FCC RF Test Report

APPLICANT	: Fibocom Wireless Inc.
EQUIPMENT	: 5G Module
BRAND NAME	: Fibocom
MODEL NAME	: FM150-NA
FCC ID	: ZMOFM150NA
STANDARD	: 47 CFR Part 2, 22(H), 24(E), 27(H)
CLASSIFICATION	: PCS Licensed Transmitter (PCB)

The product was received on May 14, 2020 and completely tested on Aug. 14, 2020. We, Sporton International (Kunshan) Inc., 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

James Huang

Approved by: James Huang / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG051416G	Rev. 01	Initial issue of report	Sep. 11, 2020

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(5)	Effective Radiated Power (5G NR n5)	ERP < 7 Watt		
	§27.50(c)(10)	Effective Radiated Power (5G NR n12)	ERP < 3 Watt		
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n2) (5G NR n25)	EIRP < 2Watt		
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 §22.917(a) §24.238(a) §27.53(g)	Conducted Band Edge Measurement (5G NR n2) (5G NR n5) (5G NR n12) (5G NR n25)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(g)	Conducted Spurious Emission (5G NR n2) (5G NR n5) (5G NR n12) (5G NR n25)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(g)	Radiated Spurious Emission (5G NR n2) (5G NR n5) (5G NR n12) (5G NR n25)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 35.31 dB at 7565.000 MHz

1 General Description

1.1 Applicant

Fibocom Wireless Inc.

5/F, Tower A, Technology Building II,1057 Nanhai Avenue, Shenzhen, China

1.2 Manufacturer

Fibocom Wireless Inc.

5/F, Tower A, Technology Building II,1057 Nanhai Avenue, Shenzhen, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	5G Module
Brand Name	Fibocom
Model Name	FM150-NA
FCC ID	ZMOFM150NA
EUT supports Radios application	WCDMA/LTE/5G NR/GNSS
IMEI Code	Conducted : 867654040313583 Radiation : 867654040223105
HW Version	V1.0.1
SW Version	89601.1000.00.02.11.20
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n2: 1852.5 MHz ~ 1907.5 MHz 5G NR n5: 826.5 MHz ~ 846.5 MHz 5G NR n12: 701.5 MHz ~ 713.5 MHz 5G NR n25: 1852.5 MHz ~ 1912.5 MHz
Rx Frequency	5G NR n2: 1932.5 MHz ~ 1987.5 MHz 5G NR n5: 871.5 MHz ~ 891.5 MHz 5G NR n12: 731.5 MHz ~ 743.5 MHz 5G NR n25: 1932.5 MHz ~ 1992.5 MHz
Bandwidth	n2, n5, n25: 5MHz / 10MHz / 15MHz / 20MHz n12 : 5MHz / 10MHz / 15MHz
SCS	n2, n5, n12, n25: 15KHz
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: QPSK / 16QAM / 64QAM / 256QAM

WWAN ANTENNA GAIN (dBi)		
Frequency Band	ANT.1： GHT-019A	ANT.2： AN0750-64S01BSM
5G NR n2	**1.93**	1.46
5G NR n5	**1.32**	1.12
5G NR n12	**1.58**	-0.52
5G NR n25	**1.93**	1.46

Remark: Between the two type of antennas, only the worst antenna gain evaluated test is shown in bold.

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

5G NR n2		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)
5	1852.5 ~ 1907.5	4M51G7D	0.2606	4M49W7D	0.2032
10	1855.0 ~ 1905.0	8M95G7D	0.2618	9M27W7D	0.1986
20	1860.0 ~ 1900.0	17M9G7D	0.2661	18M9W7D	0.2028
Frequency Tolerance (ppm)		0.0025			

5G NR n5		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)
5	826.5 ~ 846.5	4M49G7D	0.2382	4M49W7D	0.1901
10	829.0 ~ 844.0	8M93G7D	0.2489	9M29W7D	0.1910
20	834.0 ~ 839.0	17M9G7D	0.2523	18M9W7D	0.1901
Frequency Tolerance (ppm)		0.0030			

5G NR n12		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)
5	701.5 ~ 713.5	4M51G7D	0.2512	4M49W7D	0.2009
10	704.0 ~ 711.5	8M95G7D	0.2483	9M27W7D	0.2014
15	706.5 ~ 708.5	13M5G7D	0.2570	14M1W7D	0.2028
Frequency Tolerance (ppm)		0.0025			

5G NR n25		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum Conducted power (W)	Emission Designator (99%OBW)	Maximum Conducted power (W)
5	1852.5 ~ 1912.5	4M53G7D	0.2173	4M48W7D	0.1936
10	1855.0 ~ 1910.0	8M93G7D	0.2466	9M29W7D	0.1986
20	1860.0 ~ 1905.0	17M9G7D	0.2483	18M9W7D	0.2083
Frequency Tolerance (ppm)		0.0028			

1.7 Testing Location

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

Test Firm	Sporton International (Kunshan) Inc.		
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	CN1257	314309

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

Test Firm	Sporton International (Shenzhen) Inc.		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.9 Applicable Standards

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

- 47 CFR Part 2, 22, 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 (Y 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			

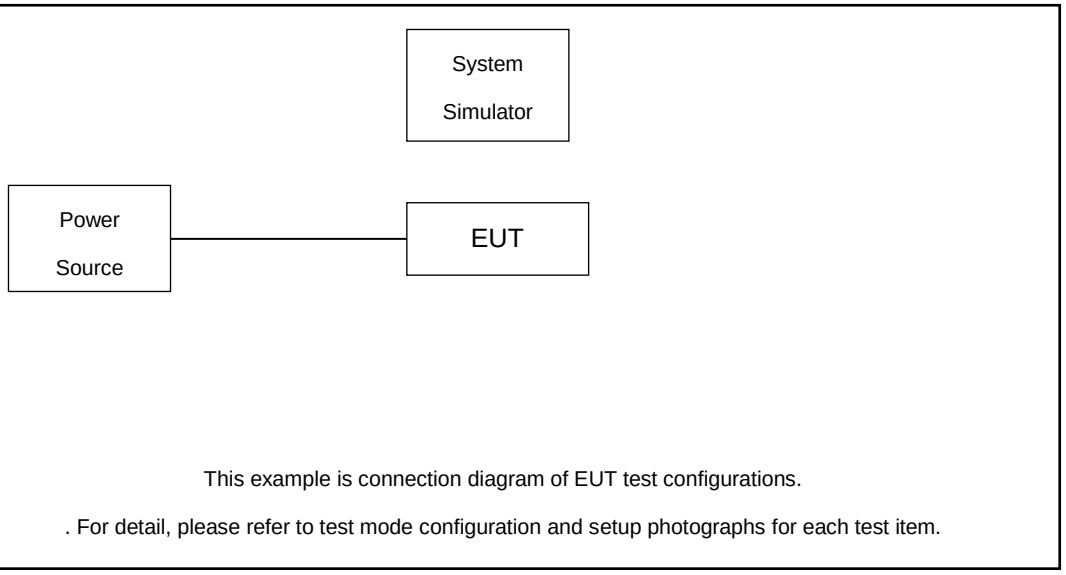
Test Items	5G NR	Bandwidth (MHz)						Modulation					RB #		Test Channel		
		5	10	15	20	40-90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H
Max. Output Power	n2	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v
	n5	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v
	n12	v	v	v	-	-	-	-	v	v	v	v	v	v	v	v	v
	n25	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n2				v	-	-	-	v					v	v	v	v
	n5				v	-	-	-	v					v	v	v	v
	n12			v	-	-	-	-	v					v	v	v	v
	n25				v	-	-	-	v					v	v	v	v
26dB and 99% Bandwidth	n2	v	v		v	-	-	-	v	v				v	v	v	v
	n5	v	v		v	-	-	-	v	v				v	v	v	v
	n12	v	v	v	-	-	-	-	v	v				v	v	v	v
	n25	v	v		v	-	-	-	v	v				v	v	v	v

Test Items	Band	Bandwidth (MHz)						Modulation					RB #		Test Channel		
		5	10	15	20	40-90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H
Conducted Band Edge	n2	v	v		v	-	-	-	v				v	v	v		v
	n5	v	v		v	-	-	-	v				v	v	v		v
	n12	v	v		-	-	-	-	v				v	v	v		v
	n25	v	v		v	-	-	-	v				v	v	v		v
Conducted Spurious Emission	n2	v	v		v	-	-	-	v				v	v	v	v	v
	n5	v	v		v	-	-	-	v				v	v	v	v	v
	n12	v	v	v	-	-	-	-	v				v	v	v	v	v
	n25	v	v		v	-	-	-	v				v	v	v	v	v
Frequency Stability	n2				v	-	-	-	v					v		v	
	n5				v	-	-	-	v					v		v	
	n12	-	-	v	-	-	-	-	v					v		v	
	n25				v	-	-	-	v					v		v	
E.R.P / E.I.R.P	n2	v	v		v	-	-	-	v	v	v	v	v	v	v	v	v
	n5	v	v		v	-	-	-	v	v	v	v	v	v	v	v	v
	n12	v	v	v	-	-	-	-	v	v	v	v	v	v	v	v	v
	n25	v	v		v	-	-	-	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n2	Worst Case													v	v	v
	n5	Worst Case													v	v	v
	n12	Worst Case													v	v	v
	n25	Worst Case													v	v	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. This module is limited to installation in fixed applications.
5. 5G NR supports SA and NSA mode (refer to the Operation Description). According to the maximum power, perform all test for SA mode, and NSA mode verify the worst of SA mode, only record the SA test data in the report.
6. For modulation of CP-OFDM and DFT-s-OFDM output power measurement, according to the maximum power of CP-OFDM is lower than DFT-s-OFDM modulation, therefore, we chose higher power (DFT-s-OFDM modulation) to perform all tests and record them in the report, and after the verify test for CP-OFDM modulation, the 99% measurement Bandwidth test and record it in the report.
7. All modulations (QPSK/16QAM/64QAM/256QAM) have been verify tested. Based on the results of the verify test, we only chose QPSK for complete testing and record in the report .

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.

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
4.	Antenna	N/A	N/A	N/A	N/A	N/A
5.	Adapter	N/A	N/A	N/A	N/A	N/A
6.	Test jig	N/A	N/A	N/A	N/A	N/A

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 5.5 dB.

Example :

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

= 5.5 (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 n5 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	166800	167300	167800
	Frequency	834	836.5	839
15	Channel	166300	167300	168300
	Frequency	831.5	836.5	841.5
10	Channel	165800	167300	168800
	Frequency	829	836.5	844
5	Channel	165300	167300	169300
	Frequency	826.5	836.5	846.5

5G NR n12 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
15	Channel	141300	141500	141700
	Frequency	706.5	707.5	708.5
10	Channel	140800	141500	142200
	Frequency	704	707.5	711
5	Channel	140300	141500	142700
	Frequency	701.5	707.5	713.5

5G NR n25 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	372000	376500	381000
	Frequency	1860	1882.5	1905
15	Channel	371500	376500	381500
	Frequency	1857.5	1882.5	1907.5
10	Channel	371000	376500	382000
	Frequency	1855	1882.5	1910
5	Channel	370500	376500	382500
	Frequency	1852.5	1882.5	1912.5

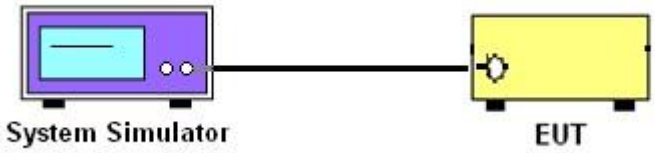
3 Conducted Test Items

3.1 Measuring Instruments

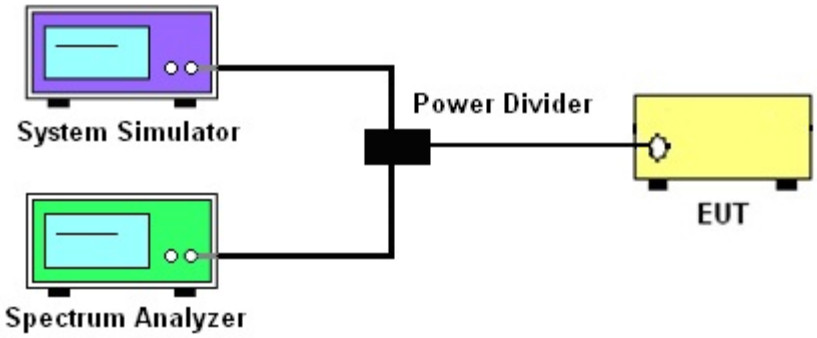
See list of measuring instruments of this test report.

3.2 Test Setup

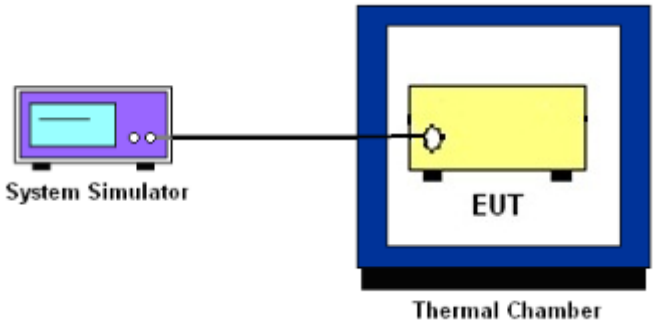
3.2.1 Conducted Output Power



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 ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/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 ERP of mobile transmitters must not exceed 7 Watts for 5G NR n5.

The ERP of mobile transmitters must not exceed 3 Watts for 5G NR n12.

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n2 and n25.

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.

