FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2335-1
FCC ID	:	IHDT56AJ6
STANDARD	:	47 CFR Part 2, 24, 27
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	:	Oct. 12, 2022 ~ Oct. 20, 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.

This report contains data that were produced under subcontract by Sporton International Inc. (Shenzhen).

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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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

APPENDIX C. TEST SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG292106G	Rev. 01	Initial issue of report	Nov. 16, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power (5G NR n2)	EIRP < 2Watt		
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n7)	EIRP < 2Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (5G NR n66)	EIRP < 1Watt		
3.5	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §24.238(a) §27.53(h)	Conducted Band Edge Measurement (5G NR n2) (5G NR n66)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (5G NR n7)	§27.53(m)(4)		
3.8	§2.1051 §24.238(a) §27.53(h))	Conducted Spurious Emission (5G NR n2) (5G NR n66)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (5G NR n7)	< 55+10log$_{10}$(P[Watts])		
3.9	§24.235 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §24.238(a) §27.53(h)	Radiated Spurious Emission (5G NR n2) (5G NR n66)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 26.60 dB at 10122.360 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (5G NR n7)	< 55+10log$_{10}$(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	XT2335-1
FCC ID	IHDT56AJ6
IMEI Code	Conducted: 352691660026675/352691660026683 Radiation: 352691660027434/352691660027442
HW Version	DVT2
SW Version	TTP33.24
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz
Rx Frequency	5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n66 : 2110 MHz~ 2200 MHz
Bandwidth	n2: 5MHz / 10MHz / 15MHz / 20MHz n7: 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz n66: 5MHz / 10MHz / 15MHz / 20MHz / 30MHz / 40MHz
SCS	15kHz
Antenna Gain	**<Ant. 0>:** n2: 0.3 dBi **<Ant. 1>:** n7: -2.6 dBi n66: -5.1 dBi **<Ant. 5>:** n7: 1.0 dBi
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.
2. There are two PAs for 5G NR n7, other PA supports EN-DC mode for Ant.1 only.
3. 5G NR n2/n66 supports EN-DC mode only.
4. All the supported ENDC combinations are verified conducted power, only the ENDC combination with highest power are shown in the report.
5. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-101
AC Adapter 1(EU)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-102
AC Adapter 1(UK)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-103
AC Adapter 1(AU)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-105
AC Adapter 2(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-101
AC Adapter 2(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-102
AC Adapter 2(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-103
AC Adapter 2(AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-105
AC Adapter 3(US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-101
AC Adapter 3(EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-102
AC Adapter 3(UK)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-103
AC Adapter 3(AU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-105
AC Adapter 4(US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-201L
AC Adapter 4(EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-202L
AC Adapter 4(AR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-206L
AC Adapter 4(BR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-207L
AC Adapter 4(CHILE)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-209L
AC Adapter 5(US)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-201L
AC Adapter 5(EU)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-202L
AC Adapter 5(AR)	**Brand Name**	Motorola(AOHAI)	**Model Name**	MC-206L
AC Adapter 6(BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-207
Battery 1	**Brand Name**	Motorola(ATL)	**Model Name**	NH50
Battery 2	**Brand Name**	Motorola(SUNWODA)	**Model Name**	NH50
Earphone 1	**Brand Name**	Motorola(New Leader)	**Model Name**	MH202
Earphone 2	**Brand Name**	Motorola(Lyand)	**Model Name**	MH202
USB Cable 1	**Brand Name**	Motorola(kawakami)	**Model Name**	S928D67706
USB Cable 2	**Brand Name**	Motorola(Beauford)	**Model Name**	S928D70140

1.7 Maximum EIRP Power and Emission Designator

ENDC 66A_n2		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	1852.5 ~ 1907.5	0.2265	4M49G7D	0.1995	4M50W7D
10	1855.0 ~ 1905.0	0.2291	9M39G7D	0.1991	9M41W7D
15	1857.5 ~ 1902.5	0.2239	14M2G7D	0.2004	14M2W7D
20	1860.0 ~ 1900.0	0.2317	19M4G7D	0.2009	19M5W7D

5G NR SA 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	0.2500	4M48G7D	0.1963	4M49W7D
10	2505.0 ~ 2565.0	0.2495	9M35G7D	0.2004	9M37W7D
15	2507.5 ~ 2562.5	0.2495	14M2G7D	0.1963	14M2W7D
20	2510.0 ~ 2560.0	0.2466	19M3G7D	0.1982	19M5W7D
25	2512.5 ~ 2557.5	0.2518	23M8G7D	0.1991	23M8W7D
30	2515.0 ~ 2555.0	0.2529	28M5G7D	0.2000	28M6W7D
40	2520.0 ~ 2550.0	0.2523	38M7G7D	0.2009	38M9W7D

ENDC 5A_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	0.1250	4M48G7D	0.1102	4M49W7D
10	2505.0 ~ 2565.0	0.1242	9M35G7D	0.1091	9M41W7D
15	2507.5 ~ 2562.5	0.1242	14M2G7D	0.1102	14M2W7D
20	2510.0 ~ 2560.0	0.1236	19M4G7D	0.1107	19M7W7D
25	2512.5 ~ 2557.5	0.1346	23M8G7D	0.1102	23M8W7D
30	2515.0 ~ 2555.0	0.1340	28M5G7D	0.1099	28M7W7D
40	2520.0 ~ 2550.0	0.1368	38M8G7D	0.1112	38M9W7D

ENDC 2A_n66		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	1712.5 ~ 1777.5	0.0605	4M50G7D	0.0513	4M50W7D
10	1715.0 ~ 1775.0	0.0608	9M31G7D	0.0509	9M41W7D
15	1717.5 ~ 1772.5	0.0605	14M2G7D	0.0509	14M2W7D
20	1720.0 ~ 1770.0	0.0610	19M3G7D	0.0514	19M6W7D
30	1725.0 ~ 1765.0	0.0610	28M6G7D	0.0520	28M6W7D
40	1730.0 ~ 1760.0	0.0612	38M9G7D	0.0533	38M8W7D

Note: 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.**
	TH01-KS	CN1257	314309

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City Guangdong Province China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	CN1256	421272

Test data subcontracted: Test case for RSE in section 4.4 of this report

1.9 Test Software

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

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, 24, 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 (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.

Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane

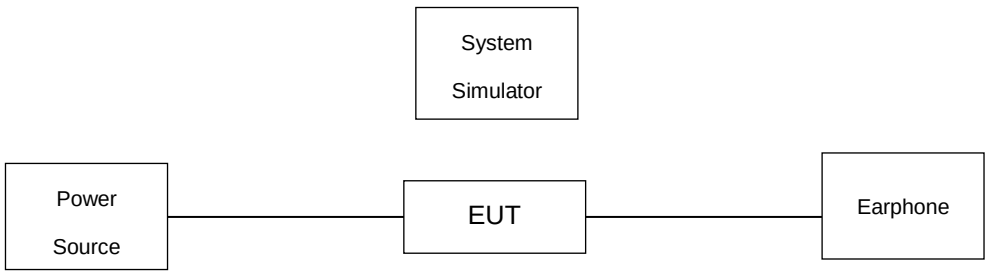
Test Items	5G NR	Bandwidth (MHz)													Modulation					RB #			Test Channel		
		5	10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	n2	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n7	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n66	v	v	v	v		v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n2				v	-	-	-	-	-	-	-	-	-	v	v						v		v	
	n7							v	-	-	-	-	-	-	v	v						v		v	
	n66							v	-	-	-	-	-	-	v	v						v		v	
26dB and 99% Bandwidth	n2	v	v	v	v	-	-	-	-	-	-	-	-	-		v	v	v	v			v		v	
	n7	v	v	v	v	v	v	v	-	-	-	-	-	-		v	v	v	v			v		v	
	n66	v	v	v	v		v	v	-	-	-	-	-	-		v	v	v	v			v		v	
Conducted Band Edge	n2	v	v		v	-	-	-	-	-	-	-	-	-	v	v				v		v	v		v
	n7	v	v		v			v	-	-	-	-	-	-	v	v				v		v	v		v
	n66	v			v			v	-	-	-	-	-	-	v	v				v		v	v		v
Conducted Spurious Emission	n2	v	v		v	-	-	-	-	-	-	-	-	-	v	v				v			v	v	v
	n7	v	v		v			v	-	-	-	-	-	-	v	v				v			v	v	v
	n66	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	256QAM	1	Half	Full	L	M	H
Frequency Stability	n2				v	-	-	-	-	-	-	-	-	-		v						v		v	
	n7				v				-	-	-	-	-	-		v						v		v	
	n66				v				-	-	-	-	-	-		v						v		v	
E.I.R.P	n2	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n7	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
	n66	v	v	v	v		v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n2	Worst Case																						v	
	n7	Worst Case																						v	
	N66	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. Frequency Stability：Normal Voltage = 3.87V ；Low Voltage =3.60V.；High Voltage =4.45V

2.2 Connection Diagram of Test System



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 n2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	372000	376000	380000
	Frequency	1860	1880	1900
15	Channel	371500	376000	380500
	Frequency	1857.5	1880	1902.5
10	Channel	371000	376000	381000
	Frequency	1855	1880	1905
5	Channel	370500	376000	381500
	Frequency	1852.5	1880	1907.5

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 n66 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	346000	349000	352000
	Frequency	1730	1745	1760
30	Channel	345000	349000	353000
	Frequency	1725	1745	1765
20	Channel	344000	349000	354000
	Frequency	1720	1745	1770
15	Channel	343500	349000	354500
	Frequency	1717.5	1745	1772.5
10	Channel	343000	349000	355000
	Frequency	1715	1745	1775
5	Channel	342500	349000	355500
	Frequency	1712.5	1745	1777.5

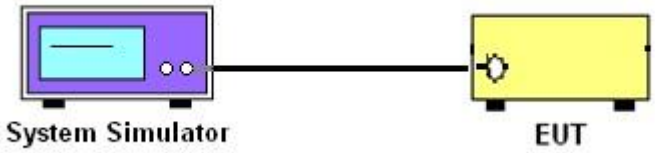
3 Conducted Test Items

3.1 Measuring Instruments

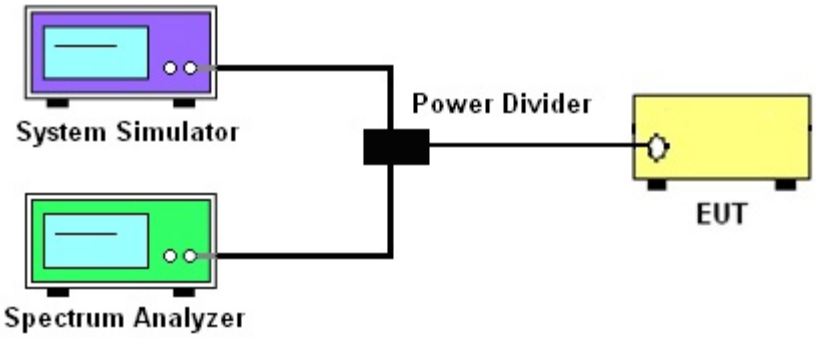
See list of measuring instruments of this test report.

3.2 Test Setup

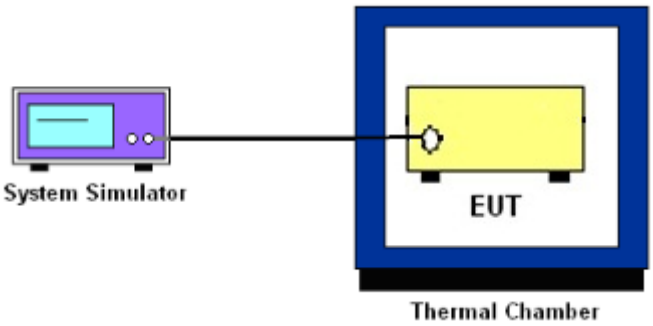
3.2.1 Conducted Output Power



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 n2.

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

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n66.

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

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.

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

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (h)

For operations in the 1710 – 1755 MHz and 1710 – 1780 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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.

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%/2% 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, 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:

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 10th 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
    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.

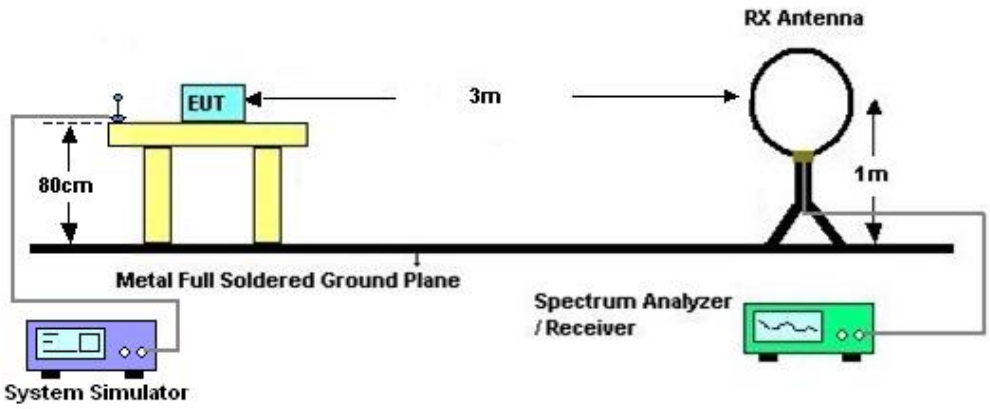
4 Radiated Test Items

4.1 Measuring Instruments

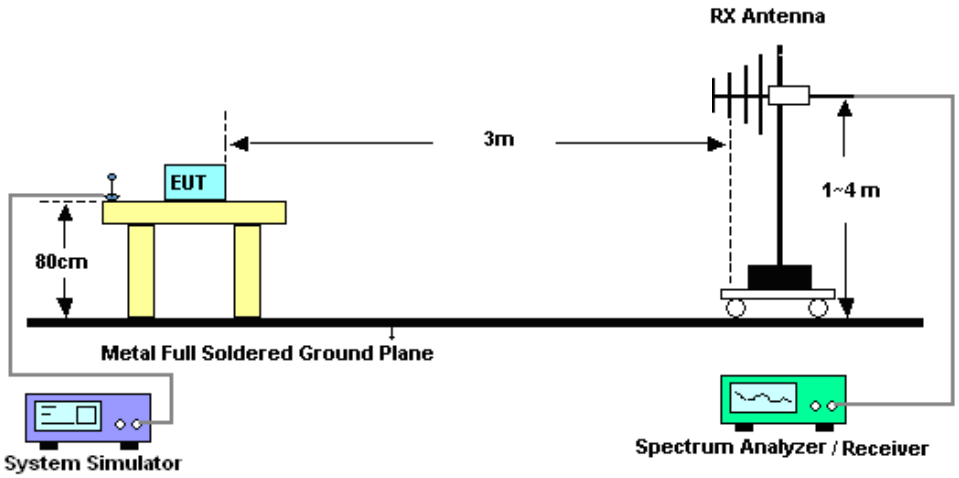
See list of measuring instruments of this test report.

4.2 Test Setup

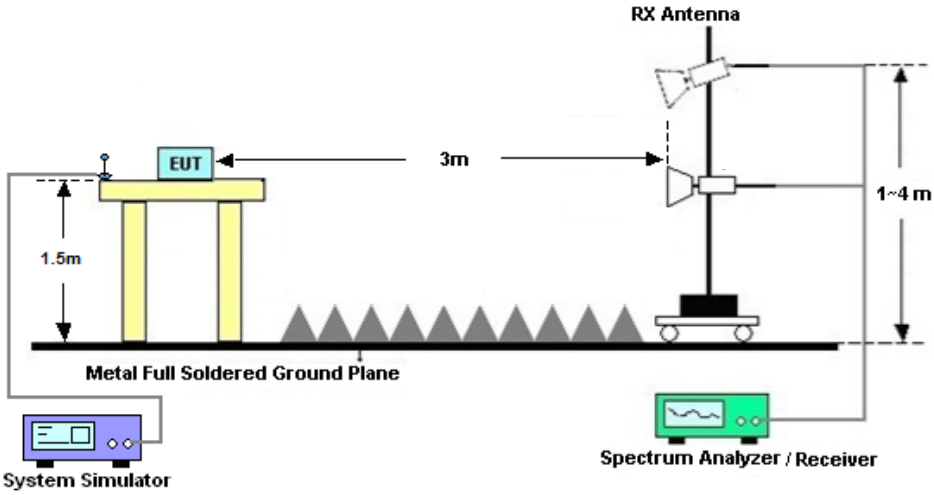
4.2.1 For radiated test below 30MHz



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.

