

FCC TEST REPORT

(PART 22)

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

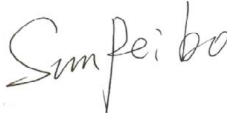
Manufacturer or Supplier:	JetWave Technology Co., Ltd.
Address:	Building 6, Floor 10, Room 1001-4, No. 5 Xingshengfang Road, Daxing District, Beijing, China
Product	Remote control for the electric Hydrofoil surfboard
Brand Name	Jetwave
Model Name	RC2000 / RC2000-a
Marketing Name	Smart Controller
FCC 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 22, Subpart H**
☒ **ANSI/TIA/EIA-603-D**
☒ **ANSI/TIA/EIA-603-E**

☒ **FCC Part 2**
☒ **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

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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Test Report No.: PSU-QSU2503210311RF01

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QSU2503210311RF01	Original release	Jul. 25, 2025



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	Test lab*
§2.1046	Conducted Output Power	Compliance	A
§22.913 (a)(5)	Equivalent Isotropic Radiated Power	Compliance	A
§2.1055 §22.355	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§22.913 (d)	Peak to average ratio*	Compliance	A
§2.1051 §22.917(a)	Band Edge Measurements	Compliance	A
§2.1051 §22.917(a)	Conducted Spurious Emissions	Compliance	A
§2.1053 §22.917(a)	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.

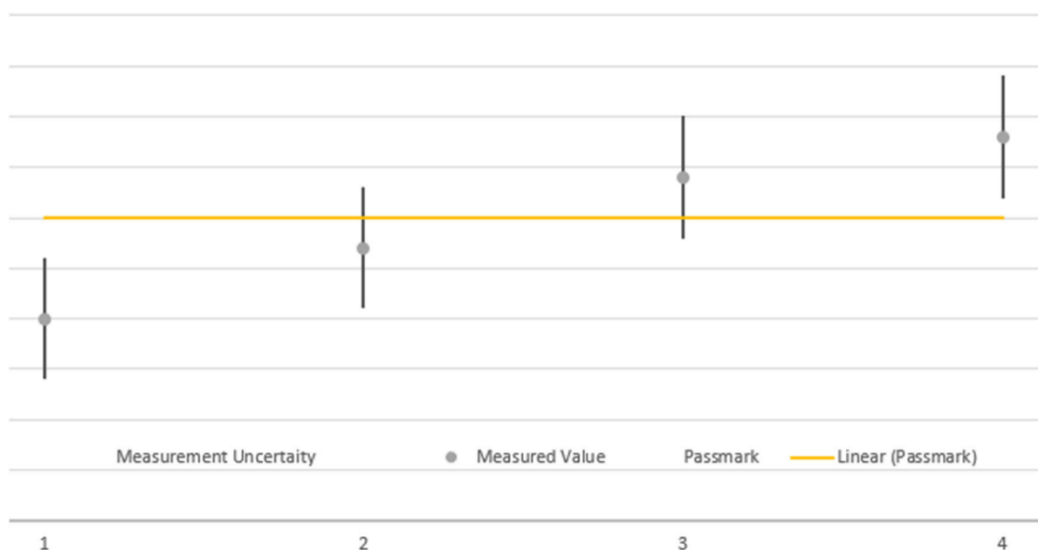


1.1 MEASUREMENT UNCERTAINTY

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
Maximum Peak Output Power	$\pm 2.06\text{dB}$
Frequency Stability	$\pm 76.97\text{Hz}$
Radiated emissions (9KHz~30MHz)	$\pm 2.68\text{dB}$
Radiated emissions (30MHz~1GHz)	$\pm 4.98\text{dB}$
Radiated emissions (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	$\pm 43.58\text{KHz}$
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

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District, Suzhou City, Anhui Province, China

Tel: +86 (0557) 368 1008

**Test Report No.: PSU-QSU2503210311RF01**

Temperature Chamber	votsch	VT4002	5856607810 0050	May.30,24	May.29,26
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NOTE:

1. The calibration interval of the above test instruments is 12/ 24/ 36 months and the calibrations are traceable to CEPREI/CHINA, GREGT/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	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	WCDMA	826.4MHz ~ 846.6MHz
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	824.7MHz ~ 848.3MHz
	LTE Band 5 (Channel Bandwidth: 3MHz)	825.5MHz ~ 847.5MHz
	LTE Band 5 (Channel Bandwidth: 5MHz)	826.5MHz ~ 846.5MHz
	LTE Band 5 (Channel Bandwidth: 10MHz)	829MHz ~ 844MHz
MAX. ERP POWER	WCDMA B5	155.6mW
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	139.64mW
	LTE Band 5 (Channel Bandwidth: 3MHz)	141.25mW
	LTE Band 5 (Channel Bandwidth: 5MHz)	142.56mW
	LTE Band 5 (Channel Bandwidth: 10MHz)	144.21mW
EMISSION DESIGNATOR GGN	WCDMA B5	4M17F9W
	LTE Band 5 (Channel Bandwidth: 1.4MHz)	QPSK: 1M09G7D
		16QAM: 1M09W7D
		64QAM: 1M09W7D
	LTE Band 5 (Channel Bandwidth: 3MHz)	QPSK: 2M69G7D
		16QAM: 2M69W7D
		64QAM: 2M69W7D
	LTE Band 5 (Channel Bandwidth: 5MHz)	QPSK: 4M49G7D
		16QAM: 4M48W7D
		64QAM: 4M48W7D
	LTE Band 5 (Channel Bandwidth: 10MHz)	QPSK: 8M97G7D
		16QAM: 8M96W7D
		64QAM: 8M96W7D
ANTENNA GAIN*	WCDMA V	1dBi
	LTE B5	1dBi



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:

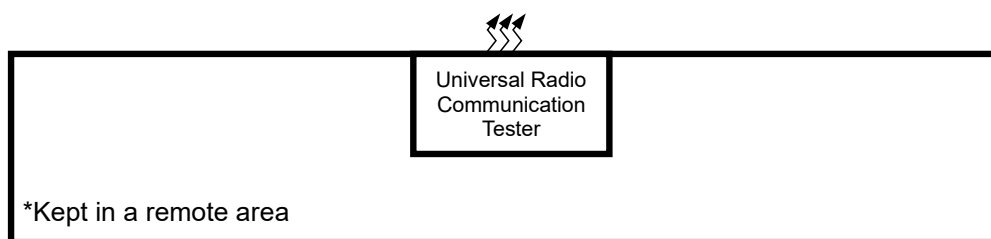
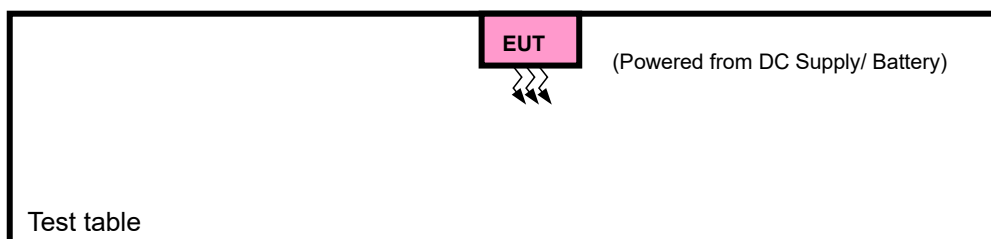
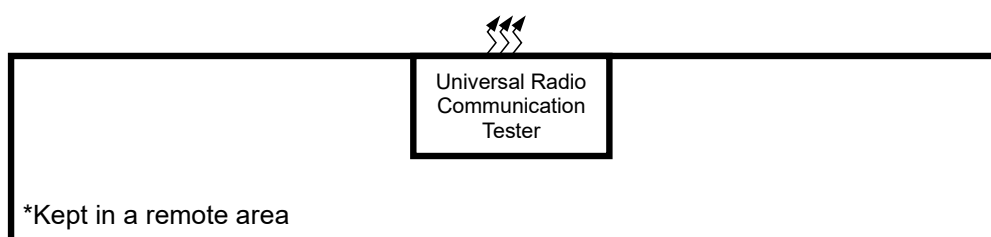
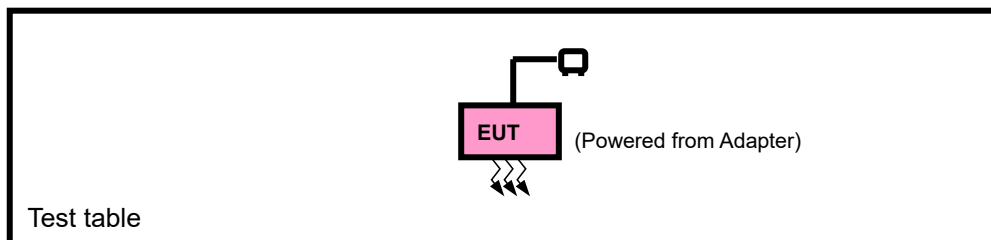
- *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.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

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

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

2.2 CONFIGURATION OF SYSTEM UNDER 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 ERP 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 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
B	FREQUENCY STABILITY	4132 to 4233	4132, 4182, 4233	WCDMA
A	OCCUPIED BANDWIDTH	4132 to 4233	4132, 4182, 4233	WCDMA
A	BAND EDGE	4132 to 4233	4132, 4233	WCDMA
A	CONDUCTED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	RADIATED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	PEAK TO AVERAGE RATIO	4132 to 4233	4132, 4182, 4233	WCDMA



LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
A	ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20450 to 20600	20450, 20525, 20600	10MHz	QPSK	Full RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM,64QAM	Full RB / 0 RB Offset
A	BAND EDGE	20407 to 20643	20407	1.4 MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20407 to 20643	20643	1.4 MHz	QPSK,16QAM,64QAM	1 RB / 5 RB Offset
						Full RB / 0 RB Offset
		20415 to 20635	20415	3 MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20415 to 20635	20635	3 MHz	QPSK,16QAM,64QAM	1 RB / 14 RB Offset
						Full RB / 0 RB Offset
		20425 to 20625	20425	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20425 to 20625	20625	5MHz	QPSK,16QAM,64QAM	1 RB / 24 RB Offset
						Full RB / 0 RB Offset
		20450 to 20600	20450	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
						Full RB / 0 RB Offset
		20450 to 20600	20600	10MHz	QPSK,16QAM,64QAM	1 RB / 49 RB Offset
						Full RB / 0 RB Offset
A	CONDCUDED EMISSION	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1 RB / 0 RB Offset



A	RADIATED EMISSION	20407 to 20643	20525	1.4MHz	QPSK	1 RB / 0 RB Offset
		20415 to 20635	20525	3MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20525	5MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK	1 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset Full 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
CONDUCTED 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 22

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 / Portable station are limited to 7 watts e.r.p.

3.1.2 TEST PROCEDURES

EIRP / ERP 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:

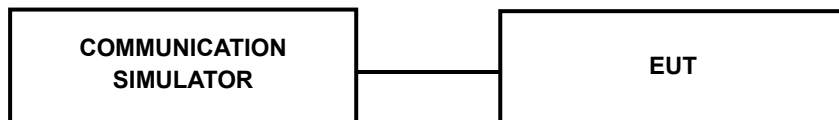
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



3.1.3 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm):

Band	WCDMA V		
TX Channel	4132	4182	4233
Rx Channel	4357	4407	4458
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.00	23.02	23.07
HSDPA Subtest-1	22.42	22.62	22.57
HSDPA Subtest-2	22.58	22.36	22.63
HSDPA Subtest-3	21.98	21.90	22.15
HSDPA Subtest-4	22.14	22.08	22.13
DC-HSDPA Subtest-1	22.36	22.48	22.53
DC-HSDPA Subtest-2	22.60	22.54	22.65
DC-HSDPA Subtest-3	22.16	21.92	22.15
DC-HSDPA Subtest-4	22.00	22.04	22.05
HSUPA Subtest-1	22.66	22.36	22.63
HSUPA Subtest-2	21.40	21.54	21.41
HSUPA Subtest-3	21.90	21.86	22.19
HSUPA Subtest-4	21.60	21.46	21.63
HSUPA Subtest-5	22.38	22.40	22.53
HSPA+ Subtest-1	22.08	21.96	21.91



LTE Band 5						
BW	Modulation	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	22.56	22.53	22.51
		1	24	22.74	22.66	22.64
		1	49	22.65	22.63	22.57
		25	0	21.66	21.63	21.62
		25	12	21.63	21.60	21.52
		25	25	21.56	21.56	21.51
		50	0	21.59	21.44	21.52
	16QAM	1	0	21.63	21.52	21.55
		1	24	21.52	21.50	21.41
		1	49	21.54	21.41	21.38
		25	0	20.63	20.71	20.73
		25	12	20.65	20.51	20.52
		25	25	20.59	20.53	20.64
		50	0	20.63	20.54	20.55
	64QAM	1	0	20.74	20.53	20.56
		1	24	20.87	20.70	20.68
		1	49	20.70	20.76	20.84
		25	0	19.79	19.68	19.56
		25	12	19.69	19.65	19.66
		25	25	19.66	19.58	19.59
		50	0	19.71	19.60	19.53



LTE Band 5						
BW	Modulation	Channel		20425	19.59	19.56
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	22.45	22.41	22.39
		1	12	22.69	22.62	22.59
		1	24	22.55	22.61	22.52
		12	0	21.64	21.62	21.53
		12	6	21.58	21.53	21.41
		12	13	21.44	21.55	21.45
		25	0	21.54	21.42	21.44
	16QAM	1	0	21.51	21.40	21.48
		1	12	21.51	21.36	21.31
		1	24	21.52	21.37	21.35
		12	0	20.53	20.67	20.61
		12	6	20.53	20.50	20.39
		12	13	20.49	20.47	20.56
		25	0	20.62	20.41	20.47
	64QAM	1	0	20.73	20.40	20.47
		1	12	20.84	20.60	20.66
		1	24	20.61	20.63	20.75
		12	0	19.73	19.64	19.46
		12	6	19.68	19.62	19.53
		12	13	19.64	19.56	19.54
		25	0	19.61	19.51	19.39



LTE Band 5						
BW	Modulation	Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	22.52	22.48	22.45
		1	7	22.65	22.63	22.54
		1	14	22.59	22.53	22.49
		8	0	21.65	21.58	21.57
		8	3	21.60	21.47	21.39
		8	7	21.46	21.53	21.38
		15	0	21.53	21.35	21.37
	16QAM	1	0	21.61	21.47	21.47
		1	7	21.43	21.41	21.36
		1	14	21.44	21.30	21.33
		8	0	20.59	20.62	20.59
		8	3	20.58	20.38	20.45
		8	7	20.51	20.51	20.57
		15	0	20.58	20.45	20.53
	64QAM	1	0	20.71	20.50	20.47
		1	7	20.74	20.67	20.67
		1	14	20.60	20.74	20.73
		8	0	19.71	19.56	19.43
		8	3	19.54	19.54	19.60
		8	7	19.51	19.55	19.45
		15	0	19.60	19.53	19.50



LTE Band 5						
BW	Modulation	Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	22.47	22.44	22.44
		1	2	22.60	22.56	22.60
		1	5	22.57	22.57	22.45
		3	0	22.33	22.35	22.30
		3	1	22.41	22.38	22.29
		3	3	22.27	22.31	22.29
		6	0	21.55	21.39	21.39
	16QAM	1	0	21.57	21.39	21.47
		1	2	21.44	21.49	21.32
		1	5	21.44	21.31	21.34
		3	0	21.40	21.49	21.42
		3	1	21.42	21.19	21.19
		3	3	21.38	21.32	21.41
		6	0	20.57	20.39	20.41
	64QAM	1	0	20.70	20.52	20.45
		1	2	20.84	20.59	20.66
		1	5	20.63	20.68	20.71
		3	0	20.49	20.39	20.25
		3	1	20.43	20.41	20.38
		3	3	20.41	20.27	20.40
		6	0	19.63	19.52	19.42



ERP POWER (dBm)

WCDMA B5						
Channel	Frequency (MHz)	Conducted Power (dBm)	G _T -L _c (dB)	ERP (dBm)	ERP (mW)	Limit (W)
4132	826.4	23.00	1	21.85	153.11	7
4182	836.4	23.02	1	21.87	153.82	7
4233	846.6	23.07	1	21.92	155.6	7

LTE Band 5							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	ERP (dBm)	ERP (mW)	FCC Limit (W)
10M-QPSK	20450	829	22.74	1	21.59	144.21	7
	20525	836.5	22.66	1	21.51	141.58	7
	20600	844	22.64	1	21.49	140.93	7
10M-16QAM	20450	829	21.63	1	20.48	111.69	7
	20525	836.5	21.52	1	20.37	108.89	7
	20600	844	21.55	1	20.40	109.65	7
10M-64QAM	20450	829	20.87	1	19.72	93.76	7
	20525	836.5	20.76	1	19.61	91.41	7
	20600	844	20.84	1	19.69	93.11	7
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	ERP (dBm)	ERP (mW)	FCC Limit (W)
5M-QPSK	20425	826.5	22.69	1	21.54	142.56	7
	20525	836.5	22.62	1	21.47	140.28	7
	20625	846.5	22.59	1	21.44	139.32	7
5M-16QAM	20425	826.5	21.52	1	20.37	108.89	7
	20525	836.5	21.40	1	20.25	105.93	7
	20625	846.5	21.48	1	20.33	107.89	7
5M-64QAM	20425	826.5	20.84	1	19.69	93.11	7
	20525	836.5	20.63	1	19.48	88.72	7
	20625	846.5	20.75	1	19.60	91.20	7



LTE Band 5							
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	ERP (dBm)	ERP (mW)	FCC Limit (W)
3M-QPSK	20415	825.5	22.65	1	21.50	141.25	7
	20525	836.5	22.63	1	21.48	140.60	7
	20635	847.5	22.54	1	21.39	137.72	7
3M-16QAM	20415	825.5	21.61	1	20.46	111.17	7
	20525	836.5	21.47	1	20.32	107.65	7
	20635	847.5	21.47	1	20.32	107.65	7
3M-64QAM	20415	825.5	20.74	1	19.59	90.99	7
	20525	836.5	20.74	1	19.59	90.99	7
	20635	847.5	20.73	1	19.58	90.78	7
BW [MHz] Modulation	Channel	Frequency (MHz)	Conducted Power (dBm)	Gain (dB)	ERP (dBm)	ERP (mW)	FCC Limit (W)
1.4M-QPSK	20407	824.7	22.60	1	21.45	139.64	7
	20525	836.5	22.57	1	21.42	138.68	7
	20643	848.3	22.60	1	21.45	139.64	7
1.4M- 16QAM	20407	824.7	21.57	1	20.42	110.15	7
	20525	836.5	21.49	1	20.34	108.14	7
	20643	848.3	21.47	1	20.32	107.65	7
1.4M- 64QAM	20407	824.7	20.84	1	19.69	93.11	7
	20525	836.5	20.68	1	19.53	89.74	7
	20643	848.3	20.71	1	19.56	90.36	7

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



3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

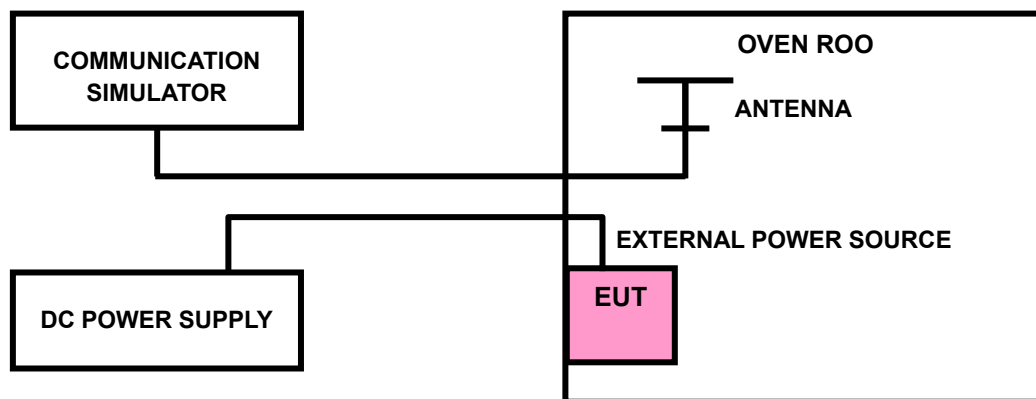
1.5 ppm is for base and fixed station. 2.5 ppm is for mobile station.