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

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(Watts) in a 100kHz 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.

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 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

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.
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.

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.

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.

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.

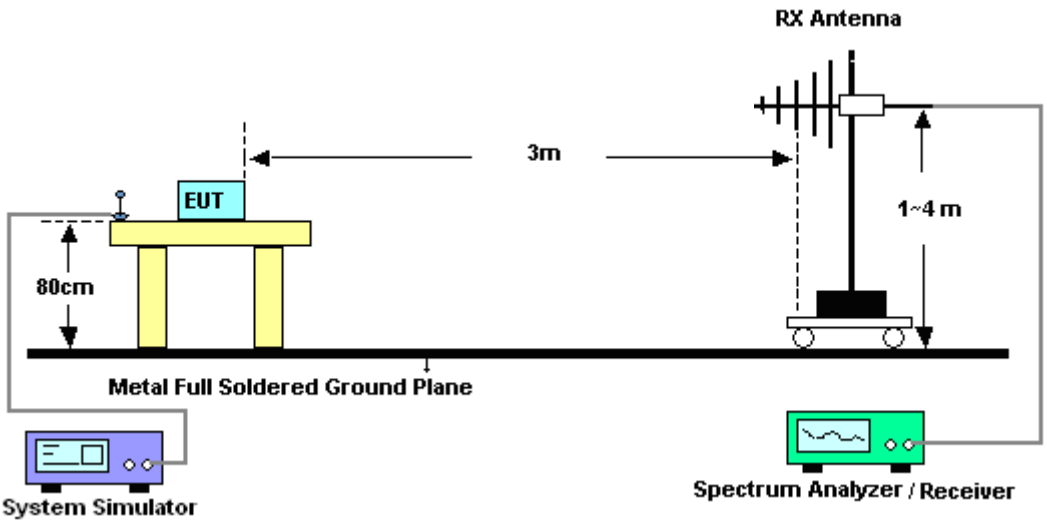
4 Radiated Test Items

4.1 Measuring Instruments

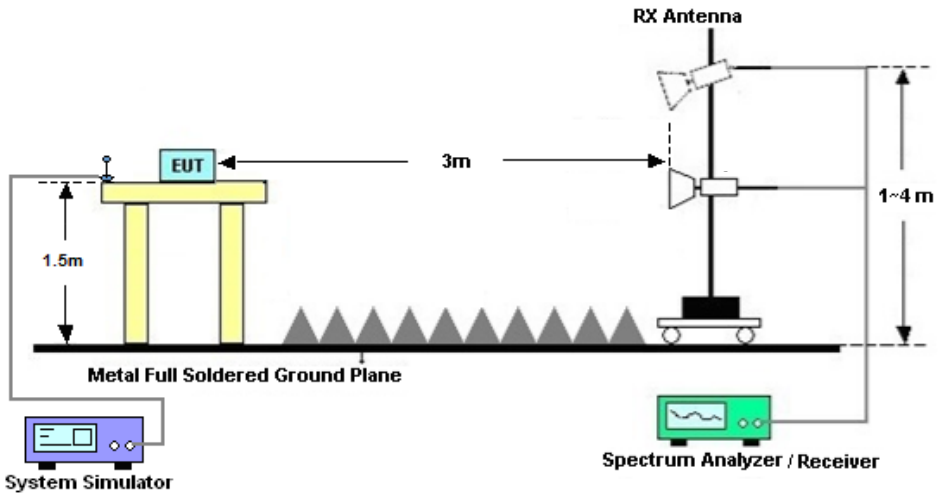
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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.

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.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 17, 2020	Aug. 12, 2020~ Aug. 14, 2020	Apr. 16, 2021	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Dec. 23, 2019	Aug. 12, 2020~ Aug. 14, 2020	Dec. 22, 2020	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 15, 2020	Jul. 31, 2020~ Aug. 01, 2020	Apr. 14, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jan. 03, 2020	Jul. 31, 2020~ Aug. 01, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 20, 2020	Jul. 31, 2020~ Aug. 01, 2020	Apr. 19, 2021	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2019	Jul. 31, 2020~ Aug. 01, 2020	Nov. 09, 2020	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 03, 2020	Jul. 31, 2020~ Aug. 01, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 08, 2020	Jul. 31, 2020~ Aug. 01, 2020	Jan. 07, 2021	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Jan. 03, 2020	Jul. 31, 2020~ Aug. 01, 2020	Jan. 02, 2021	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 15, 2019	Jul. 31, 2020~ Aug. 01, 2020	Oct. 14, 2020	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 31, 2020~ Aug. 01, 2020	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 31, 2020~ Aug. 01, 2020	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 31, 2020~ Aug. 01, 2020	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**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power and EIRP)

SA n2								
20MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
372000	1860	QPSK DFT-s-OFDM	1	1	24.25	0.2661	26.18	0.4150
			1	104	23.90	0.2455	25.83	0.3828
			50	25	24.18	0.2618	26.11	0.4083
		16QAM DFT-s-OFDM	1	1	23.05	0.2018	24.98	0.3148
			1	104	23.07	0.2028	25.00	0.3162
			50	25	22.96	0.1977	24.89	0.3083
		64QAM DFT-s-OFDM	1	1	21.24	0.133	23.17	0.2075
			1	104	21.23	0.1327	23.16	0.2070
			50	25	21.45	0.1396	23.38	0.2178
		256QAM DFT-s-OFDM	1	1	19.24	0.0839	21.17	0.1309
			1	104	19.21	0.0834	21.14	0.1300
			50	25	19.50	0.0891	21.43	0.1390
376000	1880	QPSK DFT-s-OFDM	1	1	24.15	0.26	26.08	0.4055
			1	104	23.82	0.241	25.75	0.3758
			50	25	23.94	0.2477	25.87	0.3864
		16QAM DFT-s-OFDM	1	1	22.97	0.1982	24.90	0.3090
			1	104	22.81	0.191	24.74	0.2979
			50	25	22.93	0.1963	24.86	0.3062
		64QAM DFT-s-OFDM	1	1	21.16	0.1306	23.09	0.2037
			1	104	21.03	0.1268	22.96	0.1977
			50	25	21.43	0.139	23.36	0.2168
		256QAM DFT-s-OFDM	1	1	19.13	0.0818	21.06	0.1276
			1	104	18.96	0.0787	20.89	0.1227
			50	25	19.45	0.0881	21.38	0.1374
		QPSK	1	1	22.59	0.1816	24.52	0.2831
			1	104	22.26	0.1683	24.19	0.2624

		CP-OFDM	53	26	22.31	0.1702	24.24	0.2655
			1	1	22.21	0.1663	24.14	0.2594
		16QAM	1	104	21.92	0.1556	23.85	0.2427
		CP-OFDM	53	26	21.91	0.1552	23.84	0.2421
			1	1	20.17	0.104	22.10	0.1622
		64QAM	1	104	20.08	0.1019	22.01	0.1589
		CP-OFDM	53	26	20.46	0.1112	22.39	0.1734
			1	1	17.02	0.0504	18.95	0.0785
		256QAM	1	104	17.03	0.0505	18.96	0.0787
		CP-OFDM	50	25	17.44	0.0555	19.37	0.0865
380000	1900		1	1	23.82	0.241	25.75	0.3758
		QPSK	1	104	23.88	0.2443	25.81	0.3811
		DFT-s-OFDM	50	25	23.85	0.2427	25.78	0.3784
			1	1	22.79	0.1901	24.72	0.2965
		16QAM	1	104	22.74	0.1879	24.67	0.2931
		DFT-s-OFDM	50	25	22.56	0.1803	24.49	0.2812
			1	1	20.95	0.1245	22.88	0.1941
		64QAM	1	104	20.88	0.1225	22.81	0.1910
		DFT-s-OFDM	50	25	21.16	0.1306	23.09	0.2037
			1	1	18.97	0.0789	20.90	0.1230
		256QAM	1	104	18.96	0.0787	20.89	0.1227
		DFT-s-OFDM	50	25	19.17	0.0826	21.10	0.1288

SA n2								
10MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
371000	1855	QPSK DFT-s-OFDM	1	1	24.09	0.2564	26.02	0.3999
			1	50	24.15	0.26	26.08	0.4055
			25	12	24.18	0.2618	26.11	0.4083
		16QAM DFT-s-OFDM	1	1	22.98	0.1986	24.91	0.3097
			1	50	22.92	0.1959	24.85	0.3055
			25	12	22.84	0.1923	24.77	0.2999
		64QAM DFT-s-OFDM	1	1	21.08	0.1282	23.01	0.2000
			1	50	21.09	0.1285	23.02	0.2004
			25	12	21.46	0.14	23.39	0.2183
		256QAM DFT-s-OFDM	1	1	19.08	0.0809	21.01	0.1262
			1	104	19.11	0.0815	21.04	0.1271
			50	25	19.32	0.0855	21.25	0.1334
376000	1880	QPSK DFT-s-OFDM	1	1	23.91	0.246	25.84	0.3837
			1	50	23.81	0.2404	25.74	0.3750
			25	12	23.89	0.2449	25.82	0.3819
		16QAM DFT-s-OFDM	1	1	22.92	0.1959	24.85	0.3055
			1	50	22.78	0.1897	24.71	0.2958
			25	12	22.86	0.1932	24.79	0.3013
		64QAM DFT-s-OFDM	1	1	21.09	0.1285	23.02	0.2004
			1	50	21.01	0.1262	22.94	0.1968
			25	12	21.49	0.1409	23.42	0.2198
		256QAM DFT-s-OFDM	1	1	19.08	0.0809	21.01	0.1262
			1	50	19.02	0.0798	20.95	0.1245
			25	12	19.28	0.0847	21.21	0.1321
381000	1905	QPSK DFT-s-OFDM	1	1	23.83	0.2415	25.76	0.3767
			1	50	23.80	0.2399	25.73	0.3741
			25	12	23.91	0.246	25.84	0.3837
		16QAM DFT-s-OFDM	1	1	22.66	0.1845	24.59	0.2877
			1	50	22.74	0.1879	24.67	0.2931
			25	12	22.59	0.1816	24.52	0.2831
			1	1	20.78	0.1197	22.71	0.1866

		64QAM	1	50	20.85	0.1216	22.78	0.1897
		DFT-s-OFDM	25	12	21.15	0.1303	23.08	0.2032
			1	1	18.82	0.0762	20.75	0.1189
		256QAM	1	50	18.89	0.0774	20.82	0.1208
		DFT-s-OFDM	25	12	19.08	0.0809	21.01	0.1262

SA n2								
5MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
370500	1852.5	QPSK DFT-s-OFDM	1	1	24.09	0.2564	26.02	0.3999
			1	23	24.16	0.2606	26.09	0.4064
			12	6	24.00	0.2512	25.93	0.3917
		16QAM DFT-s-OFDM	1	1	23.04	0.2014	24.97	0.3141
			1	23	23.08	0.2032	25.01	0.3170
			12	6	22.99	0.1991	24.92	0.3105
		64QAM DFT-s-OFDM	1	1	21.18	0.1312	23.11	0.2046
			1	23	21.21	0.1321	23.14	0.2061
			12	6	21.36	0.1368	23.29	0.2133
		256QAM DFT-s-OFDM	1	1	19.13	0.0818	21.06	0.1276
			1	23	19.12	0.0817	21.05	0.1274
			12	6	19.35	0.0861	21.28	0.1343
376000	1880	QPSK DFT-s-OFDM	1	1	23.98	0.25	25.91	0.3899
			1	23	23.92	0.2466	25.85	0.3846
			12	6	23.90	0.2455	25.83	0.3828
		16QAM DFT-s-OFDM	1	1	22.86	0.1932	24.79	0.3013
			1	23	22.91	0.1954	24.84	0.3048
			12	6	22.87	0.1936	24.80	0.3020
		64QAM DFT-s-OFDM	1	1	21.06	0.1276	22.99	0.1991
			1	23	21.08	0.1282	23.01	0.2000
			12	6	21.24	0.133	23.17	0.2075
		256QAM DFT-s-OFDM	1	1	19.11	0.0815	21.04	0.1271
			1	23	19.07	0.0807	21.00	0.1259
			12	6	19.26	0.0843	21.19	0.1315
381500	1907.5	QPSK DFT-s-OFDM	1	1	23.68	0.2333	25.61	0.3639
			1	23	23.75	0.2371	25.68	0.3698
			12	6	23.69	0.2339	25.62	0.3648
		16QAM DFT-s-OFDM	1	1	22.63	0.1832	24.56	0.2858
			1	23	22.71	0.1866	24.64	0.2911
			12	6	22.66	0.1845	24.59	0.2877
			1	1	20.77	0.1194	22.70	0.1862

		64QAM	1	23	20.84	0.1213	22.77	0.1892
		DFT-s-OFDM	12	6	21.13	0.1297	23.06	0.2023
			1	1	18.84	0.0766	20.77	0.1194
		256QAM	1	23	18.91	0.0778	20.84	0.1213
		DFT-s-OFDM	12	6	19.07	0.0807	21.00	0.1259