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

For 5G NR n7

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:
    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. 12, 2022	Oct. 19, 2022~ Oct. 20, 2022	Oct. 11, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2022	Oct. 19, 2022~ Oct. 20, 2022	Aug. 25, 2023	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011 440	-40~+150°C 20%~95%RH	Jul. 15, 2022	Oct. 19, 2022~ Oct. 20, 2022	Jul. 14, 2023	Conducted (TH01-KS)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150 213	10Hz~44GHz	Jul. 07, 2022	Oct. 12, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 28, 2022	Oct. 12, 2022	Jun. 27, 2023	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	Oct. 22, 2021	Oct. 12, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-14 74	1GHz~18GHz	Jul. 07, 2022	Oct. 12, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	Jul. 07, 2022	Oct. 12, 2022	Jul. 06, 2023	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 22, 2021	Oct. 12, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P-R	1943528	1GHz~18GHz	Oct. 22, 2021	Oct. 12, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Oct. 22, 2021	Oct. 12, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY53270 156	500MHz~26.5GHz	Oct. 22, 2021	Oct. 12, 2022	Oct. 21, 2022	Radiation (03CH04-SZ)
AC Power Source	Chroma	61601	N/A	N/A	NCR	Oct. 12, 2022	NCR	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 12, 2022	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 12, 2022	NCR	Radiation (03CH04-SZ)

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 Conducted Measurement

Test Item	Uncertainty
Conducted Power	±0.46 dB
Conducted Emissions	±0.48 dB
Occupied Channel Bandwidth	±0.1 %

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.1 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.9 dB

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

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) and EIRP

EN-DC_66A_n2A										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				372000	376000	380000		L	M	H
Frequency (MHz)				1860	1880	1900				
20	PI/2 BPSK	1	1	23.15	23.12	23.32	0.30	0.2213	0.2198	0.2301
20	QPSK	1	1	23.07	23.04	23.17	0.30	0.2173	0.2158	0.2223
20	QPSK	1	53	22.92	23.18	23.11	0.30	0.2099	0.2228	0.2193
20	QPSK	1	104	22.98	23.23	22.90	0.30	0.2128	0.2254	0.2089
20	QPSK	50	0	22.32	22.36	22.45	0.30	0.1828	0.1845	0.1884
20	QPSK	50	28	23.14	23.35	23.27	0.30	0.2208	0.2317	0.2275
20	QPSK	50	56	22.33	22.47	22.29	0.30	0.1832	0.1892	0.1816
20	QPSK	100	0	22.40	22.49	22.42	0.30	0.1862	0.1901	0.1871
20	16QAM	1	1	22.61	22.54	22.73	0.30	0.1954	0.1923	0.2009
20	64QAM	1	1	20.65	20.70	20.82	0.30	0.1245	0.1259	0.1294
20	256QAM	1	1	18.52	18.54	18.69	0.30	0.0762	0.0766	0.0793
Channel				371500	376000	380500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1857.5	1880	1902.5				
15	QPSK	1	1	23.12	23.08	23.20	0.30	0.2198	0.2178	0.2239
15	16QAM	1	1	22.72	22.58	22.69	0.30	0.2004	0.1941	0.1991
Channel				371000	376000	381000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1855	1880	1905				
10	QPSK	1	1	23.17	23.21	23.30	0.30	0.2223	0.2244	0.2291
10	16QAM	1	1	22.62	22.69	22.66	0.30	0.1959	0.1991	0.1977
Channel				370500	376000	381500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1852.5	1880	1907.5				
5	QPSK	1	1	23.10	23.21	23.25	0.30	0.2188	0.2244	0.2265
5	16QAM	1	1	22.68	22.62	22.70	0.30	0.1986	0.1959	0.1995

SA n7-Ant 5										
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	22.87	22.80	22.74	1.00	0.2438	0.2399	0.2366
40	QPSK	1	1	22.93	23.02	22.83	1.00	0.2472	0.2523	0.2415
40	QPSK	1	108	22.93	22.68	22.90	1.00	0.2472	0.2333	0.2455
40	QPSK	1	214	22.76	22.64	22.89	1.00	0.2377	0.2312	0.2449
40	QPSK	108	0	21.89	21.93	21.72	1.00	0.1945	0.1963	0.1871
40	QPSK	108	54	22.75	22.71	22.77	1.00	0.2371	0.2350	0.2382
40	QPSK	108	108	21.88	21.83	21.83	1.00	0.1941	0.1919	0.1919
40	QPSK	216	0	21.84	21.86	21.76	1.00	0.1923	0.1932	0.1888
40	16QAM	1	1	21.97	21.91	22.03	1.00	0.1982	0.1954	0.2009
40	64QAM	1	1	20.51	20.52	20.51	1.00	0.1416	0.1419	0.1416
40	256QAM	1	1	18.07	18.05	18.12	1.00	0.0807	0.0804	0.0817
Channel				503000	507000	511000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2515	2535	2555				
30	QPSK	1	1	23.01	23.03	22.93	1.00	0.2518	0.2529	0.2472
30	16QAM	1	1	21.93	22.01	21.91	1.00	0.1963	0.2000	0.1954
Channel				502500	507000	511500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2512.5	2535	2557.5				
25	QPSK	1	1	23.01	22.99	22.94	1.00	0.2518	0.2506	0.2477
25	16QAM	1	1	21.99	21.98	21.96	1.00	0.1991	0.1986	0.1977
Channel				502000	507000	512000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2510	2535	2560				
20	QPSK	1	1	21.82	22.92	22.61	1.00	0.1914	0.2466	0.2296
20	16QAM	1	1	21.97	21.96	21.70	1.00	0.1982	0.1977	0.1862
Channel				501500	507000	512500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2507.5	2535	2562.5				
15	QPSK	1	1	22.92	22.97	22.81	1.00	0.2466	0.2495	0.2404
15	16QAM	1	1	21.93	21.78	21.79	1.00	0.1963	0.1897	0.1901
Channel				501000	507000	513000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2505	2535	2565				
10	QPSK	1	1	22.96	22.92	22.97	1.00	0.2489	0.2466	0.2495
10	16QAM	1	1	22.02	21.95	21.99	1.00	0.2004	0.1972	0.1991
Channel				500500	507000	513500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2502.5	2535	2567.5				
5	QPSK	1	1	22.98	22.94	22.92	1.00	0.2500	0.2477	0.2466
5	16QAM	1	1	21.92	21.93	21.89	1.00	0.1959	0.1963	0.1945

EN-DC_5A_n7A-Ant 1										
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	23.85	23.89	23.96	-2.60	0.1334	0.1346	0.1368
40	QPSK	1	1	23.78	23.86	23.83	-2.60	0.1312	0.1337	0.1327
40	QPSK	1	108	23.80	23.92	23.90	-2.60	0.1318	0.1355	0.1349
40	QPSK	1	214	23.83	23.91	23.87	-2.60	0.1327	0.1352	0.1340
40	QPSK	108	0	22.94	23.17	23.15	-2.60	0.1081	0.1140	0.1135
40	QPSK	108	54	23.76	23.88	23.84	-2.60	0.1306	0.1343	0.1330
40	QPSK	108	108	23.10	23.23	23.28	-2.60	0.1122	0.1156	0.1169
40	QPSK	216	0	22.96	23.15	23.06	-2.60	0.1086	0.1135	0.1112
40	16QAM	1	1	22.86	23.06	22.94	-2.60	0.1062	0.1112	0.1081
40	64QAM	1	1	21.54	21.89	21.81	-2.60	0.0783	0.0849	0.0834
40	256QAM	1	1	18.94	19.06	19.02	-2.60	0.0431	0.0443	0.0439
Channel				503000	507000	511000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2515	2535	2555				
30	QPSK	1	1	23.81	23.87	23.85	-2.60	0.1321	0.1340	0.1334
30	16QAM	1	1	22.93	23.01	22.98	-2.60	0.1079	0.1099	0.1091
Channel				502500	507000	511500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2512.5	2535	2557.5				
25	QPSK	1	1	23.85	23.81	23.89	-2.60	0.1334	0.1321	0.1346
25	16QAM	1	1	22.90	23.02	22.99	-2.60	0.1072	0.1102	0.1094
Channel				502000	507000	512000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2510	2535	2560				
20	QPSK	1	1	23.28	23.30	23.52	-2.60	0.1169	0.1175	0.1236
20	16QAM	1	1	22.84	22.92	23.04	-2.60	0.1057	0.1076	0.1107
Channel				501500	507000	512500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2507.5	2535	2562.5				
15	QPSK	1	1	23.19	23.38	23.54	-2.60	0.1146	0.1197	0.1242
15	16QAM	1	1	22.78	22.93	23.02	-2.60	0.1042	0.1079	0.1102
Channel				501000	507000	513000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2505	2535	2565				
10	QPSK	1	1	23.27	23.54	23.36	-2.60	0.1167	0.1242	0.1191
10	16QAM	1	1	22.91	22.98	22.97	-2.60	0.1074	0.1091	0.1089
Channel				500500	507000	513500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				2502.5	2535	2567.5				
5	QPSK	1	1	23.45	23.57	23.42	-2.60	0.1216	0.1250	0.1208
5	16QAM	1	1	23.02	22.93	23.01	-2.60	0.1102	0.1079	0.1099

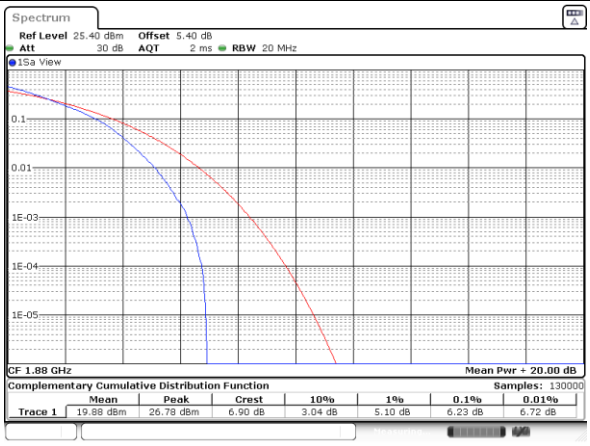
EN-DC_2A_n66A										
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Gain	EIRP	EIRP	EIRP
Channel				346000	349000	352000		L	M	H
Frequency (MHz)				1730	1745	1760				
40	PI/2 BPSK	1	1	22.94	22.90	22.82	-5.10	0.0608	0.0603	0.0592
40	QPSK	1	1	22.93	22.91	22.97	-5.10	0.0607	0.0604	0.0612
40	QPSK	1	108	22.89	22.75	22.79	-5.10	0.0601	0.0582	0.0587
40	QPSK	1	214	22.76	22.84	22.96	-5.10	0.0583	0.0594	0.0611
40	QPSK	108	0	22.24	22.15	22.19	-5.10	0.0518	0.0507	0.0512
40	QPSK	108	54	22.91	22.86	22.94	-5.10	0.0604	0.0597	0.0608
40	QPSK	108	108	22.23	22.21	22.15	-5.10	0.0516	0.0514	0.0507
40	QPSK	216	0	22.20	22.16	22.13	-5.10	0.0513	0.0508	0.0505
40	16QAM	1	1	22.17	22.37	22.28	-5.10	0.0509	0.0533	0.0522
40	64QAM	1	1	20.86	20.21	20.17	-5.10	0.0377	0.0324	0.0321
40	256QAM	1	1	18.07	18.04	18.08	-5.10	0.0198	0.0197	0.0199
Channel				345000	349000	353000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1725	1745	1765				
30	QPSK	1	1	22.95	22.91	22.89	-5.10	0.0610	0.0604	0.0601
30	16QAM	1	1	22.26	22.14	22.12	-5.10	0.0520	0.0506	0.0504
Channel				344000	349000	354000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1720	1745	1770				
20	QPSK	1	1	22.87	22.95	22.87	-5.10	0.0598	0.0610	0.0598
20	16QAM	1	1	22.21	22.08	22.06	-5.10	0.0514	0.0499	0.0497
Channel				343500	349000	354500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1717.5	1745	1772.5				
15	QPSK	1	1	22.92	22.84	22.89	-5.10	0.0605	0.0594	0.0601
15	16QAM	1	1	22.17	22.05	21.97	-5.10	0.0509	0.0495	0.0486
Channel				343000	349000	355000	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1715	1745	1775				
10	QPSK	1	1	22.84	22.74	22.94	-5.10	0.0594	0.0581	0.0608
10	16QAM	1	1	22.02	21.81	22.17	-5.10	0.0492	0.0469	0.0509
Channel				342500	349000	355500	Gain	EIRP	EIRP	EIRP
Frequency (MHz)				1712.5	1745	1777.5				
5	QPSK	1	1	22.92	22.92	22.85	-5.10	0.0605	0.0605	0.0596
5	16QAM	1	1	22.20	22.13	22.04	-5.10	0.0513	0.0505	0.0494

FR1 66A_n2A

Peak-to-Average Ratio

Mode	FR1 n2 / 20MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	QPSK			Limit: 13dB
RB Size	Full RB	Full RB			Result
Middle CH	6.23	6.23			PASS

FR1 n2 / 20MHz / DFT-S OFDM / Middle Channel / Full RB	
PI/2 BPSK	QPSK

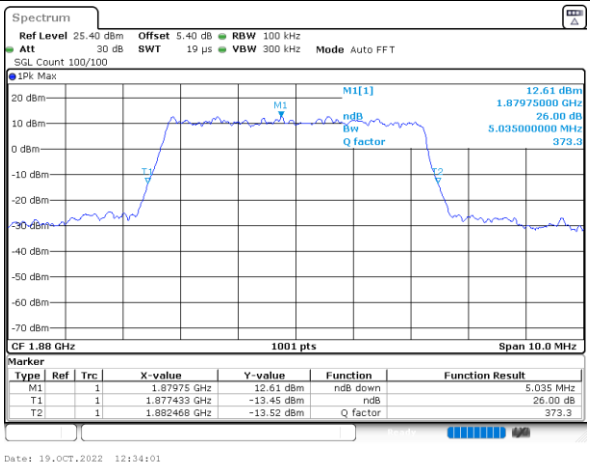


26dB Bandwidth

Mode	FR1 n2 : 26dBW (MHz) / CP OFDM			
BW	5M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	5.04	4.94	4.83	5.05
BW	10M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	10.15	10.05	10.07	10.13
BW	15M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	14.96	15.02	14.99	14.93
BW	20M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	21.26	21.22	21.18	21.26

FR1 n2 / 5MHz / CP / Middle Channel / Full RB

QPSK



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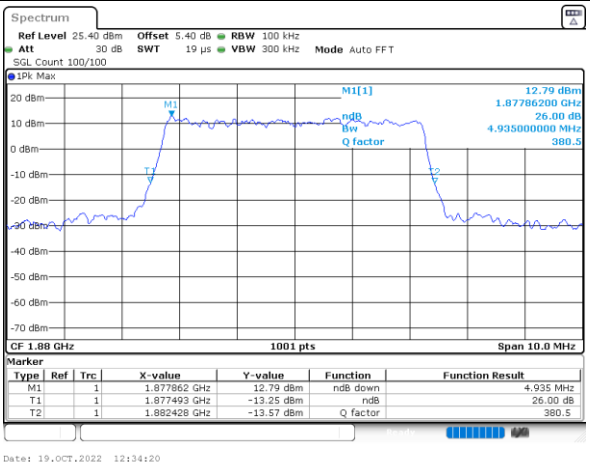

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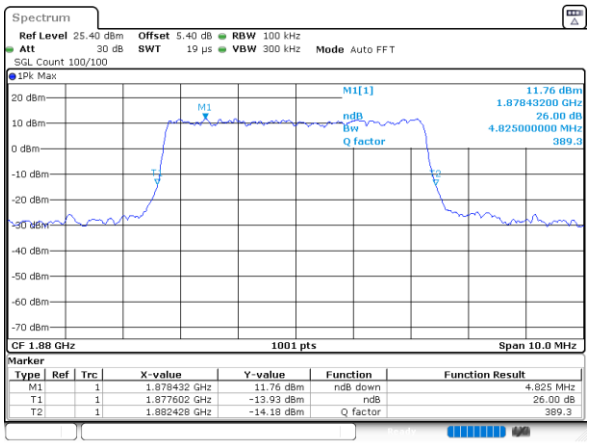

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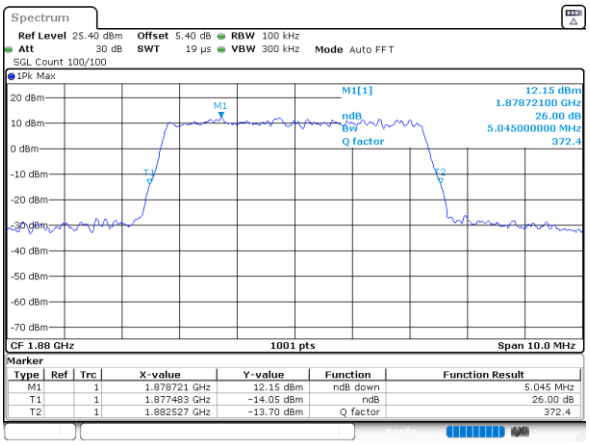
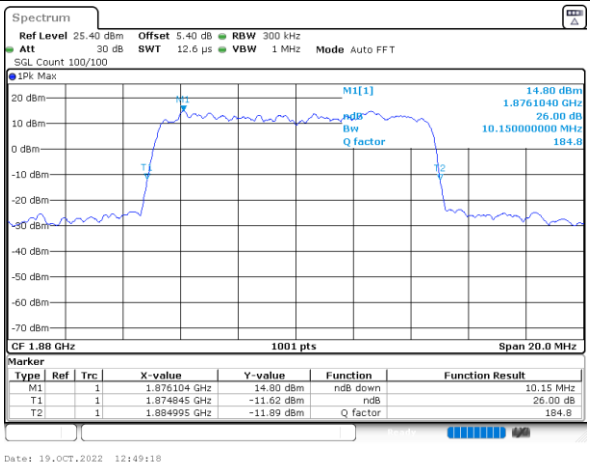


FR1 n2 / 10MHz / CP / Middle Channel / Full RB

QPSK



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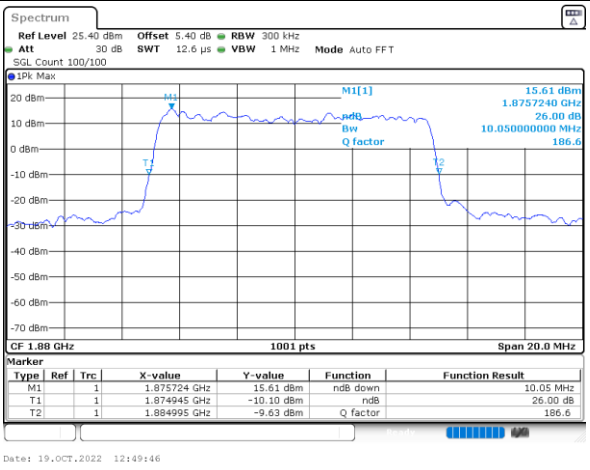

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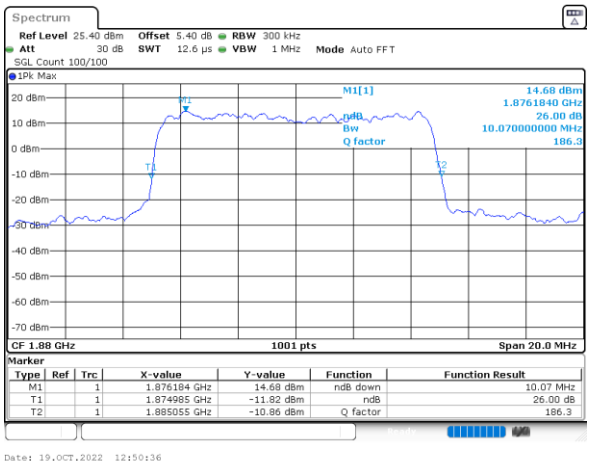

