



FCC TEST REPORT

(PART 24)

Applicant:	JetWave Technology Co., Ltd.
Address:	Building 6, Floor 10, Room 1001-4, No. 5 Xingshengfang Road, Daxing District, Beijing, China

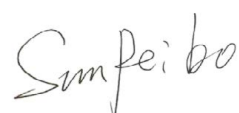
Manufacturer or Supplier:	JetWave Technology Co., Ltd.
Address:	Building 6, Floor 10, Room 1001-4, No. 5 Xingshengfang Road, Daxing District, Beijing, China
Product	Remote control for the electric Hydrofoil surfboard
Brand Name	Jetwave
Model Name	RC2000 / RC2000-a
Marketing Name	Smart Controller
FCC ID:	2BQTS-RC2000
Date of tests:	Feb. 24, 2025 ~ Jul. 25, 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: Jul. 25, 2025	Date: Jul. 25, 2025

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QSU2503210311RF02	Original release	Jul. 25, 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, China

Accredited Test Lab Cert 6613.01

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

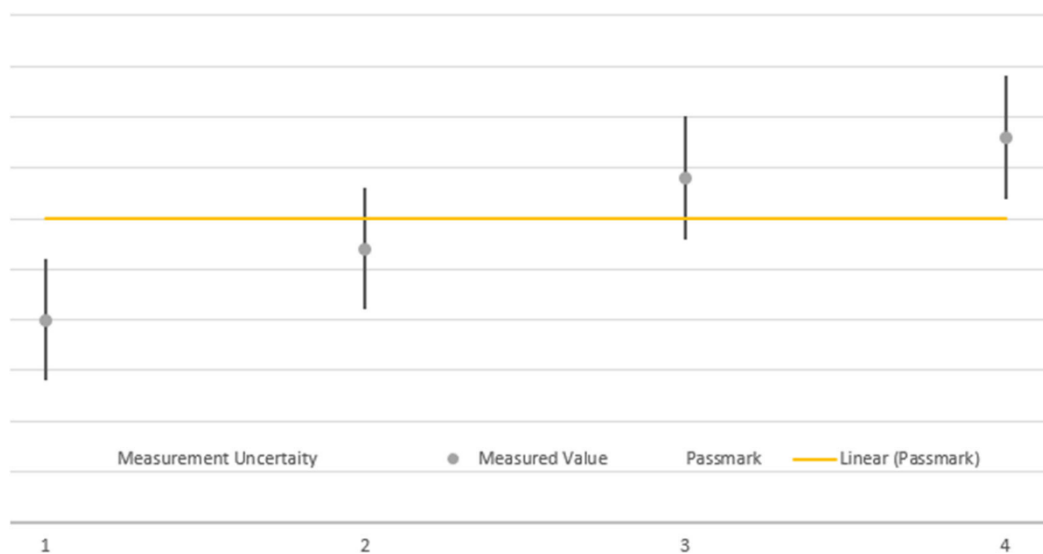


1.1 MEASUREMENT UNCERTAINTY

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	$\pm 76.97\text{Hz}$
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.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*	Remote control for the electric Hydrofoil surfboard	
BRAND NAME*	Jetwave	
MODEL NAME*	RC2000 / RC2000-a	
MARKETING NAME*	Smart Controller	
Nominal Voltage*	DC 3.7V(Battery)	
MODULATION TYPE*	WCDMA: QPSK, 16QAM LTE Band 2: QPSK, 16QAM, 64QAM	
FREQUENCY RANGE	WCDMA II	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
	WCDMA II	232.27mW
MAX. EIRP POWER	LTE Band 2 Channel Bandwidth: 1.4MHz	210.86mW
	LTE Band 2 Channel Bandwidth: 3MHz	207.97mW
	LTE Band 2 Channel Bandwidth: 5MHz	210.86mW
	LTE Band 2 Channel Bandwidth: 10MHz	210.86mW
	LTE Band 2 Channel Bandwidth: 15MHz	207.01mW
	LTE Band 2 Channel Bandwidth: 20MHz	213.80mW
	WCDMA II	232.27mW
	LTE Band 2 Channel Bandwidth: 1.4MHz	210.86mW



EMISSION DESIGNATOR	WCDMA	4M17F9W
	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 1M09G7D
		16QAM: 1M09W7D
		64QAM: 1M10W7D
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK: 2M69G7D
		16QAM: 2M69W7D
		64QAM: 2M69W7D
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 4M50G7D
		16QAM: 4M49W7D
		64QAM: 4M48W7D
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK: 8M98G7D
		16QAM: 8M97W7D
		64QAM: 8M97W7D
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
ANTENNA GAIN*	WCDMA II LTE B2	QPSK: 18M0G7D
		16QAM: 17M9W7D
		64QAM: 17M9W7D
ANTENNA TYPE*	Fixed Internal Antenna	
HW VERSION*	V1.0	
SW VERSION*	V1.0	
I/O PORTS*	Refer to user's manual	
CABLE SUPPLIED*	USB cable: non-shielded cable, with w/o ferrite core, 1.0 meter	
EXTREME TEMPERATURE*	-20°C-55°C~	
EXTREME VOLTAGE*	3.5V-4.35V	

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.

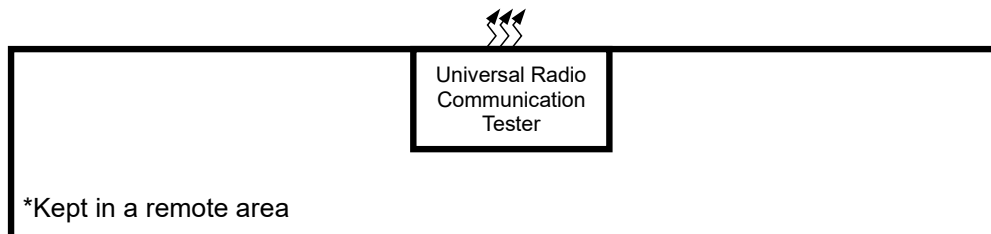
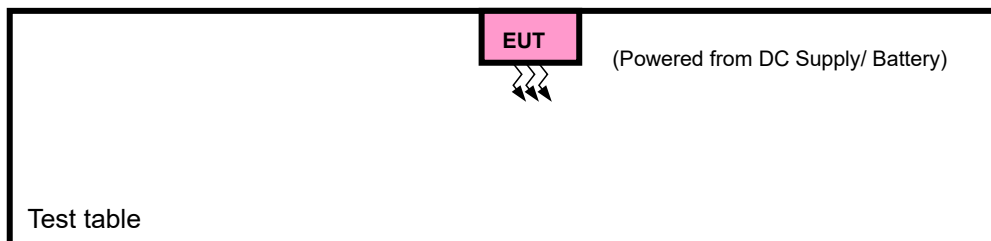
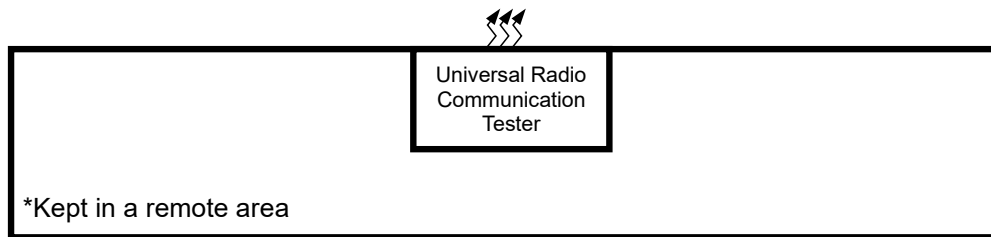
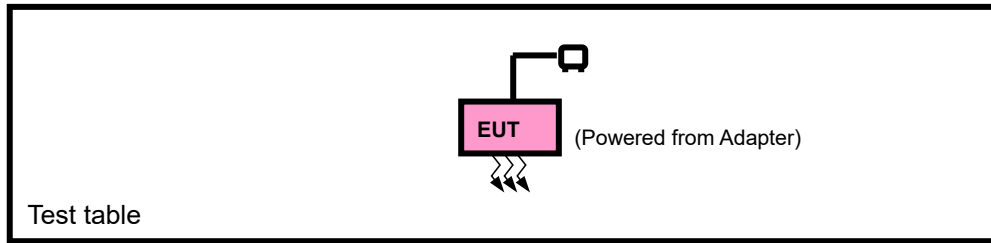
MODULATION MODE	TX FUNCTION
GSM/GPRS/EDGE	1TX/1RX
WCDMA	1TX/1RX
LTE	1TX/1RX

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 RC2000 and RC2000-a are merely differentiated by the different regions of shipment and the different naming conventions. Beyond that, all other functions are exactly the same.
6. List of Accessory:

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	N/A	N/A	N/A	Capacity : 3.7Vdc, 3400mAh
USB Cable	N/A	N/A	N/A	Signal Line,1.0meter



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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
2	DC Source	HYELEC	HY3010B	551016	N/A
3	Adapter	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable, 1.0m;
2	USB Line: Unshielded, Detachable, 1.0m;

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 WCDMA/ LTE. 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 + DC Supply with WCDMA or LTE link



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	1 RB / 0 RB offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM,64QAM	1 RB / 0 RB offset
B	FREQUENCY STABILITY	18700 to 19100	18700, 18900, 19100	20MHz	QPSK	Full RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	18607 to 19193	18607, 18900, 19193	1.4MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		18615 to 19185	18615, 18900, 19185	3MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		18625 to 19175	18625, 18900, 19175	5MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		18650 to 19150	18650, 18900, 19150	10MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		18675 to 19125	18675, 18900, 19125	15MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		18700 to 19100	18700, 18900, 19100	20MHz	QPSK,16QAM,64QAM	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, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19193	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 5 RB Offset Full RB / 0 RB Offset
		18615 to 19185	18615	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19185	3MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset Full RB / 0 RB Offset
		18625 to 19175	18625	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19175	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset Full RB / 0 RB Offset
		18650 to 19150	18650	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19150	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset Full RB / 0 RB Offset
		18675 to 19125	18675	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19125	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset Full RB / 0 RB Offset
		18700 to 19100	18700	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
			19100	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset Full RB / 0 RB Offset
A	CONDCUETED 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	18900	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	18700, 18900, 19100	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 5V By Adapter	Hanwen Xu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.5V/ 3.7V/ 4.35V By DC Source	Hanwen Xu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
BAND EDGE	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
CONDCUDED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	Hanwen Xu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V By Adapter	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:

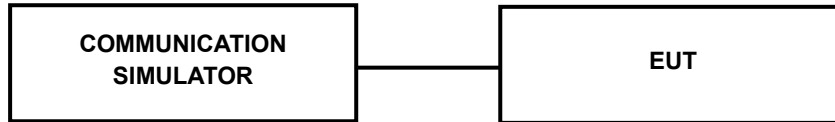
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm) :

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency (MHz)	1852.4	1880	1907.6
RMC 12.2K	22.62	22.66	22.64
HSDPA Subtest-1	22.06	22.32	22.26
HSDPA Subtest-2	22.04	22.14	22.18
HSDPA Subtest-3	21.72	21.64	21.50
HSDPA Subtest-4	21.62	21.54	21.74
DC-HSDPA Subtest-1	22.16	22.16	22.24
DC-HSDPA Subtest-2	22.24	22.12	22.14
DC-HSDPA Subtest-3	21.76	21.54	21.52
DC-HSDPA Subtest-4	21.62	21.76	21.72
HSUPA Subtest-1	22.24	22.24	22.00
HSUPA Subtest-2	21.04	21.04	21.20
HSUPA Subtest-3	21.68	21.62	21.52
HSUPA Subtest-4	21.16	21.16	21.00
HSUPA Subtest-5	22.04	22.16	22.16
HSPA+ Subtest-1	21.76	21.78	21.68



LTE Band 2						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		18700	18900	19100
		Frequency (MHz)		1860	1880	1900
20M	QPSK	1	0	21.97	21.94	21.95
		1	50	22.30	22.21	22.17
		1	99	22.01	21.99	21.98
		50	0	21.19	21.15	21.04
		50	25	21.29	21.23	21.21
		50	50	21.28	21.22	21.07
		100	0	21.18	21.15	21.01
	16QAM	1	0	21.07	21.14	21.04
		1	50	21.26	21.22	21.16
		1	99	21.15	21.21	21.04
		50	0	20.26	20.11	20.00
		50	25	20.29	20.18	20.17
		50	50	20.14	20.11	19.96
		100	0	20.19	20.07	19.96
	64QAM	1	0	20.16	20.15	20.13
		1	50	20.32	20.18	20.07
		1	99	20.11	20.06	19.97
		50	0	19.19	19.12	18.99
		50	25	19.13	19.08	19.06
		50	50	19.09	19.00	18.86
		100	0	19.14	19.08	19.07



LTE Band 2						
BW	Modulation	Channel		18675	18900	19125
		Frequency (MHz)		1857.5	1880	1902.5
15M	QPSK	1	0	21.89	21.84	21.85
		1	37	22.16	22.12	22.11
		1	74	21.95	21.89	21.94
		36	0	21.05	21.14	20.93
		36	19	21.22	21.13	21.13
		36	39	21.25	21.16	20.97
		75	0	21.03	21.11	21.00
	16QAM	1	0	21.00	21.01	20.89
		1	37	21.11	21.20	21.12
		1	74	21.07	21.11	20.92
		36	0	20.15	19.97	19.90
		36	19	20.24	20.07	20.11
		36	39	20.12	20.03	19.87
		75	0	20.15	19.94	19.93
	64QAM	1	0	20.15	20.01	20.01
		1	37	20.17	20.10	20.04
		1	74	19.98	20.02	19.84
		36	0	19.05	19.03	18.97
		36	19	19.01	18.94	18.96
		36	39	18.94	18.87	18.82
		75	0	19.12	18.95	18.94



LTE Band 2						
BW	Modulation	Channel		18650	18900	19150
		Frequency (MHz)		1855	1880	1905
10M	QPSK	1	0	21.92	21.81	21.91
		1	24	22.24	22.09	22.10
		1	49	21.88	21.87	21.88
		25	0	21.04	21.07	20.98
		25	12	21.27	21.17	21.14
		25	25	21.22	21.14	21.04
		50	0	21.05	21.10	20.87
	16QAM	1	0	21.05	21.04	20.91
		1	24	21.11	21.07	21.04
		1	49	21.08	21.06	20.91
		25	0	20.14	20.03	19.96
		25	12	20.18	20.03	20.04
		25	25	20.13	20.05	19.81
		50	0	20.05	20.02	19.91
	64QAM	1	0	20.05	20.10	20.09
		1	24	20.24	20.16	19.98
		1	49	20.08	20.02	19.84
		25	0	19.04	19.10	18.89
		25	12	19.10	19.03	18.91
		25	25	18.95	18.96	18.71
		50	0	19.09	19.03	19.03



LTE Band 2						
BW	Modulation	Channel		18625	18900	19175
		Frequency (MHz)		1852.5	1880	1907.5
5M	QPSK	1	0	21.88	21.81	21.86
		1	12	22.24	22.17	22.05
		1	24	21.88	21.94	21.85
		12	0	21.13	21.01	20.91
		12	6	21.20	21.12	21.18
		12	13	21.18	21.08	21.00
		25	0	21.16	21.11	21.00
	16QAM	1	0	21.06	20.99	20.92
		1	12	21.18	21.08	21.06
		1	24	21.10	21.09	20.98
		12	0	20.20	20.09	19.93
		12	6	20.14	20.17	20.06
		12	13	20.09	20.05	19.92
		25	0	20.08	20.03	19.94
	64QAM	1	0	20.05	20.08	20.05
		1	12	20.31	20.04	19.92
		1	24	20.02	20.03	19.96
		12	0	19.14	19.00	18.95
		12	6	19.10	19.07	19.02
		12	13	19.05	18.99	18.85
		25	0	19.10	19.01	18.98



LTE Band 2						
BW	Modulation	Channel		18615	18900	19185
		Frequency (MHz)		1851.5	1880	1908.5
3M	QPSK	1	0	21.85	21.83	21.87
		1	7	22.18	22.15	22.13
		1	14	21.88	21.97	21.86
		8	0	21.10	21.02	21.03
		8	3	21.22	21.13	21.10
		8	7	21.20	21.14	20.92
		15	0	21.05	21.03	20.90
	16QAM	1	0	20.97	21.04	20.91
		1	7	21.15	21.20	21.12
		1	14	21.11	21.08	20.91
		8	0	20.17	20.04	19.89
		8	3	20.17	20.15	20.14
		8	7	20.08	20.05	19.82
		15	0	20.16	19.93	19.82
	64QAM	1	0	20.03	20.11	20.08
		1	7	20.27	20.08	19.97
		1	14	19.99	20.01	19.90
		8	0	19.09	19.06	18.98
		8	3	19.08	19.02	18.98
		8	7	19.07	18.97	18.82
		15	0	19.09	18.95	18.92



LTE Band 2						
BW	Modulation	Channel		18607	18900	19193
		Frequency (MHz)		1850.7	1880	1909.3
1.4M	QPSK	1	0	21.86	21.89	21.84
		1	2	22.24	22.09	22.06
		1	5	21.91	21.96	21.89
		3	0	21.98	21.82	21.76
		3	1	22.06	21.98	21.89
		3	3	22.07	22.03	21.82
		6	0	21.13	21.10	20.89
	16QAM	1	0	21.00	20.99	21.00
		1	2	21.19	21.16	21.08
		1	5	21.07	21.10	20.92
		3	0	20.96	20.88	20.75
		3	1	21.01	20.97	20.84
		3	3	20.89	20.89	20.69
		6	0	20.09	19.95	19.85
	64QAM	1	0	20.15	20.05	20.08
		1	2	20.17	20.09	19.92
		1	5	19.99	19.91	19.88
		3	0	19.99	19.87	19.76
		3	1	19.86	19.89	19.73
		3	3	19.84	19.77	19.67
		6	0	19.09	18.93	18.98



EIRP POWER (dBm)

WCDMA II						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
9262	1852.4	22.62	1	23.62	230.14	2
9400	1880	22.66	1	23.66	232.27	2
9538	1907.6	22.64	1	23.64	231.21	2

LTE Band 2							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
20M-QPSK	18700	1860	22.30	1	23.30	213.80	2
	18900	1880	22.21	1	23.21	209.41	2
	19100	1900	22.17	1	23.17	207.49	2
20M-16QAM	18700	1860	21.26	1	22.26	168.27	2
	18900	1880	21.22	1	22.22	166.72	2
	19100	1900	21.16	1	22.16	164.44	2
20M-64QAM	18700	1860	20.32	1	21.32	135.52	2
	18900	1880	20.18	1	21.18	131.22	2
	19100	1900	20.13	1	21.13	129.72	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
15M-QPSK	18675	1857.5	22.16	1	23.16	207.01	2
	18900	1880	22.12	1	23.12	205.12	2
	19125	1902.5	22.11	1	23.11	204.64	2
15M-16QAM	18675	1857.5	21.11	1	22.11	162.55	2
	18900	1880	21.20	1	22.20	165.96	2
	19125	1902.5	21.12	1	22.12	162.93	2
15M-64QAM	18675	1857.5	20.17	1	21.17	130.92	2
	18900	1880	20.10	1	21.10	128.82	2
	19125	1902.5	20.04	1	21.04	127.06	2



LTE Band 2							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
10M-QPSK	18650	1855	22.24	1	23.24	210.86	2
	18900	1880	22.09	1	23.09	203.70	2
	19150	1905	22.10	1	23.10	204.17	2
10M-16QAM	18650	1855	21.11	1	22.11	162.55	2
	18900	1880	21.07	1	22.07	161.06	2
	19150	1905	21.04	1	22.04	159.96	2
10M-64QAM	18650	1855	20.24	1	21.24	133.05	2
	18900	1880	20.16	1	21.16	130.62	2
	19150	1905	20.09	1	21.09	128.53	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
5M-QPSK	18625	1852.5	22.24	1	23.24	210.86	2
	18900	1880	22.17	1	23.17	207.49	2
	19175	1907.5	22.05	1	23.05	201.84	2
5M-16QAM	18625	1852.5	21.18	1	22.18	165.20	2
	18900	1880	21.09	1	22.09	161.81	2
	19175	1907.5	21.06	1	22.06	160.69	2
5M-64QAM	18625	1852.5	20.31	1	21.31	135.21	2
	18900	1880	20.08	1	21.08	128.23	2
	19175	1907.5	20.05	1	21.05	127.35	2



LTE Band 2							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
3M-QPSK	18615	1851.5	22.18	1	23.18	207.97	2
	18900	1880	22.15	1	23.15	206.54	2
	19185	1908.5	22.13	1	23.13	205.59	2
3M-16QAM	18615	1851.5	21.15	1	22.15	164.06	2
	18900	1880	21.20	1	22.20	165.96	2
	19185	1908.5	21.12	1	22.12	162.93	2
3M-64QAM	18615	1851.5	20.27	1	21.27	133.97	2
	18900	1880	20.11	1	21.11	129.12	2
	19185	1908.5	20.08	1	21.08	128.23	2
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	EIRP (dBm)	EIRP (mW)	Limit (W)
1.4M-QPSK	18607	1850.7	22.24	1	23.24	210.86	2
	18900	1880	22.09	1	23.09	203.70	2
	19193	1909.3	22.06	1	23.06	202.30	2
1.4M-16QAM	18607	1850.7	21.19	1	22.19	165.58	2
	18900	1880	21.16	1	22.16	164.44	2
	19193	1909.3	21.08	1	22.08	161.44	2
1.4M-64QAM	18607	1850.7	20.17	1	21.17	130.92	2
	18900	1880	20.09	1	21.09	128.53	2
	19193	1909.3	20.08	1	21.08	128.23	2

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



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

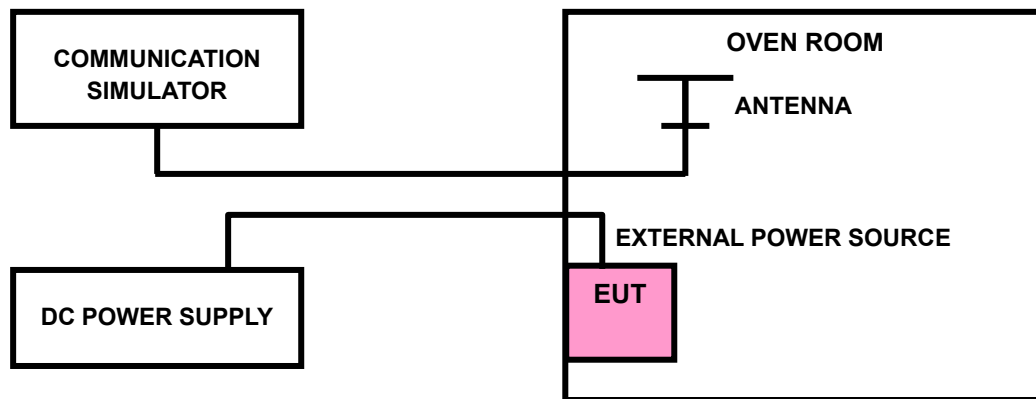
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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.