SA n5								
20MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
166800	834	QPSK DFT-s-OFDM	1	1	24.02	0.2523	23.19	0.2084
			1	104	23.41	0.2193	22.58	0.1811
			50	25	23.65	0.2317	22.82	0.1914
		16QAM DFT-s-OFDM	1	1	22.71	0.1866	21.88	0.1542
			1	104	22.69	0.1858	21.86	0.1535
			50	25	22.59	0.1816	21.76	0.1500
		64QAM DFT-s-OFDM	1	1	20.79	0.1199	19.96	0.0991
			1	104	20.71	0.1178	19.88	0.0973
			50	25	21.01	0.1262	20.18	0.1042
		256QAM DFT-s-OFDM	1	1	18.88	0.0773	18.05	0.0638
			1	104	18.79	0.0757	17.96	0.0625
			50	25	18.99	0.0793	18.16	0.0655
167300	836.5	QPSK DFT-s-OFDM	1	1	23.90	0.2455	23.07	0.2028
			1	104	23.45	0.2213	22.62	0.1828
			50	25	23.52	0.2249	22.69	0.1858
		16QAM DFT-s-OFDM	1	1	22.79	0.1901	21.96	0.1570
			1	104	22.63	0.1832	21.80	0.1514
			50	25	22.64	0.1837	21.81	0.1517
		64QAM DFT-s-OFDM	1	1	20.89	0.1227	20.06	0.1014
			1	104	20.78	0.1197	19.95	0.0989
			50	25	21.06	0.1276	20.23	0.1054
		256QAM DFT-s-OFDM	1	1	18.93	0.0782	18.10	0.0646
			1	104	18.78	0.0755	17.95	0.0624
			50	25	19.02	0.0798	18.19	0.0659
167800	839	QPSK DFT-s-OFDM	1	1	23.89	0.2449	23.06	0.2023
			1	104	23.27	0.2123	22.44	0.1754
			50	25	23.53	0.2254	22.70	0.1862
		16QAM DFT-s-OFDM	1	1	22.69	0.1858	21.86	0.1535
			1	104	22.65	0.1841	21.82	0.1521
			50	25	22.51	0.1782	21.68	0.1472
			1	1	20.75	0.1189	19.92	0.0982

		64QAM	1	104	20.66	0.1164	19.83	0.0962
		DFT-s-OFDM	50	25	21.04	0.1271	20.21	0.1050
			1	1	18.87	0.0771	18.04	0.0637
		256QAM	1	104	18.71	0.0743	17.88	0.0614
		DFT-s-OFDM	50	25	18.94	0.0783	18.11	0.0647

SA n5								
10MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
165800	829	QPSK DFT-s-OFDM	1	1	23.96	0.2489	23.13	0.2056
			1	50	23.50	0.2239	22.67	0.1849
			25	12	23.74	0.2366	22.91	0.1954
		16QAM DFT-s-OFDM	1	1	22.73	0.1875	21.90	0.1549
			1	50	22.68	0.1854	21.85	0.1531
			25	12	22.56	0.1803	21.73	0.1489
		64QAM DFT-s-OFDM	1	1	20.78	0.1197	19.95	0.0989
			1	50	20.69	0.1172	19.86	0.0968
			25	12	21.03	0.1268	20.20	0.1047
		256QAM DFT-s-OFDM	1	1	18.87	0.0771	18.04	0.0637
			1	50	18.74	0.0748	17.91	0.0618
			25	12	18.96	0.0787	18.13	0.0650
167300	836.5	QPSK DFT-s-OFDM	1	1	23.80	0.2399	22.97	0.1982
			1	50	23.44	0.2208	22.61	0.1824
			25	12	23.52	0.2249	22.69	0.1858
		16QAM DFT-s-OFDM	1	1	22.81	0.191	21.98	0.1578
			1	50	22.59	0.1816	21.76	0.1500
			25	12	22.67	0.1849	21.84	0.1528
		64QAM DFT-s-OFDM	1	1	20.84	0.1213	20.01	0.1002
			1	50	20.75	0.1189	19.92	0.0982
			25	12	21.07	0.1279	20.24	0.1057
		256QAM DFT-s-OFDM	1	1	18.89	0.0774	18.06	0.0640
			1	50	18.72	0.0745	17.89	0.0615
			25	12	18.97	0.0789	18.14	0.0652
168800	844	QPSK DFT-s-OFDM	1	1	23.63	0.2307	22.80	0.1905
			1	50	23.46	0.2218	22.63	0.1832
			25	12	23.42	0.2198	22.59	0.1816
		16QAM DFT-s-OFDM	1	1	22.71	0.1866	21.88	0.1542
			1	50	22.68	0.1854	21.85	0.1531
			25	12	22.54	0.1795	21.71	0.1483
			1	1	20.78	0.1197	19.95	0.0989

		64QAM	1	50	20.69	0.1172	19.86	0.0968
		DFT-s-OFDM	25	12	21.03	0.1268	20.20	0.1047
			1	1	18.89	0.0774	18.06	0.0640
		256QAM	1	50	18.68	0.0738	17.85	0.0610
		DFT-s-OFDM	25	12	18.96	0.0787	18.13	0.0650

SA n5								
5MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
165300	826.5	QPSK DFT-s-OFDM	1	1	23.77	0.2382	22.94	0.1968
			1	23	23.54	0.2259	22.71	0.1866
			12	6	23.65	0.2317	22.82	0.1914
		16QAM DFT-s-OFDM	1	1	22.79	0.1901	21.96	0.1570
			1	23	22.67	0.1849	21.84	0.1528
			12	6	22.76	0.1888	21.93	0.1560
		64QAM DFT-s-OFDM	1	1	20.95	0.1245	20.12	0.1028
			1	23	20.82	0.1208	19.99	0.0998
			12	6	21.21	0.1321	20.38	0.1091
		256QAM DFT-s-OFDM	1	1	18.97	0.0789	18.14	0.0652
			1	23	18.73	0.0746	17.90	0.0617
			12	6	19.06	0.0805	18.23	0.0665
167300	836.5	QPSK DFT-s-OFDM	1	1	23.62	0.2301	22.79	0.1901
			1	23	23.28	0.2128	22.45	0.1758
			12	6	23.40	0.2188	22.57	0.1807
		16QAM DFT-s-OFDM	1	1	22.78	0.1897	21.95	0.1567
			1	104	22.65	0.1841	21.82	0.1521
			50	25	22.79	0.1901	21.96	0.1570
		64QAM DFT-s-OFDM	1	1	20.97	0.125	20.14	0.1033
			1	104	20.85	0.1216	20.02	0.1005
			50	25	21.17	0.1309	20.34	0.1081
		256QAM DFT-s-OFDM	1	1	18.96	0.0787	18.13	0.0650
			1	104	18.74	0.0748	17.91	0.0618
			50	25	19.12	0.0817	18.29	0.0675
169300	846.5	QPSK DFT-s-OFDM	1	1	23.46	0.2218	22.63	0.1832
			1	23	23.05	0.2018	22.22	0.1667
			12	6	23.13	0.2056	22.30	0.1698
		16QAM DFT-s-OFDM	1	1	22.73	0.1875	21.90	0.1549
			1	23	22.68	0.1854	21.85	0.1531
			12	6	22.78	0.1897	21.95	0.1567
			1	1	20.96	0.1247	20.13	0.1030

		64QAM	1	23	20.82	0.1208	19.99	0.0998
		DFT-s-OFDM	12	6	21.09	0.1285	20.26	0.1062
			1	1	18.92	0.078	18.09	0.0644
		256QAM	1	23	18.76	0.0752	17.93	0.0621
		DFT-s-OFDM	12	6	19.07	0.0807	18.24	0.0667

SA n12								
15MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
141300	706.5	QPSK DFT-s-OFDM	1	1	23.98	0.25	23.41	0.2193
			1	77	23.71	0.235	23.14	0.2061
			36	18	23.81	0.2404	23.24	0.2109
		16QAM DFT-s-OFDM	1	1	23.07	0.2028	22.50	0.1778
			1	77	22.76	0.1888	22.19	0.1656
			36	18	22.88	0.1941	22.31	0.1702
		64QAM DFT-s-OFDM	1	1	21.15	0.1303	20.58	0.1143
			1	77	20.79	0.1199	20.22	0.1052
			36	18	21.25	0.1334	20.68	0.1169
		256QAM DFT-s-OFDM	1	1	19.12	0.0817	18.55	0.0716
			1	77	18.83	0.0764	18.26	0.0670
			36	18	19.17	0.0826	18.60	0.0724
141500	707.5	QPSK DFT-s-OFDM	1	1	24.10	0.257	23.53	0.2254
			1	77	23.74	0.2366	23.17	0.2075
			36	18	23.79	0.2393	23.22	0.2099
		16QAM DFT-s-OFDM	1	1	23.06	0.2023	22.49	0.1774
			1	77	22.72	0.1871	22.15	0.1641
			36	18	22.81	0.191	22.24	0.1675
		64QAM DFT-s-OFDM	1	1	21.11	0.1291	20.54	0.1132
			1	77	20.78	0.1197	20.21	0.1050
			36	18	21.27	0.134	20.70	0.1175
		256QAM DFT-s-OFDM	1	1	19.12	0.0817	18.55	0.0716
			1	77	18.78	0.0755	18.21	0.0662
			36	18	19.19	0.083	18.62	0.0728
141700	708.5	QPSK DFT-s-OFDM	1	1	24.04	0.2535	23.47	0.2223
			1	77	23.59	0.2286	23.02	0.2004
			36	18	23.78	0.2388	23.21	0.2094
		16QAM DFT-s-OFDM	1	1	23.04	0.2014	22.47	0.1766
			1	77	22.69	0.1858	22.12	0.1629
			36	18	22.77	0.1892	22.20	0.1660
			1	1	21.08	0.1282	20.51	0.1125

		64QAM	1	77	20.79	0.1199	20.22	0.1052
		DFT-s-OFDM	36	18	21.28	0.1343	20.71	0.1178
			1	1	19.12	0.0817	18.55	0.0716
		256QAM	1	77	18.82	0.0762	18.25	0.0668
		DFT-s-OFDM	36	18	19.12	0.0817	18.55	0.0716

SA n12								
10MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
140800	704	QPSK DFT-s-OFDM	1	1	23.95	0.2483	23.38	0.2178
			1	50	23.70	0.2344	23.13	0.2056
			25	12	23.86	0.2432	23.29	0.2133
		16QAM DFT-s-OFDM	1	1	23.04	0.2014	22.47	0.1766
			1	50	22.77	0.1892	22.20	0.1660
			25	12	22.83	0.1919	22.26	0.1683
		64QAM DFT-s-OFDM	1	1	21.12	0.1294	20.55	0.1135
			1	50	21.01	0.1262	20.44	0.1107
			25	12	21.27	0.134	20.70	0.1175
		256QAM DFT-s-OFDM	1	1	19.11	0.0815	18.54	0.0714
			1	50	18.86	0.0769	18.29	0.0675
			25	12	19.15	0.0822	18.58	0.0721
141500	707.5	QPSK DFT-s-OFDM	1	1	23.83	0.2415	23.26	0.2118
			1	50	23.56	0.227	22.99	0.1991
			25	12	23.74	0.2366	23.17	0.2075
		16QAM DFT-s-OFDM	1	1	23.01	0.2	22.44	0.1754
			1	50	22.75	0.1884	22.18	0.1652
			25	12	22.83	0.1919	22.26	0.1683
		64QAM DFT-s-OFDM	1	1	21.09	0.1285	20.52	0.1127
			1	50	20.77	0.1194	20.20	0.1047
			25	12	21.23	0.1327	20.66	0.1164
		256QAM DFT-s-OFDM	1	1	19.11	0.0815	18.54	0.0714
			1	50	18.83	0.0764	18.26	0.0670
			25	12	19.17	0.0826	18.60	0.0724
142200	711	QPSK DFT-s-OFDM	1	1	23.78	0.2388	23.21	0.2094
			1	50	23.46	0.2218	22.89	0.1945
			25	12	23.67	0.2328	23.10	0.2042
		16QAM DFT-s-OFDM	1	1	23.01	0.2	22.44	0.1754
			1	50	22.67	0.1849	22.10	0.1622
			25	12	22.79	0.1901	22.22	0.1667
			1	1	21.07	0.1279	20.50	0.1122

		64QAM	1	50	20.83	0.1211	20.26	0.1062
		DFT-s-OFDM	25	12	21.23	0.1327	20.66	0.1164
			1	1	19.09	0.0811	18.52	0.0711
		256QAM	1	50	18.79	0.0757	18.22	0.0664
		DFT-s-OFDM	25	12	19.11	0.0815	18.54	0.0714

SA n12								
5MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		ERP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
140300	701.5	QPSK DFT-s-OFDM	1	1	24.00	0.2512	23.43	0.2203
			1	23	23.75	0.2371	23.18	0.2080
			12	6	23.65	0.2317	23.08	0.2032
		16QAM DFT-s-OFDM	1	1	23.03	0.2009	22.46	0.1762
			1	23	22.82	0.1914	22.25	0.1679
			12	6	22.97	0.1982	22.40	0.1738
		64QAM DFT-s-OFDM	1	1	21.17	0.1309	20.60	0.1148
			1	23	21.03	0.1268	20.46	0.1112
			12	6	21.43	0.139	20.86	0.1219
		256QAM DFT-s-OFDM	1	1	19.09	0.0811	18.52	0.0711
			1	23	18.96	0.0787	18.39	0.0690
			12	6	19.26	0.0843	18.69	0.0740
141500	707.5	QPSK DFT-s-OFDM	1	1	23.82	0.241	23.25	0.2113
			1	23	23.55	0.2265	22.98	0.1986
			12	6	23.58	0.228	23.01	0.2000
		16QAM DFT-s-OFDM	1	1	22.99	0.1991	22.42	0.1746
			1	23	22.79	0.1901	22.22	0.1667
			12	6	22.82	0.1914	22.25	0.1679
		64QAM DFT-s-OFDM	1	1	21.04	0.1271	20.47	0.1114
			1	23	20.91	0.1233	20.34	0.1081
			12	6	21.27	0.134	20.70	0.1175
		256QAM DFT-s-OFDM	1	1	19.03	0.08	18.46	0.0701
			1	23	18.85	0.0767	18.28	0.0673
			12	6	19.17	0.0826	18.60	0.0724
142700	713.5	QPSK DFT-s-OFDM	1	1	23.72	0.2355	23.15	0.2065
			1	23	23.33	0.2153	22.76	0.1888
			12	6	23.42	0.2198	22.85	0.1928
		16QAM DFT-s-OFDM	1	1	22.71	0.1866	22.14	0.1637
			1	23	22.52	0.1786	21.95	0.1567
			12	6	22.64	0.1837	22.07	0.1611
			1	1	20.89	0.1227	20.32	0.1076

