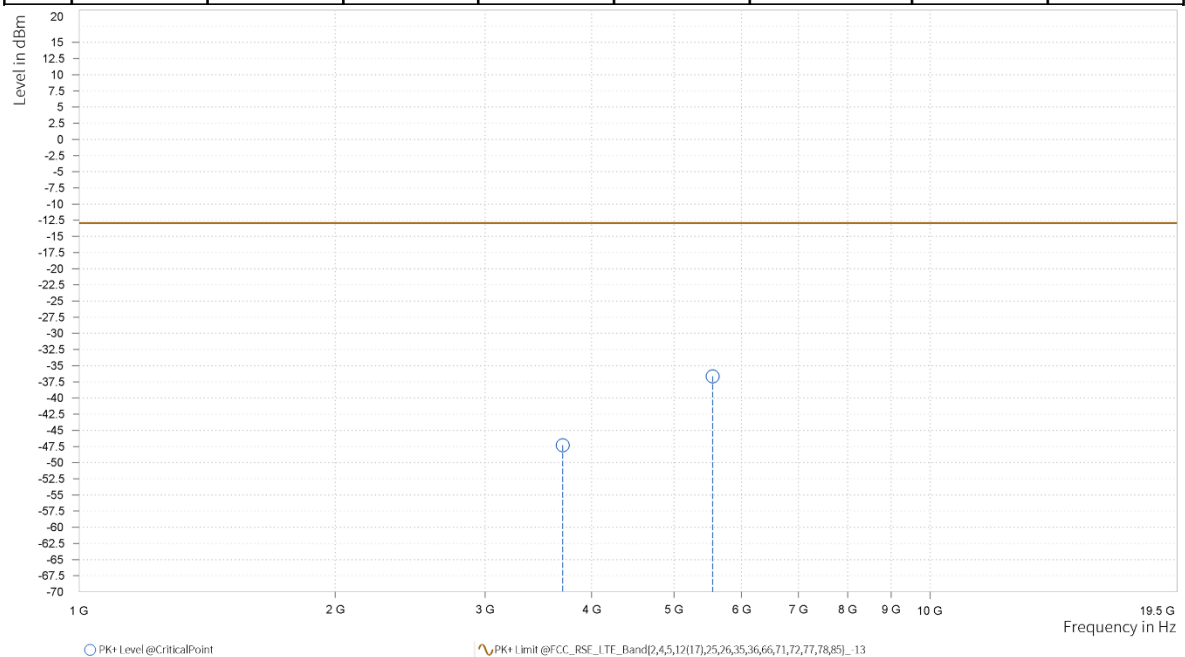




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18615
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,700.300	-47.32	-13.00	34.32	26.34	H	17.9	2.00
4	5,550.450	-36.65	-13.00	23.65	34.64	H	1	1.00