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)

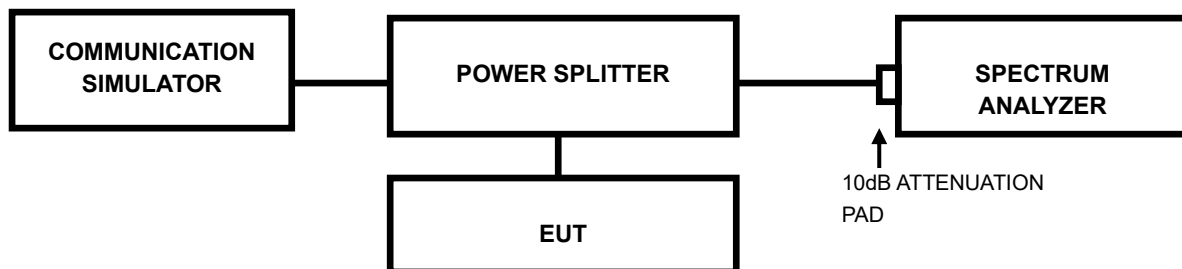


3.3 OCCUPIED BANDWIDTH MEASUREMENT

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.

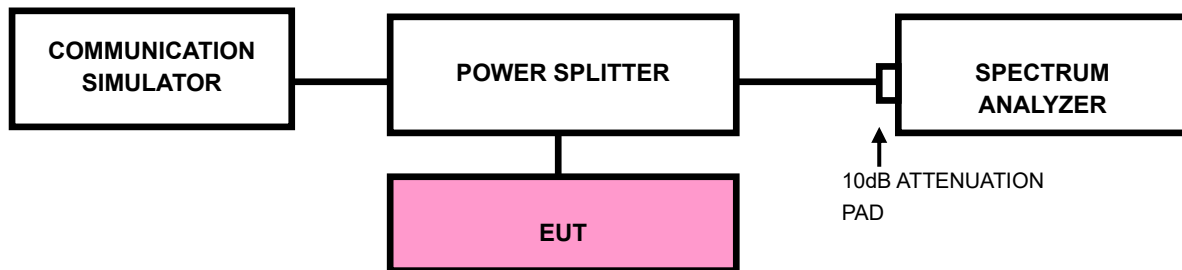


3.4 BAND EDGE MEASUREMENT

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

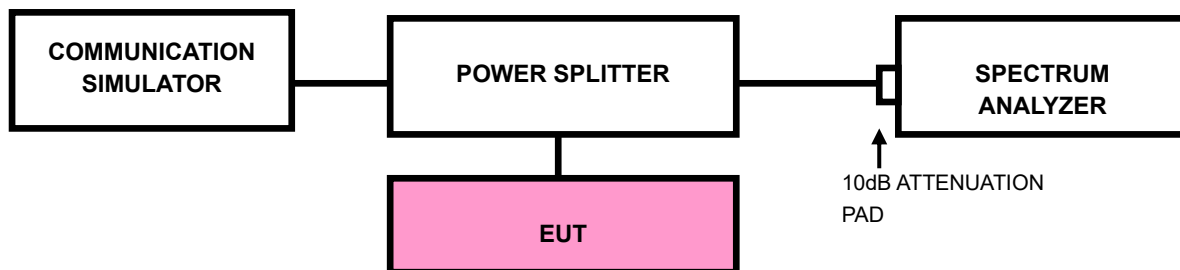
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 9kHz up to a frequency including its 10th harmonic. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP



3.5.4 TEST RESULTS

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

Please Refer to Appendix of this test report.



3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$.

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

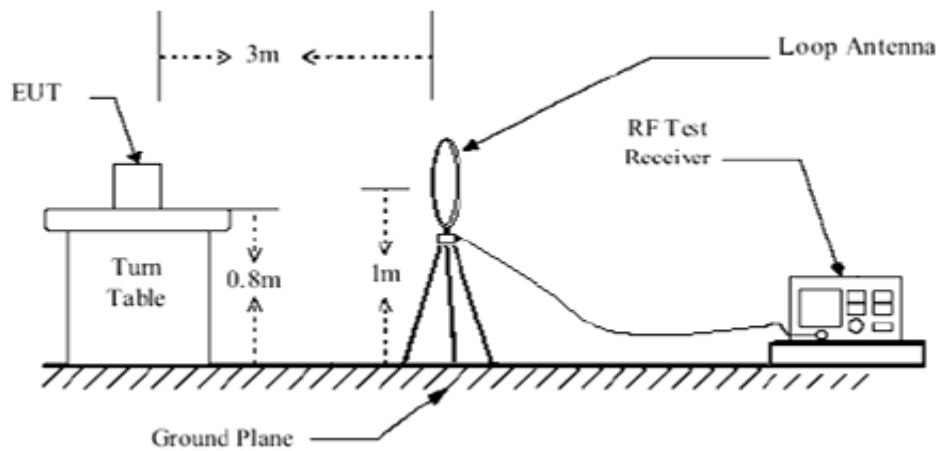
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

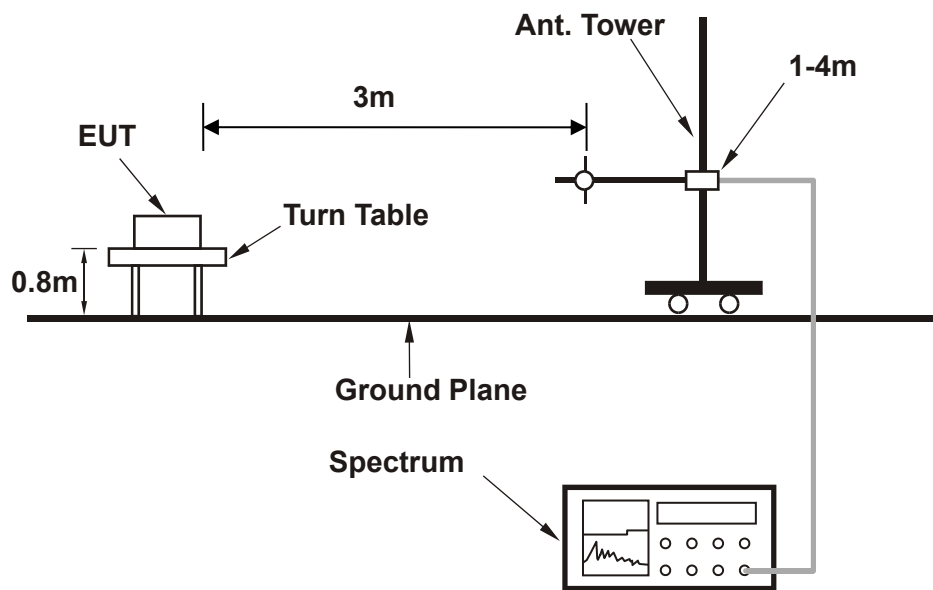


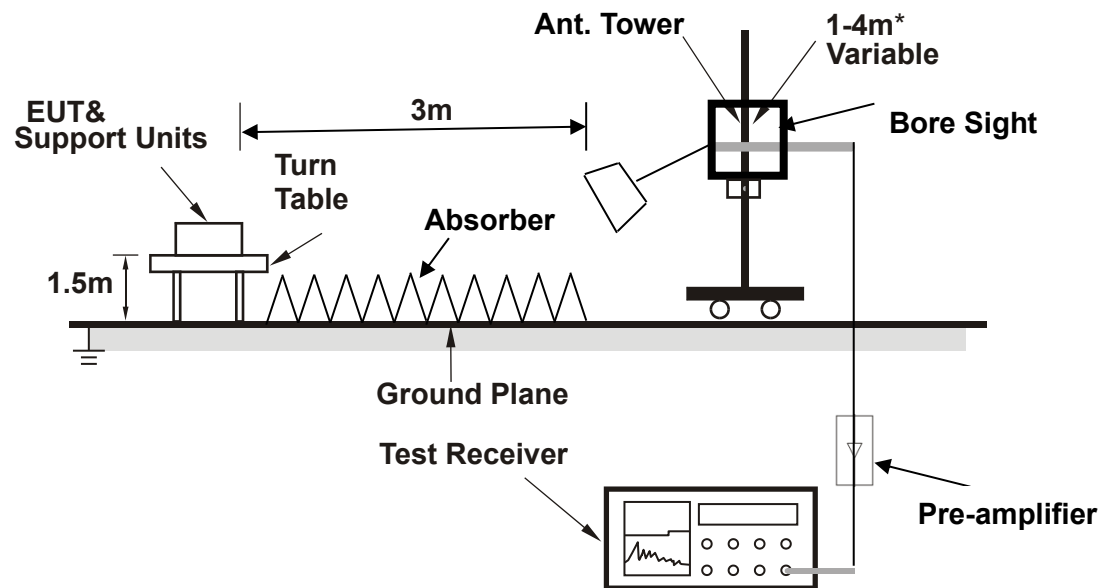
3.6.4 TEST SETUP

< 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

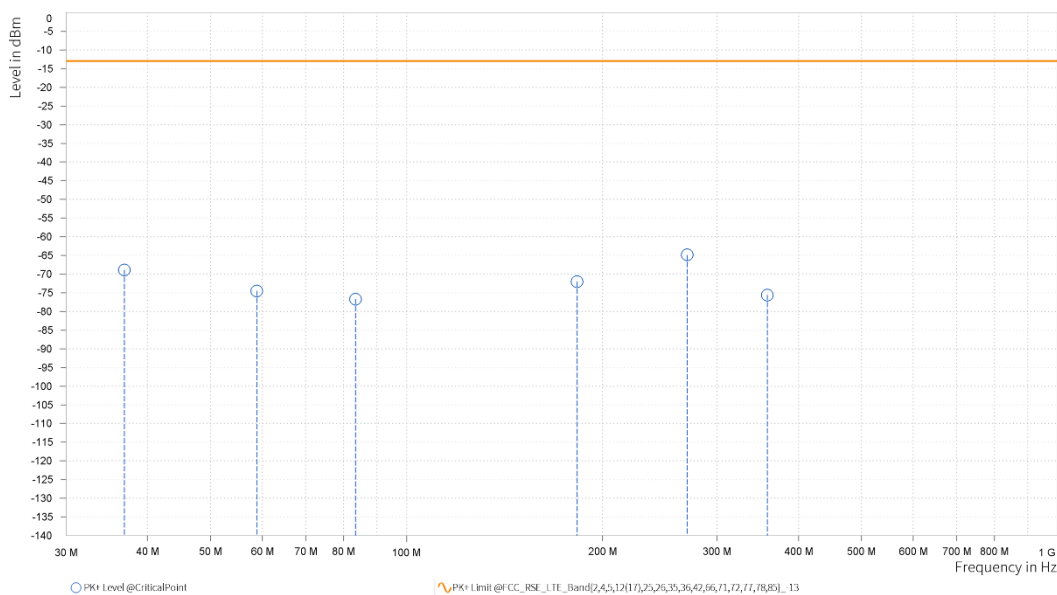
NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

BELOW 1GHz WORST-CASE DATA

LTE Band 5 CHANNEL BANDWIDTH: 10MHz / QPSK			
MODE	TX channel 20525	FREQUENCY RANGE	Below 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]
1	36.850	-68.90	-13.00	55.90	0.03	H	1	1.00
1	58.850	-74.52	-13.00	61.52	-3.68	H	342.2	1.00
1	83.450	-76.69	-13.00	63.69	-13.13	H	355	2.00
1	182.800	-72.01	-13.00	59.01	-7.12	H	281.3	1.00
1	270.000	-64.85	-13.00	51.85	-1.80	H	219.2	1.00
1	358.200	-75.60	-13.00	62.60	-1.61	H	219.2	1.00

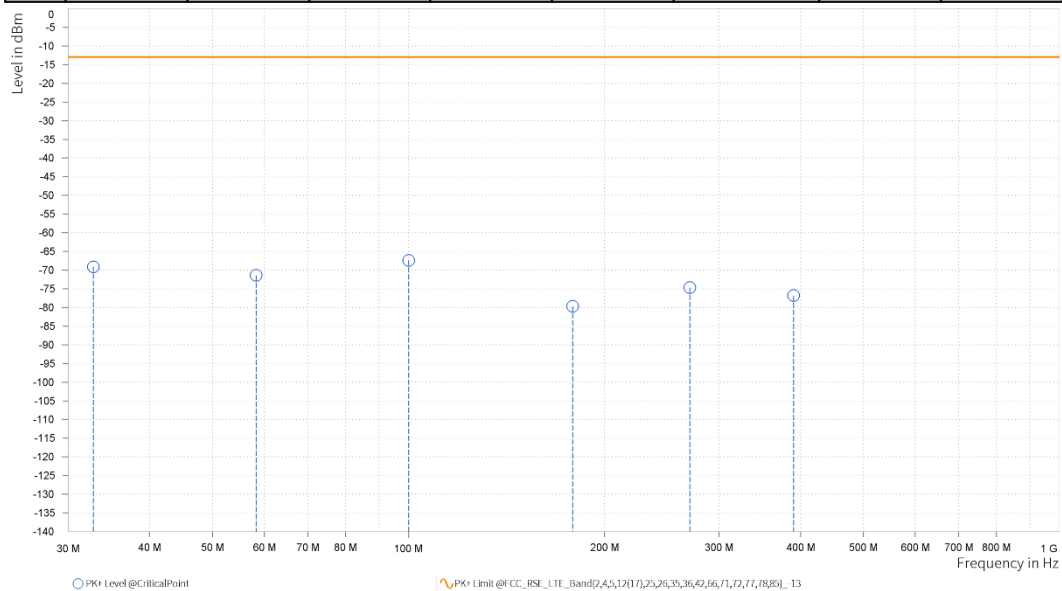


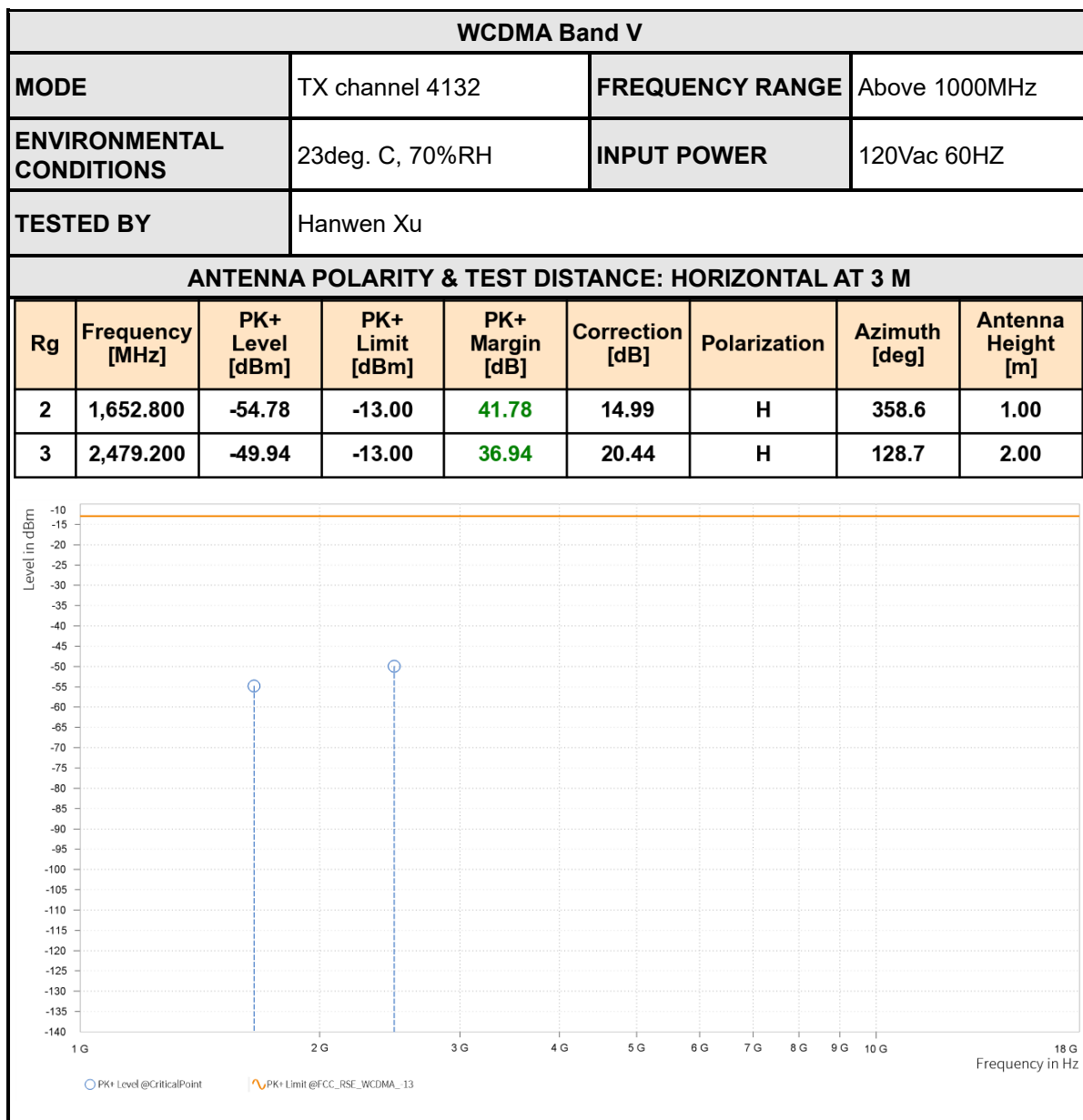


MODE	TX channel 20525	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

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]
1	32.800	-69.11	-13.00	56.11	-6.81	V	359.1	1.00
1	58.300	-71.42	-13.00	58.42	-3.32	V	359.1	1.00
1	100.000	-67.38	-13.00	54.38	4.52	V	96.1	1.00
1	178.600	-79.69	-13.00	66.69	-9.72	V	96.1	1.00
1	270.500	-74.72	-13.00	61.72	-3.06	V	139.6	2.00
1	390.450	-76.81	-13.00	63.81	0.35	V	221.6	1.00



