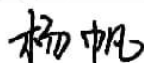


Industrial Internet Innovation Center (Shanghai) Co.,Ltd.**RF TEST REPORT**

PRODUCT	Smart POS system
BRAND	SUNMI
MODEL	T6900
APPLICANT	Shanghai Sunmi Technology Co.,Ltd.
FCC ID	2AH25T6900P2
IC	22621-T6900P2
ISSUE DATE	November 20, 2023
STANDARD(S)	FCC Part 2, FCC Part 22, FCC Part 24, FCC Part 27, FCC Part 90, RSS-Gen Issue 5, RSS-130 Issue 2, RSS-133 Issue 6, RSS-139 Issue 4

Prepared by: *Rui Wu*Reviewed by: *Fan Yang*Approved by: *Min Zhang***CAUTION:**

This report shall not be reproduced except in full without the written permission of the test laboratory and shall not be quoted out of context.

CONTENTS

1. SUMMARY OF TEST REPORT	3
1.1 TEST STANDARD (S)	3
1.2 REFERENCE DOCUMENTS.....	3
1.3 SUMMARY OF TEST RESULTS.....	3
1.4 DATA PROVIDED BY APPLICANT.....	5
2. GENERAL INFORMATION OF THE LABORATORY	6
2.1 TESTING LABORATORY	6
2.2 LABORATORY ENVIRONMENTAL REQUIREMENTS.....	6
2.3 PROJECT INFORMATION	6
3. GENERAL INFORMATION OF THE CUSTOMER.....	7
3.1 APPLICANT	7
3.2 MANUFACTURER	7
4. GENERAL INFORMATION OF THE PRODUCT.....	8
4.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	8
4.2 DESCRIPTION FOR AUXILIARY EQUIPMENT (AE)	8
4.3 ADDITIONAL INFORMATION	8
5. TEST CONFIGURATION INFORMATION	9
5.1 LABORATORY ENVIRONMENTAL CONDITIONS.....	9
5.2 TEST EQUIPMENTS UTILIZED.....	9
5.3 MEASUREMENT UNCERTAINTY	10
6. TEST RESULTS	11
6.1 OUTPUT POWER.....	11
6.2 EMISSION LIMIT	31
6.3 FREQUENCY STABILITY	38
6.4 OCCUPIED BANDWIDTH.....	42
6.5 EMISSION BANDWIDTH	54
6.6 BAND EDGE COMPLIANCE	65
6.7 CONDUCTED SPURIOUS EMISSION.....	75
6.8 PEAK-TO-AVERAGE POWER RATIO	79
ANNEX A: REVISED HISTORY	81
ANNEX B: ACCREDITATION CERTIFICATE.....	82

1. Summary of Test Report

1.1 Test Standard (s)

No.	Test Standard	Title	Version
1	FCC Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	2021-10-01
2	FCC Part 22	PUBLIC MOBILE SERVICES	2022-10-01
3	FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	2022-10-01
4	FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	2022-10-01
5	FCC Part 90	PRIVATE LAND MOBILE RADIO SERVICES	2022-10-01
6	RSS-Gen Issue 5	RSS-Gen —General Requirements for Compliance of Radio Apparatus	2021-02
7	RSS-130 Issue 2	Equipment Operating in the Frequency Bands 617-652 MHz, 663-698 MHz, 698-756 MHz and 777-787 MHz	2019-02
8	RSS-133 Issue 6	2 GHz Personal Communications Services	2018-01
9	RSS-139 Issue 4	Advanced Wireless Services (AWS) Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz	2022-10

Note: FCC Part 2 have not been accredited by A2LA.

1.2 Reference Documents

No.	Test Standard	Title	Version
1	ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
2	ANSI C63.26	American National Standard of Procedures for Compliance Testing of Licensed Transmitters Used in Licensed Radio	2015
3	KDB 971168 D01	Measurement Guidance for Certification of Licensed Digital Transmitters	v03r01

Note: KDB 971168 D01 have not been accredited by A2LA.

1.3 Summary of Test Results

LTE Band 12

Items	Test Name	Sub-clause of FCC	Sub-clause of IC	Verdict
1	Output Power/ERP	2.1046/27.50(c)(10)	RSS-130 4.6	Pass
2	Emission Limit	27.53(g), 2.1051	RSS-130 4.7	Pass
3	Frequency Stability	27.54, 2.1055	RSS-130 4.5	Pass

Items	Test Name	Sub-clause of FCC	Sub-clause of IC	Verdict
4	Occupied Bandwidth	2.1049	RSS-Gen 6.7	Pass
5	Emission Bandwidth	2.1049/27.53(g)	RSS-Gen 6.7	Pass
6	Band Edge Compliance	27.53(g)	RSS-130 4.7	Pass
7	Conducted Spurious Emission	27.53(g), 2.1057	RSS-130 4.7	Pass
8	Peak to Average Power Ratio	27.50	RSS-130 4.6	Pass

LTE Band 25

Items	Test Name	Clause in FCC rules	Sub-clause of IC	Verdict
1	Output Power/EIRP	2.1046,24.232(c)	RSS-133 6.4	Pass
2	Emission Limit	2.1051,24.238(a)	RSS-133 6.5	Pass
3	Frequency Stability	2.1055,24.235	RSS-133 6.3	Pass
4	Occupied Bandwidth	2.1049	RSS-Gen 6.7	Pass
5	Emission Bandwidth	24.238(a)	RSS-Gen 6.7	Pass
6	Band Edge Compliance	24.238(a)	RSS-133 6.5	Pass
7	Spurious Emission	2.1057, 24.238(a)	RSS-133 6.5/ RSS-133 6.6 ^{NOTE2}	Pass
8	Peak to Average Power Ratio	24.232(d)	RSS-133 6.4	Pass

LTE Band 26(Part 22) 824-849MHz

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power/ERP	2.1046, 22.913(a)	Pass
2	Emission Limit	22.917, 2.1051	Pass
3	Frequency Stability	2.1055	Pass
4	Occupied Bandwidth	2.1049	Pass
5	Emission Bandwidth	22.917	Pass
6	Band Edge Compliance	22.917	Pass
7	Conducted Spurious Emission	22.917, 2.1057	Pass
8	Peak to Average Power Ratio	22.913(d)	Pass

LTE Band 26(Part 90) 814-824 MHz

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power/ERP	2.1046/90.635(b)	Pass
2	Emission Limit	90.669	Pass
3	Frequency Stability	90.213(a),2.1055	Pass
4	Occupied Bandwidth	2.1049	Pass

5	Emission Bandwidth	90.209 (b)	Pass
6	Band Edge Compliance	90.669	Pass
7	Conducted Spurious Emission	90.669,2.1057	Pass

LTE Band 66

Items	Test Name	Sub-clause of FCC	Sub-clause of IC	Verdict
1	Output Power/EIRP	27.50(d)(4)	RSS-139 5.5	Pass
2	Emission Limit	27.53(h), 2.1051	RSS-139 5.6	Pass
3	Frequency Stability	27.54, 2.1055	RSS-139 5.4	Pass
4	Occupied Bandwidth	2.1049	RSS-Gen 6.7	Pass
5	Emission Bandwidth	2.1049,27.53(h)	RSS-Gen 6.7	Pass
6	Band Edge Compliance	27.53(h)	RSS-139 5.6	Pass
7	Conducted Spurious Emission	27.53(h), 2.1057	RSS-139 5.6	Pass
8	Peak to Average Power Ratio	27.50(d)(5)	RSS-139 5.5	Pass

Note1:

The T6900, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a variant product for testing.

This project is a variant project based on the I22I30110-RF03-V03. Add FDD12/19/25/26/66 band by software(T6900P2-3 :Configuration1-standard) ,according to the discrepancy statement provided by the customer. So the use cases involved are tested.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 1.3.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 4 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 1 of this test report.

Note2:

After verification, the received stray test data is greater than the limit value of 10dB. Therefore, the test data is not displayed.

1.4 Data Provided by Applicant

No.	Item(s)	Data
1	LTE band 12	-2.7
2	LTE band 25	-0.7
3	LTE band 26	-3.2
4	LTE band 66	3.6

Note: The data of antenna gain is provided by Antenna specification may affect the validity of the test results in this report, and the impact and consequences of this shall be undertaken by the customer.

2. General Information of The Laboratory

2.1 Testing Laboratory

Lab Name	Industrial Internet Innovation Center (Shanghai) Co.,Ltd.
Address	Building 4, No. 766, Jingang Road, Pudong, Shanghai, China
Telephone	021-68866880
FCC Registration No.	708870
FCC Designation No.	CN1364
IC Designation No.	10766A
CAB identifier	CN0067

2.2 Laboratory Environmental Requirements

Temperature	15℃~35℃
Relative Humidity	25%RH~75%RH
Atmospheric Pressure	86kPa~106kPa

2.3 Project Information

Project Manager	Gao Hongning
Test Date	October 13, 2023 to November 14, 2023

3. General Information of The Customer

3.1 Applicant

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China
Telephone	+86-17302160204

3.2 Manufacturer

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, No.388,Song Hu Road, Yang Pu District, Shanghai, China
Telephone	+86-17302160204

4. General Information of The Product

4.1 Product Description for Equipment under Test (EUT)

Product	Smart POS system
Model	T6900
Date of Receipt	S01aa/ S02aa: September 28,2023 S05:October 20,2023
EUT ID*	S01aa/ S02aa/S05
SN/IMEI	S01aa: 869325026801267 869325026801275 S02aa: 869325026812009 869325026812017 S05:N/A
Supported Radio Technology and Bands	GSM850/GSM900/DCS1800/PCS1900 WCDMA Band I/II/IV/V/VIII LTE Band 1/2/3/4/5/7/12/17/19/25/26/28/38/41/66 BT 4.2 BLE/BR/EDR WLAN 802.11b/g/n WLAN 802.11a/n GPS NFC
HVIN	T6900P2-3
Hardware Version	B1691_MAIN_PCB
Software Version	SP6359A-20230925115332
FCC ID	2AH25T6900P2
IC	22621-T6900P2
NOTE1: EUT ID is the internal identification code of the laboratory. NOTE2: Photographs of EUT are shown in ANNEX A of this test report. NOTE3: Samples in the test report are provided by the customer. The test results are only applicable to the samples received by the laboratory.	

4.2 Description for Auxiliary Equipment (AE)

AE ID*	Description	Model	SN/Remark
AE1	RF Cable	N/A	N/A
NOTE: AE ID is the internal identification code of the laboratory.			

4.3 Additional Information

Type of modulation	QPSK/16QAM
--------------------	------------

5. Test Configuration Information

5.1 Laboratory Environmental Conditions

5.1.1 Permanent Facilities

Relative Humidity	Min. = 45%, Max. = 55%		
Atmospheric Pressure	101kPa		
Temperature	Normal	Minimum	Maximum
	25℃	0℃	45℃
Working Voltage of EUT	Normal	Minimum	Maximum
	7.6V	7.2V	8.7V

5.2 Test Equipments Utilized

Conduction test system

No.	Name	Model	S/N	SW Version	HW Version	Manufacturer	Cal. Date	Cal. Interval
1	Software	Eagle V3.3	N/A	V3.3	N/A	3IN	N/A	N/A
2	Frequency spectrum analyzer	FSQ	101091	V4.75	V11.00	R&S	2023-07-26	1 Year
3	Wideband Radio Communication Tester	CMW 500	148874	V3.5.136	N/A	R&S	2023-07-27	1 Year
4	Temperature Chamber	B-TF-107C	201804107	N/A	N/A	BoYi	2023-06-28	1 Year
5	Programmable power supply	Keithley 2303	4039070	N/A	N/A	Keithley	2023-06-23	1 Year
6	RF Test Automation Box	RF 2021B	2001	V3.3	N/A	RANATEC	N/A	N/A

Radiated emission test system

NO	Name	Model	S/N	SW Version	HW Version	Manufacturer	Cal. Date	Cal. Interval
1	Universal Radio Communication Tester	CMU200	123126	V5.2.1	B12	R&S	2022-10-17	1 Year
							2023-10-16	1 Year
2	Universal Radio Communication Tester	CMW500	104178	V3.7.20	1206.0600.00	R&S	2022-10-17	1 Year
							2023-10-16	1 Year

3	EMI Test Receiver	ESU40	100307	V5.1-24-3	01	R&S	2022-12-19	1 Year
4	TRILOG Broadband Antenna	VULB9163	01345	N/A	N/A	Schwarzbeck	2023-03-23	1 Year
5	Double- ridged Waveguide Antenna	ETS-3117	00135890	N/A	N/A	ETS	2022-03-09	2 Years
6	EMI Test Software	EMC32 V10.35.02	N/A	N/A	N/A	R&S	N/A	N/A

Anechoic chamber

Fully anechoic chamber by ETS.

5.3 Measurement Uncertainty

Measurement Uncertainty of Radiation test

Frequency Range	Uncertainty(dB)
$30\text{MHz} \leq f \leq 1\text{GHz}$	± 4.94
$1\text{GHz} \leq f \leq 18\text{GHz}$	± 5.02
$18\text{GHz} \leq f \leq 40\text{GHz}$	± 5.54

Measurement Uncertainty of Conduction test

No	Item	Extended uncertainty (k=2)	
1	Frequency Tolerance	23Hz	
2	RF Output Power	0.7dB	
3	conducted spurious	9kHz~3.6GHz	1.5dB
		3.6GHz~8.4GHz	2.8dB
		8.4GHz~12.75GHz	3.4dB
4	EVM	2.1%	
6	Occupied Bandwidth	Bandwidth 1.4MHz	0.03MHz
		Bandwidth 3MHz	0.03MHz
		Bandwidth 5MHz	0.03MHz
		Bandwidth 10MHz	0.05MHz
		Bandwidth 15MHz	0.06MHz
		Bandwidth 20MHz	0.08MHz
7	Emission intermodulation	Adjacent channel	1.4dB
		Alternate channel	1.4dB
8	Range of frequency	0.08MHz	

6. Test Results

6.1 Output Power

Reference

CFR part 2.1046/22.913(a) (5)/ 24.232(c)/27.50(c)(10)/27.50(d)(4)/ 90.635(b)

RSS-130 4.6/ RSS-133 6.4/RSS-139 5.5

6.1.1 Summary

22.913(a) (5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

24.232(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

27.50(c) (10) Portable stations (hand-held devices) in the 600 MHz uplink band and the 698–746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

27.50(d) (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band is limited to 1 watt EIRP.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

RSS-130 4.6: The e.r.p. shall not exceed 3 watts for portable equipment and indoor fixed subscriber equipment.

RSS-133 6.4: Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p.

RSS-139 5.5: Subscriber equipment: 30 dBm e.i.r.p./channel bandwidth

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation. In all cases, output power is within the specified limits.

CMW500 setting:

1: CMW500 is connected to the DUT

2: Set RX Expected PEP to 30 dBm

6.1.2 Method of Measurements

Method of measurements please refer to KDB971168 D01 v03 clause 5.

The EUT was set up for the max output power with pseudo random data modulation.

The power was measured with Rhode & Schwarz Spectrum Analyzer FSQ(peak).

6.1.3 Test procedures

The transmitter output port was connected to base station.

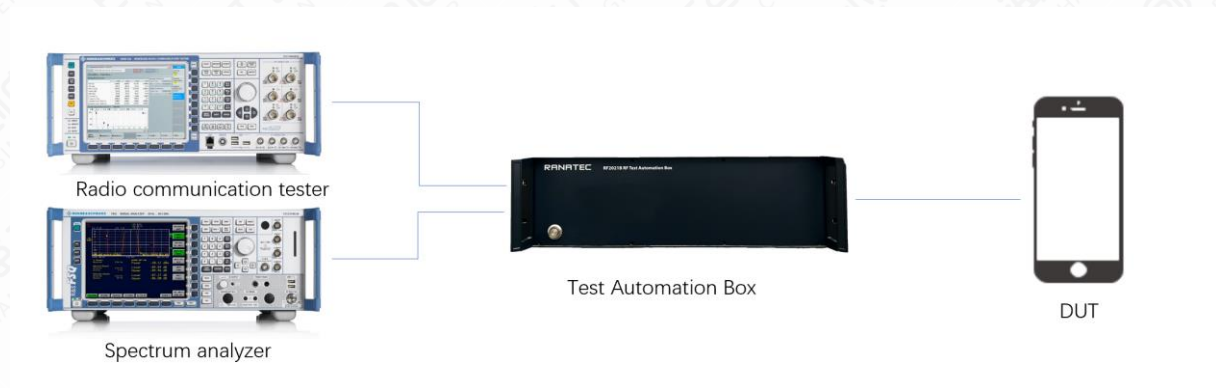
Set the EUT at maximum power through base station.

Select lowest, middle, and highest channels for each band and different modulation.

Measure maximum average power for other modulation signal.

The transmitter output power was connected to calibrated attenuator, the other end of which was connected to signal analyzer. Transmitter output power was read off the power in dBm. The power outputs at the transmitter antenna port was determined by adding the value of attenuator to the signal analyzer reading.

6.1.4 Test Setup



6.1.5 Output Power Measurement result

LTE band 12

LTE B12			Maximum Conducted Power (dBm)			
Modulation	RB	RB Offset	Tune up	1.4MHz		
				Channel/Frequency(MHz)		
				23017/699.7	23095/707.5	23173/715.3
QPSK	1	Low	23.50	22.01	22.04	22.06
		Middle		22.21	22.34	22.16
		High		22.08	22.08	22.11
	50%	Low	22.50	21.14	21.18	21.19
		Middle		21.13	21.15	21.17
		High		21.07	21.12	21.15
	100%	/	22.50	21.08	21.21	21.14
16QAM	1	Low	22.50	21.19	21.21	21.20
		Middle		21.17	21.17	21.15
		High		21.19	21.23	21.16
	50%	Low	21.50	20.08	20.08	20.18
		Middle		20.13	20.06	20.15
		High		20.14	20.08	20.18
	100%	/	21.50	20.11	20.07	20.10
Modulation	RB	RB Offset	Tune up	3MHz		
				Channel/Frequency(MHz)		
				23025/700.5	23095/707.5	23165/714.5
QPSK	1	Low	23.50	22.03	22.05	22.09
		Middle		22.24	22.31	22.20
		High		22.10	22.12	22.14
	50%	Low	22.50	21.17	21.18	21.17
		Middle		21.16	21.18	21.14
		High		21.09	21.16	21.17
	100%	/	22.50	21.12	21.23	21.18
16QAM	1	Low	22.50	21.21	21.24	21.22
		Middle		21.20	21.21	21.18

	50%	High	21.50	21.22	21.25	21.19
		Low		20.11	20.13	20.22
		Middle		20.15	20.10	20.18
		High		20.17	20.13	20.22
	100%	/	21.50	20.14	20.12	20.14
Modulation	RB	RB Offset	Tune up	5MHz		
				Channel/Frequency(MHz)		
				23035/701.5	23095/707.5	23155/713.5
QPSK	1	Low	23.50	22.02	22.01	22.07
		Middle		22.22	22.32	22.17
		High		22.07	22.07	22.10
	50%	Low	22.50	21.15	21.19	21.15
		Middle		21.13	21.18	21.17
		High		21.06	21.13	21.16
	100%	/	22.50	21.10	21.19	21.13
16QAM	1	Low	22.50	21.16	21.22	21.20
		Middle		21.18	21.18	21.16
		High		21.19	21.21	21.16
	50%	Low	21.50	20.08	20.11	20.19
		Middle		20.12	20.05	20.14
		High		20.15	20.09	20.19
	100%	/	21.50	20.11	20.07	20.10
Modulation	RB	RB Offset	Tune up	10MHz		
				Channel/Frequency(MHz)		
				23060/704	23095/707.5	23130/711
QPSK	1	Low	23.50	21.99	21.97	22.04
		Middle		22.21	22.34	22.15
		High		22.05	22.06	22.07
	50%	Low	22.50	21.12	21.14	21.16
		Middle		21.11	21.19	21.14
		High		21.03	21.08	21.12
	100%	/	22.50	21.07	21.14	21.09
16QAM	1	Low	22.50	21.11	21.18	21.15
		Middle		21.14	21.16	21.12
		High		21.17	21.18	21.14
	50%	Low	21.50	20.05	20.07	20.16
		Middle		20.09	20.03	20.11
		High		20.12	20.04	20.15
	100%	/	21.50	20.09	20.03	20.07

LTE BAND 25

LTE B25			Maximum Conducted Power (dBm)		
Modulation	RB	RB Offset	Tune up	1.4MHz	
				Channel/Frequency(MHz)	

				26047/1850.7	26365/1882.5	26683/1914.3
QPSK	1	Low	23.50	22.22	22.35	22.33
		Middle		22.56	22.64	22.49
		High		22.19	22.41	22.18
	50%	Low	23.50	22.40	22.53	22.50
		Middle		22.38	22.58	22.48
		High		22.53	22.60	22.52
	100%	/	22.50	21.55	21.57	21.54
16QAM	1	Low	22.50	21.55	21.60	21.59
		Middle		21.53	21.26	21.52
		High		21.43	21.29	21.48
	50%	Low	22.50	21.51	21.52	21.48
		Middle		21.45	21.50	21.50
		High		21.46	21.50	21.52
	100%	/	21.50	20.55	20.62	20.65
Modulation	RB	RB Offset	Tune up	3MHz		
				Channel/Frequency(MHz)		
				26055/1851.5	26365/1882.5	26675/1913.5
QPSK	1	Low	23.50	22.24	22.39	22.36
		Middle		22.54	22.67	22.53
		High		22.22	22.46	22.22
	50%	Low	22.50	21.58	21.73	21.71
		Middle		21.58	21.76	21.68
		High		21.63	21.71	21.62
	100%	/	22.50	21.55	21.61	21.57
16QAM	1	Low	22.50	21.58	21.62	21.62
		Middle		21.56	21.26	21.56
		High		21.45	21.33	21.51
	50%	Low	21.50	20.62	20.65	20.60
		Middle		20.56	20.63	20.62
		High		20.56	20.62	20.65
	100%	/	21.50	20.58	20.66	20.68
Modulation	RB	RB Offset	Tune up	5MHz		
				Channel/Frequency(MHz)		
				26065/1852.5	26365/1882.5	26665/1912.5
QPSK	1	Low	23.50	22.21	22.37	22.32
		Middle		22.52	22.63	22.50
		High		22.19	22.41	22.18
	50%	Low	22.50	21.55	21.68	21.67
		Middle		21.56	21.72	21.63
		High		21.61	21.69	21.58
	100%	/	22.50	21.55	21.60	21.55
16QAM	1	Low	22.50	21.55	21.58	21.59
		Middle		21.53	21.24	21.53

	50%	High	21.50	21.42	21.31	21.47
		Low		20.60	20.61	20.57
		Middle		20.53	20.58	20.58
		High		20.53	20.57	20.61
	100%	/	21.50	20.56	20.62	20.63
Modulation	RB	RB Offset	Tune up	10MHz		
				Channel/Frequency(MHz)		
				26090/1855	26365/1882.5	26640/1910
QPSK	1	Low	23.50	22.23	22.38	22.35
		Middle		22.55	22.68	22.54
		High		22.21	22.45	22.21
	50%	Low	22.50	21.50	21.65	21.63
		Middle		21.59	21.77	21.67
		High		21.63	21.73	21.63
	100%	/	22.50	21.59	21.62	21.59
16QAM	1	Low	22.50	21.57	21.61	21.61
		Middle		21.56	21.28	21.56
		High		21.45	21.33	21.50
	50%	Low	21.50	20.63	20.66	20.61
		Middle		20.55	20.62	20.61
		High		20.56	20.62	20.65
	100%	/	21.50	20.59	20.67	20.67
Modulation	RB	RB Offset	Tune up	15MHz		
				Channel/Frequency(MHz)		
				26115/1857.5	26365/1882.5	26615/1907.5
QPSK	1	Low	23.50	22.22	22.34	22.33
		Middle		22.53	22.67	22.51
		High		22.18	22.40	22.17
	50%	Low	22.50	21.48	21.61	21.60
		Middle		21.56	21.72	21.63
		High		21.60	21.70	21.59
	100%	/	22.50	21.57	21.58	21.54
16QAM	1	Low	22.50	21.52	21.59	21.59
		Middle		21.54	21.25	21.54
		High		21.42	21.29	21.47
	50%	Low	21.50	20.60	20.64	20.58
		Middle		20.52	20.57	20.57
		High		20.54	20.58	20.62
	100%	/	21.50	20.56	20.62	20.63
Modulation	RB	RB Offset	Tune up	20MHz		
				Channel/Frequency(MHz)		
				26140/1860	26365/1882.5	26590/1905
QPSK	1	Low	23.50	22.27	22.38	22.38
		Middle		22.60	22.71	22.57

	50%	High	22.50	22.24	22.47	22.22
		Low		21.53	21.64	21.64
		Middle		21.54	21.68	21.60
		High		21.57	21.65	21.55
	100%	/	22.50	21.54	21.53	21.50
16QAM	1	Low	22.50	21.45	21.55	21.54
		Middle		21.50	21.23	21.50
		High		21.40	21.26	21.45
	50%	Low	21.50	20.57	20.60	20.55
		Middle		20.49	20.55	20.54
		High		20.51	20.53	20.58
	100%	/	21.50	20.54	20.58	20.60

LTE BAND 26(part 22)

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part22	824.7	1.4	One Rb High	22.77	21.85
FDD26_Part22	824.7	1.4	One Rb Low	22.78	21.84
FDD26_Part22	824.7	1.4	One Rb Middle	22.87	22
FDD26_Part22	824.7	1.4	Half Rb Low	22.9	22.13
FDD26_Part22	824.7	1.4	Half Rb Middle	22.89	22.17
FDD26_Part22	824.7	1.4	Half Rb High	22.88	22.17
FDD26_Part22	824.7	1.4	Fullrb	21.93	20.92
FDD26_Part22	825.5	3	One Rb High	22.88	22.11
FDD26_Part22	825.5	3	One Rb Low	22.88	22.12
FDD26_Part22	825.5	3	One Rb Middle	22.89	22.13
FDD26_Part22	825.5	3	Half Rb Low	22.01	20.88
FDD26_Part22	825.5	3	Half Rb Middle	21.96	20.93
FDD26_Part22	825.5	3	Half Rb High	21.94	20.9
FDD26_Part22	825.5	3	Fullrb	21.97	20.9
FDD26_Part22	826.5	5	One Rb High	22.69	21.66
FDD26_Part22	826.5	5	One Rb Low	22.39	21.64
FDD26_Part22	826.5	5	One Rb Middle	22.5	21.73
FDD26_Part22	826.5	5	Half Rb Low	21.45	20.5
FDD26_Part22	826.5	5	Half Rb Middle	21.45	20.49
FDD26_Part22	826.5	5	Half Rb High	21.39	20.48
FDD26_Part22	826.5	5	Fullrb	21.45	20.43
FDD26_Part22	829	10	One Rb High	22.78	22
FDD26_Part22	829	10	One Rb Low	22.87	22.1
FDD26_Part22	829	10	One Rb Middle	23.01	22.25
FDD26_Part22	829	10	Half Rb Low	22.04	21.03
FDD26_Part22	829	10	Half Rb Middle	22.04	21.04
FDD26_Part22	829	10	Half Rb High	21.94	20.93
FDD26_Part22	829	10	Fullrb	21.99	20.98
FDD26_Part22	831.5	15	One Rb High	22.64	21.87
FDD26_Part22	831.5	15	One Rb Low	22.82	22.05