		64QAM	1	23	20.75	0.1189	20.18	0.1042
		DFT-s-OFDM	12	6	21.13	0.1297	20.56	0.1138
			1	1	18.87	0.0771	18.30	0.0676
		256QAM	1	23	18.64	0.0731	18.07	0.0641
		DFT-s-OFDM	12	6	18.97	0.0789	18.40	0.0692

SA n25								
20MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
372000	1860	QPSK DFT-s-OFDM	1	1	23.84	0.2421	25.77	0.3776
			1	104	23.53	0.2254	25.46	0.3516
			50	25	23.73	0.236	25.66	0.3681
		16QAM DFT-s-OFDM	1	1	22.76	0.1888	24.69	0.2944
			1	104	22.82	0.1914	24.75	0.2985
			50	25	22.68	0.1854	24.61	0.2891
		64QAM DFT-s-OFDM	1	1	20.89	0.1227	22.82	0.1914
			1	104	20.92	0.1236	22.85	0.1928
			50	25	21.15	0.1303	23.08	0.2032
		256QAM DFT-s-OFDM	1	1	18.87	0.0771	20.80	0.1202
			1	104	18.95	0.0785	20.88	0.1225
			50	25	19.12	0.0817	21.05	0.1274
376500	1882.5	QPSK DFT-s-OFDM	1	1	23.74	0.2366	25.67	0.3690
			1	104	23.58	0.228	25.51	0.3556
			50	25	23.68	0.2333	25.61	0.3639
		16QAM DFT-s-OFDM	1	1	22.96	0.1977	24.89	0.3083
			1	104	22.68	0.1854	24.61	0.2891
			50	25	22.72	0.1871	24.65	0.2917
		64QAM DFT-s-OFDM	1	1	20.97	0.125	22.90	0.1950
			1	104	20.75	0.1189	22.68	0.1854
			50	25	21.15	0.1303	23.08	0.2032
		256QAM DFT-s-OFDM	1	1	18.98	0.0791	20.91	0.1233
			1	104	18.81	0.076	20.74	0.1186
			50	25	19.12	0.0817	21.05	0.1274
381000	1905	QPSK DFT-s-OFDM	1	1	23.95	0.2483	25.88	0.3873
			1	104	23.75	0.2371	25.68	0.3698
			50	25	23.80	0.2399	25.73	0.3741
		16QAM DFT-s-OFDM	1	1	23.07	0.2028	25.00	0.3162
			1	104	22.76	0.1888	24.69	0.2944
			50	25	22.89	0.1945	24.82	0.3034
			1	1	21.11	0.1291	23.04	0.2014

		64QAM	1	104	20.84	0.1213	22.77	0.1892
		DFT-s-OFDM	50	25	21.26	0.1337	23.19	0.2084
			1	1	19.11	0.0815	21.04	0.1271
		256QAM	1	104	18.87	0.0771	20.80	0.1202
		DFT-s-OFDM	50	25	19.03	0.08	20.96	0.1247

SA n25								
10MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
371000	1855	QPSK DFT-s-OFDM	1	1	23.75	0.2371	25.68	0.3698
			1	50	23.85	0.2427	25.78	0.3784
			25	12	23.82	0.241	25.75	0.3758
		16QAM DFT-s-OFDM	1	1	22.67	0.1849	24.60	0.2884
			1	50	22.58	0.1811	24.51	0.2825
			25	12	22.61	0.1824	24.54	0.2844
		64QAM DFT-s-OFDM	1	1	20.78	0.1197	22.71	0.1866
			1	50	20.69	0.1172	22.62	0.1828
			25	12	20.88	0.1225	22.81	0.1910
		256QAM DFT-s-OFDM	1	1	18.89	0.0774	20.82	0.1208
			1	50	18.71	0.0743	20.64	0.1159
			25	12	19.02	0.0798	20.95	0.1245
376500	1882.5	QPSK DFT-s-OFDM	1	1	23.84	0.2421	25.77	0.3776
			1	50	23.65	0.2317	25.58	0.3614
			25	12	23.71	0.235	25.64	0.3664
		16QAM DFT-s-OFDM	1	1	22.77	0.1892	24.70	0.2951
			1	50	22.69	0.1858	24.62	0.2897
			25	12	22.74	0.1879	24.67	0.2931
		64QAM DFT-s-OFDM	1	1	20.87	0.1222	22.80	0.1905
			1	50	20.79	0.1199	22.72	0.1871
			25	12	21.11	0.1291	23.04	0.2014
		256QAM DFT-s-OFDM	1	1	18.91	0.0778	20.84	0.1213
			1	50	18.75	0.075	20.68	0.1169
			25	12	19.03	0.08	20.96	0.1247
382000	1910	QPSK DFT-s-OFDM	1	1	23.92	0.2466	25.85	0.3846
			1	50	23.74	0.2366	25.67	0.3690
			25	12	23.73	0.236	25.66	0.3681
		16QAM DFT-s-OFDM	1	1	22.98	0.1986	24.91	0.3097
			1	50	22.71	0.1866	24.64	0.2911
			25	12	22.92	0.1959	24.85	0.3055
			1	1	21.08	0.1282	23.01	0.2000

		64QAM	1	50	20.82	0.1208	22.75	0.1884
		DFT-s-OFDM	25	12	21.23	0.1327	23.16	0.2070
			1	1	19.12	0.0817	21.05	0.1274
		256QAM	1	50	18.89	0.0774	20.82	0.1208
		DFT-s-OFDM	25	12	19.07	0.0807	21.00	0.1259

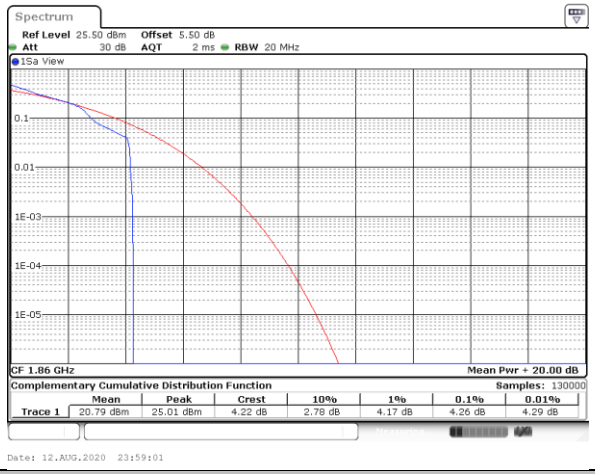
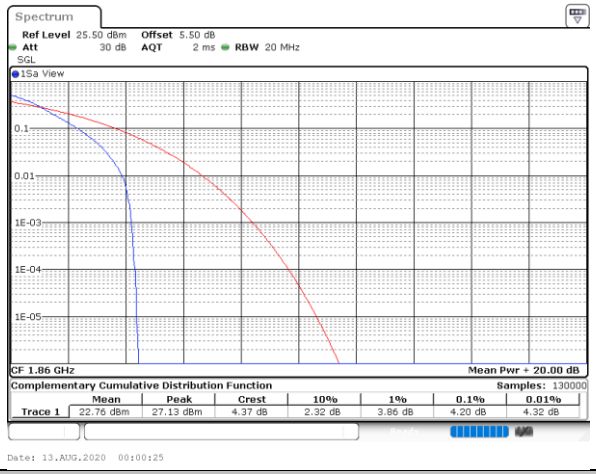
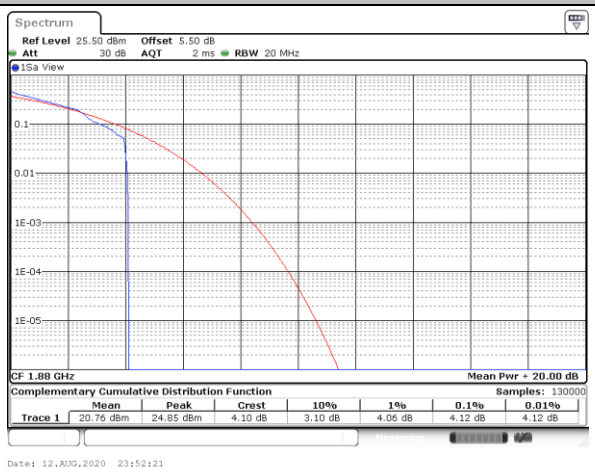
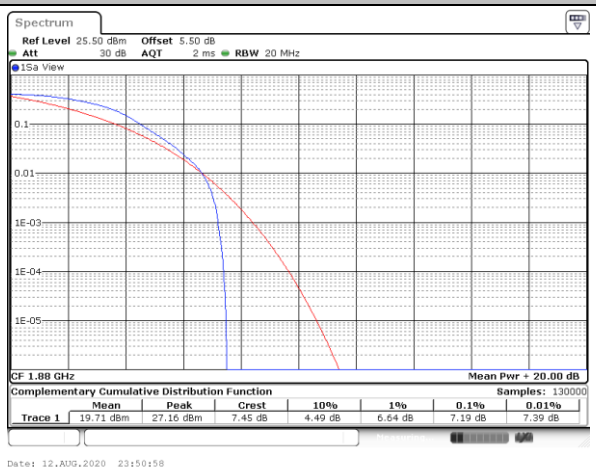
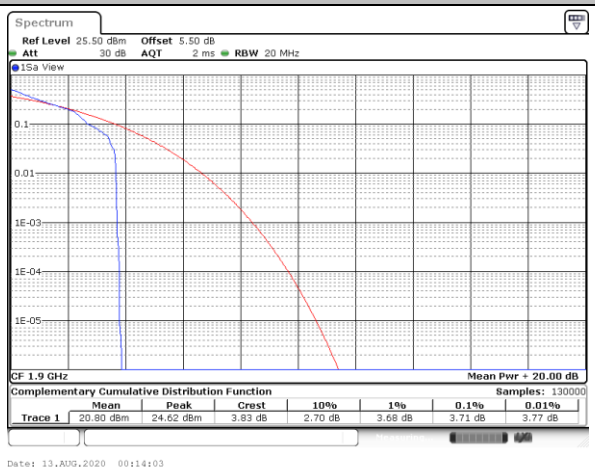
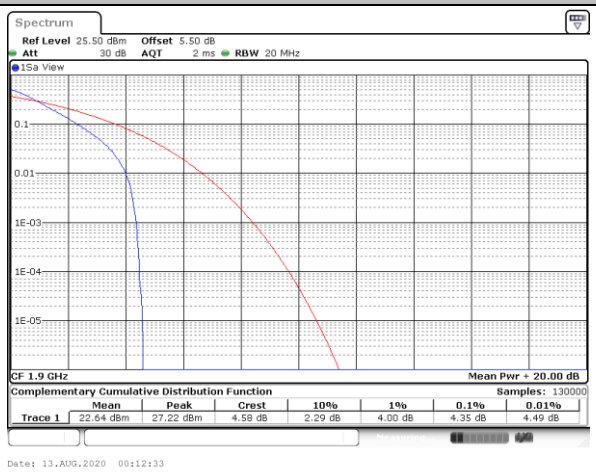
SA n25								
5MHz								
NR Channel	NR Frequncey	Modulation	NR		Conducted		EIRP	
			RB Size	RB offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
370500	1852.5	QPSK DFT-s-OFDM	1	1	23.21	0.2094	25.14	0.3266
			1	23	23.30	0.2138	25.23	0.3334
			12	6	23.22	0.2099	25.15	0.3273
		16QAM DFT-s-OFDM	1	1	22.55	0.1799	24.48	0.2805
			1	23	22.63	0.1832	24.56	0.2858
			12	6	22.67	0.1849	24.60	0.2884
		64QAM DFT-s-OFDM	1	1	20.66	0.1164	22.59	0.1816
			1	23	20.79	0.1199	22.72	0.1871
			12	6	21.11	0.1291	23.04	0.2014
		256QAM DFT-s-OFDM	1	1	18.65	0.0733	20.58	0.1143
			1	23	18.83	0.0764	20.76	0.1191
			12	6	18.96	0.0787	20.89	0.1227
376500	1882.5	QPSK DFT-s-OFDM	1	1	23.37	0.2173	25.30	0.3388
			1	23	23.20	0.2089	25.13	0.3258
			12	6	23.23	0.2104	25.16	0.3281
		16QAM DFT-s-OFDM	1	1	22.69	0.1858	24.62	0.2897
			1	23	22.84	0.1923	24.77	0.2999
			12	6	22.79	0.1901	24.72	0.2965
		64QAM DFT-s-OFDM	1	1	20.82	0.1208	22.75	0.1884
			1	23	20.93	0.1239	22.86	0.1932
			12	6	21.24	0.133	23.17	0.2075
		256QAM DFT-s-OFDM	1	1	18.89	0.0774	20.82	0.1208
			1	23	18.97	0.0789	20.90	0.1230
			12	6	19.07	0.0807	21.00	0.1259
382500	1912.5	QPSK DFT-s-OFDM	1	1	23.12	0.2051	25.05	0.3199
			1	23	23.18	0.208	25.11	0.3243
			12	6	23.16	0.207	25.09	0.3228
		16QAM DFT-s-OFDM	1	1	22.87	0.1936	24.80	0.3020
			1	23	22.73	0.1875	24.66	0.2924
			12	6	22.79	0.1901	24.72	0.2965
			1	1	21.06	0.1276	22.99	0.1991