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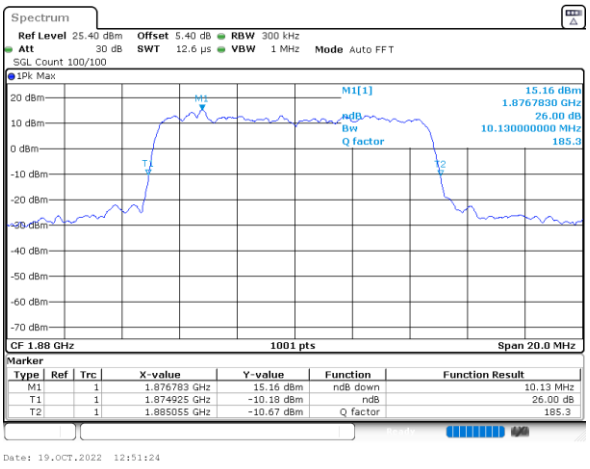
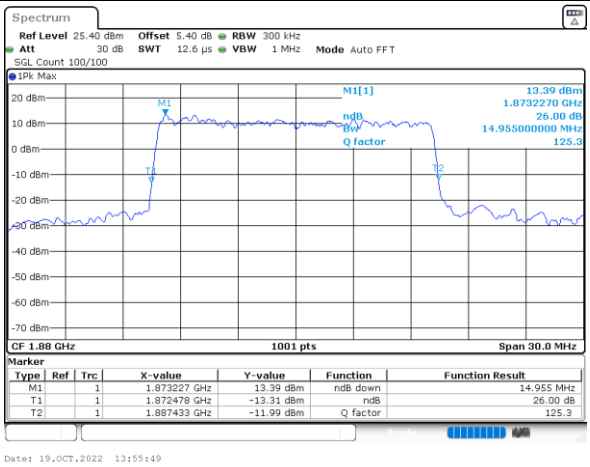


FR1 n2 / 15MHz / CP / Middle Channel / Full RB

QPSK



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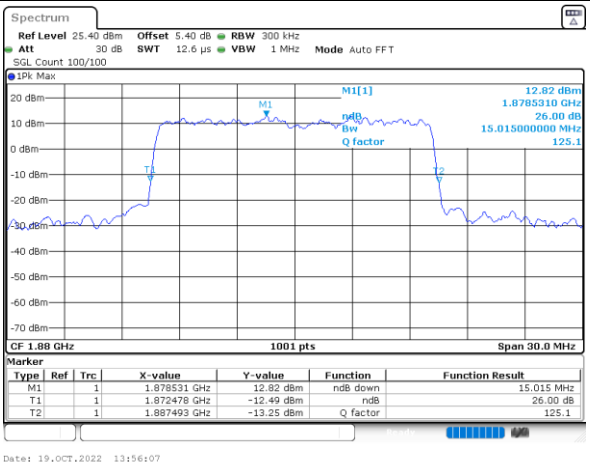

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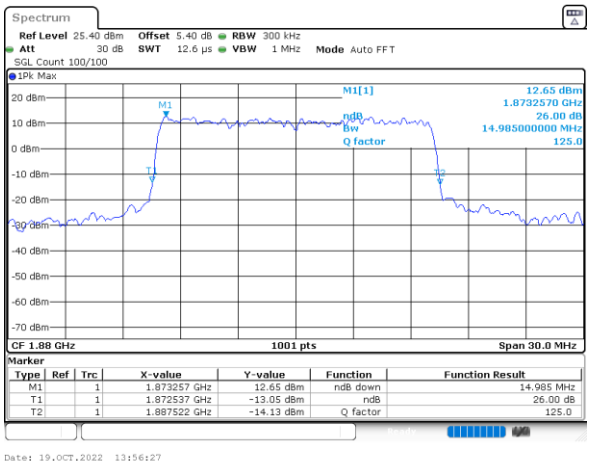

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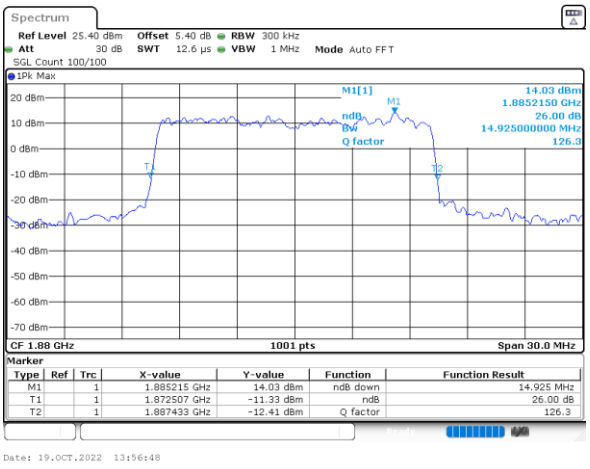
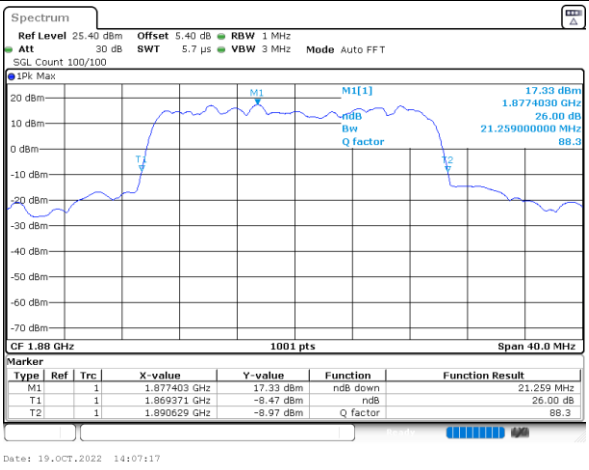


FR1 n2 / 20MHz / CP / Middle Channel / Full RB

QPSK



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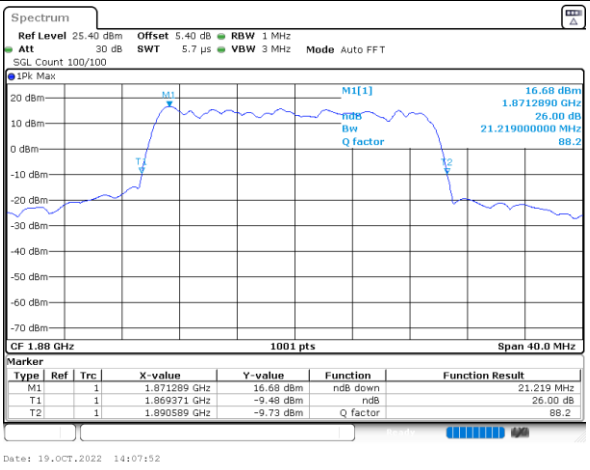

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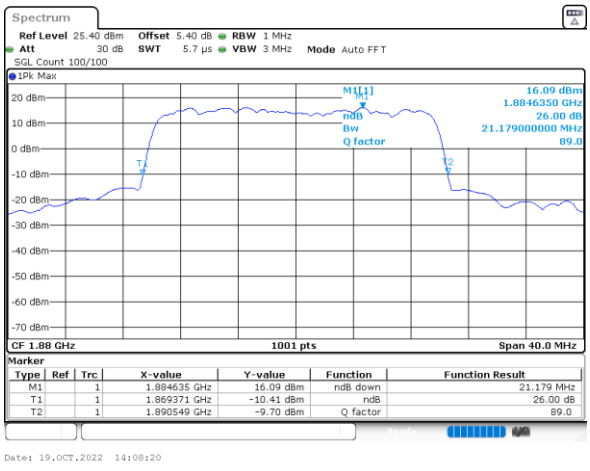

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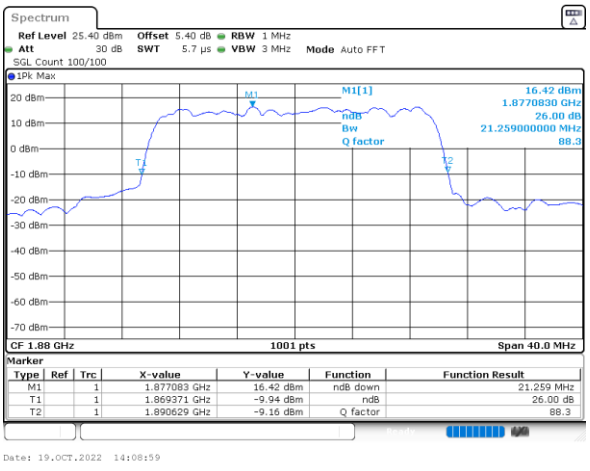
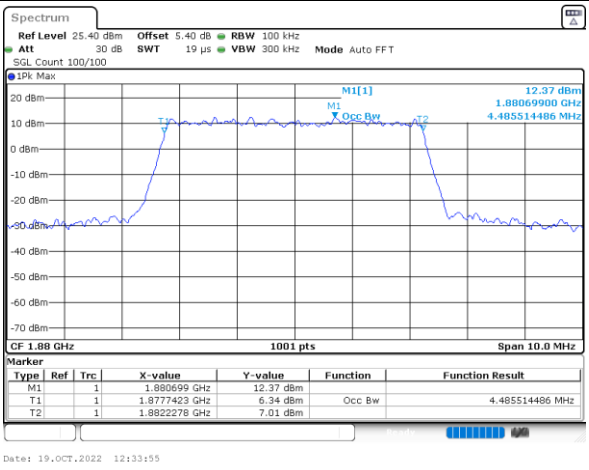


Occupied Bandwidth

Mode	FR1 n2 : 99%OBW (MHz) / CP OFDM			
BW	5M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	4.49	4.49	4.48	4.50
BW	10M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	9.39	9.39	9.41	9.39
BW	15M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	14.15	14.18	14.21	14.15
BW	20M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	19.42	19.46	19.42	19.38

FR1 n2 / 5MHz / CP / Middle Channel / Full RB

QPSK



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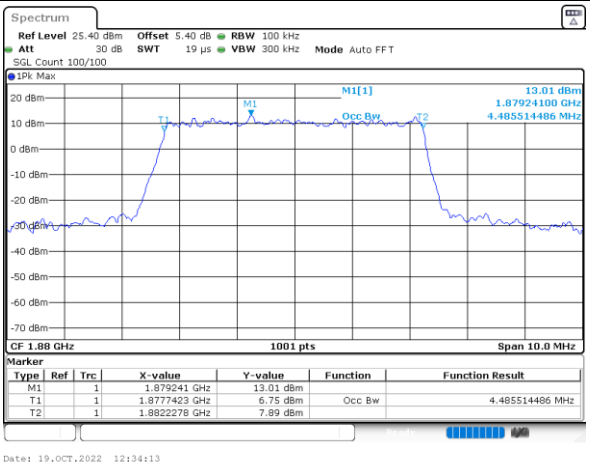

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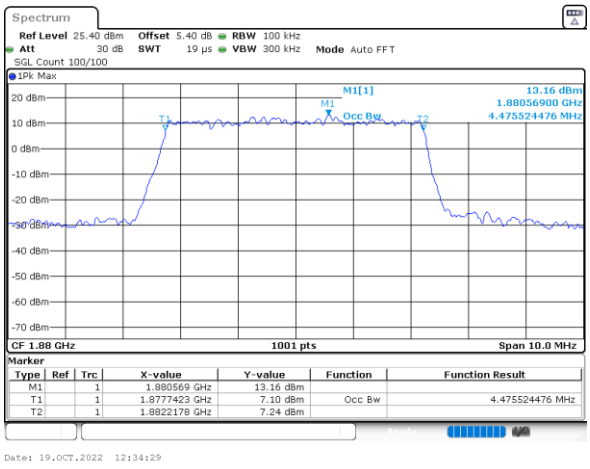

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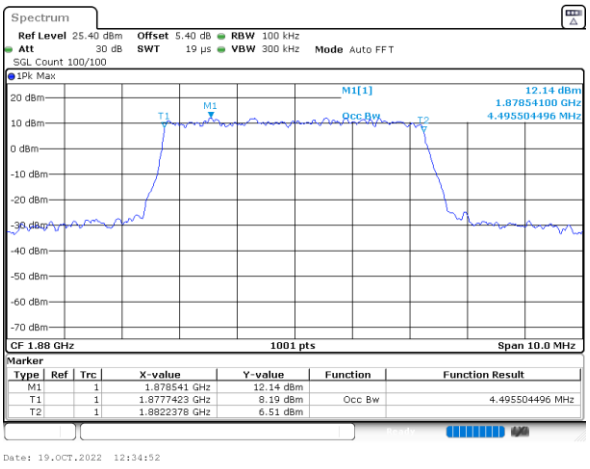
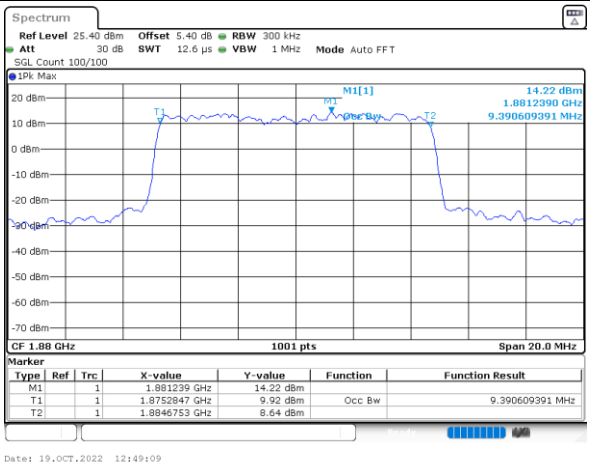


FR1 n2 / 10MHz / CP / Middle Channel / Full RB

QPSK



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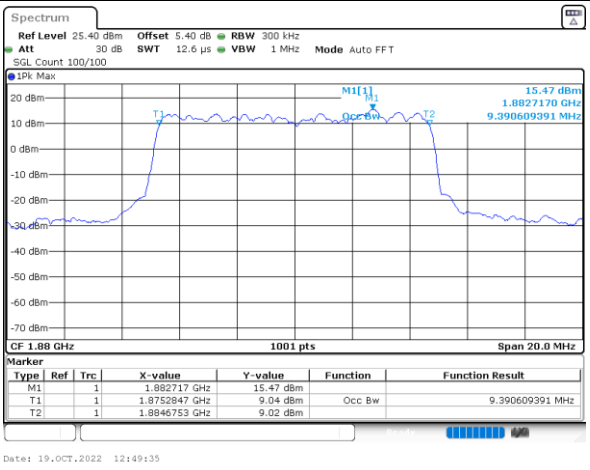

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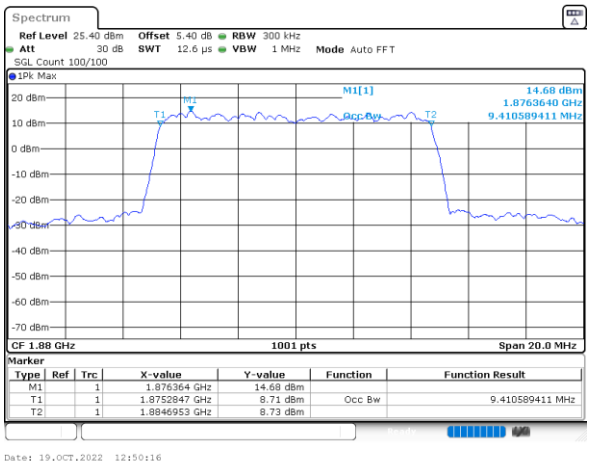

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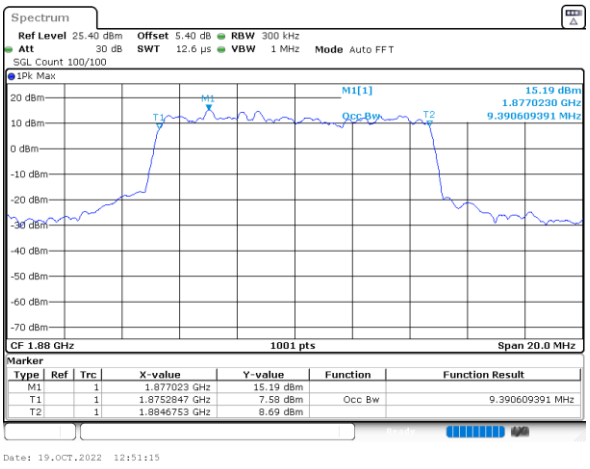
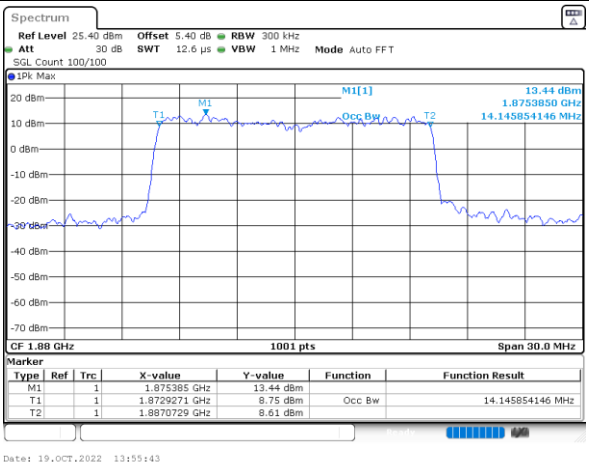


FR1 n2 / 15MHz / CP / Middle Channel / Full RB

QPSK



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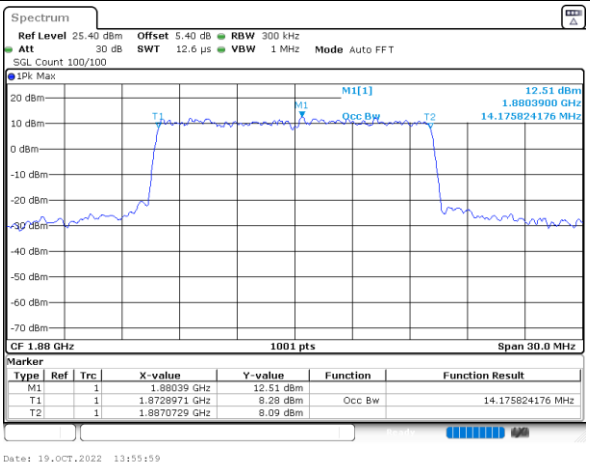