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part22	831.5	15	One Rb Middle	22.82	22.07
FDD26_Part22	831.5	15	Half Rb Low	22.08	22.04
FDD26_Part22	831.5	15	Half Rb Middle	22.06	22.05
FDD26_Part22	831.5	15	Half Rb High	21.87	21.85
FDD26_Part22	831.5	15	Fullrb	21.92	20.92
FDD26_Part22	836.5	1.4	One Rb High	22.61	21.73
FDD26_Part22	836.5	1.4	One Rb Low	22.64	21.75
FDD26_Part22	836.5	1.4	One Rb Middle	22.84	21.9
FDD26_Part22	836.5	1.4	Half Rb Low	22.79	22.05
FDD26_Part22	836.5	1.4	Half Rb Middle	22.76	22.07
FDD26_Part22	836.5	1.4	Half Rb High	22.75	22.07
FDD26_Part22	836.5	1.4	Fullrb	21.79	20.79
FDD26_Part22	836.5	3	One Rb High	22.76	21.83
FDD26_Part22	836.5	3	One Rb Low	22.78	21.92
FDD26_Part22	836.5	3	One Rb Middle	22.74	21.84
FDD26_Part22	836.5	3	Half Rb Low	21.81	20.89
FDD26_Part22	836.5	3	Half Rb Middle	21.81	20.88
FDD26_Part22	836.5	3	Half Rb High	21.77	20.85
FDD26_Part22	836.5	3	Fullrb	21.82	20.85
FDD26_Part22	836.5	5	One Rb High	22.67	21.58
FDD26_Part22	836.5	5	One Rb Low	22.71	21.6
FDD26_Part22	836.5	5	One Rb Middle	22.78	21.73
FDD26_Part22	836.5	5	Half Rb Low	21.82	20.87
FDD26_Part22	836.5	5	Half Rb Middle	21.82	20.84
FDD26_Part22	836.5	5	Half Rb High	21.76	20.78
FDD26_Part22	836.5	5	Fullrb	21.82	20.85
FDD26_Part22	836.5	10	One Rb High	22.71	22.32
FDD26_Part22	836.5	10	One Rb Low	22.79	22.45
FDD26_Part22	836.5	10	One Rb Middle	22.87	22.5
FDD26_Part22	836.5	10	Half Rb Low	21.9	20.98
FDD26_Part22	836.5	10	Half Rb Middle	21.92	20.98
FDD26_Part22	836.5	10	Half Rb High	21.8	20.77
FDD26_Part22	836.5	10	Fullrb	21.87	20.86
FDD26_Part22	836.5	15	One Rb High	22.56	22.01
FDD26_Part22	836.5	15	One Rb Low	22.49	21.94
FDD26_Part22	836.5	15	One Rb Middle	22.39	21.92
FDD26_Part22	836.5	15	Half Rb Low	21.99	21.99
FDD26_Part22	836.5	15	Half Rb Middle	22	21.96
FDD26_Part22	836.5	15	Half Rb High	21.86	21.88
FDD26_Part22	836.5	15	Fullrb	21.38	20.35
FDD26_Part22	848.3	1.4	One Rb High	22.37	21.58
FDD26_Part22	848.3	1.4	One Rb Low	22.34	21.54
FDD26_Part22	848.3	1.4	One Rb Middle	22.53	21.79
FDD26_Part22	848.3	1.4	Half Rb Low	22.46	21.55

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part22	848.3	1.4	Half Rb Middle	22.45	21.53
FDD26_Part22	848.3	1.4	Half Rb High	22.45	21.54
FDD26_Part22	848.3	1.4	Fullrb	21.47	20.47
FDD26_Part22	847.5	3	One Rb High	22.4	21.64
FDD26_Part22	847.5	3	One Rb Low	22.46	21.63
FDD26_Part22	847.5	3	One Rb Middle	22.37	21.64
FDD26_Part22	847.5	3	Half Rb Low	21.47	20.45
FDD26_Part22	847.5	3	Half Rb Middle	21.47	20.45
FDD26_Part22	847.5	3	Half Rb High	21.49	20.46
FDD26_Part22	847.5	3	Fullrb	21.5	20.45
FDD26_Part22	846.5	5	One Rb High	22.34	21.65
FDD26_Part22	846.5	5	One Rb Low	22.35	21.63
FDD26_Part22	846.5	5	One Rb Middle	22.48	21.75
FDD26_Part22	846.5	5	Half Rb Low	21.5	20.59
FDD26_Part22	846.5	5	Half Rb Middle	21.51	20.57
FDD26_Part22	846.5	5	Half Rb High	21.41	20.5
FDD26_Part22	846.5	5	Fullrb	21.52	20.53
FDD26_Part22	844	10	One Rb High	22.36	21.65
FDD26_Part22	844	10	One Rb Low	22.27	21.44
FDD26_Part22	844	10	One Rb Middle	22.57	21.69
FDD26_Part22	844	10	Half Rb Low	21.47	20.5
FDD26_Part22	844	10	Half Rb Middle	21.49	20.49
FDD26_Part22	844	10	Half Rb High	21.35	20.37
FDD26_Part22	844	10	Fullrb	21.41	20.41
FDD26_Part22	841.5	15	One Rb High	22.32	21.58
FDD26_Part22	841.5	15	One Rb Low	22.27	21.4
FDD26_Part22	841.5	15	One Rb Middle	22.32	21.51
FDD26_Part22	841.5	15	Half Rb Low	21.41	21.41
FDD26_Part22	841.5	15	Half Rb Middle	21.42	21.43
FDD26_Part22	841.5	15	Half Rb High	21.59	21.57
FDD26_Part22	841.5	15	Fullrb	21.35	20.33

LTE BAND 26(part 90)

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part90	814.7	1.4	One Rb High	22.7	21.77
FDD26_Part90	814.7	1.4	One Rb Low	22.72	21.77
FDD26_Part90	814.7	1.4	One Rb Middle	22.72	21.51
FDD26_Part90	814.7	1.4	Half Rb Low	22.43	21.6
FDD26_Part90	814.7	1.4	Half Rb Middle	22.41	21.59
FDD26_Part90	814.7	1.4	Half Rb High	22.38	21.61
FDD26_Part90	814.7	1.4	Fullrb	21.33	20.32
FDD26_Part90	815.5	3	One Rb High	22.35	21.49
FDD26_Part90	815.5	3	One Rb Low	22.39	21.56
FDD26_Part90	815.5	3	One Rb Middle	22.34	21.52

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part90	815.5	3	Half Rb Low	21.38	20.33
FDD26_Part90	815.5	3	Half Rb Middle	21.37	20.33
FDD26_Part90	815.5	3	Half Rb High	21.33	20.32
FDD26_Part90	815.5	3	Fullrb	21.36	20.32
FDD26_Part90	816.5	5	One Rb High	22.3	21.56
FDD26_Part90	816.5	5	One Rb Low	22.3	21.54
FDD26_Part90	816.5	5	One Rb Middle	22.38	21.65
FDD26_Part90	816.5	5	Half Rb Low	21.33	20.37
FDD26_Part90	816.5	5	Half Rb Middle	21.31	20.36
FDD26_Part90	816.5	5	Half Rb High	21.3	20.37
FDD26_Part90	816.5	5	Fullrb	21.35	20.33
FDD26_Part90	819	1.4	One Rb High	22.23	21.29
FDD26_Part90	819	1.4	One Rb Low	22.29	21.29
FDD26_Part90	819	1.4	One Rb Middle	22.43	21.42
FDD26_Part90	819	1.4	Half Rb Low	22.39	21.58
FDD26_Part90	819	1.4	Half Rb Middle	22.41	21.61
FDD26_Part90	819	1.4	Half Rb High	22.41	21.61
FDD26_Part90	819	1.4	Fullrb	21.33	20.34
FDD26_Part90	819	3	One Rb High	22.33	21.93
FDD26_Part90	819	3	One Rb Low	22.37	21.95
FDD26_Part90	819	3	One Rb Middle	22.34	21.9
FDD26_Part90	819	3	Half Rb Low	21.38	20.48
FDD26_Part90	819	3	Half Rb Middle	21.34	20.48
FDD26_Part90	819	3	Half Rb High	21.37	20.51
FDD26_Part90	819	3	Fullrb	21.38	20.41
FDD26_Part90	819	5	One Rb High	22.35	21.17
FDD26_Part90	819	5	One Rb Low	22.32	21.11
FDD26_Part90	819	5	One Rb Middle	22.44	21.28
FDD26_Part90	819	5	Half Rb Low	21.33	20.32
FDD26_Part90	819	5	Half Rb Middle	21.31	20.31
FDD26_Part90	819	5	Half Rb High	21.37	20.37
FDD26_Part90	819	5	Fullrb	21.36	20.38
FDD26_Part90	819	10	One Rb High	22.41	21.97
FDD26_Part90	819	10	One Rb Low	22.32	21.93
FDD26_Part90	819	10	One Rb Middle	22.47	22.05
FDD26_Part90	819	10	Half Rb Low	21.37	20.4
FDD26_Part90	819	10	Half Rb Middle	21.37	20.41
FDD26_Part90	819	10	Half Rb High	21.44	20.45
FDD26_Part90	819	10	Fullrb	21.44	20.45
FDD26_Part90	823.3	1.4	One Rb High	22.34	21.53
FDD26_Part90	823.3	1.4	One Rb Low	22.35	21.52
FDD26_Part90	823.3	1.4	One Rb Middle	22.52	21.7
FDD26_Part90	823.3	1.4	Half Rb Low	22.45	21.44
FDD26_Part90	823.3	1.4	Half Rb Middle	22.45	21.44

Band	Frequency (MHz)	BandWidth	RB size/offset	Power(dBm)-QPSK	Power(dBm)-16QAM
FDD26_Part90	823.3	1.4	Half Rb High	22.48	21.46
FDD26_Part90	823.3	1.4	Fullrb	21.42	20.43
FDD26_Part90	822.5	3	One Rb High	22.43	21.61
FDD26_Part90	822.5	3	One Rb Low	22.39	21.57
FDD26_Part90	822.5	3	One Rb Middle	22.41	21.58
FDD26_Part90	822.5	3	Half Rb Low	21.41	20.36
FDD26_Part90	822.5	3	Half Rb Middle	21.41	20.35
FDD26_Part90	822.5	3	Half Rb High	21.4	20.35
FDD26_Part90	822.5	3	Fullrb	21.41	20.37
FDD26_Part90	821.5	5	One Rb High	22.37	21.63
FDD26_Part90	821.5	5	One Rb Low	22.35	21.57
FDD26_Part90	821.5	5	One Rb Middle	22.44	21.69
FDD26_Part90	821.5	5	Half Rb Low	21.38	20.43
FDD26_Part90	821.5	5	Half Rb Middle	21.38	20.41
FDD26_Part90	821.5	5	Half Rb High	21.39	20.45
FDD26_Part90	821.5	5	Fullrb	21.41	20.38

LTE BAND 66

LTE B66			Maximum Conducted Power (dBm)			
Modulation	RB	RB Offset	Tune up	1.4MHz		
				Channel/Frequency(MHz)		
				131979	132322	132665
QPSK	1	Low	22.50	21.84	21.86	21.80
		Middle		22.21	22.19	22.05
		High		21.82	21.66	21.65
	50%	Low	22.50	22.12	22.16	22.08
		Middle		21.99	22.09	22.12
		High		22.10	22.04	22.10
	100%	/	21.50	21.13	21.18	21.21
16QAM	1	Low	21.50	21.21	21.23	21.18
		Middle		21.19	21.21	21.14
		High		21.09	21.04	21.18
	50%	Low	21.50	21.07	21.04	21.09
		Middle		21.13	21.08	21.13
		High		21.04	20.98	20.98
	100%	/	20.50	20.06	20.07	20.17
Modulation	RB	RB Offset	Tune up	3MHz		
				Channel/Frequency(MHz)		
				131987	132322	132657
QPSK	1	Low	22.50	21.86	21.90	21.83
		Middle		22.21	22.18	22.09
		High		21.85	21.71	21.69
	50%	Low	21.50	21.17	21.13	21.17

		Middle		21.11	21.16	21.17
		High		21.16	21.15	21.16
	100%	/	21.50	21.13	21.22	21.24
16QAM	1	Low	21.50	21.24	21.25	21.21
		Middle		21.22	21.21	21.18
		High		21.11	21.08	21.21
	50%	Low	20.50	20.18	20.17	20.21
		Middle		20.24	20.21	20.25
		High		20.14	20.10	20.11
	100%	/	20.50	20.09	20.11	20.20
Modulation	RB	RB Offset	Tune up	5MHz		
				Channel/Frequency(MHz)		
				131997	132322	132647
QPSK	1	Low	22.50	21.83	21.88	21.79
		Middle		22.21	22.19	22.06
		High		21.82	21.66	21.65
	50%	Low	21.50	21.18	21.16	21.17
		Middle		21.09	21.15	21.19
		High		21.18	21.13	21.16
	100%	/	21.50	21.13	21.21	21.22
16QAM	1	Low	21.50	21.21	21.21	21.18
		Middle		21.19	21.19	21.15
		High		21.08	21.06	21.17
	50%	Low	20.50	20.16	20.13	20.18
		Middle		20.21	20.16	20.21
		High		20.11	20.05	20.07
	100%	/	20.50	20.07	20.07	20.15
Modulation	RB	RB Offset	Tune up	10MHz		
				Channel/Frequency(MHz)		
				132022	132322	132622
QPSK	1	Low	22.50	21.85	21.89	21.82
		Middle		22.18	22.16	22.10
		High		21.84	21.70	21.68
	50%	Low	21.50	21.17	21.18	21.15
		Middle		21.12	21.15	21.16
		High		21.18	21.17	21.17
	100%	/	21.50	21.17	21.23	21.26
16QAM	1	Low	21.50	21.23	21.24	21.20
		Middle		21.22	21.23	21.18
		High		21.11	21.08	21.20
	50%	Low	20.50	20.19	20.18	20.22
		Middle		20.23	20.20	20.24
		High		20.14	20.10	20.11
	100%	/	20.50	20.10	20.12	20.19

Modulation	RB	RB Offset	Tune up	15MHz		
				Channel/Frequency(MHz)		
				132047	132322	132597
QPSK	1	Low	22.50	21.84	21.85	21.80
		Middle		22.18	22.17	22.07
		High		21.81	21.65	21.64
	50%	Low	21.50	21.16	21.18	21.18
		Middle		21.09	21.15	21.16
		High		21.17	21.14	21.17
	100%	/	21.50	21.15	21.19	21.21
16QAM	1	Low	21.50	21.18	21.22	21.18
		Middle		21.20	21.20	21.16
		High		21.08	21.04	21.17
	50%	Low	20.50	20.16	20.16	20.19
		Middle		20.20	20.15	20.20
		High		20.12	20.06	20.08
	100%	/	20.50	20.07	20.07	20.15
Modulation	RB	RB Offset	Tune up	20MHz		
				Channel/Frequency(MHz)		
				132072	132322	132572
QPSK	1	Low	22.50	21.81	21.81	21.77
		Middle		22.21	22.22	22.05
		High		21.79	21.64	21.61
	50%	Low	21.50	21.17	21.19	21.14
		Middle		21.07	21.11	21.16
		High		21.14	21.09	21.13
	100%	/	21.50	21.12	21.14	21.17
16QAM	1	Low	21.50	21.14	21.18	21.13
		Middle		21.16	21.18	21.12
		High		21.06	21.01	21.15
	50%	Low	20.50	20.13	20.12	20.16
		Middle		20.17	20.13	20.17
		High		20.09	20.01	20.04
	100%	/	20.50	20.05	20.03	20.12

6.1.6 EIRP/ERP

LTE Band 12- ERP 27.50(c)

Limits: ≤34.77dBm (3W)

LTE Band 12_1.4MHz_QPSK

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
699.7	17.36	34.77	H
707.5	17.49	34.77	H
715.3	17.31	34.77	H

LTE Band 12_3MHz_QPSK

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
700.5	17.39	34.77	H
707.5	17.46	34.77	H
714.5	17.35	34.77	H

LTE Band 12_5MHz_QPSK

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
701.5	17.37	34.77	H
707.5	17.47	34.77	H
713.5	17.32	34.77	H

LTE Band 12_10MHz_QPSK

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
704	17.36	34.77	H
707.5	17.49	34.77	H
711	17.30	34.77	H

LTE Band 12_1.4MHz_16QAM

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
699.7	16.34	34.77	H
707.5	16.38	34.77	H
715.3	16.35	34.77	H

LTE Band 12_3MHz_16QAM

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
700.5	16.37	34.77	H
707.5	16.40	34.77	H
714.5	16.37	34.77	H

LTE Band 12_5MHz_16QAM

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
701.5	16.34	34.77	H
707.5	16.37	34.77	H
713.5	16.35	34.77	H

LTE Band 12_10MHz_16QAM

Frequency(MHz)	ERP(dBm)	Limit(dBm)	Polarization
704	16.32	34.77	H
707.5	16.33	34.77	H
711	16.30	34.77	H

LTE Band 25- EIRP 24.229(c)
Limits: ≤30dBm (1W)

LTE Band 25_1.4MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1850.7	21.86	30.00	H
1882.5	21.94	30.00	H
1914.3	21.82	30.00	H

LTE Band 25_3MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	21.84	30.00	H
1882.5	21.97	30.00	H
1913.5	21.83	30.00	H

LTE Band 25_5MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	21.82	30.00	H
1882.5	21.93	30.00	H
1912.5	21.80	30.00	H

LTE Band 25_10MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	21.85	30.00	H
1882.5	21.98	30.00	H
1910	21.84	30.00	H

LTE Band 25_15MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	21.83	30.00	H
1882.5	21.97	30.00	H
1907.5	21.81	30.00	H

LTE Band 25_20MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	21.90	30.00	H
1882.5	22.01	30.00	H
1905	21.87	30.00	H

LTE Band 25_1.4MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1850.7	20.85	30.00	H
1882.5	20.90	30.00	H
1914.3	20.89	30.00	H

LTE Band 25_3MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	20.88	30.00	H
1882.5	20.92	30.00	H
1913.5	20.92	30.00	H

LTE Band 25_5MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	20.85	30.00	H
1882.5	20.88	30.00	H
1912.5	20.89	30.00	H

LTE Band 25_10MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	20.87	30.00	H

1882.5	20.91	30.00	H
1910	20.91	30.00	H

LTE Band 25_15MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	20.84	30.00	H
1882.5	20.89	30.00	H
1907.5	20.89	30.00	H

LTE Band 25_20MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	20.80	30.00	H
1882.5	20.85	30.00	H
1905	20.84	30.00	H

LTE Band 26_Part22- ERP 22.913(a) (5)
Limits: ≤38.45dBm (7W)

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part22	824.7	1.4	One Rb High	17.42	16.5
FDD26_Part22	824.7	1.4	One Rb Low	17.43	16.49
FDD26_Part22	824.7	1.4	One Rb Middle	17.52	16.65
FDD26_Part22	824.7	1.4	Half Rb Low	17.55	16.78
FDD26_Part22	824.7	1.4	Half Rb Middle	17.54	16.82
FDD26_Part22	824.7	1.4	Half Rb High	17.53	16.82
FDD26_Part22	824.7	1.4	Fullrb	16.58	15.57
FDD26_Part22	825.5	3	One Rb High	17.53	16.76
FDD26_Part22	825.5	3	One Rb Low	17.53	16.77
FDD26_Part22	825.5	3	One Rb Middle	17.54	16.78
FDD26_Part22	825.5	3	Half Rb Low	16.66	15.53
FDD26_Part22	825.5	3	Half Rb Middle	16.61	15.58
FDD26_Part22	825.5	3	Half Rb High	16.59	15.55
FDD26_Part22	825.5	3	Fullrb	16.62	15.55
FDD26_Part22	826.5	5	One Rb High	17.34	16.31
FDD26_Part22	826.5	5	One Rb Low	17.04	16.29
FDD26_Part22	826.5	5	One Rb Middle	17.15	16.38
FDD26_Part22	826.5	5	Half Rb Low	16.1	15.15
FDD26_Part22	826.5	5	Half Rb Middle	16.1	15.14
FDD26_Part22	826.5	5	Half Rb High	16.04	15.13
FDD26_Part22	826.5	5	Fullrb	16.1	15.08
FDD26_Part22	829	10	One Rb High	17.43	16.65
FDD26_Part22	829	10	One Rb Low	17.52	16.75
FDD26_Part22	829	10	One Rb Middle	17.66	16.9
FDD26_Part22	829	10	Half Rb Low	16.69	15.68
FDD26_Part22	829	10	Half Rb Middle	16.69	15.69
FDD26_Part22	829	10	Half Rb High	16.59	15.58
FDD26_Part22	829	10	Fullrb	16.64	15.63

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part22	831.5	15	One Rb High	17.29	16.52
FDD26_Part22	831.5	15	One Rb Low	17.47	16.7
FDD26_Part22	831.5	15	One Rb Middle	17.47	16.72
FDD26_Part22	831.5	15	Half Rb Low	16.73	16.69
FDD26_Part22	831.5	15	Half Rb Middle	16.71	16.7
FDD26_Part22	831.5	15	Half Rb High	16.52	16.5
FDD26_Part22	831.5	15	Fullrb	16.57	15.57
FDD26_Part22	836.5	1.4	One Rb High	17.26	16.38
FDD26_Part22	836.5	1.4	One Rb Low	17.29	16.4
FDD26_Part22	836.5	1.4	One Rb Middle	17.49	16.55
FDD26_Part22	836.5	1.4	Half Rb Low	17.44	16.7
FDD26_Part22	836.5	1.4	Half Rb Middle	17.41	16.72
FDD26_Part22	836.5	1.4	Half Rb High	17.4	16.72
FDD26_Part22	836.5	1.4	Fullrb	16.44	15.44
FDD26_Part22	836.5	3	One Rb High	17.41	16.48
FDD26_Part22	836.5	3	One Rb Low	17.43	16.57
FDD26_Part22	836.5	3	One Rb Middle	17.39	16.49
FDD26_Part22	836.5	3	Half Rb Low	16.46	15.54
FDD26_Part22	836.5	3	Half Rb Middle	16.46	15.53
FDD26_Part22	836.5	3	Half Rb High	16.42	15.5
FDD26_Part22	836.5	3	Fullrb	16.47	15.5
FDD26_Part22	836.5	5	One Rb High	17.32	16.23
FDD26_Part22	836.5	5	One Rb Low	17.36	16.25
FDD26_Part22	836.5	5	One Rb Middle	17.43	16.38
FDD26_Part22	836.5	5	Half Rb Low	16.47	15.52
FDD26_Part22	836.5	5	Half Rb Middle	16.47	15.49
FDD26_Part22	836.5	5	Half Rb High	16.41	15.43
FDD26_Part22	836.5	5	Fullrb	16.47	15.5
FDD26_Part22	836.5	10	One Rb High	17.36	16.97
FDD26_Part22	836.5	10	One Rb Low	17.44	17.1
FDD26_Part22	836.5	10	One Rb Middle	17.52	17.15
FDD26_Part22	836.5	10	Half Rb Low	16.55	15.63
FDD26_Part22	836.5	10	Half Rb Middle	16.57	15.63
FDD26_Part22	836.5	10	Half Rb High	16.45	15.42
FDD26_Part22	836.5	10	Fullrb	16.52	15.51
FDD26_Part22	836.5	15	One Rb High	17.21	16.66
FDD26_Part22	836.5	15	One Rb Low	17.14	16.59
FDD26_Part22	836.5	15	One Rb Middle	17.04	16.57
FDD26_Part22	836.5	15	Half Rb Low	16.64	16.64
FDD26_Part22	836.5	15	Half Rb Middle	16.65	16.61
FDD26_Part22	836.5	15	Half Rb High	16.51	16.53
FDD26_Part22	836.5	15	Fullrb	16.03	15
FDD26_Part22	848.3	1.4	One Rb High	17.02	16.23
FDD26_Part22	848.3	1.4	One Rb Low	16.99	16.19

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part22	848.3	1.4	One Rb Middle	17.18	16.44
FDD26_Part22	848.3	1.4	Half Rb Low	17.11	16.2
FDD26_Part22	848.3	1.4	Half Rb Middle	17.1	16.18
FDD26_Part22	848.3	1.4	Half Rb High	17.1	16.19
FDD26_Part22	848.3	1.4	Fullrb	16.12	15.12
FDD26_Part22	847.5	3	One Rb High	17.05	16.29
FDD26_Part22	847.5	3	One Rb Low	17.11	16.28
FDD26_Part22	847.5	3	One Rb Middle	17.02	16.29
FDD26_Part22	847.5	3	Half Rb Low	16.12	15.1
FDD26_Part22	847.5	3	Half Rb Middle	16.12	15.1
FDD26_Part22	847.5	3	Half Rb High	16.14	15.11
FDD26_Part22	847.5	3	Fullrb	16.15	15.1
FDD26_Part22	846.5	5	One Rb High	16.99	16.3
FDD26_Part22	846.5	5	One Rb Low	17	16.28
FDD26_Part22	846.5	5	One Rb Middle	17.13	16.4
FDD26_Part22	846.5	5	Half Rb Low	16.15	15.24
FDD26_Part22	846.5	5	Half Rb Middle	16.16	15.22
FDD26_Part22	846.5	5	Half Rb High	16.06	15.15
FDD26_Part22	846.5	5	Fullrb	16.17	15.18
FDD26_Part22	844	10	One Rb High	17.01	16.3
FDD26_Part22	844	10	One Rb Low	16.92	16.09
FDD26_Part22	844	10	One Rb Middle	17.22	16.34
FDD26_Part22	844	10	Half Rb Low	16.12	15.15
FDD26_Part22	844	10	Half Rb Middle	16.14	15.14
FDD26_Part22	844	10	Half Rb High	16	15.02
FDD26_Part22	844	10	Fullrb	16.06	15.06
FDD26_Part22	841.5	15	One Rb High	16.97	16.23
FDD26_Part22	841.5	15	One Rb Low	16.92	16.05
FDD26_Part22	841.5	15	One Rb Middle	16.97	16.16
FDD26_Part22	841.5	15	Half Rb Low	16.06	16.06
FDD26_Part22	841.5	15	Half Rb Middle	16.07	16.08
FDD26_Part22	841.5	15	Half Rb High	16.24	16.22
FDD26_Part22	841.5	15	Fullrb	16	14.98

LTE Band 26_Part90- ERP 90.635(b)

Limits: ≤50dBm(100W)

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part90	814.7	1.4	One Rb High	19.5	18.57
FDD26_Part90	814.7	1.4	One Rb Low	19.52	18.57
FDD26_Part90	814.7	1.4	One Rb Middle	19.52	18.31
FDD26_Part90	814.7	1.4	Half Rb Low	19.23	18.4
FDD26_Part90	814.7	1.4	Half Rb Middle	19.21	18.39
FDD26_Part90	814.7	1.4	Half Rb High	19.18	18.41