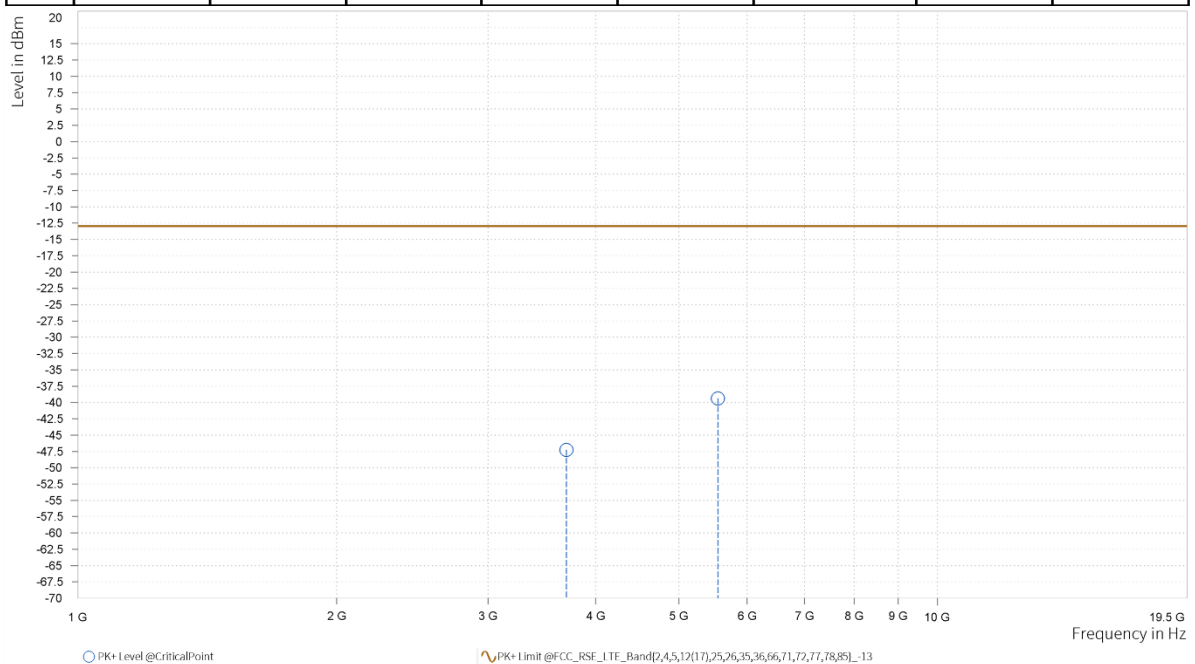




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18615
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,700.300	-47.26	-13.00	34.26	26.16	V	359.1	1.00
4	5,550.450	-39.36	-13.00	26.36	34.38	V	242.2	1.00



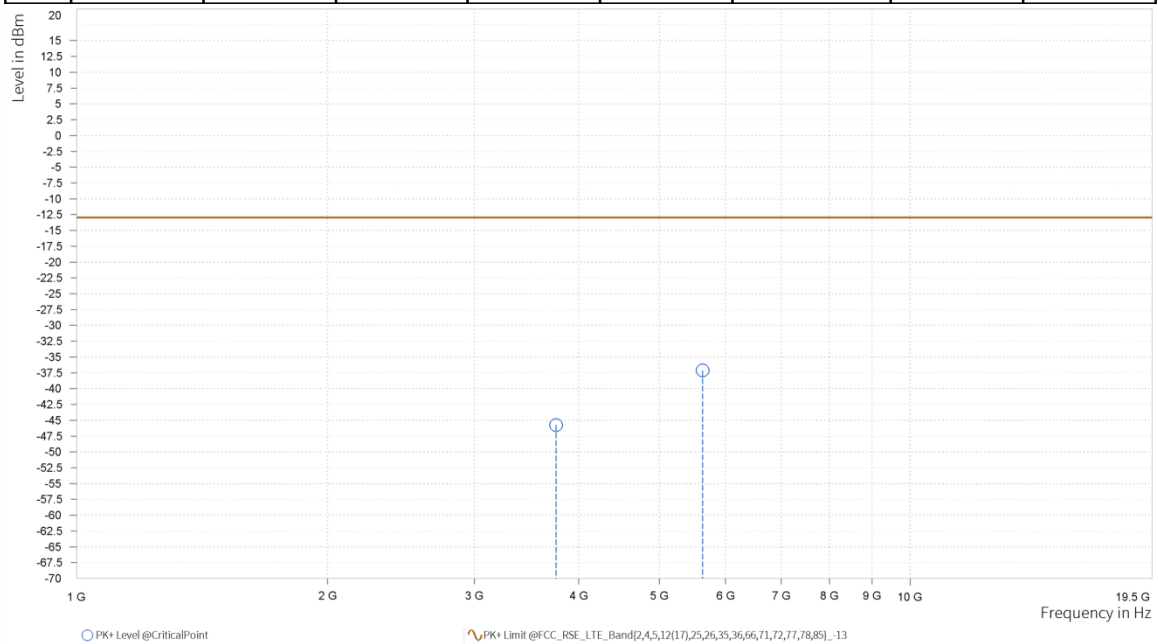


BUREAU VERITAS Test Report No.: PSU-NQN2412090210RF07

CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18900
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	3,757.300	-45.75	-13.00	32.75	27.86	H	28.2	2.00
4	5,635.950	-37.13	-13.00	24.13	35.00	H	359	1.00