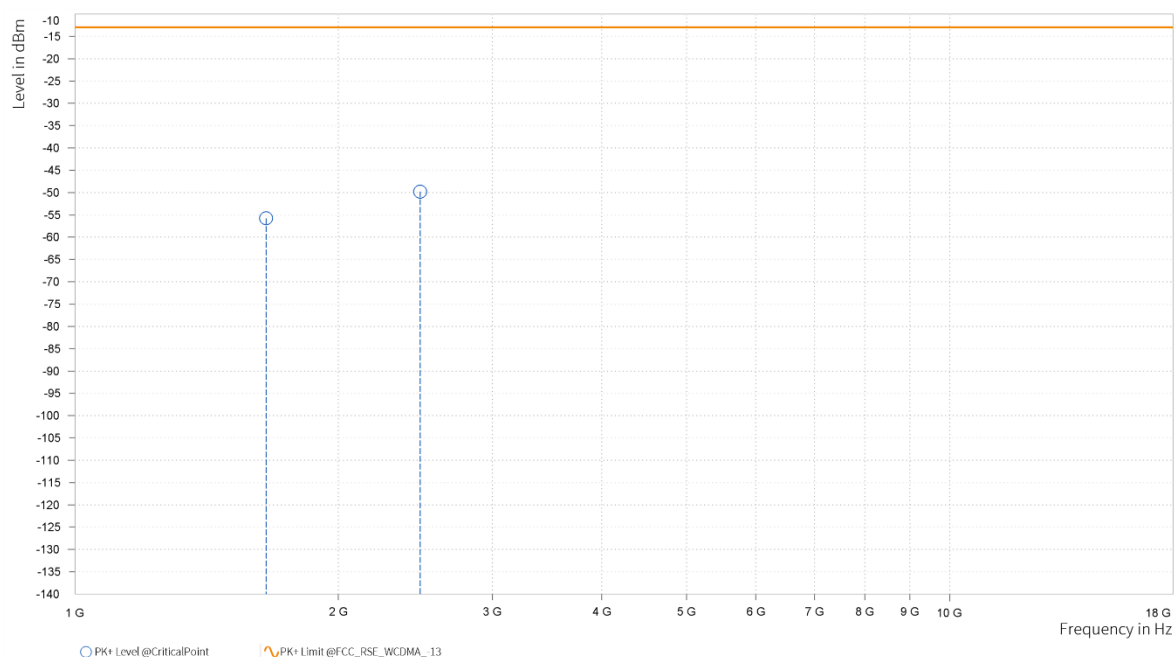
**ABOVE 1GHz DATA****Note:** For higher frequency, the emission is too low to be detected.



MODE	TX channel 4132	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,652.800	-55.77	-13.00	42.77	14.28	V	33.9	1.00
3	2,479.200	-49.78	-13.00	36.78	20.68	V	295.8	2.00

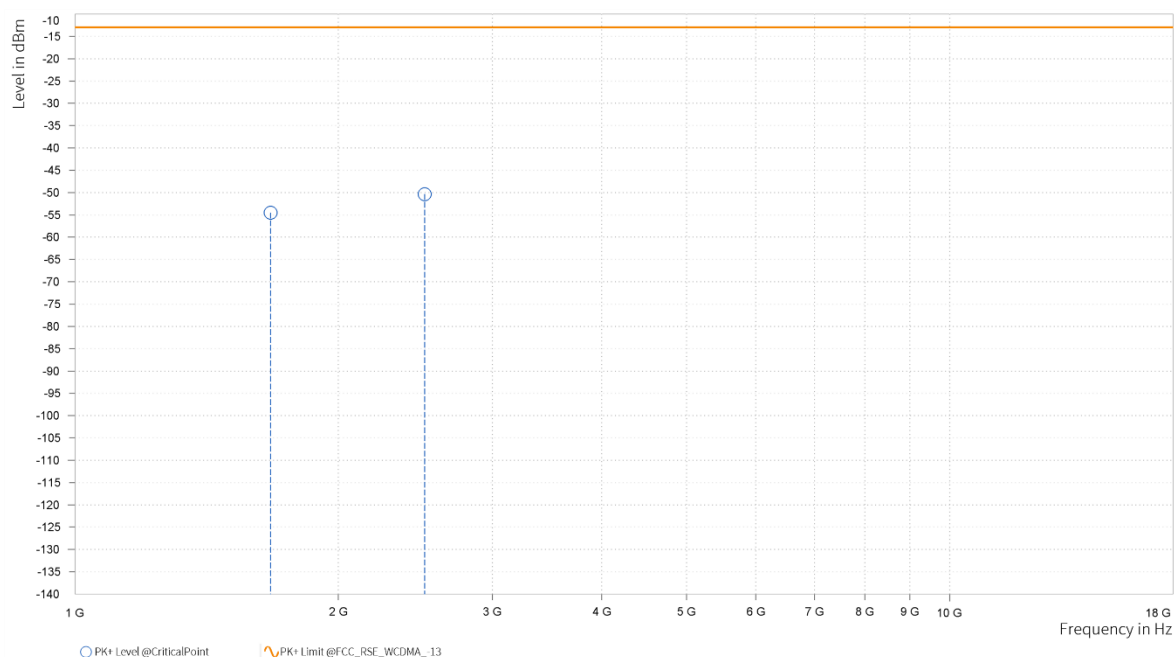




MODE	TX channel 4182	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,672.800	-54.50	-13.00	41.50	15.49	H	35.3	1.00
3	2,509.200	-50.36	-13.00	37.36	20.52	H	116.6	2.00

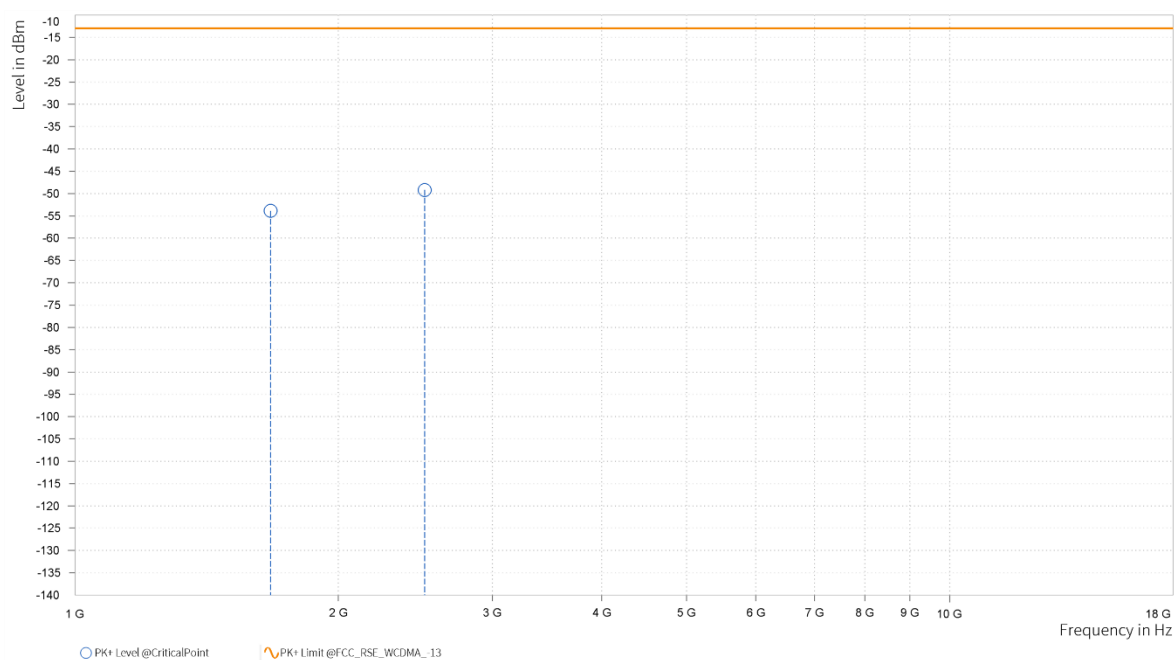




MODE	TX channel 4182	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,672.800	-53.90	-13.00	40.90	14.39	V	307.7	1.00
3	2,509.200	-49.19	-13.00	36.19	21.13	V	29.6	2.00

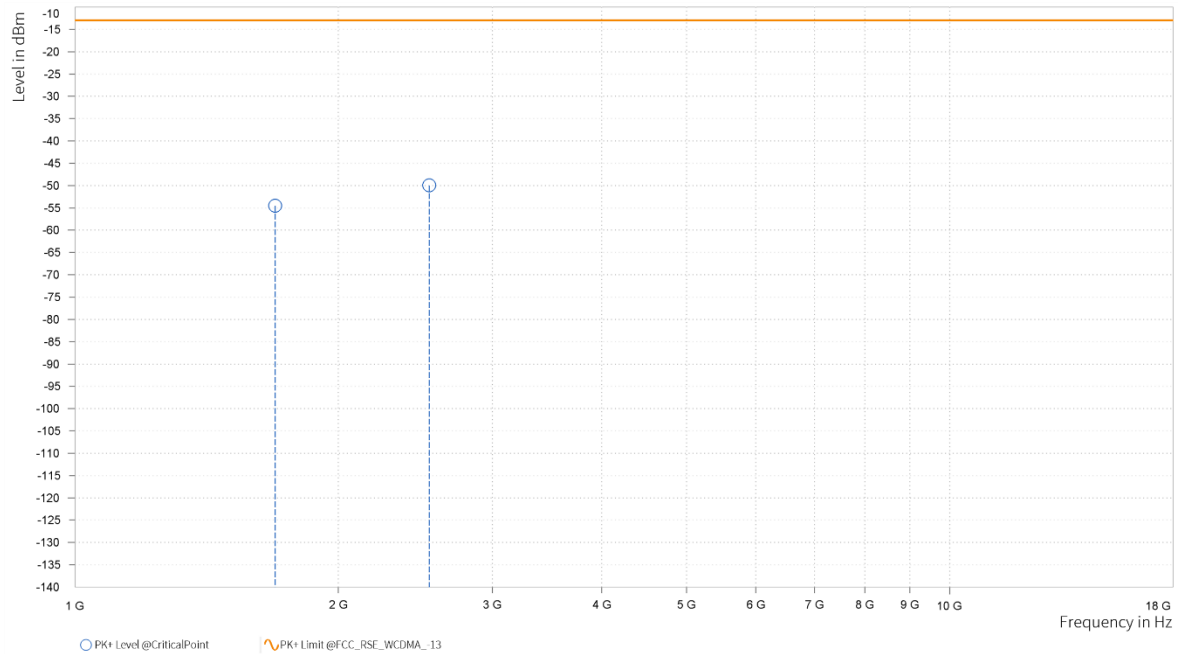




MODE	TX channel 4233	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,693.200	-54.53	-13.00	41.53	16.04	H	326.1	1.00
3	2,539.800	-49.98	-13.00	36.98	20.30	H	295	2.00

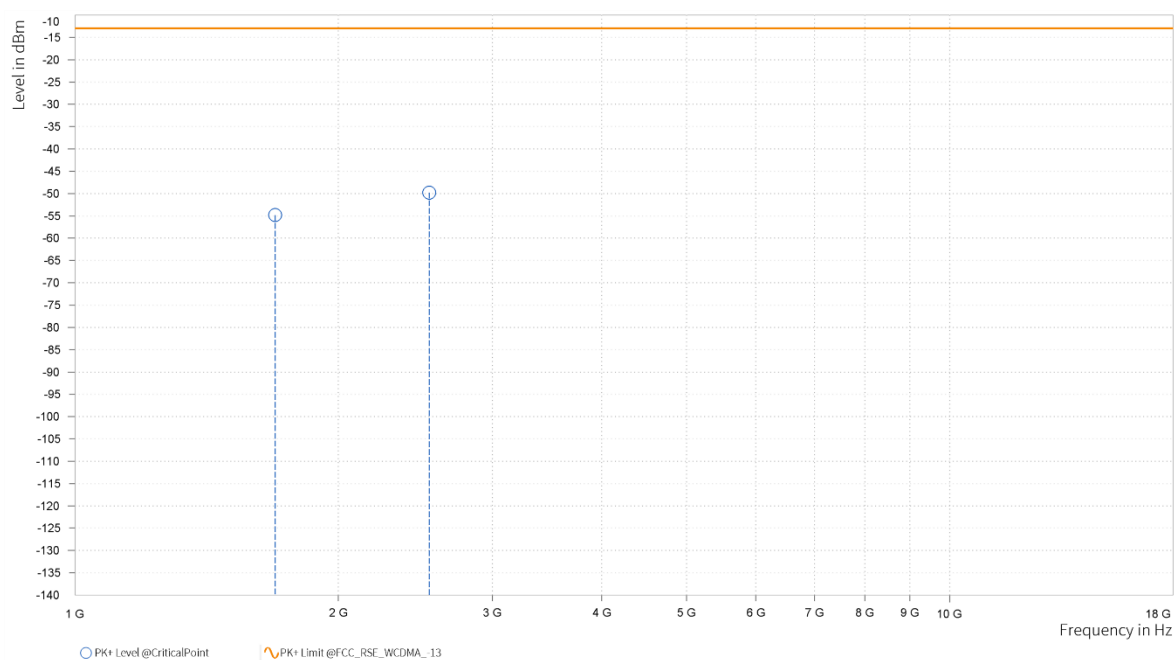




MODE	TX channel 4233	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	120Vac 60HZ
TESTED BY	Hanwen Xu		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,693.200	-54.83	-13.00	41.83	15.06	V	359	2.00
3	2,539.800	-49.80	-13.00	36.80	20.98	V	350.1	1.00

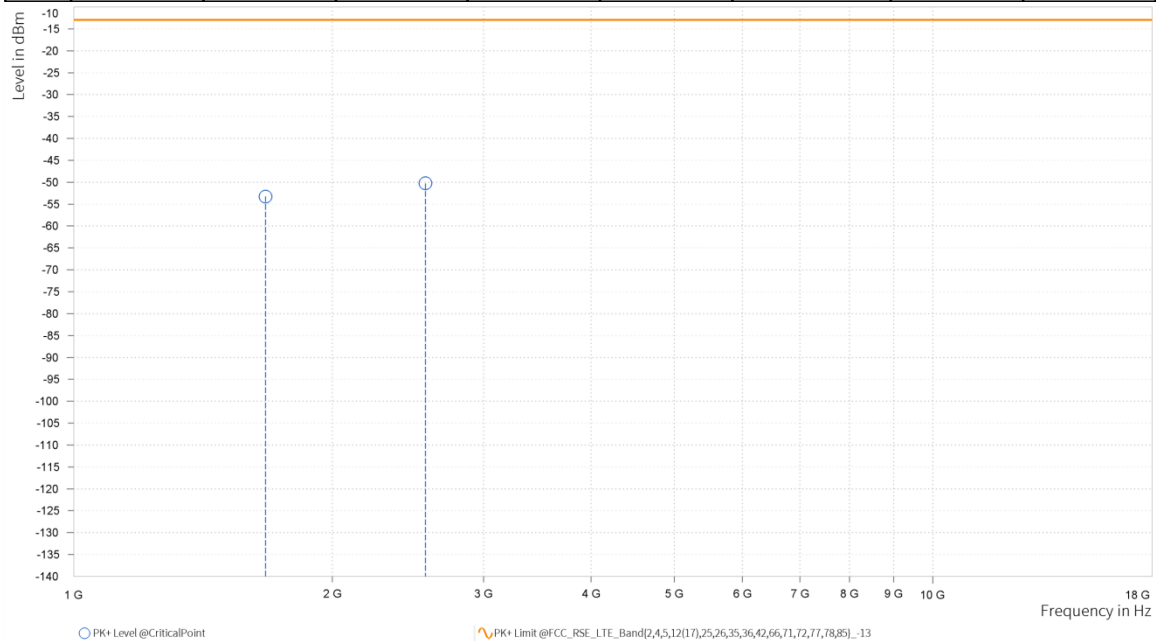




LTE Band 5			
CHANNEL BANDWIDTH	1.4MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,671.740	-53.28	-13.00	40.28	15.46	H	348.1	1.00
3	2,567.010	-50.24	-13.00	37.24	20.95	H	62.9	2.00