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part90	814.7	1.4	Fullrb	18.13	17.12
FDD26_Part90	815.5	3	One Rb High	19.15	18.29
FDD26_Part90	815.5	3	One Rb Low	19.19	18.36
FDD26_Part90	815.5	3	One Rb Middle	19.14	18.32
FDD26_Part90	815.5	3	Half Rb Low	18.18	17.13
FDD26_Part90	815.5	3	Half Rb Middle	18.17	17.13
FDD26_Part90	815.5	3	Half Rb High	18.13	17.12
FDD26_Part90	815.5	3	Fullrb	18.16	17.12
FDD26_Part90	816.5	5	One Rb High	19.1	18.36
FDD26_Part90	816.5	5	One Rb Low	19.1	18.34
FDD26_Part90	816.5	5	One Rb Middle	19.18	18.45
FDD26_Part90	816.5	5	Half Rb Low	18.13	17.17
FDD26_Part90	816.5	5	Half Rb Middle	18.11	17.16
FDD26_Part90	816.5	5	Half Rb High	18.1	17.17
FDD26_Part90	816.5	5	Fullrb	18.15	17.13
FDD26_Part90	819	1.4	One Rb High	19.03	18.09
FDD26_Part90	819	1.4	One Rb Low	19.09	18.09
FDD26_Part90	819	1.4	One Rb Middle	19.23	18.22
FDD26_Part90	819	1.4	Half Rb Low	19.19	18.38
FDD26_Part90	819	1.4	Half Rb Middle	19.21	18.41
FDD26_Part90	819	1.4	Half Rb High	19.21	18.41
FDD26_Part90	819	1.4	Fullrb	18.13	17.14
FDD26_Part90	819	3	One Rb High	19.13	18.73
FDD26_Part90	819	3	One Rb Low	19.17	18.75
FDD26_Part90	819	3	One Rb Middle	19.14	18.7
FDD26_Part90	819	3	Half Rb Low	18.18	17.28
FDD26_Part90	819	3	Half Rb Middle	18.14	17.28
FDD26_Part90	819	3	Half Rb High	18.17	17.31
FDD26_Part90	819	3	Fullrb	18.18	17.21
FDD26_Part90	819	5	One Rb High	19.15	17.97
FDD26_Part90	819	5	One Rb Low	19.12	17.91
FDD26_Part90	819	5	One Rb Middle	19.24	18.08
FDD26_Part90	819	5	Half Rb Low	18.13	17.12
FDD26_Part90	819	5	Half Rb Middle	18.11	17.11
FDD26_Part90	819	5	Half Rb High	18.17	17.17
FDD26_Part90	819	5	Fullrb	18.16	17.18
FDD26_Part90	819	10	One Rb High	19.21	18.77
FDD26_Part90	819	10	One Rb Low	19.12	18.73
FDD26_Part90	819	10	One Rb Middle	19.27	18.85
FDD26_Part90	819	10	Half Rb Low	18.17	17.2
FDD26_Part90	819	10	Half Rb Middle	18.17	17.21
FDD26_Part90	819	10	Half Rb High	18.24	17.25
FDD26_Part90	819	10	Fullrb	18.24	17.25
FDD26_Part90	823.3	1.4	One Rb High	19.14	18.33

Band	Frequency (MHz)	BandWidth	RB size/offset	ERP(dBm)-QPSK	ERP(dBm)-16QAM
FDD26_Part90	823.3	1.4	One Rb Low	19.15	18.32
FDD26_Part90	823.3	1.4	One Rb Middle	19.32	18.5
FDD26_Part90	823.3	1.4	Half Rb Low	19.25	18.24
FDD26_Part90	823.3	1.4	Half Rb Middle	19.25	18.24
FDD26_Part90	823.3	1.4	Half Rb High	19.28	18.26
FDD26_Part90	823.3	1.4	Fullrb	18.22	17.23
FDD26_Part90	822.5	3	One Rb High	19.23	18.41
FDD26_Part90	822.5	3	One Rb Low	19.19	18.37
FDD26_Part90	822.5	3	One Rb Middle	19.21	18.38
FDD26_Part90	822.5	3	Half Rb Low	18.21	17.16
FDD26_Part90	822.5	3	Half Rb Middle	18.21	17.15
FDD26_Part90	822.5	3	Half Rb High	18.2	17.15
FDD26_Part90	822.5	3	Fullrb	18.21	17.17
FDD26_Part90	821.5	5	One Rb High	19.17	18.43
FDD26_Part90	821.5	5	One Rb Low	19.15	18.37
FDD26_Part90	821.5	5	One Rb Middle	19.24	18.49
FDD26_Part90	821.5	5	Half Rb Low	18.18	17.23
FDD26_Part90	821.5	5	Half Rb Middle	18.18	17.21
FDD26_Part90	821.5	5	Half Rb High	18.19	17.25
FDD26_Part90	821.5	5	Fullrb	18.21	17.18

LTE Band 66- EIRP 27.50(d)
Limits: ≤30dBm (1W)

LTE Band 66_1.4MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1710.7	25.81	30.00	H
1745	25.79	30.00	H
1779.3	25.72	30.00	H

LTE Band 66_3MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1711.5	25.81	30.00	H
1745	25.78	30.00	H
1778.5	25.69	30.00	H

LTE Band 66_5MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1712.5	25.81	30.00	H
1745	25.79	30.00	H
1777.5	25.66	30.00	H

LTE Band 66_10MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1715	25.78	30.00	H
1745	25.76	30.00	H
1775	25.70	30.00	H

LTE Band 66_15MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1717.5	25.78	30.00	H
1745	25.77	30.00	H
1772.5	25.67	30.00	H

LTE Band 66_20MHz_QPSK

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1720	25.81	30.00	H
1745	25.82	30.00	H
1770	25.65	30.00	H

LTE Band 66_1.4MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1710.7	24.81	30.00	H
1745	24.83	30.00	H
1779.3	24.78	30.00	H

LTE Band 66_3MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1711.5	24.84	30.00	H
1745	24.85	30.00	H
1778.5	24.81	30.00	H

LTE Band 66_5MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1712.5	24.81	30.00	H
1745	24.81	30.00	H
1777.5	24.78	30.00	H

LTE Band 66_10MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1715	24.83	30.00	H
1745	24.84	30.00	H
1775	24.80	30.00	H

LTE Band 66_15MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1717.5	24.80	30.00	H
1745	24.82	30.00	H
1772.5	24.78	30.00	H

LTE Band 66_20MHz_16QAM

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1720	24.76	30.00	H
1745	24.78	30.00	H
1770	24.75	30.00	H

6.2 Emission Limit

Reference

CFR part 2.1051/22.917/27.53(g), 27.53(h)/90.669

RSS-130 4.7/RSS-133 6.5/ RSS-139 5.6

6.2.1 Summary

According to KDB 971168, a relaxation of the reference bandwidth is often provided for measurements within a specified frequency range at the edge of the authorized frequency block/band. This is often implemented by permitting the use of a narrower RBW (typically limited to a minimum RBW of 1% of the OBW) for measuring the out-of-band emissions without a requirement to integrate the result over the full reference bandwidth.

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

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

27.53(h) (1) General protection levels. Except as otherwise specified below, for operations in the 1695–1710 MHz, 1710–1755 MHz, 1755–1780 MHz, 1915–1920 MHz, 1995–2000 MHz, 2000–2020 MHz, 2110–2155 MHz, 2155–2180 MHz, and 2180–2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

90.669 (a) On any frequency in an MTA licensee's spectrum block that is adjacent to a non-MTA frequency, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 plus $10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation.

RSS-130 4.7 The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

RSS-133 6.5 Equipment shall comply with the limits in (i) and (ii) below.

In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139 5.6 The limit is -13 dBm/(1% of OB*) when the edge offset from the block or group of blocks is 1MHz, and -13 dBm/MHz when the edge offset is greater than 1MHz.

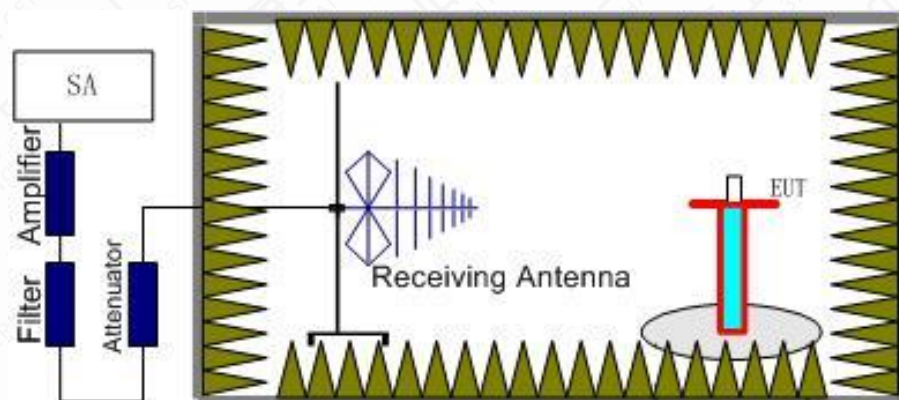
6.2.2 Method of Measurement

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 27.53(g), Part 27.53(h), RSS-130 4.7, RSS-139 5.6. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 12/25/26/66.

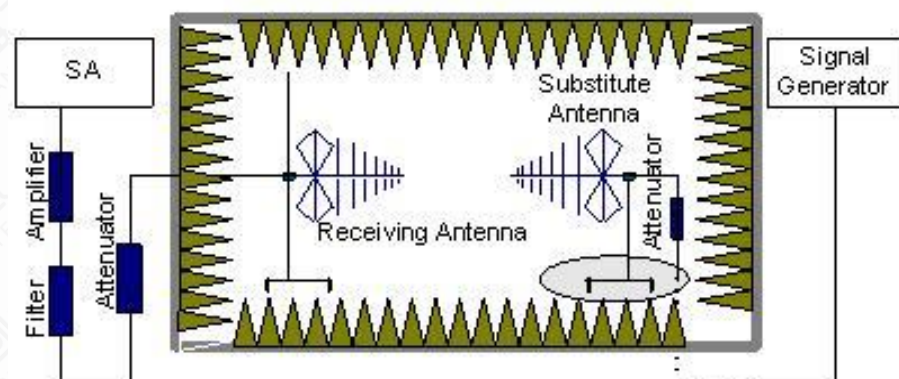
The procedure of radiated spurious emissions is as follows:

1. Below 1 GHz, EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. Above 1 GHz, EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the

substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4.The Path loss (Ppl) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (Ga) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss (Ppl) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

Power (EIRP) =PMea- Ppl + Ga

5.This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.

6.ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

6.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 5.It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 5. Into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this. The evaluated frequency range is from 30MHz to 26GHz.

BAND	Channel		Result
12	L	23017	Pass
	M	23095	Pass
	H	23173	Pass
25	L	26047	Pass
	M	26365	Pass
	H	26683	Pass
26	L	27033	Pass
	M	26915	Pass
	H	26797	Pass
66	L	131972	Pass
	M	132322	Pass
	H	132671	Pass

RSE-LTE12-L

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1399.4	-48.38	4.0	5.3	-47.08	-13	H
2225.8	-44.33	5.1	5.1	-44.33	-13	H
2903.8	-42.12	5.8	6.7	-41.22	-13	H
3551.6	-53.06	6.4	7.8	-51.66	-13	H
4654.4	-53.61	7.5	9.0	-52.11	-13	V
6398.8	-51.92	8.9	10.6	-50.22	-13	V

RSE-LTE12-M

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1414.7	-49.13	4.0	5.3	-47.83	-13	H
2122.3	-46.05	4.9	4.5	-46.45	-13	V
2828.8	-41.76	5.8	6.1	-41.46	-13	H
3564.4	-53.19	6.4	7.8	-51.79	-13	V
4249.6	-54.49	7.1	8.9	-52.69	-13	H
5223.2	-52.54	8.0	9.4	-51.14	-13	H

RSE-LTE12-H

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1430.6	-46.54	4.1	5.3	-45.34	-13	H
2145.8	-40.89	5.0	5.1	-40.79	-13	V
2888.8	-40.43	5.8	6.7	-39.53	-13	V
3628.4	-53.04	6.6	7.9	-51.74	-13	H
5091.6	-52.42	7.9	9.6	-50.72	-13	H
7045.0	-52.8	9.4	11.1	-51.1	-13	H

RSE-LTE25-L

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3702.0	-51.2	6.6	7.9	-49.9	-13	H
5429.6	-52.65	8.1	9.8	-50.95	-13	H
7216.8	-53.41	9.5	11.4	-51.51	-13	V
9527.6	-51.22	10.7	12.7	-49.22	-13	H
12874.6	-43.99	13.0	12.3	-44.69	-13	V
16709.2	-37.26	15.1	12.3	-40.06	-13	H

RSE-LTE25-M

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3767.2	-50.89	6.6	7.9	-49.59	-13	H
5068.0	-53.19	7.8	9.6	-51.39	-13	H
6322.0	-51.72	8.8	10.3	-50.22	-13	V
8144.8	-53.31	10.0	12.4	-50.91	-13	H
10110.8	-48.23	11.3	12.5	-47.03	-13	H
12839.6	-45.6	12.5	12.3	-45.8	-13	H

RSE-LTE25-H

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3824.8	-45.05	6.7	7.9	-43.85	-13	H
5489.6	-52.94	8.2	9.8	-51.34	-13	H
7332.4	-53	9.6	11.4	-51.2	-13	V
9472.0	-49.96	10.7	12.7	-47.96	-13	V
12061.2	-47.24	12.6	12.3	-47.54	-13	V
15757.2	-39.16	14.9	12.3	-41.76	-13	H

RSE-LTE26-L

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1635.5	-43.75	4.2	4.7	-43.25	-13	V
2691.5	-42.42	5.6	6.1	-41.92	-13	H
3172.0	-52.91	6.0	6.9	-52.01	-13	H
3859.6	-53.21	6.7	7.9	-52.01	-13	H
4907.6	-52.83	7.7	9.6	-50.93	-13	H
6568.4	-52.51	9.0	10.6	-50.91	-13	V

RSE-LTE26-M

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1660.1	-44.9	4.5	4.7	-44.7	-13	H
2481.5	-41.06	5.4	5.6	-40.86	-13	H
3115.2	-52.8	6.0	6.7	-52.1	-13	H
4481.2	-52.28	7.3	8.7	-50.88	-13	H
6312.0	-52.69	8.8	10.3	-51.19	-13	V
8405.2	-52.17	10.2	12.6	-49.77	-13	V

RSE-LTE26-H

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1695.0	-46.26	4.5	4.7	-46.06	-13	H
2723.8	-42.35	5.6	6.1	-41.85	-13	V
3574.0	-52.84	6.4	7.8	-51.44	-13	H
4530.0	-52.67	7.4	8.7	-51.37	-13	H
5982.0	-53.56	8.6	10.2	-51.96	-13	V
8016.1	-53.14	9.9	12.2	-50.84	-13	H

RSE-LTE66-L

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4427.6	-50.47	7.3	8.7	-49.07	-13	H
6468.8	-48.11	8.9	10.6	-46.41	-13	V
8723.2	-49.31	10.4	12.7	-47.01	-13	V
11624.8	-40.97	12.2	12.3	-40.87	-13	H
14330.2	-38.83	13.6	12.3	-40.13	-13	V
17590.5	-30.63	15.5	12.3	-33.83	-13	V

RSE-LTE66-M

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4303.2	-51.02	7.1	8.9	-49.22	-13	H
5526.8	-49.81	8.2	9.8	-48.21	-13	H
7134.4	-49.65	9.4	11.4	-47.65	-13	V
9821.2	-45.74	11.0	12.5	-44.24	-13	H
12951.2	-39.74	13.2	12.3	-40.64	-13	V
16782.0	-29.66	15.8	12.3	-33.16	-13	V

RSE-LTE66-H

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3559.2	-47.2	6.4	7.8	-45.8	-13	H
4404.0	-49.64	7.3	8.7	-48.24	-13	H
5897.6	-49.73	8.5	10.2	-48.03	-13	V
8202.8	-49.59	10.1	12.4	-47.29	-13	H
11521.5	-40.45	12.3	12.3	-40.45	-13	V
16293.8	-32.12	14.7	12.3	-34.52	-13	H

6.3 Frequency Stability

Reference

CFR Part 2.1055/24.235/27.54/90.213(a)
Rule RSS-130 4.7/RSS-133 6.3/ Rule RSS-139 5.4

6.3.1 Summary

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d) (2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 7.2VDC and 8.7VDC, with a nominal voltage of 7.6VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. For the purposes of measuring frequency stability these voltage limits are to be used.

6.3.2 Method of Measurement

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

- 1.Measure the carrier frequency at room temperature.
- 2.Subject the EUT to overnight soak at -10°C.
- 3.With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for LTE band 7. Measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
- 4.Repeat the above measurements at 10°C increments from -10°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
- 5.Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
- 6.Subject the EUT to overnight soak at +50°C.
- 7.With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
- 8.Repeat the above measurements at 10 °C decrements from +50°C to -10°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
- 9.At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

6.3.3 Test Setup



6.3.4 Measurement results

Temperature	Voltage	Band	BandWidth (MHz)	RbMode	QPSK (Hz)	Q16 (Hz)	QPSK (ppm)	Q16 (ppm)
Normal	Low	FDD12	1.4	fullRB	-12.088	-12.259	0.017	0.017
Normal	Normal	FDD12	1.4	fullRB	-14.763	-13.161	0.021	0.019
Normal	High	FDD12	1.4	fullRB	-11.816	70.438	0.017	0.1
50	Normal	FDD12	1.4	fullRB	-6.094	-12.875	0.009	0.018
40	Normal	FDD12	1.4	fullRB	-11.058	-14.033	0.016	0.02
30	Normal	FDD12	1.4	fullRB	-9.828	-12.388	0.014	0.018
20	Normal	FDD12	1.4	fullRB	-11.115	-10.157	0.016	0.014
10	Normal	FDD12	1.4	fullRB	15.335	-12.703	0.022	0.018
0	Normal	FDD12	1.4	fullRB	-11.644	-13.447	0.016	0.019
-10	Normal	FDD12	1.4	fullRB	-9.642	-13.819	0.014	0.02
-20	Normal	FDD12	1.4	fullRB	-12.746	-11.659	0.018	0.016
-30	Normal	FDD12	1.4	fullRB	-15.006	-6.895	0.021	0.01

Temperature	Voltage	Band	BandWidth (MHz)	RbMode	QPSK (Hz)	Q16 (Hz)	QPSK (ppm)	Q16 (ppm)
Normal	Low	FDD25	1.4	fullRB	-21.386	-18.468	0.011	0.01
Normal	Normal	FDD25	1.4	fullRB	-13.804	-13.776	0.007	0.007
Normal	High	FDD25	1.4	fullRB	-12.388	-13.59	0.007	0.007
50	Normal	FDD25	1.4	fullRB	-16.952	11.415	0.009	0.006
40	Normal	FDD25	1.4	fullRB	-10.829	-16.866	0.006	0.009
30	Normal	FDD25	1.4	fullRB	-11.988	-28.667	0.006	0.015
20	Normal	FDD25	1.4	fullRB	-26.007	-15.407	0.014	0.008
10	Normal	FDD25	1.4	fullRB	-12.431	-13.804	0.007	0.007
0	Normal	FDD25	1.4	fullRB	13.189	-11.544	0.007	0.006
-10	Normal	FDD25	1.4	fullRB	-14.019	-12.503	0.007	0.007
-20	Normal	FDD25	1.4	fullRB	-12.531	-13.561	0.007	0.007
-30	Normal	FDD25	1.4	fullRB	-17.481	-13.432	0.009	0.007

Temperature	Voltage	Band	BandWidth (MHz)	RbMode	QPSK (Hz)	Q16 (Hz)	QPSK (ppm)	Q16 (ppm)
Normal	Low	FDD26Part22	1.4	fullRB	-12.331	-22.845	0.015	0.027
Normal	Normal	FDD26Part22	1.4	fullRB	-10.228	-20.785	0.012	0.025
Normal	High	FDD26Part22	1.4	fullRB	-11.044	-21.157	0.013	0.025
50	Normal	FDD26Part22	1.4	fullRB	-9.971	-19.312	0.012	0.023
40	Normal	FDD26Part22	1.4	fullRB	3.991	-13.432	0.005	0.016
30	Normal	FDD26Part22	1.4	fullRB	4.392	-16.708	0.005	0.02
20	Normal	FDD26Part22	1.4	fullRB	-6.309	-19.326	0.008	0.023
10	Normal	FDD26Part22	1.4	fullRB	-5.05	-19.455	0.006	0.023
0	Normal	FDD26Part22	1.4	fullRB	-6.423	-23.618	0.008	0.028
-10	Normal	FDD26Part22	1.4	fullRB	-14.62	-24.505	0.017	0.029
-20	Normal	FDD26Part22	1.4	fullRB	-14.791	-23.117	0.018	0.028
-30	Normal	FDD26Part22	1.4	fullRB	-9.027	-25.12	0.011	0.03

Temperature	Voltage	Band	BandWidth (MHz)	RbMode	QPSK (Hz)	Q16 (Hz)	QPSK (ppm)	Q16 (ppm)
Normal	Low	FDD26Part90	1.4	fullRB	-12.875	32.043	0.016	0.039
Normal	Normal	FDD26Part90	1.4	fullRB	-15.721	28.281	0.019	0.035
Normal	High	FDD26Part90	1.4	fullRB	-14.491	28.281	0.018	0.035
50	Normal	FDD26Part90	1.4	fullRB	-14.162	30.341	0.017	0.037
40	Normal	FDD26Part90	1.4	fullRB	-14.334	24.862	0.018	0.03
30	Normal	FDD26Part90	1.4	fullRB	-11.272	-27.68	0.014	0.034
20	Normal	FDD26Part90	1.4	fullRB	-14.234	-28.51	0.017	0.035
10	Normal	FDD26Part90	1.4	fullRB	-17.71	32.158	0.022	0.039
0	Normal	FDD26Part90	1.4	fullRB	-8.54	26.765	0.01	0.033
-10	Normal	FDD26Part90	1.4	fullRB	-3.104	20.442	0.004	0.025
-20	Normal	FDD26Part90	1.4	fullRB	-7.267	-22.43	0.009	0.027
-30	Normal	FDD26Part90	1.4	fullRB	-7.567	20.771	0.009	0.025

Temperature	Voltage	Band	BandWidth (MHz)	RbMode	QPSK (Hz)	Q16 (Hz)	QPSK (ppm)	Q16 (ppm)
Normal	Low	FDD66	1.4	fullRB	-20.9	15.736	0.012	0.009
Normal	Normal	FDD66	1.4	fullRB	10.185	17.495	0.006	0.01
Normal	High	FDD66	1.4	fullRB	-7.267	17.81	0.004	0.01
50	Normal	FDD66	1.4	fullRB	9.112	-20.456	0.005	0.012
40	Normal	FDD66	1.4	fullRB	-10.128	-14.291	0.006	0.008
30	Normal	FDD66	1.4	fullRB	-10.085	-16.05	0.006	0.009
20	Normal	FDD66	1.4	fullRB	11.673	-14.219	0.007	0.008
10	Normal	FDD66	1.4	fullRB	-14.048	9.47	0.008	0.005
0	Normal	FDD66	1.4	fullRB	-10.6	11.988	0.006	0.007
-10	Normal	FDD66	1.4	fullRB	7.195	15.221	0.004	0.009
-20	Normal	FDD66	1.4	fullRB	-12.145	18.783	0.007	0.011
-30	Normal	FDD66	1.4	fullRB	-11.401	12.932	0.007	0.007

6.4 Occupied Bandwidth

Reference

CFR Part 2.1049

RSS-Gen: 6.7

6.4.1 Summary

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated.

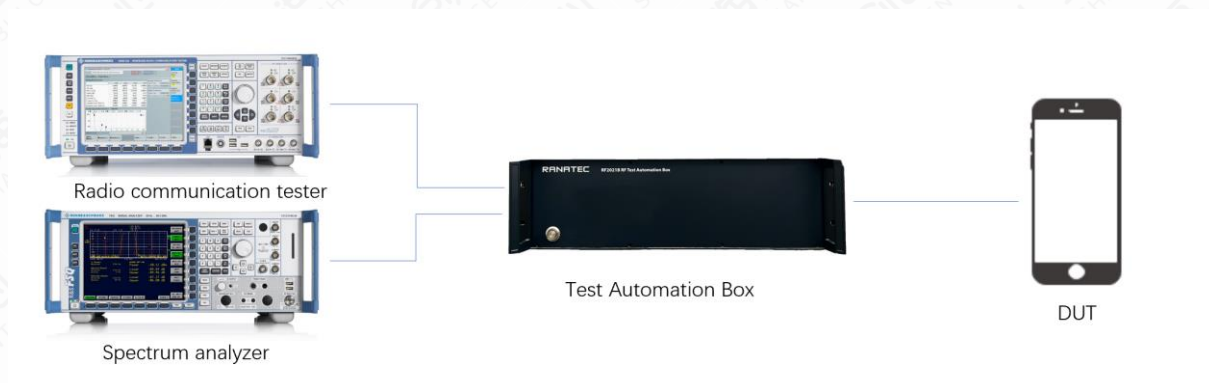
6.4.2 Method of Measurement

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the US Cellular/PCS frequency bands. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

The measurement method is from KDB 971168 4:

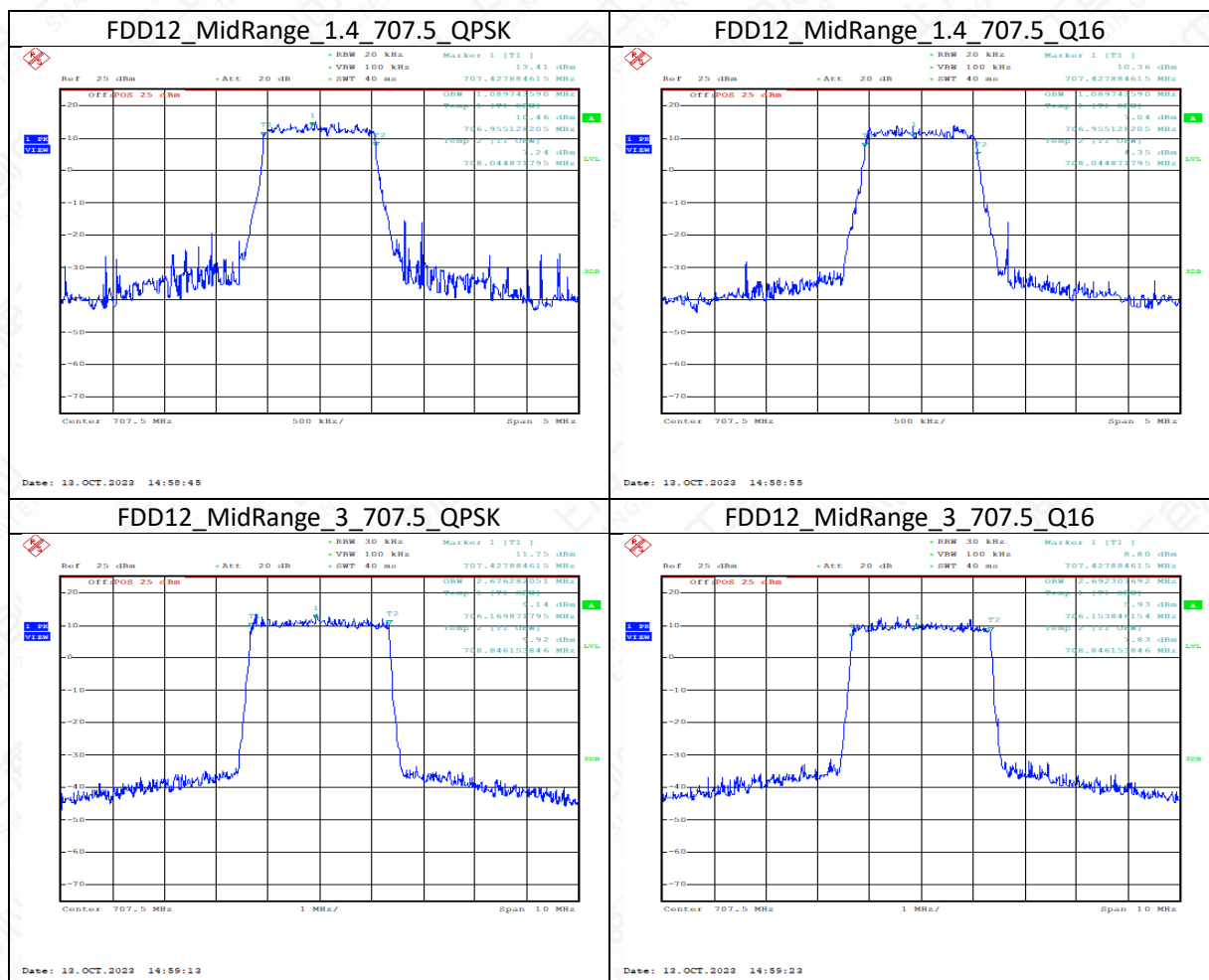
- The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the OBW).
- The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
- Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least $10\log(\text{OBW} / \text{RBW})$ below the reference level.
- Set the detection mode to peak, and the trace mode to max hold.
- Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