Note: VL = Low voltage(3.5V); VN/NV = Normal voltage(3.7V); VH = High voltage(4.35V);

NT = Normal temperature (25°C)

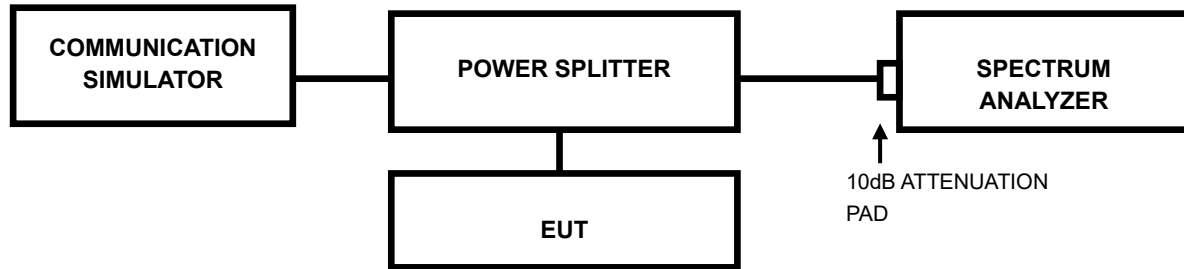


3.3 OCCUPIED BANDWIDTH MEASUREMENT

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.

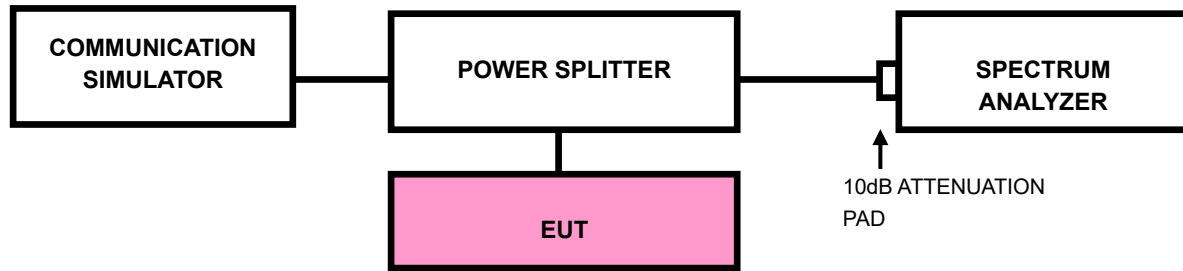


3.4 BAND EDGE MEASUREMENTC

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

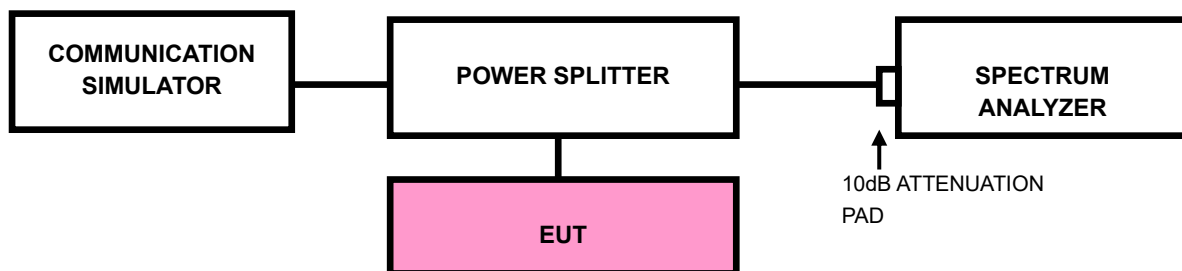
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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.

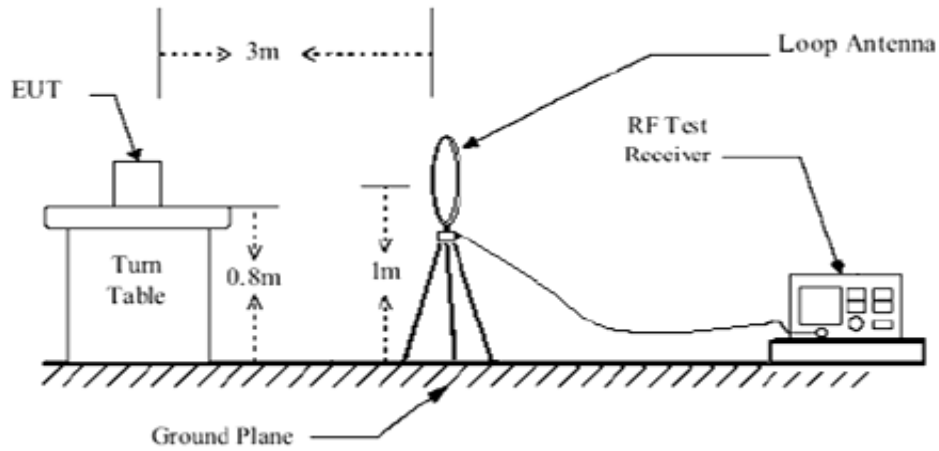
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

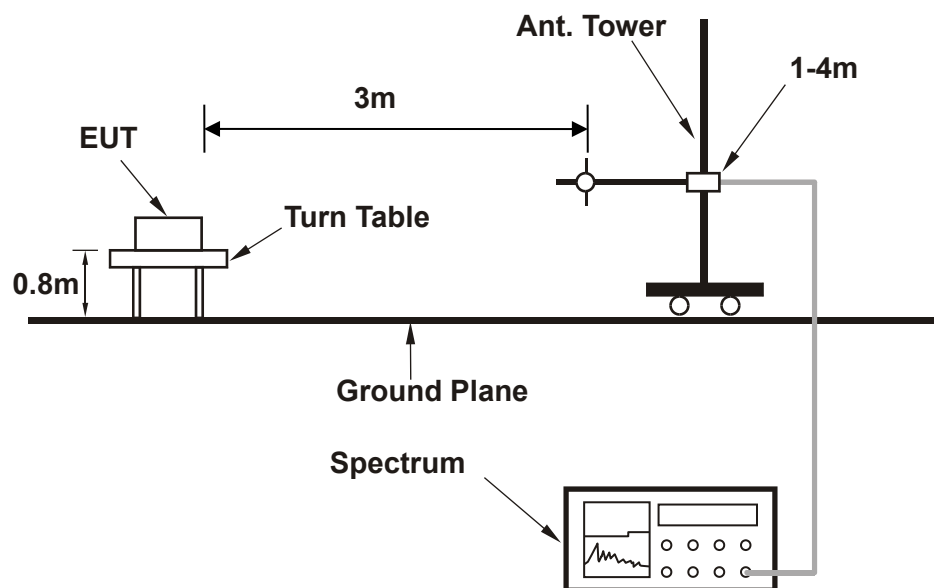


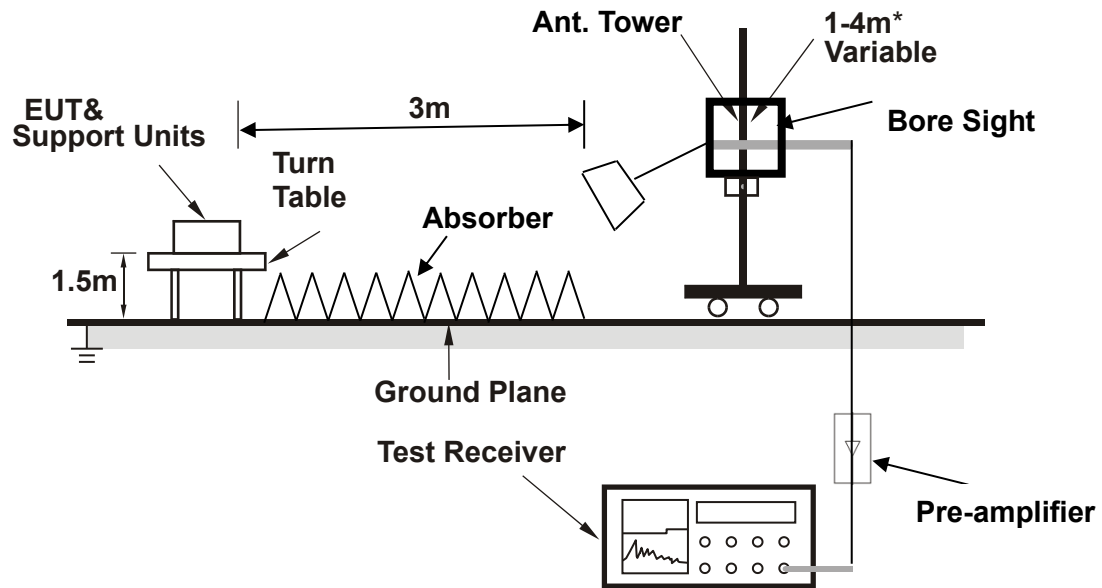
3.6.4 TEST SETUP

< 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).



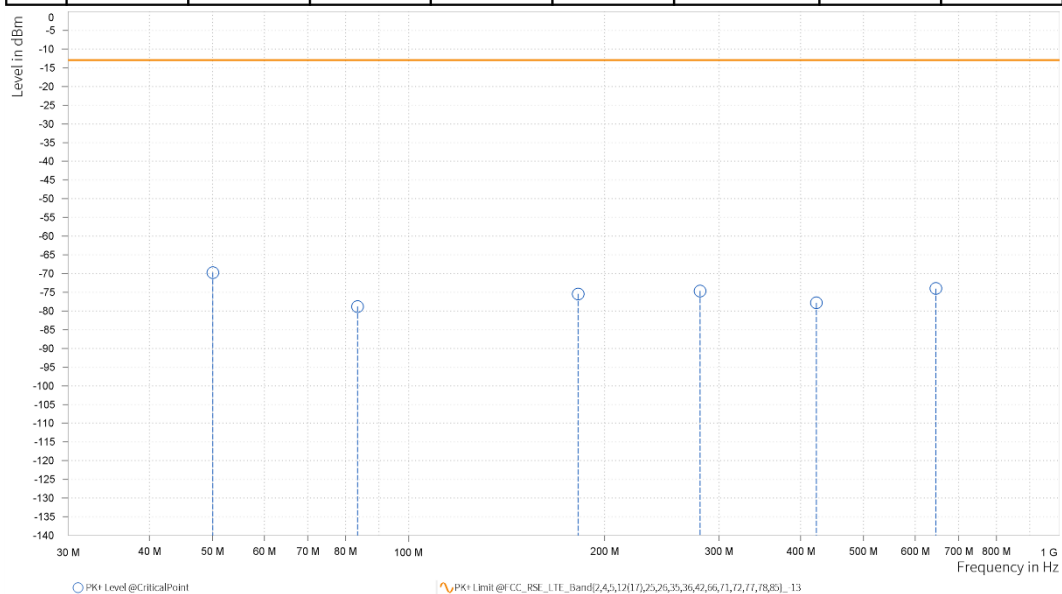
3.6.5 TEST RESULTS

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

WCDMA II			
MODE	TX channel 9538	FREQUENCY RANGE	30 MHz – 1GHz
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]
1	50.050	-69.73	-13.00	56.73	-3.53	H	4.8	1.00
1	83.450	-78.81	-13.00	65.81	-13.13	H	4.8	1.00
1	182.150	-75.44	-13.00	62.44	-7.28	H	290.9	1.00
1	280.300	-74.67	-13.00	61.67	-1.41	H	226.3	1.00
1	423.300	-77.82	-13.00	64.82	1.34	H	290.9	1.00
2	645.708	-74.02	-13.00	61.02	1.14	H	175	1.00

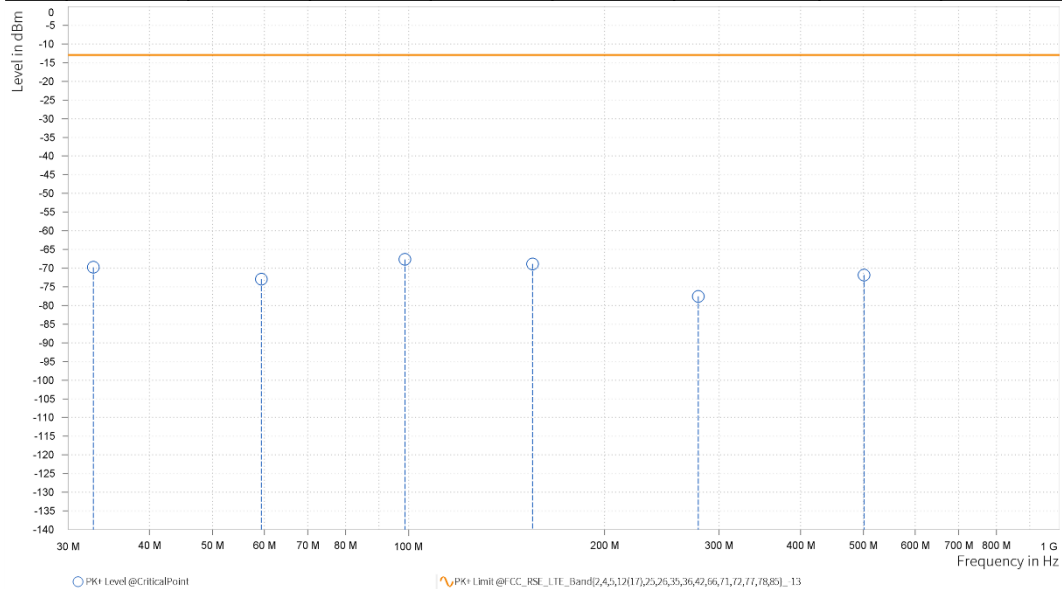




MODE	TX channel 9538	FREQUENCY RANGE	30 MHz – 1GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	32.800	-69.77	-13.00	56.77	-6.81	V	4.9	1.00
1	59.400	-72.96	-13.00	59.96	-5.07	V	359	1.00
1	98.750	-67.67	-13.00	54.67	5.04	V	97.3	1.00
1	155.000	-68.88	-13.00	55.88	-11.32	V	4.9	1.00
1	278.800	-77.55	-13.00	64.55	-1.71	V	132.4	2.00
2	500.875	-71.88	-13.00	58.88	-0.50	V	53	1.00





ABOVE 1GHz DATA

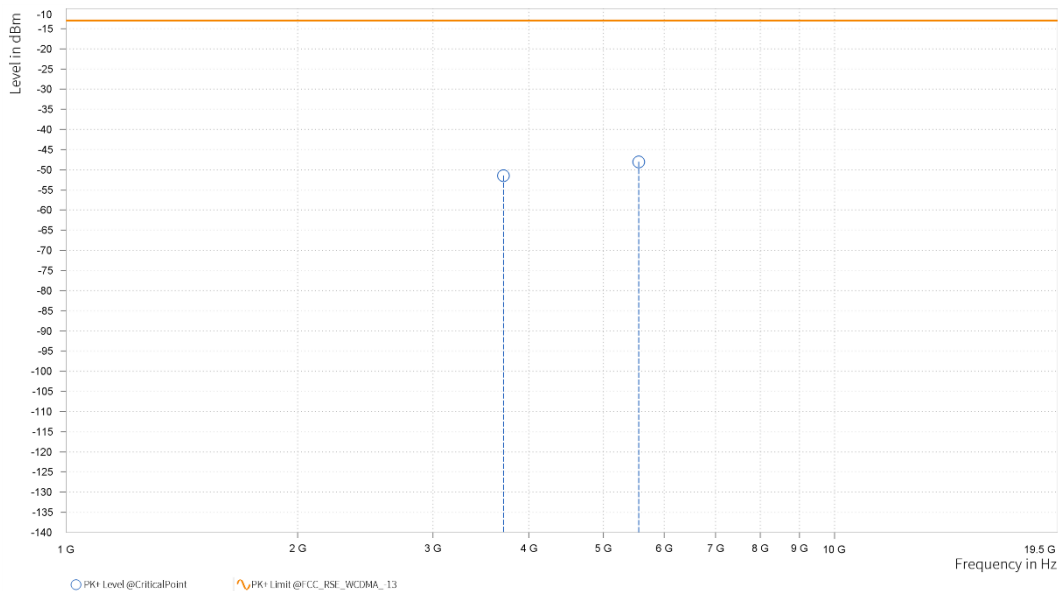
Note: For higher frequency, the emission is too low to be detected.