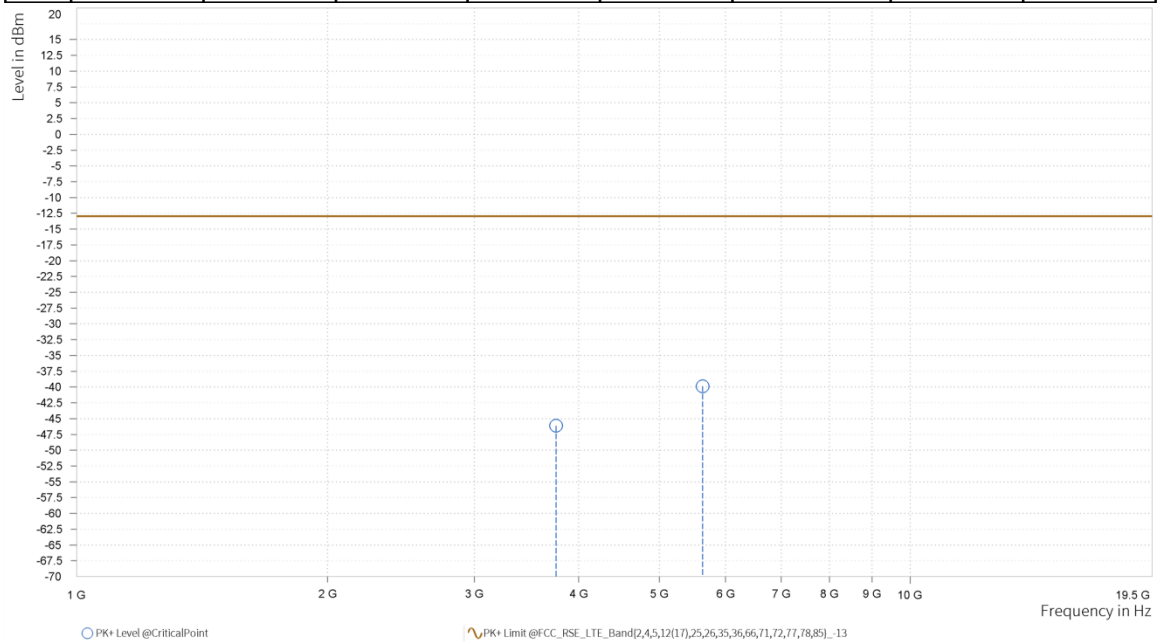




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,757.300	-46.13	-13.00	33.13	27.55	V	0.9	2.00
4	5,635.950	-39.88	-13.00	26.88	34.73	V	233.8	1.00