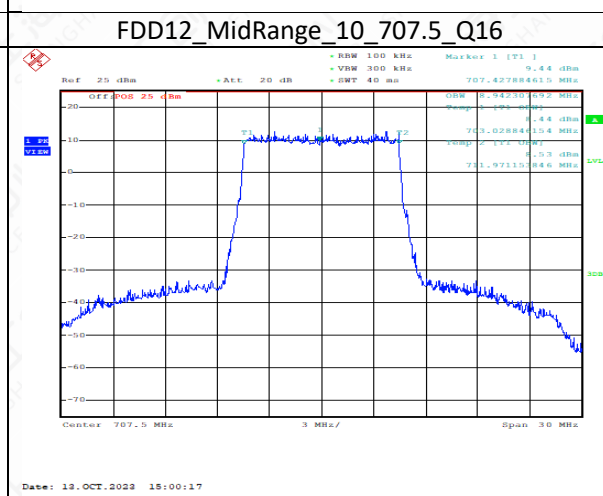
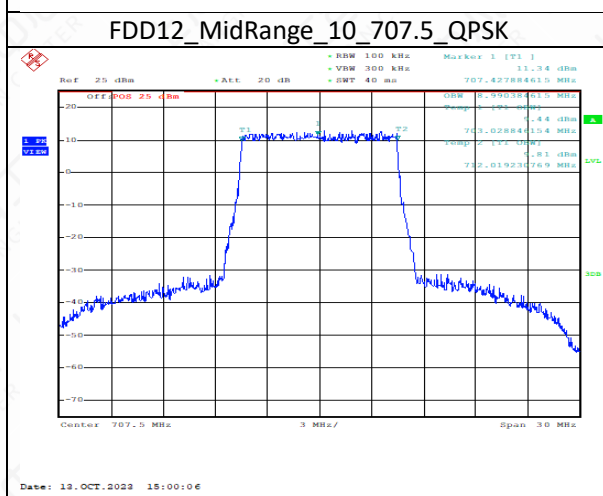
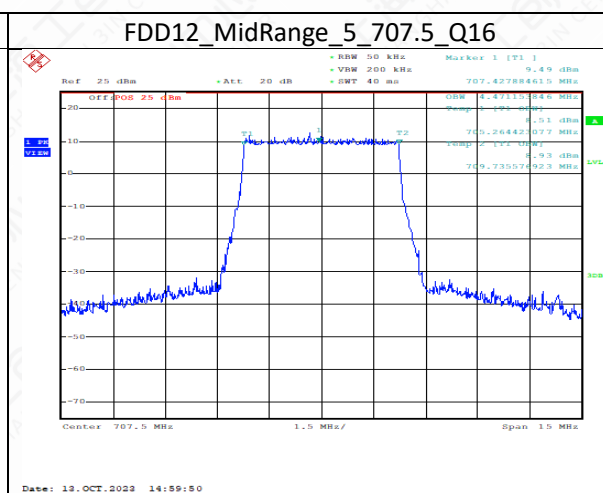
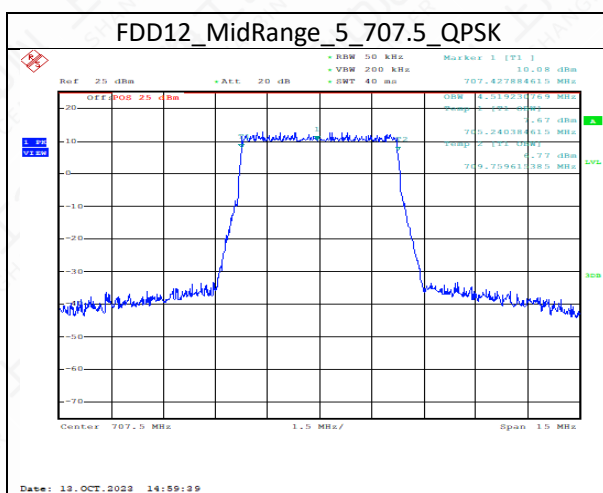
6.4.3 Test Setup



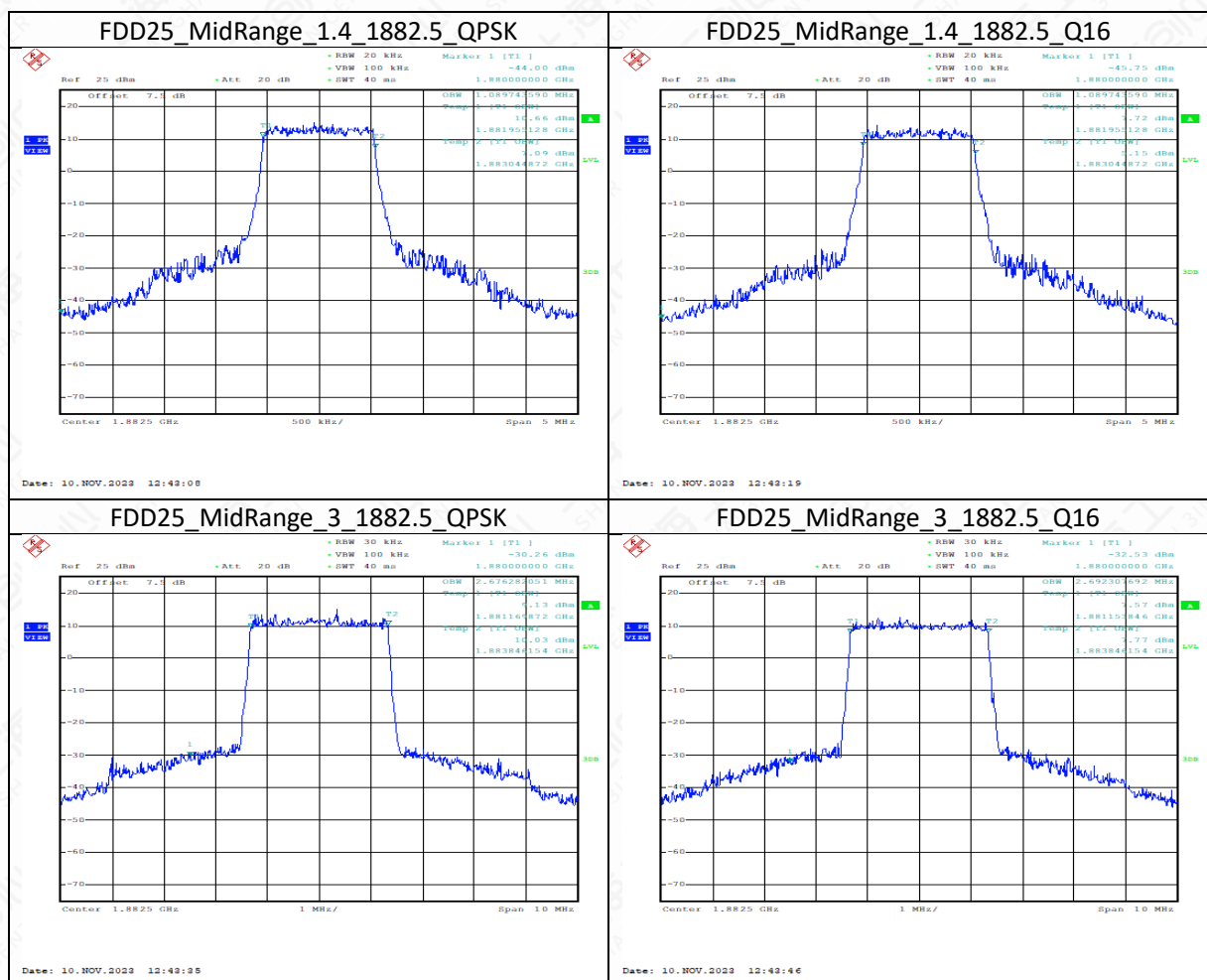
6.4.4 Measurement Results

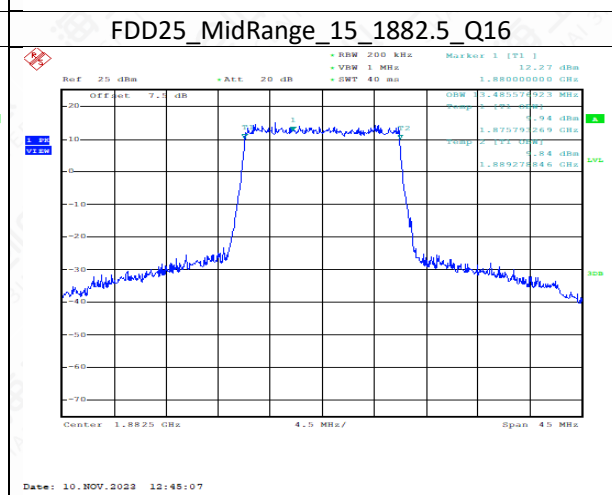
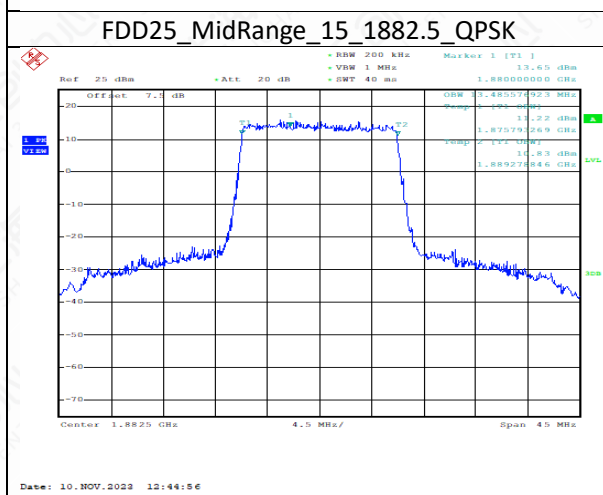
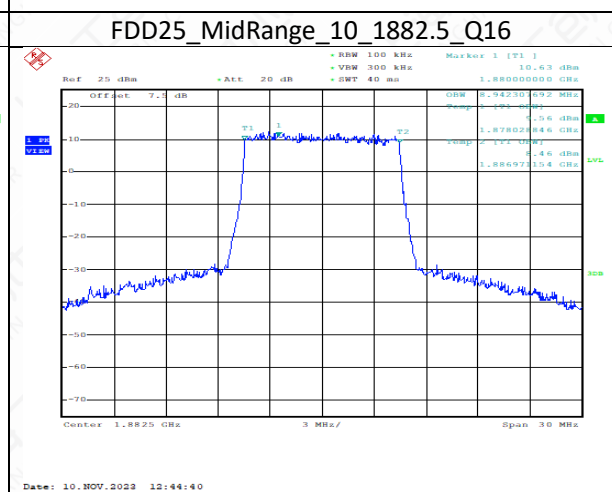
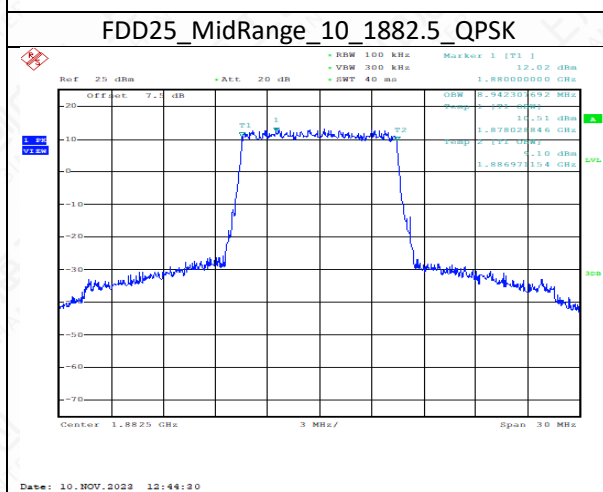
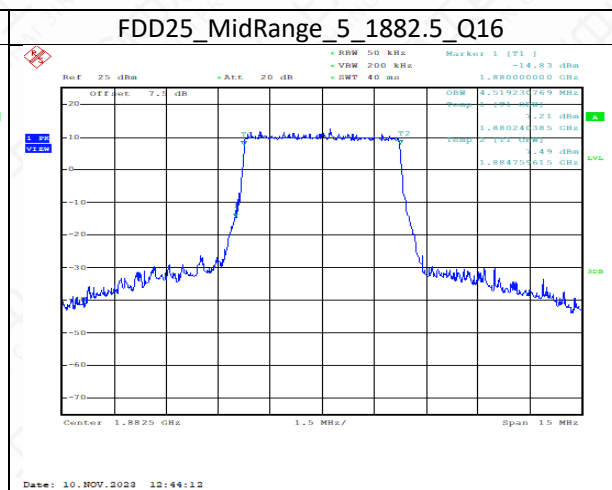
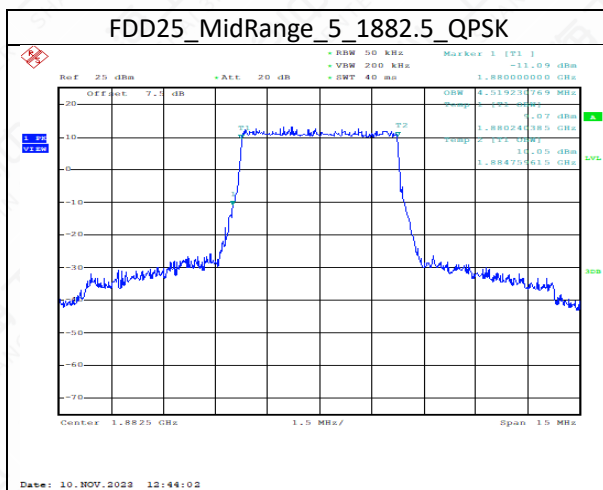
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD12	MidRange	1.4	707.5	1.09	1.09
FDD12	MidRange	3	707.5	2.68	2.69
FDD12	MidRange	5	707.5	4.52	4.47
FDD12	MidRange	10	707.5	8.99	8.94

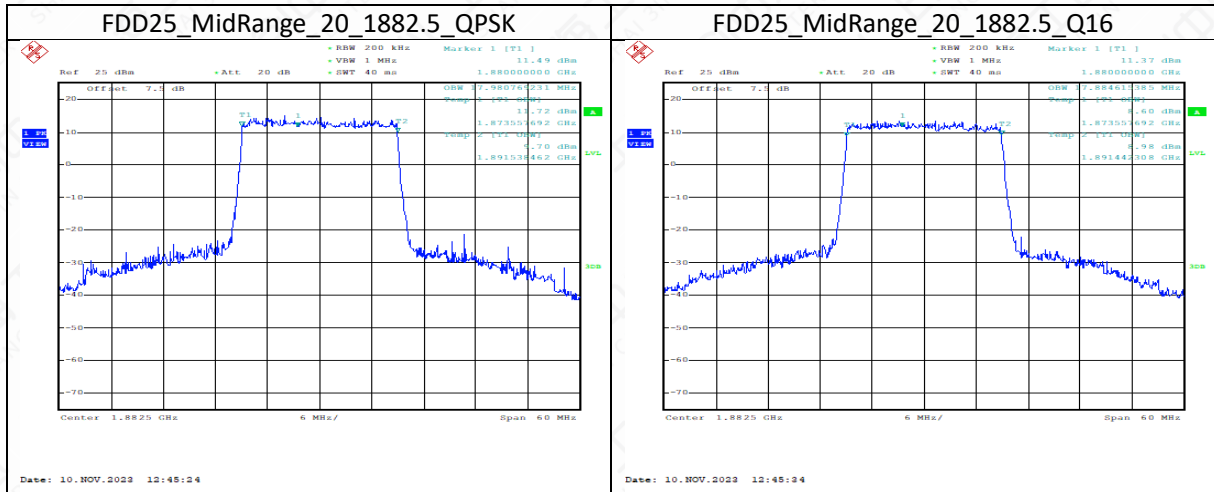




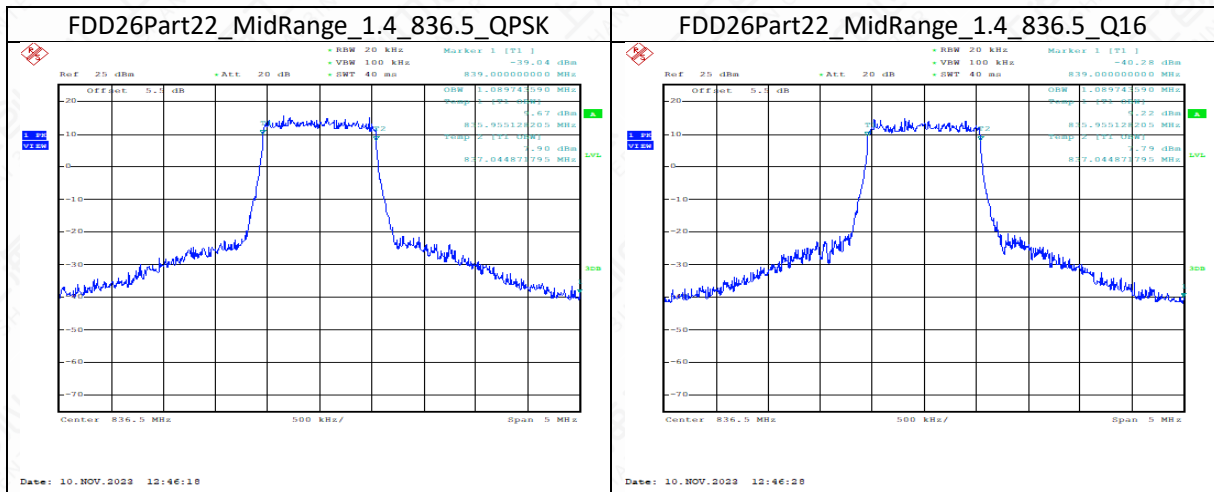
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD25	MidRange	1.4	1882.5	1.09	1.09
FDD25	MidRange	3	1882.5	2.68	2.69
FDD25	MidRange	5	1882.5	4.52	4.52
FDD25	MidRange	10	1882.5	8.94	8.94
FDD25	MidRange	15	1882.5	13.49	13.49
FDD25	MidRange	20	1882.5	17.98	17.89

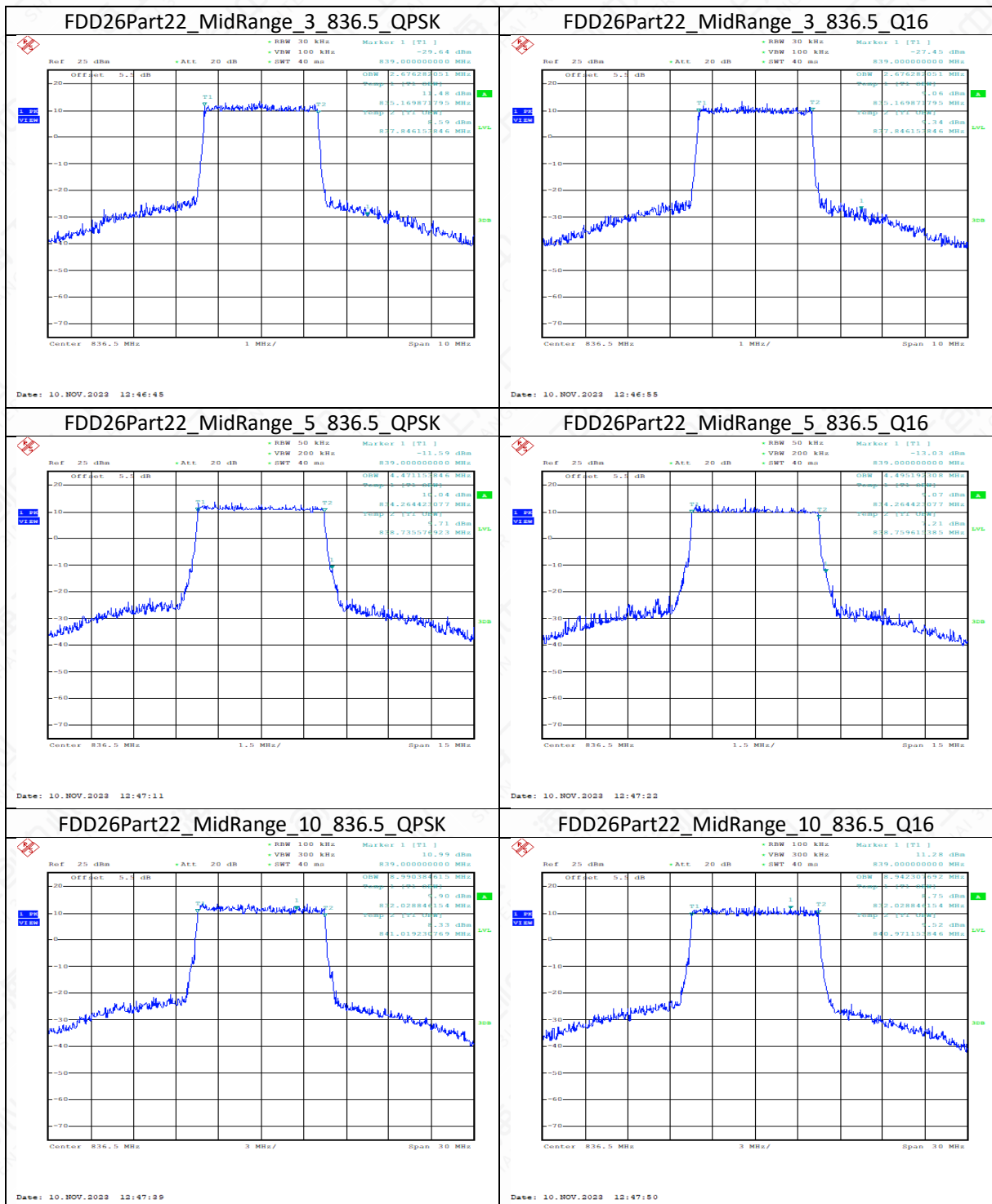


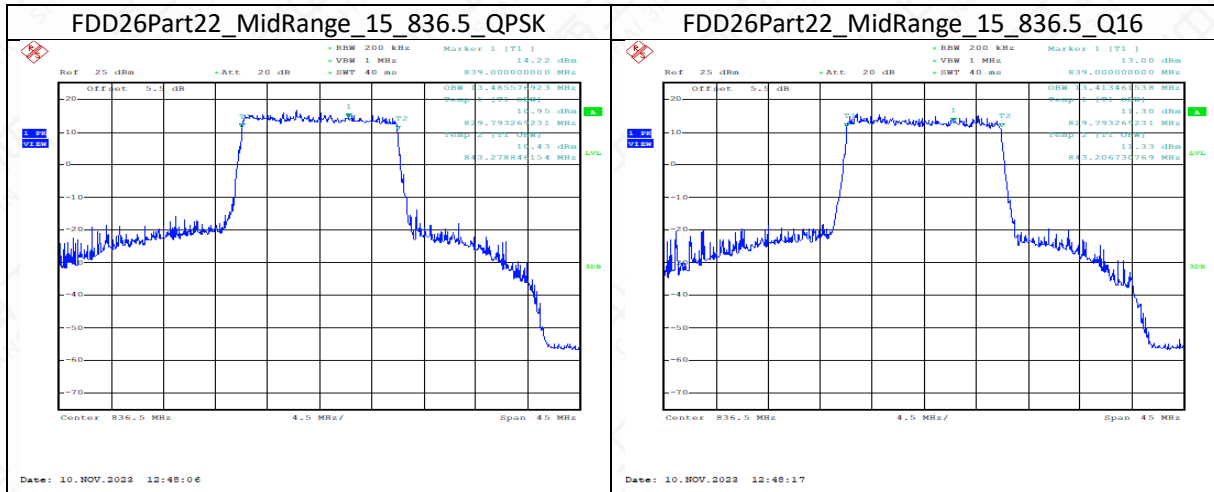




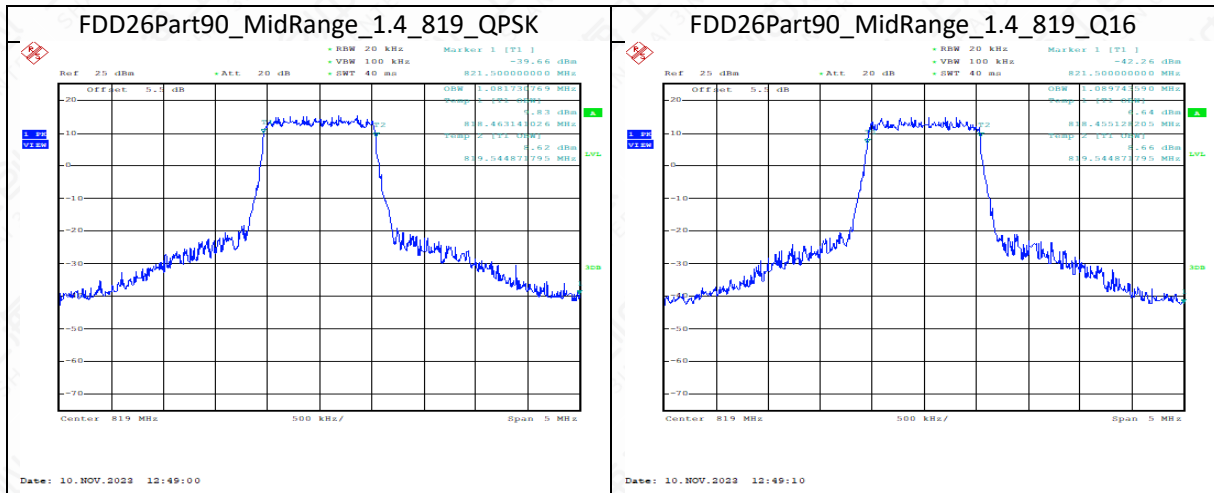
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD26Part22	MidRange	1.4	836.5	1.09	1.09
FDD26Part22	MidRange	3	836.5	2.68	2.68
FDD26Part22	MidRange	5	836.5	4.47	4.50
FDD26Part22	MidRange	10	836.5	8.99	8.94
FDD26Part22	MidRange	15	836.5	13.49	13.41

