FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2301-4
FCC ID	: IHDT56AH3
STANDARD	: 47 CFR Part 2, 27
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Sep. 07, 2022 ~ Oct. 16, 2022

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
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People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG282619J	Rev. 01	Initial issue of report	Oct. 21, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n7, n41, n38)	EIRP < 2Watt		
	§27.50(j)(3)	Equivalent Isotropic Radiated Power (5G NR n77, n78)	EIRP < 1Watt		
3.5	§27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(l)(2)	Conducted Band Edge Measurement (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (5G NR n7, n41, n38)	§27.53(m)(4)		
3.8	§2.1051 §27.53(l)(2)	Conducted Spurious Emission (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (5G NR n7, n41, n38)	< $55+10\log_{10}$(P[Watts])		
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(l)(2)	Radiated Spurious Emission (5G NR n77, n78)	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 21.60 dB at 11106.00 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (5G NR n7, n41, n38)	< $55+10\log_{10}$(P[Watts])		

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2301-4
FCC ID	IHDT56AH3
IMEI Code	Conducted: 354336350017059/354336350017067 Radiation: 354336350016416/354336350016401
HW Version	DVT2
SW Version	TTR33.76
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
Rx Frequency	5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
Bandwidth	n7: 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz n38: 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz n41 : 10MHz / 15MHz / 20MHz / 30MHz / 40MHz / 50MHz / 60MHz / 70MHz / 80MHz / 90MHz / 100MHz n77, n78 : 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz / 50MHz / 60MHz / 70MHz / 80MHz / 90MHz / 100MHz
SCS	15kHz for n7 30kHz for n38/n41/n77/n78
Antenna Gain	**<Ant. 0>**

	n41: -3.70 dBi **<Ant. 1>** n7: -2.08 dBi n38: -2.08 dBi n41: -2.08 dBi **<Ant. 2>** n7: -1.50 dBi n38: -1.50 dBi n41: -1.20 dBi **<Ant. 3>** n77: -1.80 dBi n78: -1.80 dBi **<Ant. 4>** n41: -6.20 dBi **<Ant. 7>** n77: -3.60 dBi n78: -3.80 dBi **<Ant. 8>** n77: -2.00 dBi n78: -2.00 dBi **<Ant. 9>** n77: -1.60 dBi n78: -1.60 dBi
Antenna Type	<Ant. 0/1/4/8>**:** IFA Antenna <Ant. 2/7/9>**:** LOOP Antenna <Ant. 3>**:** Monopole Antenna
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum EIRP is calculated from max output power and max antenna gain, only the maximum EIRP are shown in the report, 5G NR n7/n38/n41 for Ant. 1 and n77/n78 for Ant. 8 and n41_UL MIMO for Ant.(2+1).
2. 5G NR support SA (n7/n38/n41/n77/n78) mode and NSA(n7/n77/n78) mode. According to the maximum power between SA and NSA mode, SA covers NSA mode for n7/n77/n78.
3. The device supports n77/n78(1T4R) SRS resources on ant.3/7/8/9, only the test data of worst ant.8 is showed in the report according to the maximum power.
4. The device supports n41(1T4R) SRS resources on ant.0/1/2/4, only the test data of worst ant.1 is showed in the report according to the maximum power.
5. 5G NR n41 supports UL MIMO mode, and only supports CP-OFDM modulation in UL MIMO mode.
6. For n41 MIMO mode, the conducted BE/Spurious are tested at single antenna port(worst case) and add 10*log(N_{ANT}) according to KDB 662911 D01.
7. MIMO Antenna gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /2].
8. The device supports HPUE mode for 5G NR n77/n78 and is tested by signaling, the maximum duty cycle is 50%.
9. The EN-DC mode combination could be referred to the product spec.
10. For NSA mode of all EN-DC combination, we only show the combination of the maximum power among all NSA combinations in the report.

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1 (US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1251
AC Adapter 1 (EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1252
AC Adapter 1 (UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1253
AC Adapter 1 (AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1255
AC Adapter 1 (AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1256
AC Adapter 1 (BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-1257
AC Adapter 2 (US)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1251
AC Adapter 2 (EU)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1252
AC Adapter 2 (UK)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1253
AC Adapter 2 (IN)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1254
AC Adapter 2 (AU)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1255
AC Adapter 2 (AR)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1256
AC Adapter 2 (BR)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1257
AC Adapter 2 (CHILE)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-1259
Battery	**Brand Name**	Motorola(ATL)	**Model Name**	PF46
Earphone	**Brand Name**	Motorola(Lyand)	**Model Name**	MI181C(SH38D62338)
USB Cable	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18D24968
C to HDMI HDMI/USBC Cable 1	**Brand Name**	Motorola (Linxee)	**Model Name**	SC18D02146
C to HDMI HDMI/USBC Cable 2	**Brand Name**	Motorola (Linxee)	**Model Name**	SC18D38847

1.6 Modification of EUT

No modifications are made to the EUT during all test items.

1.7 Maximum EIRP Power and Emission Designator

5G NR n7		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**
5	2502.5 ~ 2567.5	0.1265	4M56G7D	0.1059	4M52W7D
10	2505.0 ~ 2565.0	0.1271	9M34G7D	0.1062	9M47W7D
15	2507.5 ~ 2562.5	0.1297	14M2G7D	0.1059	14M2W7D
20	2510.0 ~ 2560.0	0.1306	19M0G7D	0.1059	19M0W7D
25	2512.5 ~ 2557.5	0.1306	23M9G7D	0.1062	23M8W7D
30	2515.0 ~ 2555.0	0.1300	28M5G7D	0.1067	28M6W7D
40	2520.0 ~ 2550.0	0.1340	38M8G7D	0.1079	38M8W7D

5G NR n38		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	2575.02 ~ 2614.98	0.1227	8M77G7D	0.1054	8M85W7D
15	2577.51 ~ 2612.49	0.1294	13M7G7D	0.1059	13M7W7D
20	2580.00 ~ 2610.00	0.1279	18M2G7D	0.1059	18M3W7D
25	2582.52 ~ 2607.48	0.1300	23M2G7D	0.1064	23M2W7D
30	2585.01 ~ 2604.99	0.1330	27M8G7D	0.1074	27M9W7D
40	2590.02 ~ 2599.98	0.1337	37M4G7D	0.1086	38M2W7D

5G NR n41		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	2501.01 ~ 2685.00	0.1245	8M77G7D	0.1000	8M85W7D
15	2503.50 ~ 2682.48	0.1274	13M7G7D	0.1074	13M7W7D
20	2506.02 ~ 2679.99	0.1327	18M2G7D	0.1086	18M3W7D
30	2511.00 ~ 2674.98	0.1327	27M8G7D	0.1052	27M9W7D
40	2516.01 ~ 2670.00	0.1324	37M4G7D	0.1014	38M2W7D
50	2521.02 ~ 2664.99	0.1312	47M5G7D	0.0991	47M9W7D
60	2526.00 ~ 2659.98	0.1321	57M8G7D	0.1052	58M0W7D
70	2531.01 ~ 2655.00	0.1306	67M4G7D	0.1072	67M6W7D
80	2536.02 ~ 2649.99	0.1321	78M3G7D	0.1067	78M0W7D
90	2541.00 ~ 2644.98	0.1300	87M2G7D	0.1040	87M6W7D
100	2546.01 ~ 2640.00	0.1340	97M1G7D	0.1094	97M9W7D

5G NR n41 UL MIMO		QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	2501.01 ~ 2685.00	0.2183	8M69G7D	0.2023	8M75W7D
15	2503.50 ~ 2682.48	0.2188	13M7G7D	0.2051	13M7W7D
20	2506.02 ~ 2679.99	0.2382	18M3G7D	0.2254	18M3W7D
30	2511.00 ~ 2674.98	0.2449	27M9G7D	0.2307	27M9W7D
40	2516.01 ~ 2670.00	0.2404	37M9G7D	0.2333	38M2W7D
50	2521.02 ~ 2664.99	0.2382	47M5G7D	0.2158	47M6W7D
60	2526.00 ~ 2659.98	0.2382	57M8G7D	0.2183	57M9W7D
70	2531.01 ~ 2655.00	0.2339	67M4G7D	0.2173	67M5W7D
80	2536.02 ~ 2649.99	0.2280	77M5G7D	0.2128	77M7W7D

90	2541.00 ~ 2644.98	0.2280	87M4G7D	0.2143	88M1W7D
100	2546.01 ~ 2640.00	0.2472	98M1G7D	0.2350	98M1W7D

5G NR n77		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**
10	3705.00 ~ 3975.00	0.2649	8M79G7D	0.2323	8M75W7D
15	3707.52 ~ 3972.48	0.2679	13M8G7D	0.2344	13M6W7D
20	3710.01 ~ 3969.99	0.2636	18M3G7D	0.2366	18M3W7D
25	3712.50 ~ 3967.50	0.2642	23M3G7D	0.2339	23M3W7D
30	3715.02 ~ 3964.98	0.2642	27M7G7D	0.2350	27M7W7D
40	3720.00 ~ 3960.00	0.2661	38M2G7D	0.2382	38M0W7D
50	3725.01 ~ 3955.02	0.2679	47M5G7D	0.2350	47M7W7D
60	3730.02 ~ 3949.98	0.2661	58M0G7D	0.2360	57M9W7D
70	3735.00 ~ 3945.00	0.2679	67M9G7D	0.2388	67M5W7D
80	3740.01 ~ 3939.99	0.2685	77M7G7D	0.2382	77M5W7D
90	3745.02 ~ 3935.01	0.2698	87M6G7D	0.2410	87M2W7D
100	3750.00 ~ 3930.00	0.2729	97M7G7D	0.2438	97M9W7D

5G NR n78		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	**Frequency Range (MHz)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**	**Maximum EIRP(W)**	**Emission Designator (99%OBW)**
10	3705.00 ~ 3795.00	0.2594	8M79G7D	0.2275	8M75W7D
15	3707.52 ~ 3792.51	0.2618	13M8G7D	0.2249	13M6W7D
20	3710.01 ~ 3790.02	0.2636	18M3G7D	0.2218	18M3W7D
25	3712.50 ~ 3787.50	0.2472	23M3G7D	0.2218	23M3W7D
30	3715.02 ~ 3785.01	0.2630	27M7G7D	0.2291	27M7W7D
40	3720.00 ~ 3780.00	0.2570	38M2G7D	0.2244	38M0W7D
50	3725.01 ~ 3775.02	0.2636	47M5G7D	0.2265	47M7W7D
60	3730.02 ~ 3770.01	0.2600	58M0G7D	0.2296	57M9W7D
70	3735.00 ~ 3765.00	0.2559	67M9G7D	0.2270	67M5W7D
80	3740.01 ~ 3760.02	0.2588	77M7G7D	0.2218	77M5W7D
90	3745.02 ~ 3755.01	0.2547	87M6G7D	0.2307	87M2W7D
100	3750.00	0.2649	97M7G7D	0.2366	97M9W7D

Note:

1. 5G NR n41 overlaps the entire frequency range of 5G NR n38. Therefore, the test results provided in this report covers 5G NR n41 as well as 5G NR n38, and 5G NR n38 supports BW 25MHz, it is tested in the report.

2. 5G NR n77 overlaps the entire frequency range of 5G NR n78. Therefore, the test results provided in this report covers 5G NR n77 as well as 5G NR n78.
3. All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.

1.8 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS TH01-KS	CN1257	314309

1.9 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24al

1.10 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 27
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y, Z plane) were recorded in this report.

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

Test Items	5G NR	Bandwidth (MHz)													Modulation					RB #			Test Channel		
		5	10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	half	Full	L	M	H
Max. Output Power	n7	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n38	-	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n41	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n77	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n7							v	-	-	-	-	-	-	v	v						v		v	
	n38	-				v			-	-	-	-	-	-	v	v	v					v		v	
	n41	-				-								v	v	v						v		v	
	n77	-												v	v	v						v		v	
26dB and 99% Bandwidth	n7	v	v	v	v	v	v	v	-	-	-	-	-	-		v	v	v	v			v		v	
	n38	-				v			-	-	-	-	-	-		v	v	v	v			v		v	
	n41	-	v	v	v	-	v	v	v	v	v	v	v	v		v	v	v	v			v		v	
	n77	-	v	v	v	v	v	v	v	v	v	v	v	v		v	v	v	v			v		v	
Conducted Band Edge	n7	v			v			v	-	-	-	-	-	-	v	v				v		v	v		v
	n38	-				v			-	-	-	-	-	-	v	v				v		v	v		v
	n41	-	v			-			v					v	v	v	v			v		v	v		v
	n77	-	v						v					v	v	v				v		v	v		v

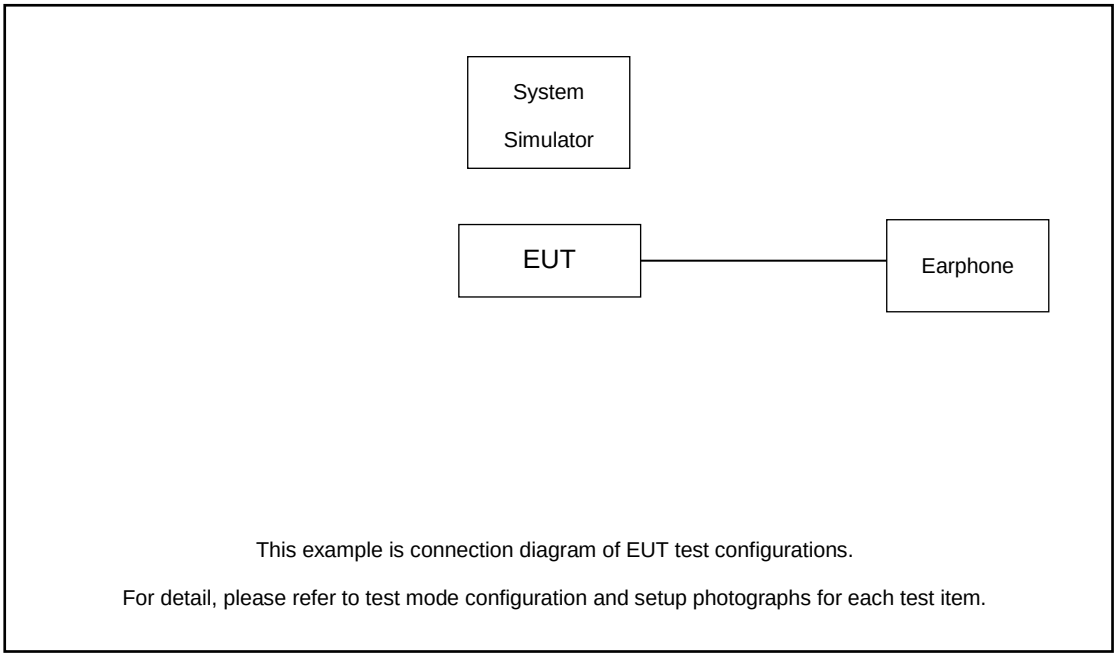
Test Items	5G NR	Bandwidth (MHz)													Modulation					RB #			Test Channel		
		5	10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	half	Full	L	M	H
Conducted Spurious Emission	n7	v			v			v	-	-	-	-	-	-	v	v				v			v	v	v
	n38	-				v			-	-	-	-	-	-	v	v				v			v	v	v
	n41	-	v			-			v					v	v	v	v			v			v	v	v
	n77	-	v						v					v	v	v				v			v	v	v
Frequency Stability	n7				v				-	-	-	-	-	-		v				v				v	
	n38	-				v			-	-	-	-	-	-		v				v				v	
	n41	-			v	-										v				v				v	
	n77	-			v											v				v				v	
E.R.P / E.I.R.P	n7	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n38	-	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n41	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n77	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n7	Worst Case																						v	
	n41	Worst Case																						v	
	n77	Worst Case																						v	
	n78	Worst Case																						v	

Note

1. The mark "**v** " means that this configuration is chosen for testing
2. The mark "-" means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.
4. All test items are based on engineering evaluation.
5. Frequency Stability：Normal Voltage = 3.89V ；Low Voltage =3.40V.；High Voltage =4.48V

2.2 Connection Diagram of Test System

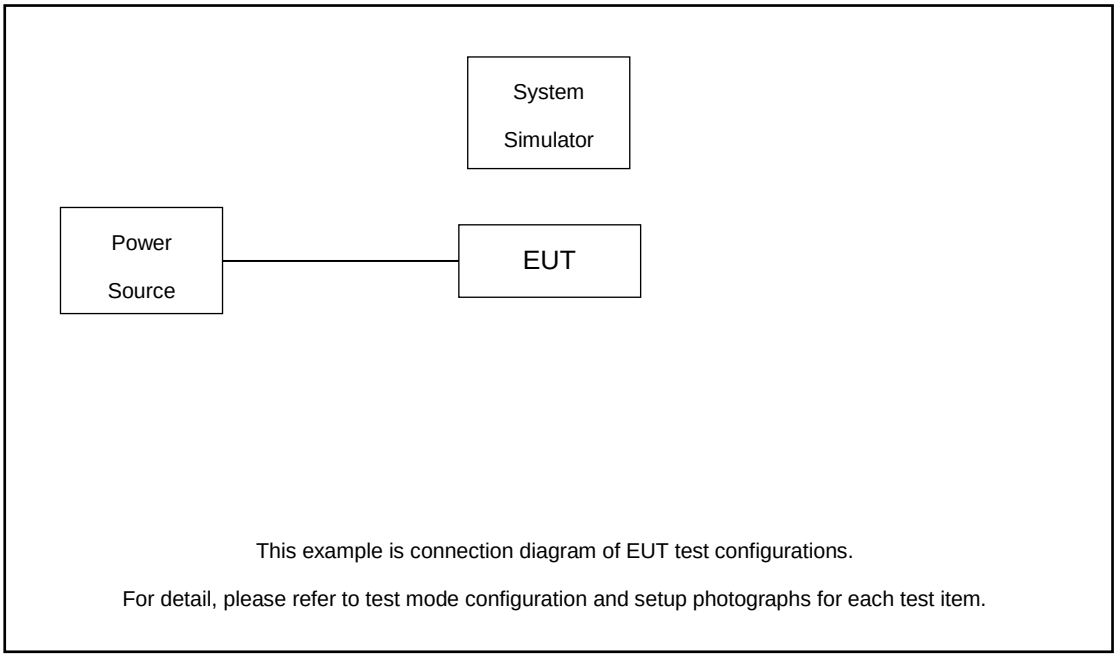
Earphone mode:



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

Adapter mode:



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

The EUT has been configuration operated in a manner tended to maximize its emission characteristics in a typical application.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 6.0 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 6.0 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G NR n7 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	504000	507000	510000
	Frequency	2520	2535	2550
30	Channel	503000	507000	511000
	Frequency	2515	2535	2555
25	Channel	502500	507000	511500
	Frequency	2512.5	2535	2557.5
20	Channel	502000	507000	512000
	Frequency	2510	2535	2560
15	Channel	501500	507000	512500
	Frequency	2507.5	2535	2562.5
10	Channel	501000	507000	513000
	Frequency	2505	2535	2565
5	Channel	500500	507000	513500
	Frequency	2502.5	2535	2567.5

5G NR n38 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	518004	519000	519996
	Frequency	2590.02	2595	2599.98
30	Channel	517002	519000	520998
	Frequency	2585.01	2595	2604.99
25	Channel	516504	519000	521496
	Frequency	2582.52	2595	2607.48
20	Channel	516000	519000	522000
	Frequency	2580	2595	2610
15	Channel	515502	519000	522498
	Frequency	2577.51	2595	2612.49
10	Channel	515004	519000	522996
	Frequency	2575.02	2595	2614.98

5G NR n41 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	509202	518598	528000
	Frequency	2546.01	2592.99	2640
90	Channel	508200	518598	528996
	Frequency	2541	2592.99	2644.98
80	Channel	507204	518598	529998
	Frequency	2536.02	2592.99	2649.99
70	Channel	506202	518598	531000
	Frequency	2531.01	2592.99	2655
60	Channel	505200	518598	531996
	Frequency	2526	2592.99	2659.98
50	Channel	504204	518598	532998
	Frequency	2521.02	2592.99	2664.99
40	Channel	503202	518598	534000
	Frequency	2516.01	2592.99	2670
30	Channel	502200	518598	534996
	Frequency	2511	2592.99	2674.98
20	Channel	501204	518598	535998
	Frequency	2506.02	2592.99	2679.99
15	Channel	500700	518598	536496
	Frequency	2503.5	2592.99	2682.48
10	Channel	500202	518598	537000
	Frequency	2501.01	2592.99	2685