WCDMA Band II

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: 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	3,704.800	-51.46	-13.00	38.46	21.13	H	129.4	2.00
4	5,557.200	-48.04	-13.00	35.04	24.27	H	359	1.00

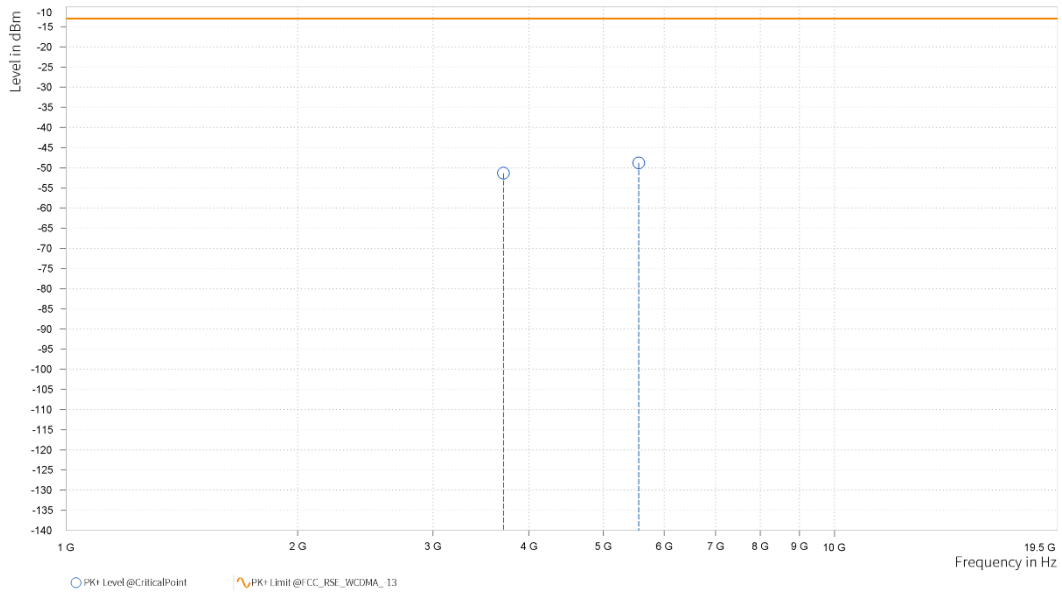




MODE	TX channel 9262	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	-51.35	-13.00	38.35	21.74	V	230.6	1.00
4	5,557.200	-48.80	-13.00	35.80	24.97	V	326.8	1.00

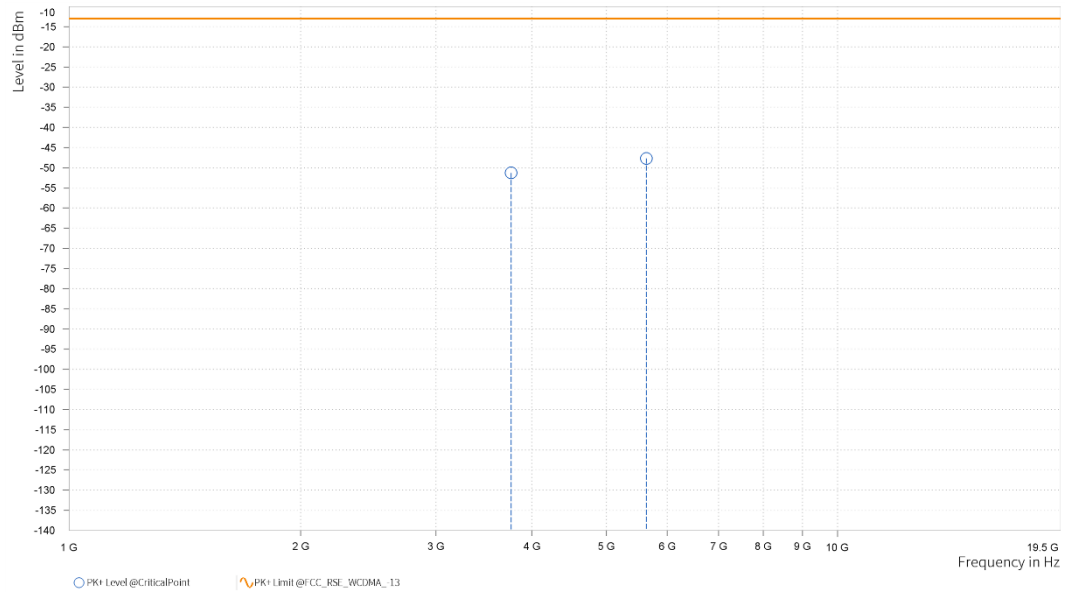




MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	-51.29	-13.00	38.29	21.64	H	358.8	1.00
4	5,640.000	-47.68	-13.00	34.68	24.79	H	18.2	2.00

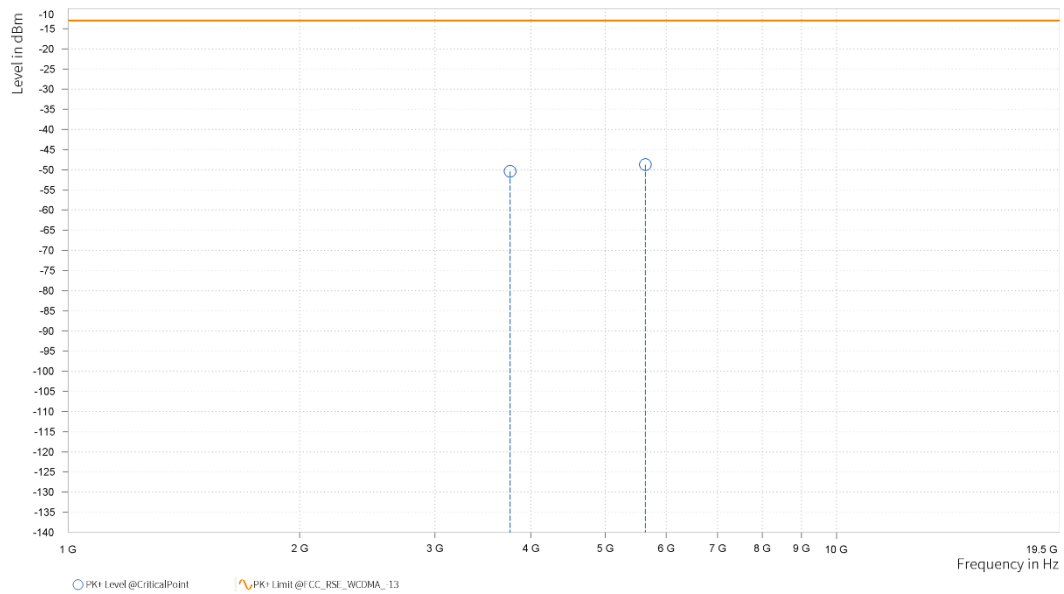




MODE	TX channel 9400	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	-50.41	-13.00	37.41	22.13	V	183.2	1.00
4	5,640.000	-48.72	-13.00	35.72	25.13	V	1	1.00

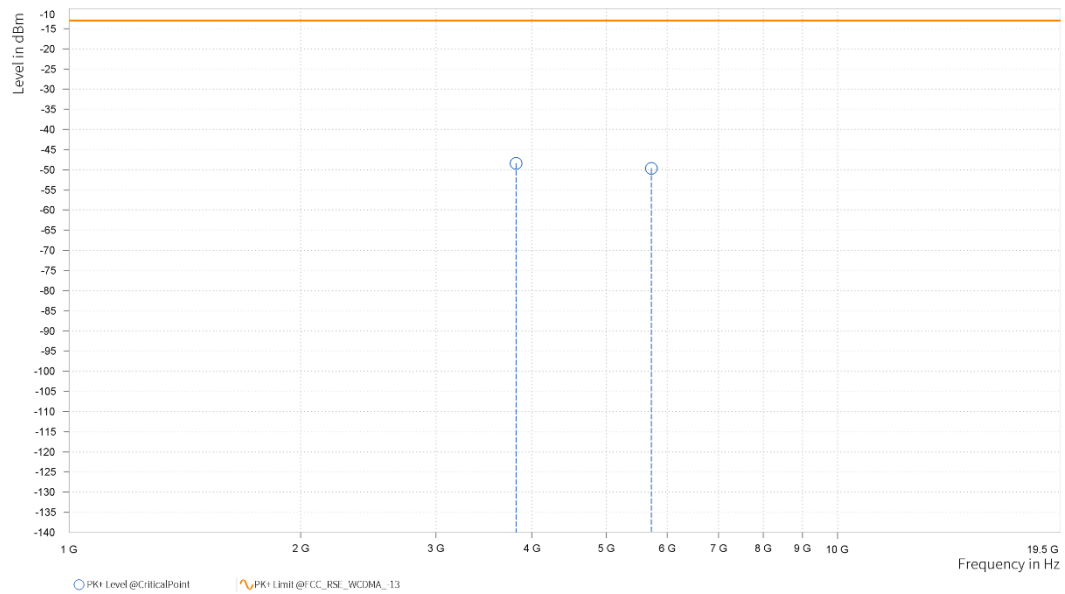




MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: 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	-48.39	-13.00	35.39	22.23	H	93.3	1.00
4	5,722.800	-49.62	-13.00	36.62	25.28	H	359	1.00





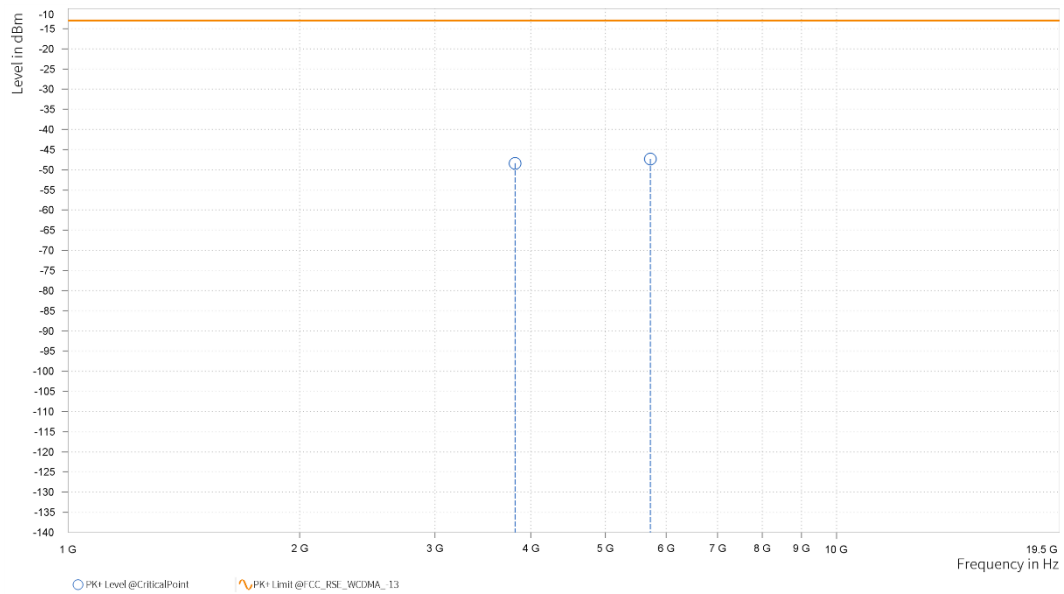
BUREAU
VERITAS

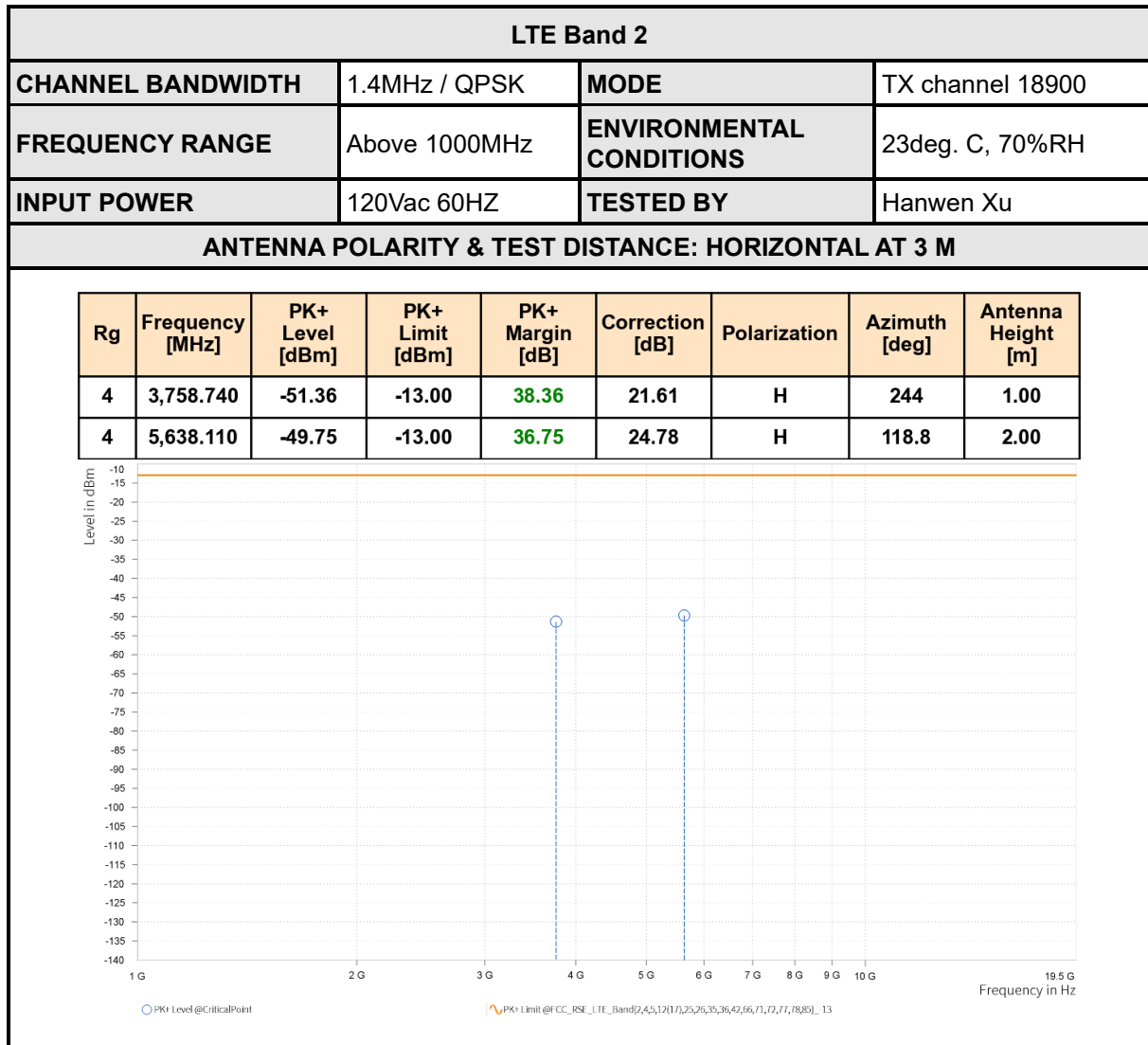
Test Report No.: PSU-QSU2503210311RF02

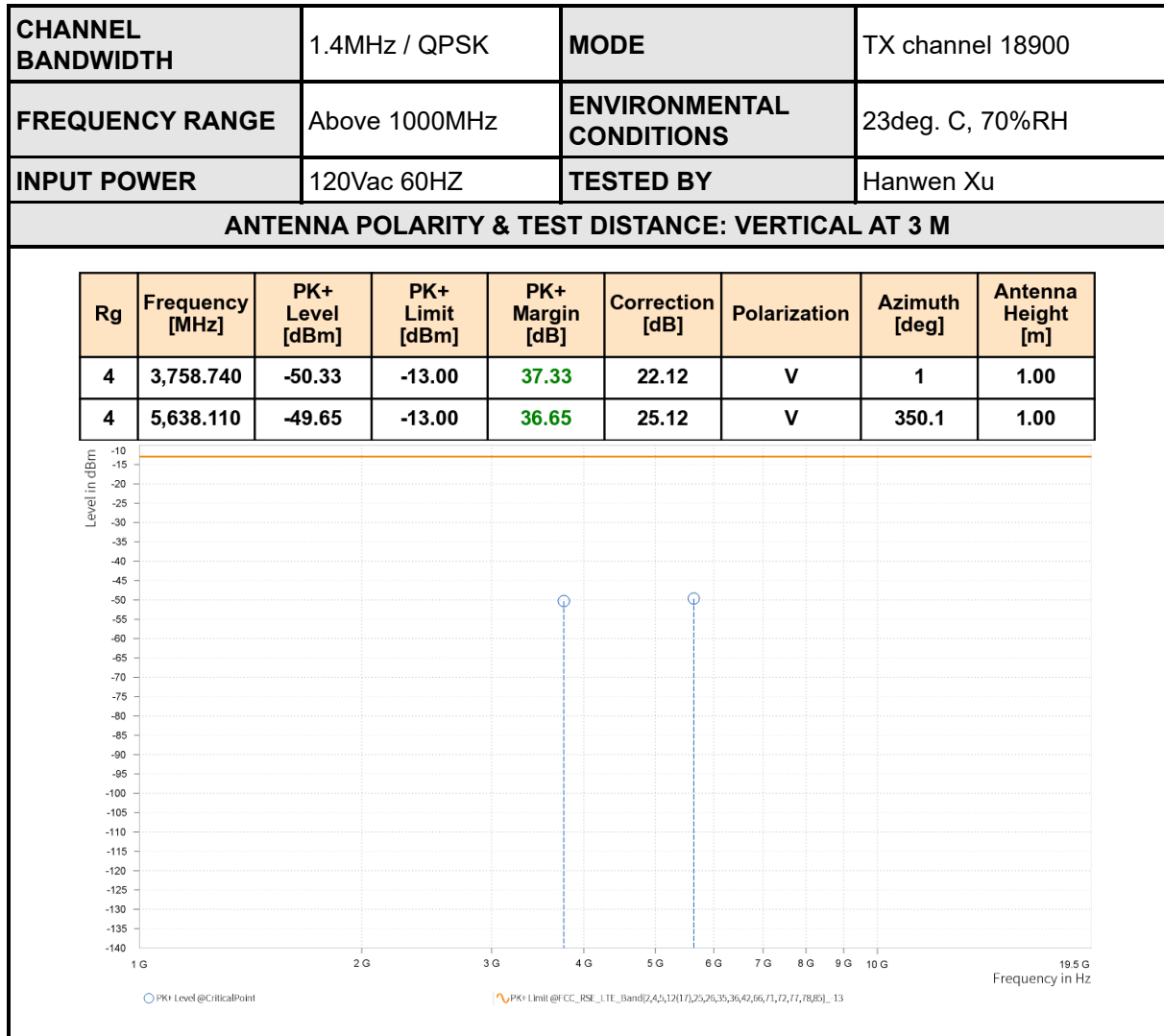
MODE	TX channel 9538	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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	-48.39	-13.00	35.39	22.55	V	72.8	2.00
4	5,722.800	-47.32	-13.00	34.32	25.73	V	72.8	2.00





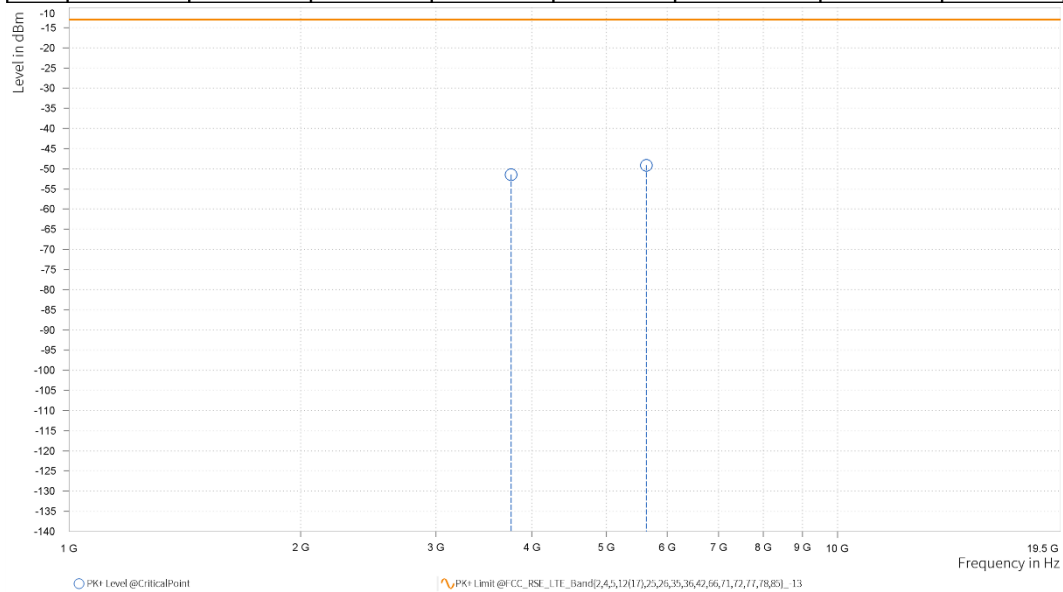




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: 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	-51.44	-13.00	38.44	21.59	H	8.1	2.00
4	5,635.950	-49.11	-13.00	36.11	24.77	H	1	1.00

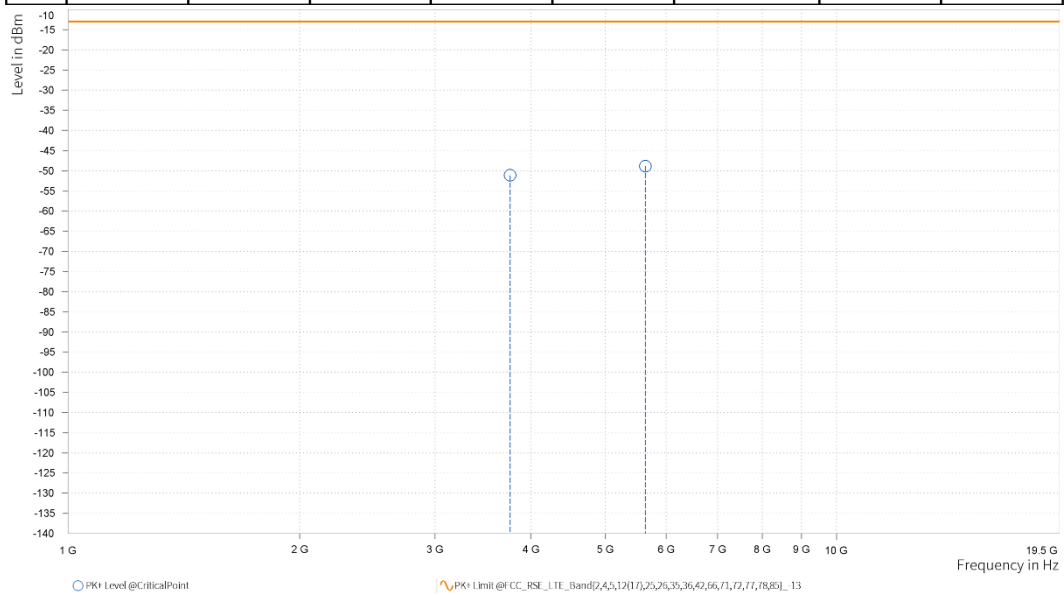




CHANNEL BANDWIDTH	3MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	-51.12	-13.00	38.12	22.11	V	242.6	1.00
4	5,635.950	-48.82	-13.00	35.82	25.11	V	0.9	2.00