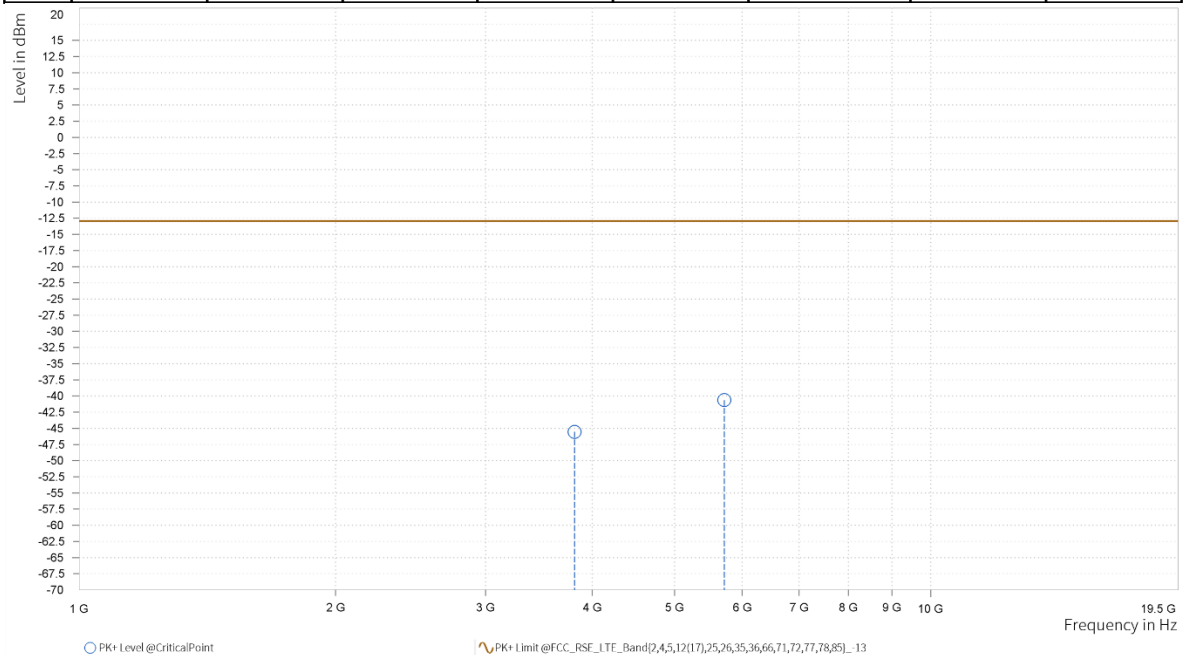




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 19185
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,814.300	-45.55	-13.00	32.55	27.76	H	359.1	1.00
4	5,721.450	-40.66	-13.00	27.66	34.40	H	120.2	2.00

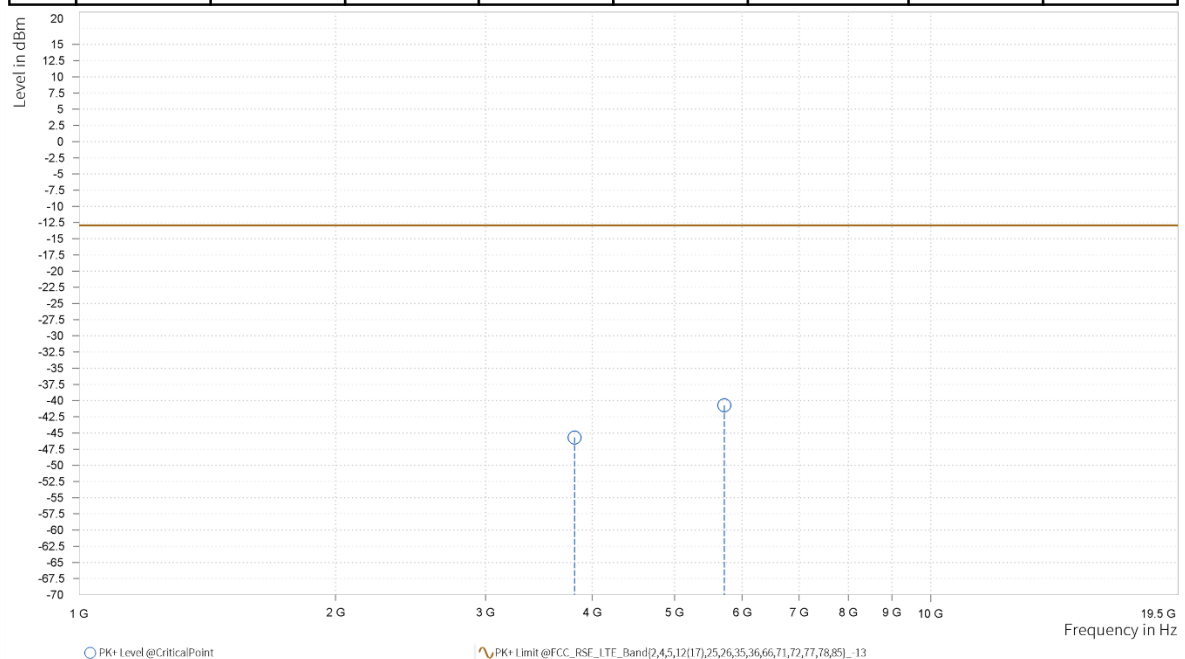




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 19185
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,814.300	-45.71	-13.00	32.71	27.47	V	1	1.00
4	5,721.450	-40.74	-13.00	27.74	34.14	V	1	1.00