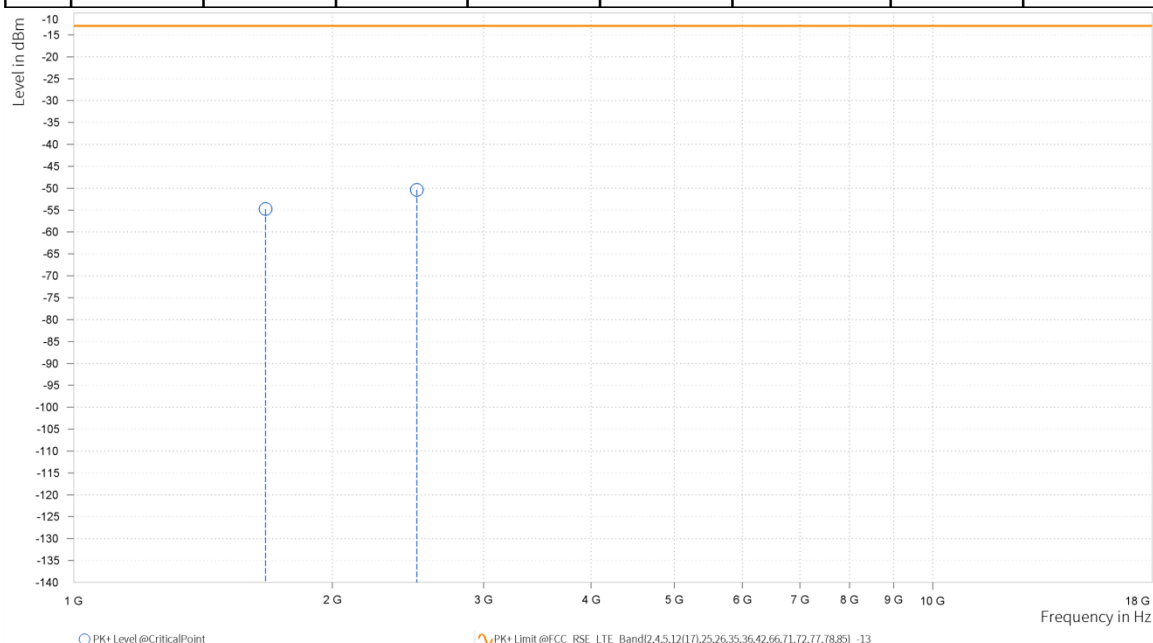




CHANNEL BANDWIDTH	1.4MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,671.740	-54.76	-13.00	41.76	14.35	V	125.8	2.00
3	2,507.710	-50.36	-13.00	37.36	21.12	V	60	2.00

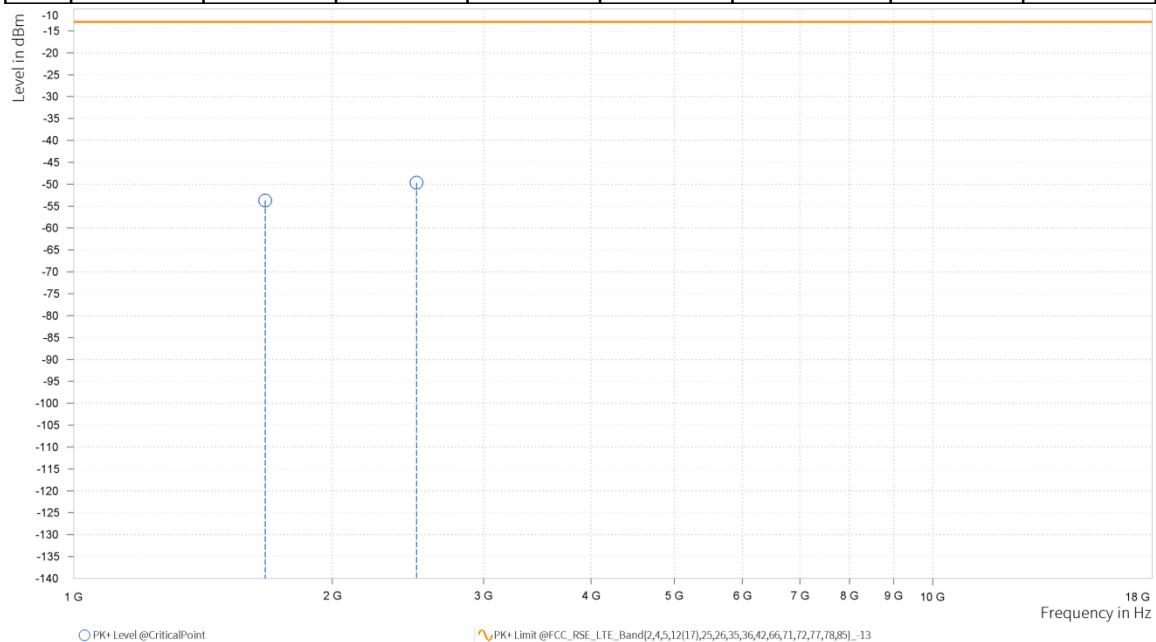




CHANNEL BANDWIDTH	3MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,670.000	-53.71	-13.00	40.71	15.43	H	175.4	1.00
3	2,505.000	-49.68	-13.00	36.68	20.60	H	296.4	2.00

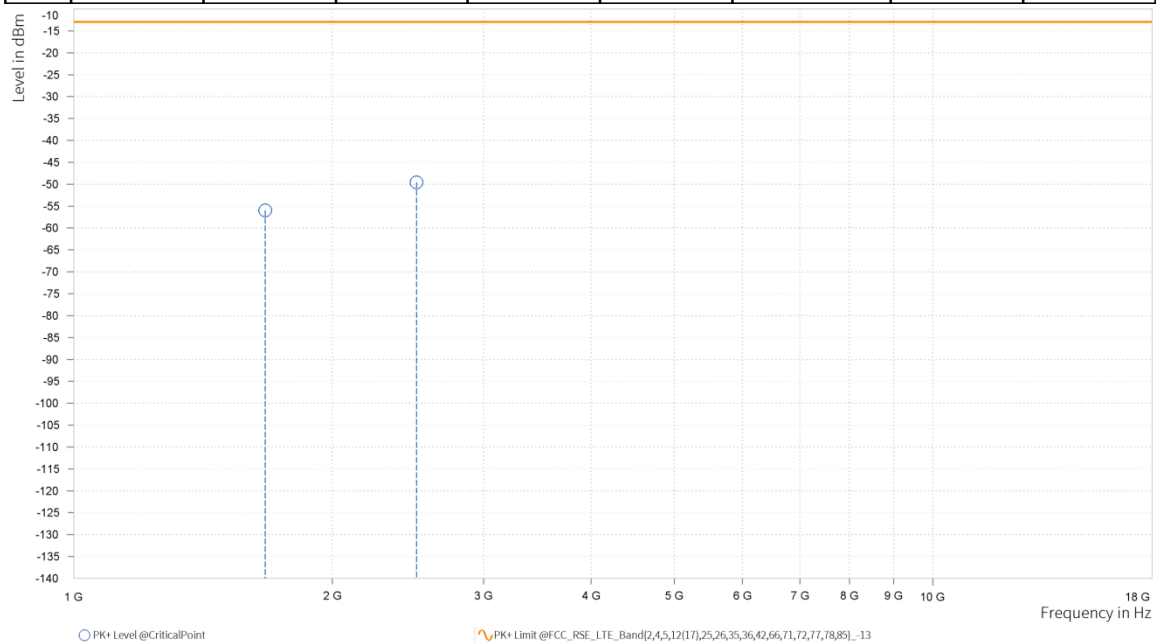




CHANNEL BANDWIDTH	3MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,670.000	-55.94	-13.00	42.94	14.31	V	359	2.00
3	2,505.000	-49.58	-13.00	36.58	21.10	V	0.9	2.00

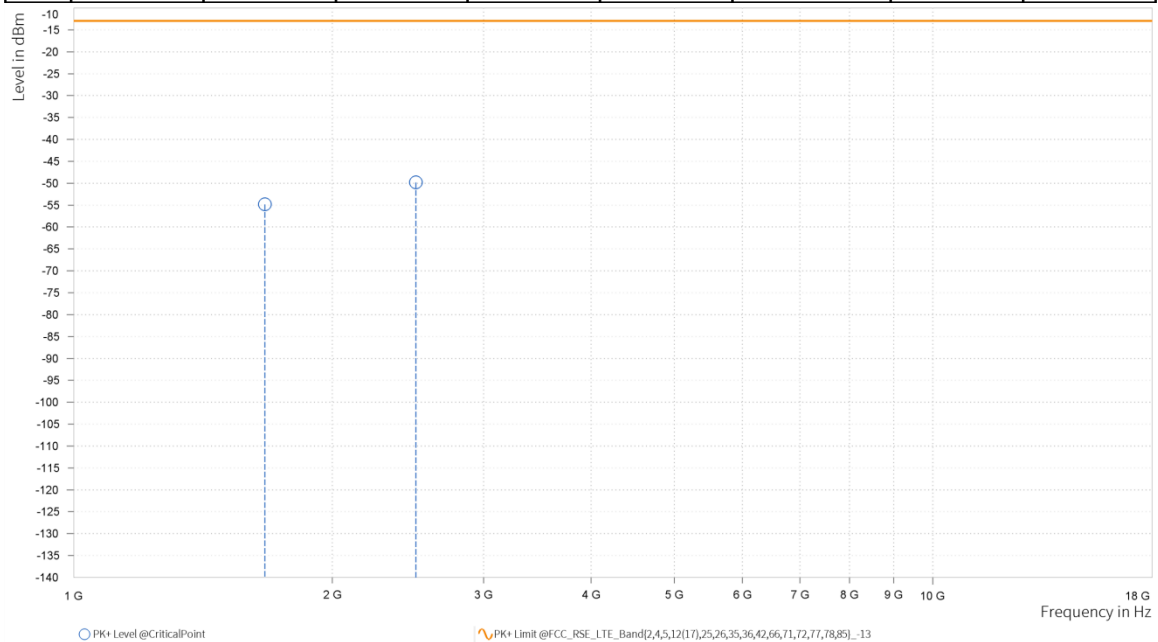




CHANNEL BANDWIDTH	5MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,668.500	-54.84	-13.00	41.84	15.40	H	359	2.00
3	2,502.500	-49.81	-13.00	36.81	20.64	H	5.2	2.00

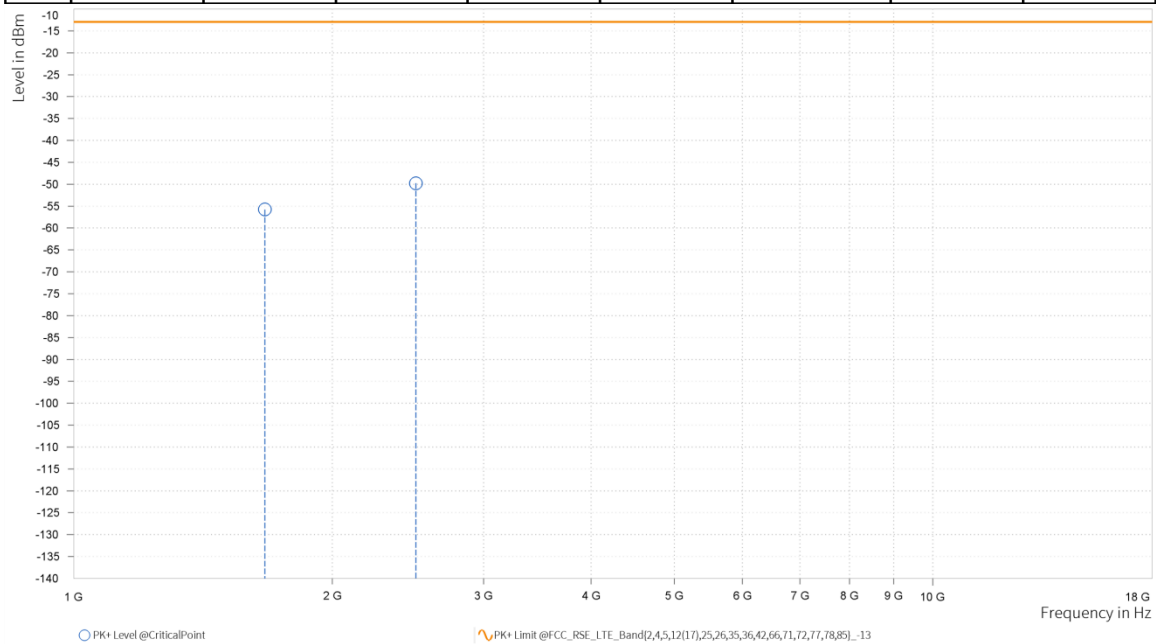




CHANNEL BANDWIDTH	5MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,668.500	-55.76	-13.00	42.76	14.29	V	45.1	1.00
3	2,502.500	-49.77	-13.00	36.77	21.08	V	1	1.00



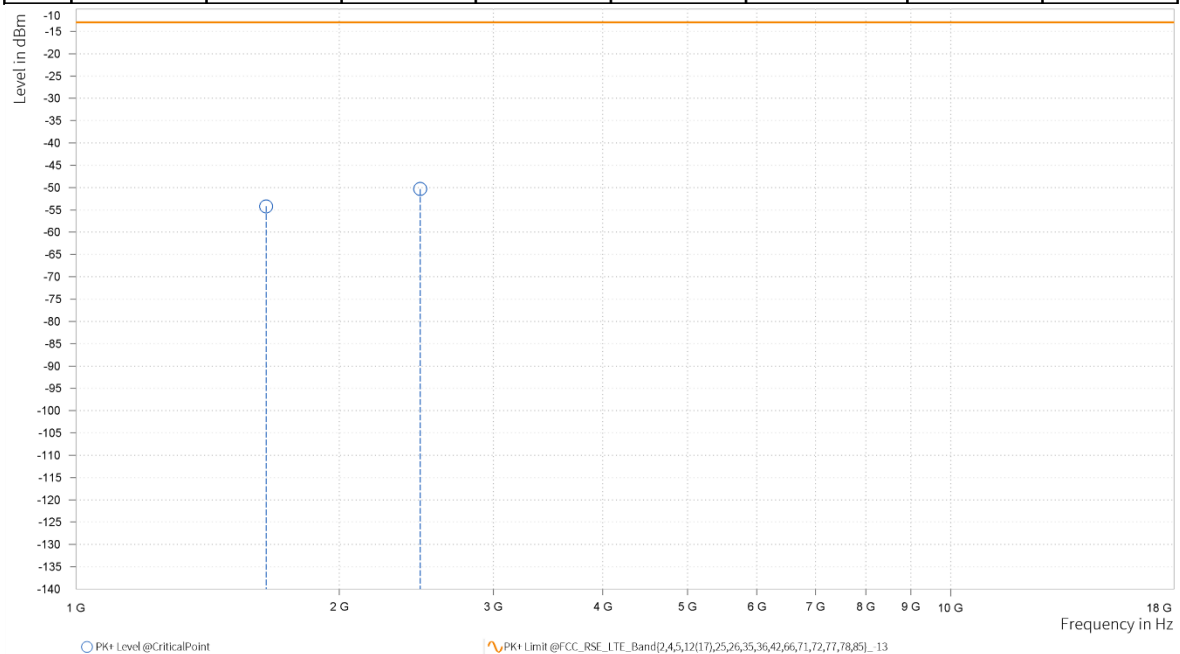


CH20450

CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20450
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-54.22	-13.00	41.22	14.82	H	1	1.00
3	2,473.500	-50.31	-13.00	37.31	20.30	H	359	2.00

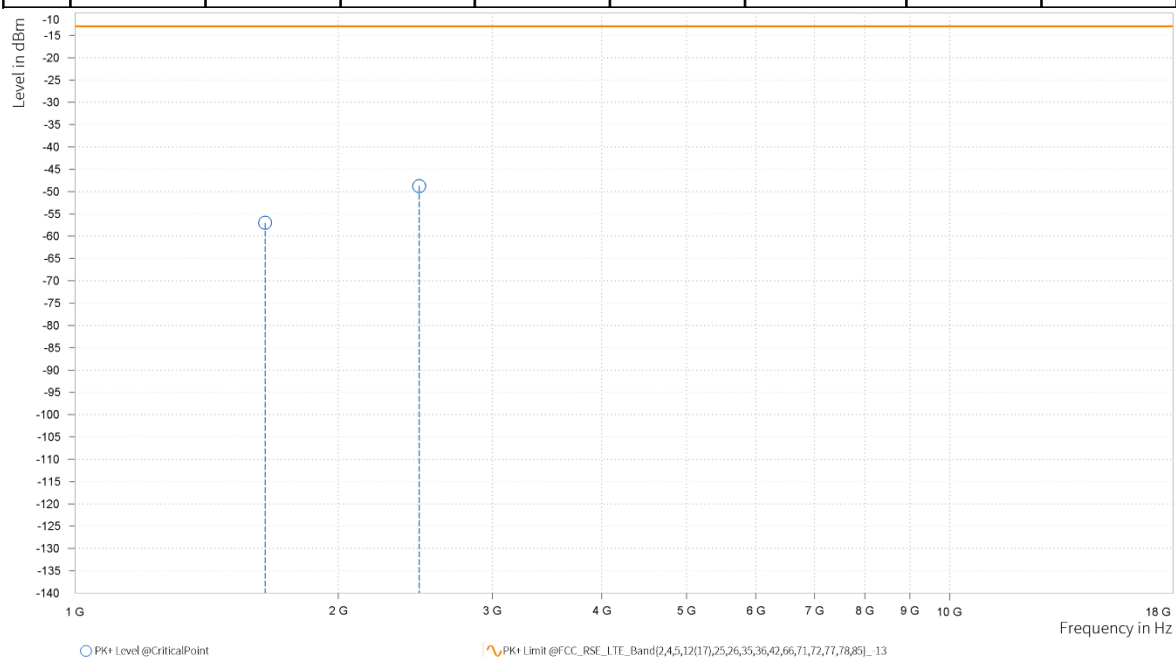




CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20450
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,649.000	-57.01	-13.00	44.01	14.37	V	1	1.00
3	2,473.500	-48.77	-13.00	35.77	20.55	V	59.3	2.00