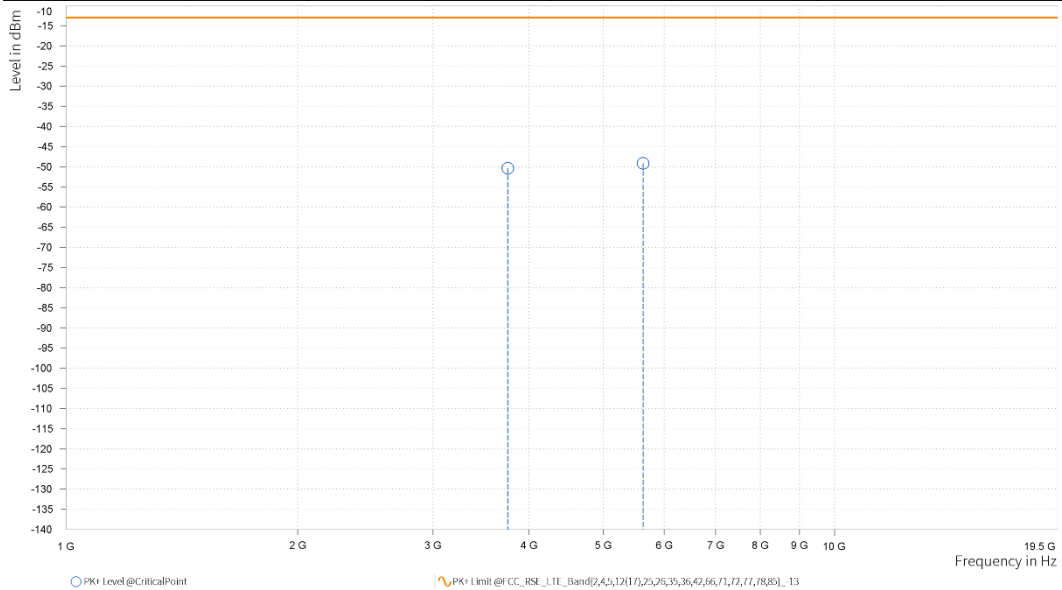




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: 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	3,755.000	-50.38	-13.00	37.38	21.54	H	351.4	1.00
4	5,633.000	-49.15	-13.00	36.15	24.75	H	188.1	1.00

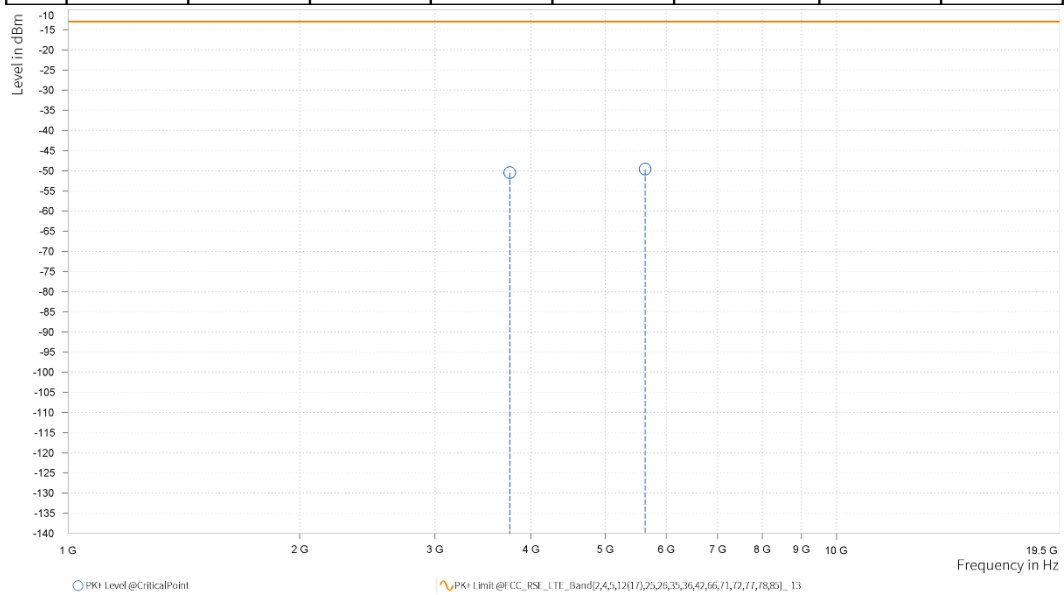




CHANNEL BANDWIDTH	5MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: 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	3,755.000	-50.47	-13.00	37.47	22.09	V	1.7	2.00
4	5,633.000	-49.59	-13.00	36.59	25.09	V	351.4	1.00



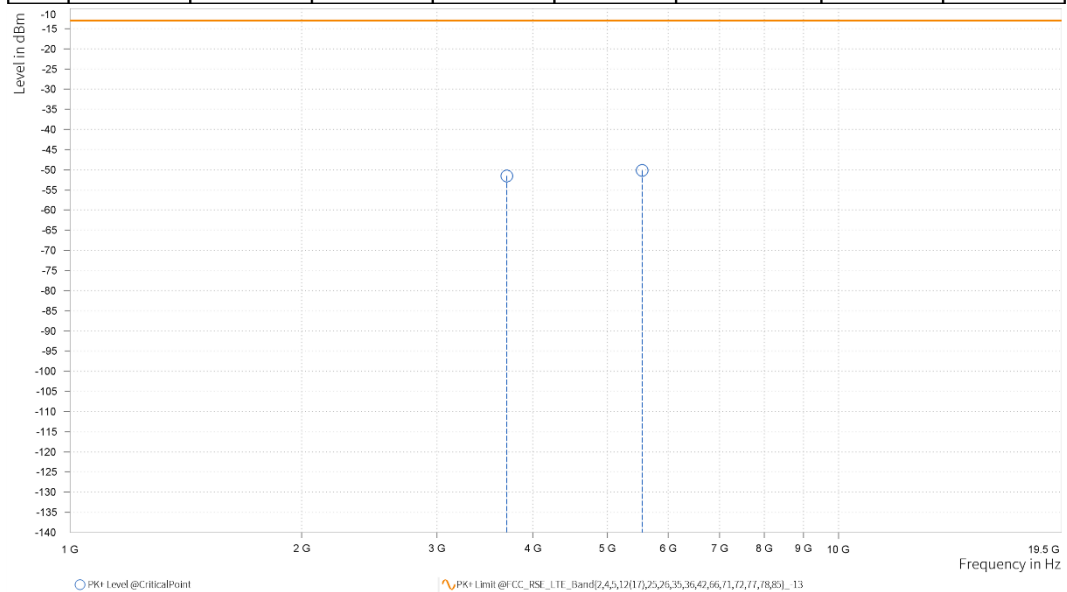


CH18650

CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18650
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	3,701.000	-51.54	-13.00	38.54	21.12	H	114.5	2.00
4	5,551.500	-50.18	-13.00	37.18	24.26	H	302.7	1.00

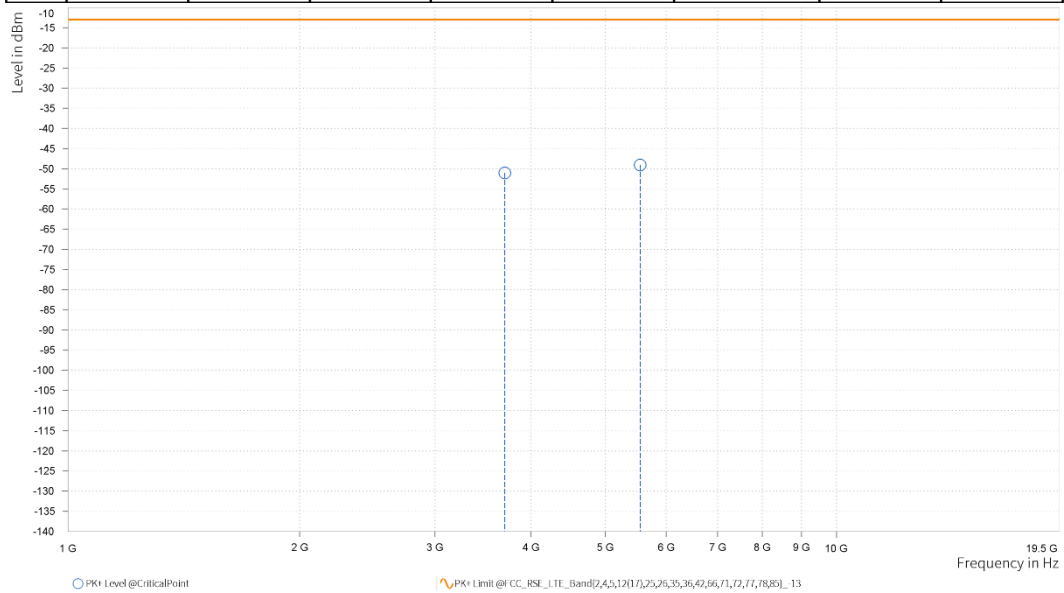




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18650
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,701.000	-51.00	-13.00	38.00	21.71	V	321.2	1.00
4	5,551.500	-49.06	-13.00	36.06	24.96	V	115.9	2.00

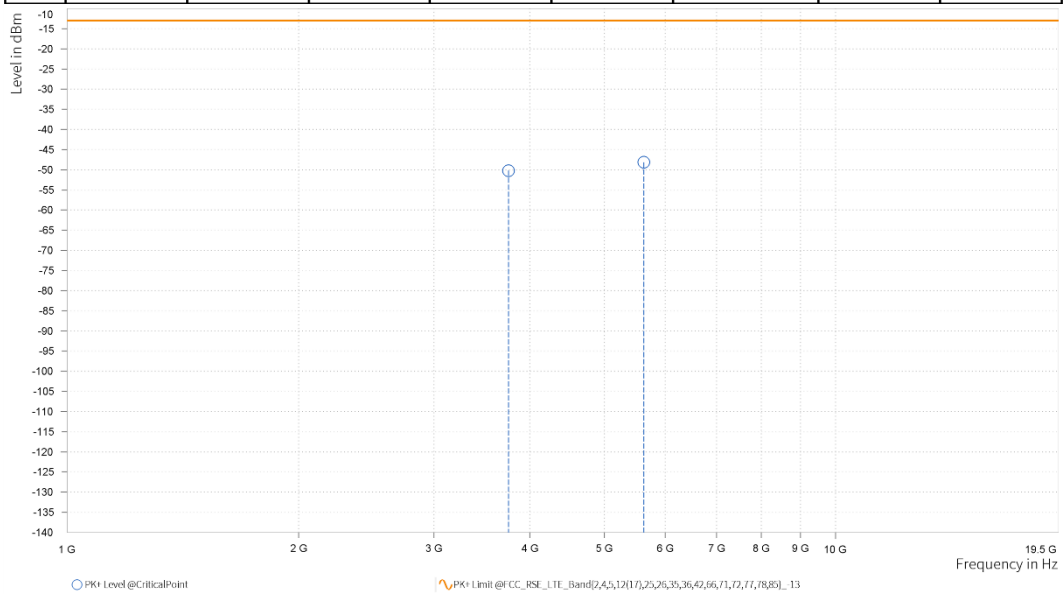




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	-50.20	-13.00	37.20	21.46	H	193	1.00
4	5,626.500	-48.13	-13.00	35.13	24.71	H	359	1.00

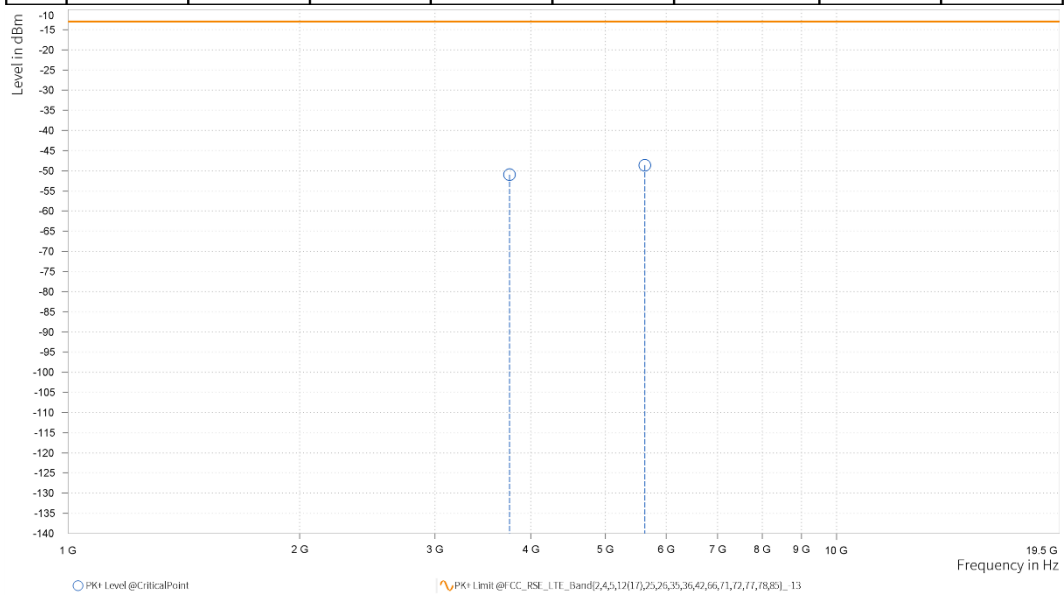




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: 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	-50.97	-13.00	37.97	22.07	V	265.3	2.00
4	5,626.500	-48.62	-13.00	35.62	25.07	V	1	1.00

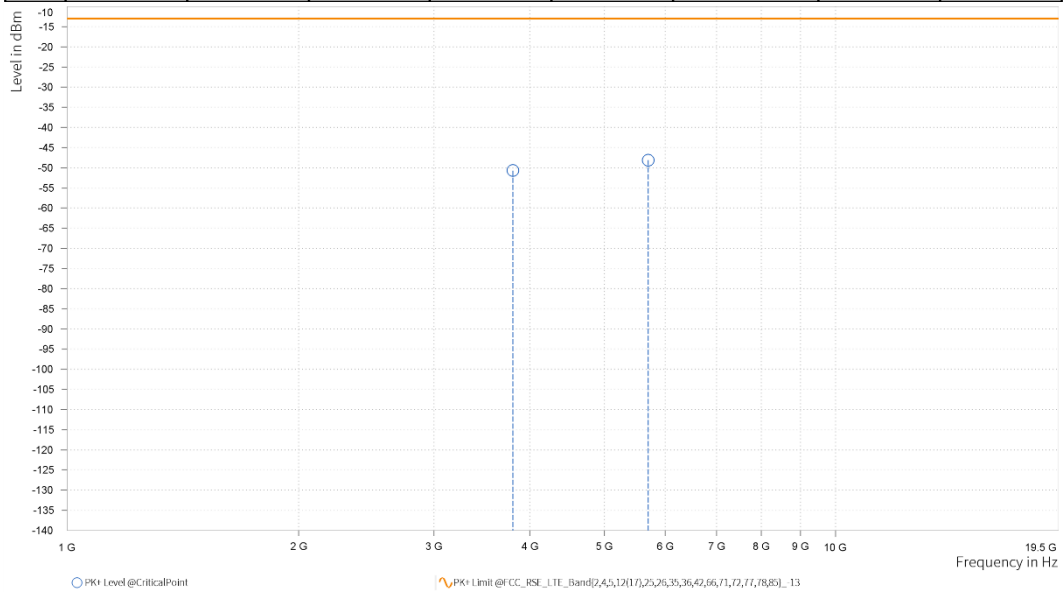




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 19150
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,801.000	-50.68	-13.00	37.68	22.21	H	228.4	1.00
4	5,701.500	-48.10	-13.00	35.10	25.12	H	1.7	2.00

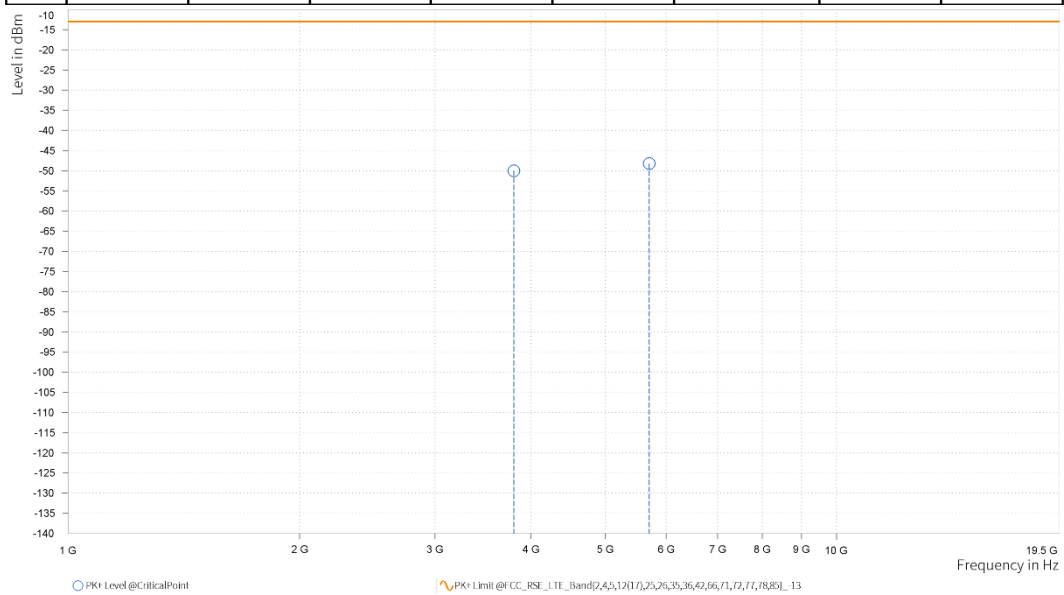




CHANNEL BANDWIDTH	10MHz / QPSK	MODE	TX channel 19150
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,801.000	-50.00	-13.00	37.00	22.47	V	359	1.00
4	5,701.500	-48.21	-13.00	35.21	25.55	V	169.7	2.00

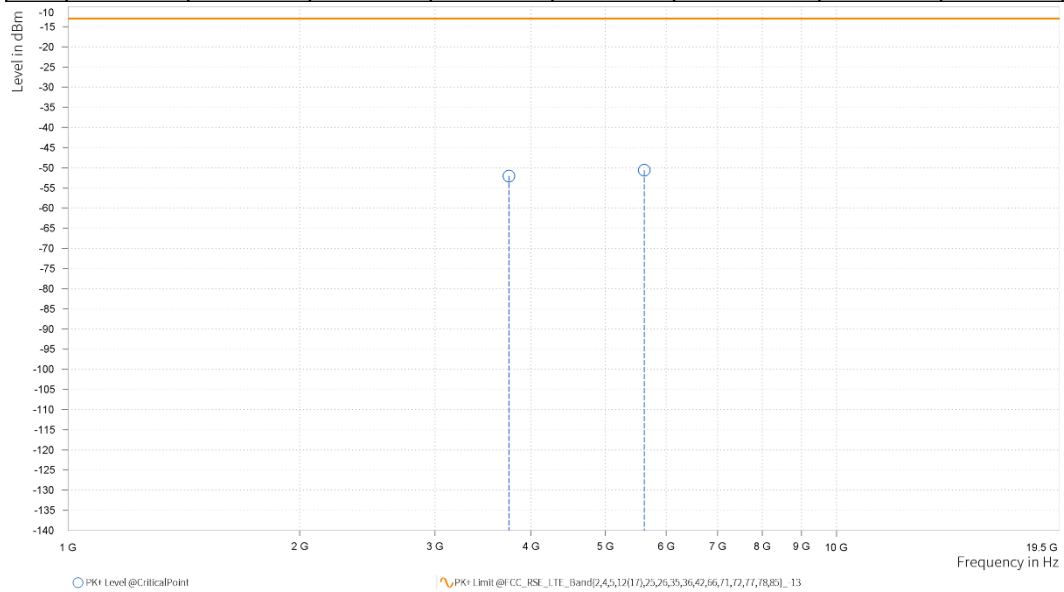




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,746.000	-52.02	-13.00	39.02	21.38	H	297.8	1.00
4	5,619.000	-50.62	-13.00	37.62	24.65	H	115.8	2.00