5G n77 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	650000	656000	662000
	Frequency	3750	3840	3930
90	Channel	649668	656000	662334
	Frequency	3745.02	3840	3935.01
80	Channel	649334	656000	662666
	Frequency	3740.01	3840	3939.99
70	Channel	649000	656000	663000
	Frequency	3735	3840	3945
60	Channel	648668	656000	663332
	Frequency	3730.02	3840	3949.98
50	Channel	648334	656000	663668
	Frequency	3725.01	3840	3955.02
40	Channel	648000	656000	664000
	Frequency	3720	3840	3960
30	Channel	647668	656000	664332
	Frequency	3715.02	3840	3964.98
25	Channel	647500	656000	664500
	Frequency	3712.5	3840	3967.5
20	Channel	647334	656000	664666
	Frequency	3710.01	3840	3969.99
15	Channel	647168	656000	664832
	Frequency	3707.52	3840	3972.48
10	Channel	647000	656000	665000
	Frequency	3705	3840	3975

5G n78 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel		650000	
	Frequency		3750	
90	Channel	649668	650000	650334
	Frequency	3745.02	3750	3755.01
80	Channel	649334	650000	650668
	Frequency	3740.01	3750	3760.02
70	Channel	649000	650000	651000
	Frequency	3735	3750	3765
60	Channel	648668	650000	651334
	Frequency	3730.02	3750	3770.01
50	Channel	648334	650000	651668
	Frequency	3725.01	3750	3775.02
40	Channel	648000	650000	652000
	Frequency	3720	3750	3780
30	Channel	647668	650000	652334
	Frequency	3715.02	3750	3785.01
25	Channel	647500	650000	652500
	Frequency	3712.5	3750	3787.5
20	Channel	647334	650000	652668
	Frequency	3710.01	3750	3790.02
15	Channel	647168	650000	652834
	Frequency	3707.52	3750	3792.51
10	Channel	647000	650000	653000
	Frequency	3705	3750	3795

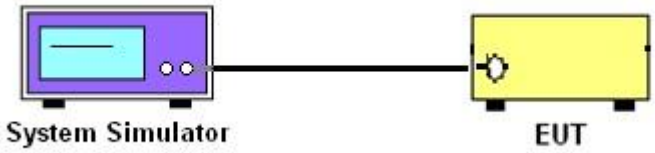
3 Conducted Test Items

3.1 Measuring Instruments

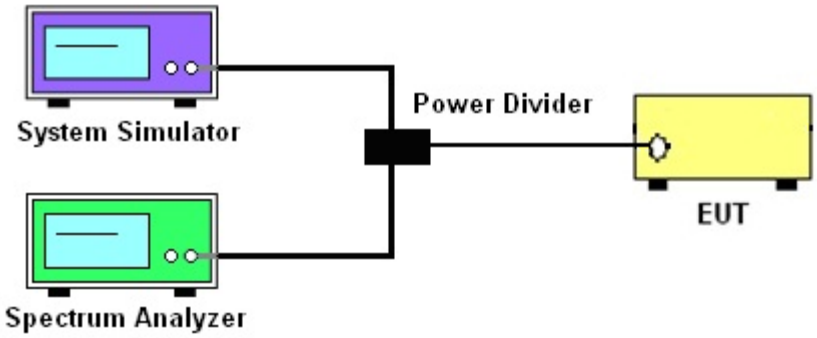
See list of measuring instruments of this test report.

3.2 Test Setup

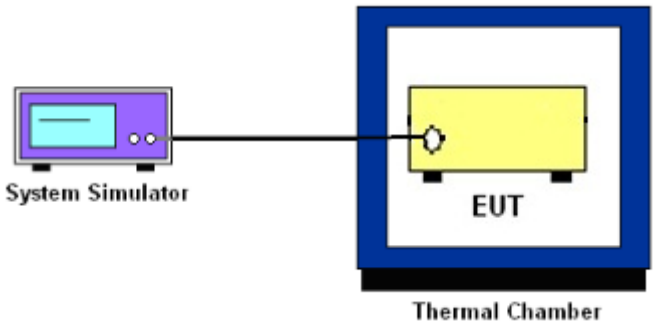
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n7, n38, n41.

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n77, n78.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

For n7:

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

For n38/n41/n77/n78:

1. The testing follows ANSI C63.26 Section 5.2.6 (PAPR).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set EUT in maximum power output.
4. Set the RBW = 1MHz, VBW = 3MHz, Detector = Peak, Trace mode = max hold, Set span ≥ 2 × OBW in spectrum analyzer.
5. Set the RBW = 1MHz, VBW = 3MHz, Detector = power averaging, Trace mode = max hold, Set span ≥ 2 × OBW in spectrum analyzer.
6. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission.
7. PAPR (dB) = P_{Pk} (dBm) − P_{Avg} (dBm)

   where

   PAPR peak-to-average power ratio, in dB

   P_{Pk} measured peak power level, in dBm

   P_{Avg} measured average power level, in dBm
8. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

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

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (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.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53(m)(4)

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

27.53(l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used (generally limited to no less than 1% of the OBW) and the measured power was integrated over the full required measurement bandwidth.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.
   Example:
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
9. For 5G NR n7/n38/n41, the other 40 dB, and 55 dB have additionally applied same calculation above.
10. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For 5G NR n7/n38/n41:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10^{th} harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
11. For 5G NR n7/n38/n41
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

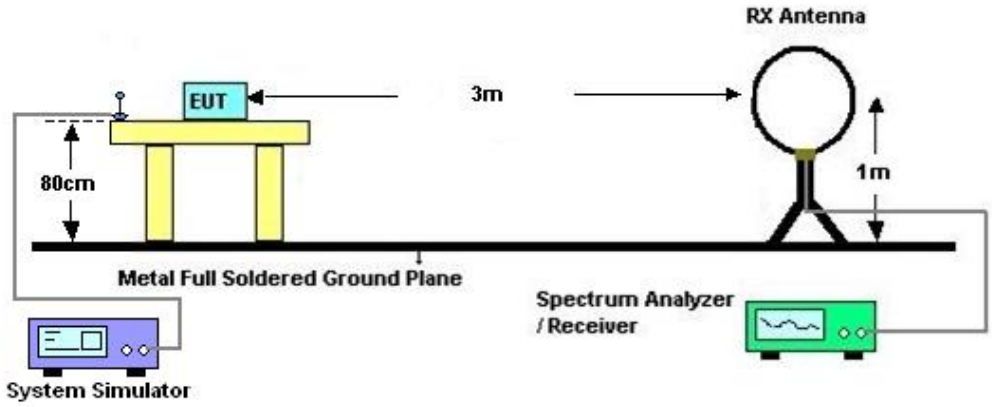
4 Radiated Test Items

4.1 Measuring Instruments

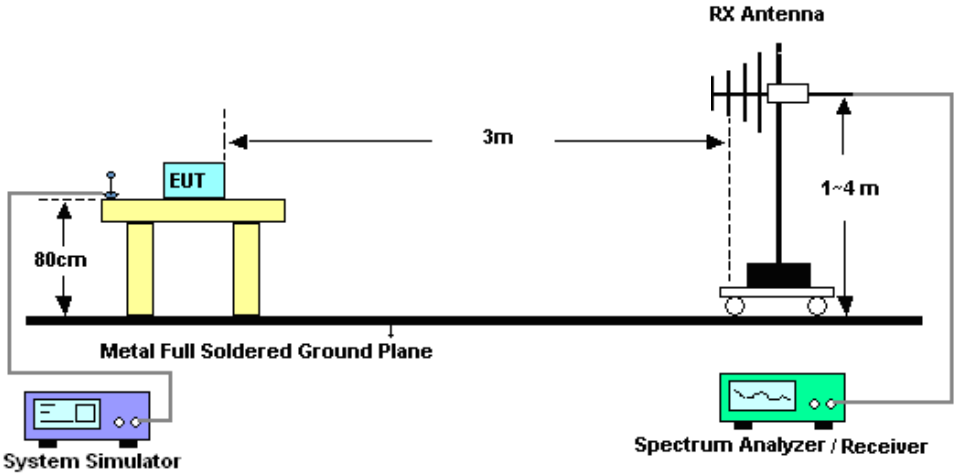
See list of measuring instruments of this test report.

4.2 Test Setup

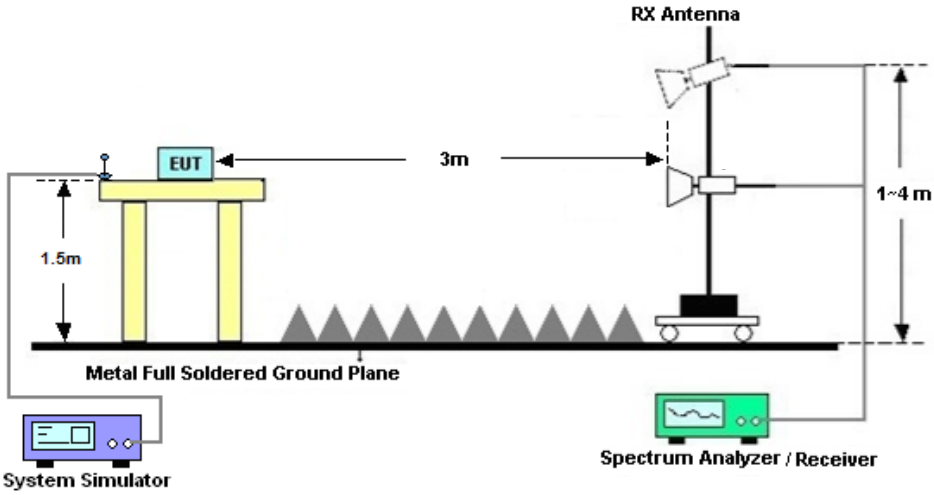
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

For 5G NR n7/n38/n41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
13. For 5G NR n7/n38/n41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 14, 2021	Sep. 07, 2022~ Oct. 16, 2022	Oct. 13, 2022	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 13, 2022		Oct. 12, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2022	Sep. 07, 2022~ Oct. 16, 2022	Aug. 25, 2023	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 15, 2022	Sep. 07, 2022~ Oct. 16, 2022	Jul. 14, 2023	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 14, 2021	Sep. 29, 2022	Oct. 13, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Sep. 29, 2022	Oct. 29, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 24, 2022	Sep. 29, 2022	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Jan. 05, 2022	Sep. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Sep. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 05, 2022	Sep. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Sep. 29, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz-18Ghz	Oct. 14, 2021	Sep. 29, 2022	Oct. 13, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Sep. 29, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Sep. 29, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Sep. 29, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Sep. 29, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

---------- THE END ----------

Appendix A. Test Results of Conducted Test

Test Engineer :	Lex Wu	Temperature :	22~23℃
		Relative Humidity :	40~42%

Conducted Output Power(Average power) and EIRP

5G NR n7:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				504000	507000	510000		L	M	H
Frequency (MHz)				2520	2535	2550				
40	PI/2 BPSK	1	1	23.11	23.14	23.23	-2.08	0.1268	0.1276	0.1303
40	QPSK	1	1	23.10	23.25	23.15	-2.08	0.1265	0.1309	0.1279
40	QPSK	1	108	23.29	23.23	23.24	-2.08	0.1321	0.1303	0.1306
40	QPSK	1	214	23.23	23.09	23.15	-2.08	0.1303	0.1262	0.1279
40	QPSK	108	0	22.39	22.26	22.32	-2.08	0.1074	0.1042	0.1057
40	QPSK	108	54	23.35	23.03	23.16	-2.08	0.1340	0.1245	0.1282
40	QPSK	108	108	22.34	22.26	22.24	-2.08	0.1062	0.1042	0.1038
40	QPSK	216	0	22.46	22.15	22.35	-2.08	0.1091	0.1016	0.1064
40	16QAM	1	1	22.39	22.36	22.41	-2.08	0.1074	0.1067	0.1079
40	64QAM	1	1	20.52	20.57	20.52	-2.08	0.0698	0.0706	0.0698
40	256QAM	1	1	18.59	18.65	18.40	-2.08	0.0448	0.0454	0.0429
Channel				503000	507000	511000	Gain	L	M	H
Frequency (MHz)				2515	2535	2555				
30	PI/2 BPSK	1	1	23.14	23.10	23.04	-2.08	0.1276	0.1265	0.1247
30	QPSK	1	1	23.22	23.16	23.20	-2.08	0.1300	0.1282	0.1294
30	16QAM	1	1	22.36	22.31	22.30	-2.08	0.1067	0.1054	0.1052
Channel				502500	507000	511500	Gain	L	M	H
Frequency (MHz)				2512.5	2535	2557.5				
25	PI/2 BPSK	1	1	23.10	23.06	23.04	-2.08	0.1265	0.1253	0.1247
25	QPSK	1	1	23.14	23.24	23.16	-2.08	0.1276	0.1306	0.1282
25	16QAM	1	1	22.34	22.29	22.25	-2.08	0.1062	0.1050	0.1040
Channel				502000	507000	512000	Gain	L	M	H
Frequency (MHz)				2510	2535	2560				
20	PI/2 BPSK	1	1	23.02	23.01	23.10	-2.08	0.1242	0.1239	0.1265
20	QPSK	1	1	23.15	23.21	23.24	-2.08	0.1279	0.1297	0.1306
20	16QAM	1	1	22.33	22.28	22.25	-2.08	0.1059	0.1047	0.1040
Channel				501500	507000	512500	Gain	L	M	H
Frequency (MHz)				2507.5	2535	2562.5				
15	PI/2 BPSK	1	1	23.10	23.00	23.04	-2.08	0.1265	0.1236	0.1247
15	QPSK	1	1	23.21	23.15	23.20	-2.08	0.1297	0.1279	0.1294
15	16QAM	1	1	22.33	22.25	22.24	-2.08	0.1059	0.1040	0.1038

Channel				501000	507000	513000	Gain	L	M	H
Frequency (MHz)				2505	2535	2565				
10	PI/2 BPSK	1	1	22.94	22.81	22.98	-2.08	0.1219	0.1183	0.1230
10	QPSK	1	1	23.10	23.04	23.12	-2.08	0.1265	0.1247	0.1271
10	16QAM	1	1	22.34	22.28	22.26	-2.08	0.1062	0.1047	0.1042
Channel				500500	507000	513500	Gain	L	M	H
Frequency (MHz)				2502.5	2535	2567.5				
5	PI/2 BPSK	1	1	22.98	22.83	22.85	-2.08	0.1230	0.1189	0.1194
5	QPSK	1	1	23.10	22.98	23.01	-2.08	0.1265	0.1230	0.1239
5	16QAM	1	1	22.33	22.25	22.27	-2.08	0.1059	0.1040	0.1045

5G NR n38:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				518004	519000	519996		L	M	H
Frequency (MHz)				2590.02	2595	2599.98				
40	PI/2 BPSK	1	1	23.34	23.23	23.25	-2.08	0.1337	0.1303	0.1309
40	QPSK	1	1	23.30	23.01	23.26	-2.08	0.1324	0.1239	0.1312
40	QPSK	1	53	23.06	22.97	23.14	-2.08	0.1253	0.1227	0.1276
40	QPSK	1	104	23.10	23.09	23.14	-2.08	0.1265	0.1262	0.1276
40	QPSK	50	0	22.34	22.20	22.34	-2.08	0.1062	0.1028	0.1062
40	QPSK	50	28	23.23	23.11	23.22	-2.08	0.1303	0.1268	0.1300
40	QPSK	50	56	22.31	22.16	22.30	-2.08	0.1054	0.1019	0.1052
40	QPSK	100	0	22.35	22.36	22.36	-2.08	0.1064	0.1067	0.1067
40	16QAM	1	1	22.40	22.27	22.44	-2.08	0.1076	0.1045	0.1086
40	64QAM	1	1	20.49	20.38	20.41	-2.08	0.0693	0.0676	0.0681
40	256QAM	1	1	18.69	18.53	18.68	-2.08	0.0458	0.0442	0.0457
Channel				517002	519000	520998	Gain	L	M	H
Frequency (MHz)				2585.01	2595	2604.99				
30	PI/2 BPSK	1	1	23.32	23.24	23.25	-2.08	0.1330	0.1306	0.1309
30	QPSK	1	1	23.19	23.13	23.15	-2.08	0.1291	0.1274	0.1279
30	16QAM	1	1	22.36	22.25	22.39	-2.08	0.1067	0.1040	0.1074
Channel				516504	519000	521496	Gain	L	M	H
Frequency (MHz)				2582.52	2595	2607.48				
25	PI/2 BPSK	1	1	23.08	23.14	23.22	-2.08	0.1259	0.1276	0.1300
25	QPSK	1	1	22.84	22.94	22.97	-2.08	0.1191	0.1219	0.1227
25	16QAM	1	1	22.30	22.21	22.35	-2.08	0.1052	0.1030	0.1064
Channel				516000	519000	522000	Gain	L	M	H
Frequency (MHz)				2580	2595	2610				
20	PI/2 BPSK	1	1	23.15	23.09	23.14	-2.08	0.1279	0.1262	0.1276
20	QPSK	1	1	23.01	22.93	22.98	-2.08	0.1239	0.1216	0.1230
20	16QAM	1	1	22.33	22.20	22.31	-2.08	0.1059	0.1028	0.1054
Channel				515502	519000	522498	Gain	L	M	H
Frequency (MHz)				2577.51	2595	2612.49				
15	PI/2 BPSK	1	1	23.20	23.14	23.16	-2.08	0.1294	0.1276	0.1282
15	QPSK	1	1	22.95	22.96	22.88	-2.08	0.1222	0.1225	0.1202
15	16QAM	1	1	22.33	22.21	22.28	-2.08	0.1059	0.1030	0.1047
Channel				515004	519000	522996	Gain	L	M	H
Frequency (MHz)				2575.02	2595	2614.98				
10	PI/2 BPSK	1	1	22.97	22.94	22.88	-2.08	0.1227	0.1219	0.1202
10	QPSK	1	1	22.64	22.85	22.68	-2.08	0.1138	0.1194	0.1148
10	16QAM	1	1	22.21	22.15	22.31	-2.08	0.1030	0.1016	0.1054