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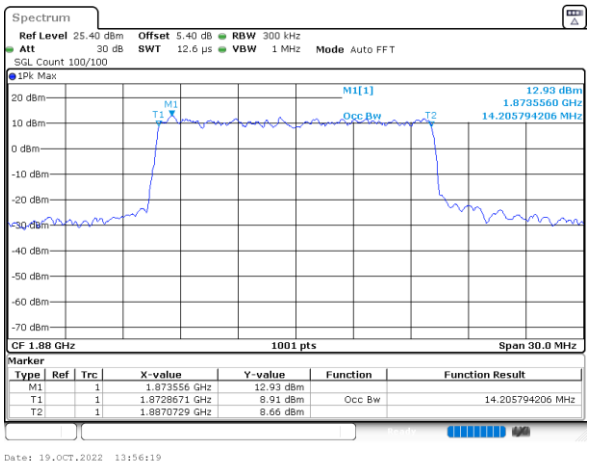

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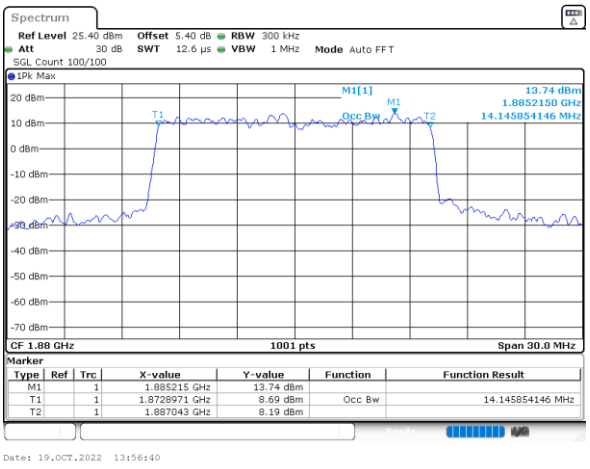
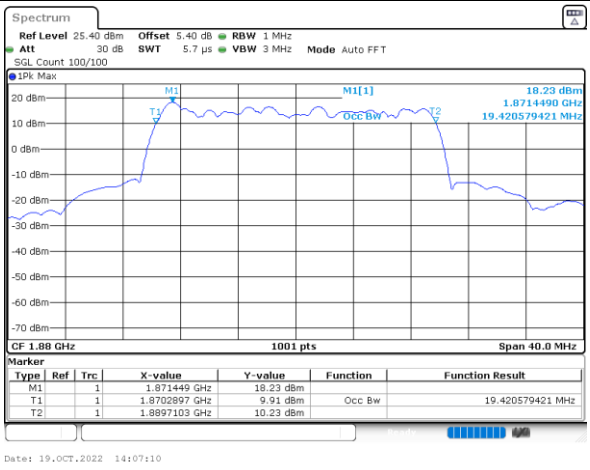


FR1 n2 / 20MHz / CP / Middle Channel / Full RB

QPSK



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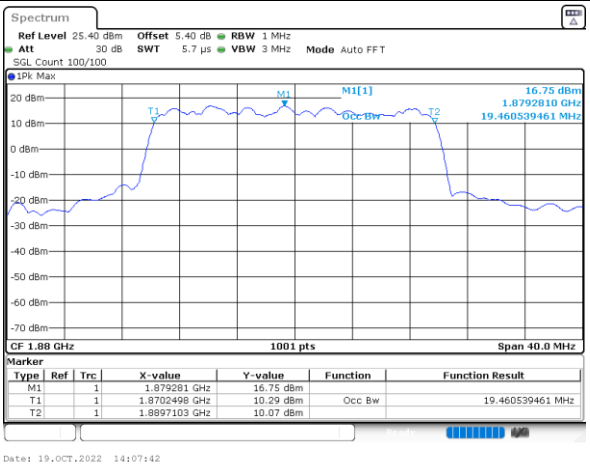

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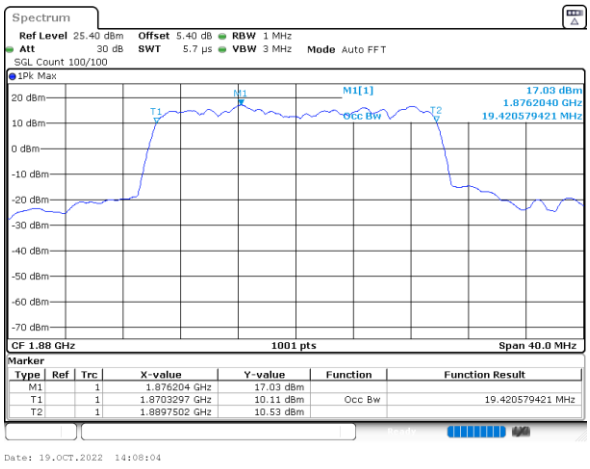

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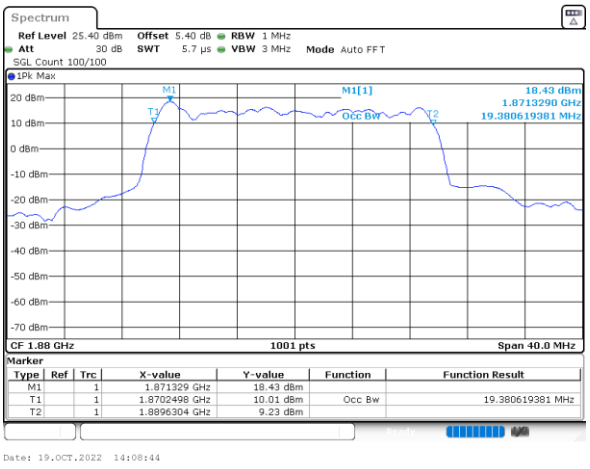
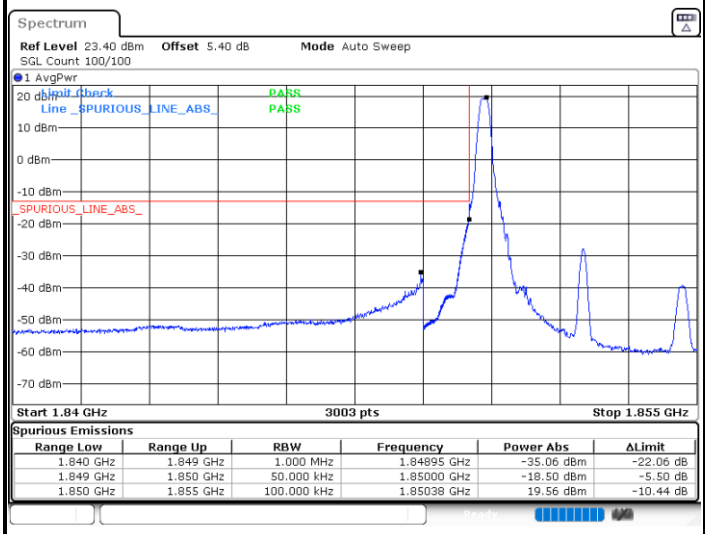


Conducted Band Edge

FR1 n2 / 5MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

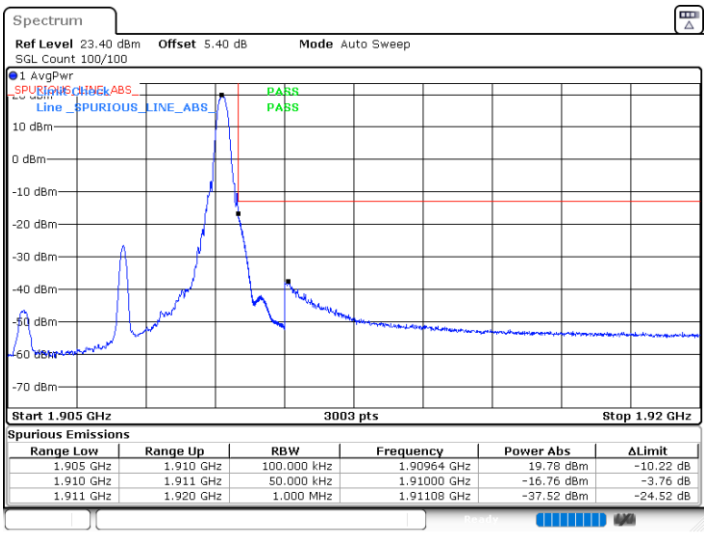


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84895 GHz	-35.06 dBm	-22.06 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-18.50 dBm	-5.50 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85038 GHz	19.56 dBm	-10.44 dB

Date: 19.OCT.2022 12:04:44

Highest Band Edge / 1RBmax

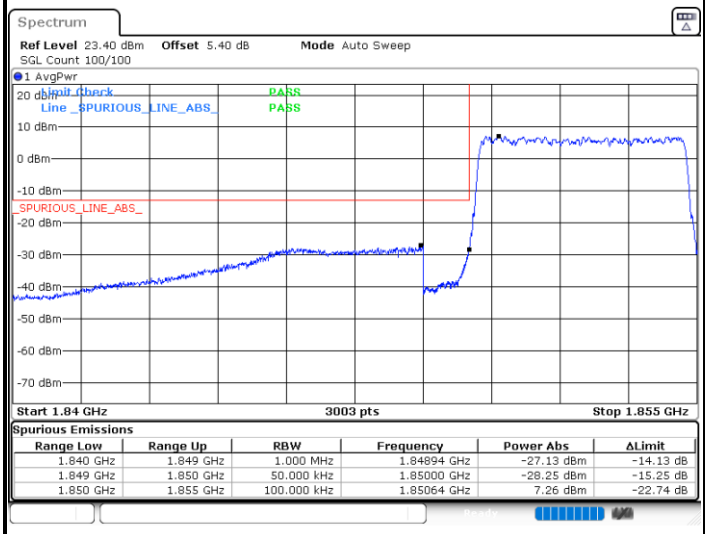


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90964 GHz	19.78 dBm	-10.22 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91000 GHz	-16.76 dBm	-3.76 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91108 GHz	-37.52 dBm	-24.52 dB

Date: 19.OCT.2022 12:14:42

Lowest Band Edge / Full RB

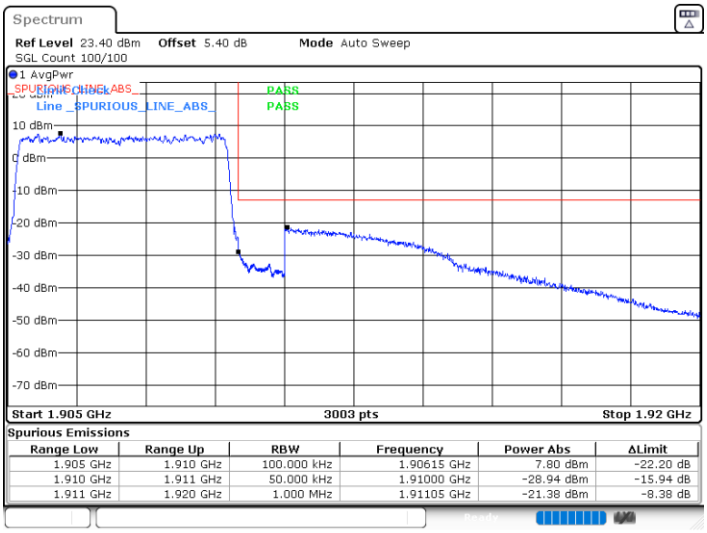


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84894 GHz	-27.13 dBm	-14.13 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-28.25 dBm	-15.25 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85064 GHz	7.26 dBm	-22.74 dB

Date: 19.OCT.2022 12:09:18

Highest Band Edge / Full RB



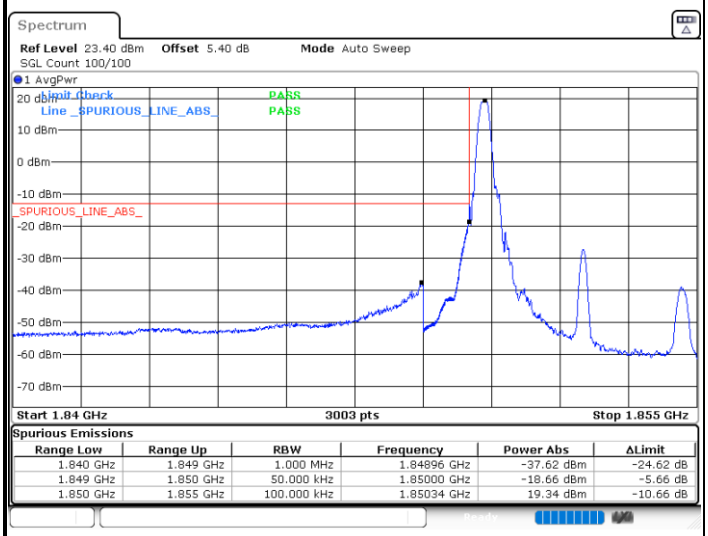
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90615 GHz	7.80 dBm	-22.20 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91000 GHz	-28.94 dBm	-15.94 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91105 GHz	-21.38 dBm	-8.38 dB

Date: 19.OCT.2022 12:12:48

FR1 n2 / 5MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

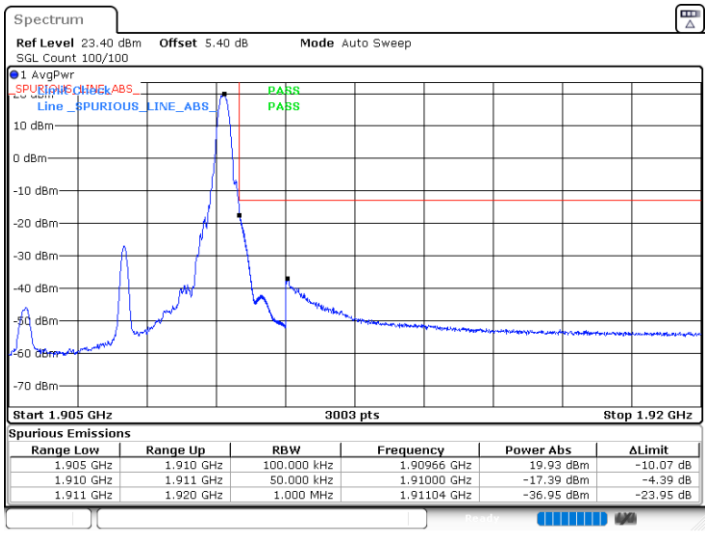


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84896 GHz	-37.62 dBm	-24.62 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-18.66 dBm	-5.66 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85034 GHz	19.34 dBm	-10.66 dB

Date: 19.OCT.2022 12:07:09

Highest Band Edge / 1RBmax

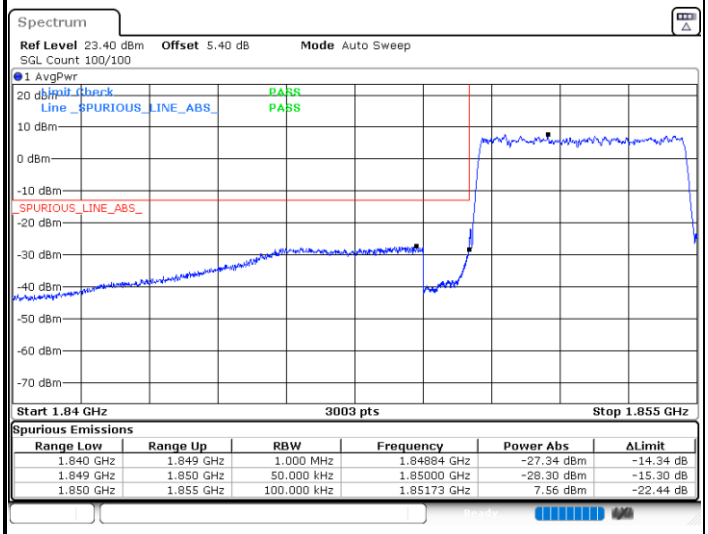


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90966 GHz	19.93 dBm	-10.07 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91000 GHz	-17.39 dBm	-4.39 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91104 GHz	-36.95 dBm	-23.95 dB

Date: 19.OCT.2022 12:15:52

Lowest Band Edge / Full RB

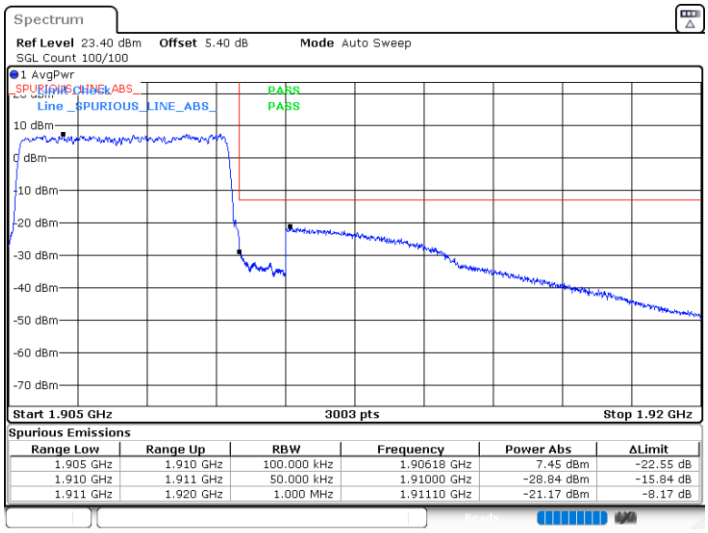


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84884 GHz	-27.34 dBm	-14.34 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-28.30 dBm	-15.30 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85173 GHz	7.56 dBm	-22.44 dB