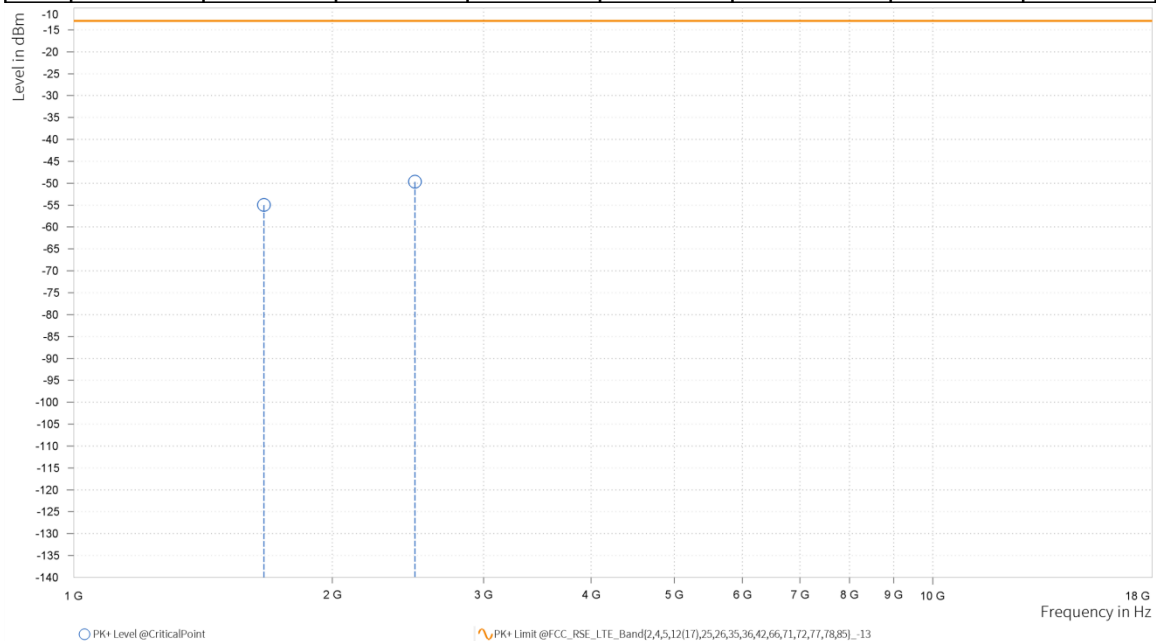


CH20525

CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,664.000	-54.96	-13.00	41.96	15.32	H	345.2	1.00
3	2,496.000	-49.67	-13.00	36.67	20.76	H	1	1.00

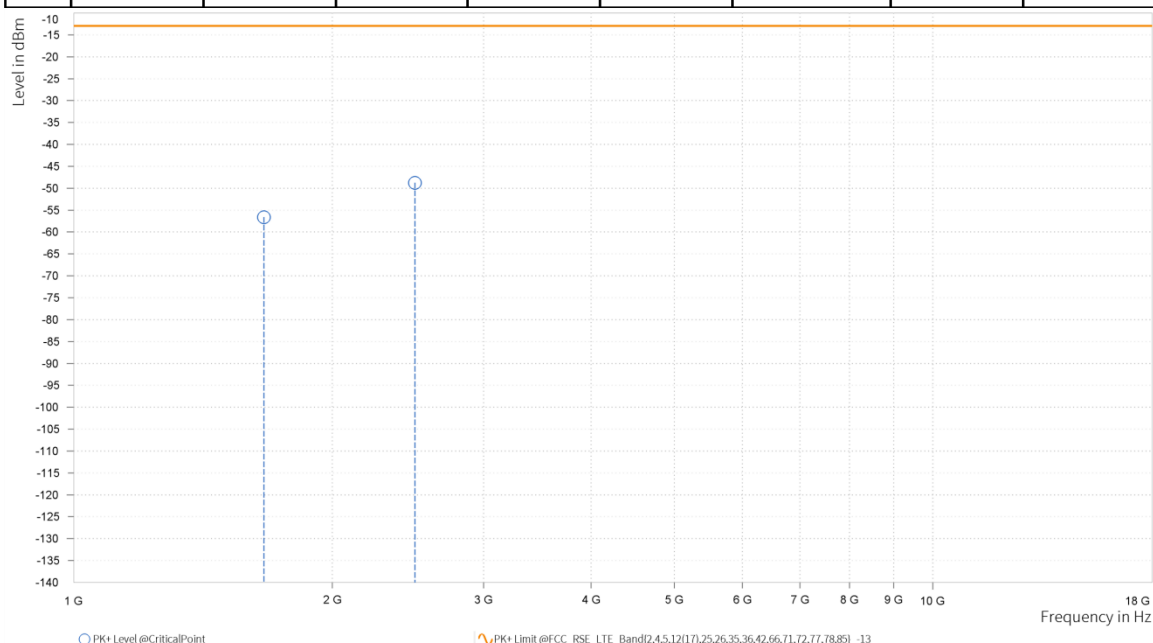




CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20525
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,664.000	-56.59	-13.00	43.59	14.20	V	359	2.00
3	2,496.000	-48.76	-13.00	35.76	21.03	V	357.7	1.00

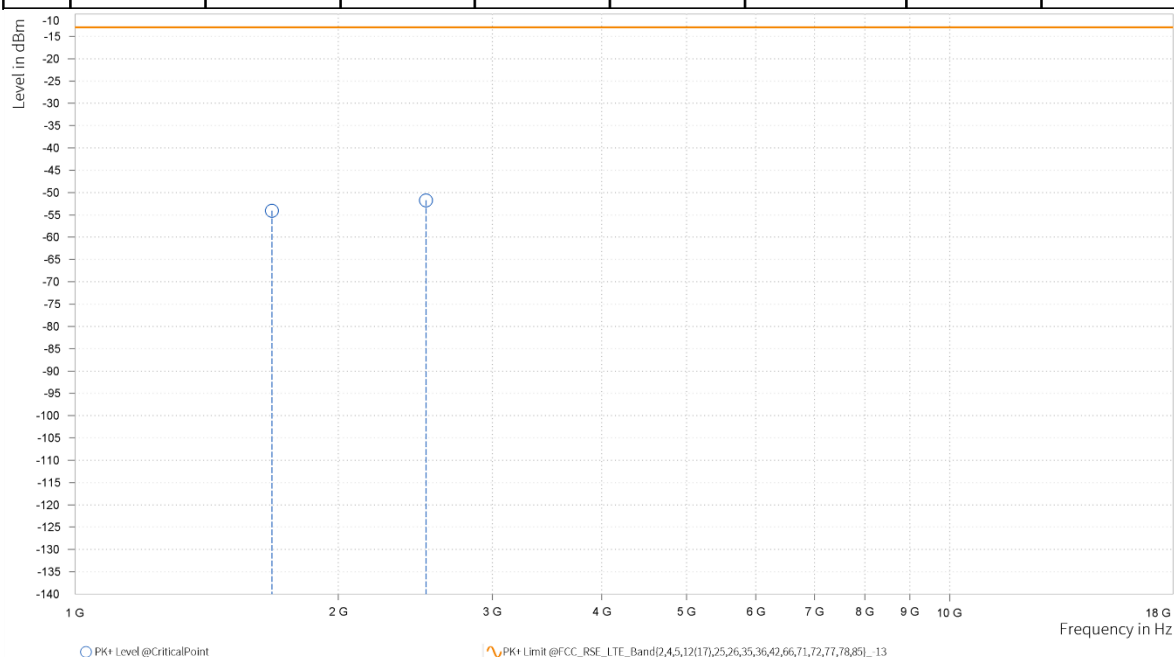




CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20600
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,679.000	-54.08	-13.00	41.08	15.64	H	125.8	2.00
3	2,518.500	-51.75	-13.00	38.75	20.28	H	183.1	1.00

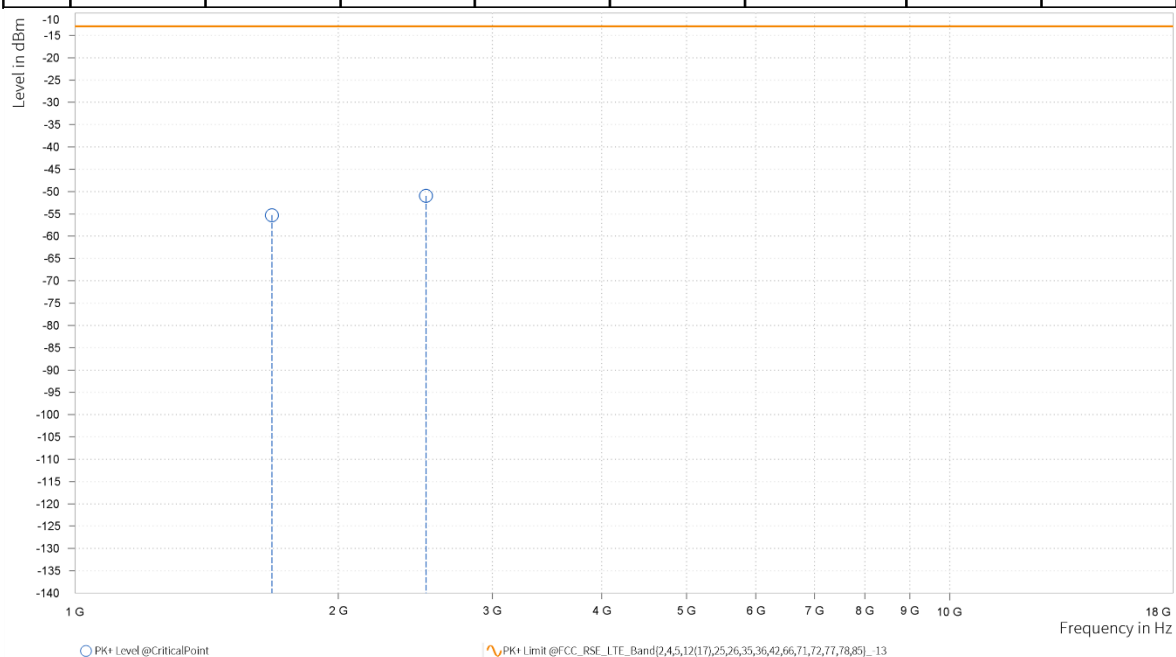




CHANNEL BANDWIDTH	10MHz/QPSK	MODE	TX channel 20600
FREQUENCY RANGE	Above 1000MHz	ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH
INPUT POWER	120Vac 60HZ	TESTED BY	Hanwen Xu

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

Rg	Frequency [MHz]	PK+ Level [dBm]	PK+ Limit [dBm]	PK+ Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
2	1,679.000	-55.30	-13.00	42.30	14.56	V	64.3	2.00
3	2,518.500	-50.98	-13.00	37.98	21.13	V	262.5	1.00

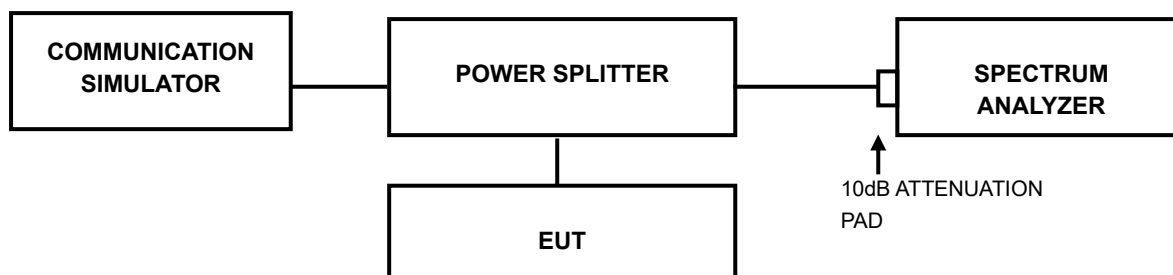


3.7 PEAK TO AVERAGE RATIO

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%.



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3.7.4 TEST RESULTS

Please Refer to Appendix of this test report.



4 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



5 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



6 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.



7 APPENDIX:

WCMDA BAND5

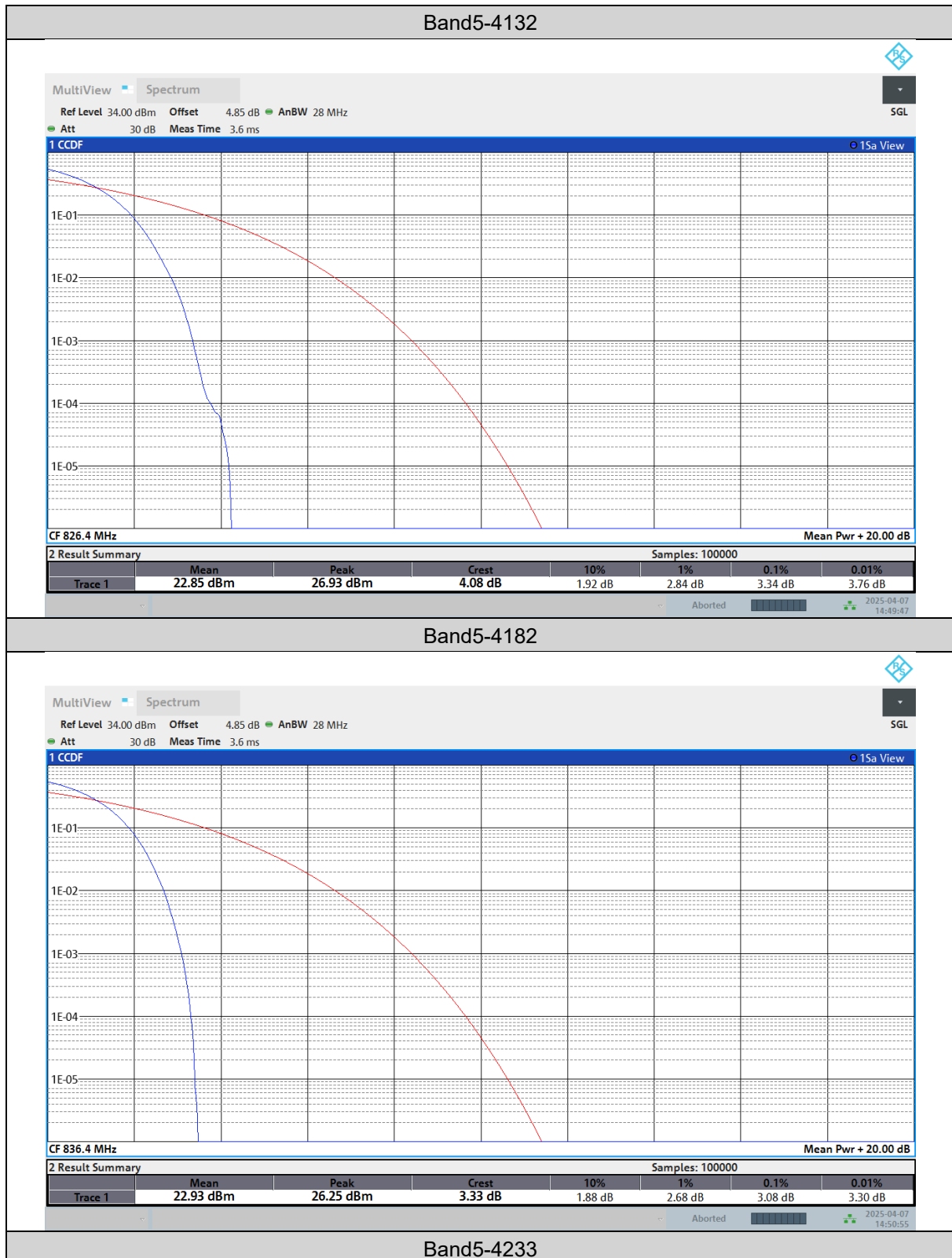
PEAK-TO-AVERAGE RATIO

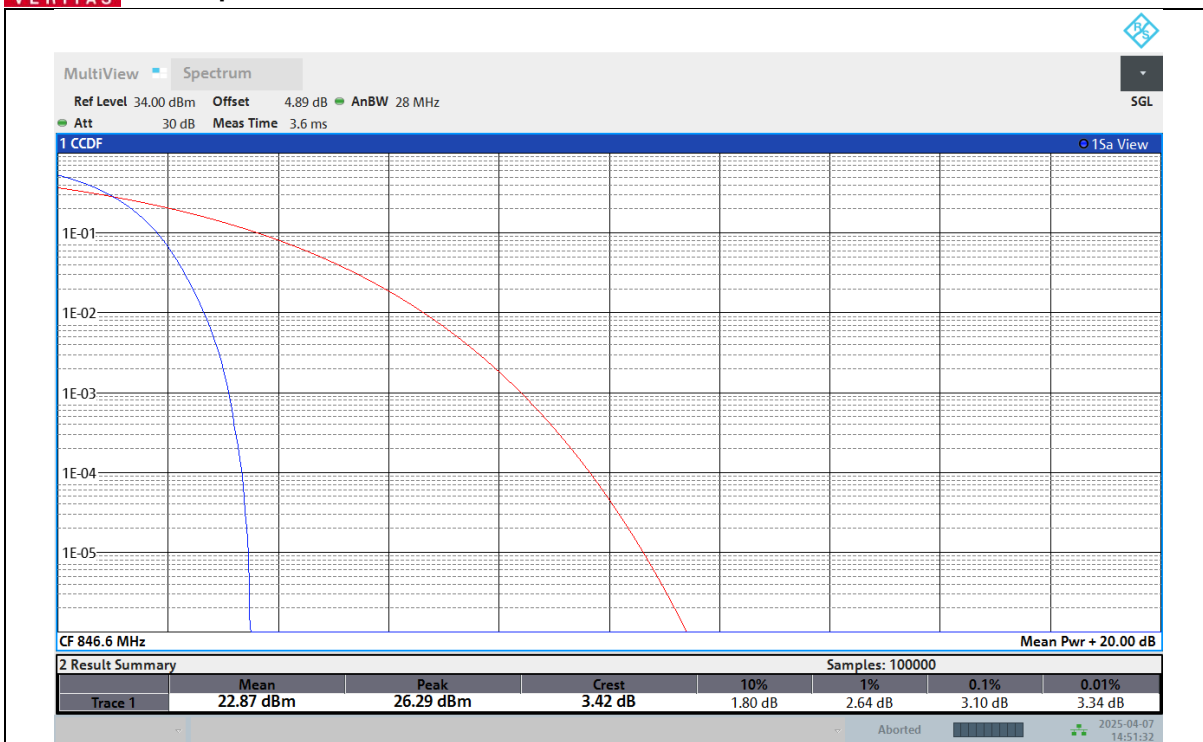
Test Result

Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band5	4132	3.34	13	PASS
Band5	4182	3.08	13	PASS
Band5	4233	3.10	13	PASS