		64QAM	1	23	20.81	0.1205	22.74	0.1879
		DFT-s-OFDM	12	6	20.98	0.1253	22.91	0.1954
			1	1	19.07	0.0807	21.00	0.1259
		256QAM	1	23	18.83	0.0764	20.76	0.1191
		DFT-s-OFDM	12	6	19.01	0.0796	20.94	0.1242

5G NR n2

Peak-to-Average Ratio

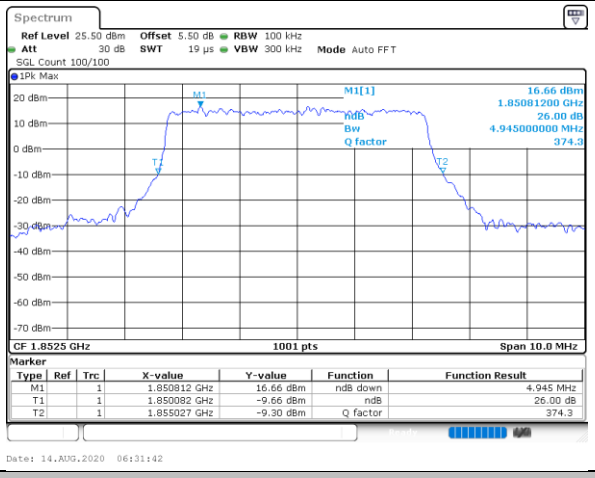
Mode	FR1 n2 / 20MHz / DFT-S OFDM				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1 RB	Full RB			Result
Lowest CH	4.26	4.20			PASS
Middle CH	4.12	7.19			
Highest CH	3.71	4.35			

FR1 n2 / 20MHz / DFT-S OFDM	
QPSK	**QPSK**
Lowest Channel / 1 RB	**Lowest Channel / Full RB**
	
Middle Channel / 1 RB	**Middle Channel / Full RB**
	
Highest Channel / 1 RB	**Highest Channel / Full RB**
	

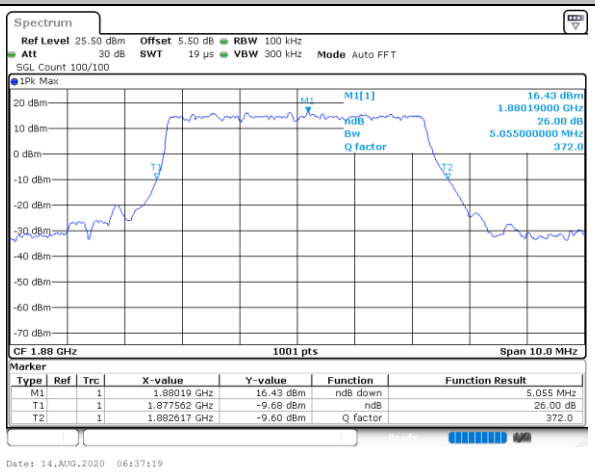
26dB Bandwidth

Mode	FR1 n2 : 26dB BW(MHz) / DFT-S OFDM				
BW	5MHz	10MHz	20MHz		
Mod.	QPSK	QPSK	QPSK		
Lowest CH	4.945	9.69	18.78		
Middle CH	5.055	9.57	18.74		
Highest CH	5.155	9.73	18.94		

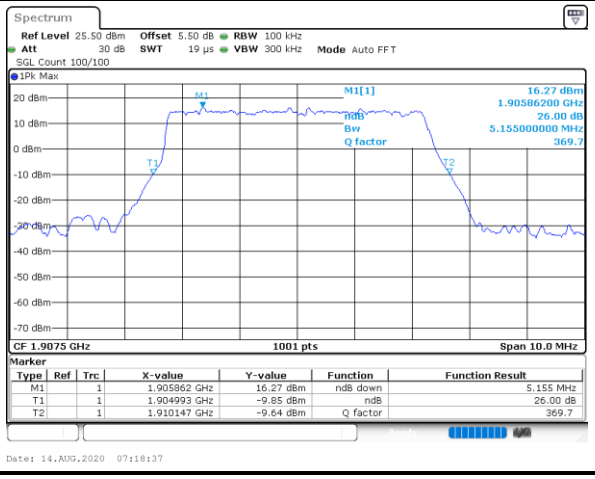
FR1 n2 / 5MHz / DFT-S OFDM
QPSK
Lowest Channel



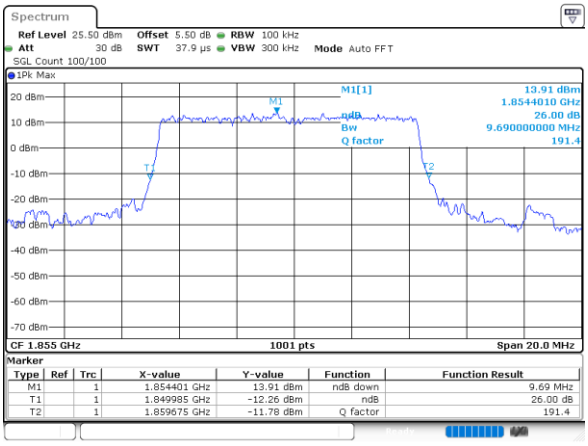
Middle Channel



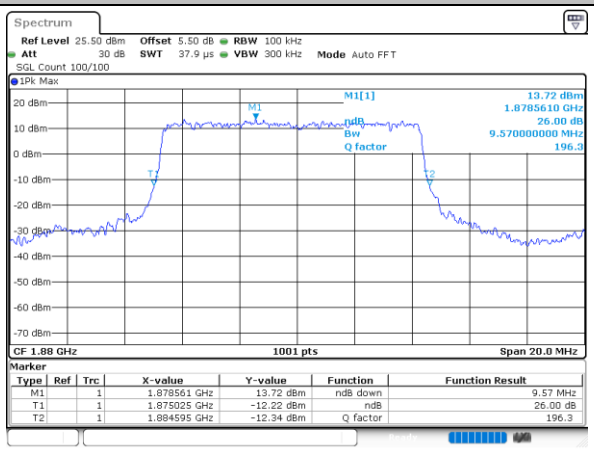
Highest Channel



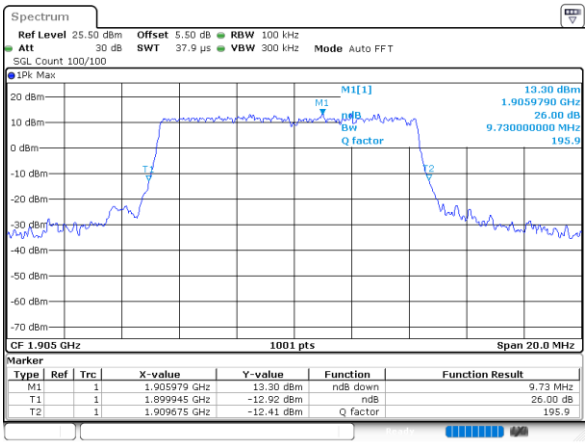
FR1 n2 / 10MHz / DFT-S OFDM
QPSK
Lowest Channel



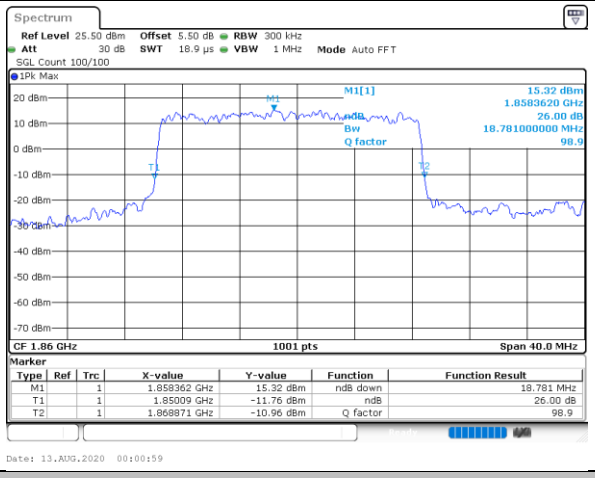
Middle Channel



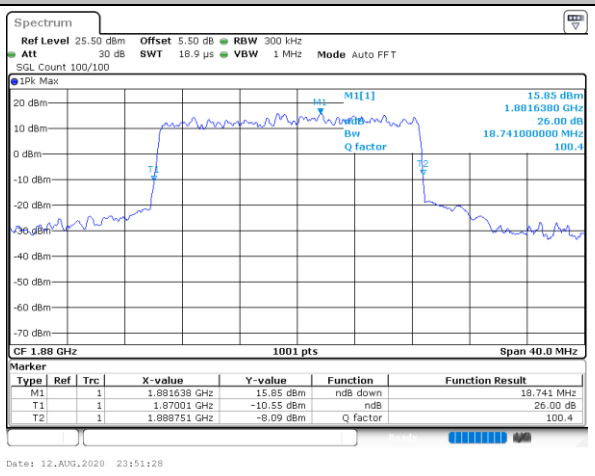
Highest Channel



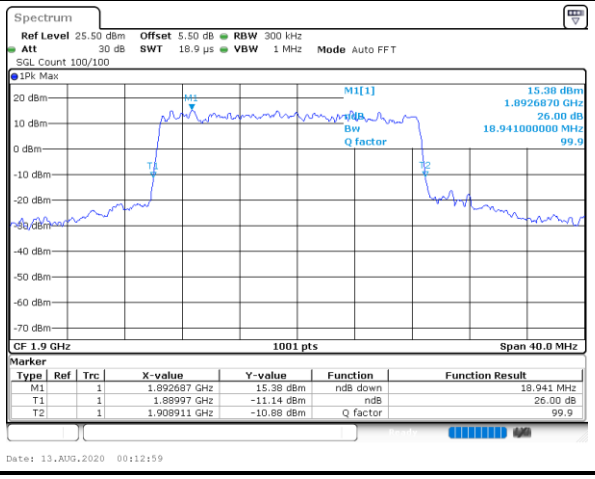
FR1 n2 / 20MHz / DFT-S OFDM
QPSK
Lowest Channel



Middle Channel



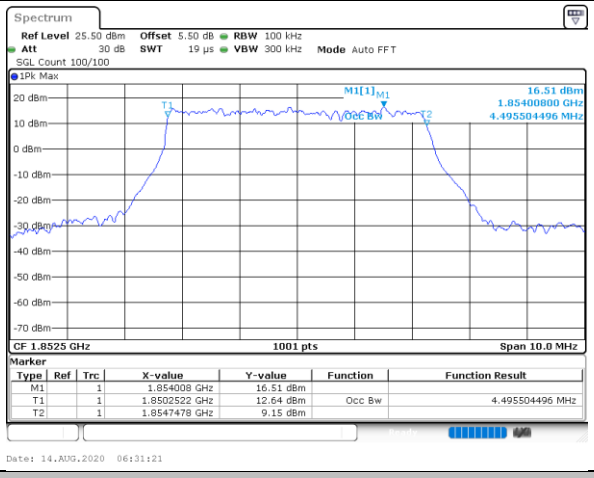
Highest Channel



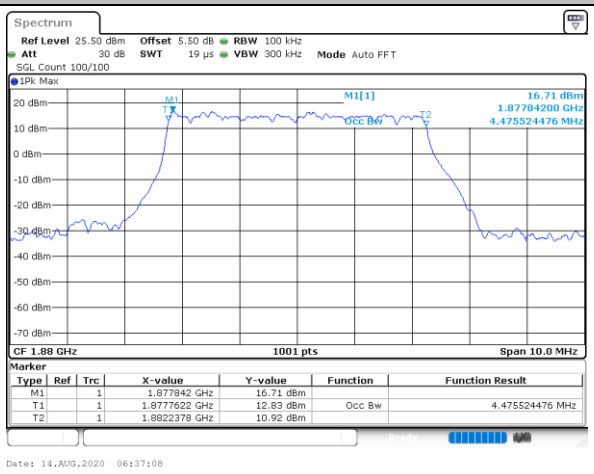
Occupied Bandwidth

Mode	FR1 n2 : 99%OBW(MHz) / DFT-S OFDM					
BW	5MHz	10MHz	20MHz	5MHz	10MHz	20MHz
Mod.	QPSK	QPSK	QPSK	16QAM	16QAM	16QAM
Lowest CH	4.50	8.91	17.86	-	-	-
Middle CH	4.48	8.95	17.90	4.49	9.27	18.90
Highest CH	4.51	8.95	17.82	-	-	-

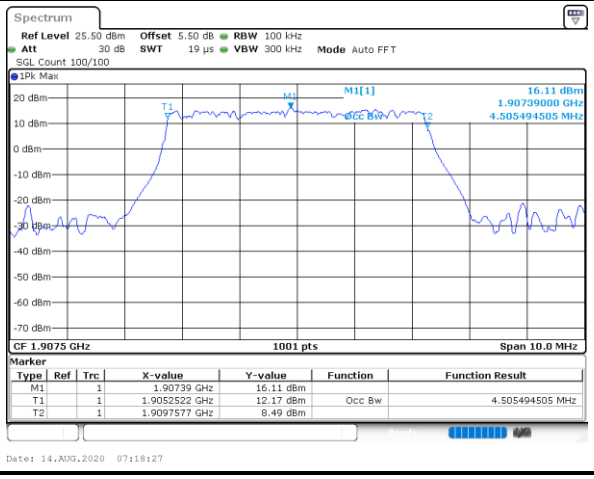
FR1 n2 / 5MHz / DFT-S OFDM
QPSK
Lowest Channel