Date: 19.OCT.2022 12:08:42

Highest Band Edge / Full RB



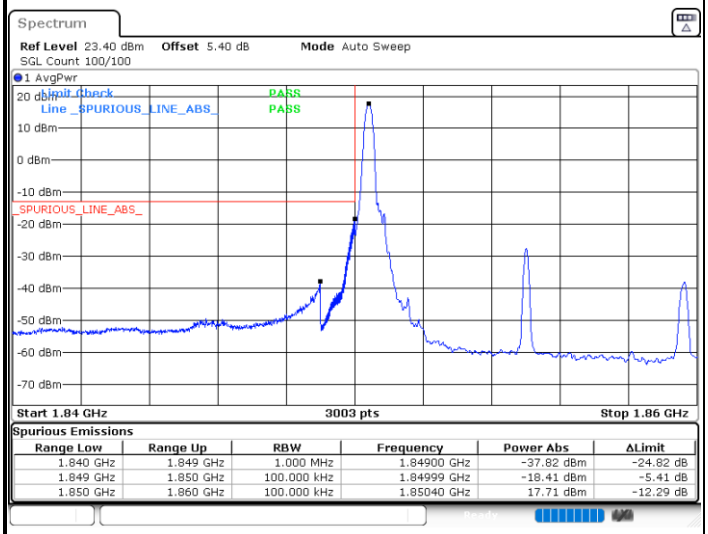
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90618 GHz	7.45 dBm	-22.55 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91000 GHz	-28.84 dBm	-15.84 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91110 GHz	-21.17 dBm	-8.17 dB

Date: 19.OCT.2022 12:19:52

FR1 n2 / 10MHz / DFT-s-OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

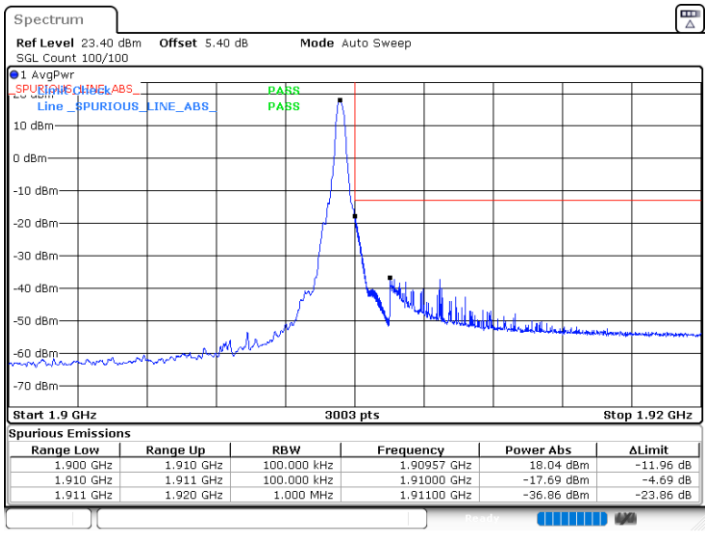


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84900 GHz	-37.82 dBm	-24.82 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.84999 GHz	-18.41 dBm	-5.41 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85040 GHz	17.71 dBm	-12.29 dB

Date: 19.OCT.2022 12:36:35

Highest Band Edge / 1RBmax

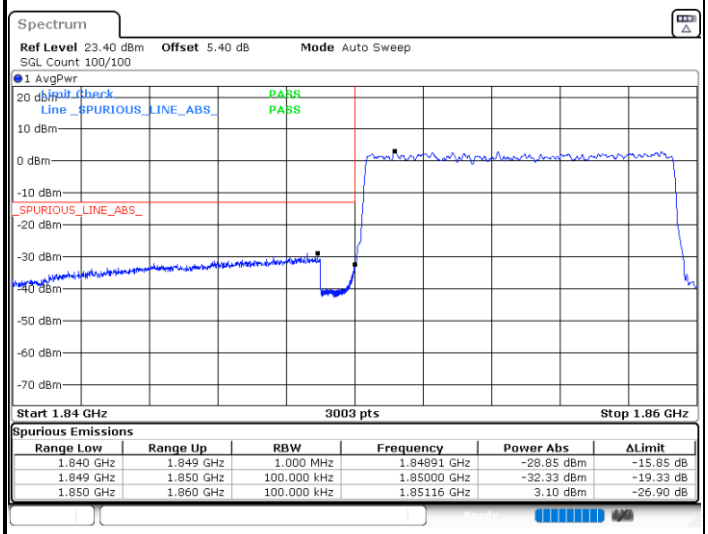


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90957 GHz	18.04 dBm	-11.96 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91000 GHz	-17.69 dBm	-4.69 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91100 GHz	-36.86 dBm	-23.86 dB

Date: 19.OCT.2022 13:52:12

Lowest Band Edge / Full RB

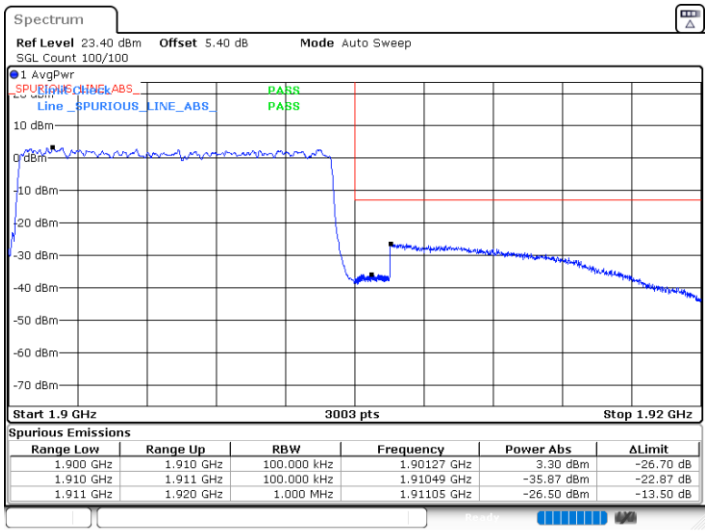


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84891 GHz	-28.85 dBm	-15.85 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.85000 GHz	-32.33 dBm	-19.33 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85116 GHz	3.10 dBm	-26.90 dB

Date: 19.OCT.2022 12:43:11

Highest Band Edge / Full RB



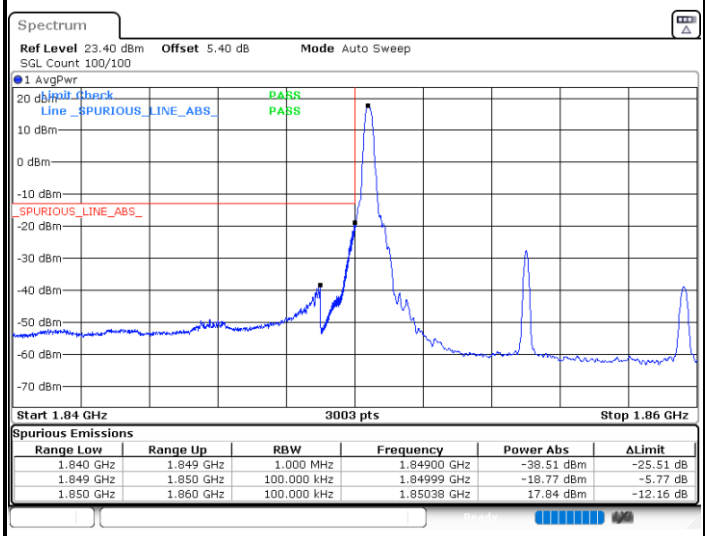
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90127 GHz	3.30 dBm	-26.70 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91049 GHz	-35.87 dBm	-22.87 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91105 GHz	-26.50 dBm	-13.50 dB

Date: 19.OCT.2022 12:52:15

FR1 n2 / 10MHz / DFT-s-OFDM / QPSK

Lowest Band Edge / 1RB0

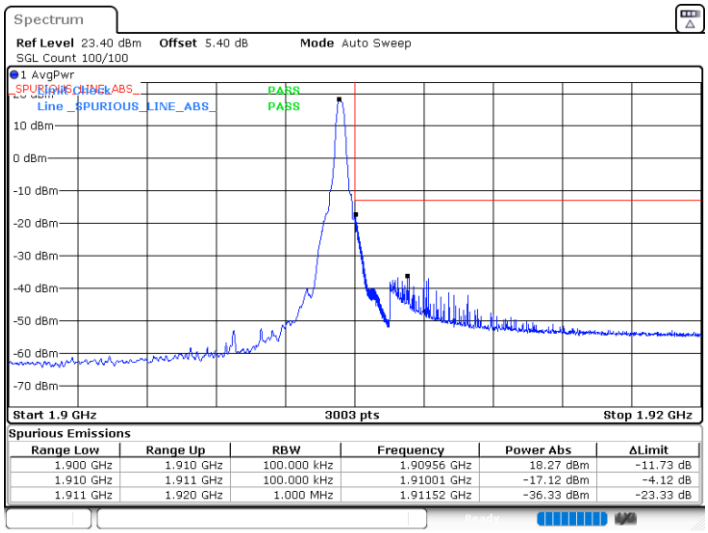


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84900 GHz	-38.51 dBm	-25.51 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.84999 GHz	-18.77 dBm	-5.77 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85038 GHz	17.84 dBm	-12.16 dB

Date: 19.OCT.2022 12:37:03

Highest Band Edge / 1RBmax

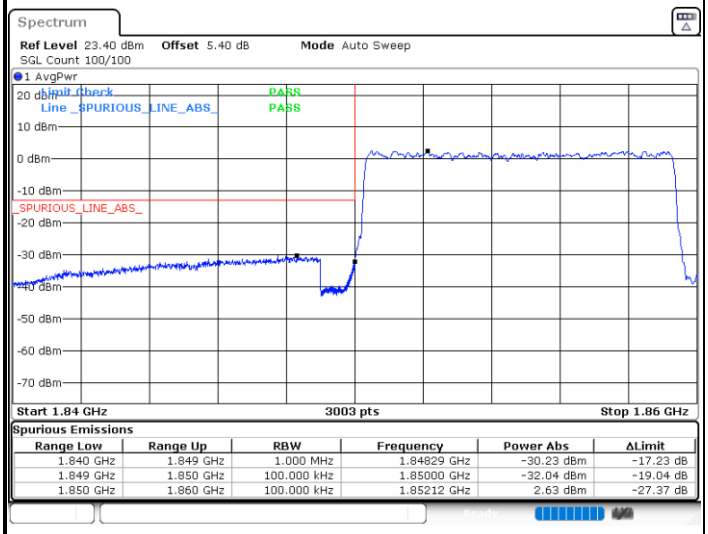


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90956 GHz	18.27 dBm	-11.73 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91001 GHz	-17.12 dBm	-4.12 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91152 GHz	-36.33 dBm	-23.33 dB

Date: 19.OCT.2022 13:51:41

Lowest Band Edge / Full RB

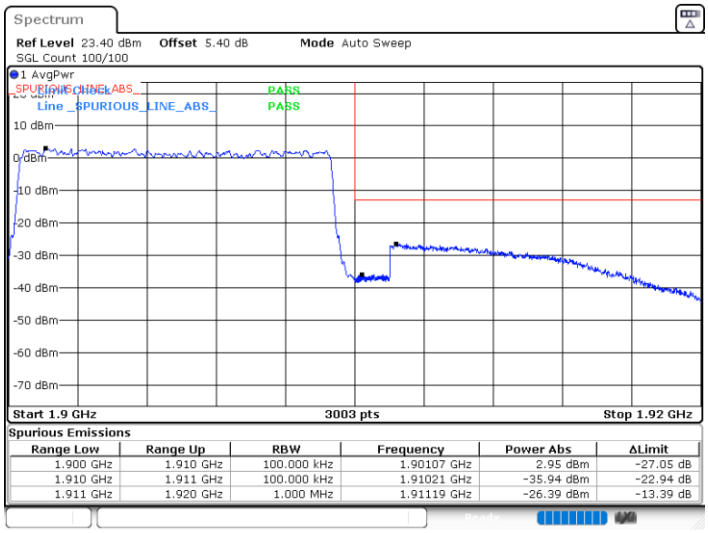


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84829 GHz	-30.23 dBm	-17.23 dB
1.849 GHz	1.850 GHz	100.000 kHz	1.85000 GHz	-32.04 dBm	-19.04 dB
1.850 GHz	1.860 GHz	100.000 kHz	1.85212 GHz	2.63 dBm	-27.37 dB

Date: 19.OCT.2022 12:43:52

Highest Band Edge / Full RB



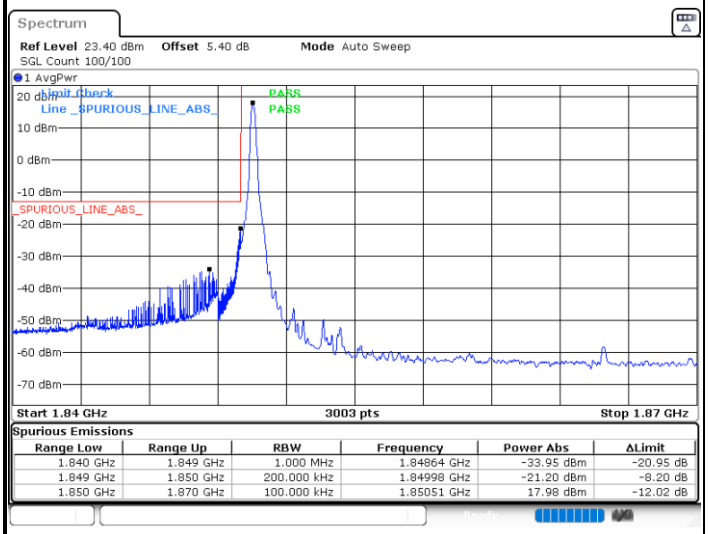
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.900 GHz	1.910 GHz	100.000 kHz	1.90107 GHz	2.95 dBm	-27.05 dB
1.910 GHz	1.911 GHz	100.000 kHz	1.91021 GHz	-35.94 dBm	-22.94 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91119 GHz	-26.39 dBm	-13.39 dB

Date: 19.OCT.2022 13:46:29

FR1 n2 / 20MHz / DFT-s-OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

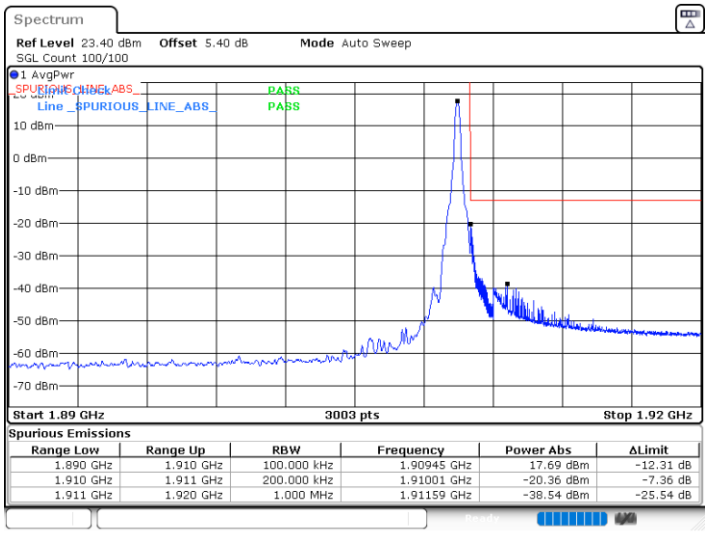


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84864 GHz	-33.95 dBm	-20.95 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.84998 GHz	-21.20 dBm	-8.20 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85051 GHz	17.98 dBm	-12.02 dB

Date: 19.OCT.2022 13:58:10

Highest Band Edge / 1RBmax

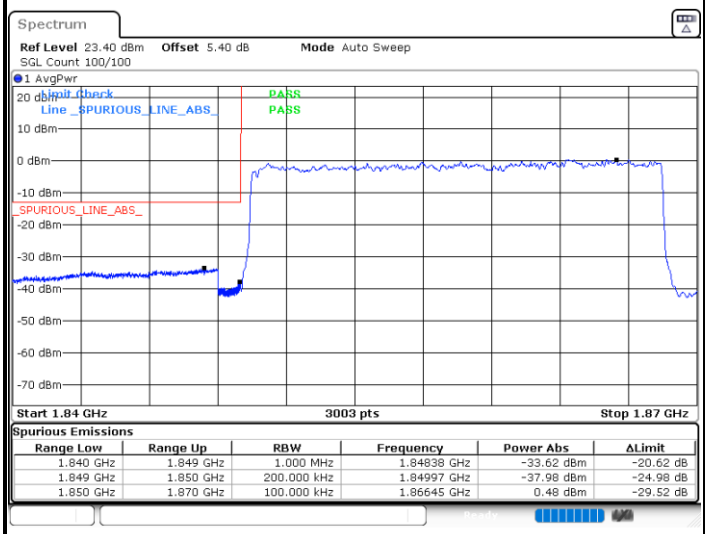


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.90945 GHz	17.69 dBm	-12.31 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91001 GHz	-20.36 dBm	-7.36 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91159 GHz	-38.54 dBm	-25.54 dB

Date: 19.OCT.2022 14:15:44

Lowest Band Edge / Full RB

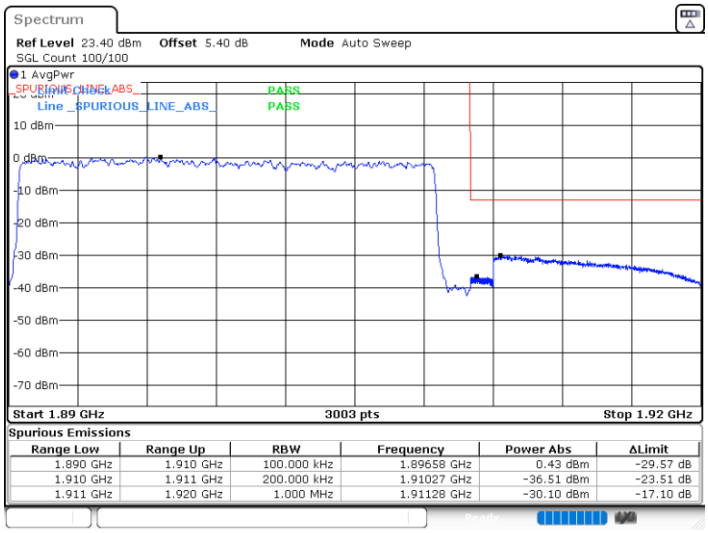


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84838 GHz	-33.62 dBm	-20.62 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.84997 GHz	-37.98 dBm	-24.98 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.86645 GHz	0.48 dBm	-29.52 dB