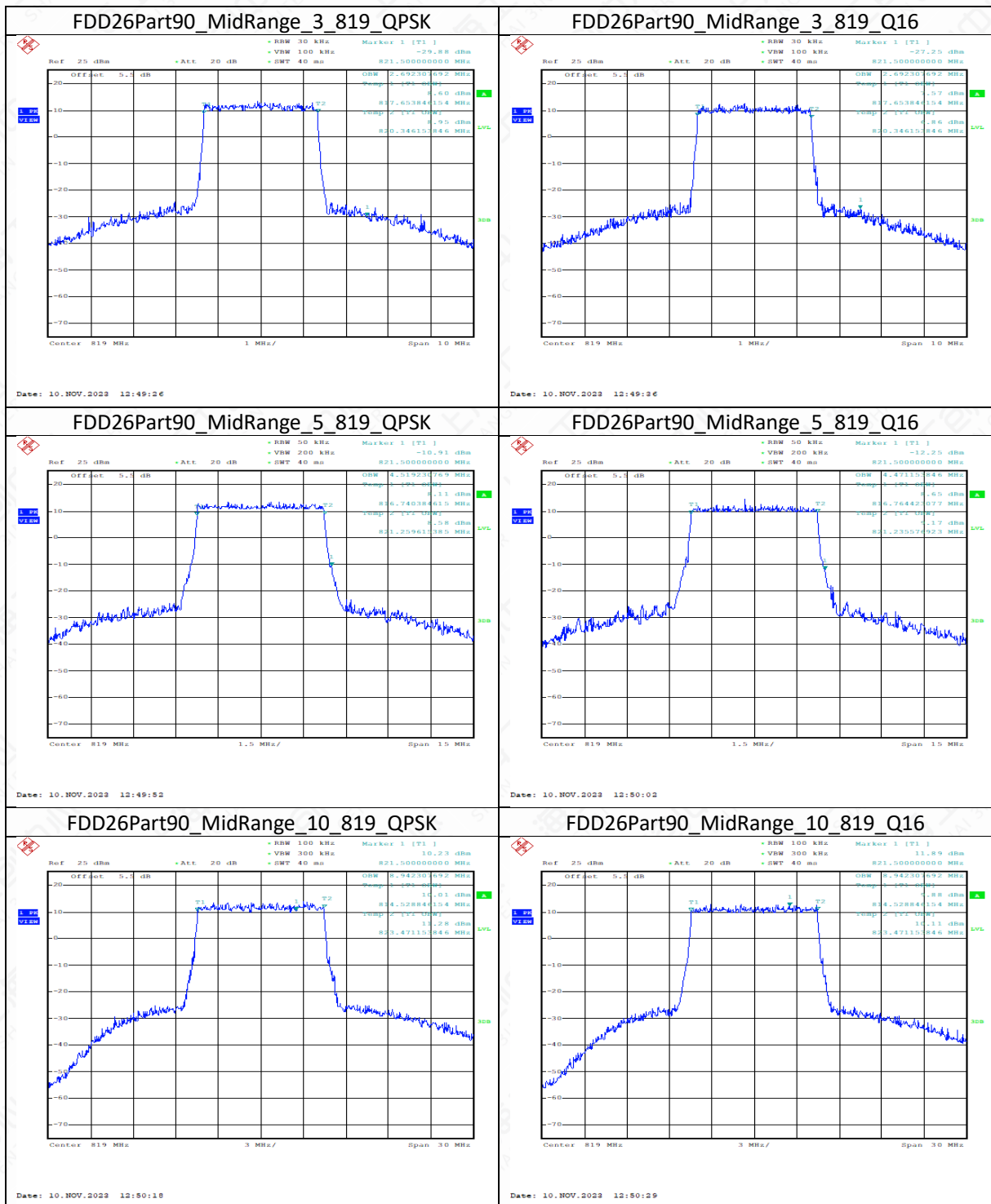




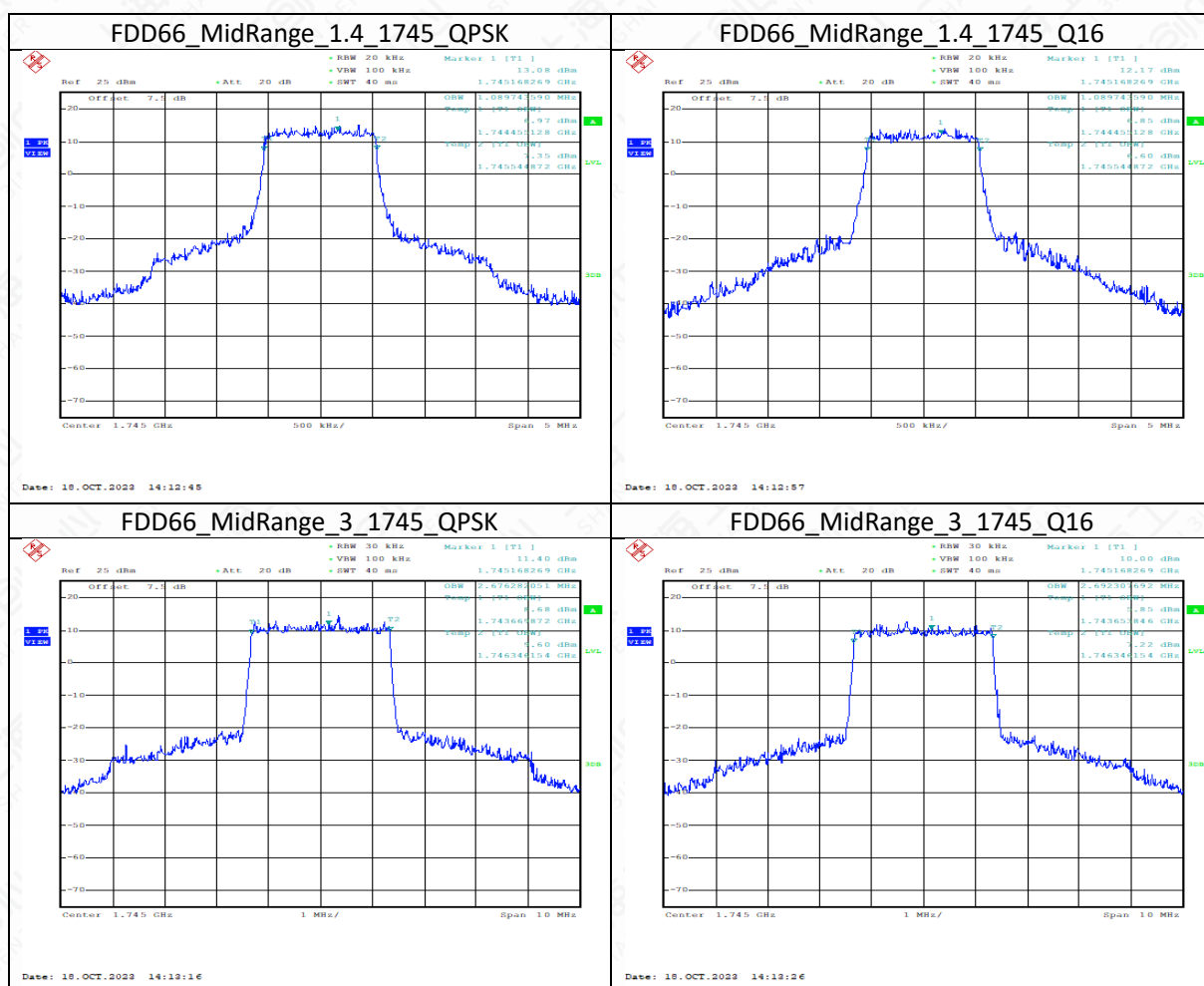


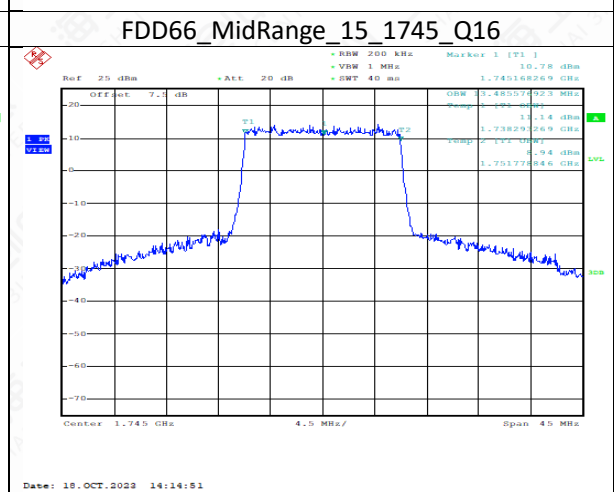
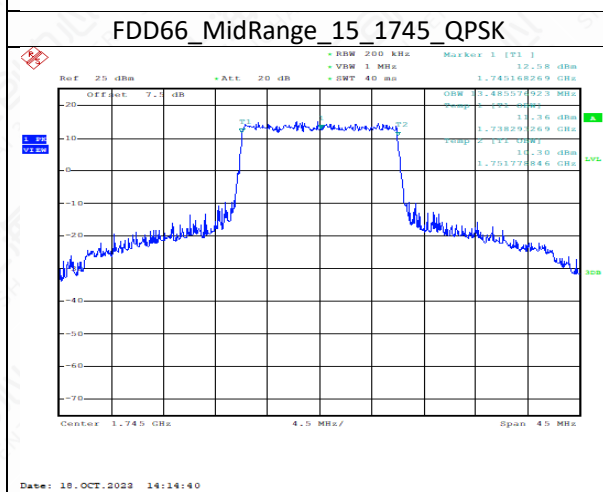
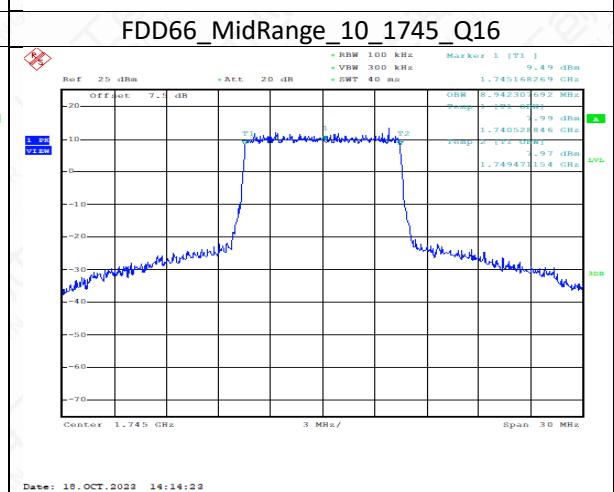
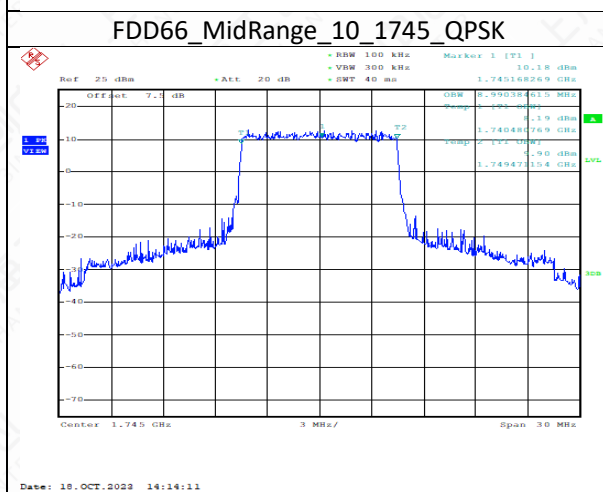
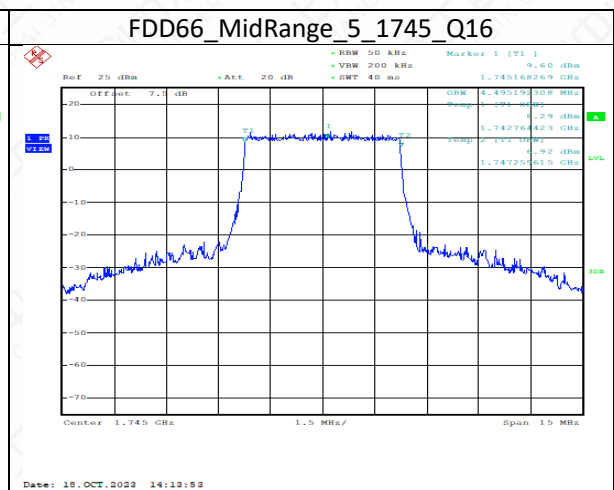
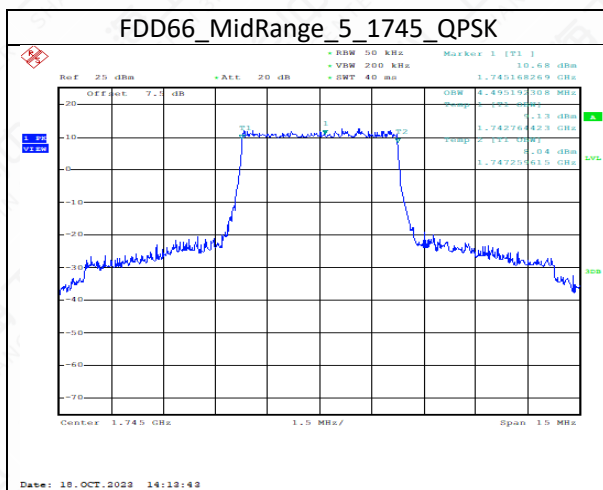
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD26Part90	MidRange	1.4	819	1.08	1.09
FDD26Part90	MidRange	3	819	2.69	2.69
FDD26Part90	MidRange	5	819	4.52	4.47
FDD26Part90	MidRange	10	819	8.94	8.94

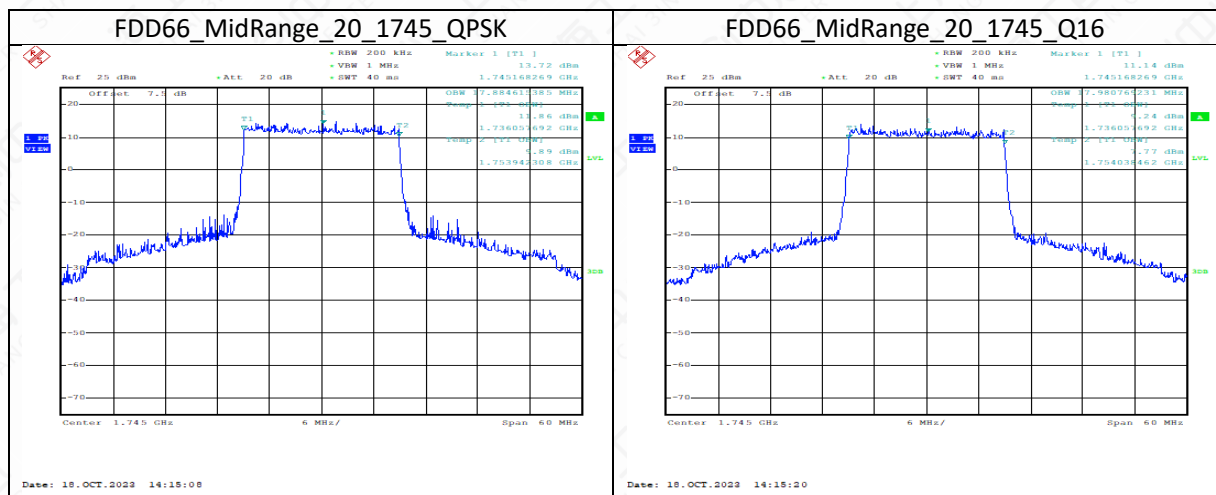




Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD66	MidRange	1.4	1745	1.09	1.09
FDD66	MidRange	3	1745	2.68	2.69
FDD66	MidRange	5	1745	4.50	4.50
FDD66	MidRange	10	1745	8.99	8.94
FDD66	MidRange	15	1745	13.49	13.49
FDD66	MidRange	20	1745	17.89	17.98







6.5 Emission Bandwidth

Reference

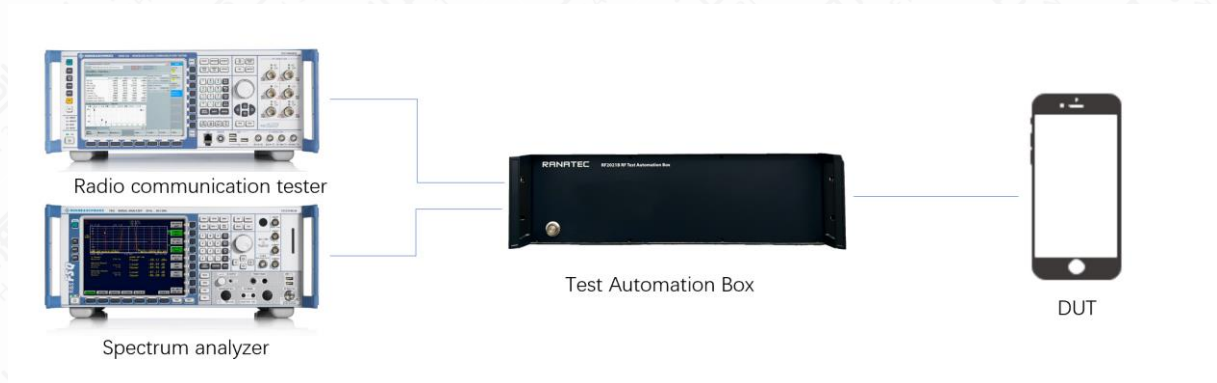
CFR Part 2.1049/22.917/24.238(a)/27.53(g)/27.53(h)/ 90.209 (b)

RSS-Gen: 6.7

6.5.1 Method of Measurement

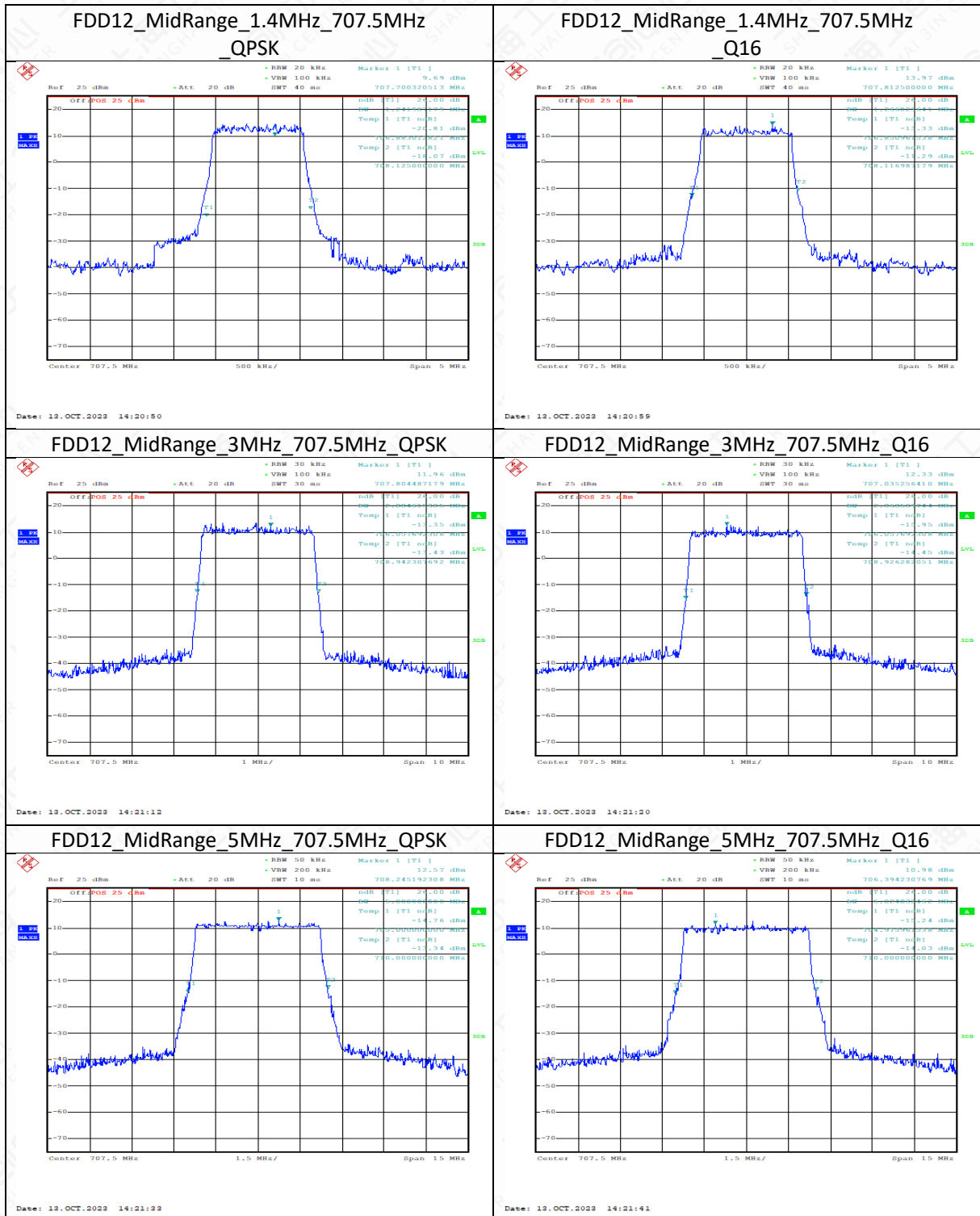
The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the followingag pages.

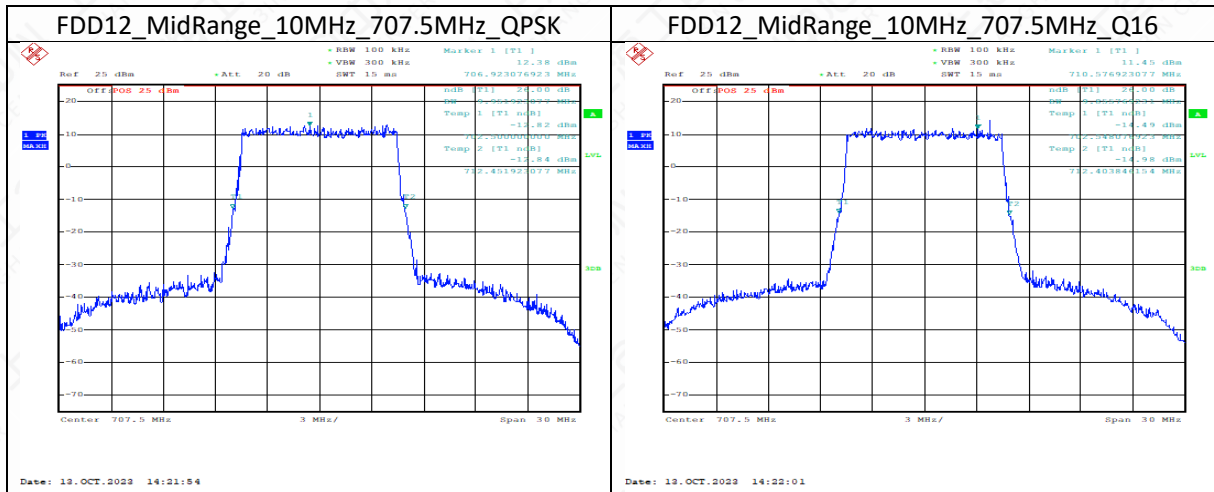
6.5.2 Test Setup



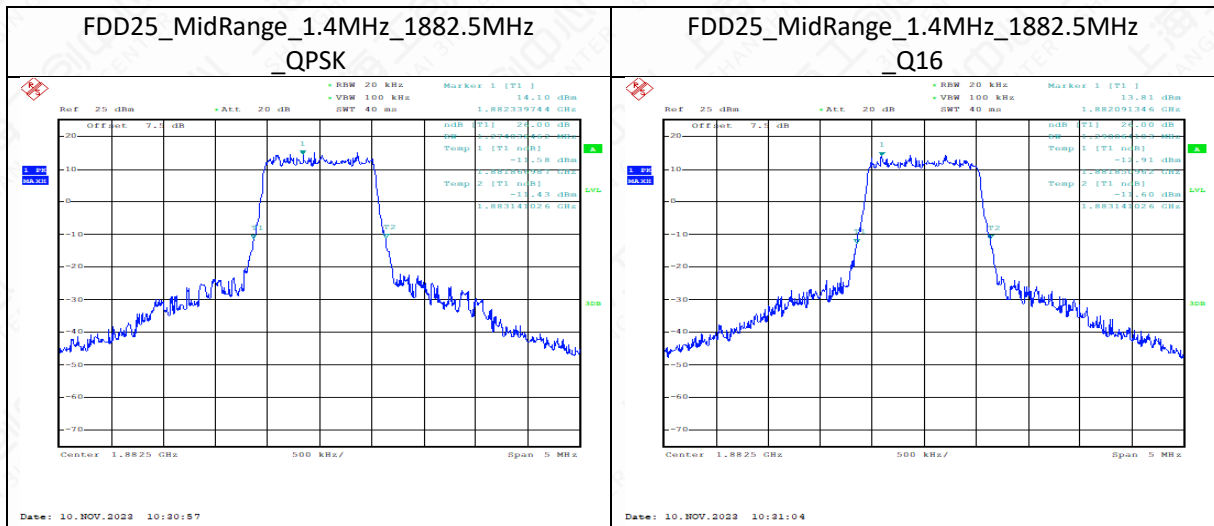
6.5.3 Measurement results

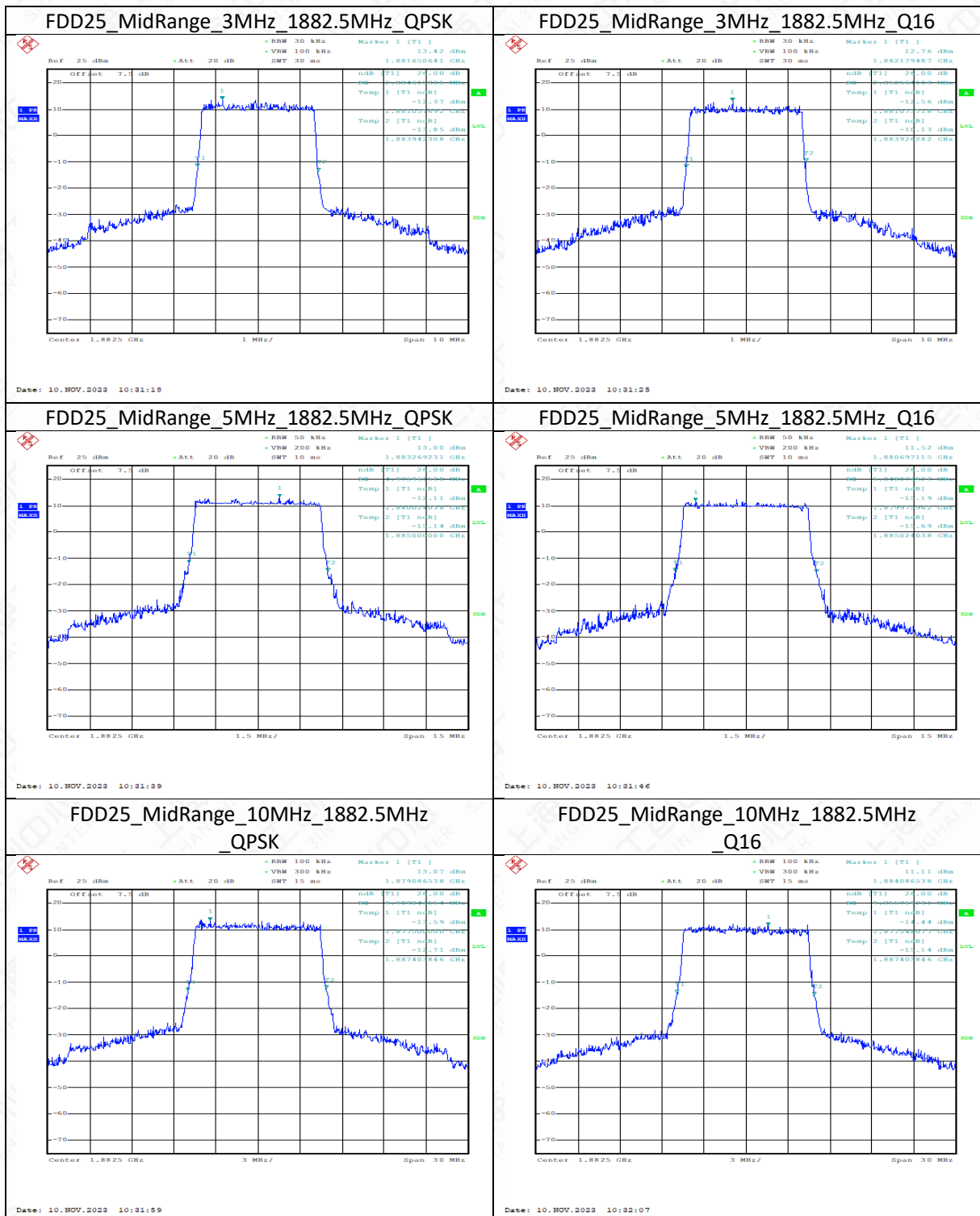
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD12	MidRange	1.4	707.5	1.27	1.27
FDD12	MidRange	3	707.5	2.88	2.87
FDD12	MidRange	5	707.5	5.00	5.02
FDD12	MidRange	10	707.5	9.90	9.86