5G NR n41:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				509202	518598	528000		L	M	H
Frequency (MHz)				2546.01	2592.99	2640				
100	PI/2 BPSK	1	1	23.15	23.35	23.01	-2.08	0.1279	0.1340	0.1239
100	QPSK	1	1	23.02	23.11	22.89	-2.08	0.1242	0.1268	0.1205
100	QPSK	1	137	23.06	22.52	22.59	-2.08	0.1253	0.1107	0.1125
100	QPSK	1	271	23.23	22.43	21.58	-2.08	0.1303	0.1084	0.0891
100	QPSK	135	0	22.21	22.38	22.14	-2.08	0.1030	0.1072	0.1014
100	QPSK	135	69	23.14	23.01	22.80	-2.08	0.1276	0.1239	0.1180
100	QPSK	135	138	22.00	22.14	22.08	-2.08	0.0982	0.1014	0.1000
100	QPSK	270	0	22.16	22.26	22.01	-2.08	0.1019	0.1042	0.0984
100	16QAM	1	1	21.45	22.47	22.05	-2.08	0.0865	0.1094	0.0993
100	64QAM	1	1	19.34	20.44	19.98	-2.08	0.0532	0.0685	0.0617
100	256QAM	1	1	18.53	18.87	18.37	-2.08	0.0442	0.0478	0.0426
Channel				508200	518598	528996	Gain	L	M	H
Frequency (MHz)				2541	2592.99	2644.98				
90	PI/2 BPSK	1	1	23.22	23.21	23.18	-2.08	0.1300	0.1297	0.1288
90	QPSK	1	1	23.09	23.10	23.01	-2.08	0.1262	0.1265	0.1239
90	16QAM	1	1	21.63	22.25	22.16	-2.08	0.0902	0.1040	0.1019
Channel				507204	518598	529998	Gain	L	M	H
Frequency (MHz)				2536.02	2592.99	2649.99				
80	PI/2 BPSK	1	1	23.20	23.29	23.24	-2.08	0.1294	0.1321	0.1306
80	QPSK	1	1	23.02	23.13	23.05	-2.08	0.1242	0.1274	0.1250
80	16QAM	1	1	21.59	22.36	22.14	-2.08	0.0893	0.1067	0.1014
Channel				506202	518598	531000	Gain	L	M	H
Frequency (MHz)				2531.01	2592.99	2565				
70	PI/2 BPSK	1	1	23.20	23.14	23.24	-2.08	0.1294	0.1276	0.1306
70	QPSK	1	1	23.10	23.09	23.12	-2.08	0.1265	0.1262	0.1271
70	16QAM	1	1	21.69	22.38	22.07	-2.08	0.0914	0.1072	0.0998
Channel				505200	518598	531996	Gain	L	M	H
Frequency (MHz)				2526	2592.99	2659.98				
60	PI/2 BPSK	1	1	23.18	23.21	23.29	-2.08	0.1288	0.1297	0.1321
60	QPSK	1	1	23.00	23.01	23.10	-2.08	0.1236	0.1239	0.1265
60	16QAM	1	1	21.55	22.30	22.11	-2.08	0.0885	0.1052	0.1007
Channel				504204	518598	532998	Gain	L	M	H
Frequency (MHz)				2521.02	2592.99	2664.99				
50	PI/2 BPSK	1	1	21.85	23.15	23.26	-2.08	0.0948	0.1279	0.1312
50	QPSK	1	1	21.75	22.92	23.17	-2.08	0.0927	0.1213	0.1285
50	16QAM	1	1	21.02	22.04	21.85	-2.08	0.0783	0.0991	0.0948
Channel				503202	518598	534000	Gain	L	M	H
Frequency (MHz)				2516.01	2592.99	2670				
40	PI/2 BPSK	1	1	21.65	23.30	23.06	-2.08	0.0906	0.1324	0.1253
40	QPSK	1	1	21.40	23.21	22.76	-2.08	0.0855	0.1297	0.1169
40	16QAM	1	1	21.08	22.14	22.03	-2.08	0.0794	0.1014	0.0989

Channel				502200	518598	534996	Gain	L	M	H
Frequency (MHz)				2511	2592.99	2674.98				
30	PI/2 BPSK	1	1	21.89	23.30	23.31	-2.08	0.0957	0.1324	0.1327
30	QPSK	1	1	21.82	23.21	23.20	-2.08	0.0942	0.1297	0.1294
30	16QAM	1	1	21.36	22.30	22.14	-2.08	0.0847	0.1052	0.1014
Channel				501204	518598	535998	Gain	L	M	H
Frequency (MHz)				2506.02	2592.99	2679.99				
20	PI/2 BPSK	1	1	21.93	23.31	23.30	-2.08	0.0966	0.1327	0.1324
20	QPSK	1	1	21.88	23.19	23.20	-2.08	0.0955	0.1291	0.1294
20	16QAM	1	1	21.36	22.44	22.10	-2.08	0.0847	0.1086	0.1005
Channel				507000	518598	536496	Gain	L	M	H
Frequency (MHz)				2535	2592.99	2682.48				
15	PI/2 BPSK	1	1	22.77	23.13	23.10	-2.08	0.1172	0.1274	0.1265
15	QPSK	1	1	22.74	23.08	23.01	-2.08	0.1164	0.1259	0.1239
15	16QAM	1	1	21.69	22.39	22.05	-2.08	0.0914	0.1074	0.0993
Channel				500202	518598	537000	Gain	L	M	H
Frequency (MHz)				2501.01	2592.99	2685				
10	PI/2 BPSK	1	1	22.63	23.03	22.54	-2.08	0.1135	0.1245	0.1112
10	QPSK	1	1	22.51	22.91	22.49	-2.08	0.1104	0.1211	0.1099
10	16QAM	1	1	21.52	22.08	21.79	-2.08	0.0879	0.1000	0.0935

5G NR n41 UL MIMO:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				509202	518598	528000		L	M	H
Frequency (MHz)				2546.01	2592.99	2640				
100	QPSK	1	1	22.10	22.30	22.40	1.38	0.2228	0.2333	0.2388
100	QPSK	1	137	22.14	22.55	22.30	1.38	0.2249	0.2472	0.2333
100	QPSK	1	271	22.23	22.20	21.84	1.38	0.2296	0.2280	0.2099
100	QPSK	135	0	20.46	20.79	20.64	1.38	0.1528	0.1648	0.1592
100	QPSK	135	69	22.15	22.20	22.26	1.38	0.2254	0.2280	0.2312
100	QPSK	135	138	20.70	20.66	20.63	1.38	0.1614	0.1600	0.1589
100	QPSK	270	0	20.60	20.75	20.71	1.38	0.1578	0.1633	0.1618
100	16QAM	1	1	21.53	22.33	21.67	1.38	0.1954	0.2350	0.2018
100	64QAM	1	1	19.67	20.14	19.96	1.38	0.1274	0.1419	0.1361
100	256QAM	1	1	16.89	17.36	17.16	1.38	0.0671	0.0748	0.0714
Channel				508200	518598	528996	Gain	L	M	H
Frequency (MHz)				2541	2592.99	2644.98				
90	QPSK	1	1	21.86	22.20	22.02	1.38	0.2109	0.2280	0.2188
90	16QAM	1	1	21.48	21.93	21.85	1.38	0.1932	0.2143	0.2104
Channel				507204	518598	529998	Gain	L	M	H
Frequency (MHz)				2536.02	2592.99	2649.99				
80	QPSK	1	1	21.83	22.20	21.97	1.38	0.2094	0.2280	0.2163
80	16QAM	1	1	21.35	21.90	21.67	1.38	0.1875	0.2128	0.2018
Channel				506202	518598	531000	Gain	L	M	H
Frequency (MHz)				2531.01	2592.99	2565				
70	QPSK	1	1	21.85	22.31	22.02	1.38	0.2104	0.2339	0.2188
70	16QAM	1	1	21.68	21.99	21.74	1.38	0.2023	0.2173	0.2051
Channel				505200	518598	531996	Gain	L	M	H
Frequency (MHz)				2526	2592.99	2659.98				
60	QPSK	1	1	22.39	22.35	22.36	1.38	0.2382	0.2360	0.2368
60	16QAM	1	1	21.60	22.01	21.93	1.38	0.1986	0.2183	0.2143
Channel				504204	518598	532998	Gain	L	M	H
Frequency (MHz)				2521.02	2592.99	2664.99				
50	QPSK	1	1	22.20	22.39	22.35	1.38	0.2280	0.2382	0.2360
50	16QAM	1	1	21.80	21.96	21.93	1.38	0.2080	0.2158	0.2143
Channel				503202	518598	534000	Gain	L	M	H
Frequency (MHz)				2516.01	2592.99	2670				
40	QPSK	1	1	22.08	22.43	22.43	1.38	0.2218	0.2404	0.2404
40	16QAM	1	1	21.73	22.15	22.30	1.38	0.2046	0.2254	0.2333
Channel				502200	518598	534996	Gain	L	M	H
Frequency (MHz)				2511	2592.99	2674.98				
30	QPSK	1	1	22.31	22.43	22.51	1.38	0.2339	0.2404	0.2449
30	16QAM	1	1	21.97	22.18	22.25	1.38	0.2163	0.2270	0.2307
Channel				501204	518598	535998	Gain	L	M	H
Frequency (MHz)				2506.02	2592.99	2679.99				
20	QPSK	1	1	22.05	22.25	22.39	1.38	0.2203	0.2307	0.2382
20	16QAM	1	1	21.70	22.15	22.04	1.38	0.2032	0.2254	0.2198

Channel				507000	518598	536496	Gain	L	M	H
Frequency (MHz)				2535	2592.99	2682.48				
15	QPSK	1	1	21.66	22.02	21.98	1.38	0.2014	0.2188	0.2168
15	16QAM	1	1	21.32	21.74	21.48	1.38	0.1862	0.2051	0.1932
Channel				500202	518598	537000	Gain	L	M	H
Frequency (MHz)				2501.01	2592.99	2685				
10	QPSK	1	1	21.69	22.01	21.39	1.38	0.2028	0.2183	0.1892
10	16QAM	1	1	21.07	21.68	20.93	1.38	0.1758	0.2023	0.1702

5G NR n77:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				650000	656000	662000		L	M	H
Frequency (MHz)				3750	3840	3930				
100	PI/2 BPSK	1	1	26.30	26.24	25.78	-2.0	0.2692	0.2655	0.2388
100	QPSK	1	1	26.16	26.32	25.68	-2.0	0.2606	0.2704	0.2333
100	QPSK	1	137	26.25	25.88	25.41	-2.0	0.2661	0.2443	0.2193
100	QPSK	1	271	26.02	25.65	24.88	-2.0	0.2523	0.2317	0.1941
100	QPSK	135	0	26.06	25.77	25.63	-2.0	0.2547	0.2382	0.2307
100	QPSK	135	69	26.36	25.35	25.49	-2.0	0.2729	0.2163	0.2234
100	QPSK	135	138	25.70	25.56	24.85	-2.0	0.2344	0.2270	0.1928
100	QPSK	270	0	25.90	25.65	25.62	-2.0	0.2455	0.2317	0.2301
100	16QAM	1	1	25.87	24.98	24.98	-2.0	0.2438	0.1986	0.1986
100	64QAM	1	1	23.97	23.56	23.01	-2.0	0.1574	0.1432	0.1262
100	256QAM	1	1	22.03	21.90	21.65	-2.0	0.1007	0.0977	0.0923
Channel				649668	656000	662334	Gain	L	M	H
Frequency (MHz)				3745.02	3840	3935.01				
90	PI/2 BPSK	1	1	26.20	25.87	25.80	-2.0	0.2630	0.2438	0.2399
90	QPSK	1	1	26.31	26.25	25.61	-2.0	0.2698	0.2661	0.2296
90	16QAM	1	1	25.82	24.89	24.85	-2.0	0.2410	0.1945	0.1928
Channel				649334	656000	662666	Gain	L	M	H
Frequency (MHz)				3740.01	3840	3939.99				
80	PI/2 BPSK	1	1	26.29	25.97	25.89	-2.0	0.2685	0.2495	0.2449
80	QPSK	1	1	26.28	26.24	25.59	-2.0	0.2679	0.2655	0.2286
80	16QAM	1	1	25.77	24.85	24.81	-2.0	0.2382	0.1928	0.1910
Channel				649000	656000	663000	Gain	L	M	H
Frequency (MHz)				3735	3840	3945				
70	PI/2 BPSK	1	1	26.11	26.03	25.78	-2.0	0.2576	0.2529	0.2388
70	QPSK	1	1	26.28	26.14	25.55	-2.0	0.2679	0.2594	0.2265
70	16QAM	1	1	25.78	24.79	24.81	-2.0	0.2388	0.1901	0.1910
Channel				648668	656000	663332	Gain	L	M	H
Frequency (MHz)				3730.02	3840	3949.98				
60	PI/2 BPSK	1	1	26.14	26.23	26.15	-2.0	0.2594	0.2649	0.2600
60	QPSK	1	1	26.25	26.15	25.51	-2.0	0.2661	0.2600	0.2244
60	16QAM	1	1	25.73	24.81	24.73	-2.0	0.2360	0.1910	0.1875
Channel				648334	656000	663668	Gain	L	M	H
Frequency (MHz)				3725.01	3840	3955.02				
50	PI/2 BPSK	1	1	26.14	26.25	26.28	-2.0	0.2594	0.2661	0.2679
50	QPSK	1	1	26.22	26.21	25.53	-2.0	0.2642	0.2636	0.2254
50	16QAM	1	1	25.71	24.75	24.77	-2.0	0.2350	0.1884	0.1892
Channel				648000	656000	664000	Gain	L	M	H
Frequency (MHz)				3720	3840	3960				
40	PI/2 BPSK	1	1	26.15	26.24	26.10	-2.0	0.2600	0.2655	0.2570
40	QPSK	1	1	26.22	26.25	25.53	-2.0	0.2642	0.2661	0.2254
40	16QAM	1	1	25.77	24.69	24.71	-2.0	0.2382	0.1858	0.1866

Channel				647668	656000	664332	Gain	L	M	H
Frequency (MHz)				3715.02	3840	3964.98				
30	PI/2 BPSK	1	1	26.20	26.22	26.10	-2.0	0.2630	0.2642	0.2570
30	QPSK	1	1	26.21	26.11	25.53	-2.0	0.2636	0.2576	0.2254
30	16QAM	1	1	25.71	24.71	24.69	-2.0	0.2350	0.1866	0.1858
Channel				647500	656000	664500	Gain	L	M	H
Frequency (MHz)				3712.5	3840	3967.5				
25	PI/2 BPSK	1	1	25.87	25.91	25.65	-2.0	0.2438	0.2460	0.2317
25	QPSK	1	1	26.22	26.13	25.53	-2.0	0.2642	0.2588	0.2254
25	16QAM	1	1	25.69	24.74	24.66	-2.0	0.2339	0.1879	0.1845
Channel				647334	656000	664666	Gain	L	M	H
Frequency (MHz)				3710.01	3840	3969.99				
20	PI/2 BPSK	1	1	26.01	26.10	26.00	-2.0	0.2518	0.2570	0.2512
20	QPSK	1	1	26.21	26.13	25.51	-2.0	0.2636	0.2588	0.2244
20	16QAM	1	1	25.74	24.66	24.73	-2.0	0.2366	0.1845	0.1875
Channel				647168	656000	664832	Gain	L	M	H
Frequency (MHz)				3707.52	3840	3972.48				
15	PI/2 BPSK	1	1	26.24	26.28	26.21	-2.0	0.2655	0.2679	0.2636
15	QPSK	1	1	26.25	26.13	25.55	-2.0	0.2661	0.2588	0.2265
15	16QAM	1	1	25.70	24.81	24.75	-2.0	0.2344	0.1910	0.1884
Channel				647000	656000	665000	Gain	L	M	H
Frequency (MHz)				3705	3840	3975				
10	PI/2 BPSK	1	1	26.21	26.23	26.21	-2.0	0.2636	0.2649	0.2636
10	QPSK	1	1	26.13	26.11	25.54	-2.0	0.2588	0.2576	0.2259
10	16QAM	1	1	25.66	24.71	24.82	-2.0	0.2323	0.1866	0.1914

5G NR n78:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel					650000				M	
Frequency (MHz)					3750					
100	PI/2 BPSK	1	1		26.23		-2.0		0.2649	
100	QPSK	1	1		26.10		-2.0		0.2570	
100	QPSK	1	137		26.11		-2.0		0.2576	
100	QPSK	1	271		25.88		-2.0		0.2443	
100	QPSK	135	0		25.89		-2.0		0.2449	
100	QPSK	135	69		26.19		-2.0		0.2624	
100	QPSK	135	138		25.65		-2.0		0.2317	
100	QPSK	270	0		25.90		-2.0		0.2455	
100	16QAM	1	1		25.74		-2.0		0.2366	
100	64QAM	1	1		23.97		-2.0		0.1574	
100	256QAM	1	1		21.89		-2.0		0.0975	
Channel				649668	650000	650334	Gain	L	M	H
Frequency (MHz)				3745.02	3750	3755.01				
90	PI/2 BPSK	1	1	26.06	25.98	25.77	-2.0	0.2547	0.2500	0.2382
90	QPSK	1	1	26.05	25.95	25.84	-2.0	0.2541	0.2483	0.2421
90	16QAM	1	1	25.53	25.45	25.63	-2.0	0.2254	0.2213	0.2307
Channel				649334	650000	650668	Gain	L	M	H
Frequency (MHz)				3740.01	3750	3760.02				
80	PI/2 BPSK	1	1	26.13	25.99	25.65	-2.0	0.2588	0.2506	0.2317
80	QPSK	1	1	26.01	25.85	25.81	-2.0	0.2518	0.2427	0.2404
80	16QAM	1	1	25.46	25.33	25.44	-2.0	0.2218	0.2153	0.2208
Channel				649000	650000	651000	Gain	L	M	H
Frequency (MHz)				3735	3750	3765				
70	PI/2 BPSK	1	1	26.08	26.01	25.78	-2.0	0.2559	0.2518	0.2388
70	QPSK	1	1	26.03	25.88	25.81	-2.0	0.2529	0.2443	0.2404
70	16QAM	1	1	25.46	25.33	25.56	-2.0	0.2218	0.2153	0.2270
Channel				648668	650000	651334	Gain	L	M	H
Frequency (MHz)				3730.02	3750	3770.01				
60	PI/2 BPSK	1	1	26.08	26.15	26.00	-2.0	0.2559	0.2600	0.2512
60	QPSK	1	1	25.96	25.85	25.81	-2.0	0.2489	0.2427	0.2404
60	16QAM	1	1	25.46	25.36	25.61	-2.0	0.2218	0.2168	0.2296
Channel				648334	650000	651668	Gain	L	M	H
Frequency (MHz)				3725.01	3750	3775.02				
50	PI/2 BPSK	1	1	26.11	26.15	26.21	-2.0	0.2576	0.2600	0.2636
50	QPSK	1	1	25.97	25.85	25.80	-2.0	0.2495	0.2427	0.2399
50	16QAM	1	1	25.51	25.42	25.55	-2.0	0.2244	0.2198	0.2265
Channel				648000	650000	652000	Gain	L	M	H
Frequency (MHz)				3720	3750	3780				
40	PI/2 BPSK	1	1	26.02	26.10	25.98	-2.0	0.2523	0.2570	0.2500
40	QPSK	1	1	25.89	25.83	25.79	-2.0	0.2449	0.2415	0.2393
40	16QAM	1	1	25.46	25.33	25.51	-2.0	0.2218	0.2153	0.2244

Channel				647668	650000	652334	Gain	L	M	H
Frequency (MHz)				3715.02	3750	3785.01				
30	PI/2 BPSK	1	1	26.20	26.15	26.18	-2.0	0.2630	0.2600	0.2618
30	QPSK	1	1	25.97	25.92	25.77	-2.0	0.2495	0.2466	0.2382
30	16QAM	1	1	25.46	25.41	25.60	-2.0	0.2218	0.2193	0.2291
Channel				647500	650000	652500	Gain	L	M	H
Frequency (MHz)				3712.5	3750	3787.5				
25	PI/2 BPSK	1	1	25.67	25.87	25.56	-2.0	0.2328	0.2438	0.2270
25	QPSK	1	1	25.93	25.91	25.81	-2.0	0.2472	0.2460	0.2404
25	16QAM	1	1	25.46	25.33	25.45	-2.0	0.2218	0.2153	0.2213
Channel				647334	650000	652668	Gain	L	M	H
Frequency (MHz)				3710.01	3750	3790.02				
20	PI/2 BPSK	1	1	26.14	26.21	26.01	-2.0	0.2594	0.2636	0.2518
20	QPSK	1	1	25.88	25.74	25.71	-2.0	0.2443	0.2366	0.2350
20	16QAM	1	1	25.36	25.24	25.46	-2.0	0.2168	0.2109	0.2218
Channel				647168	650000	652834	Gain	L	M	H
Frequency (MHz)				3707.52	3750	3792.51				
15	PI/2 BPSK	1	1	26.14	26.18	26.12	-2.0	0.2594	0.2618	0.2582
15	QPSK	1	1	25.93	25.81	25.70	-2.0	0.2472	0.2404	0.2344
15	16QAM	1	1	25.36	25.34	25.52	-2.0	0.2168	0.2158	0.2249
Channel				647000	650000	653000	Gain	L	M	H
Frequency (MHz)				3705	3750	3795				
10	PI/2 BPSK	1	1	26.14	26.13	26.05	-2.0	0.2594	0.2588	0.2541
10	QPSK	1	1	25.91	25.82	25.71	-2.0	0.2460	0.2410	0.2350
10	16QAM	1	1	25.42	25.33	25.57	-2.0	0.2198	0.2153	0.2275