Date: 19.OCT.2022 14:02:18

Highest Band Edge / Full RB



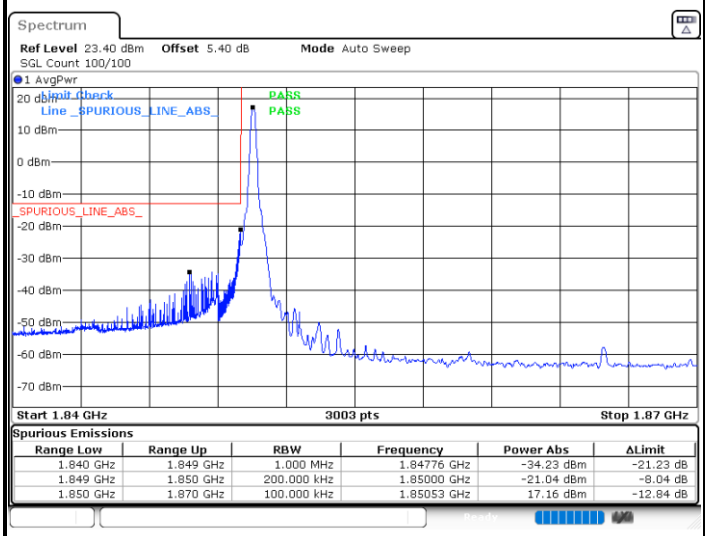
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.89658 GHz	0.43 dBm	-29.57 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91027 GHz	-36.51 dBm	-23.51 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91128 GHz	-30.10 dBm	-17.10 dB

Date: 19.OCT.2022 14:10:11

FR1 n2 / 20MHz / DFT-s-OFDM / QPSK

Lowest Band Edge / 1RB0

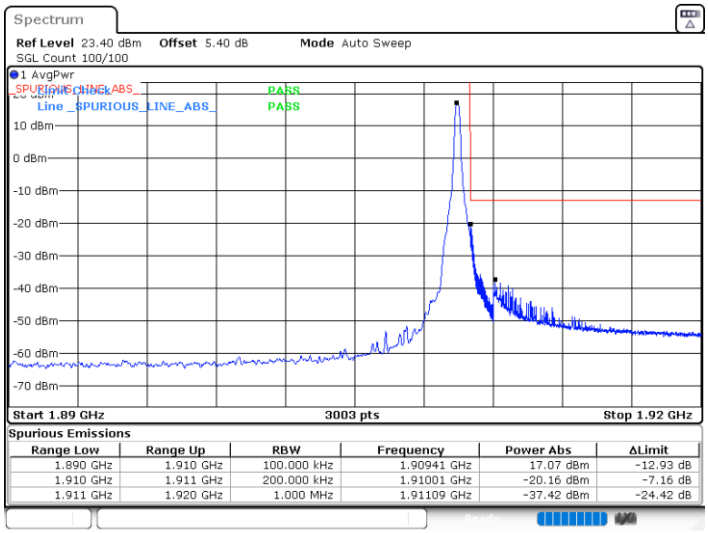


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84776 GHz	-34.23 dBm	-21.23 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.85000 GHz	-21.04 dBm	-8.04 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.85053 GHz	17.16 dBm	-12.84 dB

Date: 19.OCT.2022 14:00:35

Highest Band Edge / 1RBmax

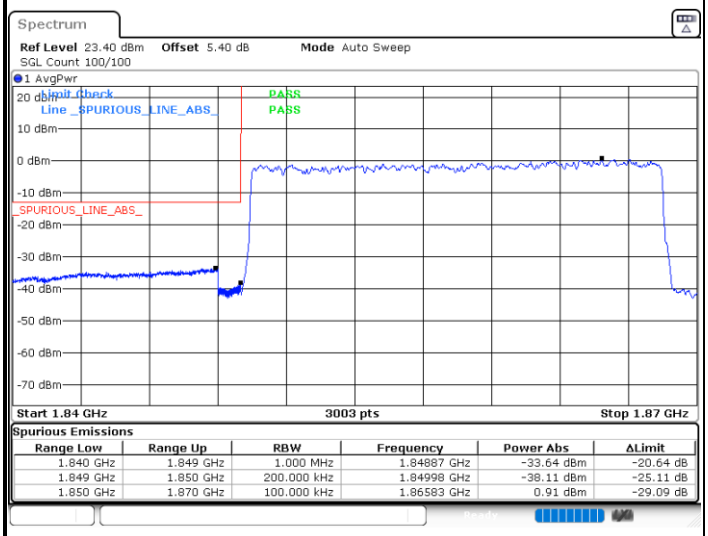


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.90941 GHz	17.07 dBm	-12.93 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91001 GHz	-20.16 dBm	-7.16 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91109 GHz	-37.42 dBm	-24.42 dB

Date: 19.OCT.2022 14:12:09

Lowest Band Edge / Full RB

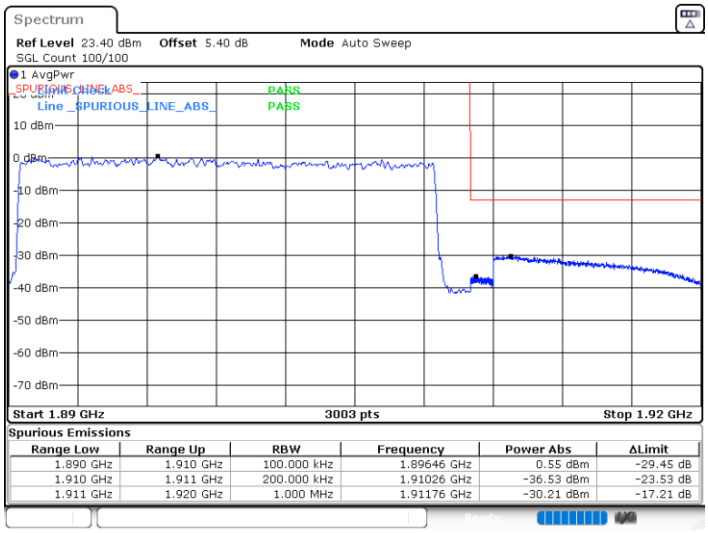


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.840 GHz	1.849 GHz	1.000 MHz	1.84887 GHz	-33.64 dBm	-20.64 dB
1.849 GHz	1.850 GHz	200.000 kHz	1.84998 GHz	-38.11 dBm	-25.11 dB
1.850 GHz	1.870 GHz	100.000 kHz	1.86583 GHz	0.91 dBm	-29.09 dB

Date: 19.OCT.2022 14:02:01

Highest Band Edge / Full RB



Spurious Emissions

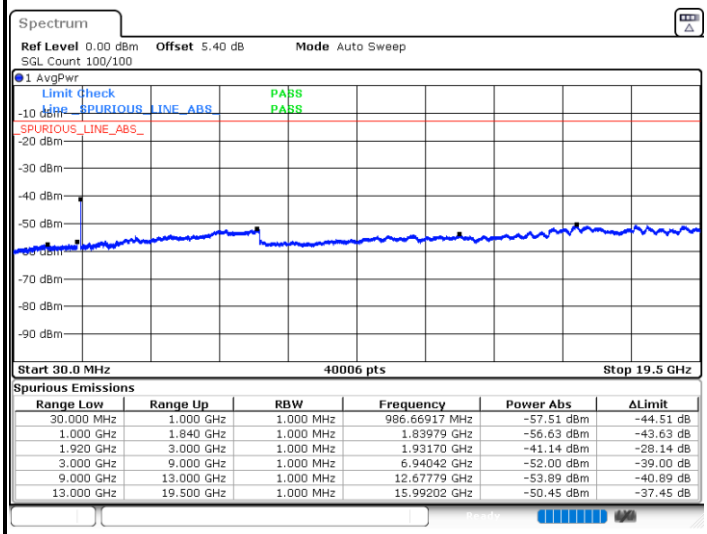
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.890 GHz	1.910 GHz	100.000 kHz	1.89646 GHz	0.55 dBm	-29.45 dB
1.910 GHz	1.911 GHz	200.000 kHz	1.91026 GHz	-36.53 dBm	-23.53 dB
1.911 GHz	1.920 GHz	1.000 MHz	1.91176 GHz	-30.21 dBm	-17.21 dB

Date: 19.OCT.2022 14:11:19

Conducted Spurious Emission

FR1 n2 / 5MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

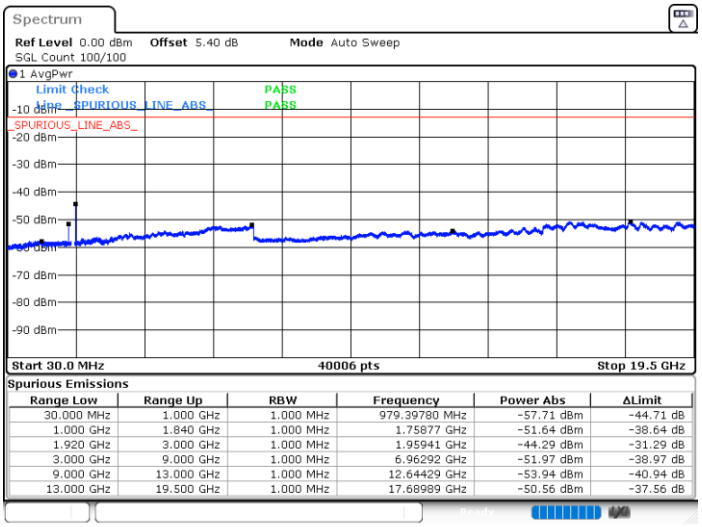


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	986.66917 MHz	-57.51 dBm	-44.51 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83979 GHz	-56.63 dBm	-43.63 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93170 GHz	-41.14 dBm	-28.14 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.94042 GHz	-52.00 dBm	-39.00 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.67779 GHz	-53.89 dBm	-40.89 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.99202 GHz	-50.45 dBm	-37.45 dB

Date: 19.OCT.2022 12:32:34

Middle Channel / 1RB1

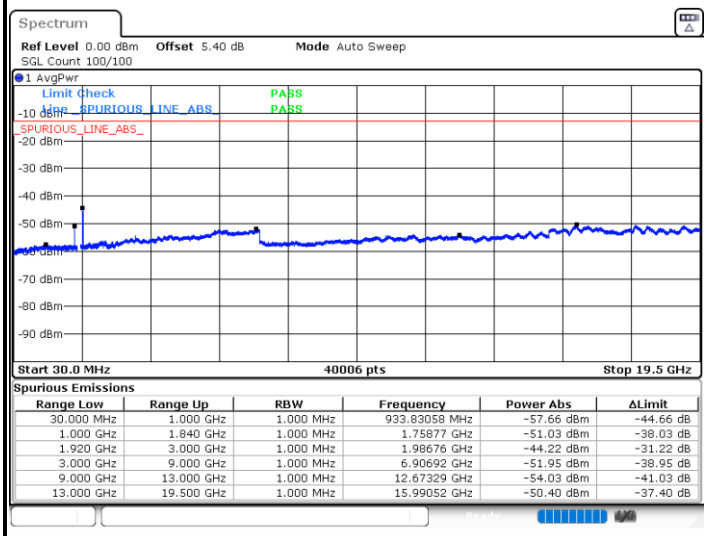


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	979.39780 MHz	-57.71 dBm	-44.71 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.64 dBm	-38.64 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95941 GHz	-44.29 dBm	-31.29 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.96292 GHz	-51.97 dBm	-38.97 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.64429 GHz	-53.94 dBm	-40.94 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.68989 GHz	-50.56 dBm	-37.56 dB

Date: 19.OCT.2022 12:27:27

Highest Channel / 1RB1



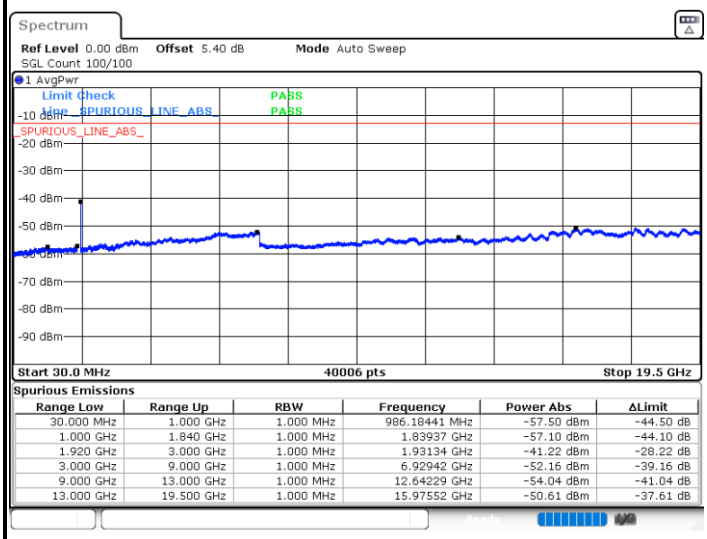
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	933.83058 MHz	-57.66 dBm	-44.66 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.03 dBm	-38.03 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98676 GHz	-44.22 dBm	-31.22 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.90692 GHz	-51.95 dBm	-38.95 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.67329 GHz	-54.03 dBm	-41.03 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.99052 GHz	-50.40 dBm	-37.40 dB

Date: 19.OCT.2022 12:26:24

FR1 n2 / 5MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

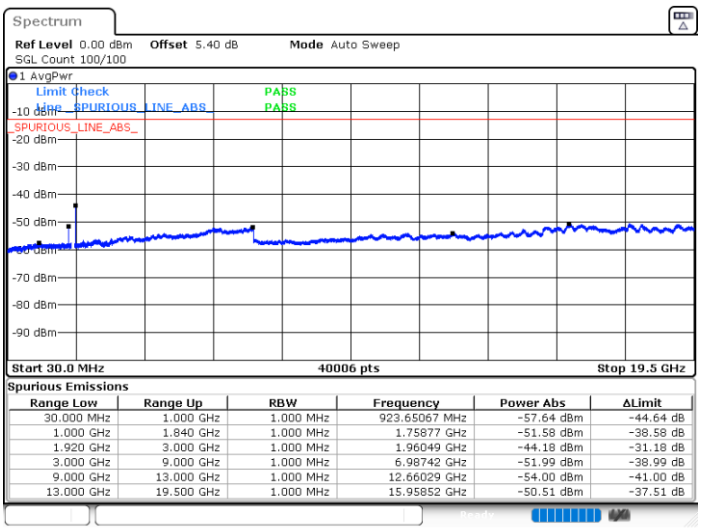


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	986.18441 MHz	-57.50 dBm	-44.50 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83937 GHz	-57.10 dBm	-44.10 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93134 GHz	-41.22 dBm	-28.22 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.92942 GHz	-52.16 dBm	-39.16 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.64229 GHz	-54.04 dBm	-41.04 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.97552 GHz	-50.61 dBm	-37.61 dB

Date: 19.OCT.2022 12:29:45

Middle Channel / 1RB1

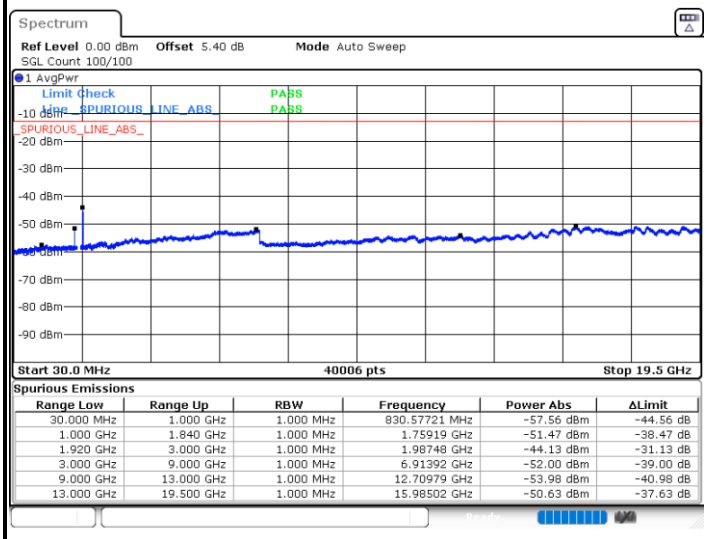


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	923.65067 MHz	-57.64 dBm	-44.64 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.58 dBm	-38.58 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96049 GHz	-44.18 dBm	-31.18 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98742 GHz	-51.99 dBm	-38.99 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.66029 GHz	-54.00 dBm	-41.00 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.95852 GHz	-50.51 dBm	-37.51 dB

Date: 19.OCT.2022 12:28:21

Highest Channel / 1RB1



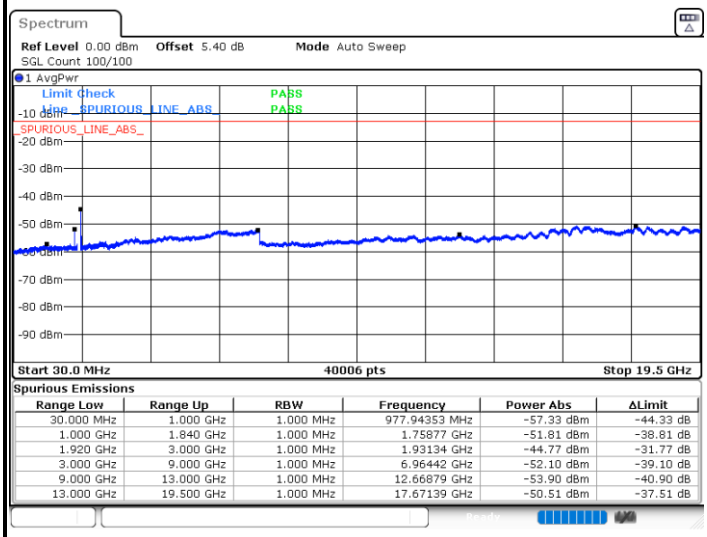
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	830.57721 MHz	-57.56 dBm	-44.56 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75919 GHz	-51.47 dBm	-38.47 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98748 GHz	-44.13 dBm	-31.13 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.91392 GHz	-52.00 dBm	-39.00 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.70979 GHz	-53.98 dBm	-40.98 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.98502 GHz	-50.63 dBm	-37.63 dB