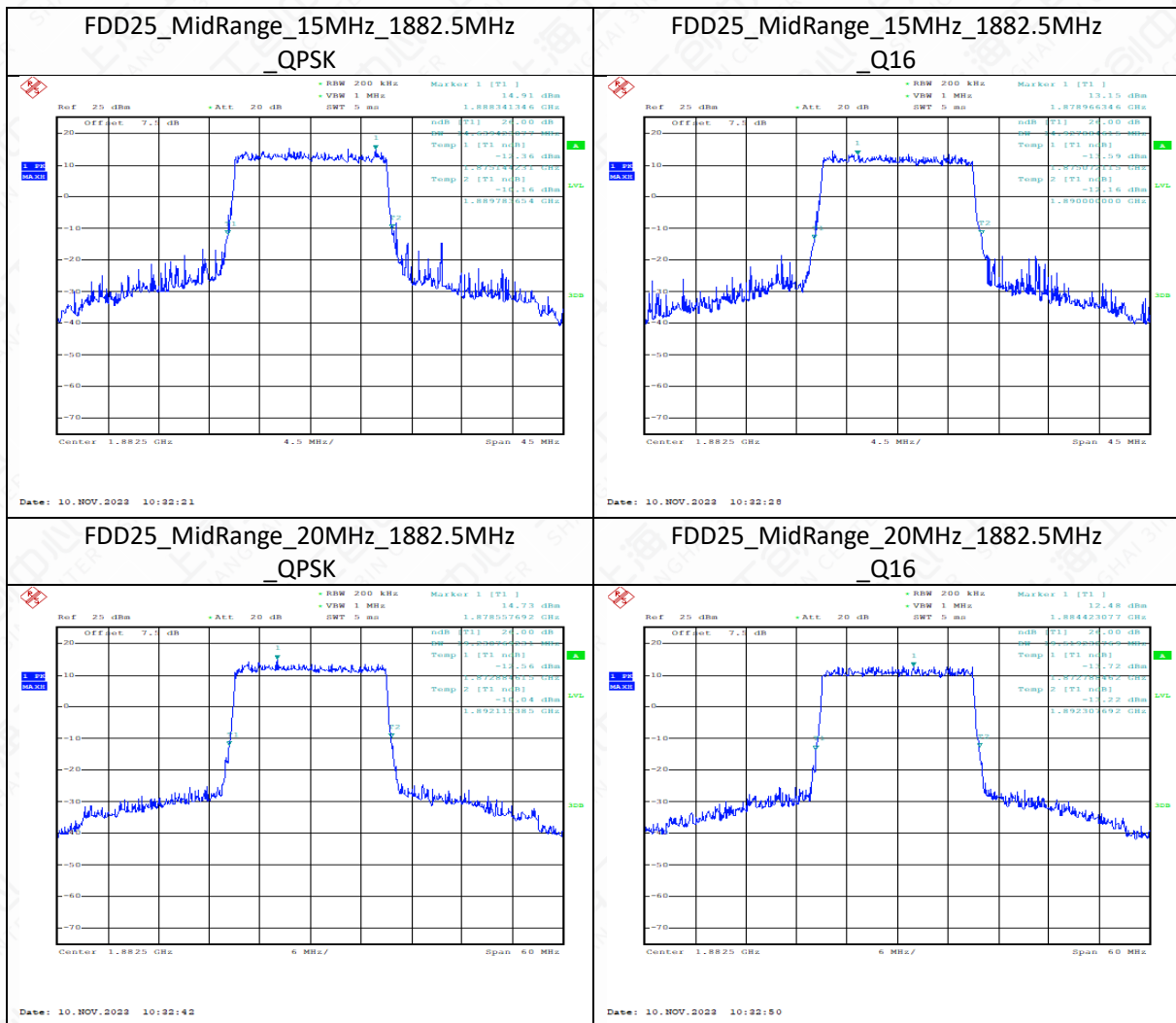




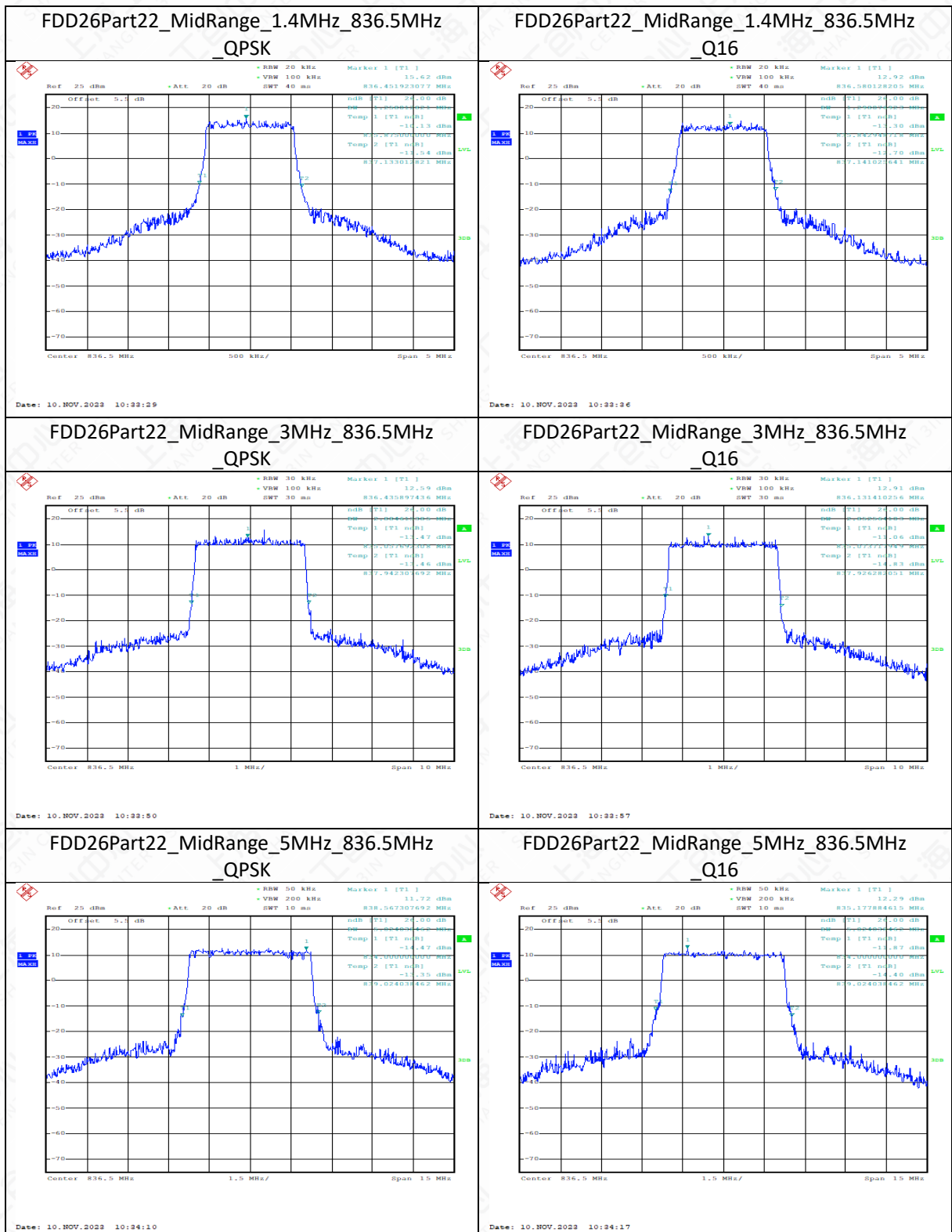
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD25	MidRange	1.4	1882.5	1.27	1.28
FDD25	MidRange	3	1882.5	2.88	2.85
FDD25	MidRange	5	1882.5	4.98	5.02
FDD25	MidRange	10	1882.5	9.90	9.86
FDD25	MidRange	15	1882.5	14.64	14.86
FDD25	MidRange	20	1882.5	19.23	19.42

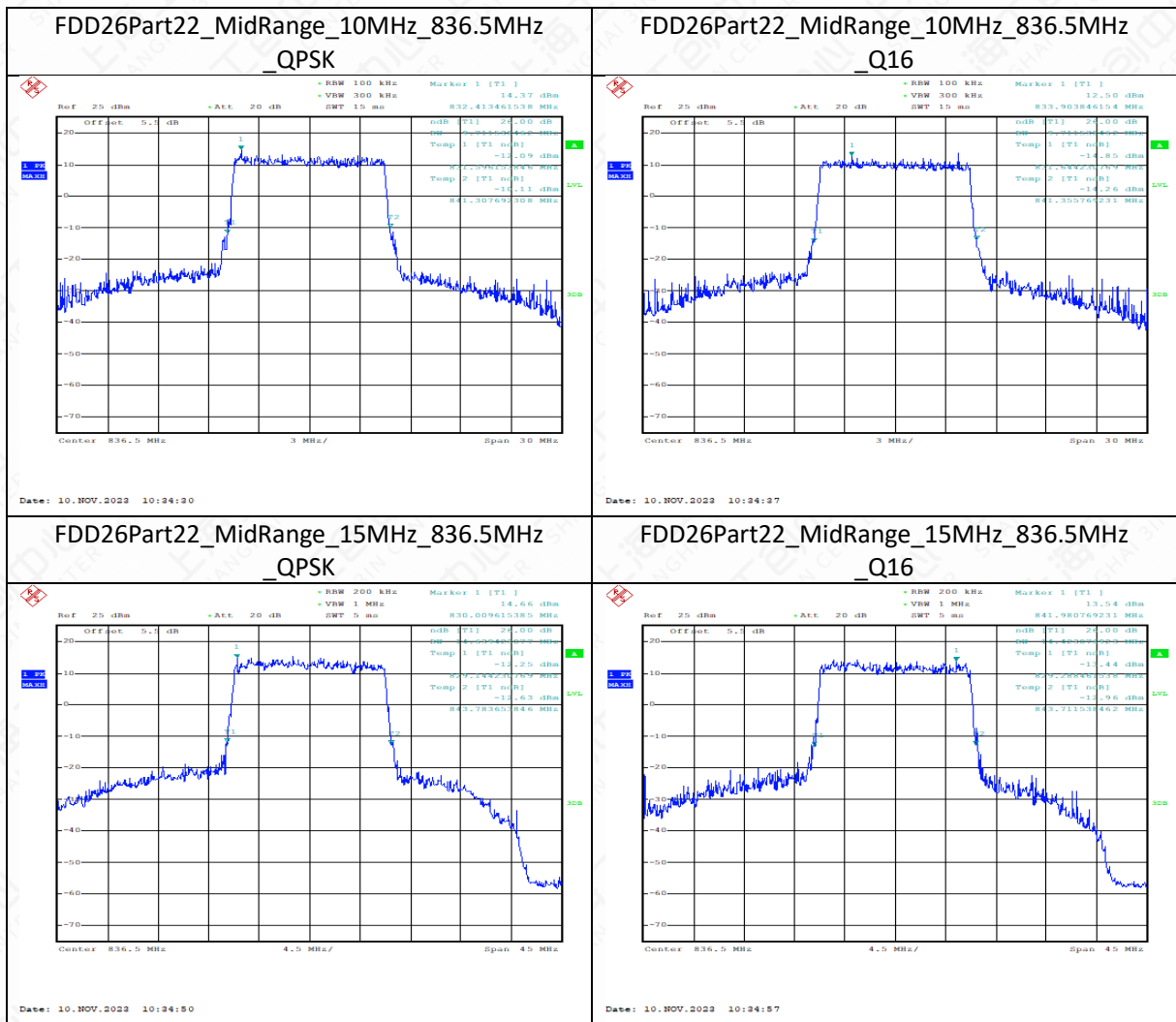




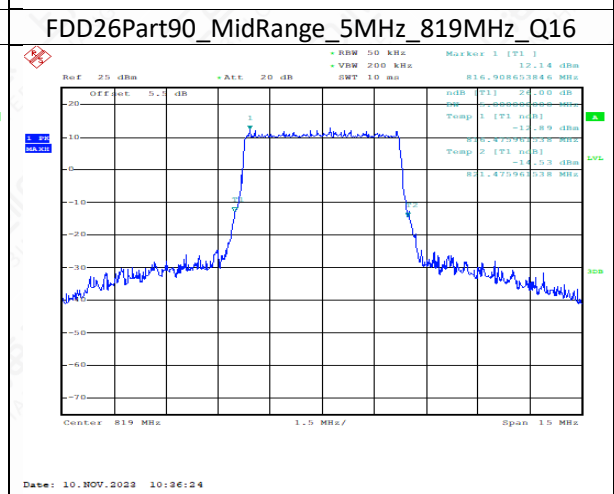
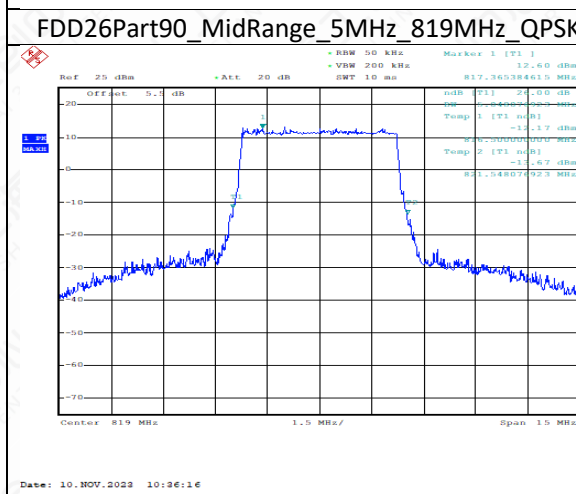
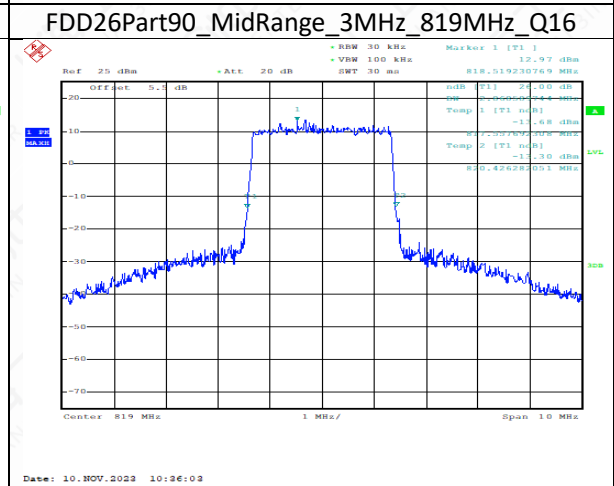
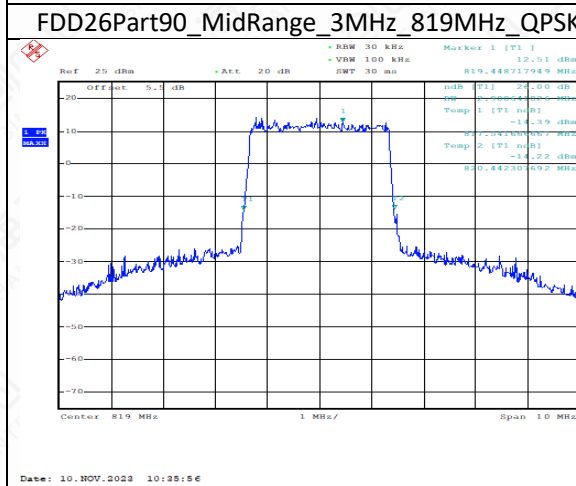
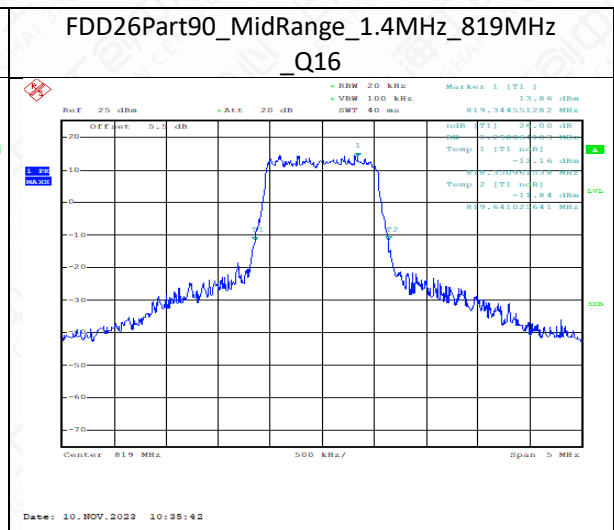
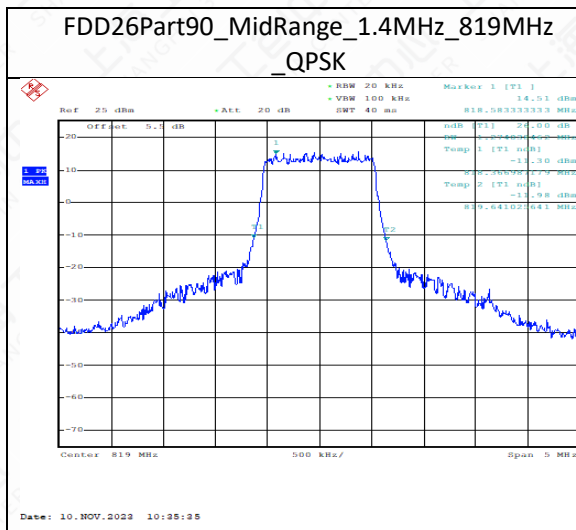


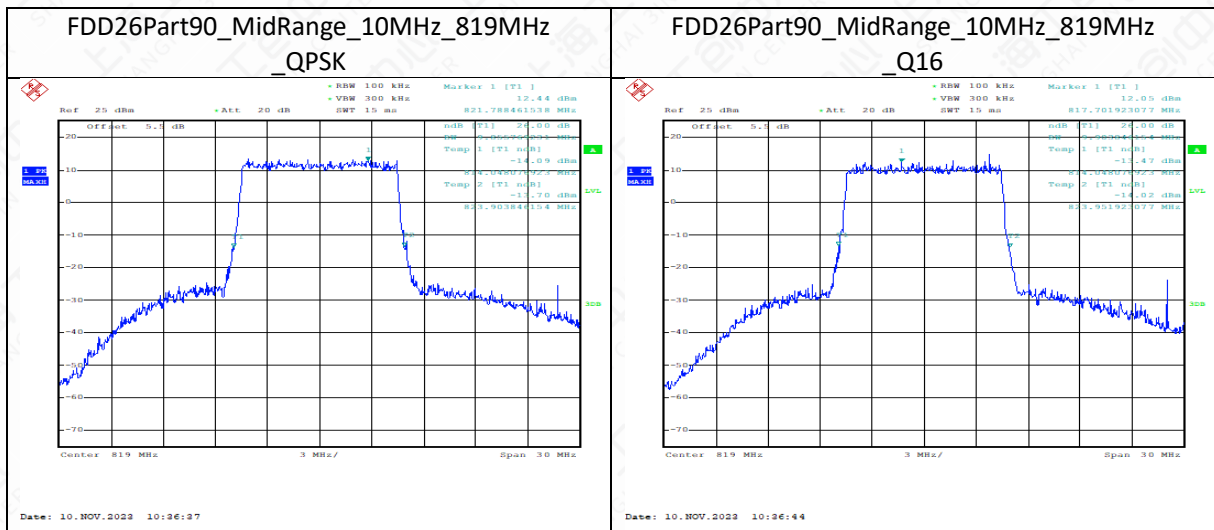
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD26Part22	MidRange	1.4	836.5	1.26	1.30
FDD26Part22	MidRange	3	836.5	2.87	2.85
FDD26Part22	MidRange	5	836.5	5.02	5.02
FDD26Part22	MidRange	10	836.5	9.71	9.71
FDD26Part22	MidRange	15	836.5	14.64	14.42



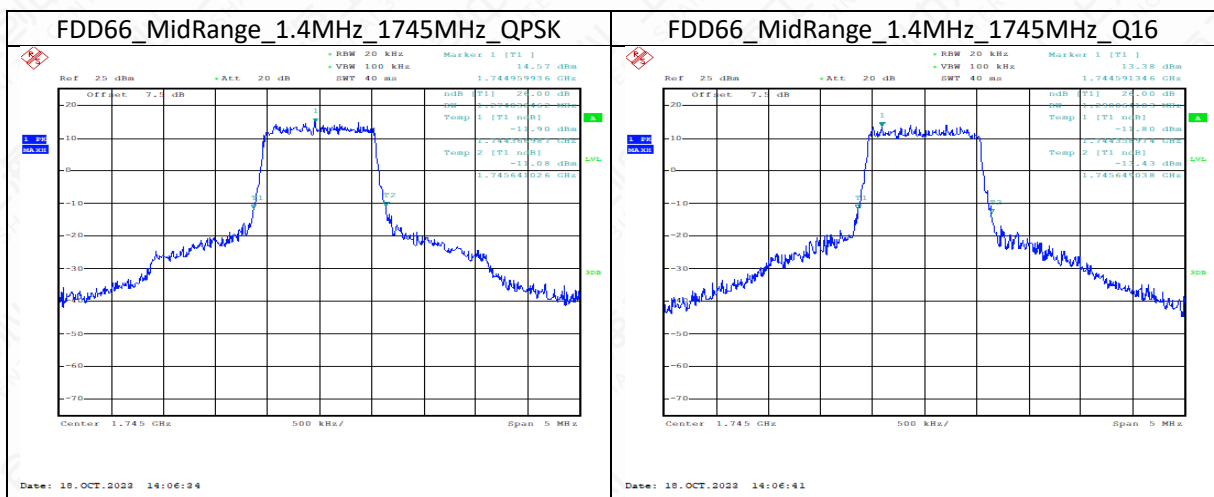


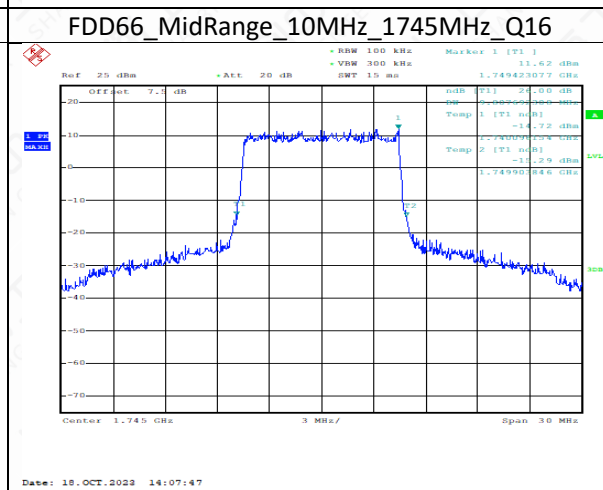
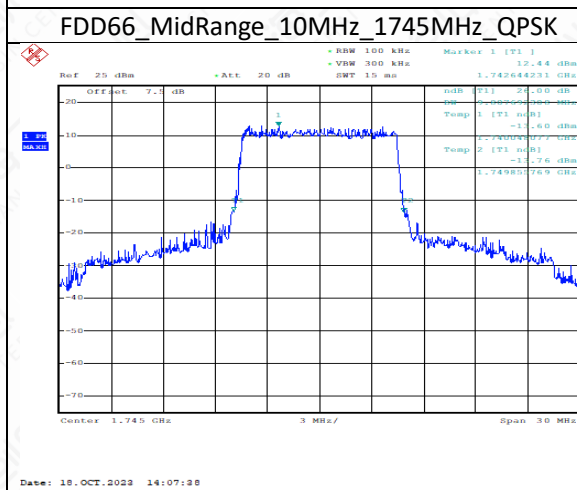
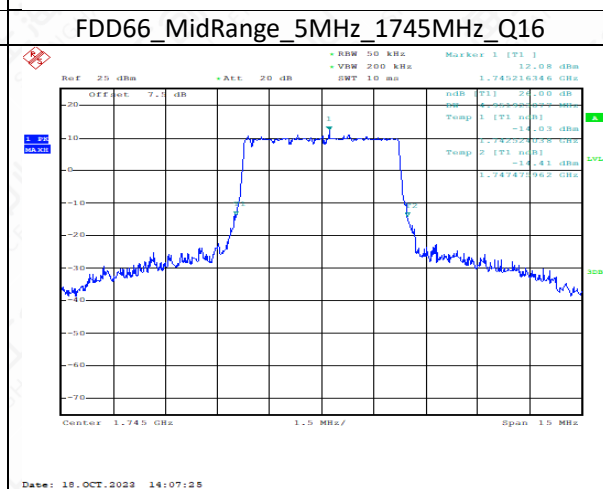
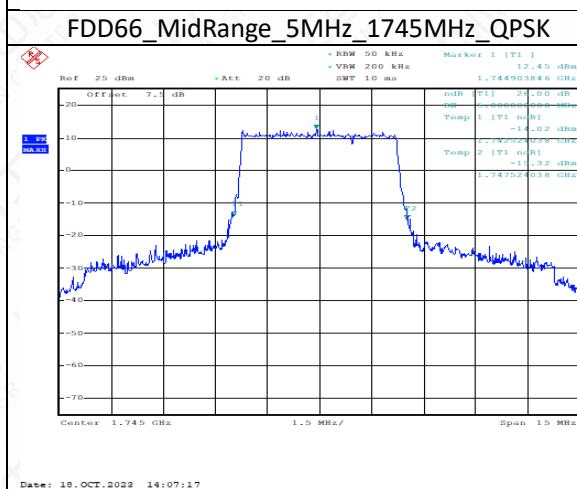
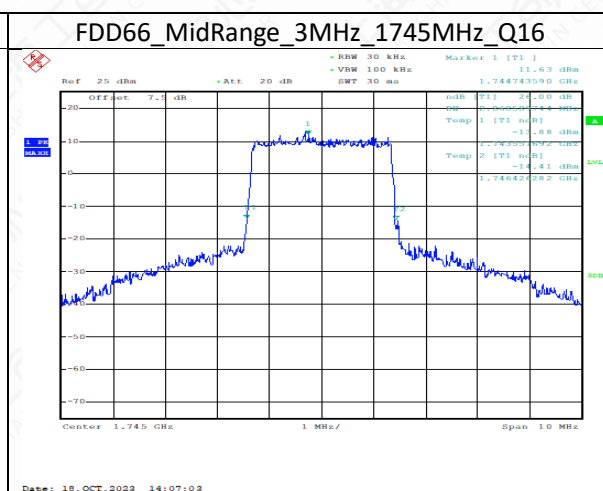
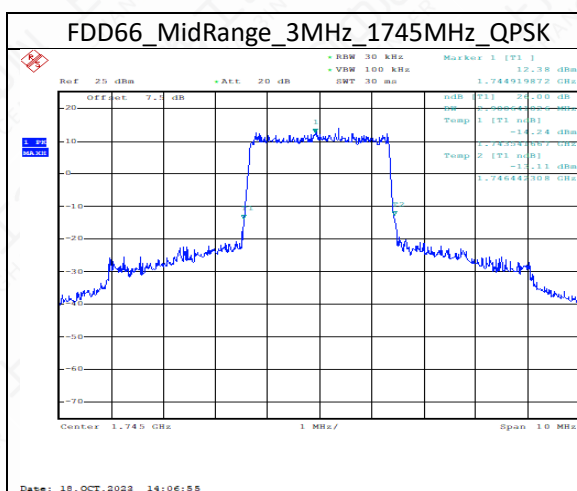
Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD26Part90	MidRange	1.4	819	1.27	1.29
FDD26Part90	MidRange	3	819	2.90	2.87
FDD26Part90	MidRange	5	819	5.05	5.00
FDD26Part90	MidRange	10	819	9.81	9.86

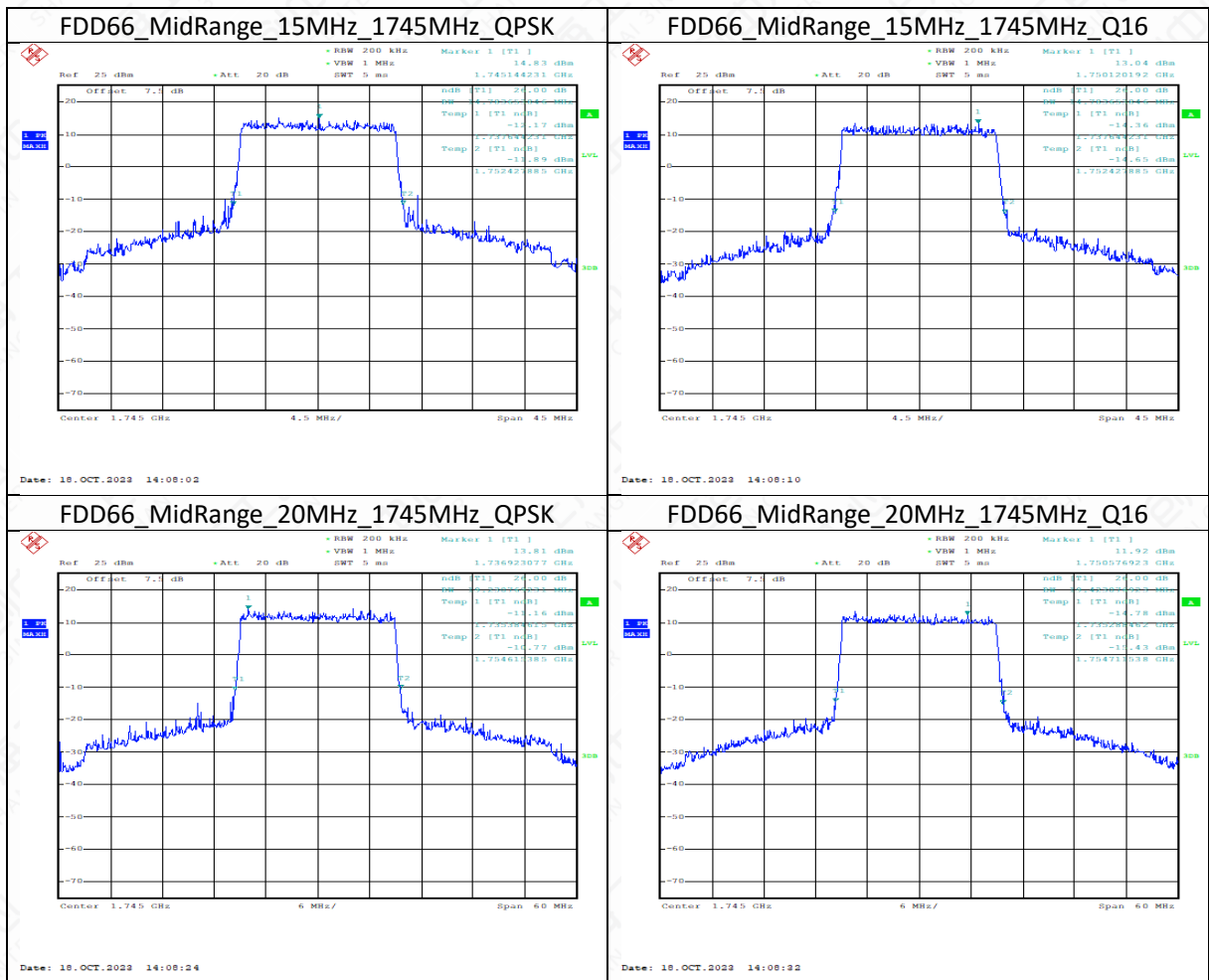




Band	Range	BandWidth	Frequency(MHz)	QPSK(MHz)	Q16(MHz)
FDD66	MidRange	1.4	1745	1.27	1.29
FDD66	MidRange	3	1745	2.90	2.87
FDD66	MidRange	5	1745	5.00	4.95
FDD66	MidRange	10	1745	9.86	9.81
FDD66	MidRange	15	1745	14.71	14.78
FDD66	MidRange	20	1745	19.23	19.42







6.6 Band Edge Compliance

Reference

CFR Part 27.53(g)/22.917/24.238(a)/27.53(h)/90.669

RSS-130 4.7/RSS-133 6.5/RSS-139 5.6

6.6.1 Summary

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

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

27.53(g) For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB.