Test Graphs





26DB BANDWIDTH AND OCCUPIED BANDWIDTH

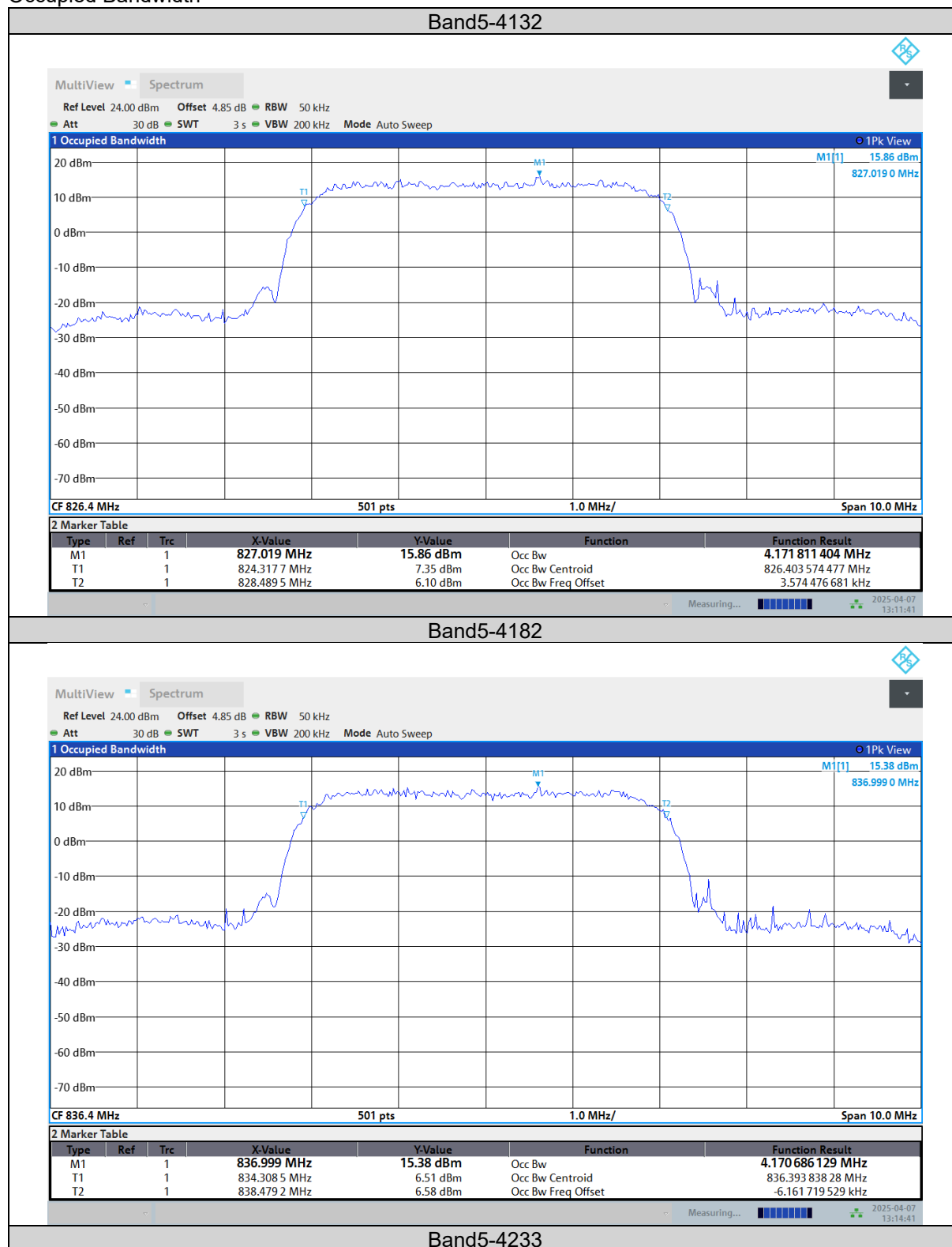
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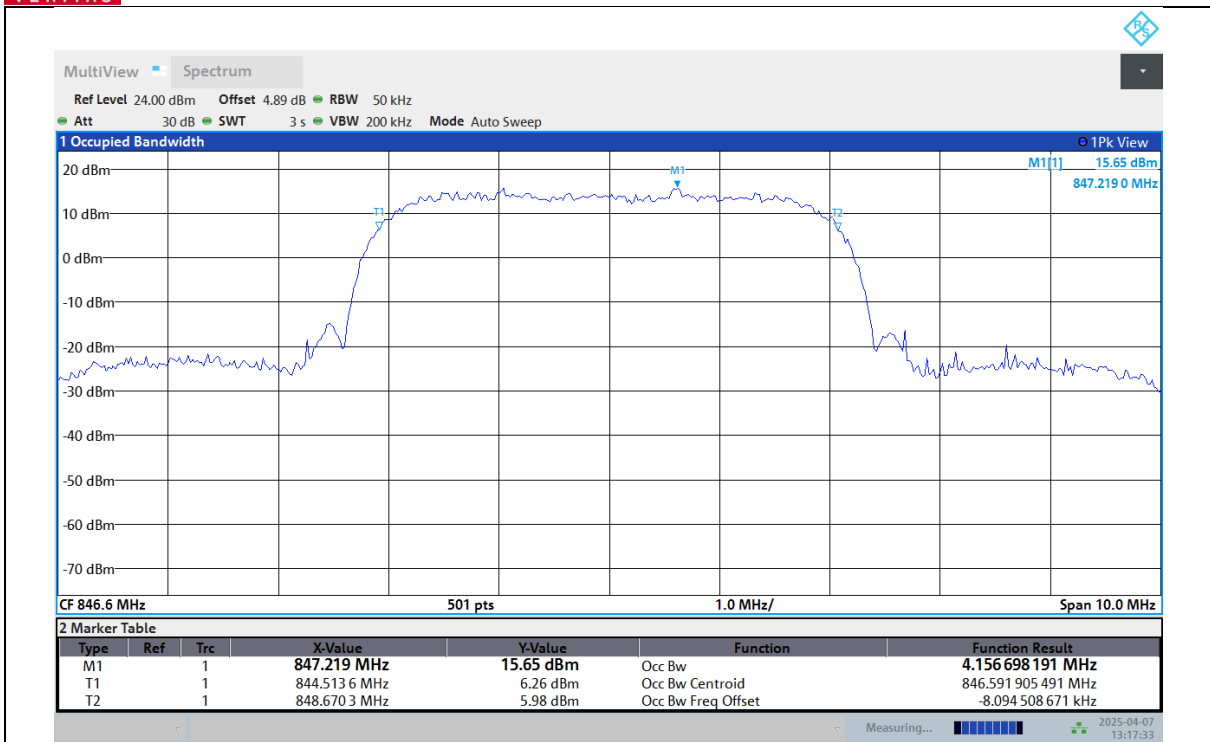
Band	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	4132	4.172	4.67	PASS
Band5	4182	4.171	4.67	PASS
Band5	4233	4.157	4.66	PASS



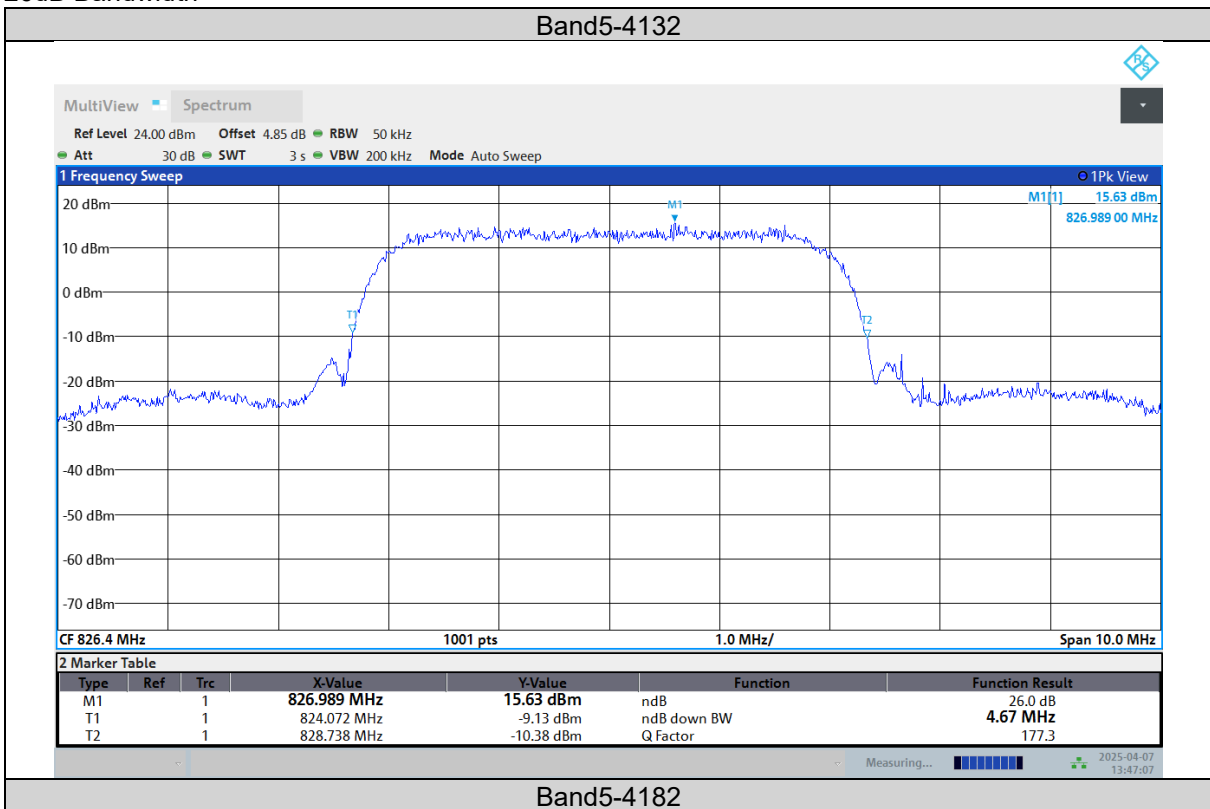
Test Graphs

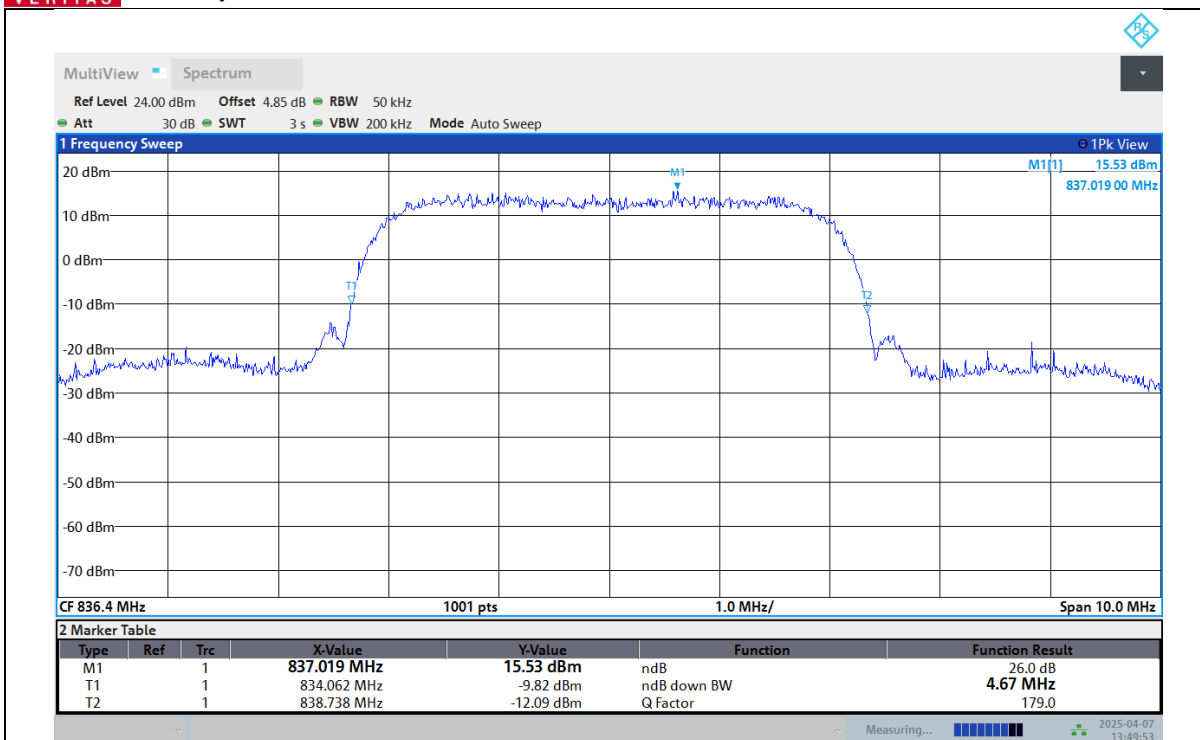
Occupied Bandwidth



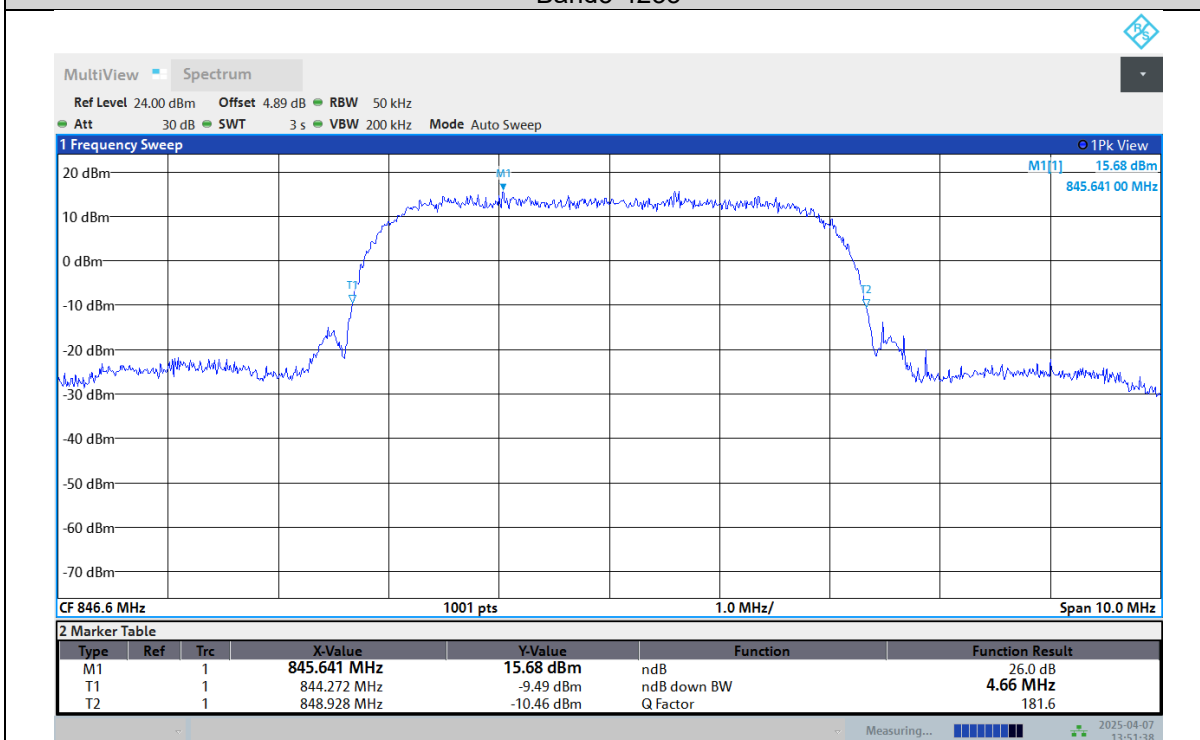


26dB Bandwidth





Band5-4233





Test Result

Band	Channel	Result (dBm)	Limit(dBm)	Verdict
Band5	4132	See Graph	-13	PASS
Band5	4233	See Graph	-13	PASS



Test Graphs





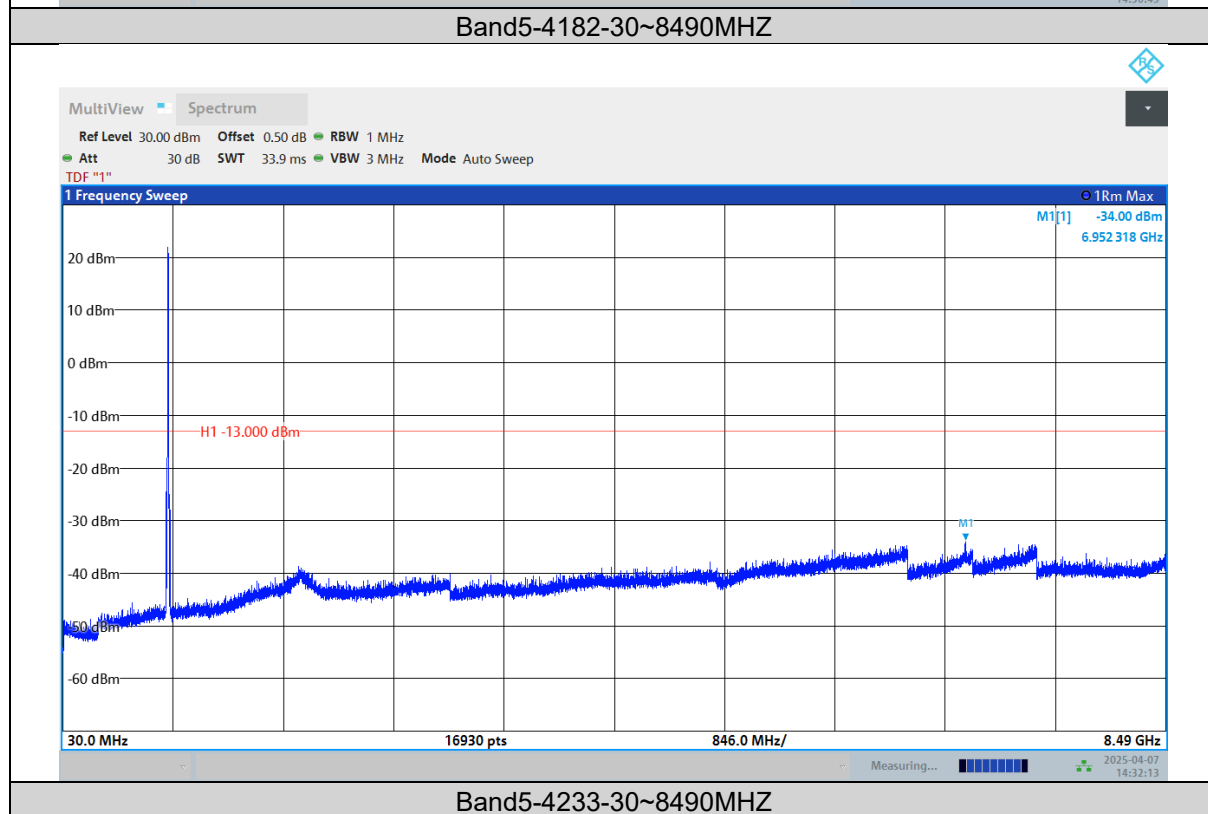
BUREAU VERITAS Test Report No.: PSU-QSU2503210311RF01
CONDUCTED SPURIOUS EMISSION