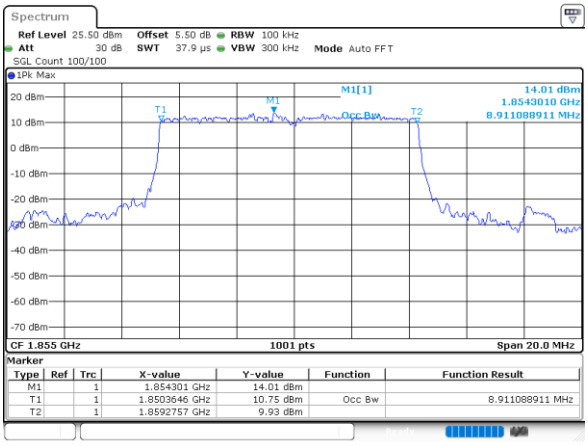
Middle Channel



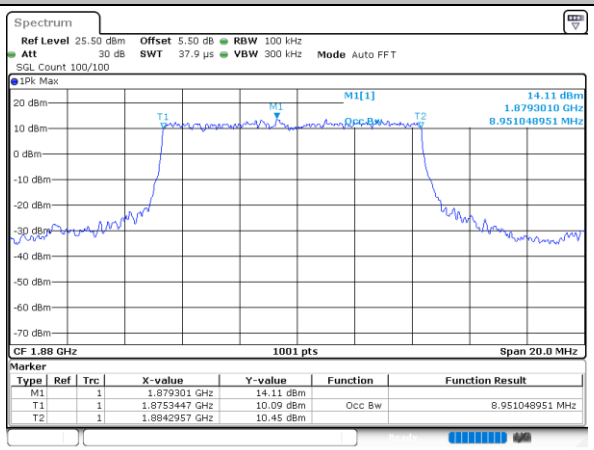
Highest Channel



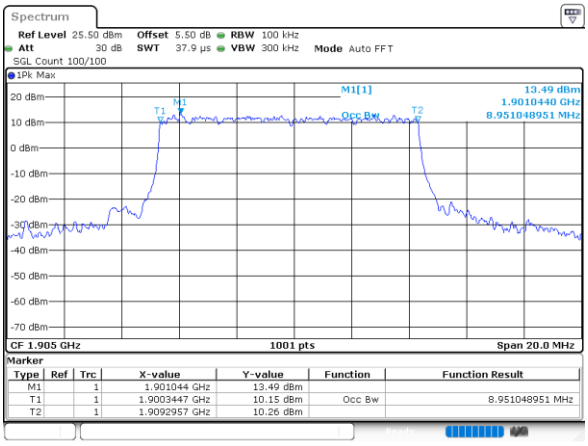
FR1 n2 / 10MHz / DFT-S OFDM
QPSK
Lowest Channel



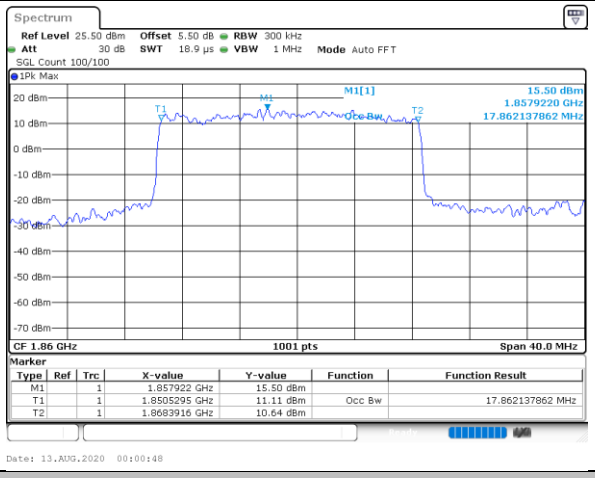
Middle Channel



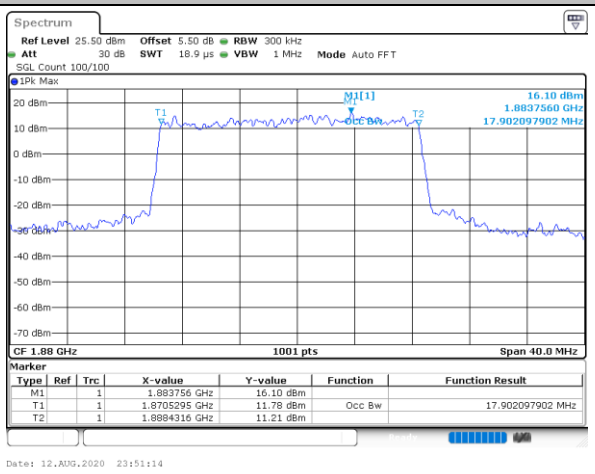
Highest Channel



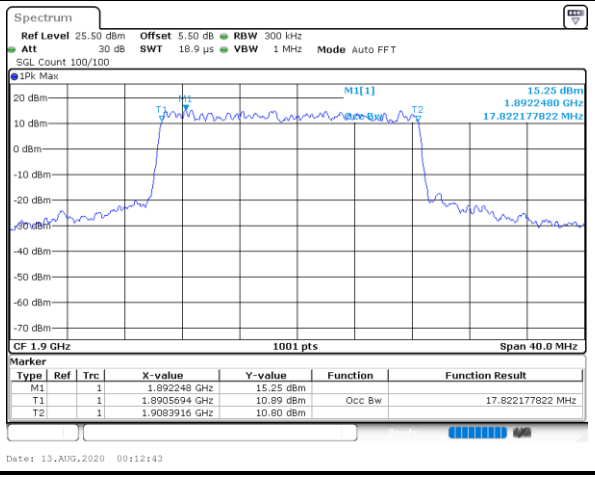
FR1 n2 / 20MHz / DFT-S OFDM
QPSK
Lowest Channel



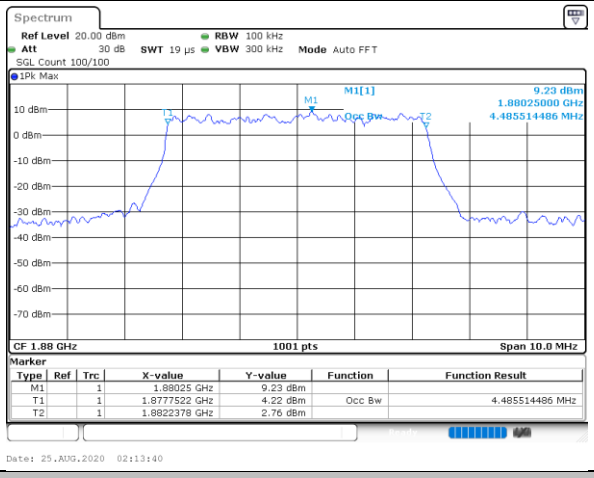
Middle Channel



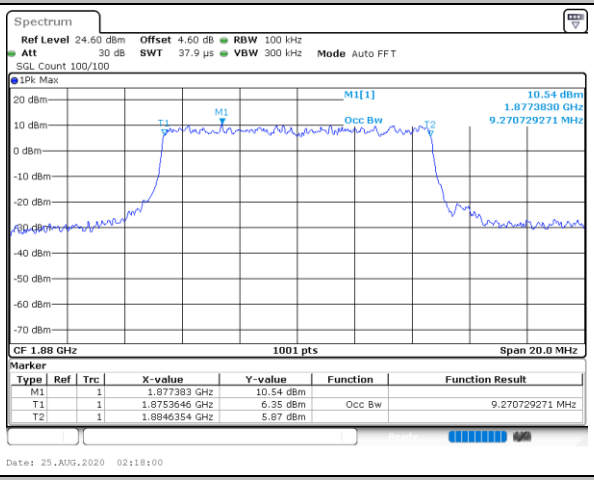
Highest Channel



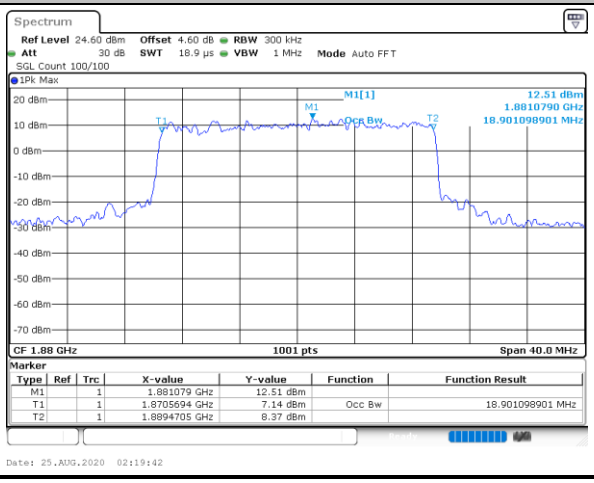
FR1 n2 / DFT-S OFDM
16QAM / Middle Channel
5MHz



10MHz



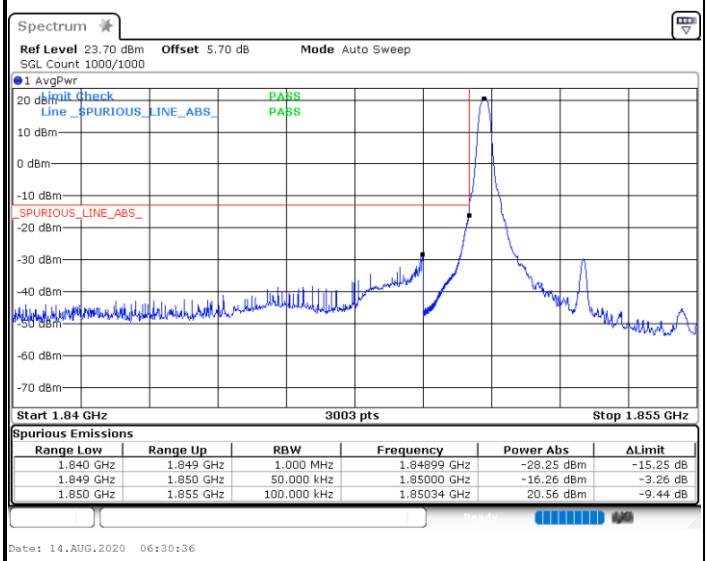
20MHz



Conducted Band Edge

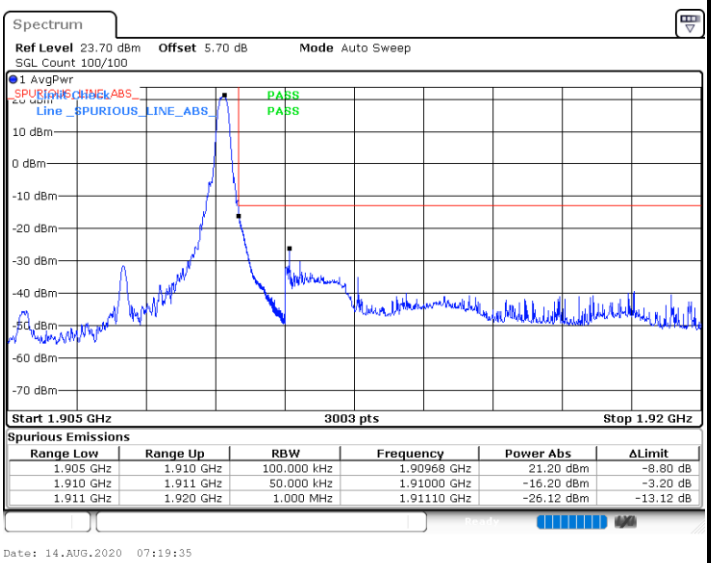
FR1 n2 / 5MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0