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53(h) (1) General protection levels. Except as otherwise specified below, for operations in the 1710–1755 MHz, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

90.669 (a) On any frequency in an MTA licensee's spectrum block that is adjacent to a non-MTA frequency, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 plus $10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation.

RSS-130 4.7 The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

RSS-133 6.5 Equipment shall comply with the limits in (i) and (ii) below.

In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).

After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139 5.6 The limit is -13 dBm/(1% of OB*) when the edge offset from the block or group of blocks is 1MHz, and -13 dBm/MHz when the edge offset is greater than 1MHz.

RSS-139 5.6 The limit is -13 dBm/(1% of OB*) when the edge offset from the block or group of blocks is 1MHz, and -13 dBm/MHz when the edge offset is greater than 1MHz.

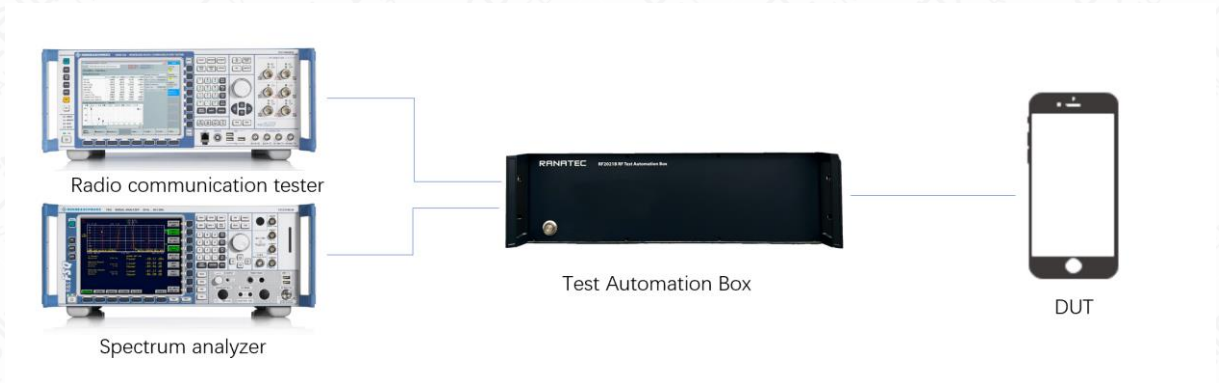
6.6.2 Method of Measurement

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

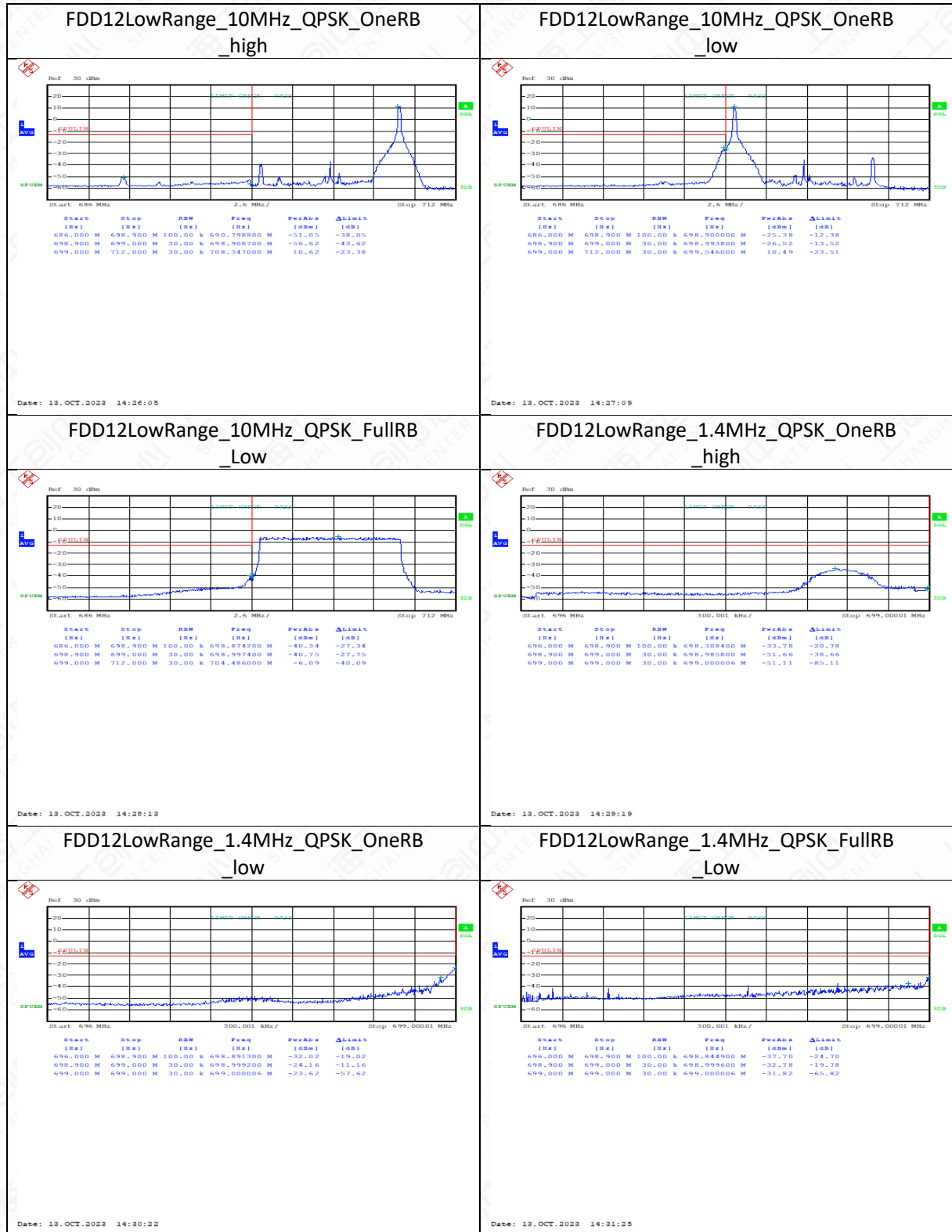
The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser. the other end of which was connected to a Base Station Simulator, The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel). in the 1MHz bands immediately outside and adjacent to

the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to rms.

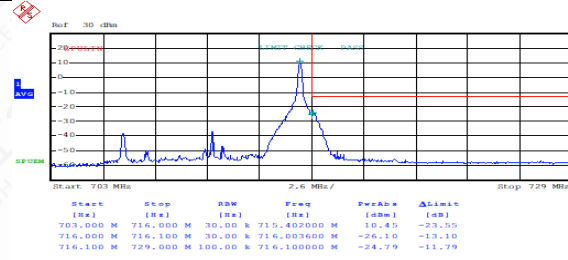
6.6.3 Test Setup



6.6.4 Measurement result

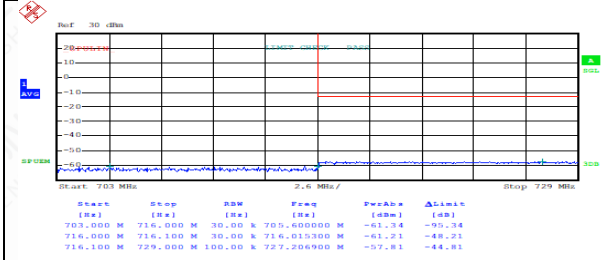


FDD12HighRange_10MHz_QPSK_OneRB
_high



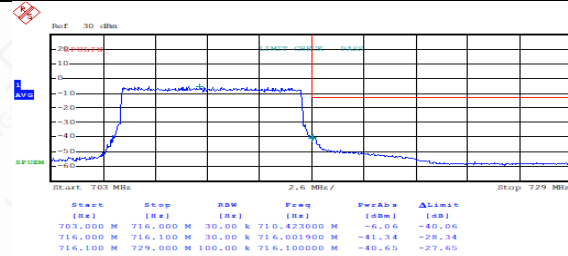
Date: 12.OCT.2022 14:32:29

FDD12HighRange_10MHz_QPSK_OneRB
_low



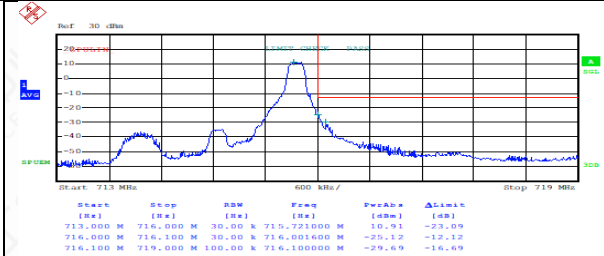
Date: 12.OCT.2022 14:32:32

FDD12HighRange_10MHz_QPSK_FullRB
_high



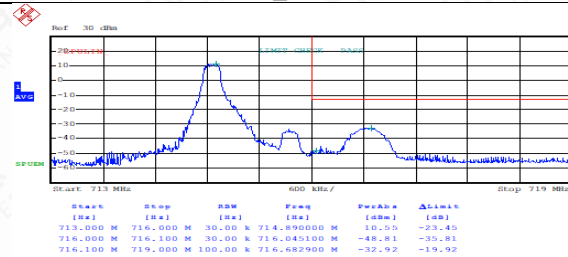
Date: 12.OCT.2022 14:35:54

FDD12HighRange_1.4MHz_QPSK_OneRB
_high



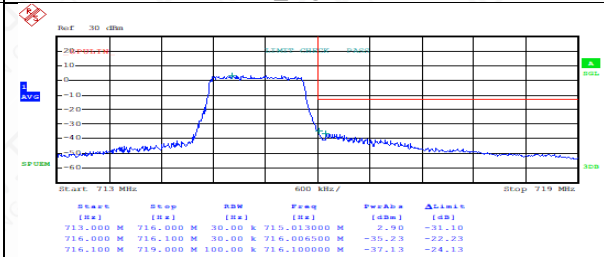
Date: 12.OCT.2022 14:36:50

FDD12HighRange_1.4MHz_QPSK_OneRB
_low



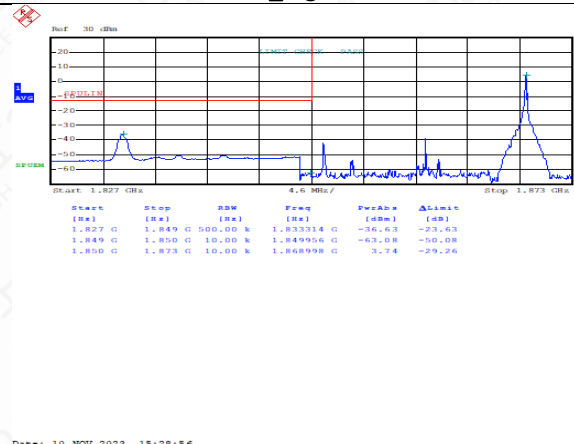
Date: 12.OCT.2022 14:39:02

FDD12HighRange_1.4MHz_QPSK_FullRB
_high



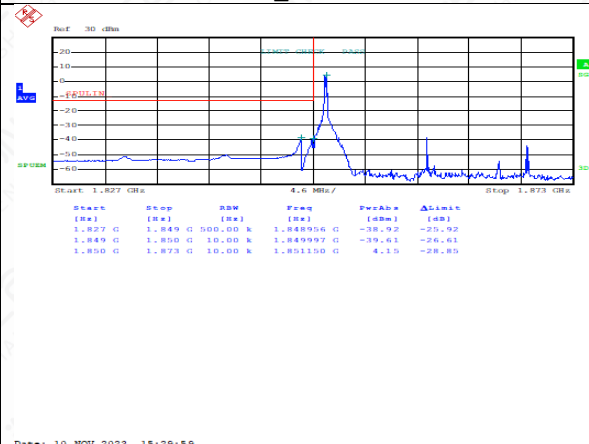
Date: 12.OCT.2022 14:39:05

FDD25LowRange_20MHz_QPSK_OneRB
_high



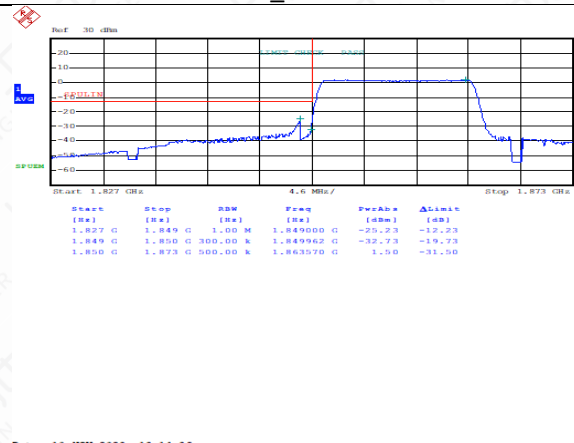
Date: 10.NOV.2023 15:28:56

FDD25LowRange_20MHz_QPSK_OneRB
_low



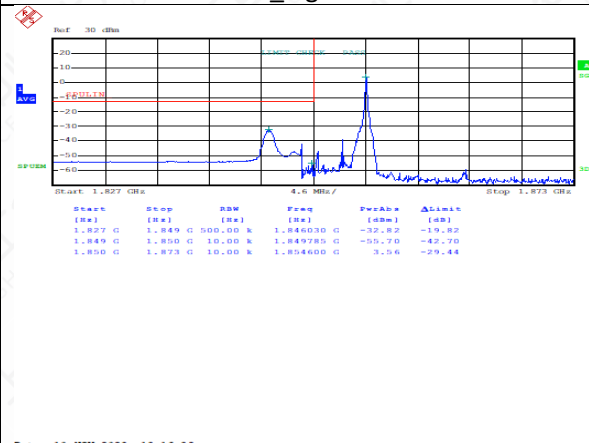
Date: 10.NOV.2023 15:29:59

FDD25LowRange_20MHz_QPSK_FullRB
_Low



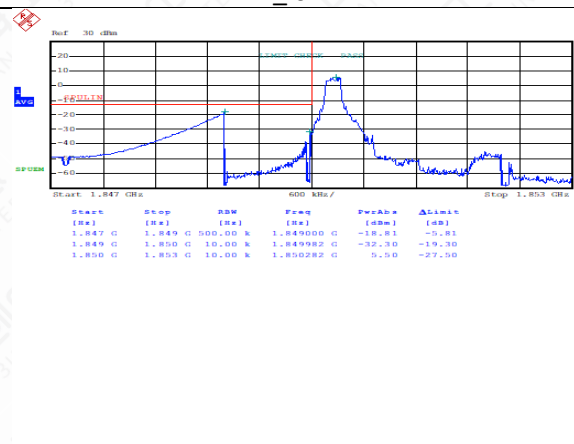
Date: 10.NOV.2023 13:14:39

FDD25LowRange_1.4MHz_QPSK_OneRB
_high



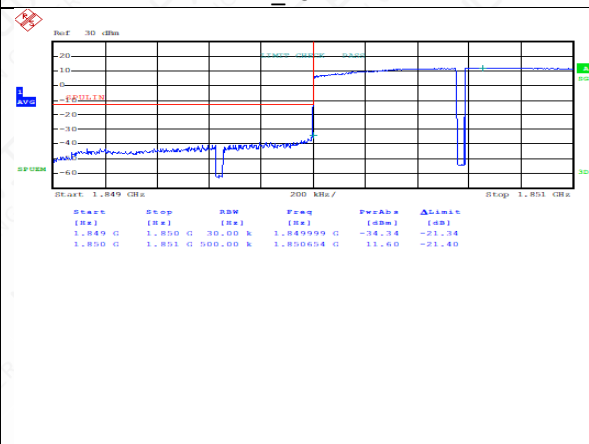
Date: 10.NOV.2023 13:16:38

FDD25LowRange_1.4MHz_QPSK_OneRB
_low

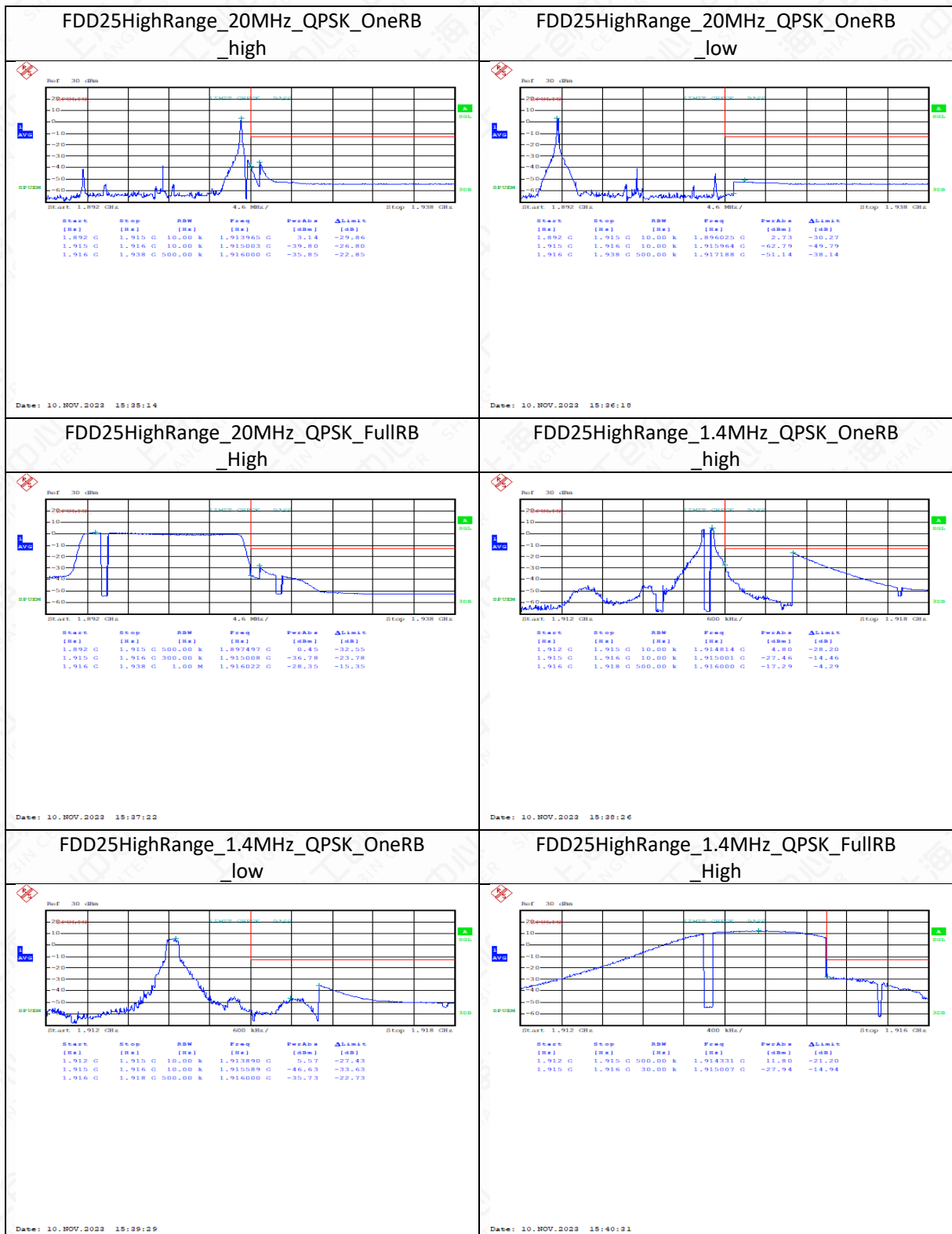


Date: 10.NOV.2023 15:33:08

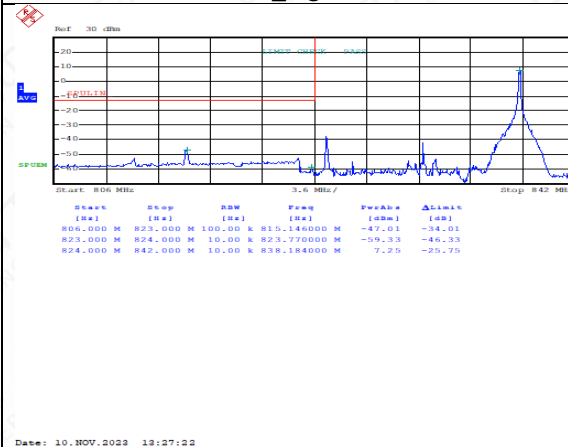
FDD25LowRange_1.4MHz_QPSK_FullRB
_Low



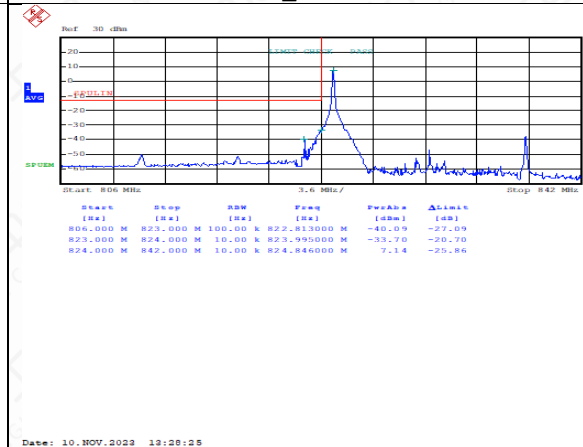
Date: 10.NOV.2023 15:34:10



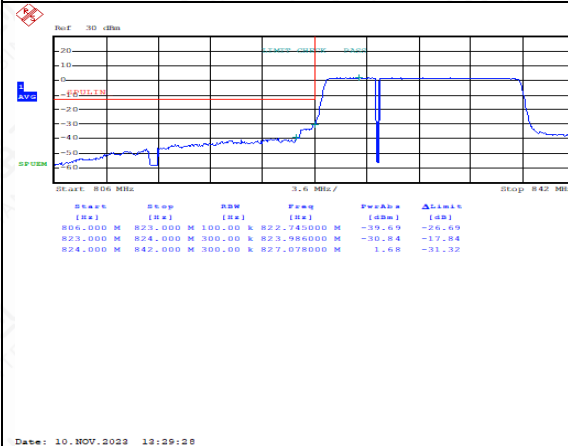
FDD26Part22LowRange_15MHz_QPSK_OneRB
_high



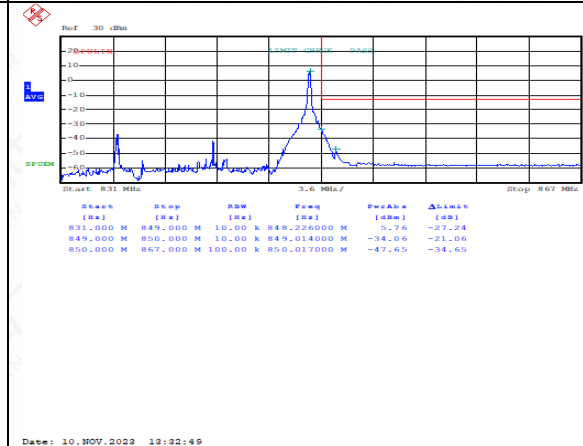
FDD26Part22LowRange_15MHz_QPSK_OneRB
_low



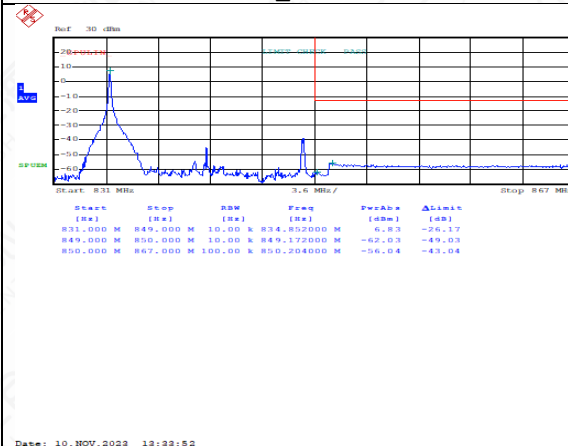
FDD26Part22LowRange_15MHz_QPSK_FullRB
_Low