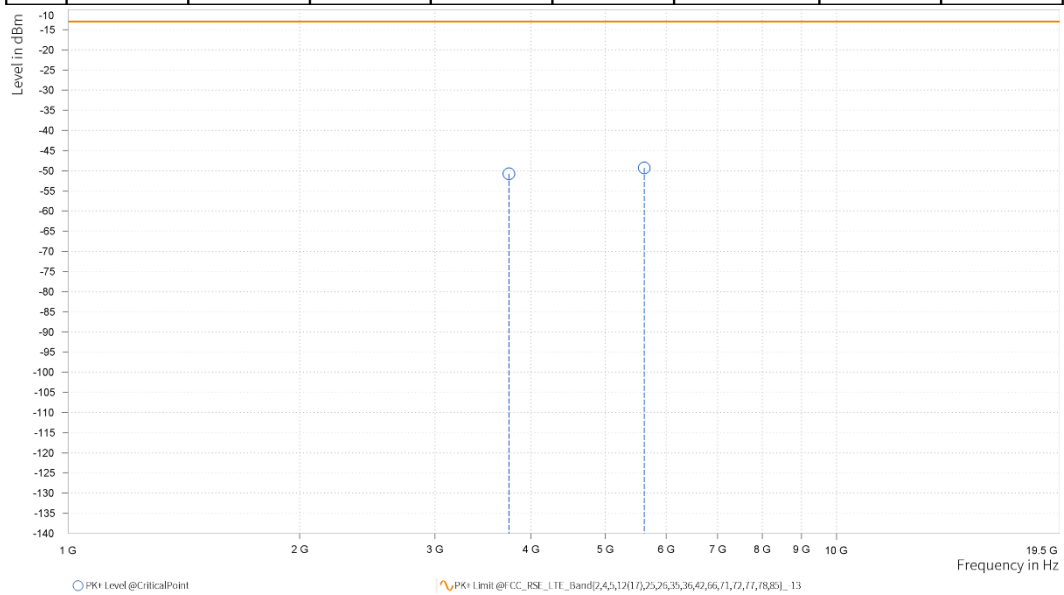




CHANNEL BANDWIDTH	15MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: 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	3,746.000	-50.71	-13.00	37.71	22.03	V	0.9	2.00
4	5,619.000	-49.26	-13.00	36.26	25.06	V	253.2	1.00

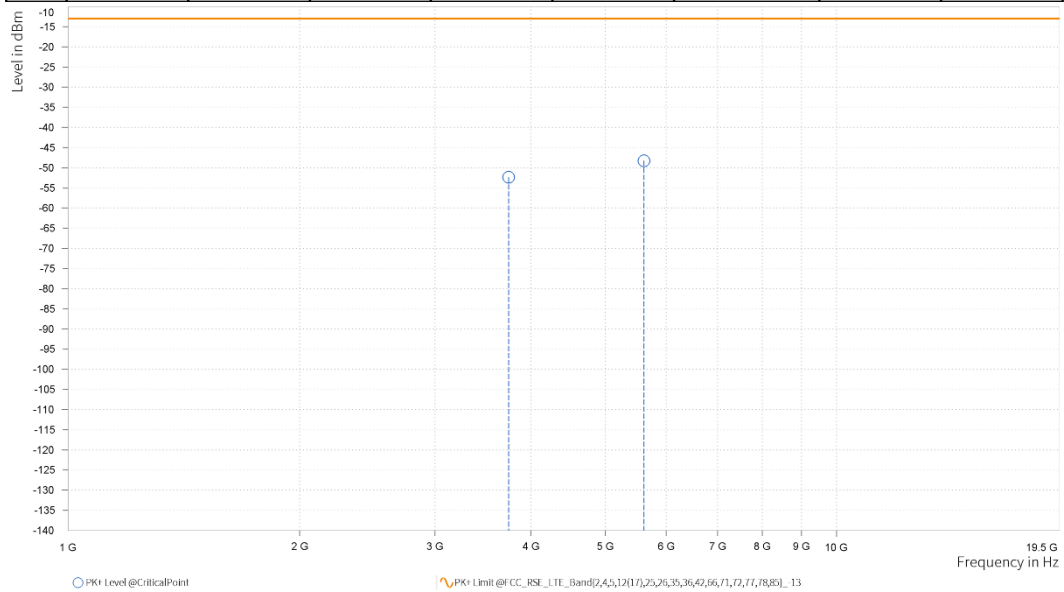




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,742.000	-52.35	-13.00	39.35	21.35	H	353.6	1.00
4	5,613.000	-48.24	-13.00	35.24	24.60	H	114.4	2.00

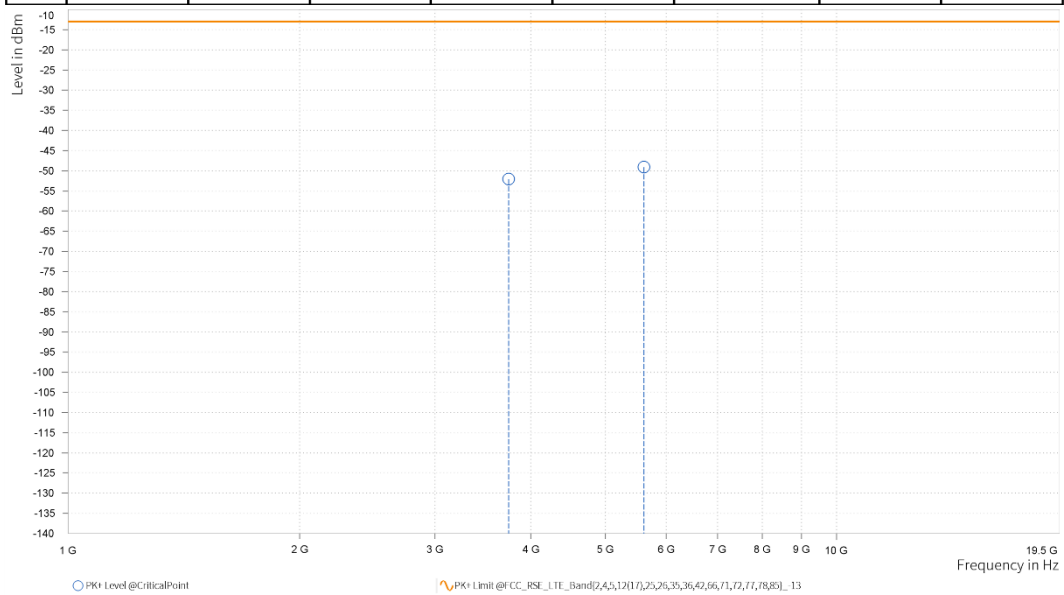




CHANNEL BANDWIDTH	20MHz / QPSK	MODE	TX channel 18900
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

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	3,742.000	-52.06	-13.00	39.06	22.00	V	271.6	1.00
4	5,613.000	-49.08	-13.00	36.08	25.05	V	174.6	1.00

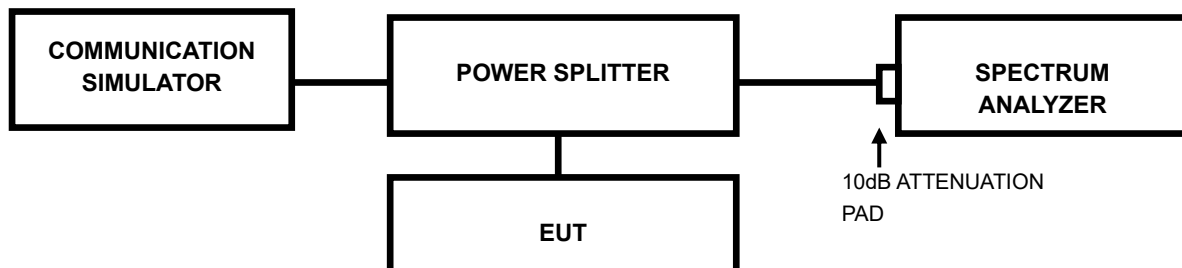


3.7 PEAK TO AVERAGE RATIO

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 BAND2

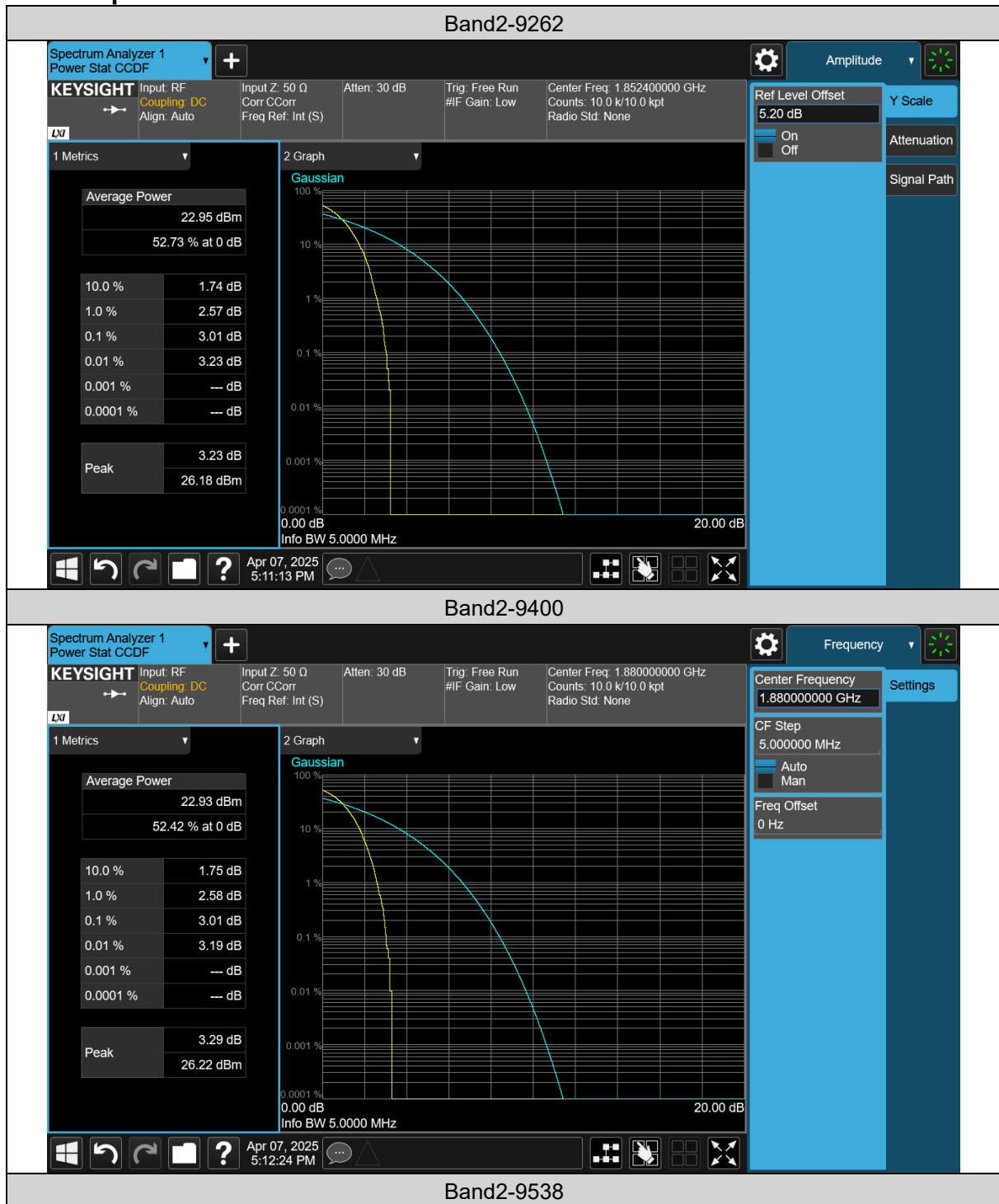
PEAK-TO-AVERAGE RATIO

Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band2	9262	3.01	13	PASS
Band2	9400	3.01	13	PASS
Band2	9538	3.11	13	PASS

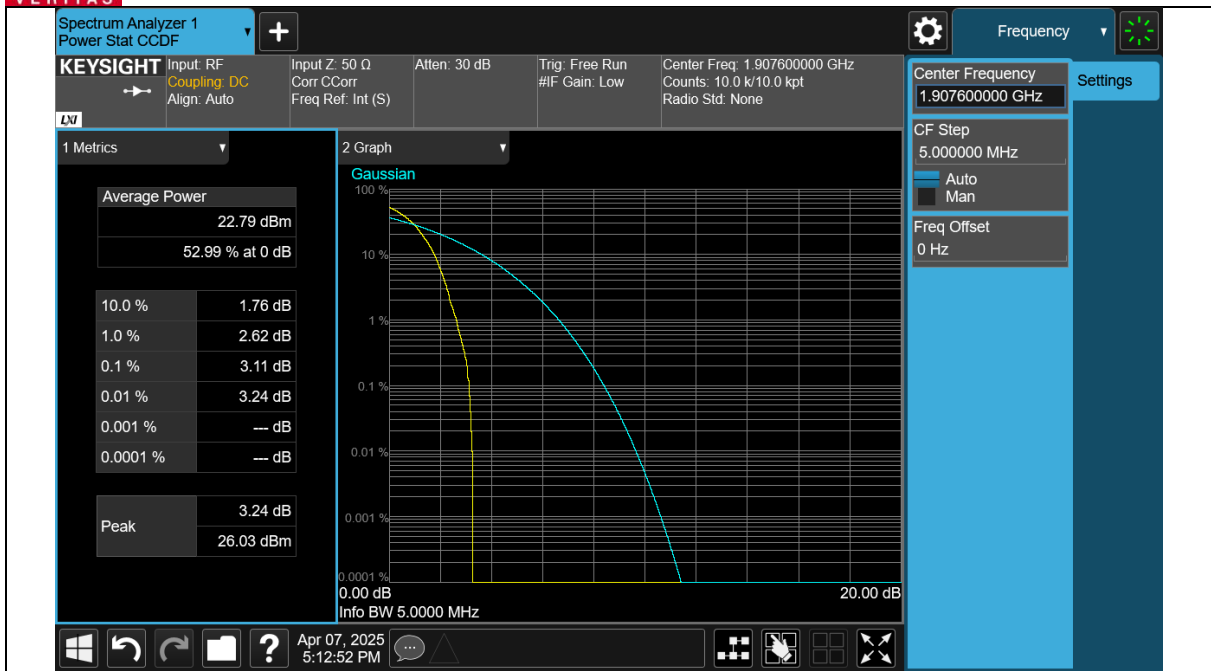


Test Graphs





BUREAU VERITAS Test Report No.: PSU-QSU2503210311RF02





26DB BANDWIDTH AND OCCUPIED BANDWIDTH

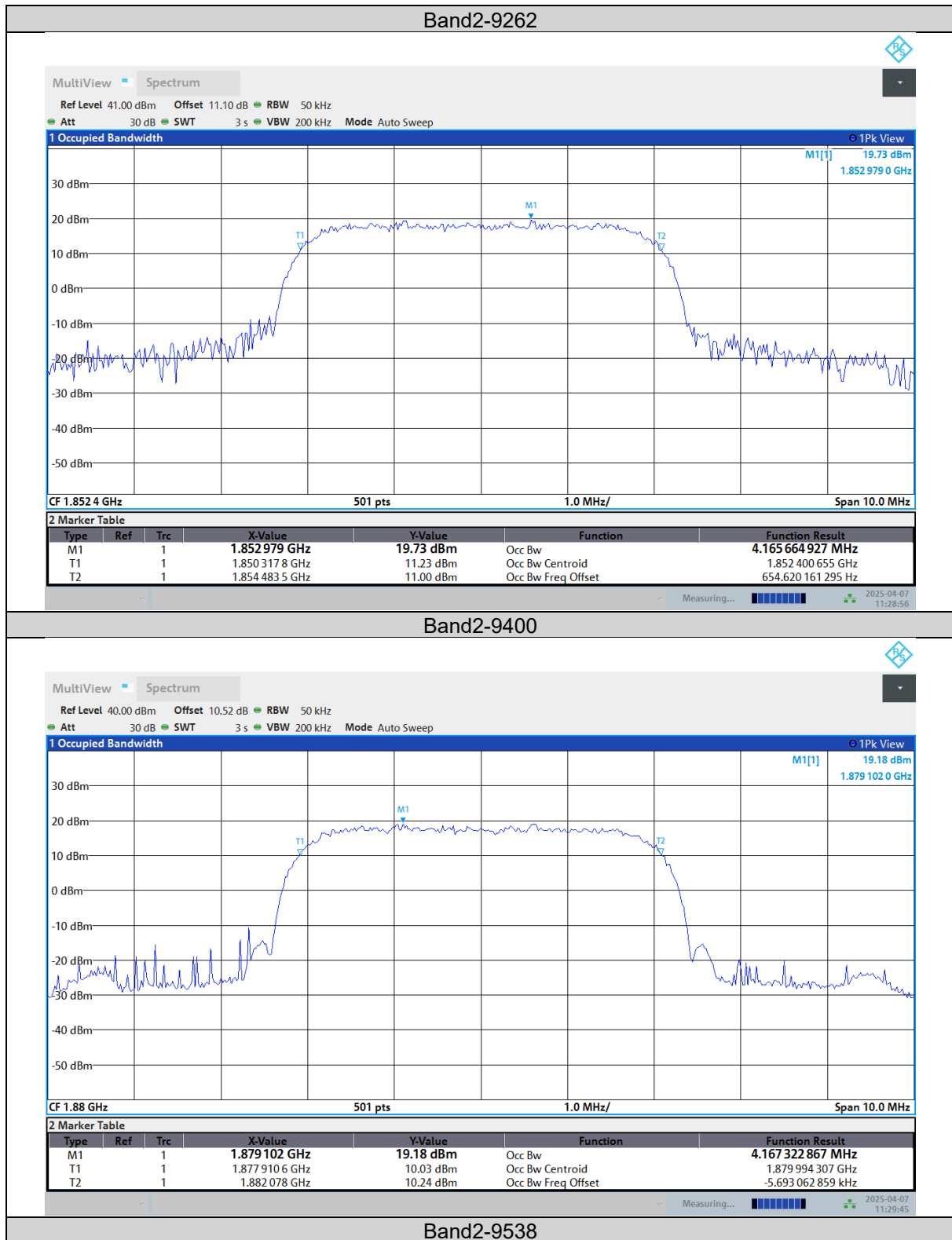
Test Result

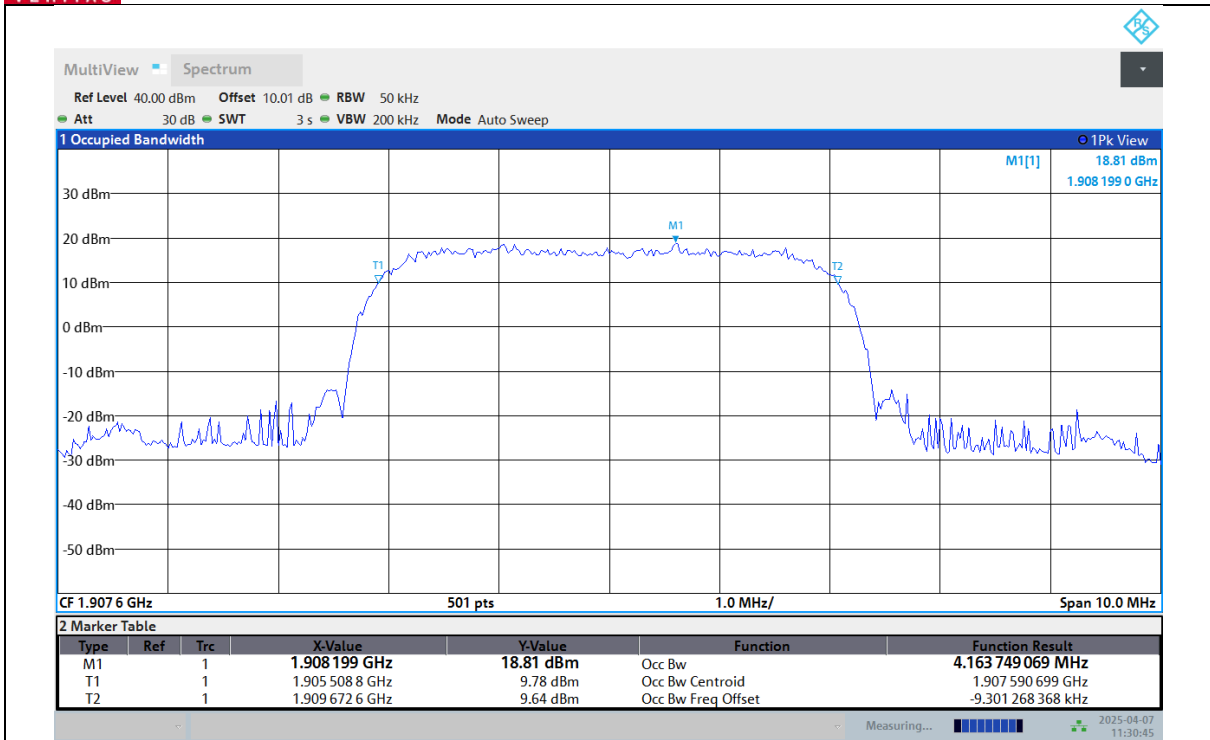
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	9262	4.166	4.68	PASS
Band2	9400	4.167	4.67	PASS
Band2	9538	4.164	4.67	PASS