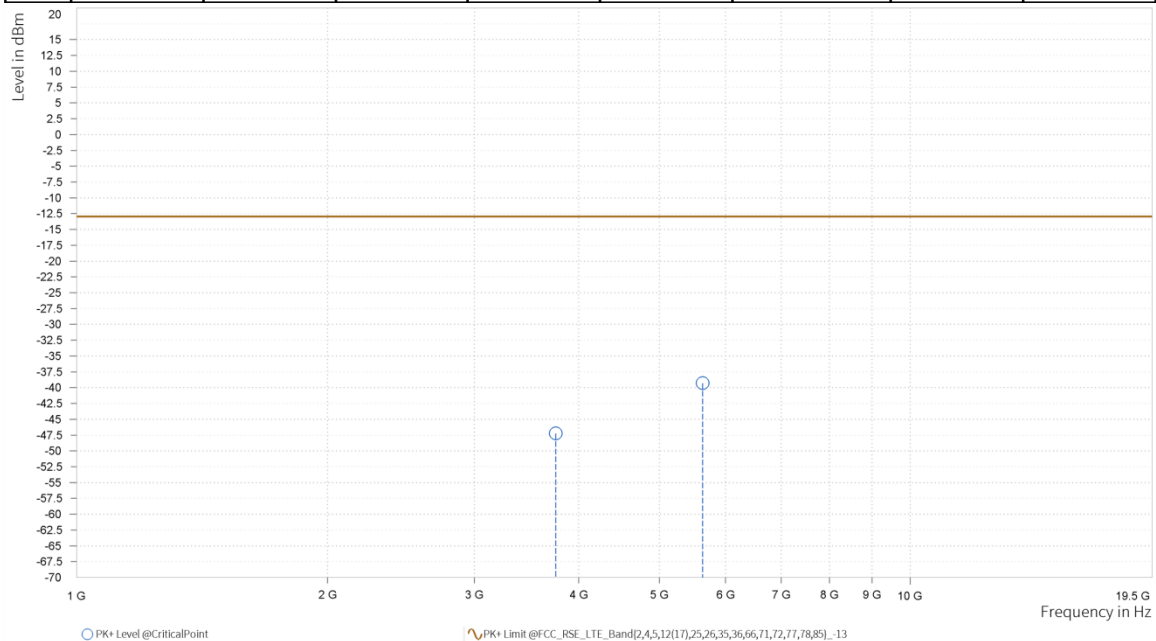




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,755.500	-47.24	-13.00	34.24	27.58	H	1	1.00
4	5,633.250	-39.28	-13.00	26.28	35.57	H	27.1	2.00

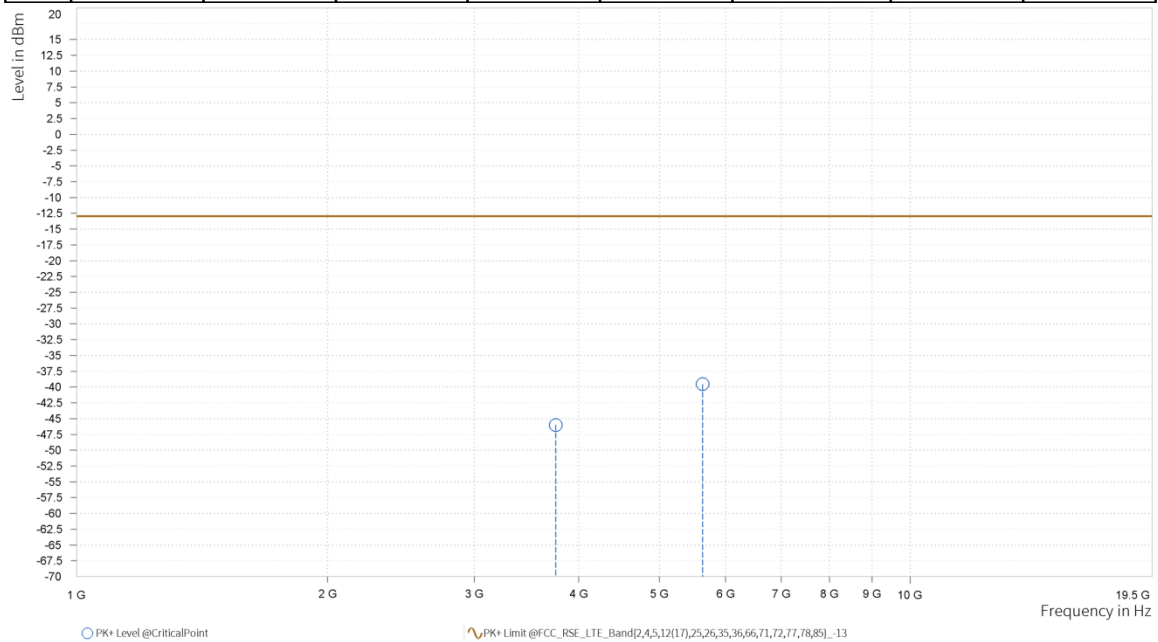




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,755.500	-46.00	-13.00	33.00	27.28	V	120.2	2.00
4	5,633.250	-39.56	-13.00	26.56	35.31	V	279.3	1.00