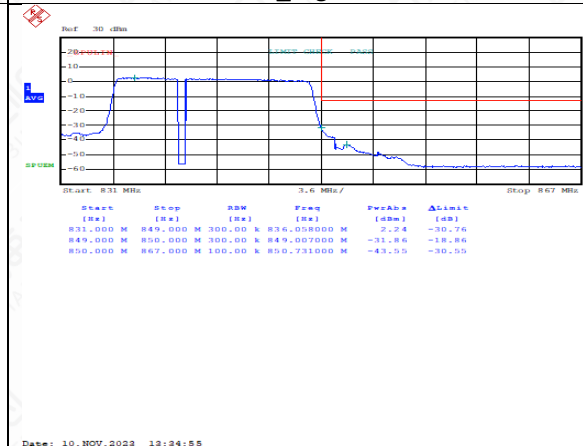
FDD26Part22HighRange_15MHz_QPSK_OneRB
_high

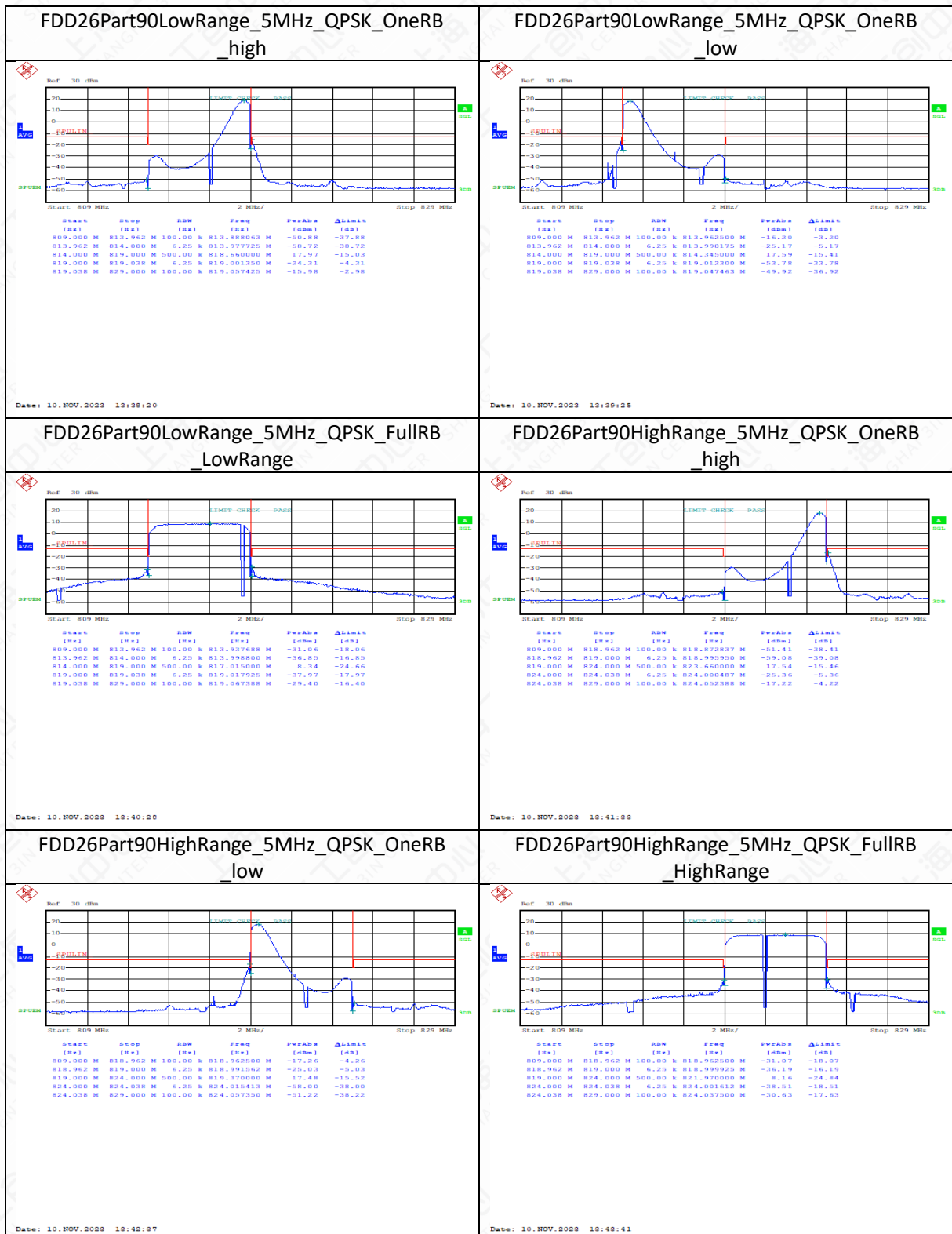


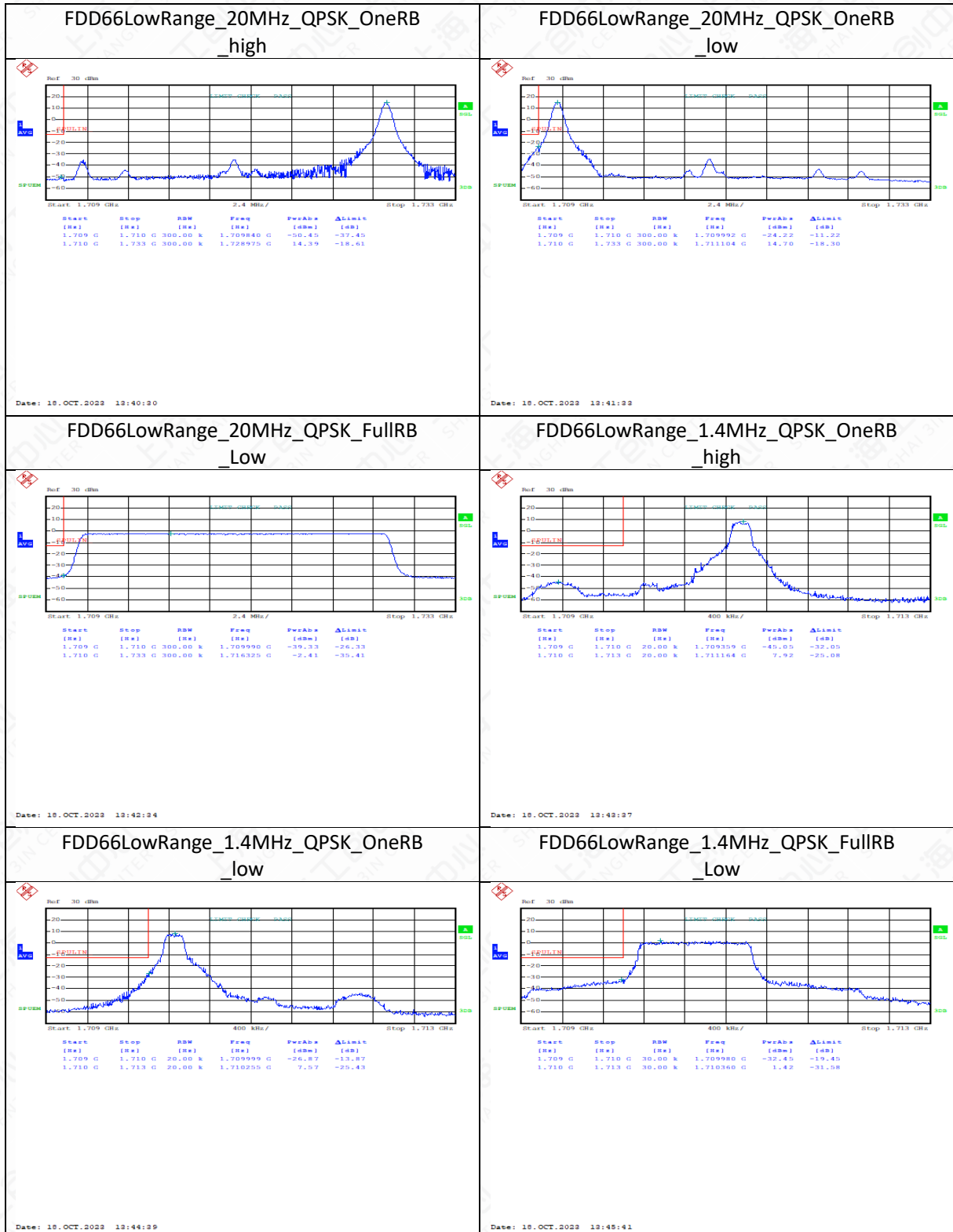
FDD26Part22HighRange_15MHz_QPSK_OneRB
_low



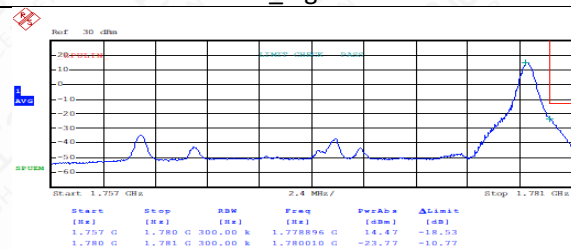
FDD26Part22HighRange_15MHz_QPSK_FullRB
_High





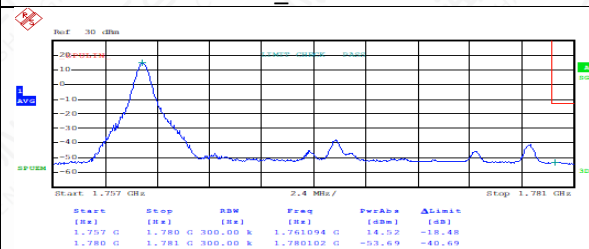


FDD66HighRange_20MHz_QPSK_OneRB
_high



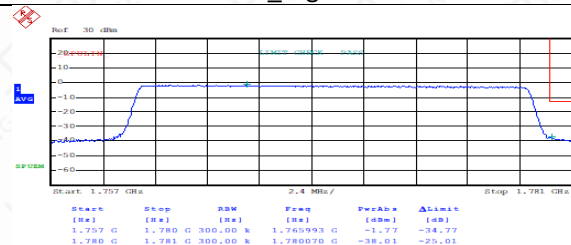
Date: 18.OCT.2023 13:46:44

FDD66HighRange_20MHz_QPSK_OneRB
_low



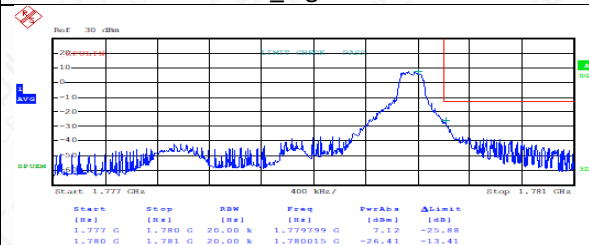
Date: 18.OCT.2023 13:47:46

FDD66HighRange_20MHz_QPSK_FullRB
_High



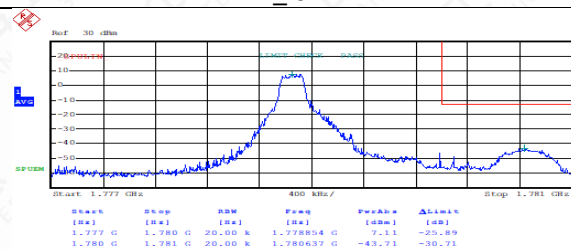
Date: 18.OCT.2023 13:48:48

FDD66HighRange_1.4MHz_QPSK_OneRB
_high



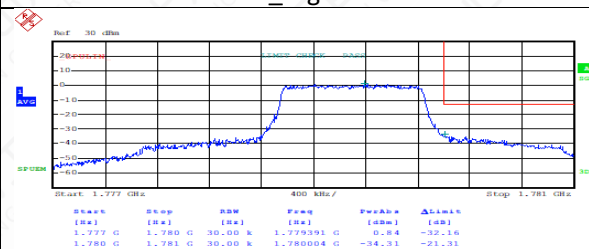
Date: 18.OCT.2023 13:49:51

FDD66HighRange_1.4MHz_QPSK_OneRB
_low



Date: 18.OCT.2023 13:50:54

FDD66HighRange_1.4MHz_QPSK_FullRB
_High



Date: 18.OCT.2023 13:51:56

6.7 Conducted Spurious Emission

Reference

FR Part 2.1057/27.53(g)/22.917/24.238(a)/27.53(h)/90.669

RSS-130 4.7/RSS-133 6.5/RSS-139 5.6

6.7.1 Summary

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

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

27.53(g) For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB.

Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53(h) (1) General protection levels. Except as otherwise specified below, for operations in the 1710–1755 MHz, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB.

90.669 (a) On any frequency in an MTA licensee's spectrum block that is adjacent to a non-MTA frequency, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 plus $10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation.

RSS-130 4.7 The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} P$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

RSS-133 6.5 Equipment shall comply with the limits in (i) and (ii) below.

In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} P$ (watts).

After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} P$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS-139 5.6 The limit is -13 dBm/(1% of OB*) when the edge offset from the block or group of blocks is 1MHz, and -13 dBm/MHz when the edge offset is greater than 1MHz.

6.7.2 Method of Measurement

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the mobile station equipment tested, this equates to a frequency range of 13 MHz to 9 GHz, data taken from 10 MHz to 25 GHz.

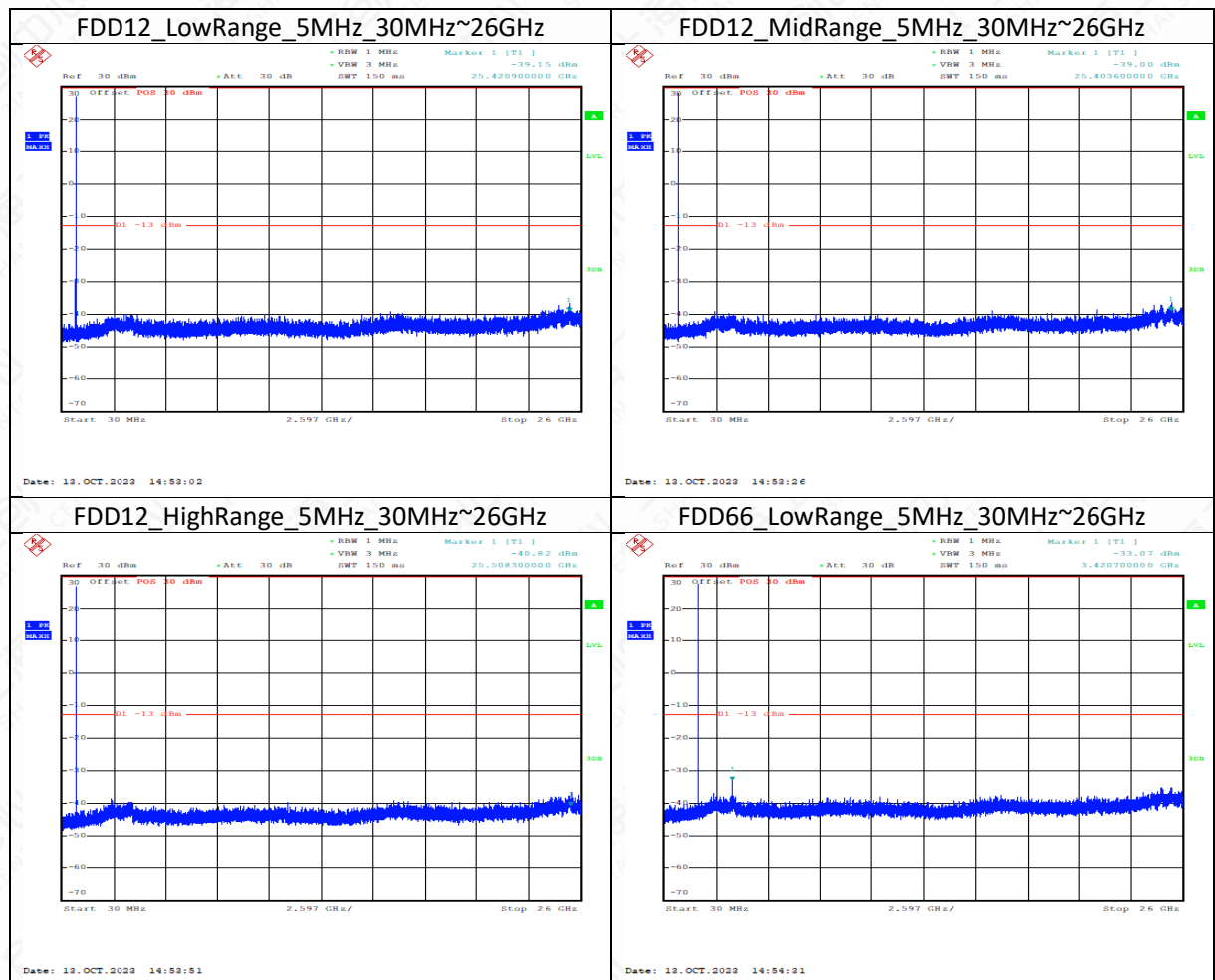
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

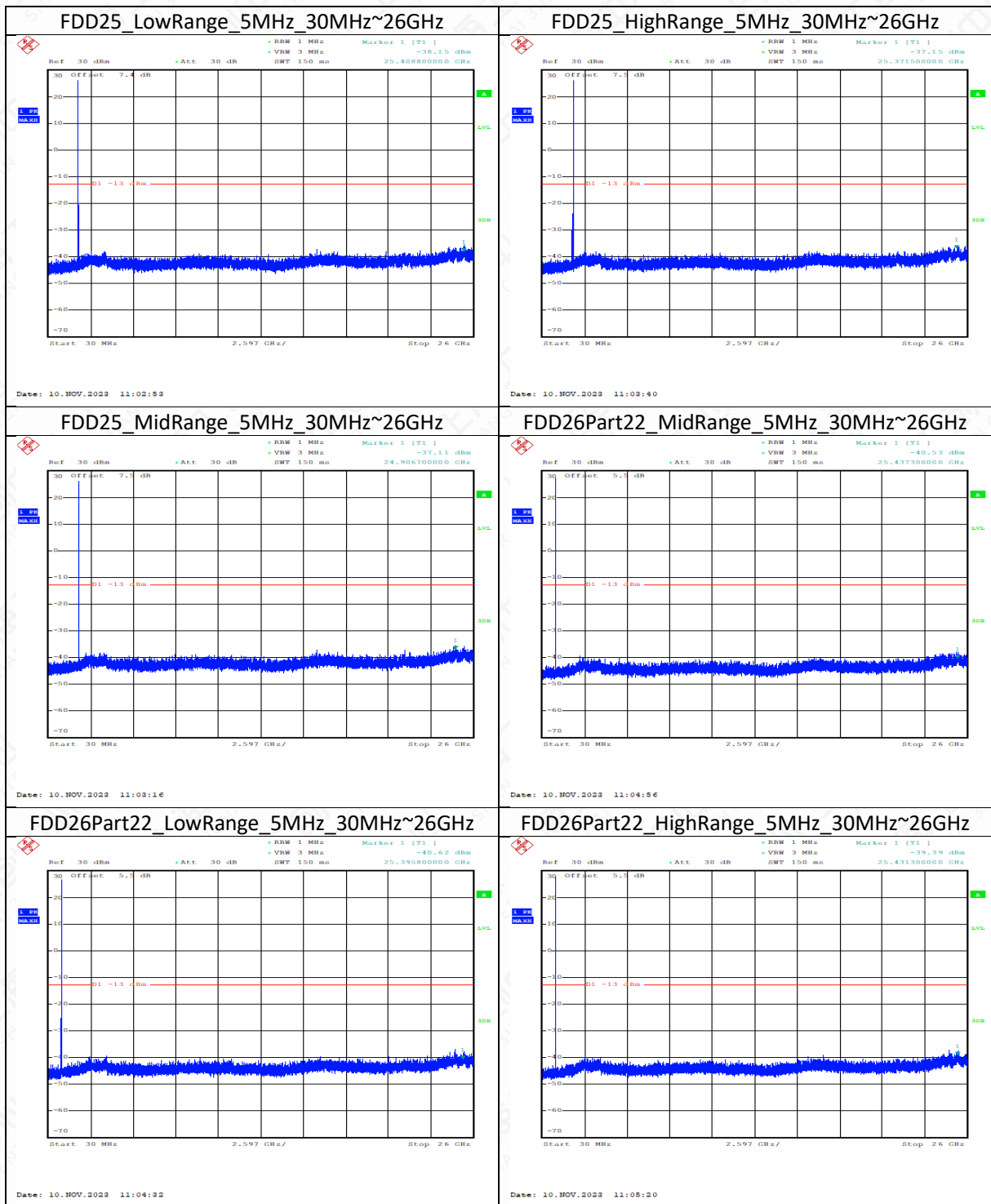
3.The number of sweep points of spectrum analyzer is set to 30001 which is greater than span/RBW.

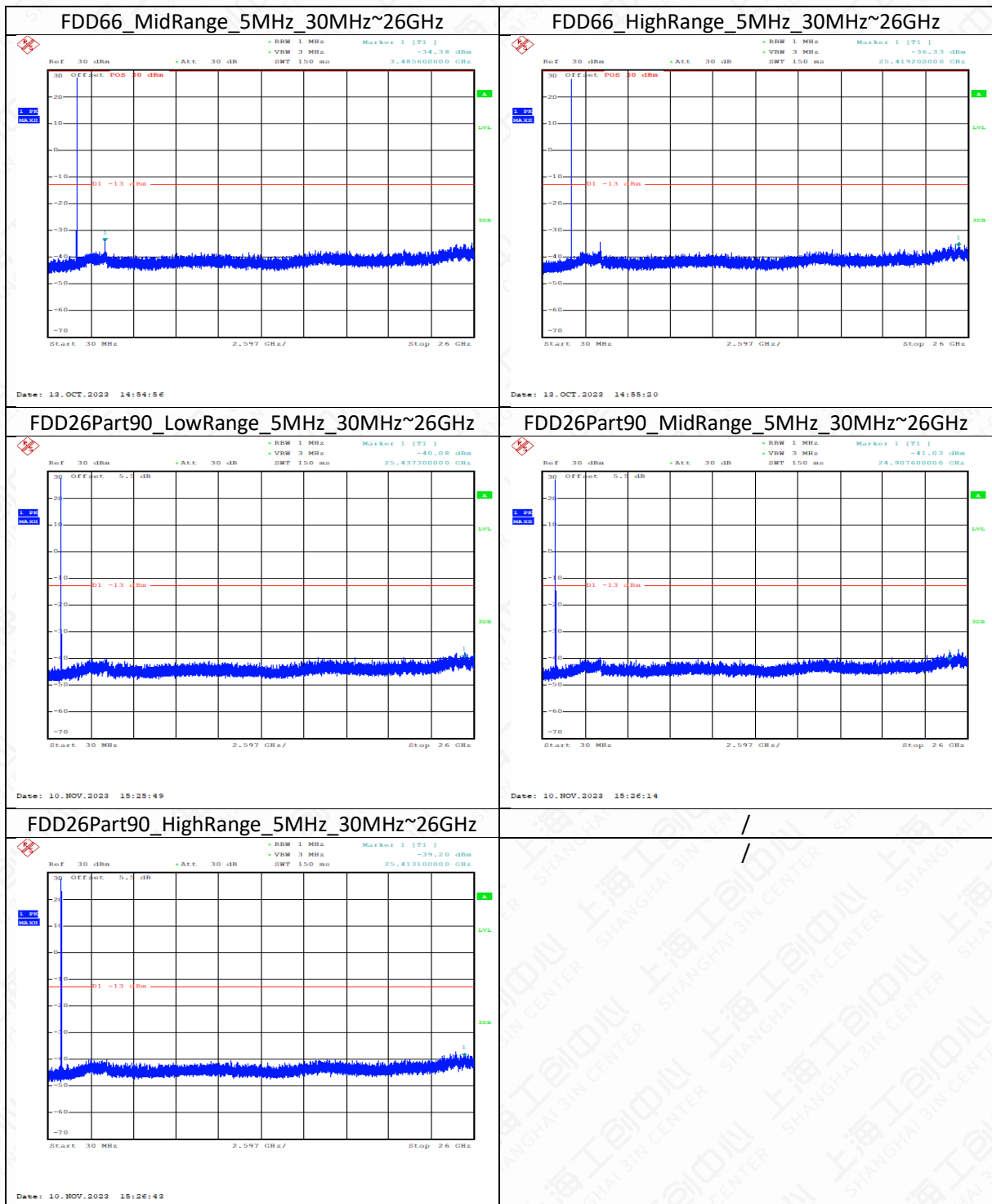
6.7.3 Test Setup



6.7.4 Measurement result







6.8 Peak-To-Average Power Ratio

Reference

CFR Part 22.913(d)/24.232(d)/27.50
RSS 130 4.6/ RSS-133 6.4/ RSS-139 5.5

6.8.1 Summary

CFR Part 22.913(d)/24.232(d)/27.50/ RSS-133 6.4/RSS 130 4.6/ RSS-139 5.5 :The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB

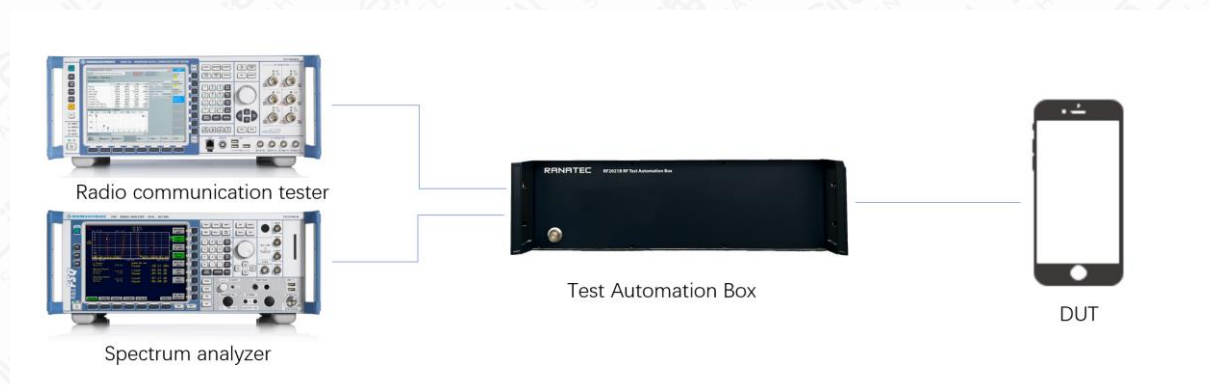
6.8.2 Method of Measurement

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

According to KDB 971168 5.7:

- Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Set the measurement interval to 1 ms
- Record the maximum PAPR level associated with a probability of 0.1%

6.8.3 Test Setup



6.8.4 Measurement results

Band	Range	BandWidth	RbMode	QPSK(dBm)	Q16(dBm)
FDD12	LowRange	10	fullRB	5.71	6.47
FDD12	MidRange	10	fullRB	5.74	6.44
FDD12	HighRange	10	fullRB	5.64	6.38
FDD25	LowRange	20	fullRB	5.03	6.28

Band	Range	BandWidth	RbMode	QPSK(dBm)	Q16(dBm)
FDD25	MidRange	20	fullRB	8.30	6.22
FDD25	HighRange	20	fullRB	4.97	9.71
FDD26Part22	LowRange	15	fullRB	4.52	5.71
FDD26Part22	MidRange	15	fullRB	4.52	5.74
FDD26Part22	HighRange	15	fullRB	4.55	5.83
FDD26Part90	LowRange	5	fullRB	5.00	5.77
FDD26Part90	MidRange	5	fullRB	5.67	6.44
FDD26Part90	HighRange	5	fullRB	5.77	6.47
FDD66	LowRange	20	fullRB	5.00	6.22
FDD66	MidRange	20	fullRB	4.97	6.25
FDD66	HighRange	20	fullRB	4.97	6.22

Annex A: Revised History

Version	Revised Content
V00	Initial

Annex B: Accreditation Certificate



END OF REPORT