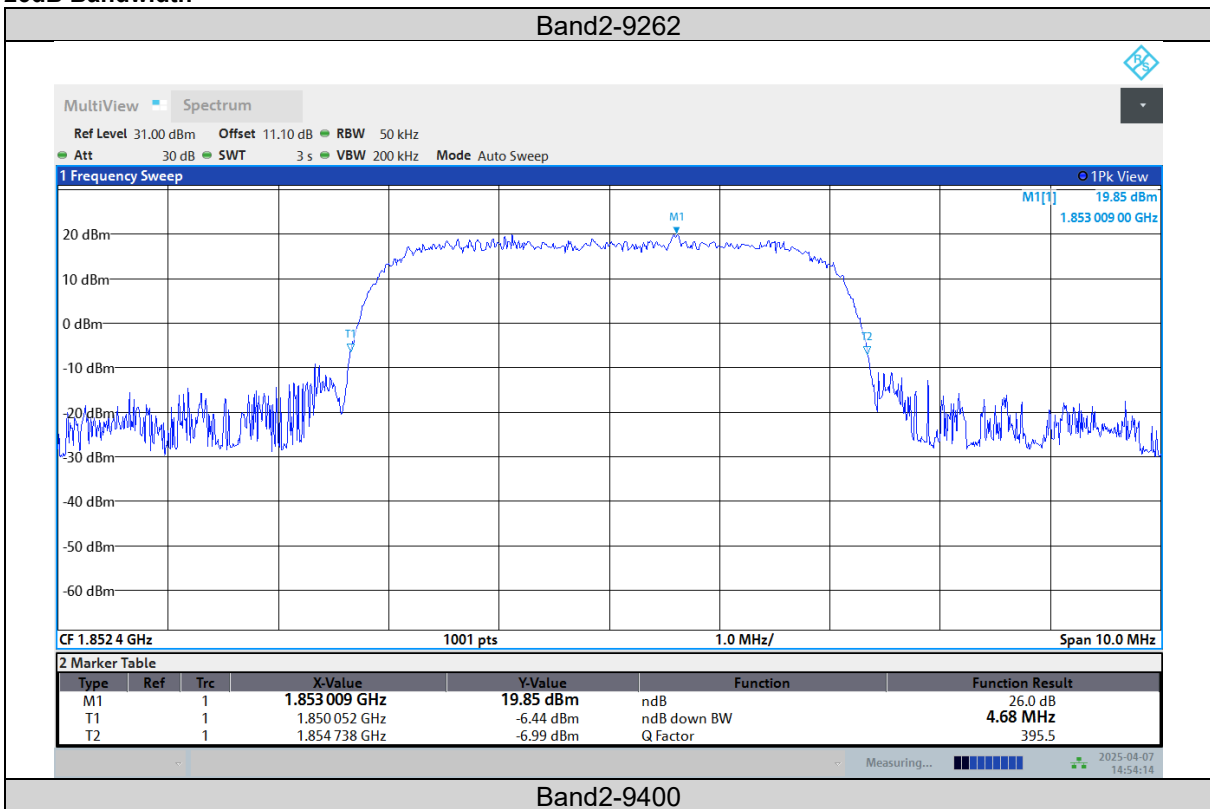
Test Graphs

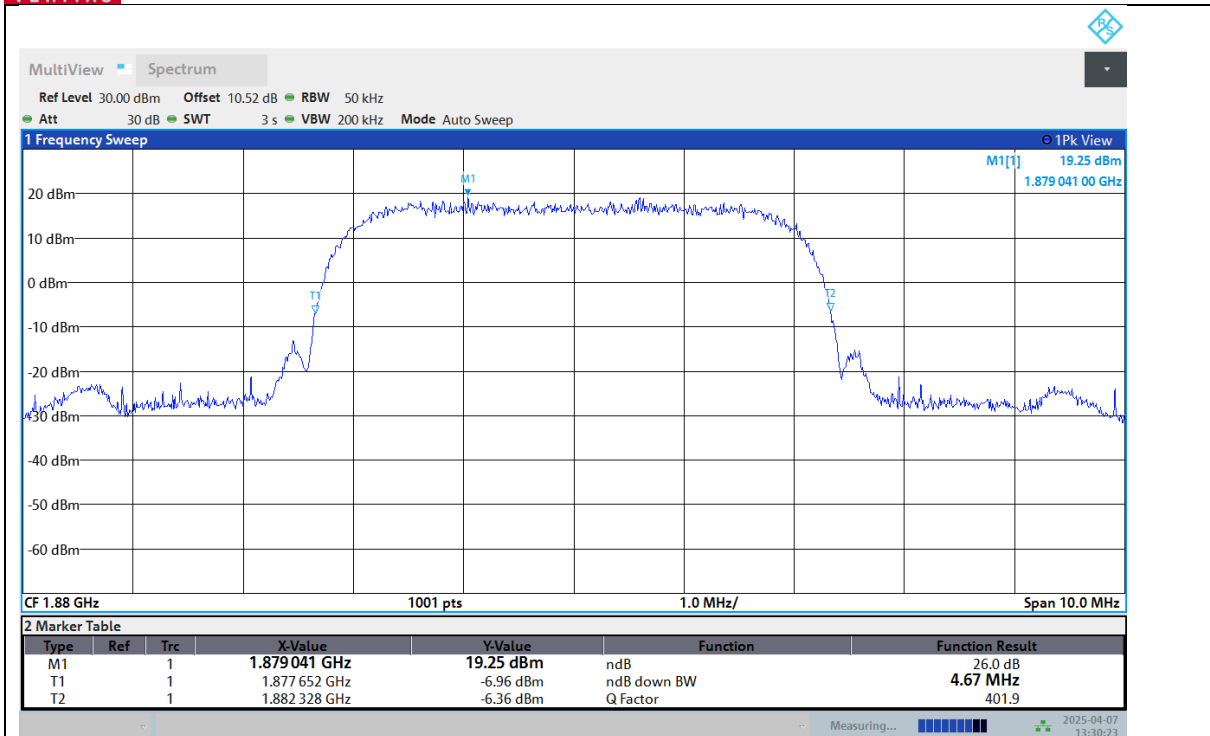
Occupied Bandwidth



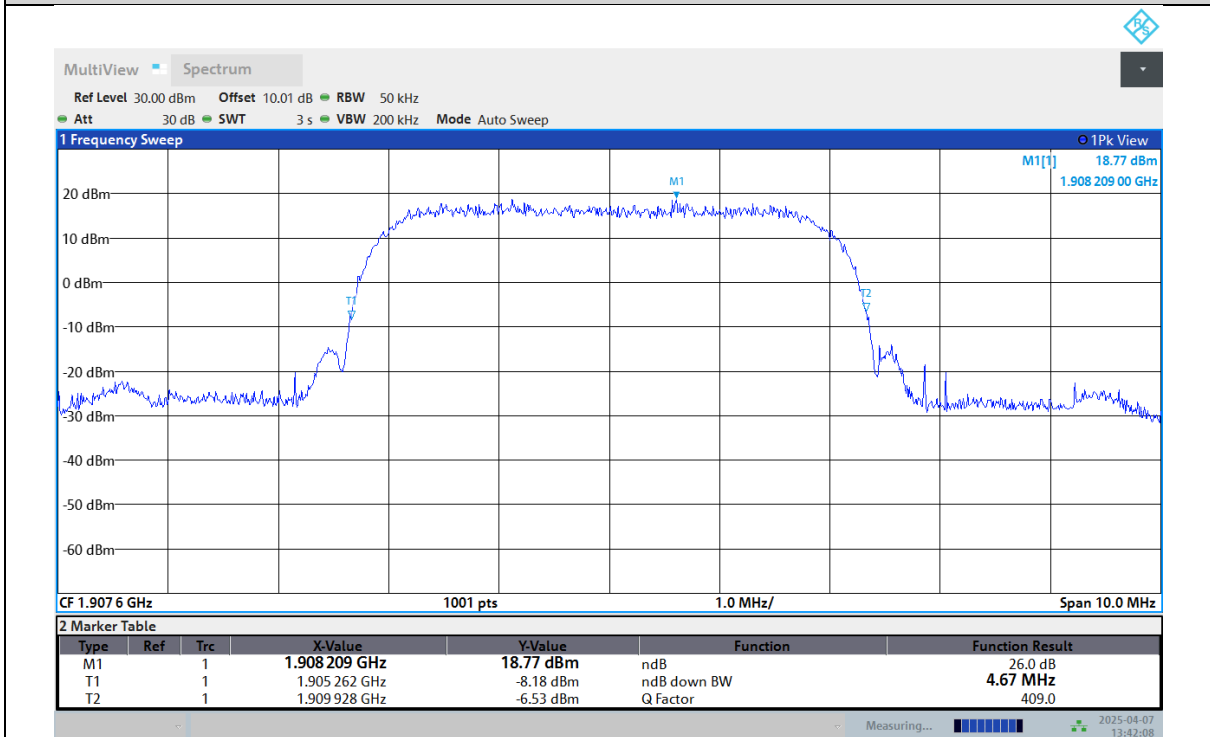


26dB Bandwidth





Band2-9538





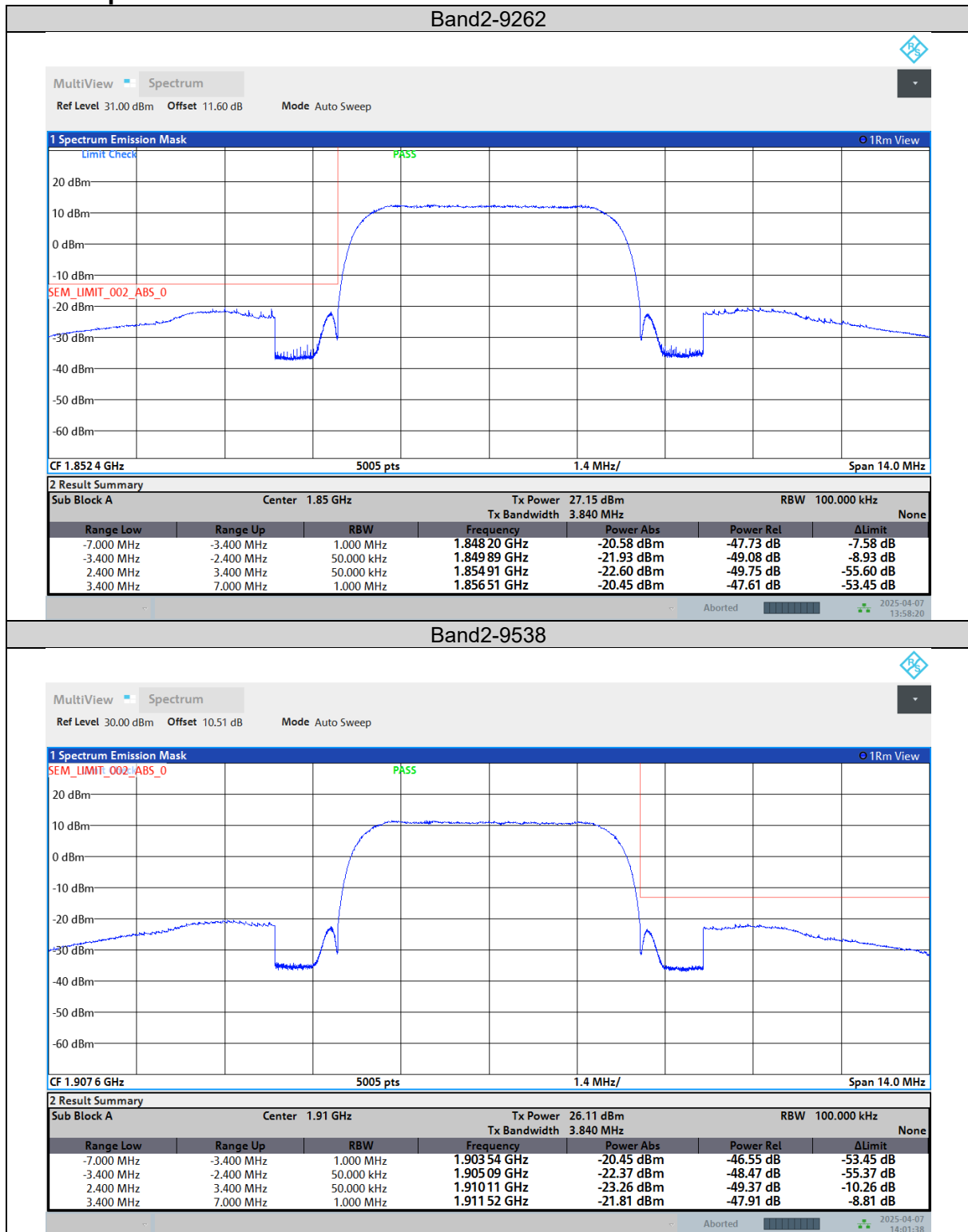
BAND EDGE

Test Result

Band	Channel	Result (dBm)	Limit(dBm)	Verdict
Band2	9262	See Graph	-13	PASS
Band2	9538	See Graph	-13	PASS



Test Graphs





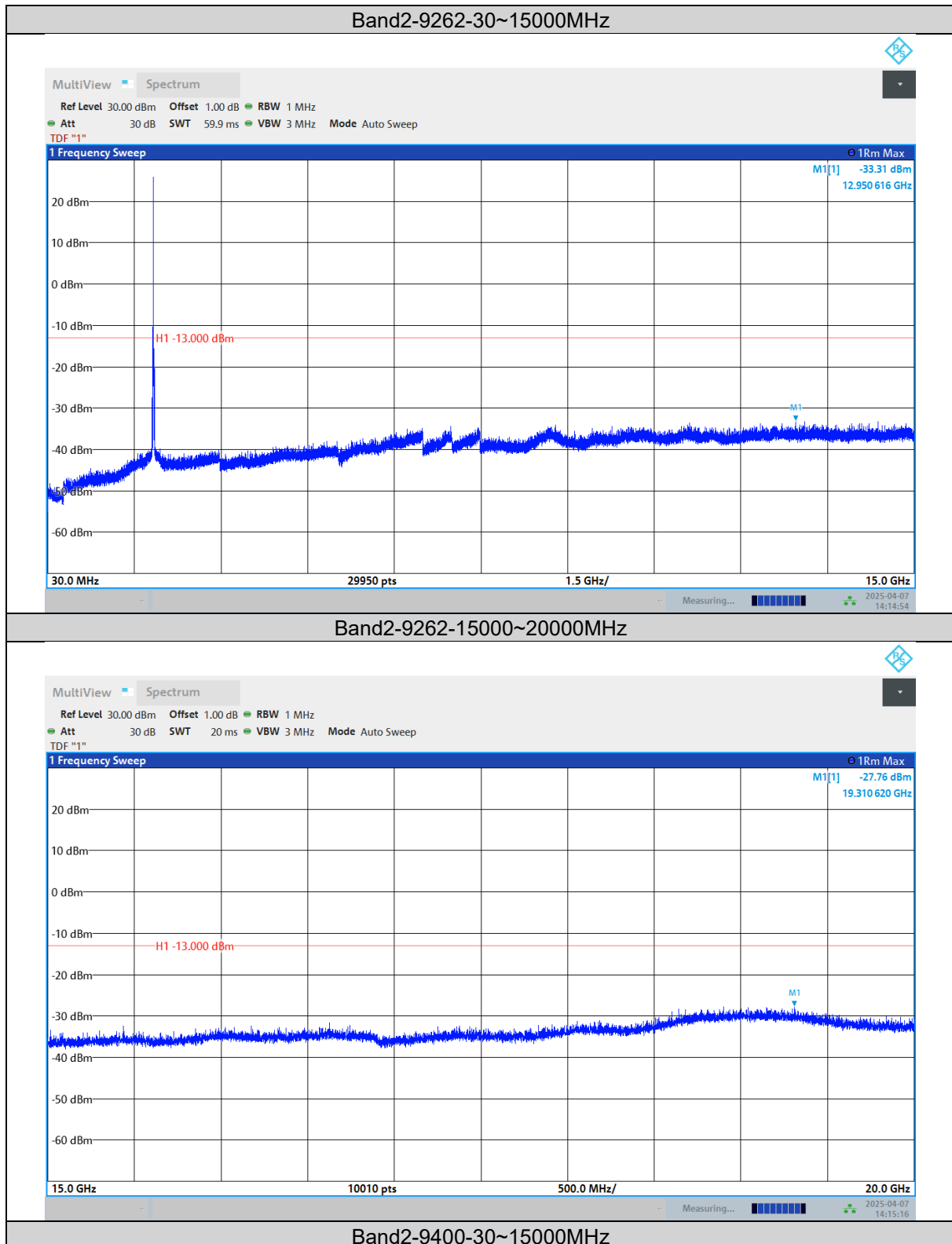
BUREAU VERITAS Test Report No.: PSU-QSU2503210311RF02
CONDUCTED SPURIOUS EMISSION

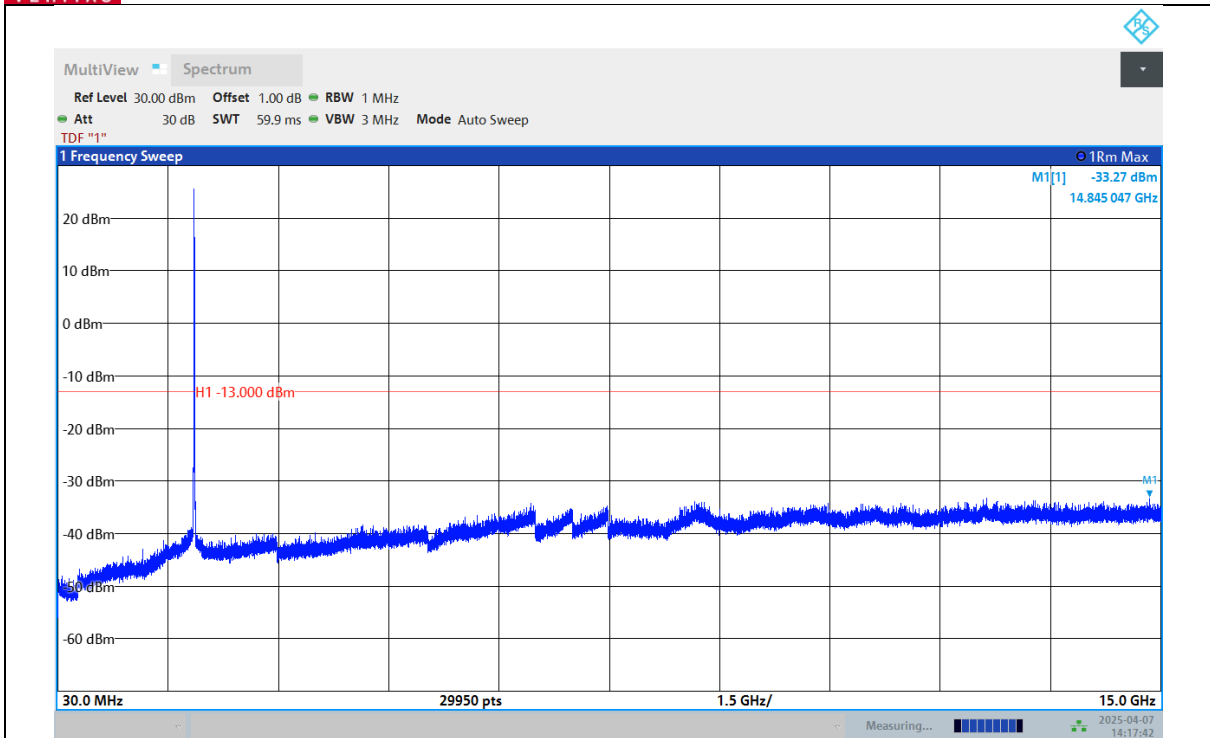
Test Result

Band	Channel	Frequency Range (Mhz)	Result (dBm)	Limit (dBm)	Verdict
Band2	9262	30~15000MHz	See Graph	-13	PASS
Band2	9262	15000~20000MHz	See Graph	-13	PASS
Band2	9400	30~15000MHz	See Graph	-13	PASS
Band2	9400	15000~20000MHz	See Graph	-13	PASS
Band2	9538	30~15000MHz	See Graph	-13	PASS
Band2	9538	15000~20000MHz	See Graph	-13	PASS