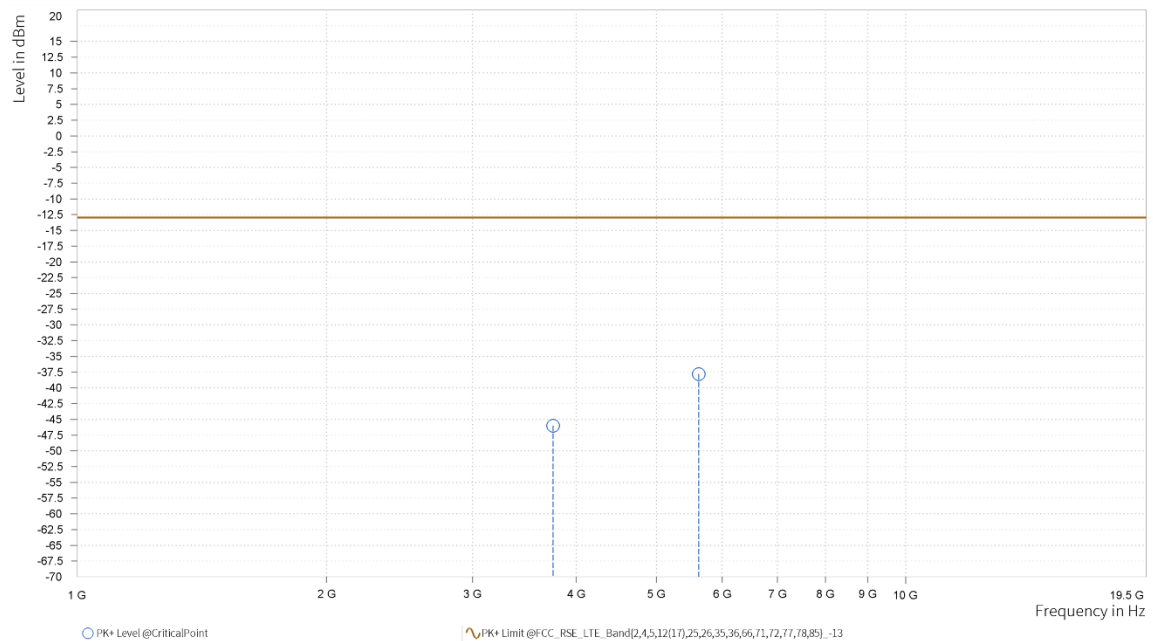




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,751.000	-46.01	-13.00	33.01	26.95	H	359.1	1.00
4	5,626.500	-37.82	-13.00	24.82	35.71	H	359	2.00