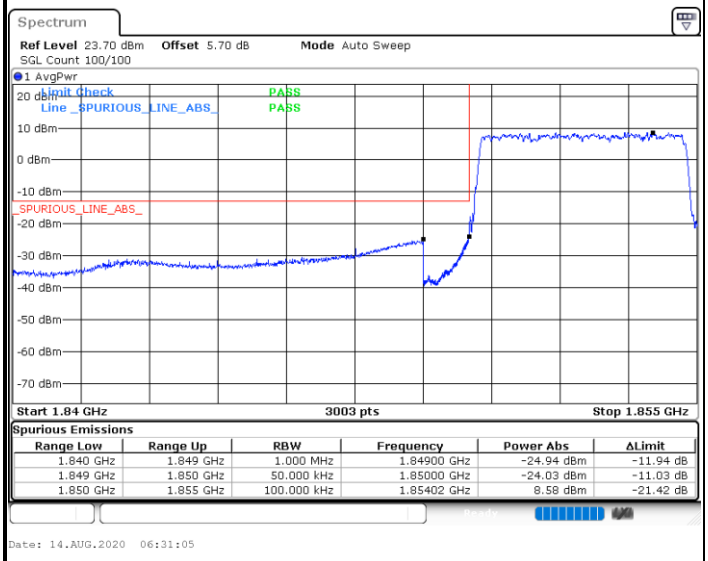
Date: 14.AUG.2020 06:30:36

Highest Band Edge / 1RBmax



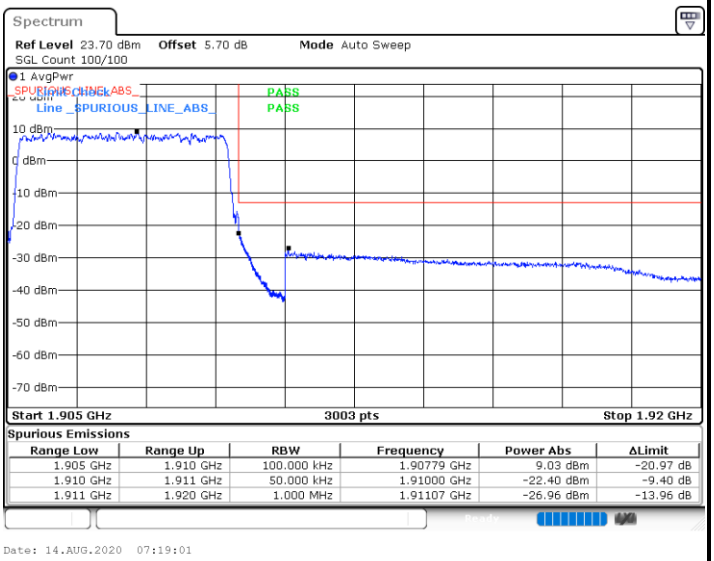
Date: 14.AUG.2020 07:19:35

Lowest Band Edge / Full RB

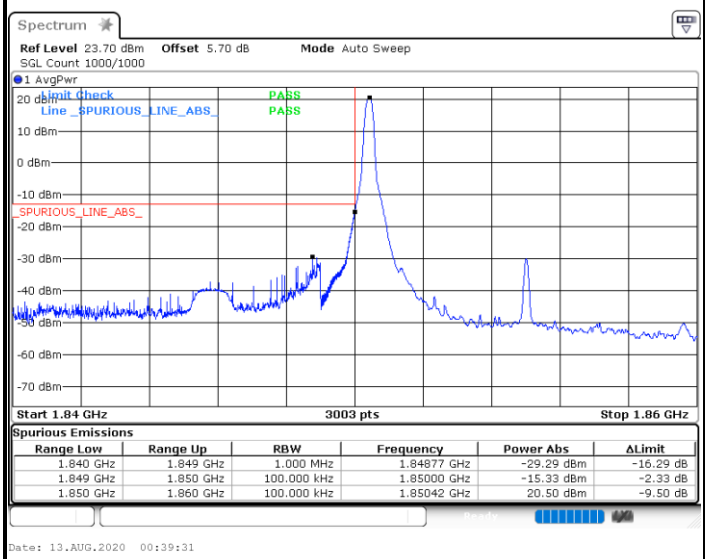
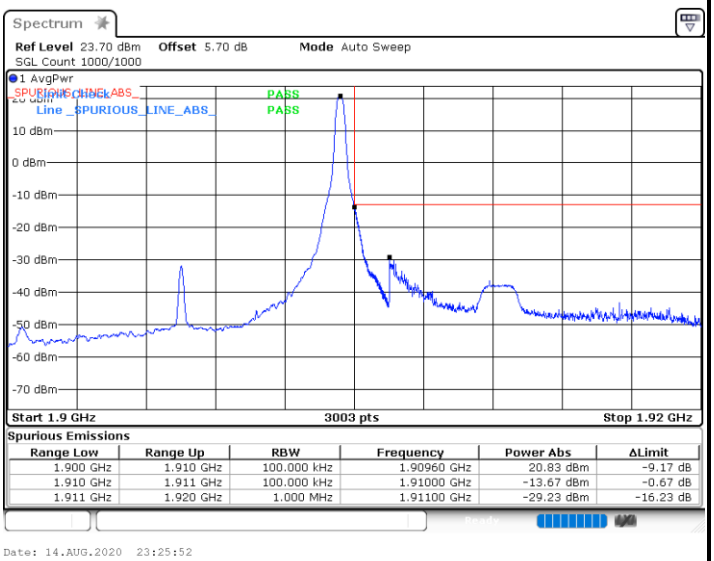
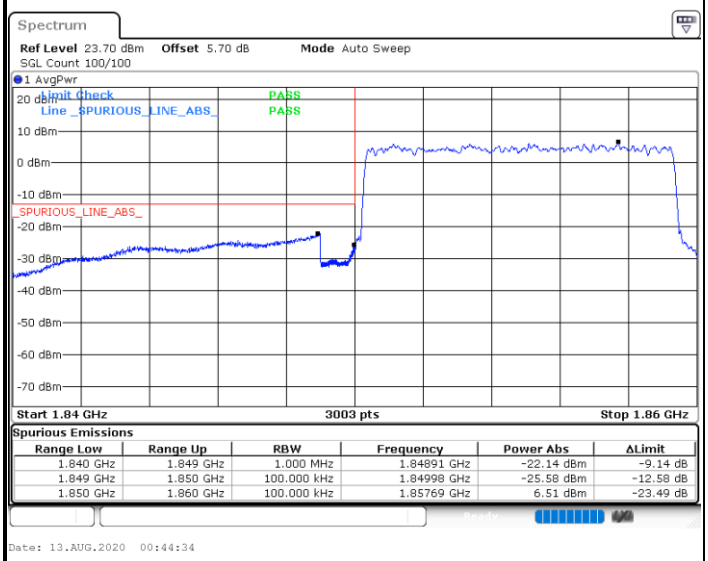
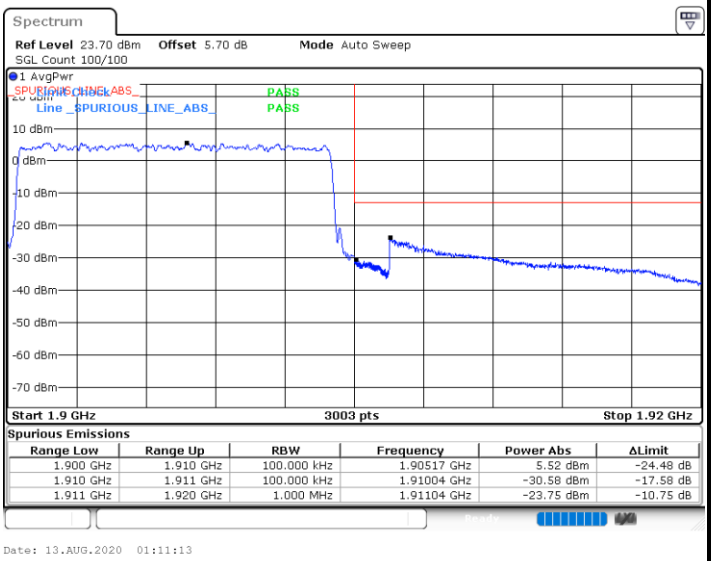


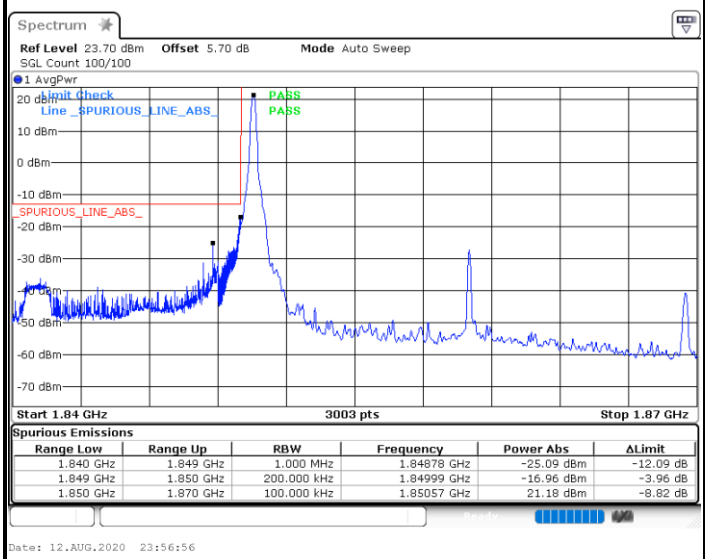
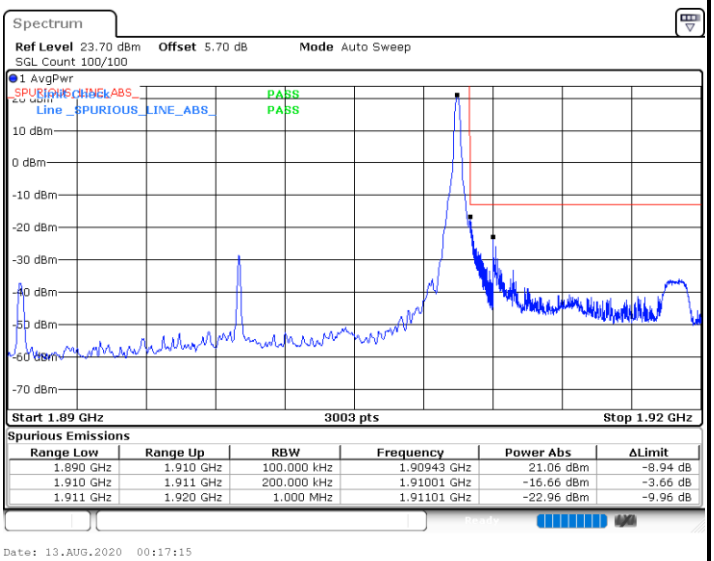
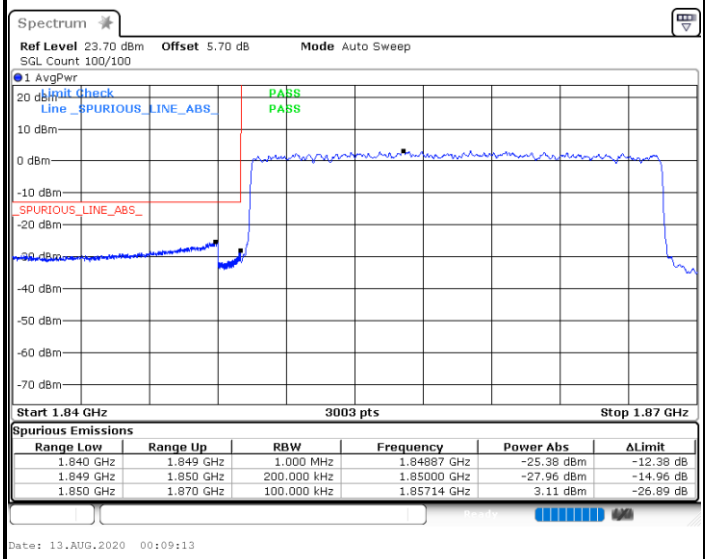
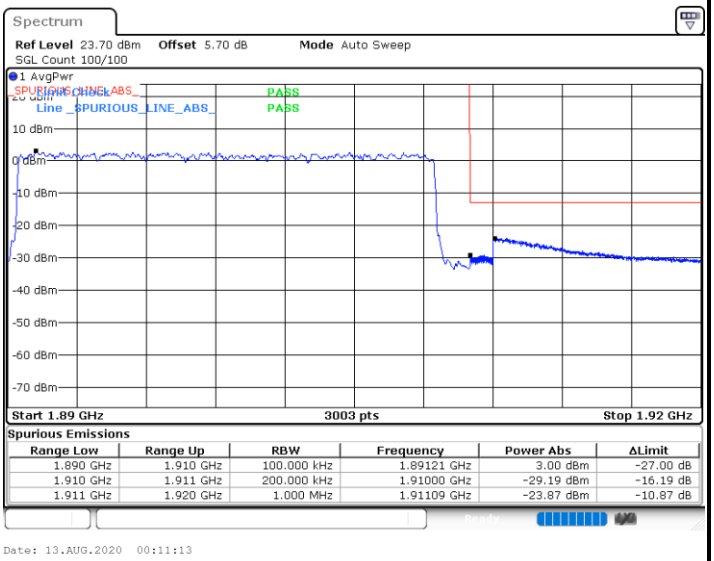
Date: 14.AUG.2020 06:31:05

Highest Band Edge / Full RB



Date: 14.AUG.2020 07:19:01

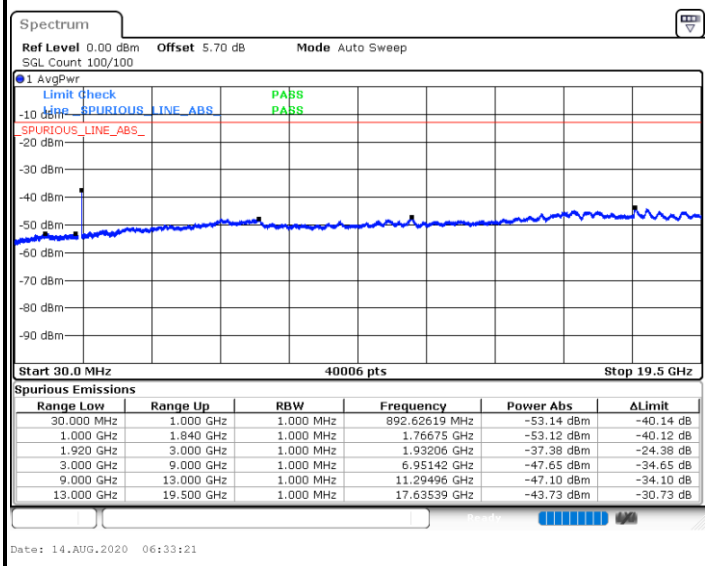
FR1 n2 / 10MHz / DFT-s-OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