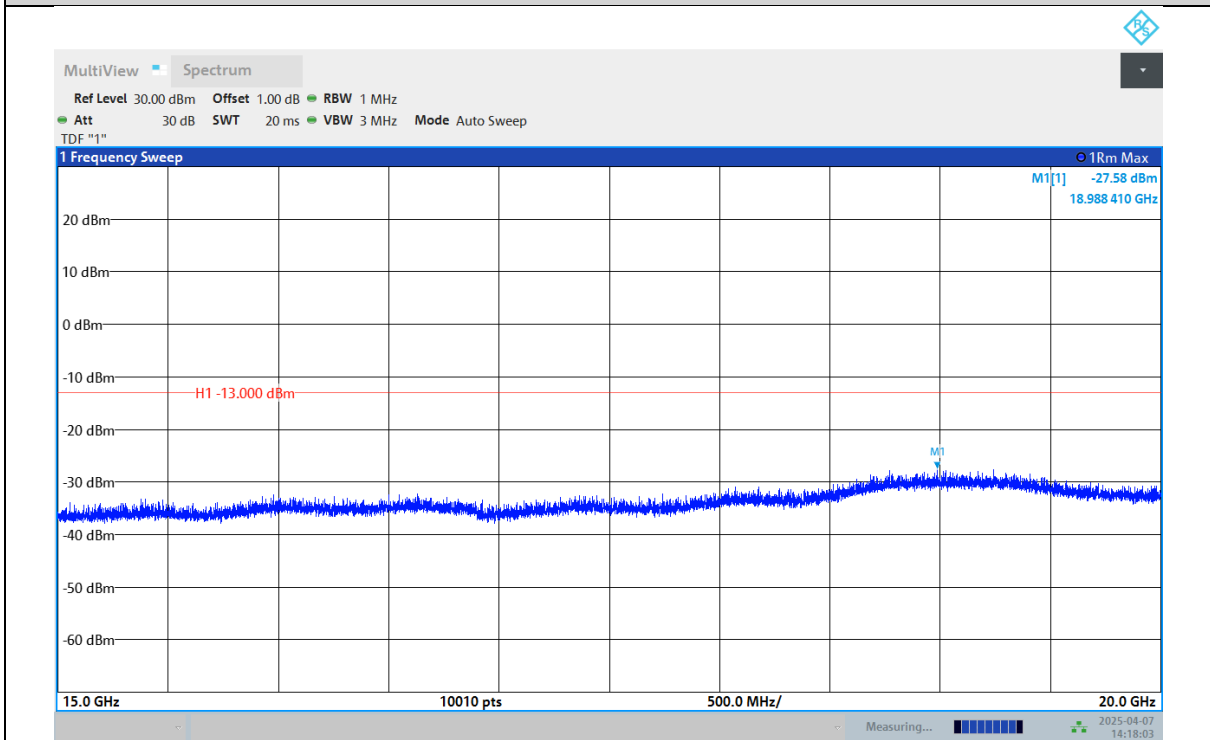


Test Graphs

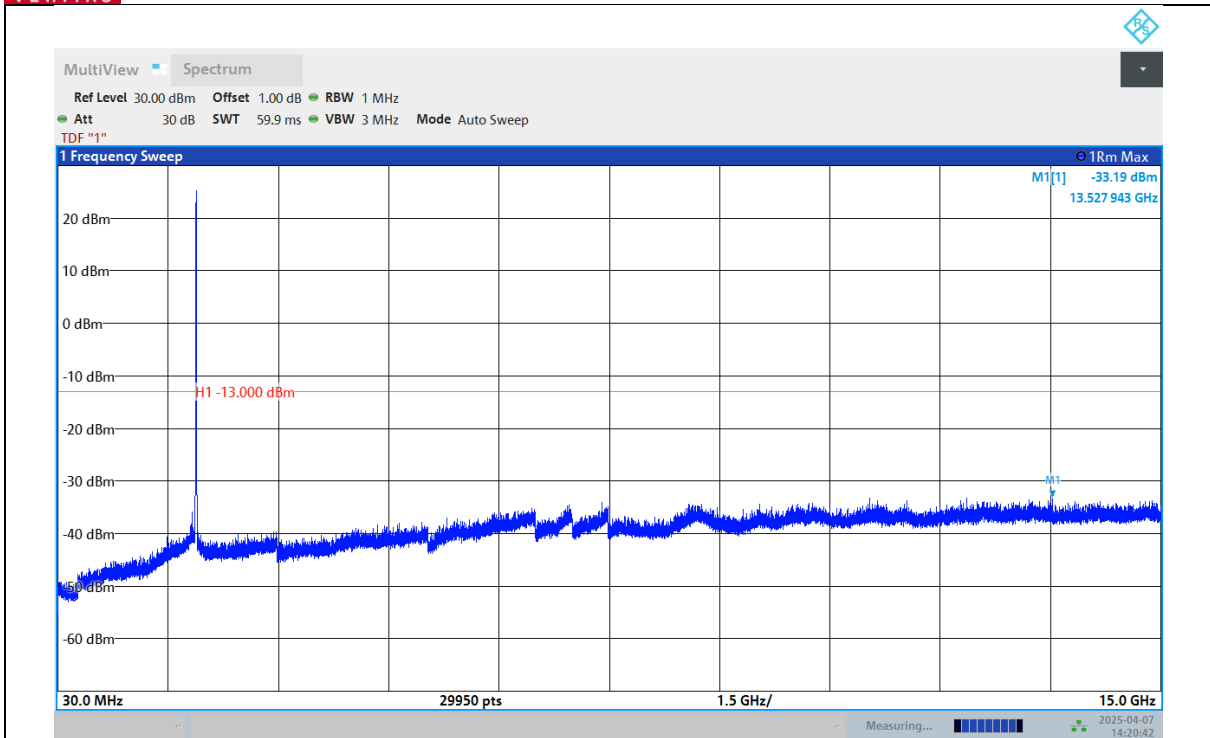




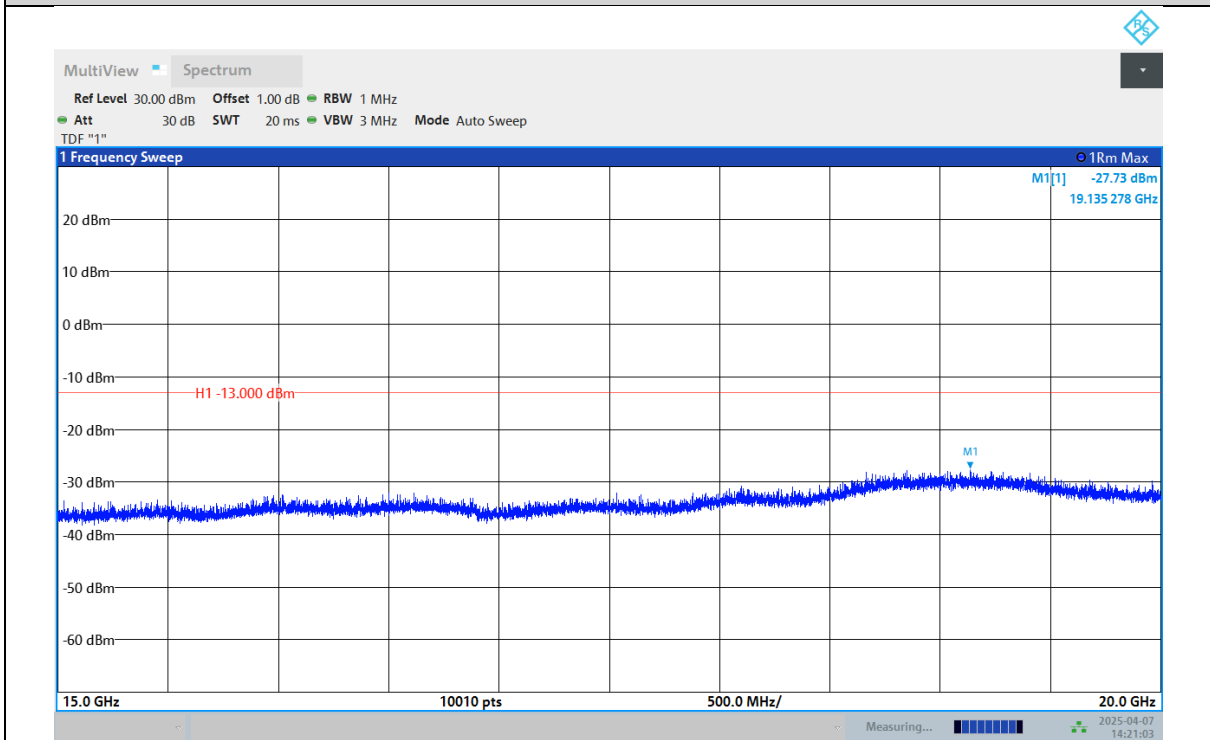
Band2-9400-15000~20000MHz



Band2-9538-30~15000MHz



Band2-9538-15000~20000MHz





FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	VL	NT	-7.91	-0.0043	±2.5	PASS
Band2	9262	VN	NT	6.05	0.0033	±2.5	PASS
Band2	9262	VH	NT	1.83	0.0010	±2.5	PASS
Band2	9400	VL	NT	8.46	0.0045	±2.5	PASS
Band2	9400	VN	NT	-8.89	-0.0047	±2.5	PASS
Band2	9400	VH	NT	3.90	0.0021	±2.5	PASS
Band2	9538	VL	NT	-0.91	-0.0005	±2.5	PASS
Band2	9538	VN	NT	0.24	0.0001	±2.5	PASS
Band2	9538	VH	NT	-1.83	-0.0009	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band2	9262	NV	-30	3.34	0.0018	±2.5	PASS
Band2	9262	NV	-20	-2.13	-0.0011	±2.5	PASS
Band2	9262	NV	-10	-2.29	-0.0012	±2.5	PASS
Band2	9262	NV	0	9.11	0.0049	±2.5	PASS
Band2	9262	NV	10	-4.34	-0.0023	±2.5	PASS
Band2	9262	NV	20	-7.47	-0.0040	±2.5	PASS
Band2	9262	NV	30	8.58	0.0046	±2.5	PASS
Band2	9262	NV	40	5.19	0.0028	±2.5	PASS
Band2	9262	NV	50	6.46	0.0035	±2.5	PASS
Band2	9400	NV	-30	6.77	0.0036	±2.5	PASS
Band2	9400	NV	-20	6.69	0.0036	±2.5	PASS
Band2	9400	NV	-10	-4.79	-0.0025	±2.5	PASS
Band2	9400	NV	0	2.78	0.0015	±2.5	PASS
Band2	9400	NV	10	-8.27	-0.0044	±2.5	PASS
Band2	9400	NV	20	0.01	0.0000	±2.5	PASS
Band2	9400	NV	30	2.75	0.0015	±2.5	PASS
Band2	9400	NV	40	1.22	0.0006	±2.5	PASS
Band2	9400	NV	50	4.37	0.0023	±2.5	PASS
Band2	9538	NV	-30	-4.77	-0.0025	±2.5	PASS
Band2	9538	NV	-20	-4.02	-0.0021	±2.5	PASS
Band2	9538	NV	-10	-6.25	-0.0033	±2.5	PASS
Band2	9538	NV	0	9.56	0.0050	±2.5	PASS
Band2	9538	NV	10	4.06	0.0021	±2.5	PASS
Band2	9538	NV	20	8.66	0.0045	±2.5	PASS
Band2	9538	NV	30	-4.58	-0.0024	±2.5	PASS
Band2	9538	NV	40	5.08	0.0027	±2.5	PASS
Band2	9538	NV	50	-5.58	-0.0028	±2.5	PASS



LTE BAND2

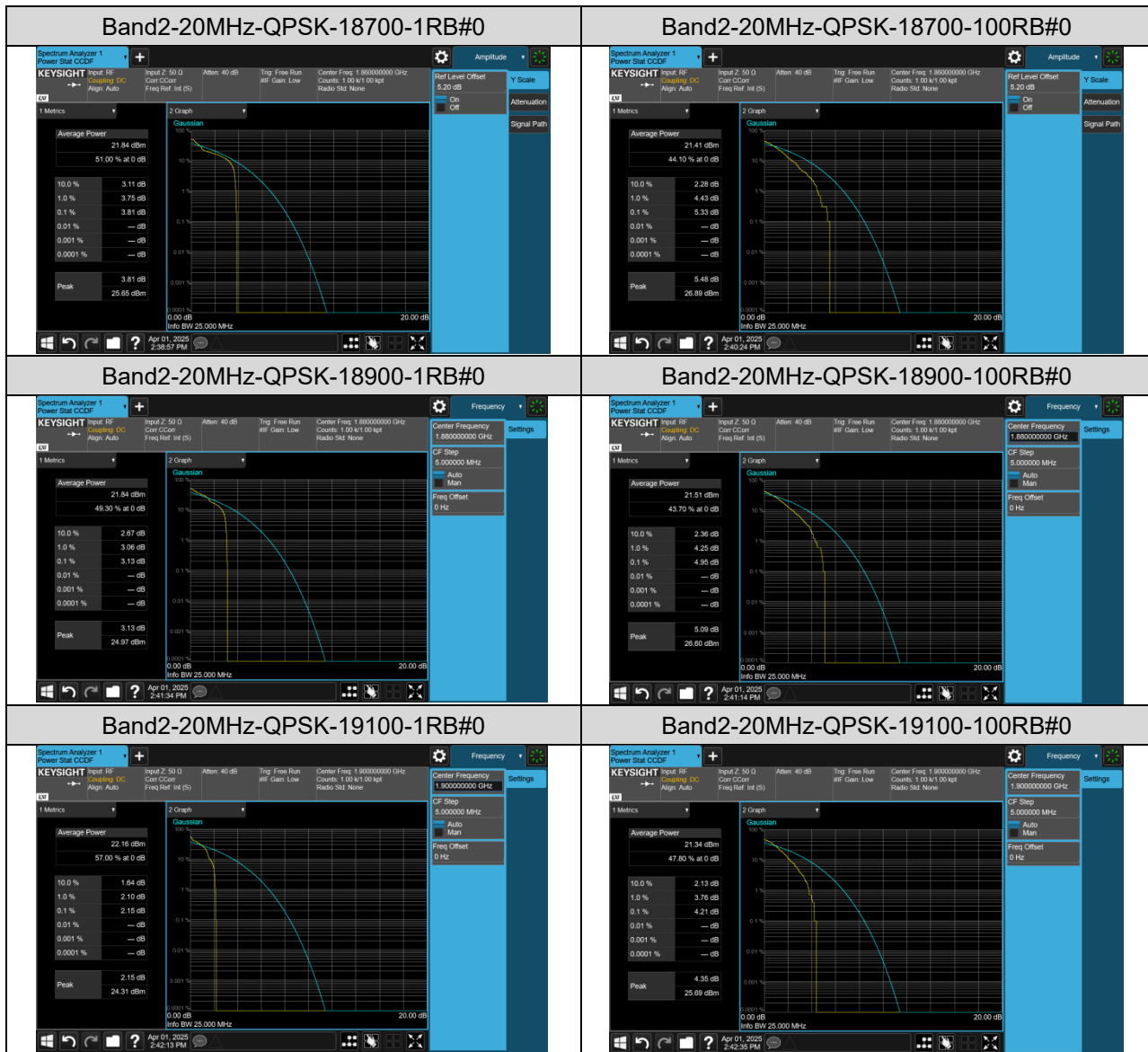
PEAK-TO-AVERAGE RATIO(CCDF)

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band2	20MHz	QPSK	18700	1RB#0	3.81	13	PASS
Band2	20MHz	QPSK	18700	100RB#0	5.33	13	PASS
Band2	20MHz	QPSK	18900	1RB#0	3.13	13	PASS
Band2	20MHz	QPSK	18900	100RB#0	4.95	13	PASS
Band2	20MHz	QPSK	19100	1RB#0	2.15	13	PASS
Band2	20MHz	QPSK	19100	100RB#0	4.21	13	PASS



Test Graphs





BUREAU VERITAS Test Report No.: PSU-QSU2503210311RF02
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band2	1.4MHz	QPSK	18607	6RB#0	1.086	1.28	PASS
Band2	1.4MHz	QPSK	18900	6RB#0	1.091	1.27	PASS
Band2	1.4MHz	QPSK	19193	6RB#0	1.093	1.28	PASS
Band2	1.4MHz	16QAM	18607	6RB#0	1.093	1.26	PASS
Band2	1.4MHz	16QAM	18900	6RB#0	1.090	1.27	PASS
Band2	1.4MHz	16QAM	19193	6RB#0	1.090	1.28	PASS
Band2	1.4MHz	64QAM	18607	6RB#0	1.089	1.29	PASS
Band2	1.4MHz	64QAM	18900	6RB#0	1.095	1.25	PASS
Band2	1.4MHz	64QAM	19193	6RB#0	1.086	1.28	PASS
Band2	3MHz	QPSK	18615	15RB#0	2.692	2.87	PASS
Band2	3MHz	QPSK	18900	15RB#0	2.690	2.90	PASS
Band2	3MHz	QPSK	19185	15RB#0	2.690	3.02	PASS
Band2	3MHz	16QAM	18615	15RB#0	2.693	2.88	PASS
Band2	3MHz	16QAM	18900	15RB#0	2.686	2.92	PASS
Band2	3MHz	16QAM	19185	15RB#0	2.683	2.90	PASS
Band2	3MHz	64QAM	18615	15RB#0	2.692	2.97	PASS
Band2	3MHz	64QAM	18900	15RB#0	2.684	2.89	PASS
Band2	3MHz	64QAM	19185	15RB#0	2.689	2.87	PASS
Band2	5MHz	QPSK	18625	25RB#0	4.490	4.86	PASS
Band2	5MHz	QPSK	18900	25RB#0	4.495	4.79	PASS
Band2	5MHz	QPSK	19175	25RB#0	4.477	4.86	PASS
Band2	5MHz	16QAM	18625	25RB#0	4.480	4.79	PASS
Band2	5MHz	16QAM	18900	25RB#0	4.489	4.86	PASS
Band2	5MHz	16QAM	19175	25RB#0	4.484	4.87	PASS
Band2	5MHz	64QAM	18625	25RB#0	4.475	4.83	PASS
Band2	5MHz	64QAM	18900	25RB#0	4.477	4.84	PASS
Band2	5MHz	64QAM	19175	25RB#0	4.471	4.81	PASS
Band2	10MHz	QPSK	18650	50RB#0	8.967	9.65	PASS
Band2	10MHz	QPSK	18900	50RB#0	8.978	9.62	PASS
Band2	10MHz	QPSK	19150	50RB#0	8.960	9.56	PASS
Band2	10MHz	16QAM	18650	50RB#0	8.960	9.53	PASS
Band2	10MHz	16QAM	18900	50RB#0	8.945	9.56	PASS
Band2	10MHz	16QAM	19150	50RB#0	8.974	9.62	PASS
Band2	10MHz	64QAM	18650	50RB#0	8.972	9.53	PASS
Band2	10MHz	64QAM	18900	50RB#0	8.959	9.56	PASS
Band2	10MHz	64QAM	19150	50RB#0	8.971	9.62	PASS
Band2	15MHz	QPSK	18675	75RB#0	13.493	14.56	PASS
Band2	15MHz	QPSK	18900	75RB#0	13.471	14.48	PASS
Band2	15MHz	QPSK	19125	75RB#0	13.487	14.52	PASS
Band2	15MHz	16QAM	18675	75RB#0	13.486	14.52	PASS
Band2	15MHz	16QAM	18900	75RB#0	13.472	14.43	PASS
Band2	15MHz	16QAM	19125	75RB#0	13.491	14.48	PASS
Band2	15MHz	64QAM	18675	75RB#0	13.444	14.43	PASS
Band2	15MHz	64QAM	18900	75RB#0	13.495	14.43	PASS
Band2	15MHz	64QAM	19125	75RB#0	13.495	14.52	PASS
Band2	20MHz	QPSK	18700	100RB#0	17.969	19.06	PASS

**Test Report No.: PSU-QSU2503210311RF02**

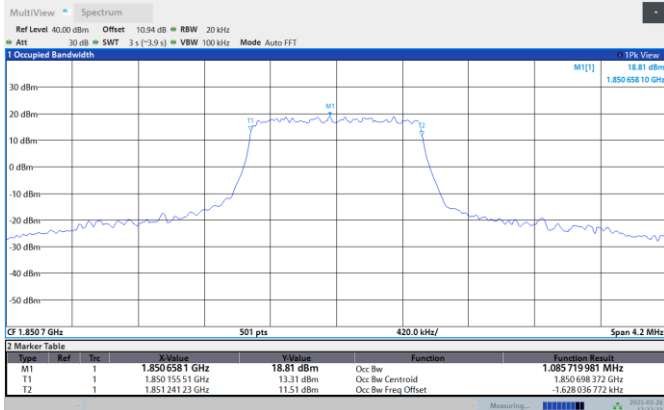
Band2	20MHz	QPSK	18900	100RB#0	17.920	19.06	PASS
Band2	20MHz	QPSK	19100	100RB#0	17.891	19.06	PASS
Band2	20MHz	16QAM	18700	100RB#0	17.928	19.18	PASS
Band2	20MHz	16QAM	18900	100RB#0	17.903	19.06	PASS
Band2	20MHz	16QAM	19100	100RB#0	17.913	19.12	PASS
Band2	20MHz	64QAM	18700	100RB#0	17.935	19.00	PASS
Band2	20MHz	64QAM	18900	100RB#0	17.907	19.06	PASS
Band2	20MHz	64QAM	19100	100RB#0	17.930	19.06	PASS