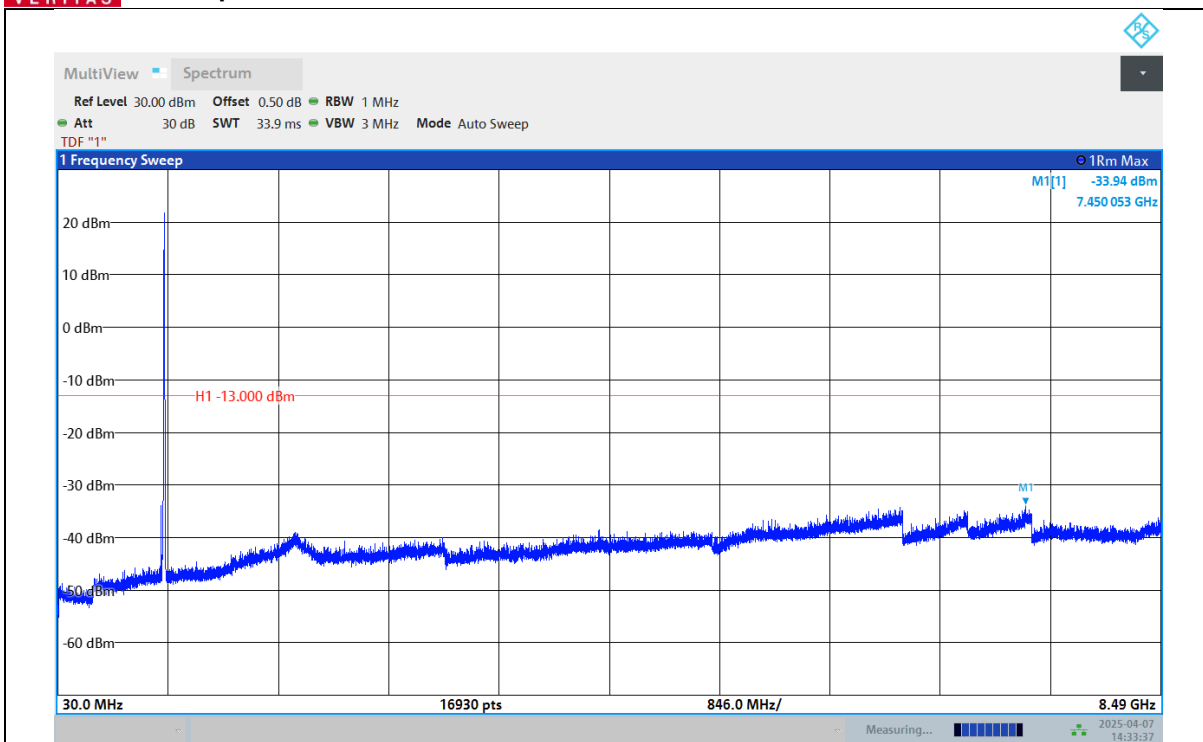
Test Result

Band	Channel	Frequency Range (Mhz)	Result (dBm)	Limit (dBm)	Verdict
Band5	4132	30~8490MHZ	See Graph	-13	PASS
Band5	4182	30~8490MHZ	See Graph	-13	PASS
Band5	4233	30~8490MHZ	See Graph	-13	PASS



Test Graphs







FREQUENCY STABILITY

Test Result

Voltage							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	4132	VL	NT	4.40	0.0053	±2.5	PASS
Band5	4132	VN	NT	5.13	0.0062	±2.5	PASS
Band5	4132	VH	NT	3.47	0.0042	±2.5	PASS
Band5	4182	VL	NT	-1.79	-0.0021	±2.5	PASS
Band5	4182	VN	NT	-3.21	-0.0038	±2.5	PASS
Band5	4182	VH	NT	-0.50	-0.0006	±2.5	PASS
Band5	4233	VL	NT	8.14	0.0096	±2.5	PASS
Band5	4233	VN	NT	-0.68	-0.0008	±2.5	PASS
Band5	4233	VH	NT	-7.54	-0.0089	±2.5	PASS

Temperature							
Band	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band5	4132	NV	-30	-5.84	-0.0071	±2.5	PASS
Band5	4132	NV	-20	-5.49	-0.0066	±2.5	PASS
Band5	4132	NV	-10	6.81	0.0082	±2.5	PASS
Band5	4132	NV	0	2.94	0.0036	±2.5	PASS
Band5	4132	NV	10	3.29	0.0040	±2.5	PASS
Band5	4132	NV	20	3.72	0.0045	±2.5	PASS
Band5	4132	NV	30	9.59	0.0116	±2.5	PASS
Band5	4132	NV	40	-9.48	-0.0115	±2.5	PASS
Band5	4132	NV	50	-6.66	-0.0081	±2.5	PASS
Band5	4182	NV	-30	-5	-0.0060	±2.5	PASS
Band5	4182	NV	-20	3.01	0.0036	±2.5	PASS
Band5	4182	NV	-10	8.14	0.0097	±2.5	PASS
Band5	4182	NV	0	-7.24	-0.0087	±2.5	PASS
Band5	4182	NV	10	-1.63	-0.0019	±2.5	PASS
Band5	4182	NV	20	-6.69	-0.0080	±2.5	PASS
Band5	4182	NV	30	-2.75	-0.0033	±2.5	PASS
Band5	4182	NV	40	-3.41	-0.0041	±2.5	PASS
Band5	4182	NV	50	-3.22	-0.0038	±2.5	PASS
Band5	4233	NV	-30	-0.15	-0.0002	±2.5	PASS
Band5	4233	NV	-20	-1.92	-0.0023	±2.5	PASS
Band5	4233	NV	-10	4.07	0.0048	±2.5	PASS
Band5	4233	NV	0	5.3	0.0063	±2.5	PASS
Band5	4233	NV	10	-3.46	-0.0041	±2.5	PASS
Band5	4233	NV	20	-3.28	-0.0039	±2.5	PASS
Band5	4233	NV	30	-3.02	-0.0036	±2.5	PASS
Band5	4233	NV	40	9.04	0.0107	±2.5	PASS
Band5	4233	NV	50	-6.7	-0.0079	±2.5	PASS

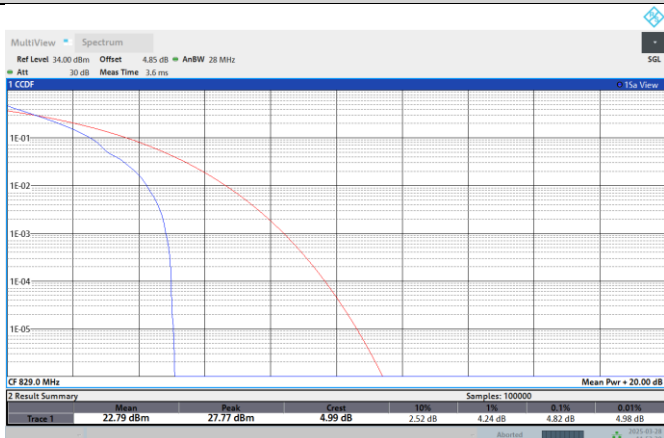
**LTE BAND5****PEAK-TO-AVERAGE RATIO(CCDF)****Test Result**

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band5	10MHz	QPSK	20450	1RB#0	4.82	13	PASS
Band5	10MHz	QPSK	20450	50RB#0	5.64	13	PASS
Band5	10MHz	QPSK	20525	1RB#0	5.06	13	PASS
Band5	10MHz	QPSK	20525	50RB#0	5.68	13	PASS
Band5	10MHz	QPSK	20600	1RB#0	4.74	13	PASS
Band5	10MHz	QPSK	20600	50RB#0	5.44	13	PASS