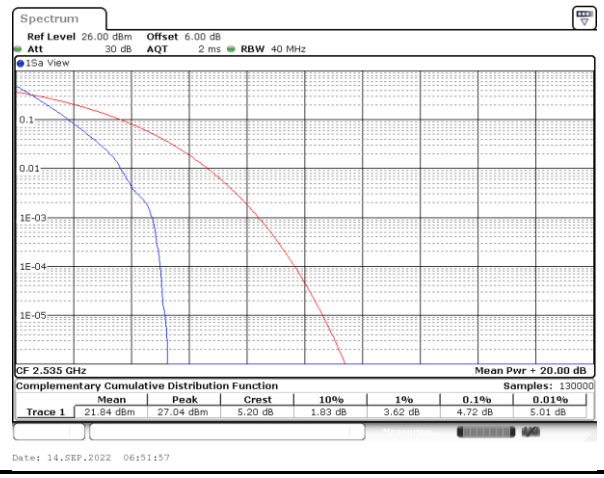
FR1 n7

Peak-to-Average Ratio

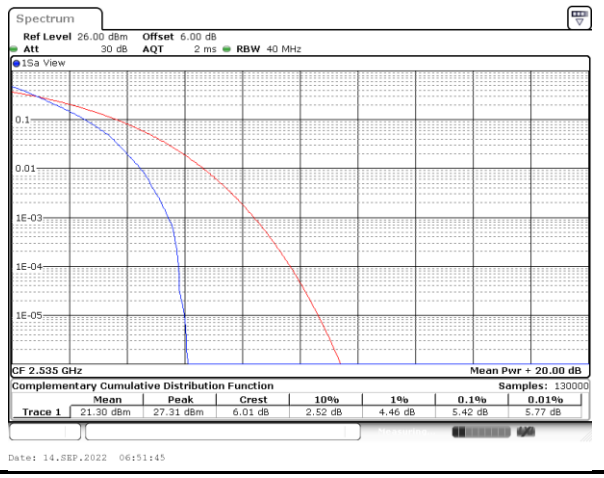
Mode	FR1 n7 / 40MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	QPSK			Limit: 13dB
RB Size	Full RB	Full RB			Result
Middle CH	4.72	5.42			PASS

FR1 n7 / 40MHz / DFT-S OFDM / Middle Channel / Full RB

PI/2 BPSK

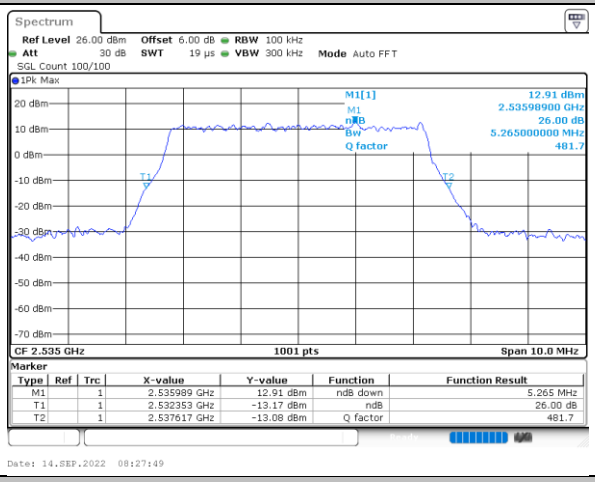
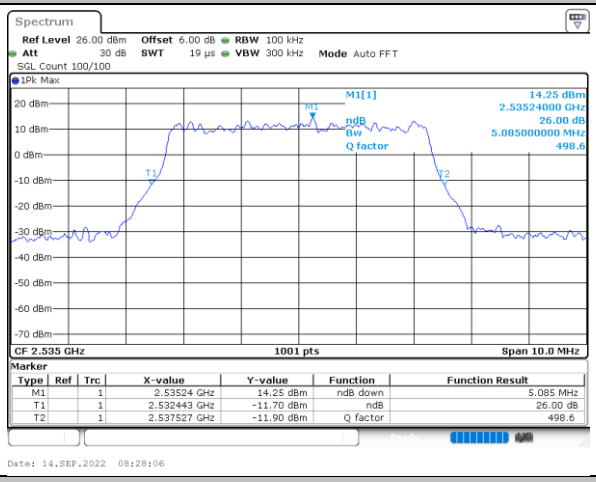
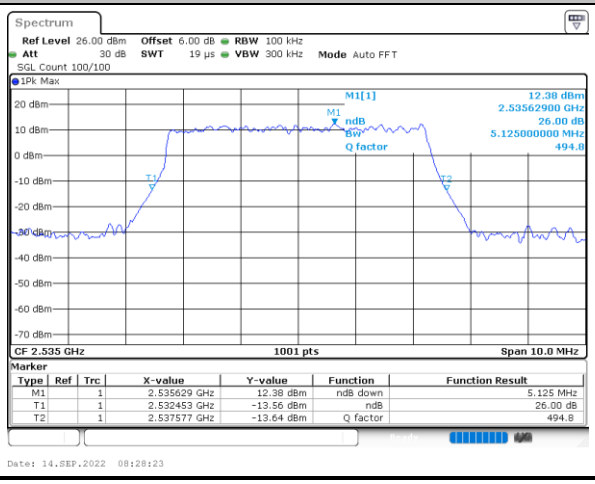
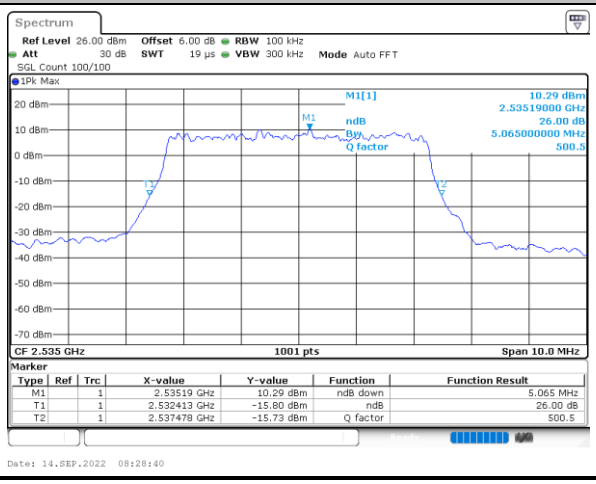


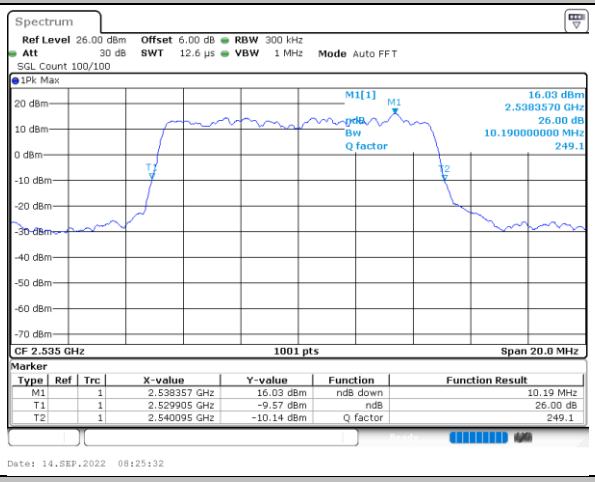
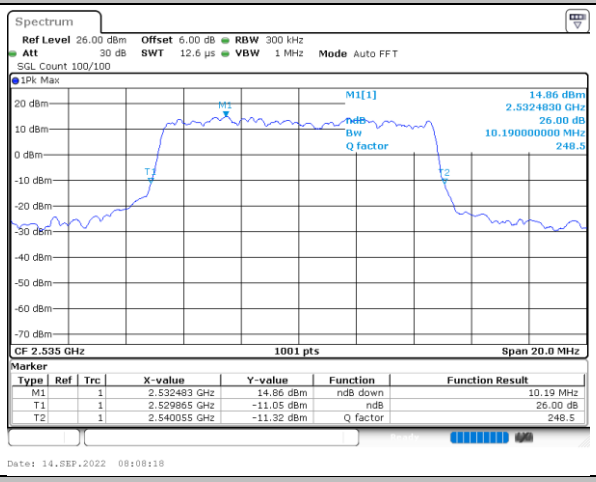
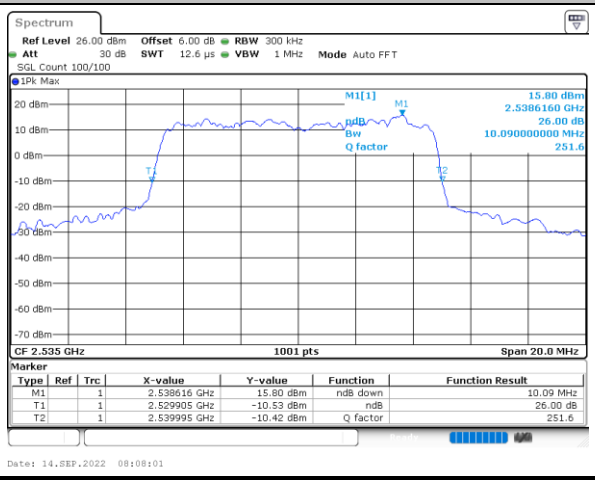
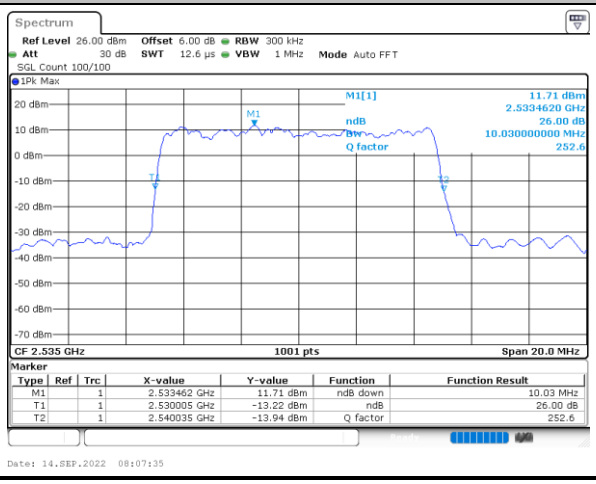
QPSK

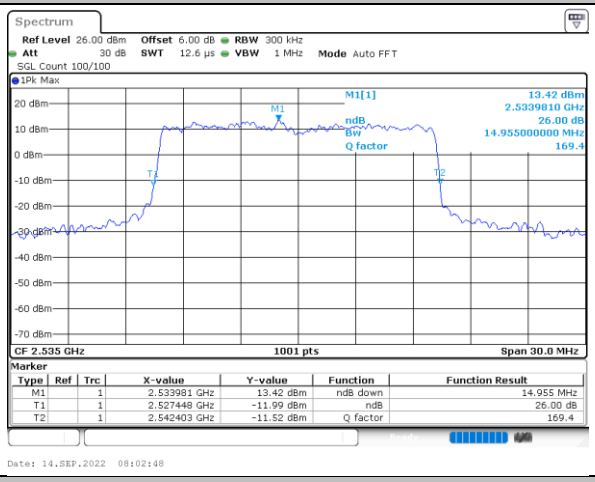
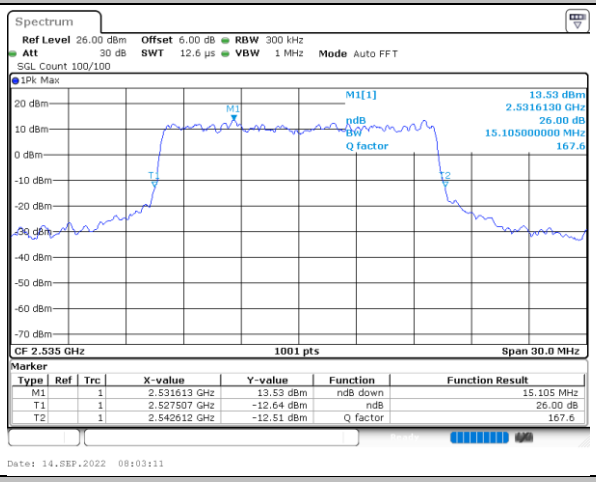
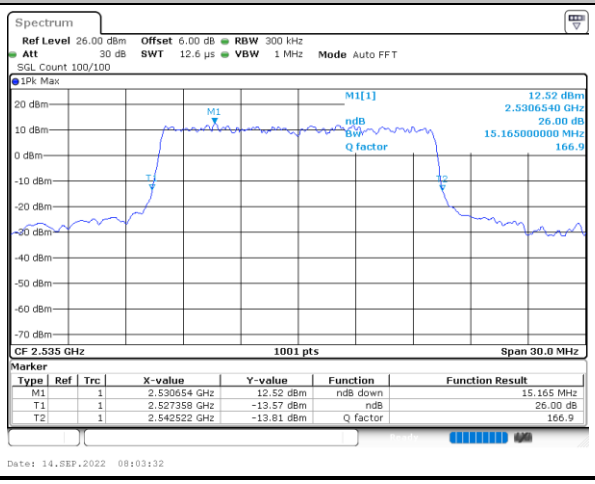
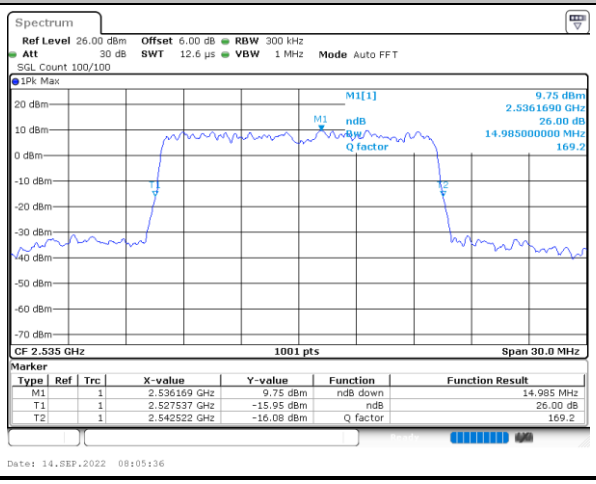


26dB Bandwidth

Mode	FR1 n7 : 26dBW (MHz) / CP OFDM													
BW	5MHz		10MHz		15MHz		20MHz		25M		30M		40M	
Mod.	QPSK		QPSK		QPSK		QPSK		QPSK		QPSK		QPSK	
Middle CH	5.27		10.19		14.96		19.94		24.58		29.57		40.92	
Mod.	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM
Middle CH	5.09	5.13	10.19	10.09	15.11	15.17	19.94	20.02	24.74	24.58	29.65	29.57	41.00	41.00
Mod.	256QAM		256QAM		256QAM		256QAM		256QAM		256QAM		256QAM	
Middle CH	5.07		10.03		14.99		19.86		24.66		29.73		41.00	

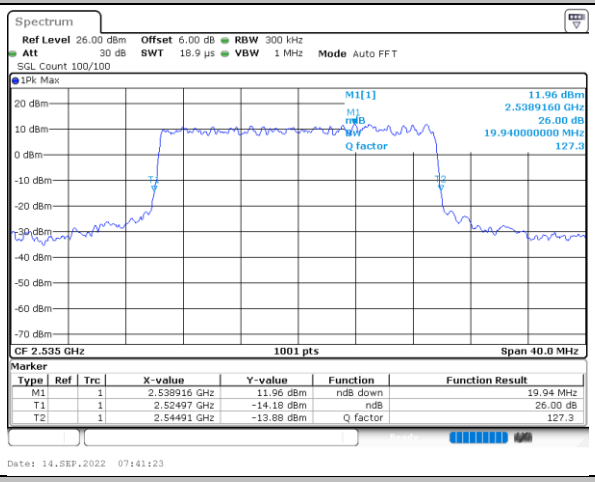
FR1 n7 / 5MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 / 10MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

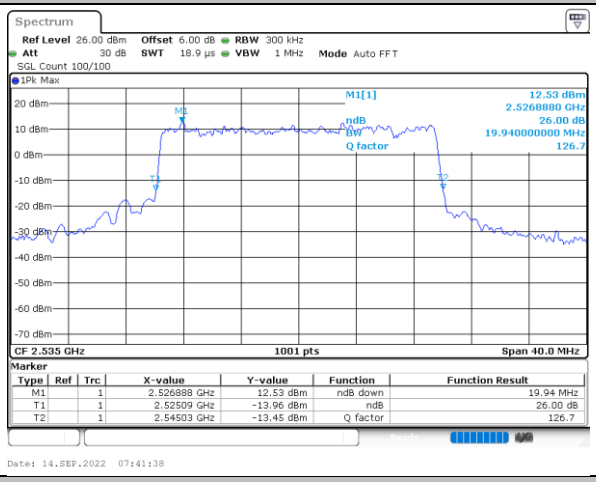
FR1 n7 / 15MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 / 20MHz / CP OFDM / Middle Channel / Full RB

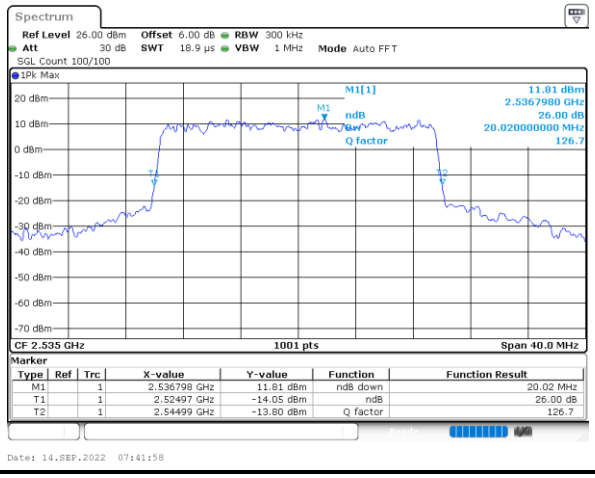
QPSK



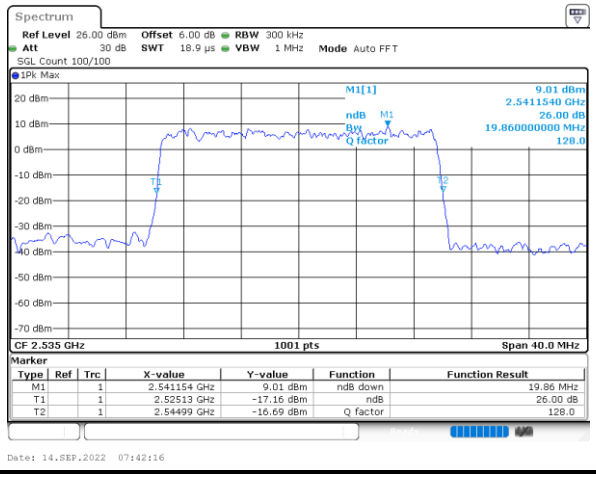
16QAM

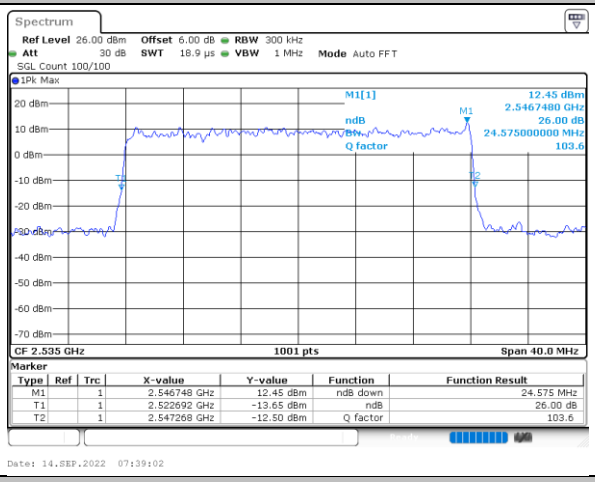
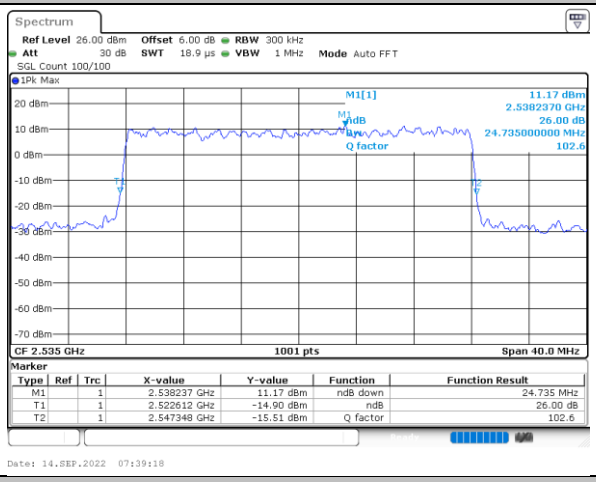
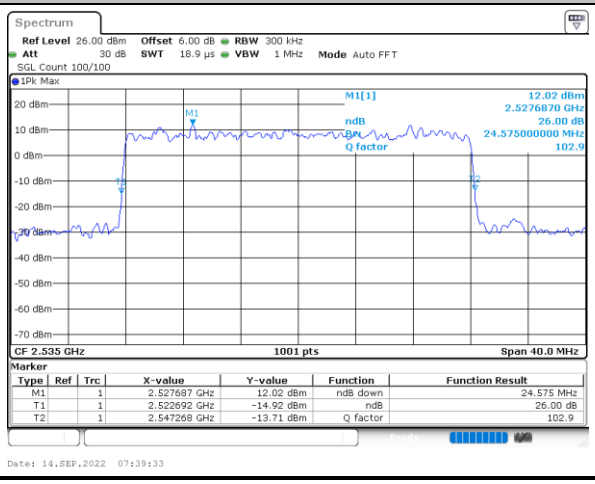
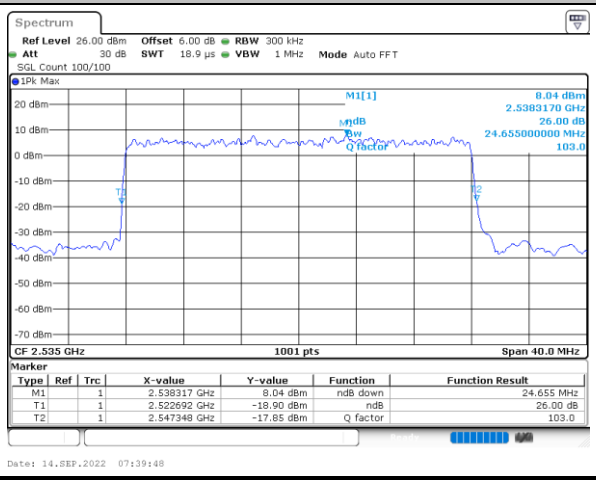