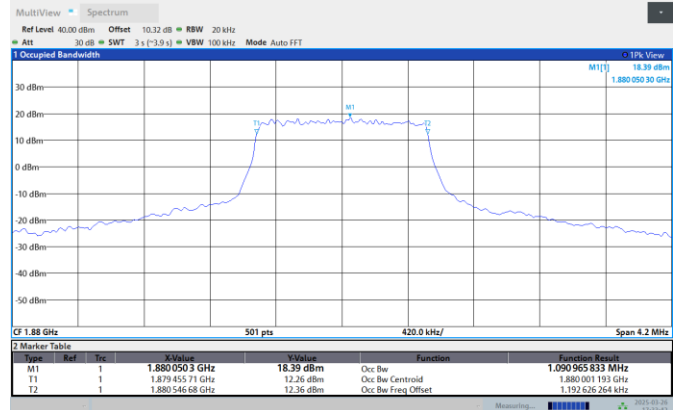
Test Graphs

Occupied Bandwidth

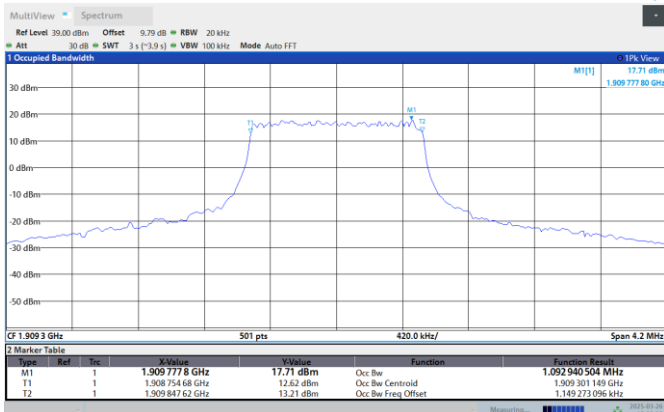
Band2-1.4MHz-QPSK-18607-6RB#0



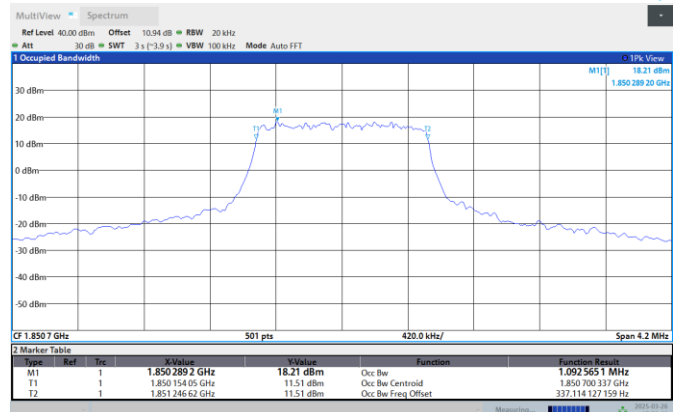
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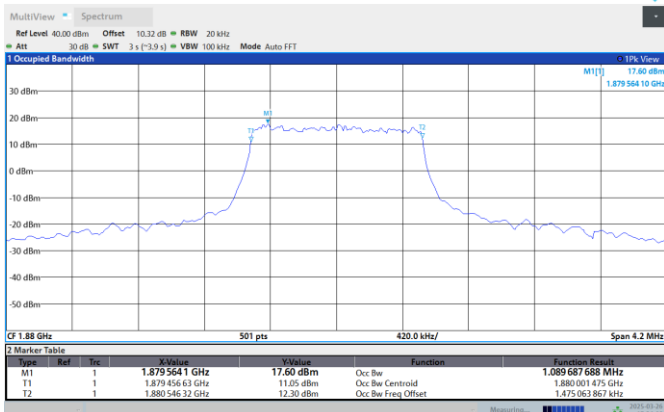
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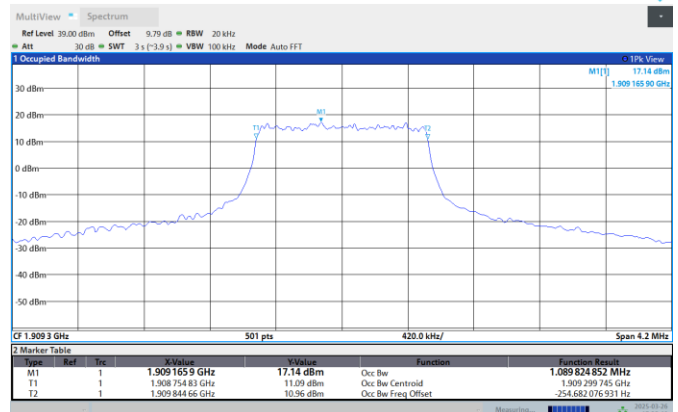
Band2-1.4MHz-16QAM-18607-6RB#0



Band2-1.4MHz-16QAM-18900-6RB#0



Band2-1.4MHz-16QAM-19193-6RB#0

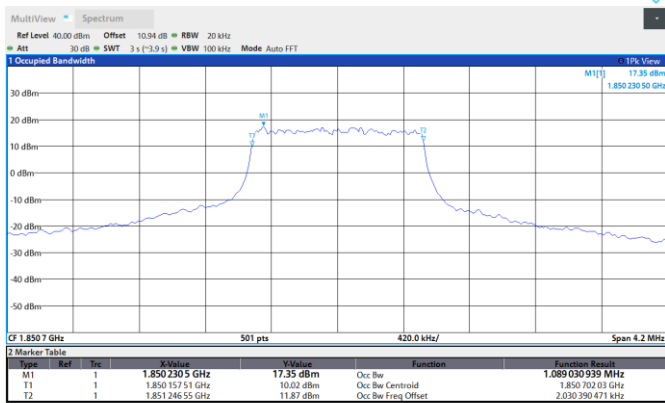


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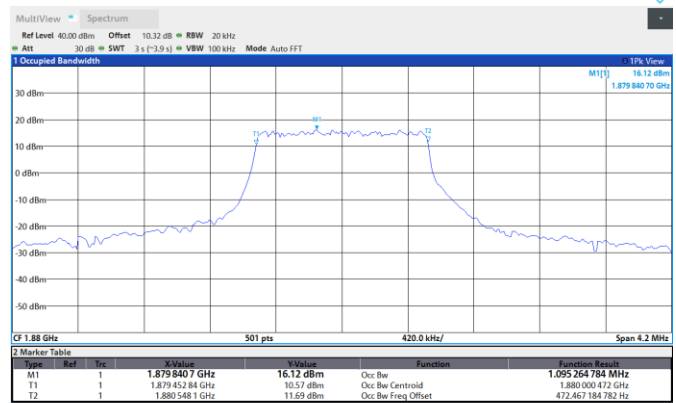


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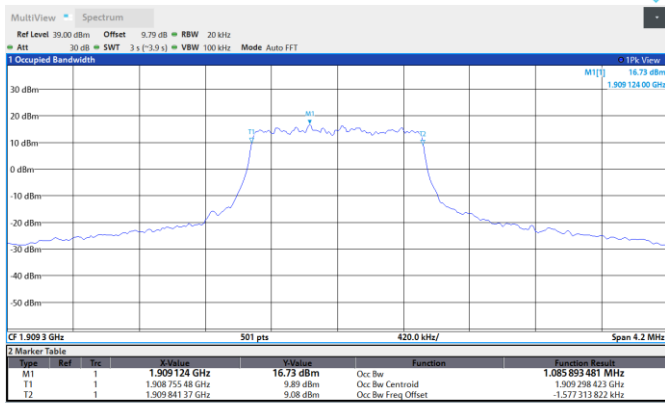




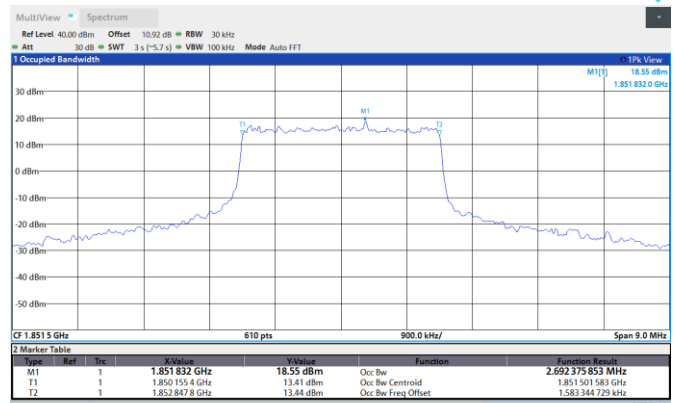
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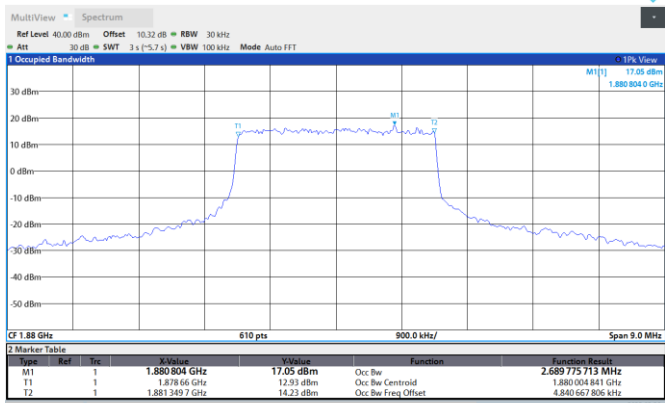
Band2-3MHz-QPSK-18615-15RB#



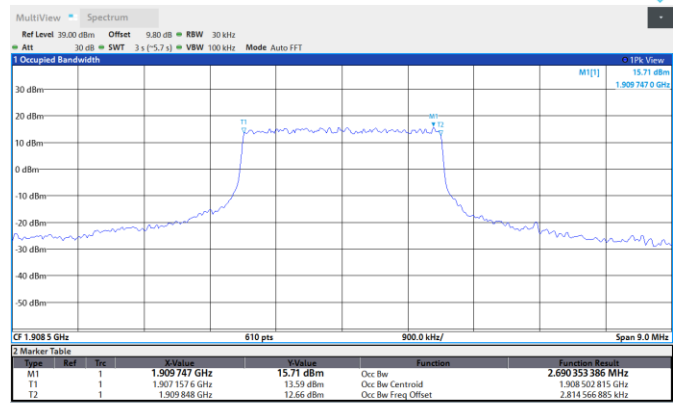
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Band2-3MHz-QPSK-19185-15RB#0



Band2-3MHz-16QAM-18615-15RB#0

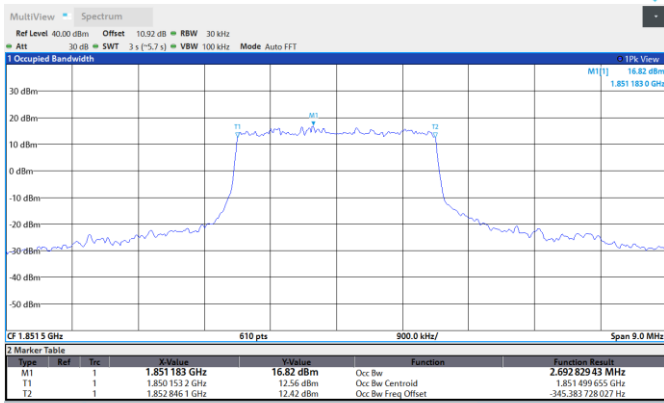


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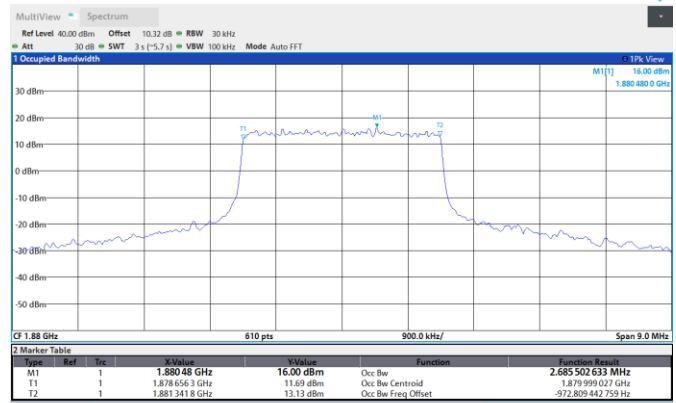


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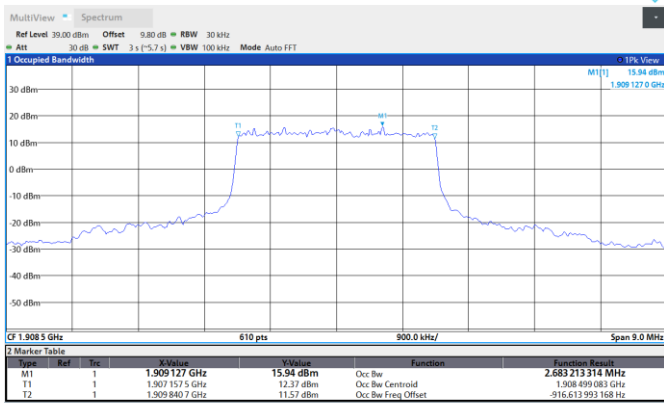
Test Report No.: PSU-QSU2503210311RF02



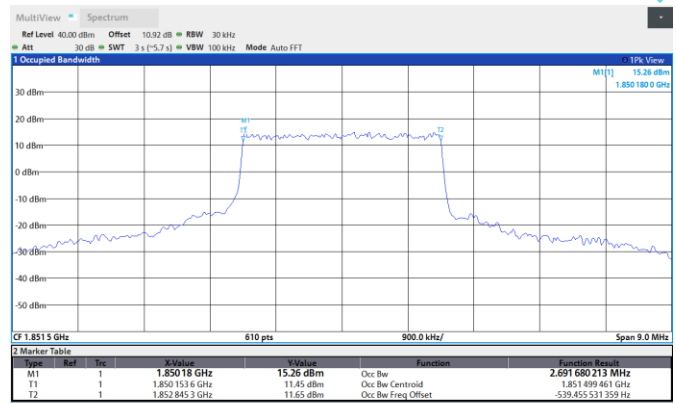
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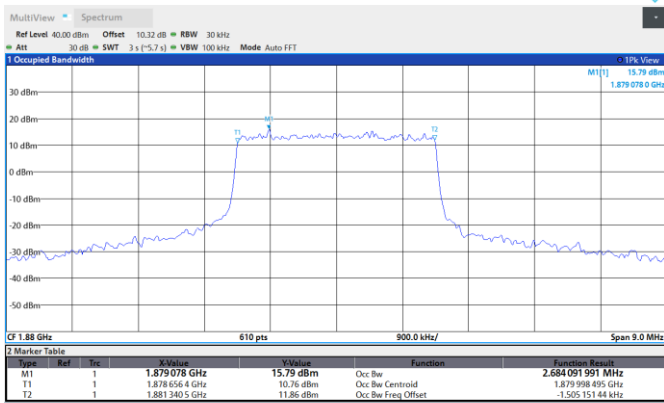
Band2-3MHz-64QAM-18615-15RB#0



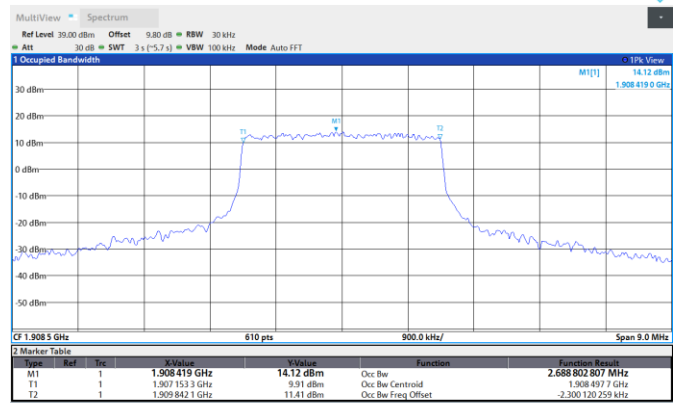
Band2-3MHz-64QAM-18900-15RB#0



Band2-3MHz-64QAM-19185-15RB#0



Band2-5MHz-QPSK-18625-25RB#0

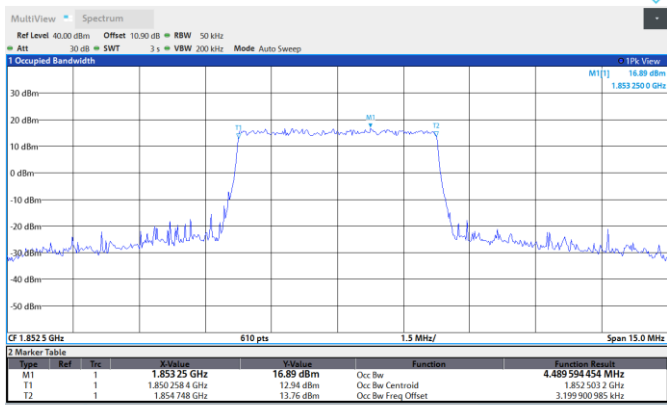


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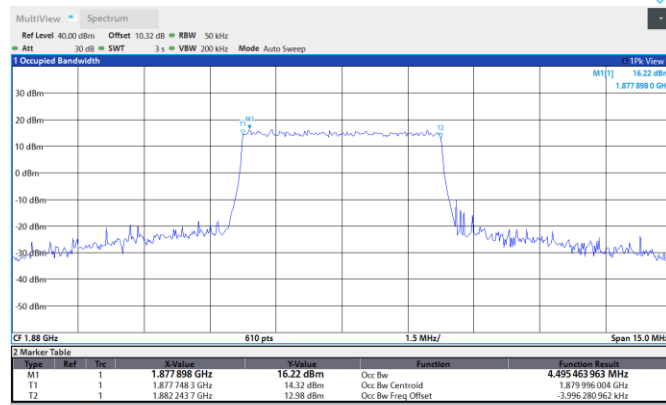


BUREAU
VERITAS

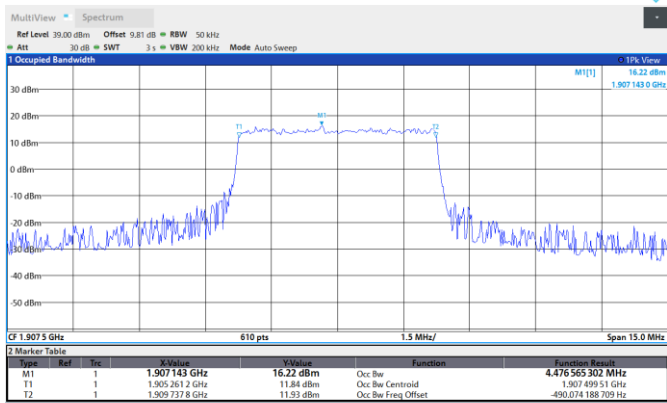
Test Report No.: PSU-QSU2503210311RF02



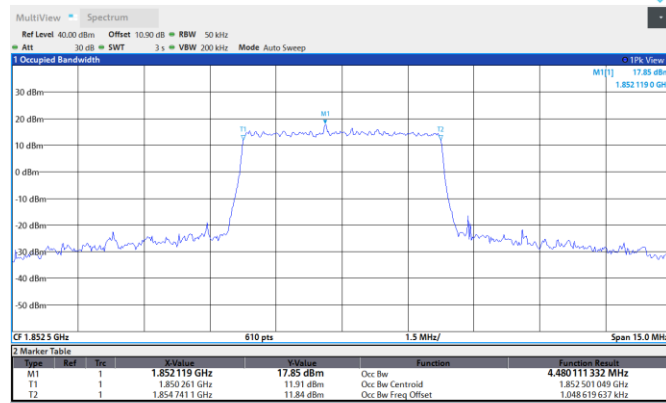
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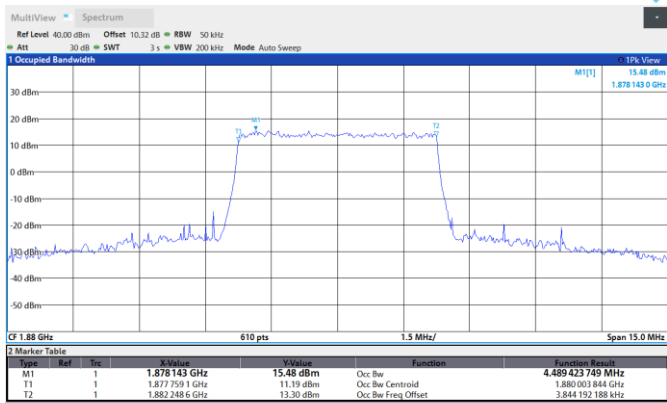
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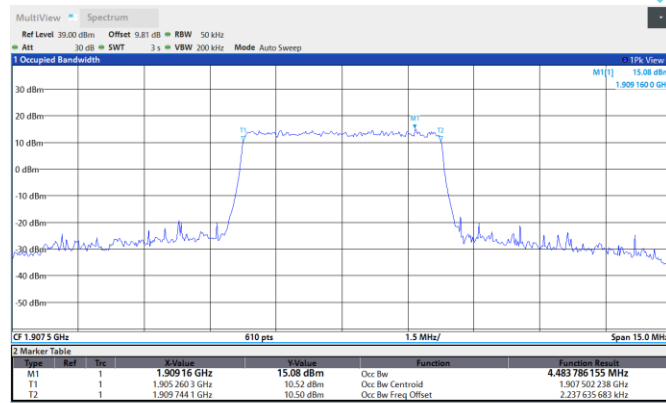
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Band2-5MHz-16QAM-19175-25RB#0



Band2-5MHz-64QAM-18625-25RB#0



Band2-5MHz-64QAM-18900-25RB#0