Date: 19.OCT.2022 12:22:11

FR1 n2 / 10MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

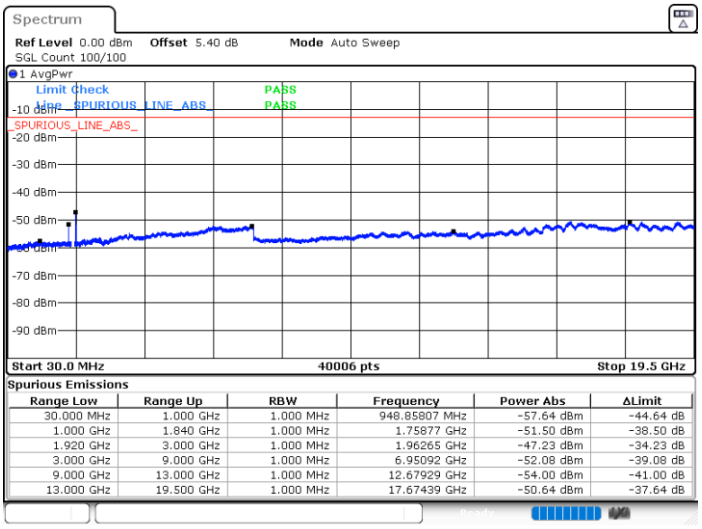


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	977.94353 MHz	-57.33 dBm	-44.33 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.81 dBm	-38.81 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93134 GHz	-44.77 dBm	-31.77 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.96442 GHz	-52.10 dBm	-39.10 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.66879 GHz	-53.90 dBm	-40.90 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.67139 GHz	-50.51 dBm	-37.51 dB

Date: 19.OCT.2022 12:41:42

Middle Channel / 1RB1

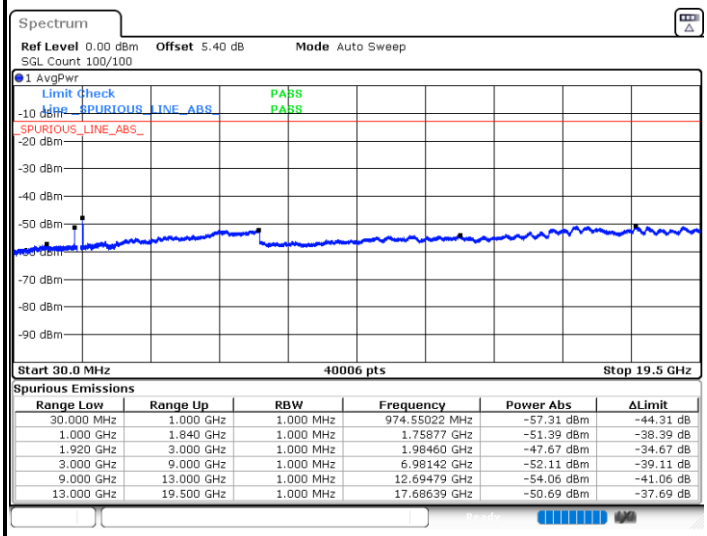


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	948.85807 MHz	-57.64 dBm	-44.64 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.50 dBm	-38.50 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.96265 GHz	-47.23 dBm	-34.23 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.95092 GHz	-52.08 dBm	-39.08 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.67929 GHz	-54.00 dBm	-41.00 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.67439 GHz	-50.64 dBm	-37.64 dB

Date: 19.OCT.2022 12:46:20

Highest Channel / 1RB1



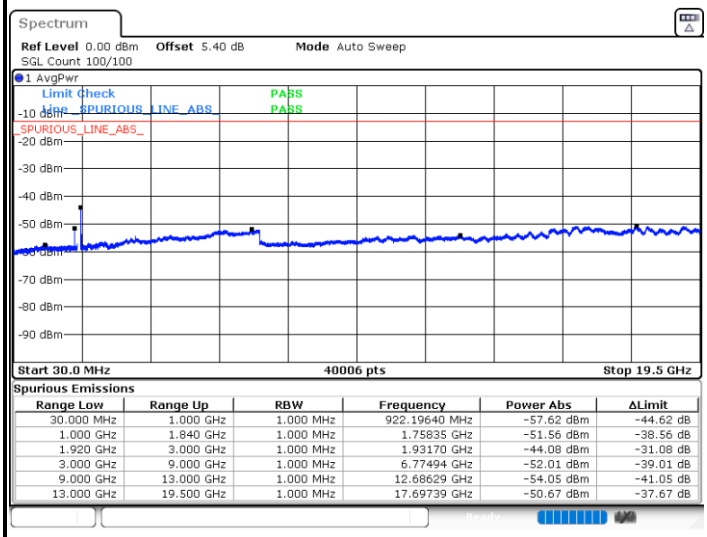
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	974.55022 MHz	-57.31 dBm	-44.31 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.39 dBm	-38.39 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98460 GHz	-47.67 dBm	-34.67 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98142 GHz	-52.11 dBm	-39.11 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.69479 GHz	-54.06 dBm	-41.06 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.68639 GHz	-50.69 dBm	-37.69 dB

Date: 19.OCT.2022 13:53:18

FR1 n2 / 10MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

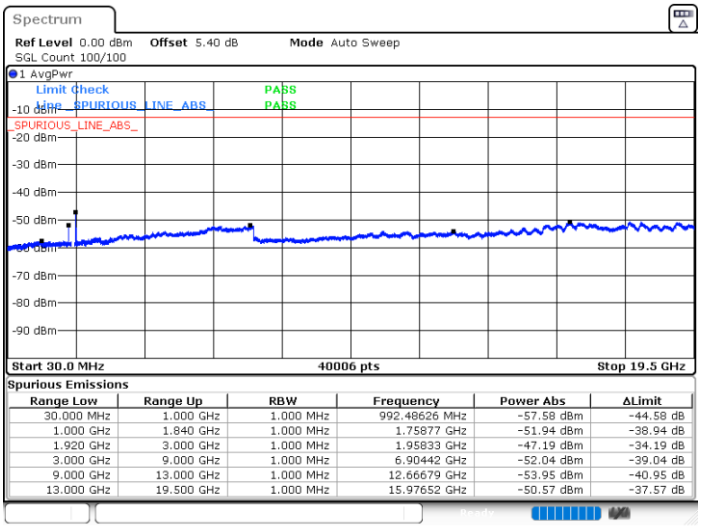


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	922.19640 MHz	-57.62 dBm	-44.62 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75835 GHz	-51.56 dBm	-38.56 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93170 GHz	-44.08 dBm	-31.08 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.77494 GHz	-52.01 dBm	-39.01 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.68629 GHz	-54.05 dBm	-41.05 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.69739 GHz	-50.67 dBm	-37.67 dB

Date: 19.OCT.2022 12:39:28

Middle Channel / 1RB1

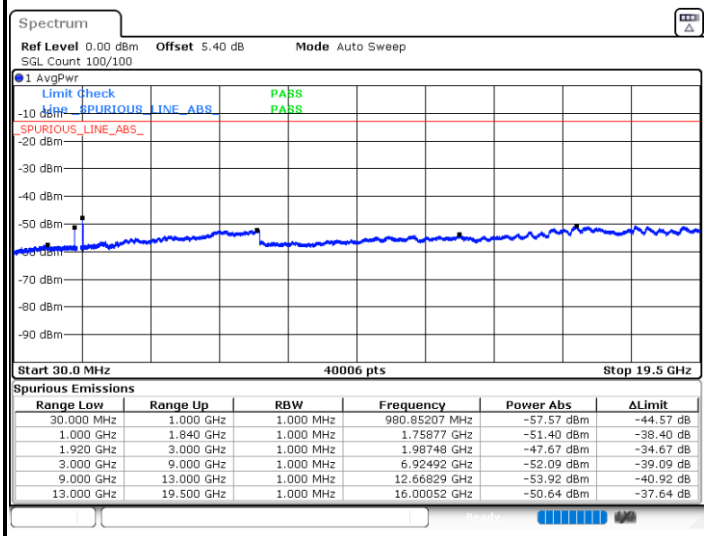


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	992.48626 MHz	-57.58 dBm	-44.58 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.94 dBm	-38.94 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95833 GHz	-47.19 dBm	-34.19 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.90442 GHz	-52.04 dBm	-39.04 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.66679 GHz	-53.95 dBm	-40.95 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.97652 GHz	-50.57 dBm	-37.57 dB

Date: 19.OCT.2022 12:45:27

Highest Channel / 1RB1



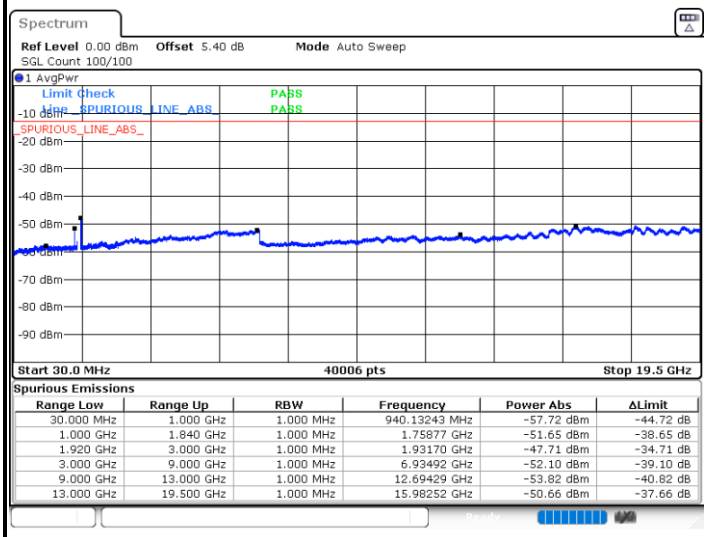
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	980.85207 MHz	-57.57 dBm	-44.57 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.40 dBm	-38.40 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98748 GHz	-47.67 dBm	-34.67 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.92492 GHz	-52.09 dBm	-39.09 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.66829 GHz	-53.92 dBm	-40.92 dB
13.000 GHz	19.500 GHz	1.000 MHz	16.00052 GHz	-50.64 dBm	-37.64 dB

Date: 19.OCT.2022 13:54:51

FR1 n2 / 20MHz / DFT-S OFDM / BPSK

Lowest Channel / 1RB1

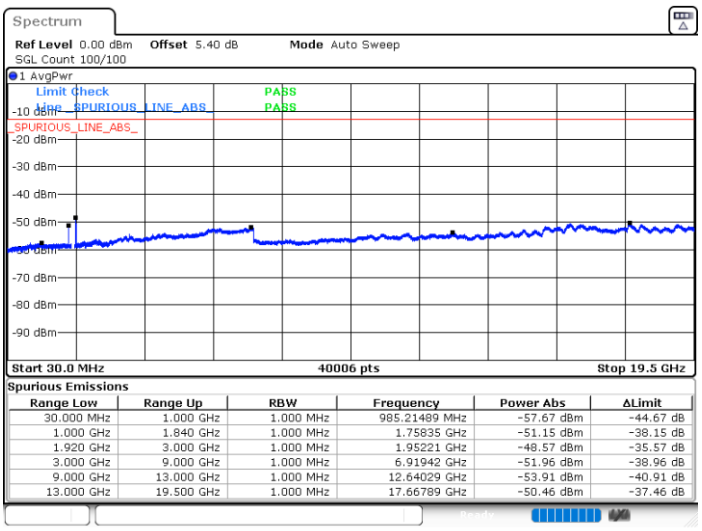


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	940.13243 MHz	-57.72 dBm	-44.72 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.65 dBm	-38.65 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93170 GHz	-47.71 dBm	-34.71 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.93492 GHz	-52.10 dBm	-39.10 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.69429 GHz	-53.82 dBm	-40.82 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.98252 GHz	-50.66 dBm	-37.66 dB

Date: 19.OCT.2022 13:59:03

Middle Channel / 1RB1

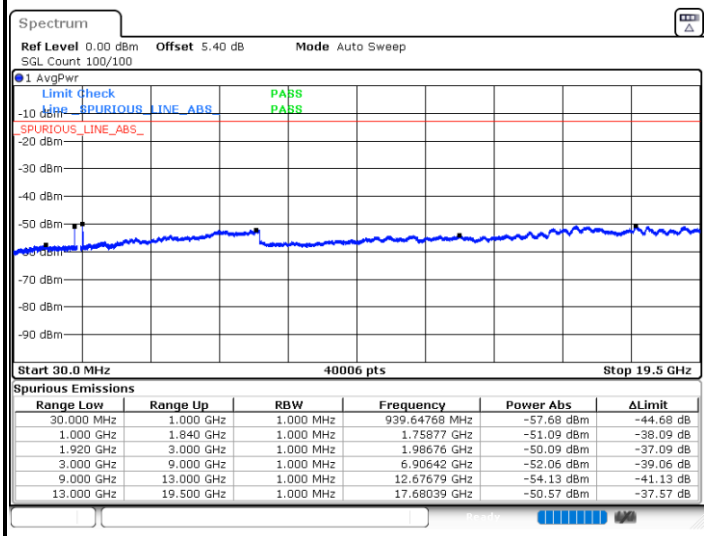


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	985.21489 MHz	-57.67 dBm	-44.67 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75835 GHz	-51.15 dBm	-38.15 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95221 GHz	-48.57 dBm	-35.57 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.91942 GHz	-51.96 dBm	-38.96 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.64029 GHz	-53.91 dBm	-40.91 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.66789 GHz	-50.46 dBm	-37.46 dB

Date: 19.OCT.2022 14:06:31

Highest Channel / 1RB1



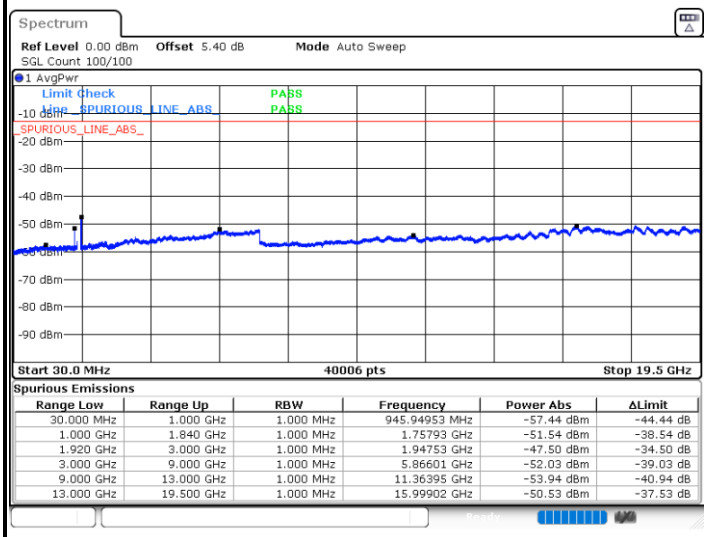
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	939.64768 MHz	-57.68 dBm	-44.68 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75877 GHz	-51.09 dBm	-38.09 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98676 GHz	-50.09 dBm	-37.09 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.90642 GHz	-52.06 dBm	-39.06 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.67679 GHz	-54.13 dBm	-41.13 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.68039 GHz	-50.57 dBm	-37.57 dB

Date: 19.OCT.2022 14:19:11

FR1 n2 / 20MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB1

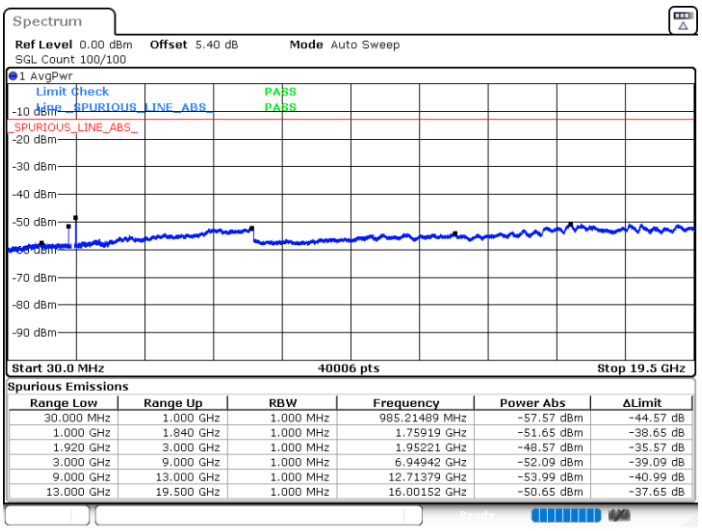


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	945.94953 MHz	-57.44 dBm	-44.44 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75793 GHz	-51.54 dBm	-38.54 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.94753 GHz	-47.50 dBm	-34.50 dB
3.000 GHz	9.000 GHz	1.000 MHz	5.86601 GHz	-52.03 dBm	-39.03 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.36395 GHz	-53.94 dBm	-40.94 dB
13.000 GHz	19.500 GHz	1.000 MHz	15.99902 GHz	-50.53 dBm	-37.53 dB

Date: 19.OCT.2022 14:01:22

Middle Channel / 1RB1

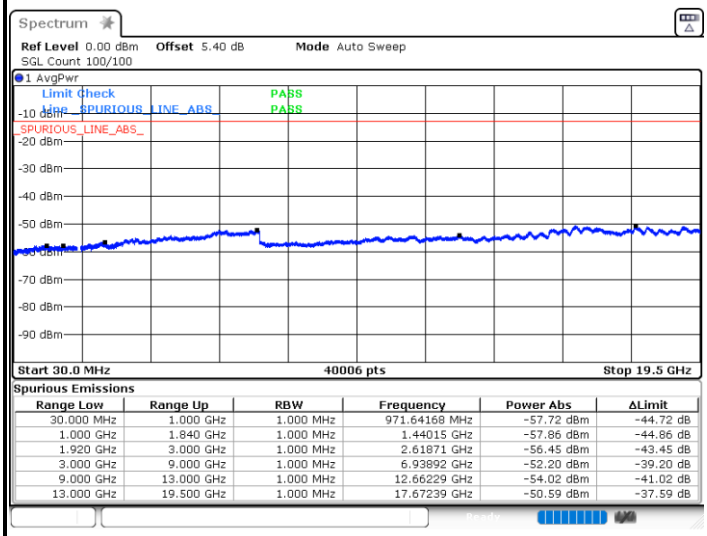


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	985.21489 MHz	-57.57 dBm	-44.57 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.75919 GHz	-51.65 dBm	-38.65 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95221 GHz	-48.57 dBm	-35.57 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.94942 GHz	-52.09 dBm	-39.09 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.71379 GHz	-53.99 dBm	-40.99 dB
13.000 GHz	19.500 GHz	1.000 MHz	16.00152 GHz	-50.65 dBm	-37.65 dB