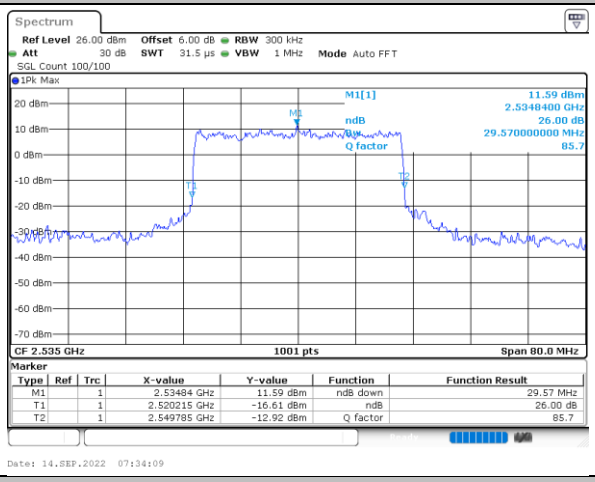
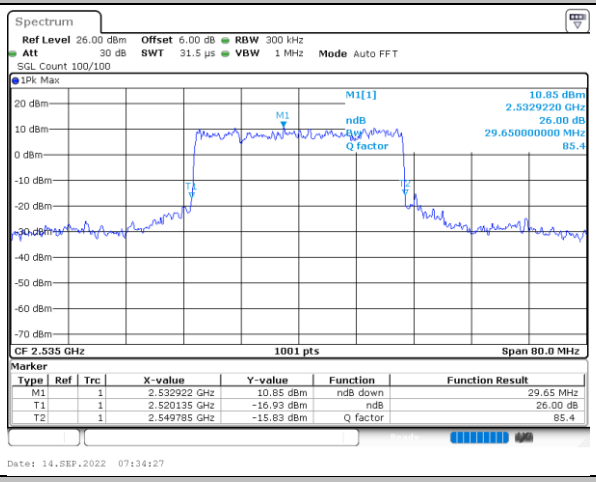
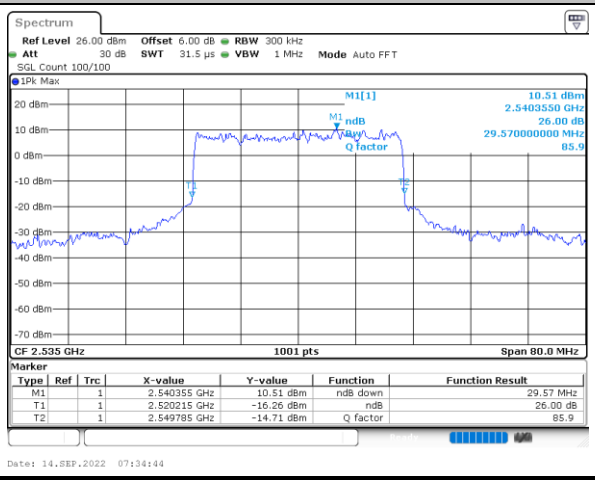
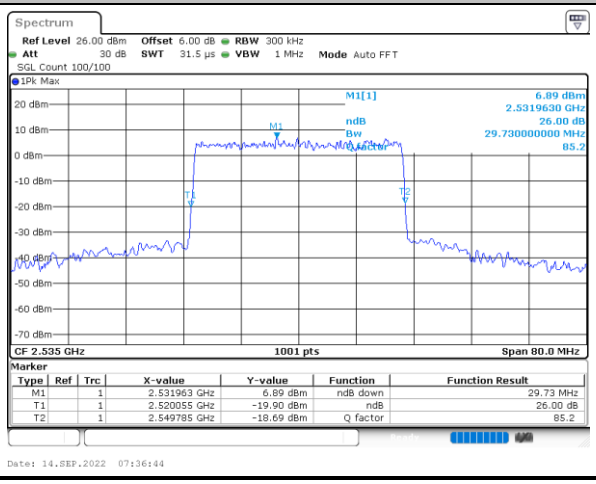
64QAM

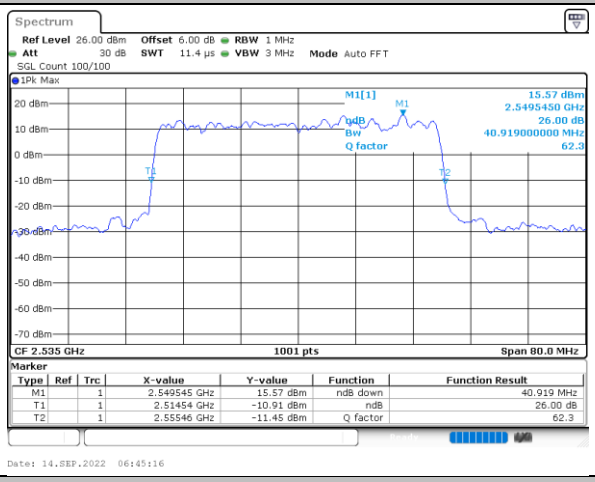
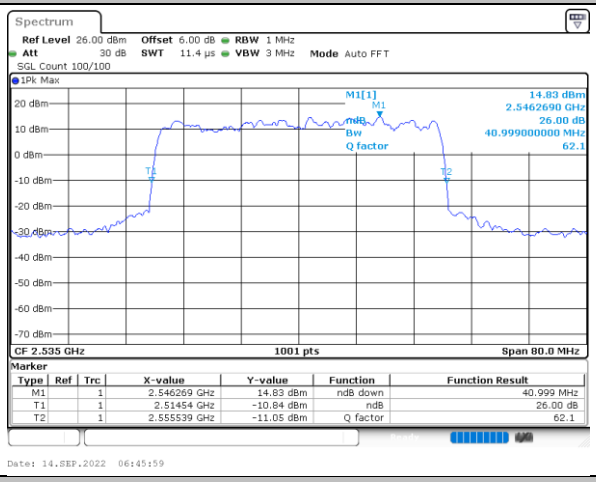
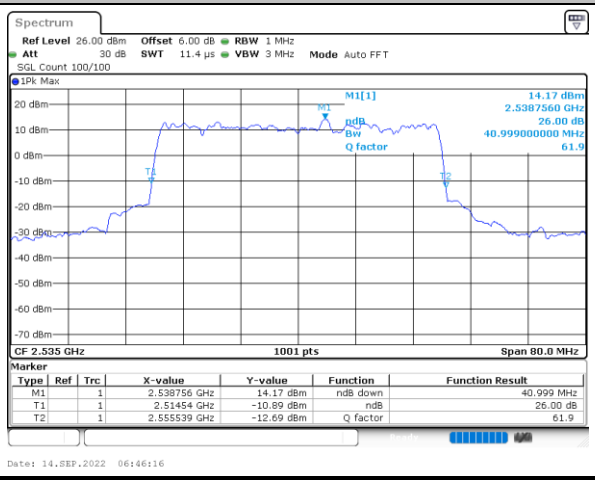
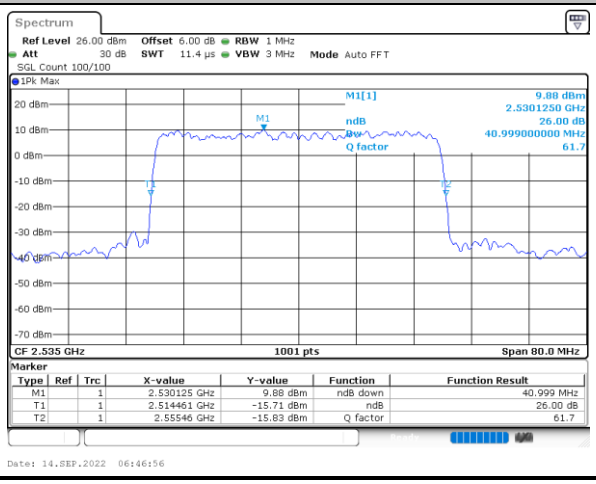


256QAM



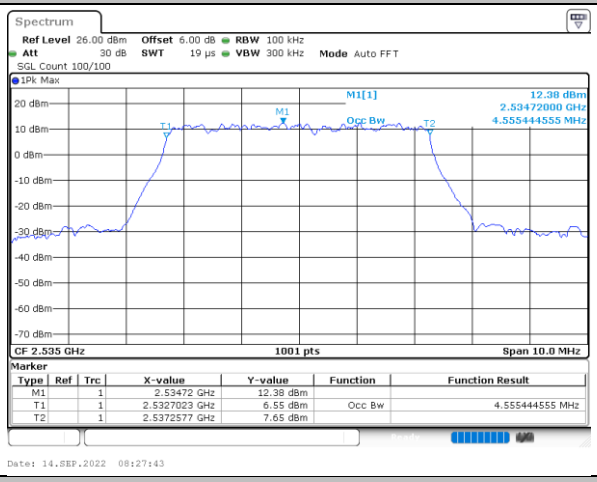
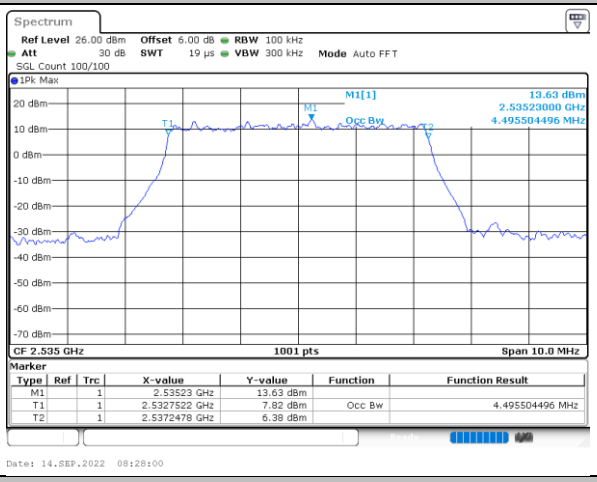
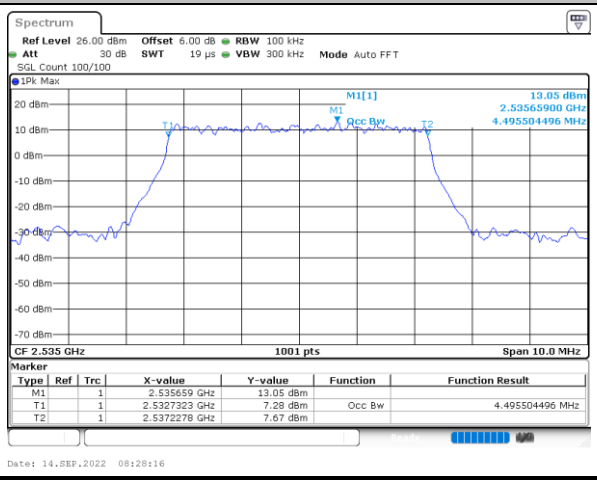
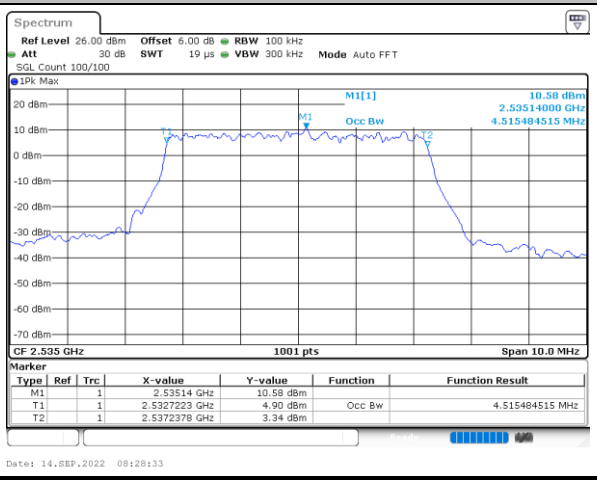
FR1 n7 / 25MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

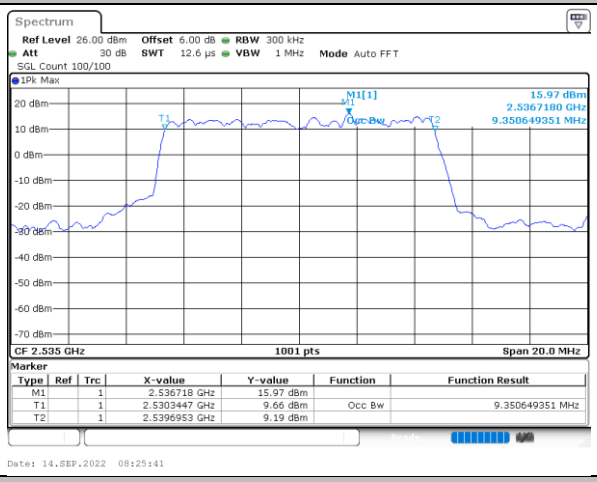
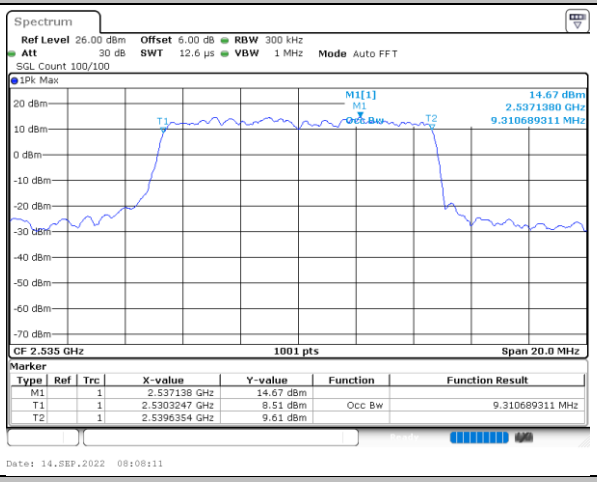
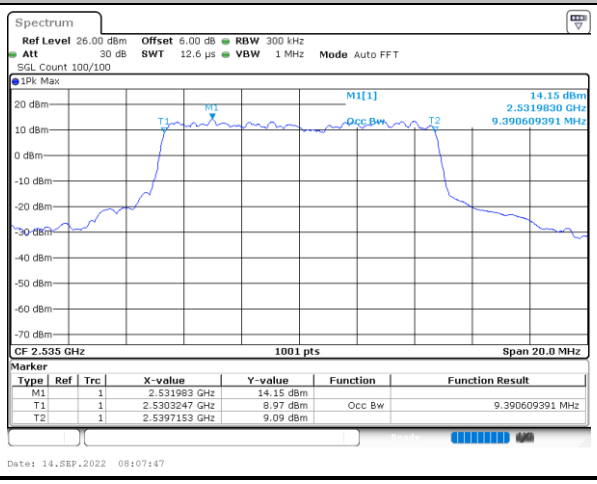
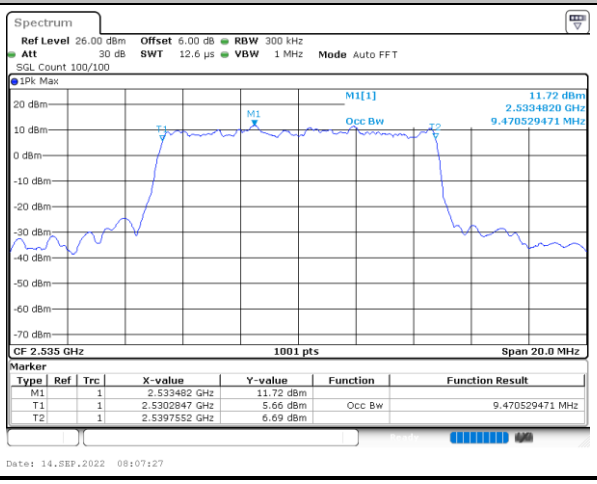
FR1 n7 / 30MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

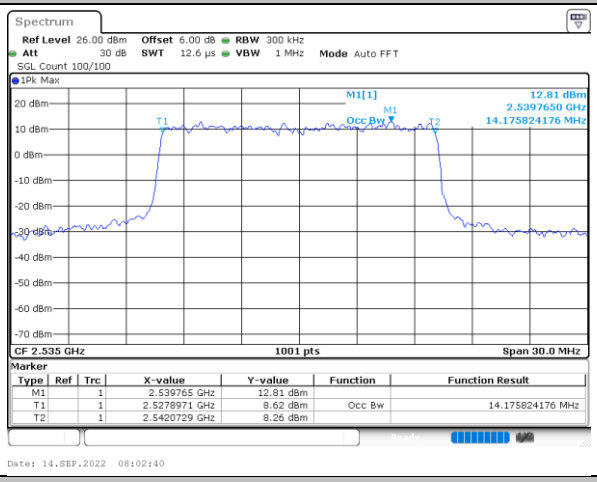
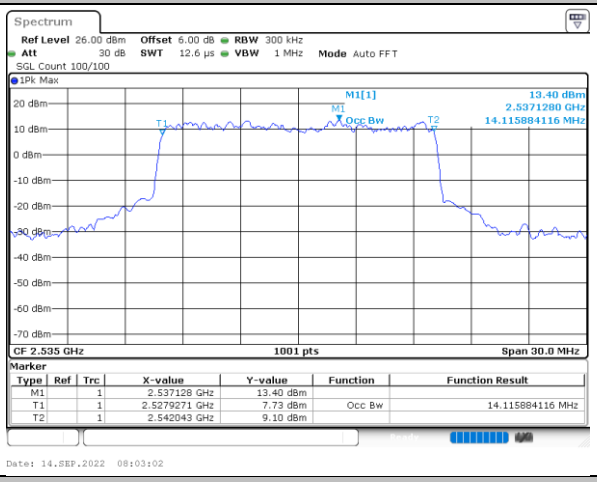
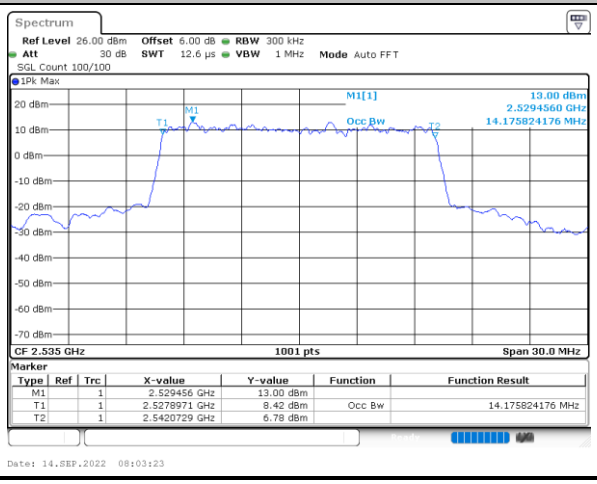
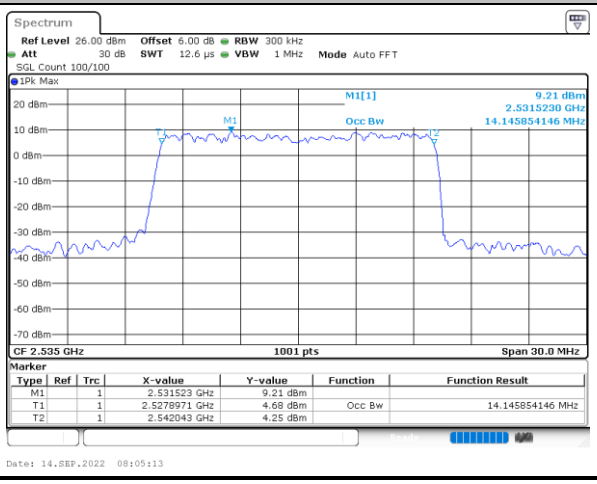
FR1 n7 / 40MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