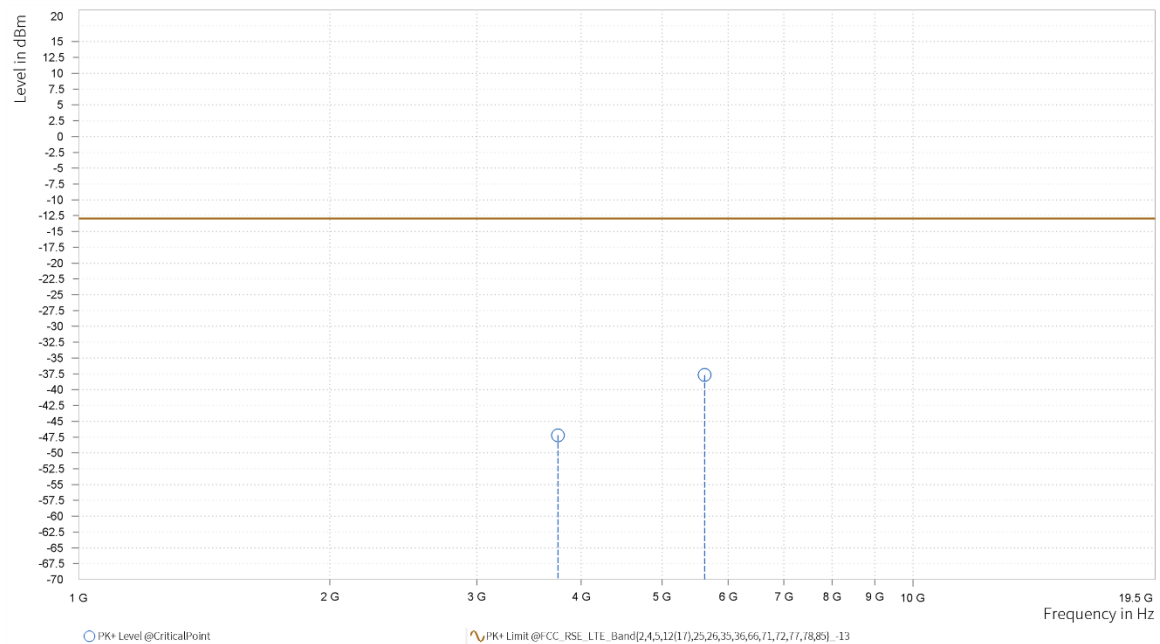
BUREAU
VERITAS

Test Report No.: PSU-NQN2412090210RF07

CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18900
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	3,751.000	-47.21	-13.00	34.21	26.66	V	0.9	2.00
4	5,626.500	-37.67	-13.00	24.67	35.45	V	0.9	2.00

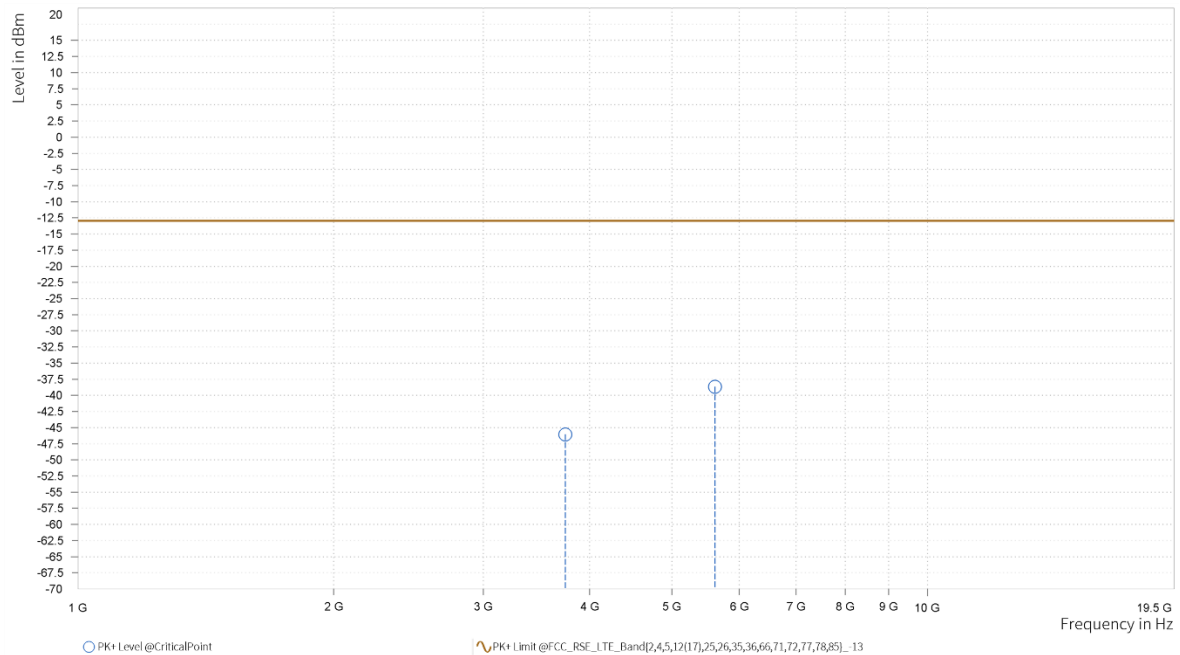




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,746.500	-46.05	-13.00	33.05	27.08	H	1	2.00
4	5,619.750	-38.66	-13.00	25.66	34.89	H	241	1.00





CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 18900
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	3,746.500	-46.65	-13.00	33.65	26.79	V	119	2.00
4	5,619.750	-38.83	-13.00	25.83	34.63	V	236.3	1.00