Date: 19.OCT.2022 14:05:08

Highest Channel / 1RB1



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	971.64168 MHz	-57.72 dBm	-44.72 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.44015 GHz	-57.86 dBm	-44.86 dB
1.920 GHz	3.000 GHz	1.000 MHz	2.61871 GHz	-56.45 dBm	-43.45 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.93892 GHz	-52.20 dBm	-39.20 dB
9.000 GHz	13.000 GHz	1.000 MHz	12.66229 GHz	-54.02 dBm	-41.02 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.67239 GHz	-50.59 dBm	-37.59 dB

Date: 19.OCT.2022 20:30:16

Frequency Stability

Test Conditions		FR1 n2 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0015	PASS
40	Normal Voltage	0.0022	
30	Normal Voltage	0.0013	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0022	
0	Normal Voltage	0.0013	
-10	Normal Voltage	0.0022	
-20	Normal Voltage	0.0031	
-30	Normal Voltage	0.0022	
20	Maximum Voltage	0.0015	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0015	

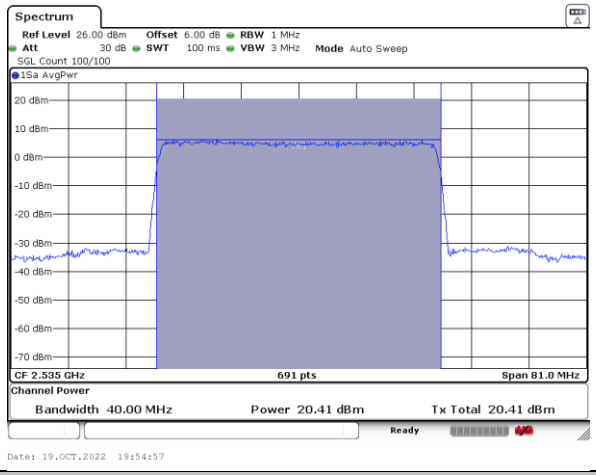
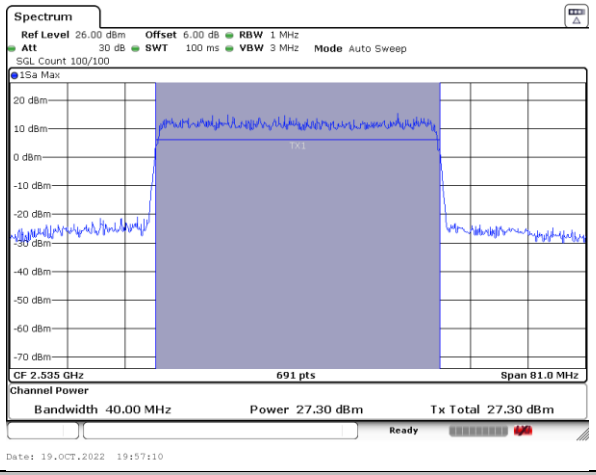
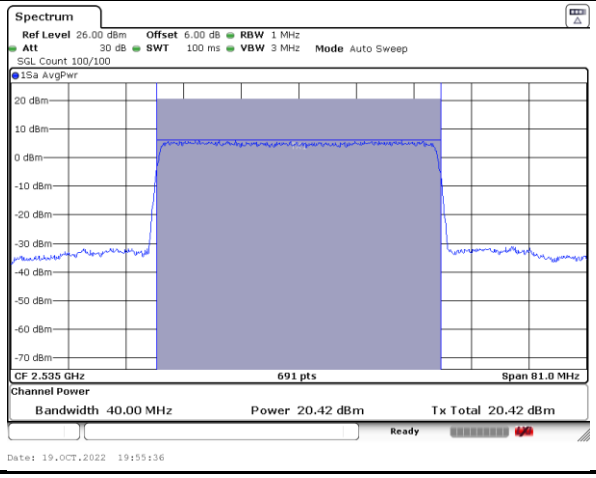
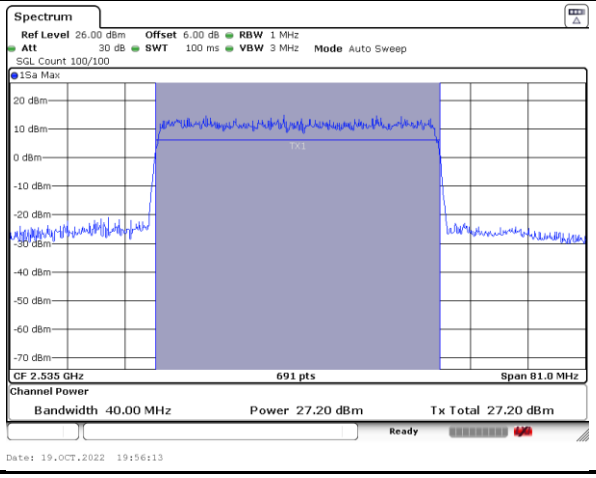
Note:

1. Normal Voltage =3.87 V. ; Battery End Point (BEP) =3.6 V. ; Maximum Voltage =4.45 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

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	6.89	6.78			PASS

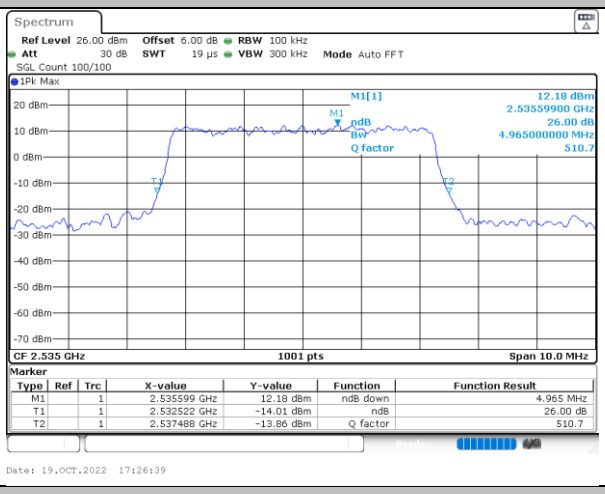
Middle Channel / Full RB	Middle Channel / Full RB
BPSK-A	BPSK-P
	
QPSK-A	QPSK-P
	

26dB Bandwidth

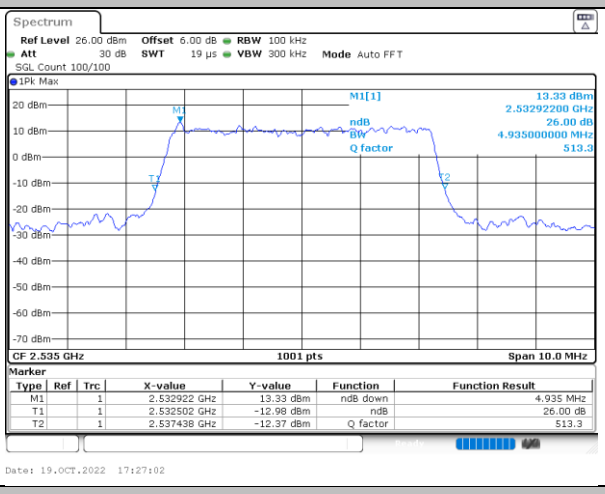
Mode	FR1 n7 : 26dB BW(MHz) / DFT-S OFDM			
BW	5M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	4.97	4.94	5.05	4.96
BW	10M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	9.97	10.15	10.09	10.07
BW	15M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	14.96	14.99	14.87	14.93
BW	20M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	21.22	21.30	21.18	21.38
BW	25M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	24.82	24.78	24.70	24.66
BW	30M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	29.53	29.53	29.53	29.53
BW	40M			
Mod.	QPSK	16QAM	64QAM	256QAM
Middle CH	40.92	41.08	41	41

5M

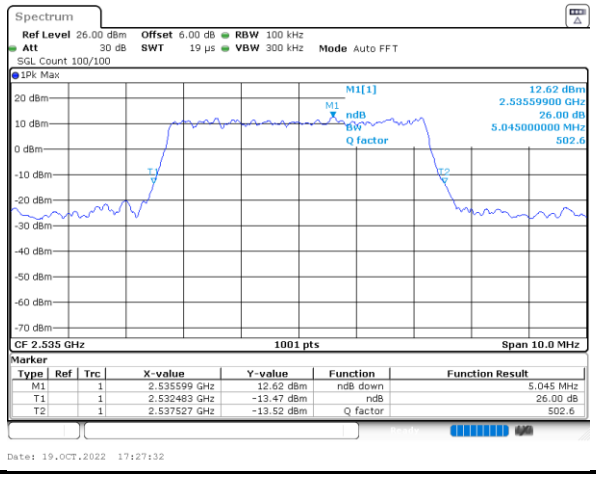
QPSK



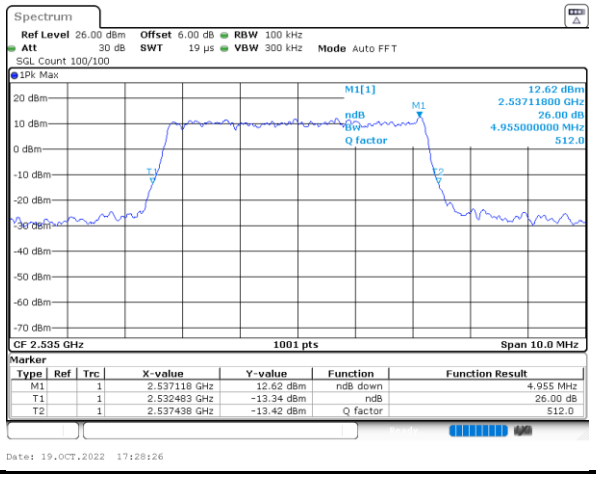
16QAM



64QAM

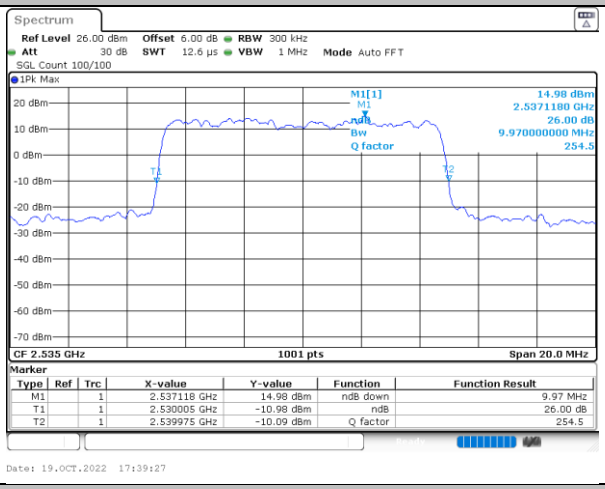


256QAM

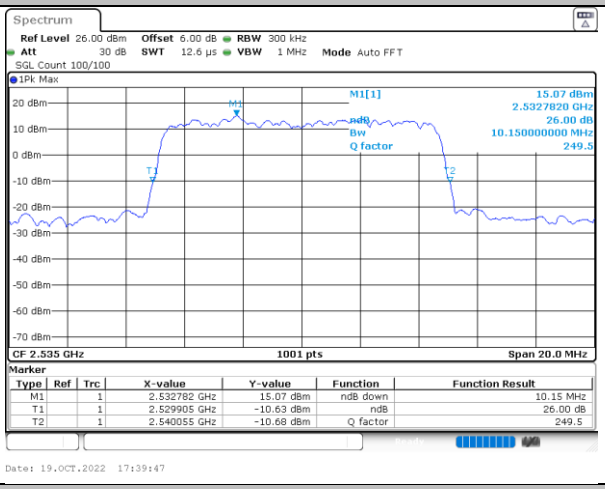


10M

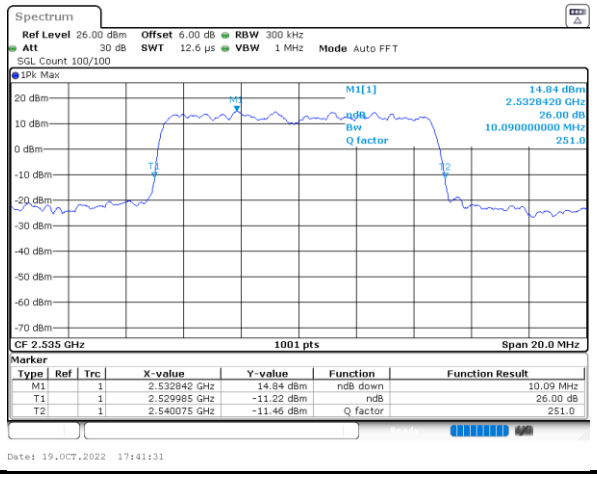
QPSK



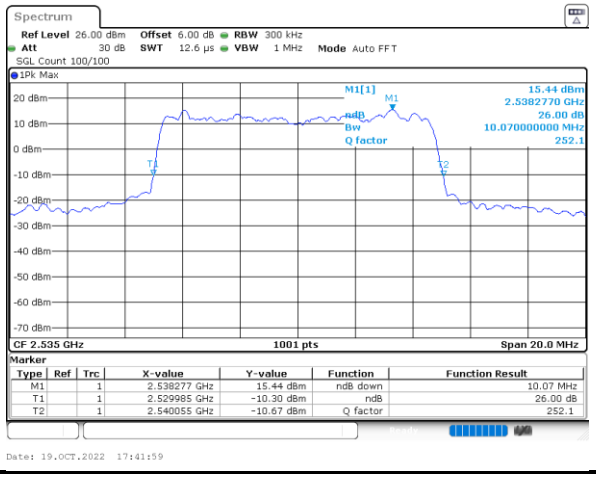
16QAM



64QAM

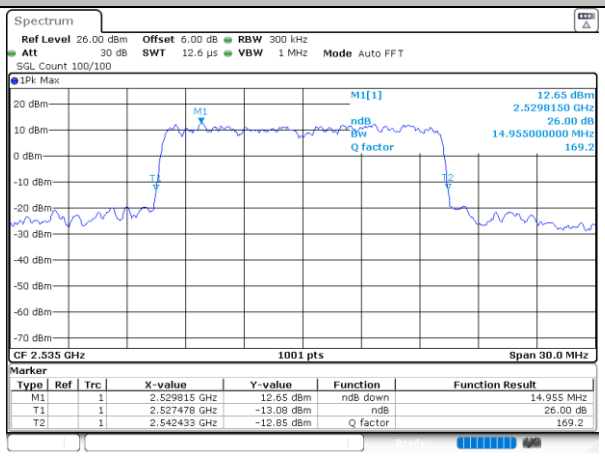


256QAM



15M

QPSK



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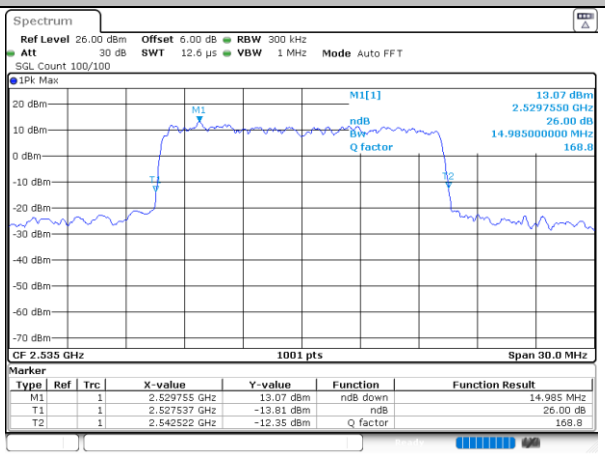

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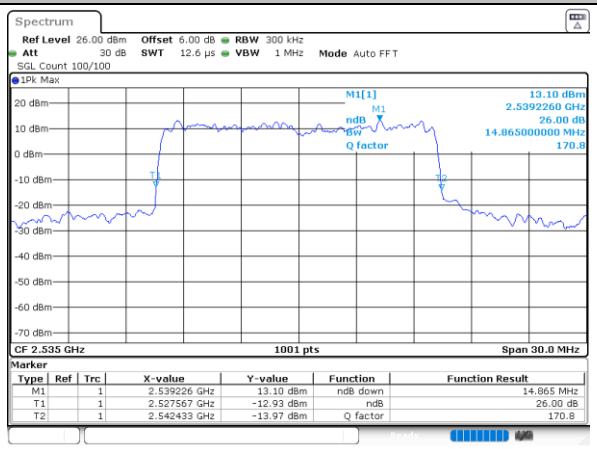
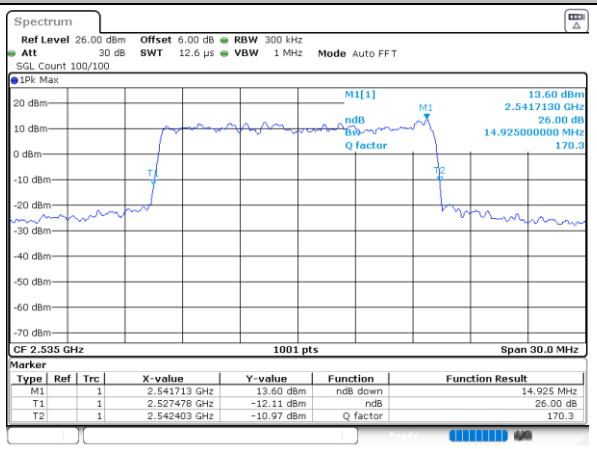
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