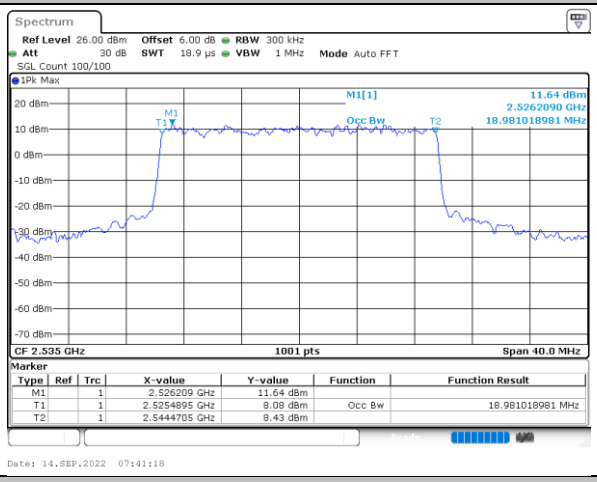
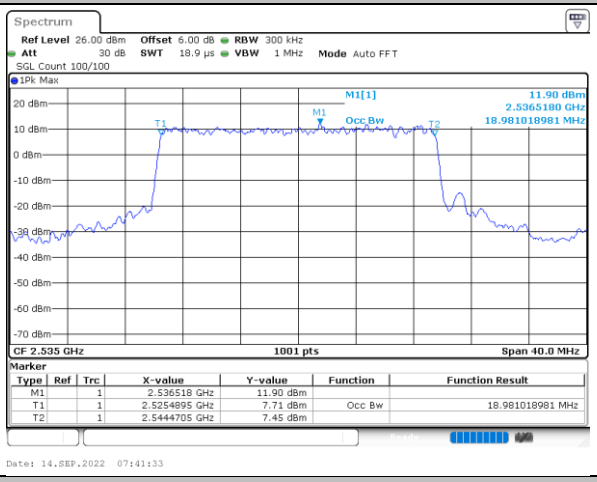
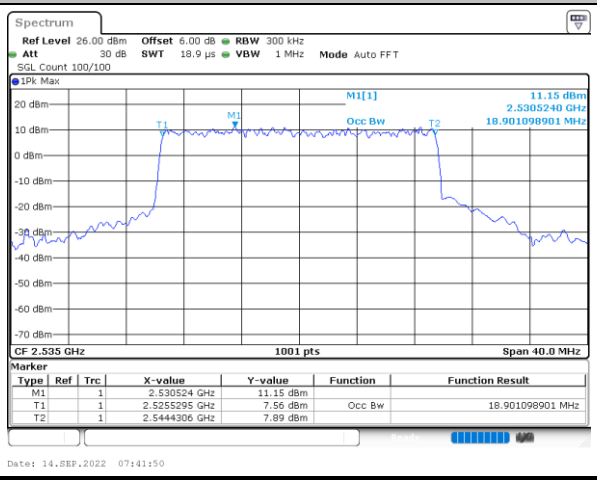
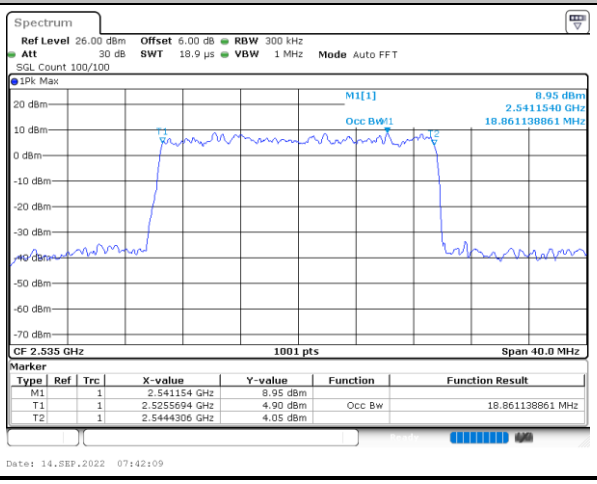
Occupied Bandwidth

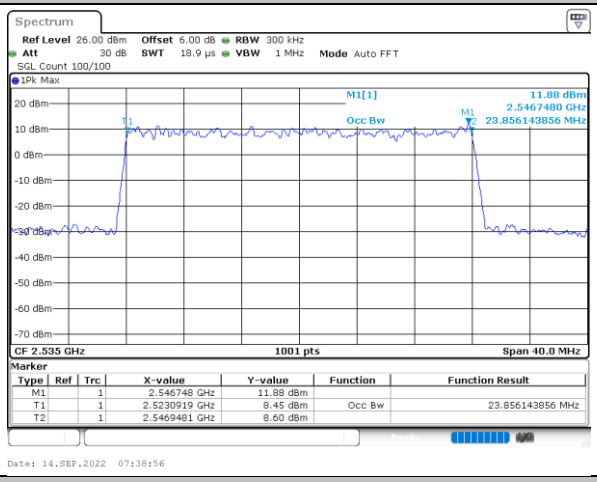
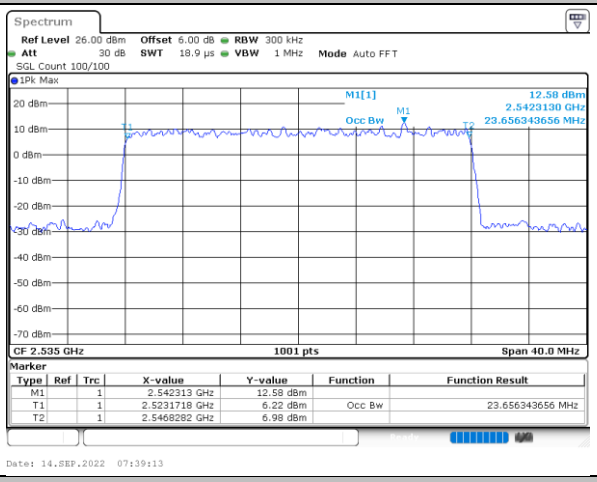
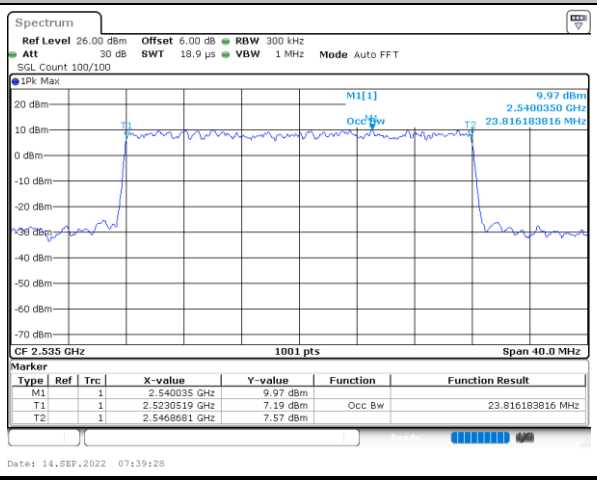
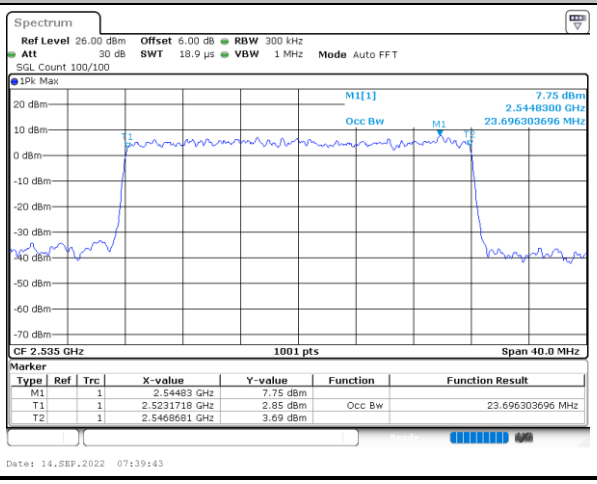
Mode	FR1 n7 : 99%OBW (MHz) / CP OFDM													
BW	5MHz		10MHz		15MHz		20MHz		25M		30M		40M	
Mod.	QPSK		QPSK		QPSK		QPSK		QPSK		QPSK		QPSK	
Middle CH	4.56		9.34		14.18		18.98		23.86		28.45		38.84	
Mod.	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM	16QAM	64QAM
Middle CH	4.50	4.50	9.31	9.39	14.12	14.18	18.98	18.90	23.66	23.82	28.61	28.61	38.60	38.60
Mod.	256QAM		256QAM		256QAM		256QAM		256QAM		256QAM		256QAM	
Middle CH	4.52		9.47		14.15		18.86		23.70		28.53		38.84	

FR1 n7 / 5MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 / 10MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 /15MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 / 20MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7 / 25MHz / CP OFDM / Middle Channel / Full RB	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n7/ 30MHz / CP OFDM / Middle Channel / Full RB	
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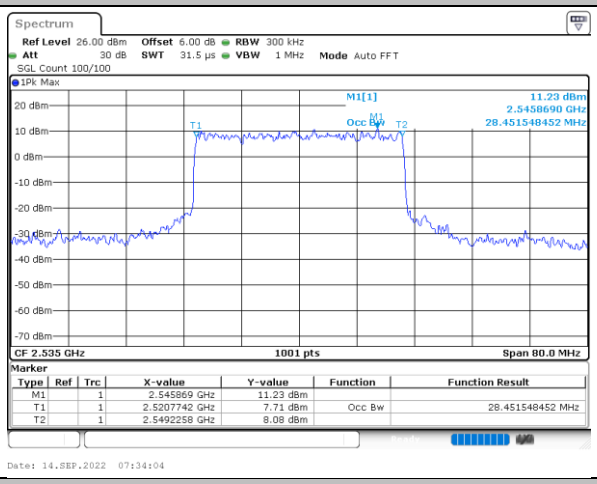
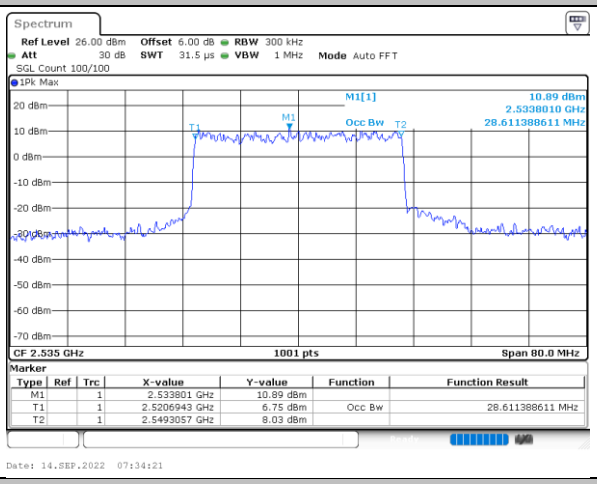
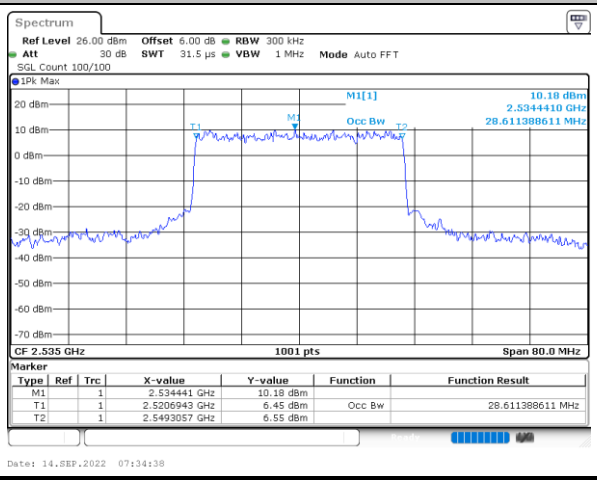
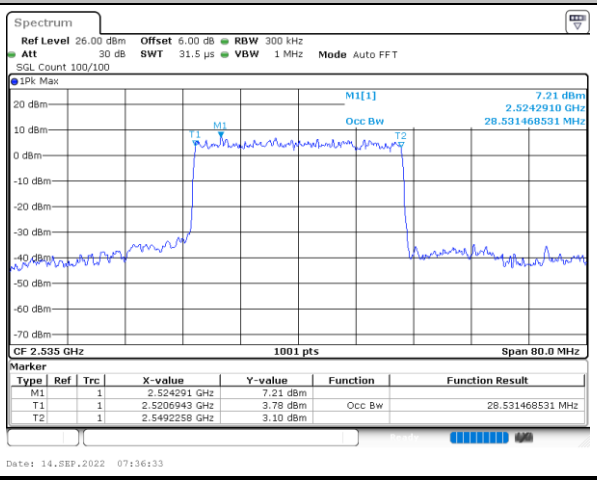
	
64QAM	256QAM
	

FR1 n7 / 40MHz / CP OFDM / Middle Channel / Full RB	
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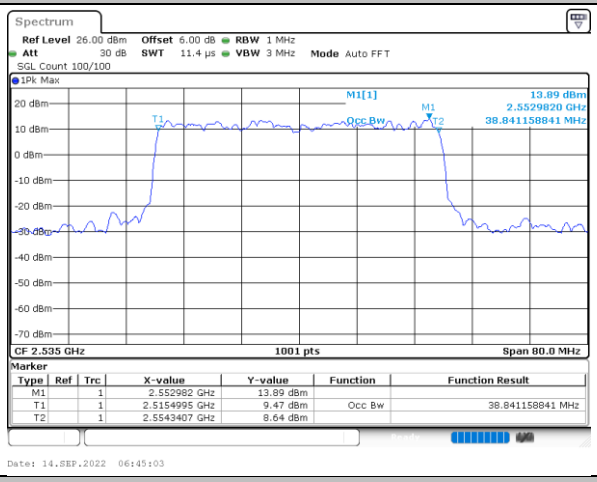
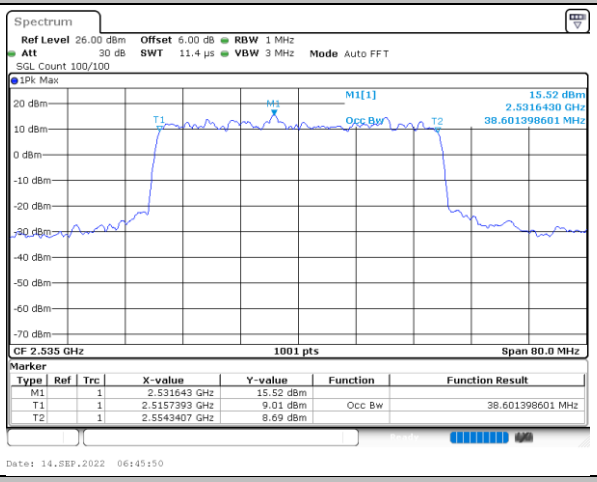
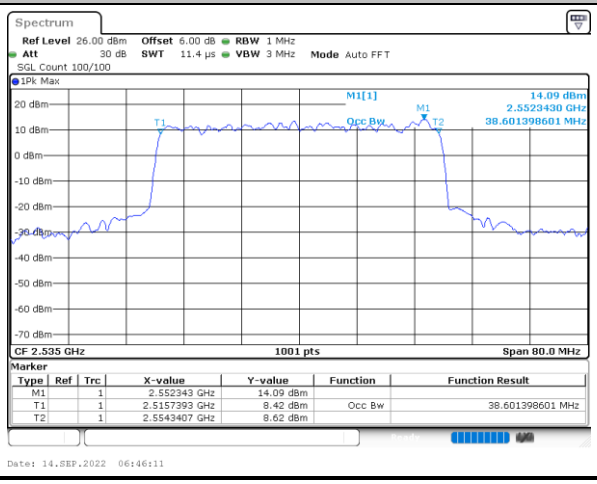
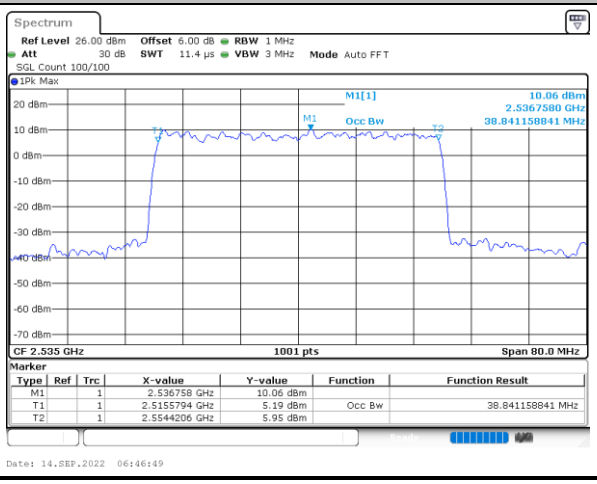
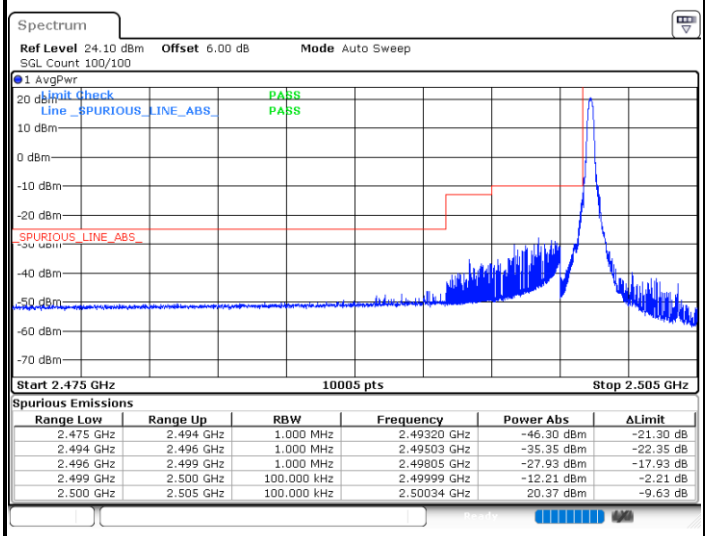
	