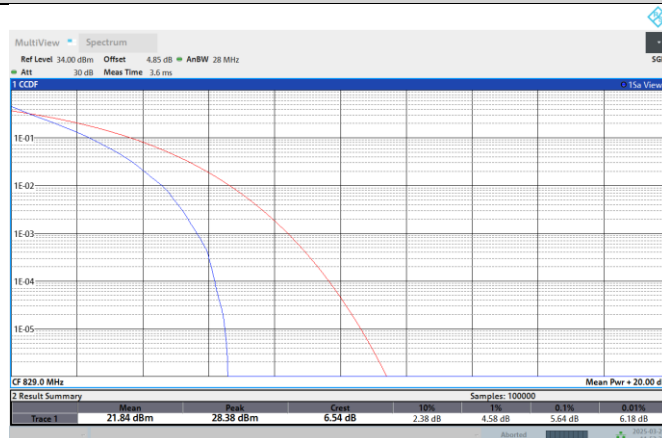


Test Graphs

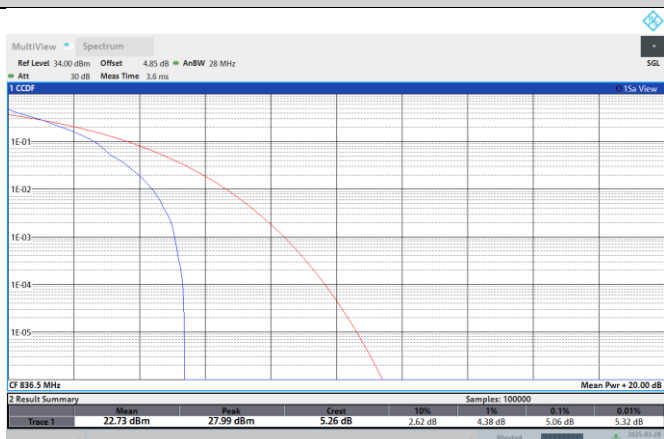
Band5-10MHz-QPSK-20450-1RB#0



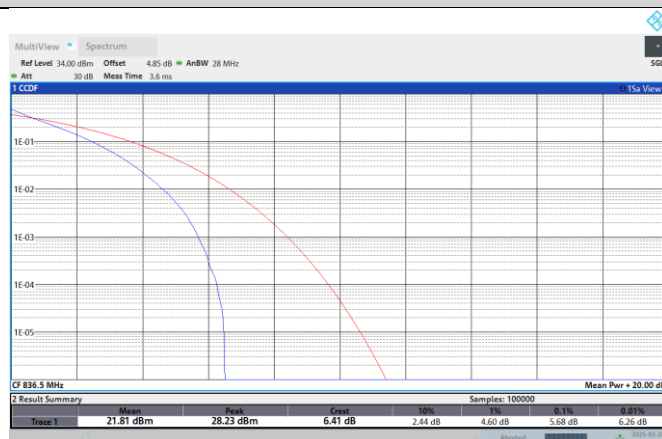
Band5-10MHz-QPSK-20450-6RB#0



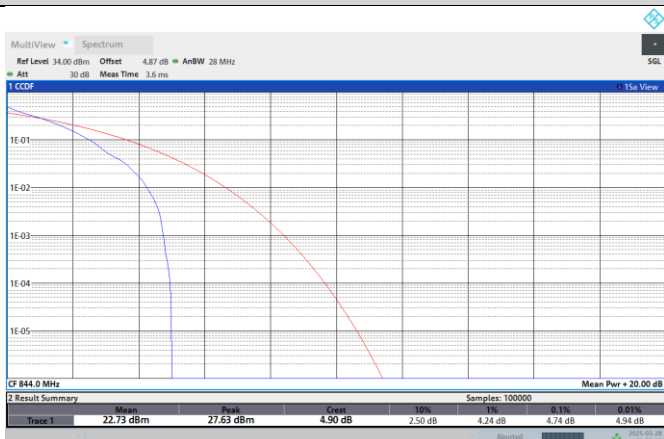
Band5-10MHz-QPSK-20525-1RB#0



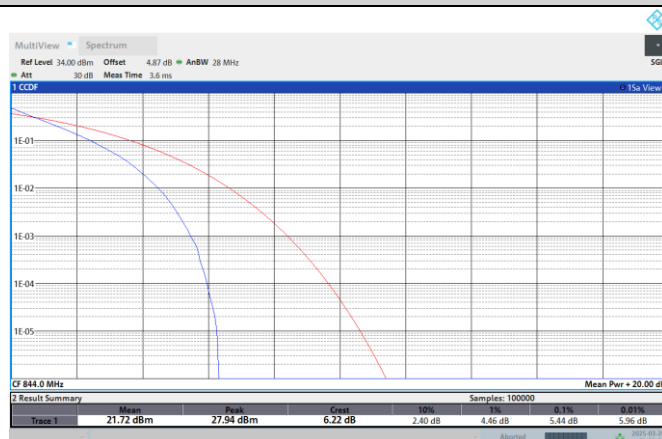
Band5-10MHz-QPSK-20525-6RB#0



Band5-10MHz-QPSK-20600-1RB#0



Band5-10MHz-QPSK-20600-6RB#0





BUREAU VERITAS Test Report No.: PSU-QSU2503210311RF01
26DB BANDWIDTH AND OCCUPIED BANDWIDTH

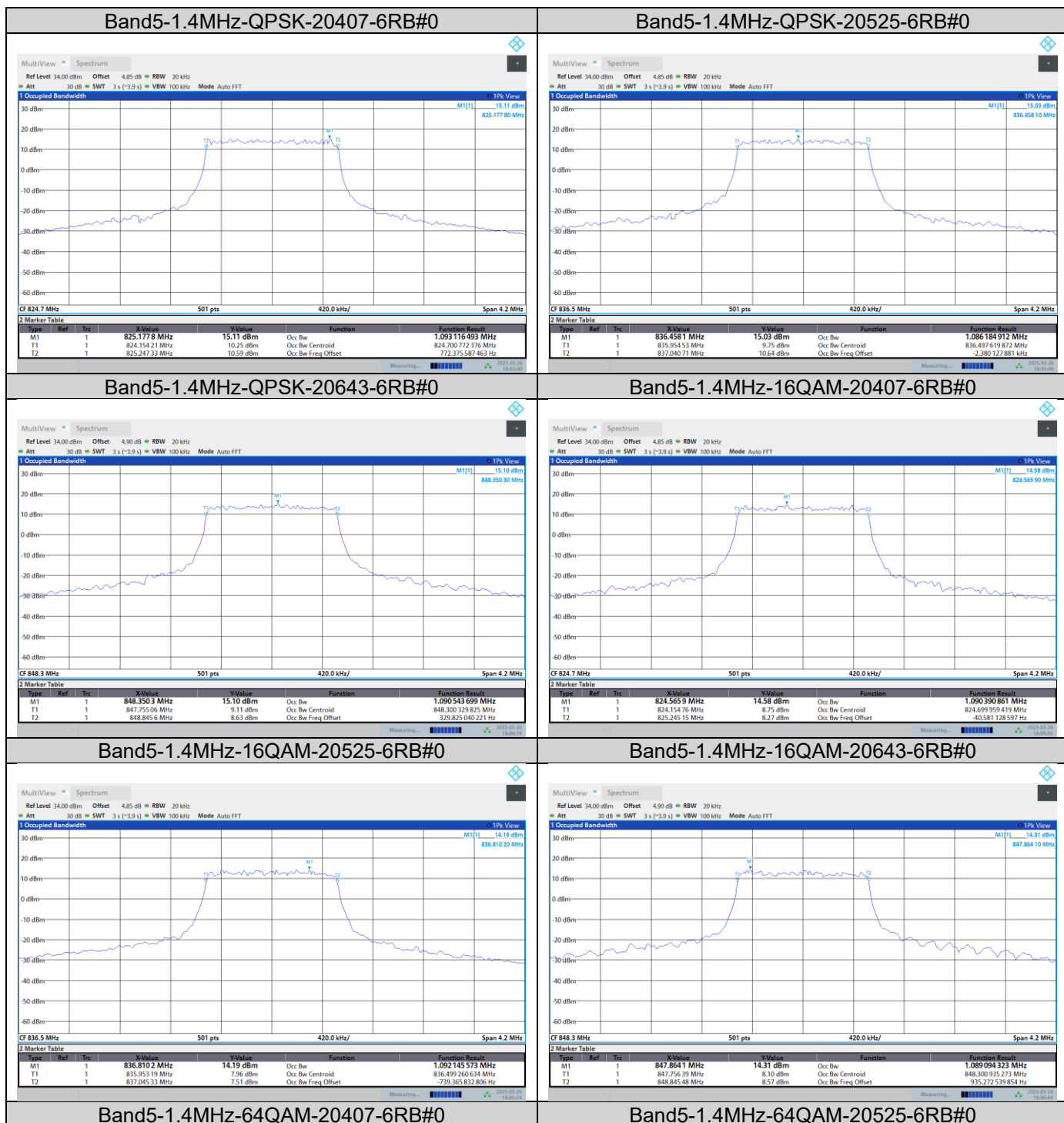
Test Result

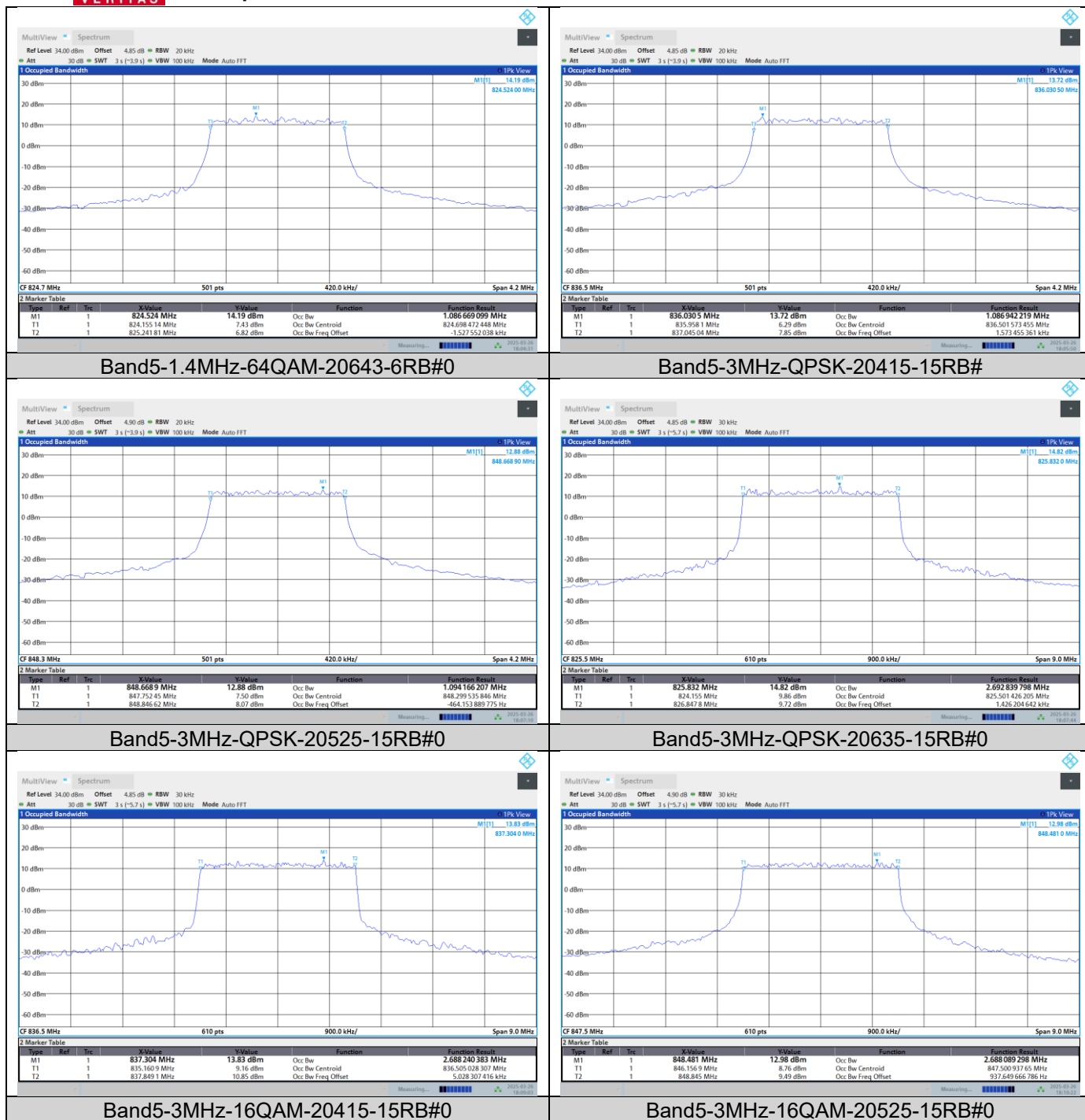
Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band5	1.4MHz	QPSK	20407	6RB#0	1.093	1.27	PASS
Band5	1.4MHz	QPSK	20525	6RB#0	1.086	1.29	PASS
Band5	1.4MHz	QPSK	20643	6RB#0	1.091	1.29	PASS
Band5	1.4MHz	16QAM	20407	6RB#0	1.090	1.29	PASS
Band5	1.4MHz	16QAM	20525	6RB#0	1.092	1.26	PASS
Band5	1.4MHz	16QAM	20643	6RB#0	1.089	1.27	PASS
Band5	1.4MHz	64QAM	20407	6RB#0	1.087	1.27	PASS
Band5	1.4MHz	64QAM	20525	6RB#0	1.087	1.30	PASS
Band5	1.4MHz	64QAM	20643	6RB#0	1.094	1.25	PASS
Band5	3MHz	QPSK	20415	15RB#0	2.693	2.92	PASS
Band5	3MHz	QPSK	20525	15RB#0	2.688	2.90	PASS
Band5	3MHz	QPSK	20635	15RB#0	2.688	2.87	PASS
Band5	3MHz	16QAM	20415	15RB#0	2.691	2.87	PASS
Band5	3MHz	16QAM	20525	15RB#0	2.684	2.88	PASS
Band5	3MHz	16QAM	20635	15RB#0	2.682	2.87	PASS
Band5	3MHz	64QAM	20415	15RB#0	2.692	2.89	PASS
Band5	3MHz	64QAM	20525	15RB#0	2.684	2.89	PASS
Band5	3MHz	64QAM	20635	15RB#0	2.686	2.89	PASS
Band5	5MHz	QPSK	20425	25RB#0	4.494	4.86	PASS
Band5	5MHz	QPSK	20525	25RB#0	4.481	4.83	PASS
Band5	5MHz	QPSK	20625	25RB#0	4.487	4.81	PASS
Band5	5MHz	16QAM	20425	25RB#0	4.476	4.79	PASS
Band5	5MHz	16QAM	20525	25RB#0	4.483	4.83	PASS
Band5	5MHz	16QAM	20625	25RB#0	4.474	4.84	PASS
Band5	5MHz	64QAM	20425	25RB#0	4.475	4.79	PASS
Band5	5MHz	64QAM	20525	25RB#0	4.480	4.86	PASS
Band5	5MHz	64QAM	20625	25RB#0	4.479	4.83	PASS
Band5	10MHz	QPSK	20450	50RB#0	8.959	9.62	PASS
Band5	10MHz	QPSK	20525	50RB#0	8.965	9.59	PASS
Band5	10MHz	QPSK	20600	50RB#0	8.954	9.56	PASS
Band5	10MHz	16QAM	20450	50RB#0	8.958	9.50	PASS
Band5	10MHz	16QAM	20525	50RB#0	8.946	9.53	PASS
Band5	10MHz	16QAM	20600	50RB#0	8.961	9.53	PASS
Band5	10MHz	64QAM	20450	50RB#0	8.957	9.56	PASS
Band5	10MHz	64QAM	20525	50RB#0	8.960	9.59	PASS
Band5	10MHz	64QAM	20600	50RB#0	8.949	9.59	PASS

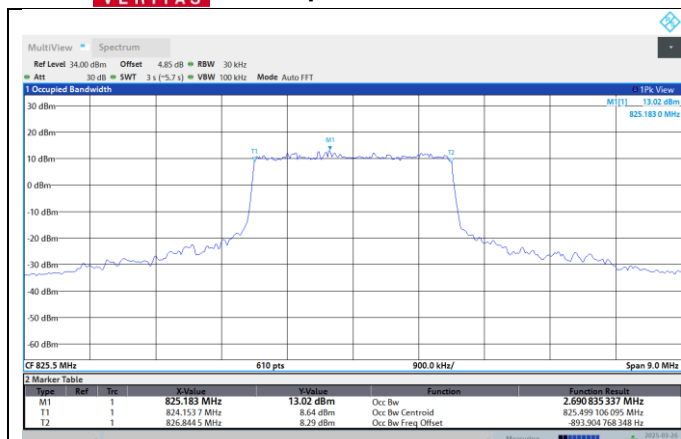


Test Graphs

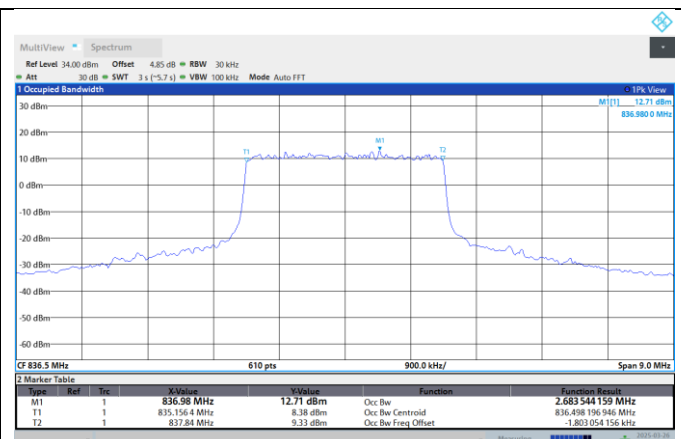
Occupied Bandwidth



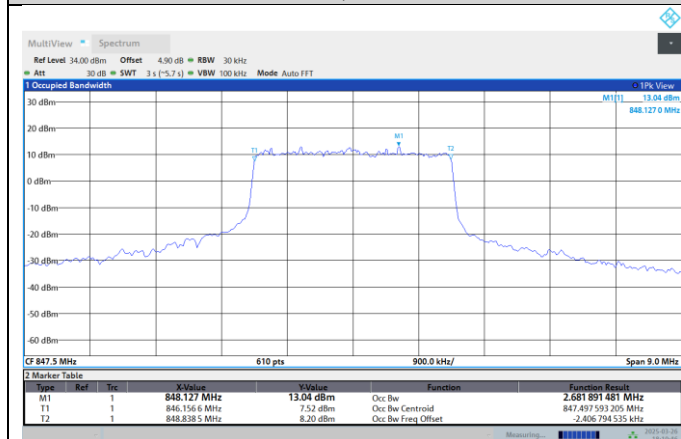




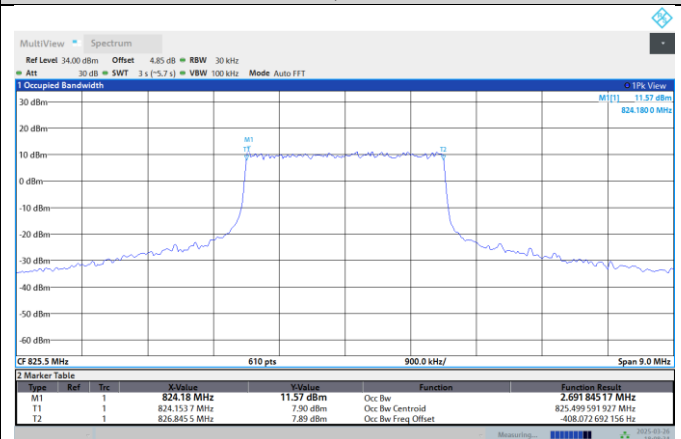
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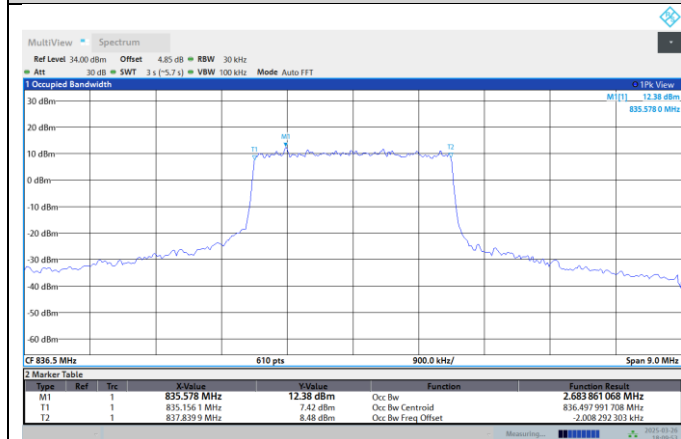
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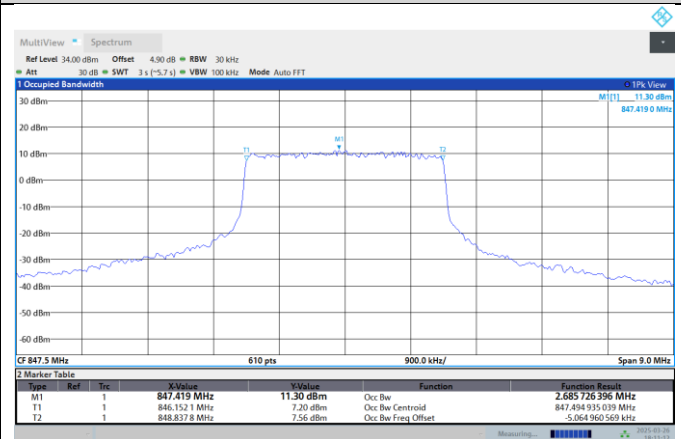
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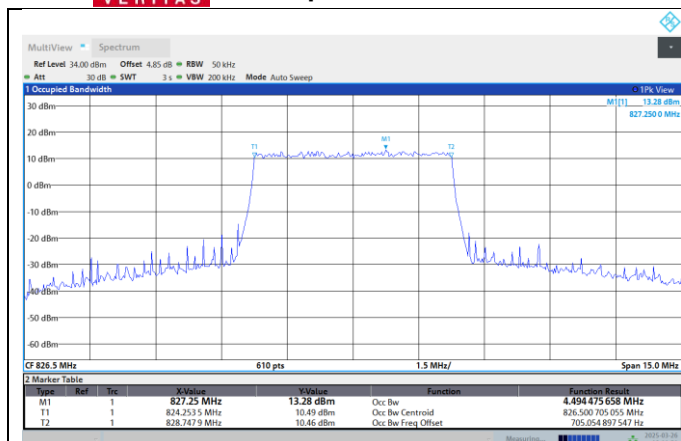
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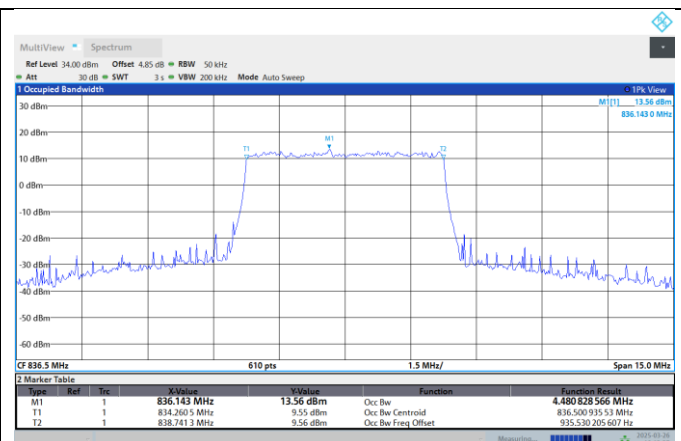
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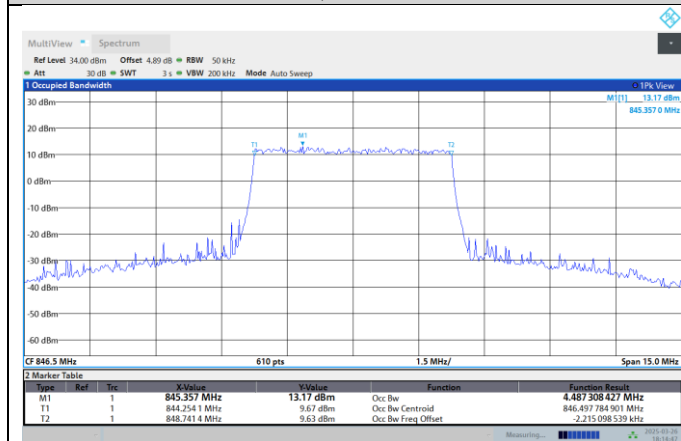
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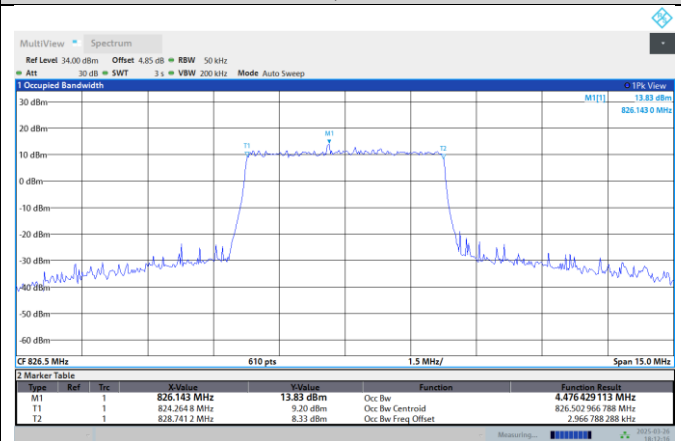
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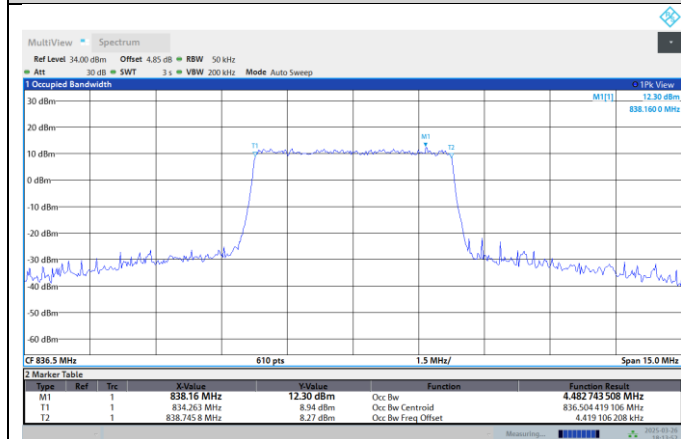
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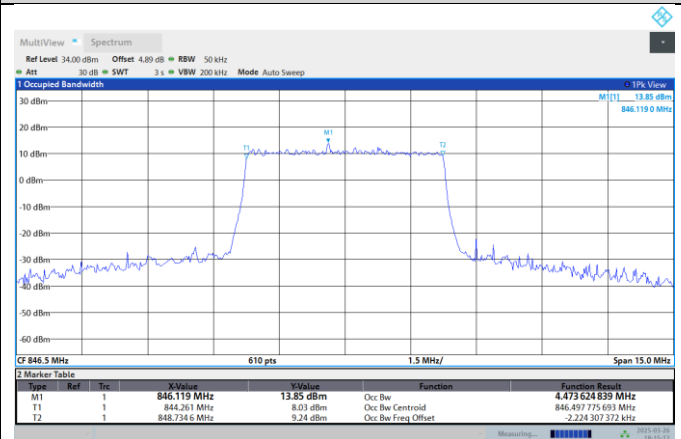
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Band5-5MHz-64QAM-20425-25RB#0



Band5-5MHz-64QAM-20525-25RB#0