64QAM	256QAM
	

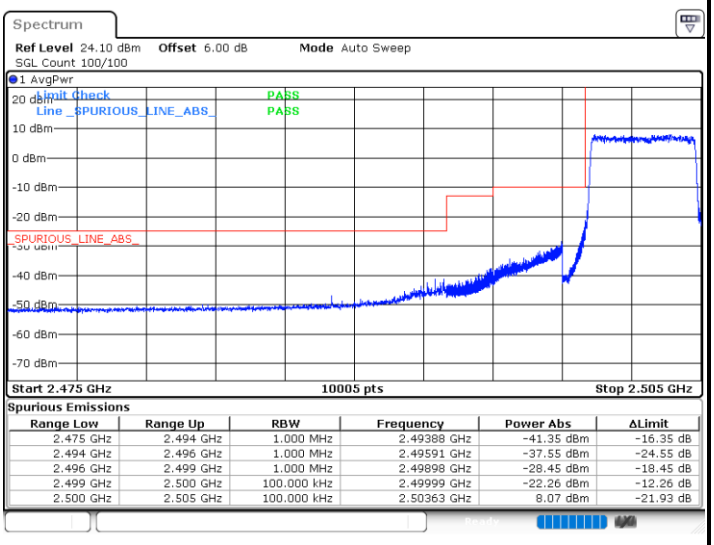
Conducted Band Edge

FR1 n7 / 5MHz / DFT-S OFDM / PI/2 BPSK

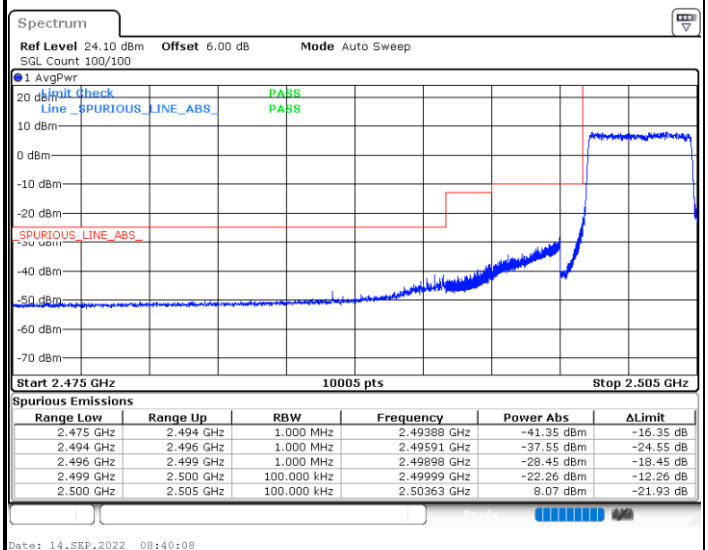
Lowest Band Edge / 1RB0



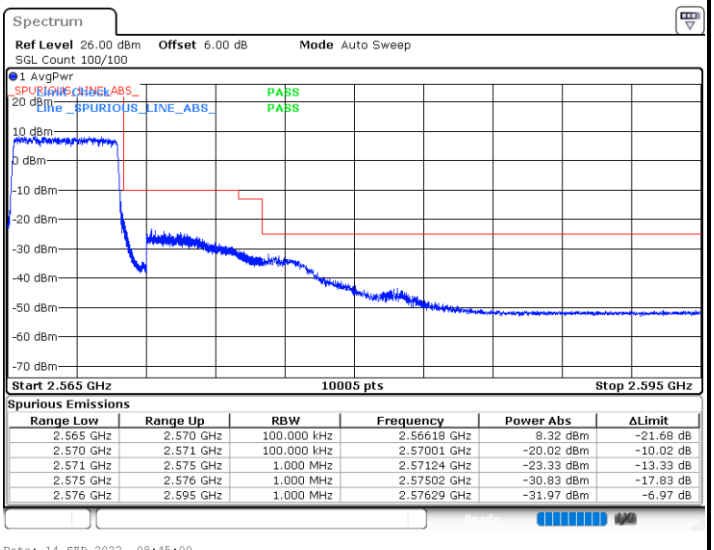
Highest Band Edge / 1RBmax



Lowest Band Edge / Full RB

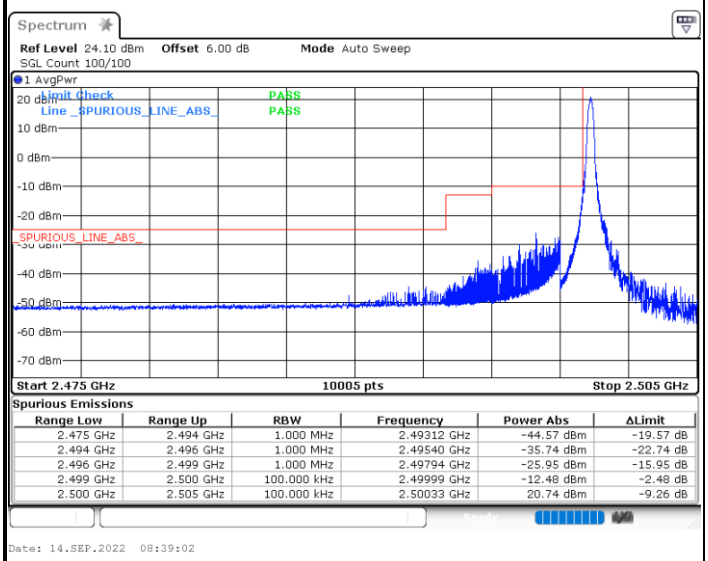


Highest Band Edge / Full RB



FR1 n7 / 5MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

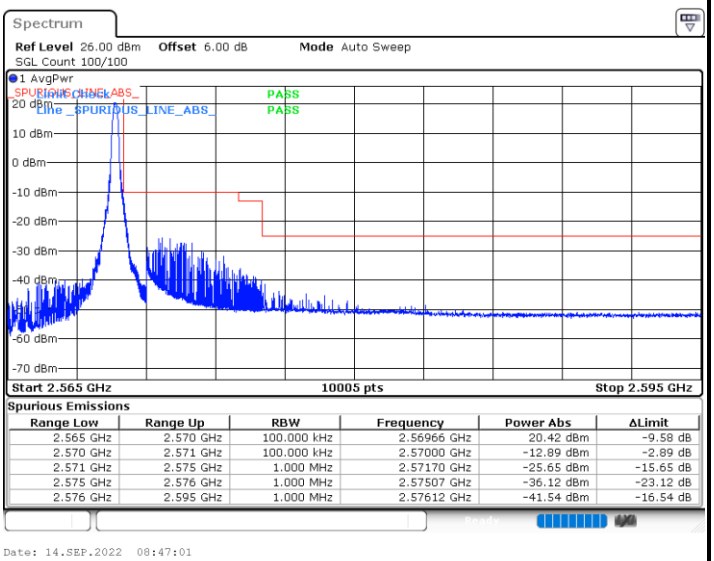


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49312 GHz	-44.57 dBm	-19.57 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49540 GHz	-35.74 dBm	-22.74 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49794 GHz	-25.95 dBm	-15.95 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.49999 GHz	-12.48 dBm	-2.48 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50033 GHz	20.74 dBm	-9.26 dB

Date: 14.SEP.2022 08:39:02

Highest Band Edge / 1RBmax

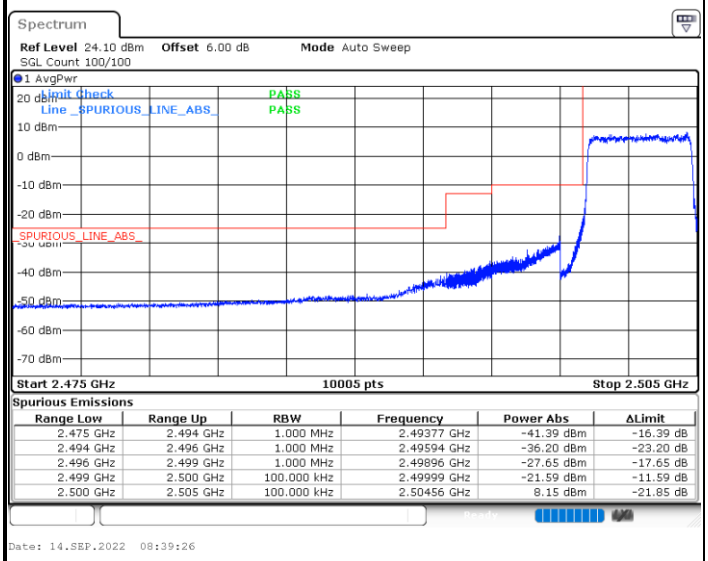


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56966 GHz	20.42 dBm	-9.58 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57000 GHz	-12.89 dBm	-2.89 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57170 GHz	-25.65 dBm	-15.65 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57507 GHz	-36.12 dBm	-23.12 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57612 GHz	-41.54 dBm	-16.54 dB

Date: 14.SEP.2022 08:47:01

Lowest Band Edge / Full RB

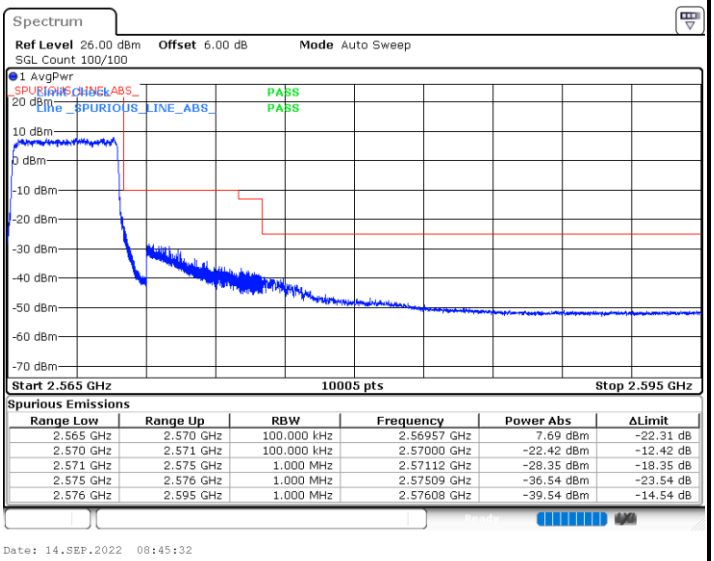


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.494 GHz	1.000 MHz	2.49377 GHz	-41.39 dBm	-16.39 dB
2.494 GHz	2.496 GHz	1.000 MHz	2.49594 GHz	-36.20 dBm	-23.20 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49896 GHz	-27.65 dBm	-17.65 dB
2.499 GHz	2.500 GHz	100.000 kHz	2.49999 GHz	-21.59 dBm	-11.59 dB
2.500 GHz	2.505 GHz	100.000 kHz	2.50456 GHz	8.15 dBm	-21.85 dB

Date: 14.SEP.2022 08:39:26

Highest Band Edge / Full RB

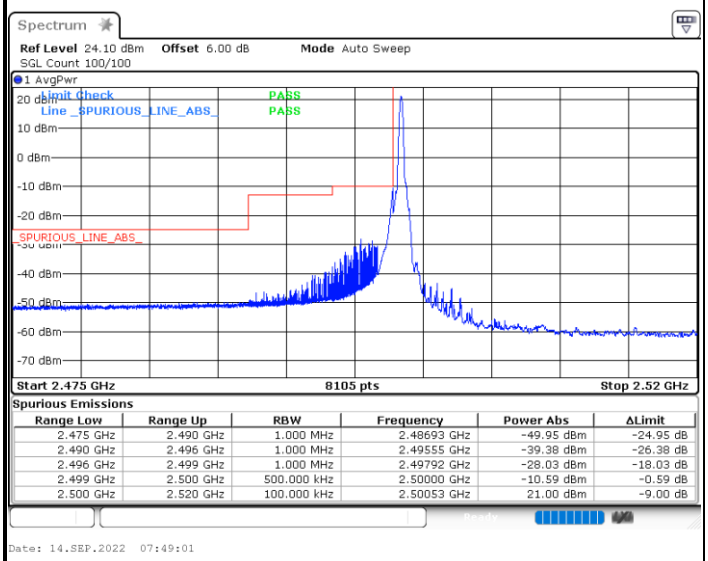


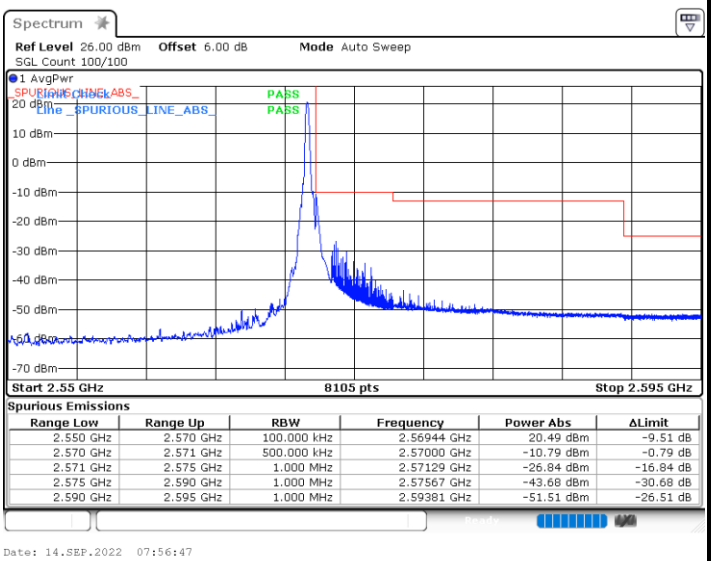
Spurious Emissions

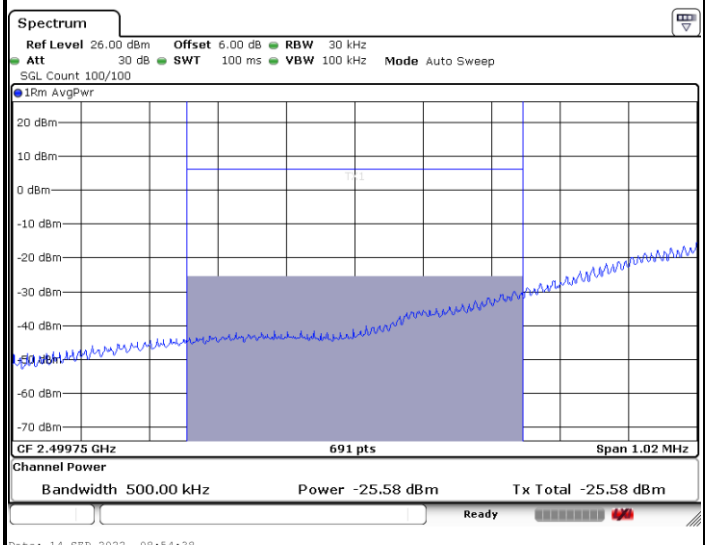
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.565 GHz	2.570 GHz	100.000 kHz	2.56957 GHz	7.69 dBm	-22.31 dB
2.570 GHz	2.571 GHz	100.000 kHz	2.57000 GHz	-22.42 dBm	-12.42 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57112 GHz	-28.35 dBm	-18.35 dB
2.575 GHz	2.576 GHz	1.000 MHz	2.57509 GHz	-36.54 dBm	-23.54 dB
2.576 GHz	2.595 GHz	1.000 MHz	2.57608 GHz	-39.54 dBm	-14.54 dB

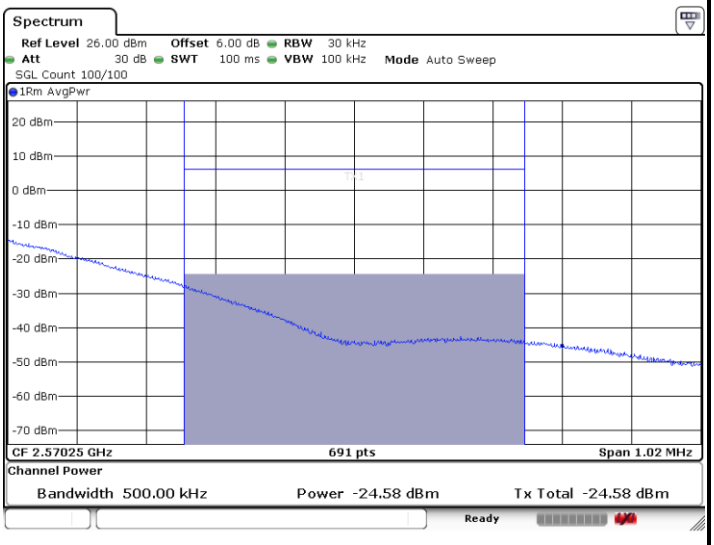
Date: 14.SEP.2022 08:45:32

FR1 n7 / 20MHz / DFT-s-OFDM / PI/2 BPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**

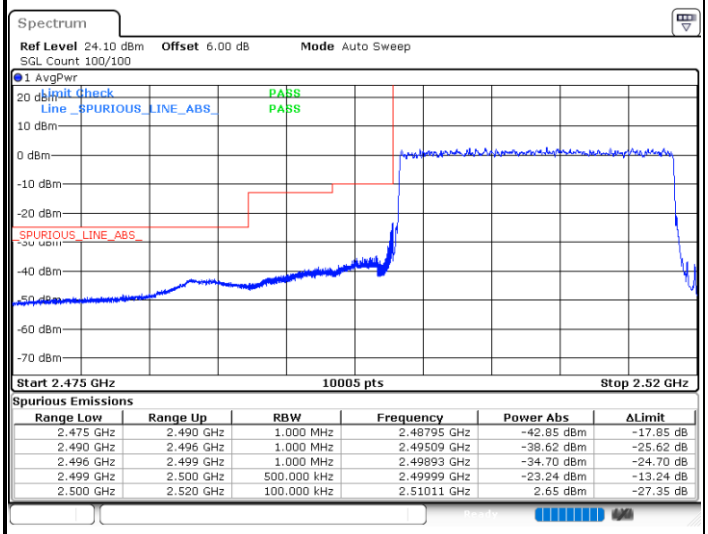


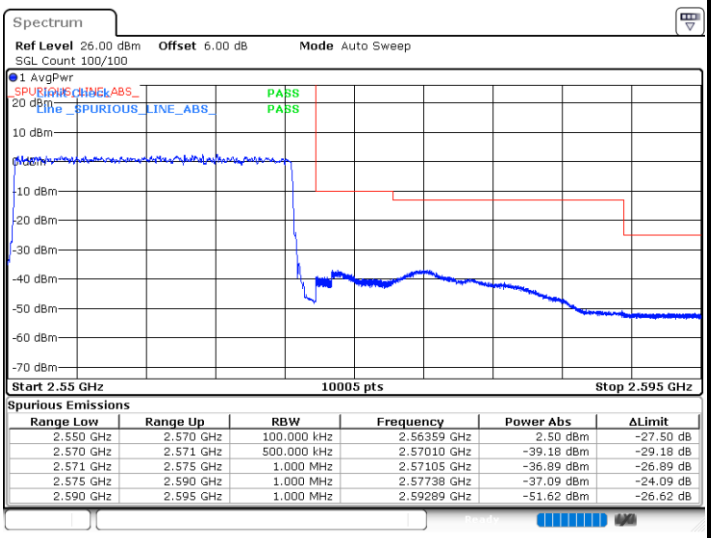




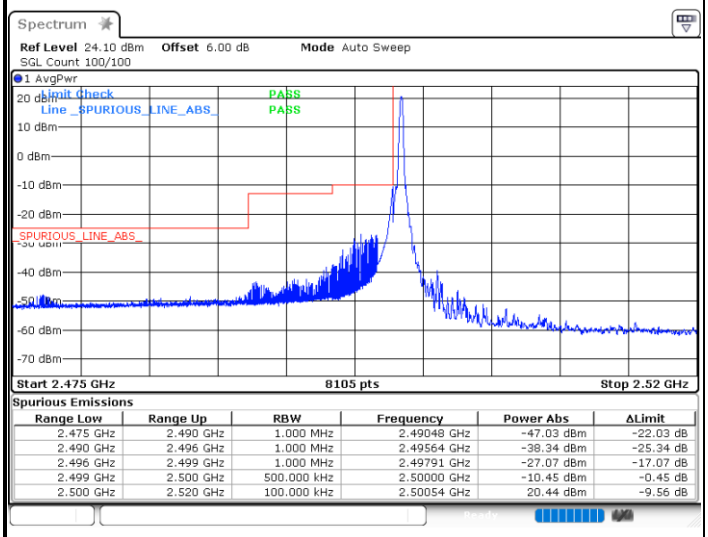


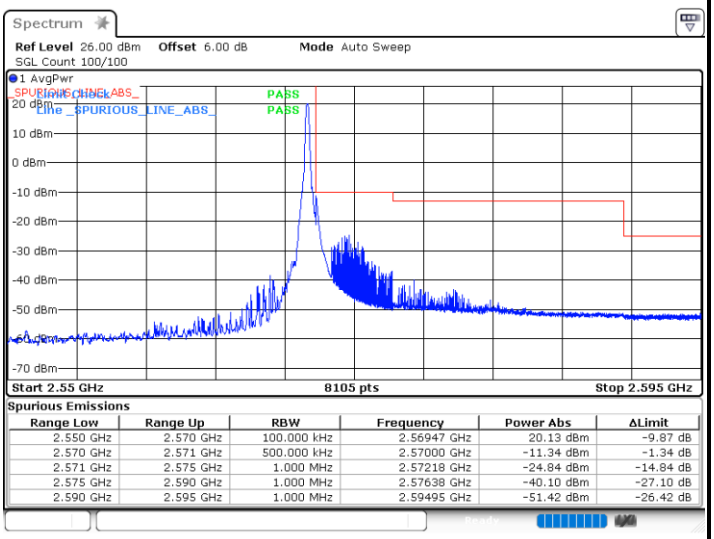
Lowest Band Edge / Full RB	Highest Band Edge / Full RB

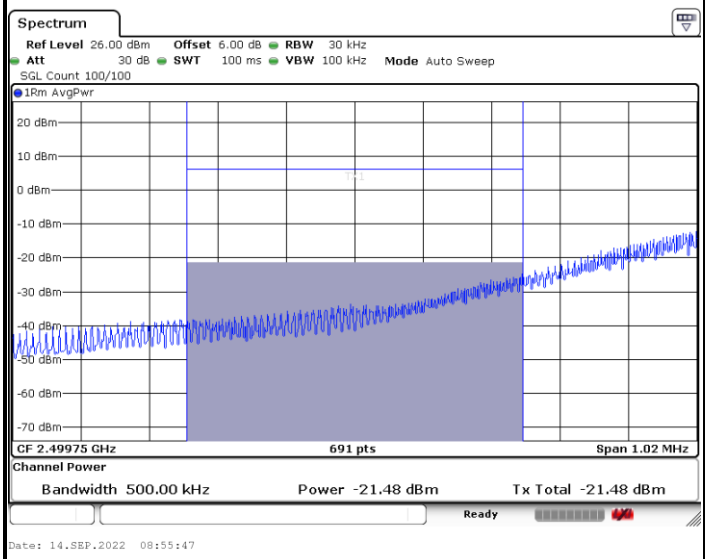




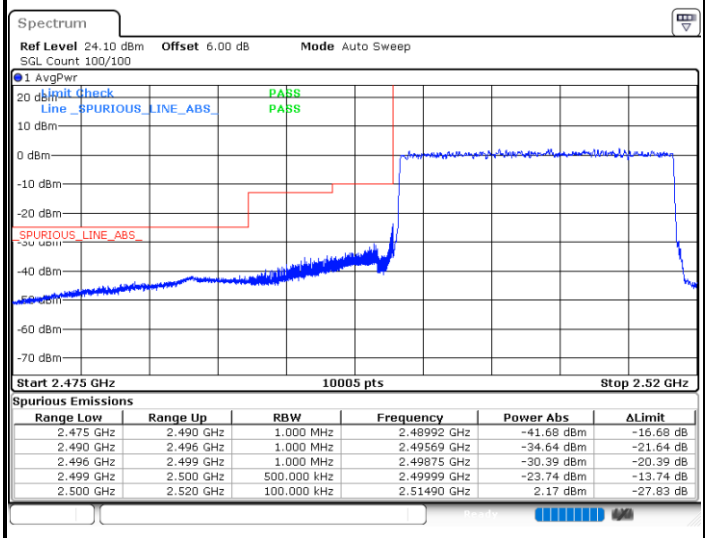
FR1 n7 / 20MHz / DFT-s-OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**

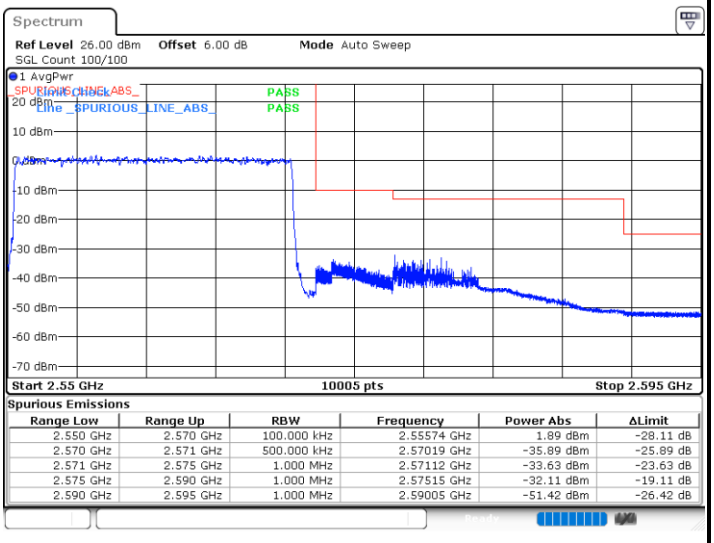




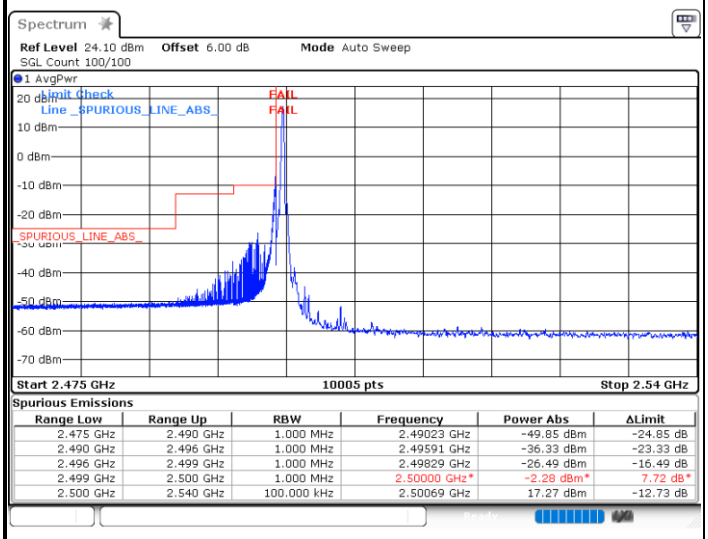


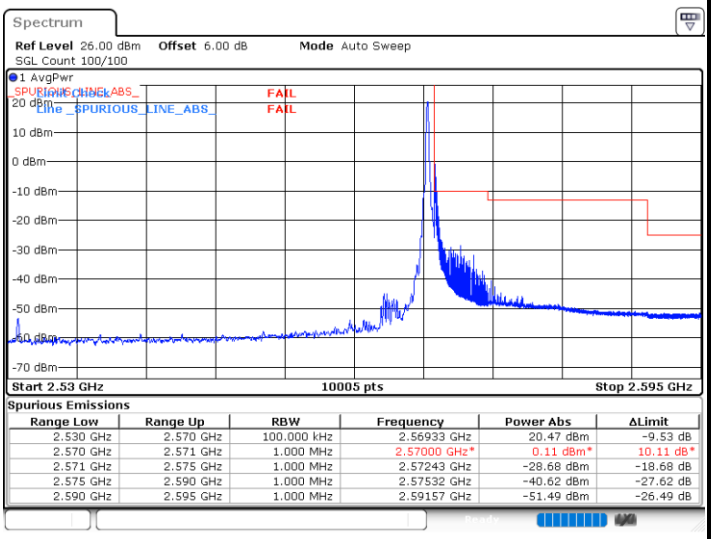
Lowest Band Edge / Full RB	Highest Band Edge / Full RB

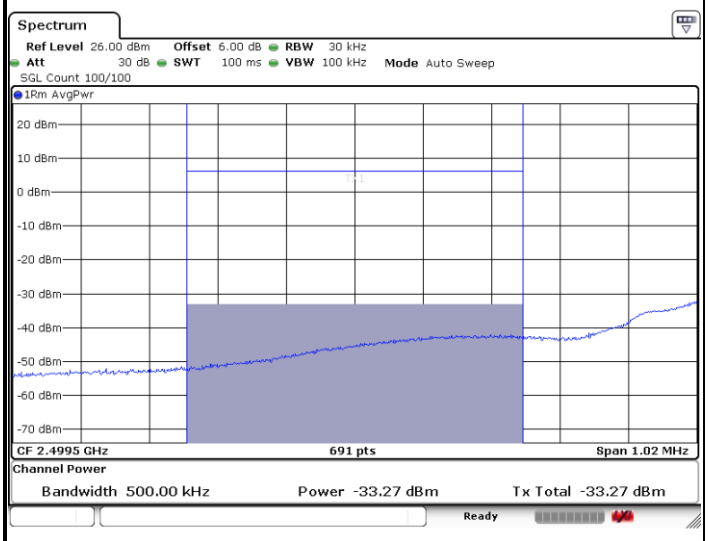


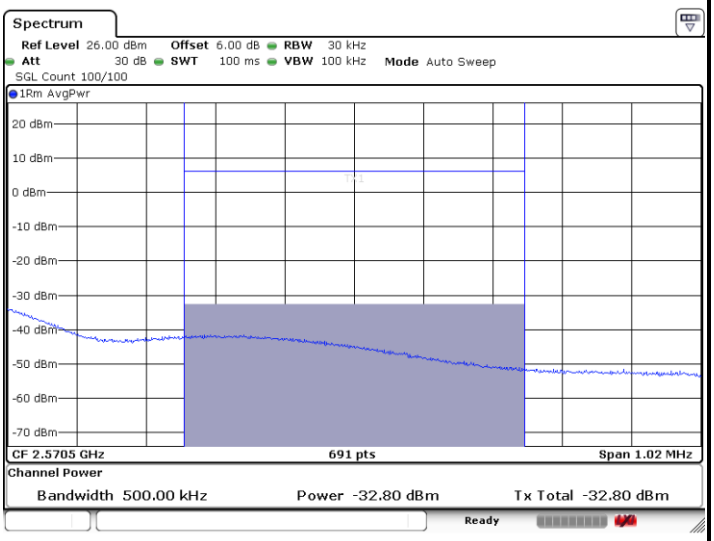


FR1 n7 / 40MHz / DFT-s-OFDM / PI/2 BPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**

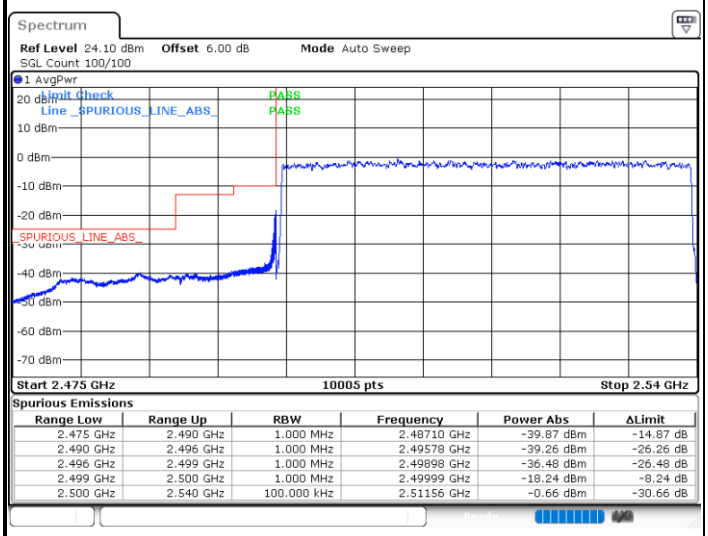








Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48710 GHz	-39.87 dBm	-14.87 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49578 GHz	-39.26 dBm	-26.26 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49898 GHz	-36.48 dBm	-26.48 dB
2.499 GHz	2.500 GHz	1.000 MHz	2.49999 GHz	-18.24 dBm	-8.24 dB
2.500 GHz	2.540 GHz	100.000 kHz	2.51156 GHz	-0.66 dBm	-30.66 dB

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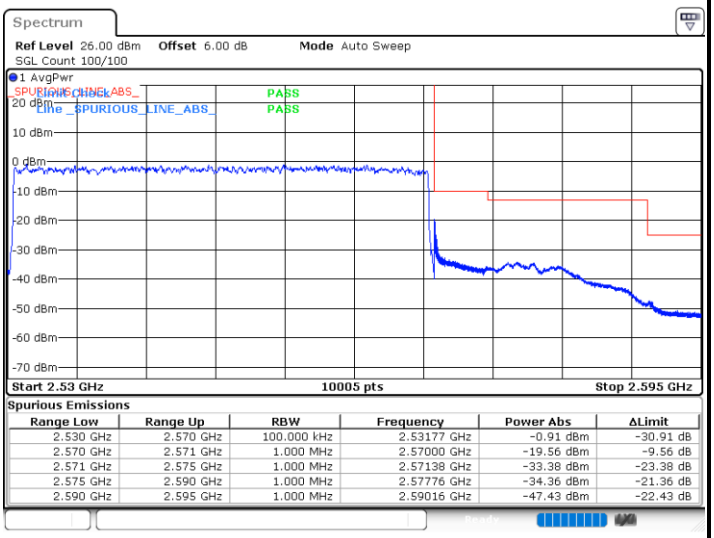
Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.530 GHz	2.570 GHz	100.000 kHz	2.53177 GHz	-0.91 dBm	-30.91 dB
2.570 GHz	2.571 GHz	1.000 MHz	2.57000 GHz	-19.56 dBm	-9.56 dB
2.571 GHz	2.575 GHz	1.000 MHz	2.57138 GHz	-33.38 dBm	-23.38 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57776 GHz	-34.36 dBm	-21.36 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59016 GHz	-47.43 dBm	-22.43 dB

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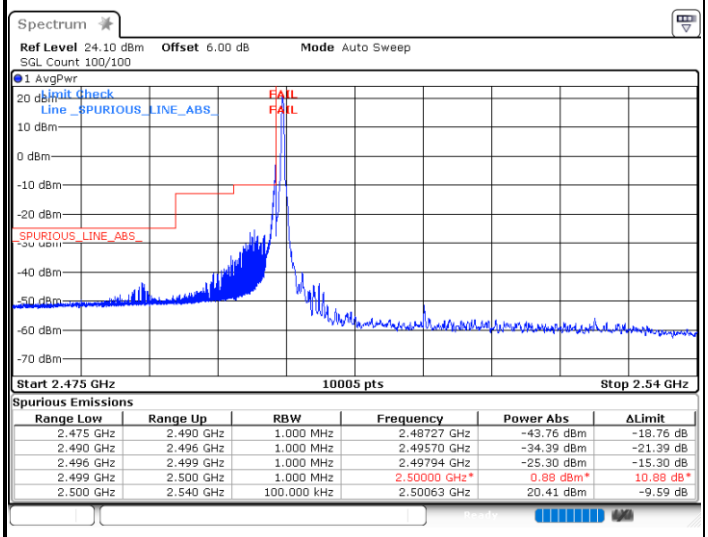
FR1 n7 / 40MHz / DFT-s-OFDM / QPSK

Lowest Band Edge / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.475 GHz	2.490 GHz	1.000 MHz	2.48727 GHz	-43.76 dBm	-18.76 dB
2.490 GHz	2.496 GHz	1.000 MHz	2.49570 GHz	-34.39 dBm	-21.39 dB
2.496 GHz	2.499 GHz	1.000 MHz	2.49794 GHz	-25.30 dBm	-15.30 dB
2.499 GHz	2.500 GHz	1.000 MHz	2.50000 GHz*	0.88 dBm*	10.88 dB*
2.500 GHz	2.540 GHz	100.000 kHz	2.50063 GHz	20.41 dBm	-9.59 dB

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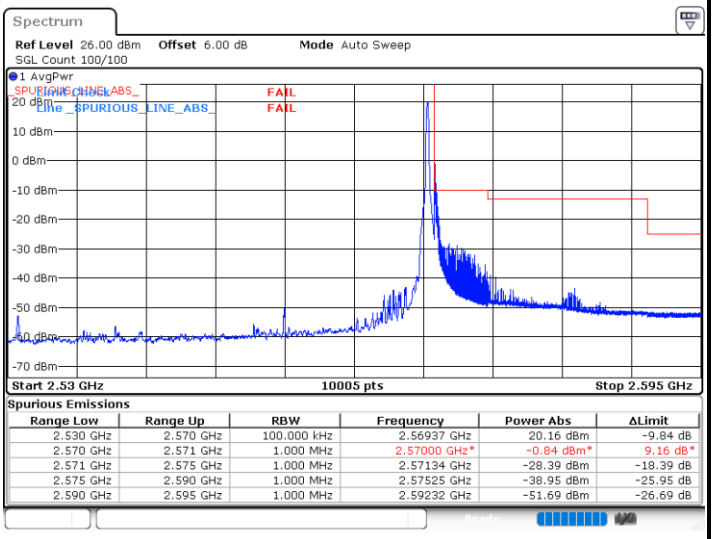
Highest Band Edge / 1RBmax



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.530 GHz	2.570 GHz	100.000 kHz	2.56937 GHz	20.16 dBm	-9.84 dB
2.570 GHz	2.571 GHz	1.000 MHz	2.57000 GHz*	-0.84 dBm*	9.16 dB*
2.571 GHz	2.575 GHz	1.000 MHz	2.57134 GHz	-28.39 dBm	-18.39 dB
2.575 GHz	2.590 GHz	1.000 MHz	2.57525 GHz	-38.95 dBm	-25.95 dB
2.590 GHz	2.595 GHz	1.000 MHz	2.59232 GHz	-51.69 dBm	-26.69 dB

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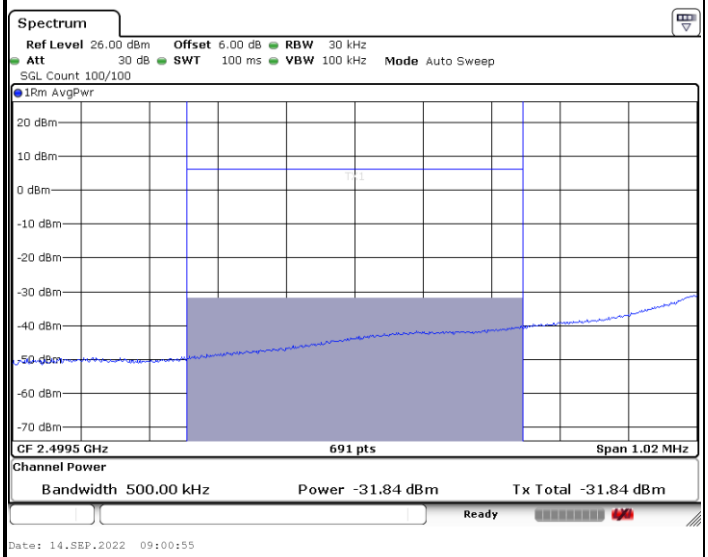

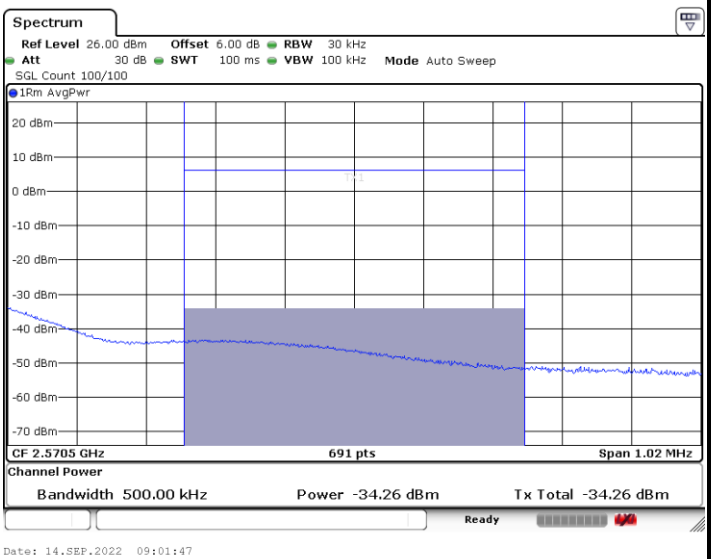

Lowest Band Edge / Full RB

Highest Band Edge / Full RB