FR1 n2 / 20MHz / DFT-s-OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

Conducted Spurious Emission

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

Lowest Channel / 1RB

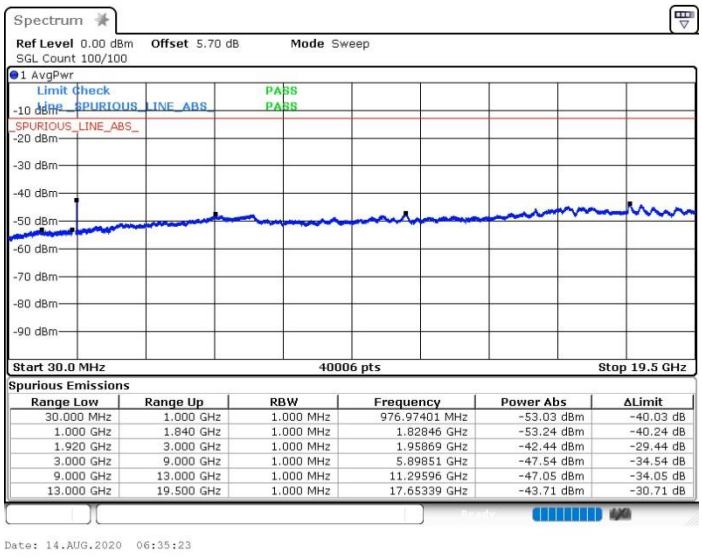


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	892.62619 MHz	-53.14 dBm	-40.14 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.76675 GHz	-53.12 dBm	-40.12 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93206 GHz	-37.38 dBm	-24.38 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.95142 GHz	-47.65 dBm	-34.65 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.29496 GHz	-47.10 dBm	-34.10 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.63539 GHz	-43.73 dBm	-30.73 dB

Date: 14.AUG.2020 06:33:21

Middle Channel / 1RB

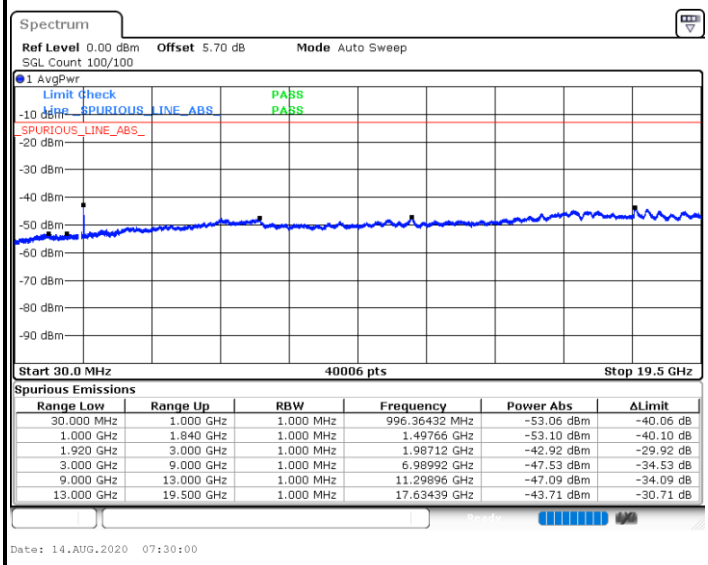


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	976.97401 MHz	-53.03 dBm	-40.03 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.82846 GHz	-53.24 dBm	-40.24 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95869 GHz	-42.44 dBm	-29.44 dB
3.000 GHz	9.000 GHz	1.000 MHz	5.89851 GHz	-47.54 dBm	-34.54 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.29596 GHz	-47.05 dBm	-34.05 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.65339 GHz	-43.71 dBm	-30.71 dB

Date: 14.AUG.2020 06:35:23

Highest Channel / 1RB

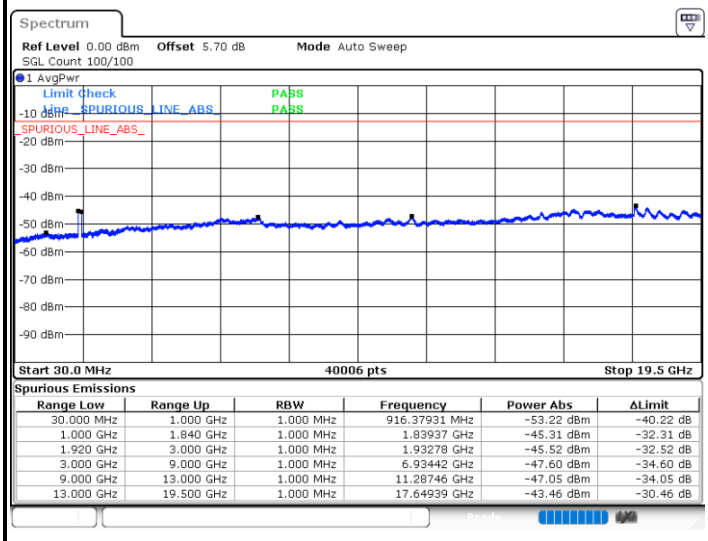


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	996.36432 MHz	-53.06 dBm	-40.06 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.49766 GHz	-53.10 dBm	-40.10 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98712 GHz	-42.92 dBm	-29.92 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.98992 GHz	-47.53 dBm	-34.53 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.29896 GHz	-47.09 dBm	-34.09 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.63439 GHz	-43.71 dBm	-30.71 dB

Date: 14.AUG.2020 07:30:00

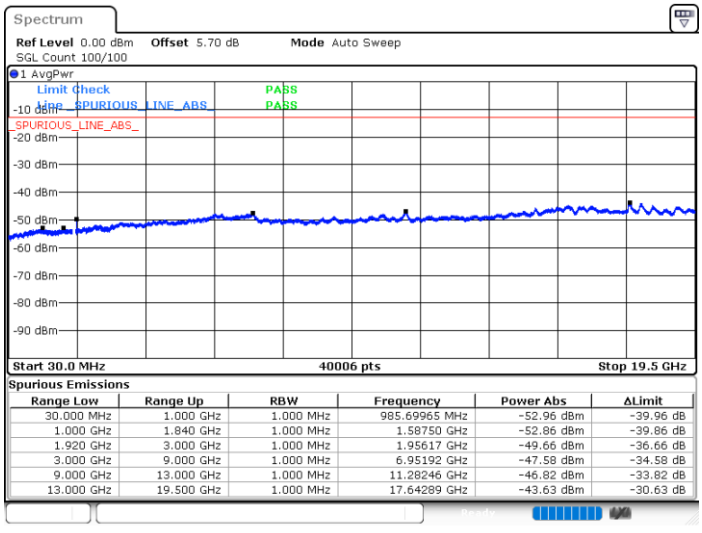
FR1 n2 / 10MHz / DFT-S OFDM / QPSK	
Lowest Channel / 1RB	**Middle Channel / 1RB**
Highest Channel / 1RB	



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	916.37931 MHz	-53.22 dBm	-40.22 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.83937 GHz	-45.31 dBm	-32.31 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.93278 GHz	-45.52 dBm	-32.52 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.93442 GHz	-47.60 dBm	-34.60 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.28746 GHz	-47.05 dBm	-34.05 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.64939 GHz	-43.46 dBm	-30.46 dB

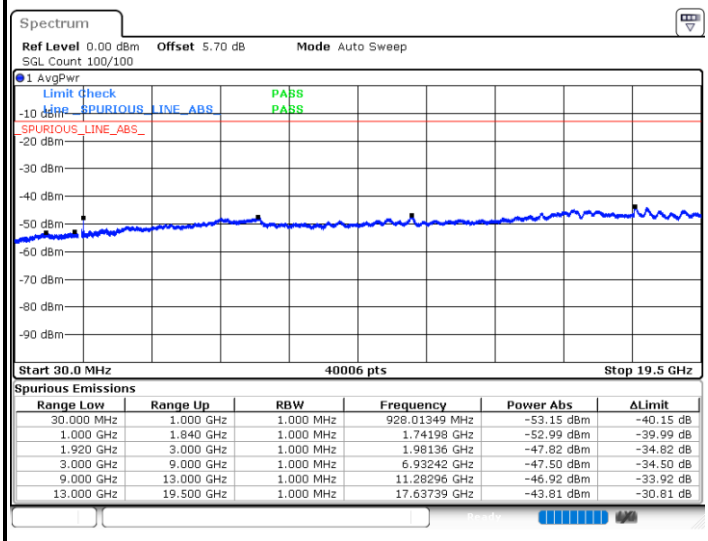
Date: 13.AUG.2020 00:41:58



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	985.69965 MHz	-52.96 dBm	-39.96 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.58750 GHz	-52.86 dBm	-39.86 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.95617 GHz	-49.66 dBm	-36.66 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.95192 GHz	-47.58 dBm	-34.58 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.28246 GHz	-46.82 dBm	-33.82 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.64289 GHz	-43.63 dBm	-30.63 dB

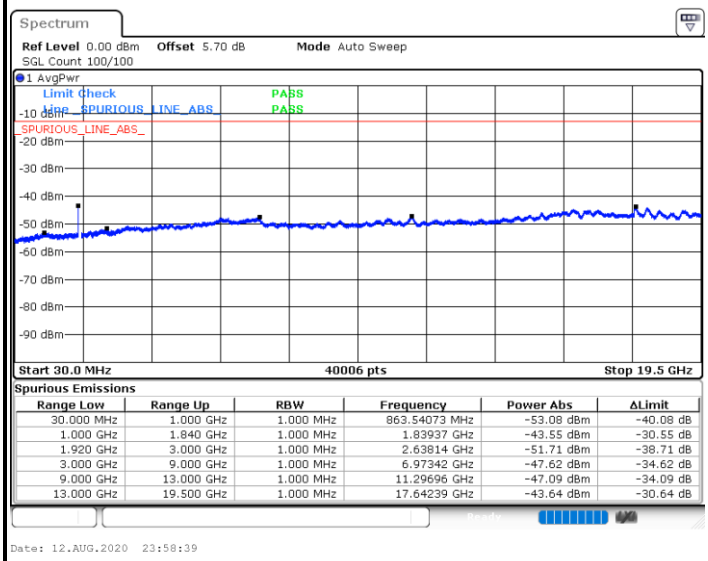
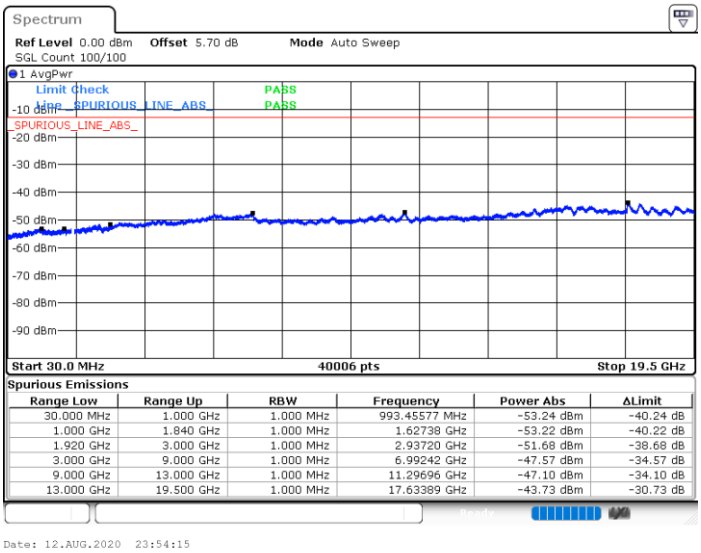
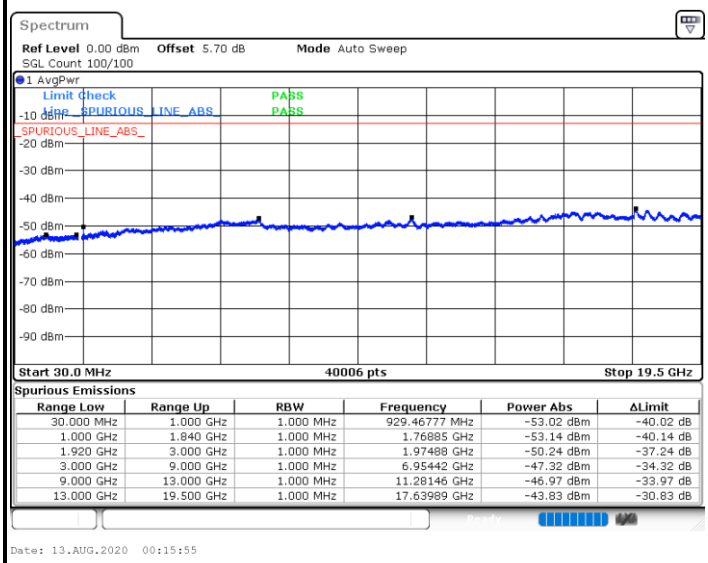
Date: 13.AUG.2020 00:26:18



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	928.01349 MHz	-53.15 dBm	-40.15 dB
1.000 GHz	1.840 GHz	1.000 MHz	1.74198 GHz	-52.99 dBm	-39.99 dB
1.920 GHz	3.000 GHz	1.000 MHz	1.98136 GHz	-47.82 dBm	-34.82 dB
3.000 GHz	9.000 GHz	1.000 MHz	6.93242 GHz	-47.50 dBm	-34.50 dB
9.000 GHz	13.000 GHz	1.000 MHz	11.28296 GHz	-46.92 dBm	-33.92 dB
13.000 GHz	19.500 GHz	1.000 MHz	17.63739 GHz	-43.81 dBm	-30.81 dB

Date: 13.AUG.2020 01:13:54

FR1 n2 / 20MHz / DFT-S OFDM / QPSK	
Lowest Channel / 1RB	**Middle Channel / 1RB**
	
Highest Channel / 1RB	
	

Frequency Stability

Test Conditions		FR1 n2 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 20MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0017	PASS
40	Normal Voltage	0.0001	
30	Normal Voltage	0.0011	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0024	
0	Normal Voltage	0.0025	
-10	Normal Voltage	0.0001	
-20	Normal Voltage	0.0006	
-30	Normal Voltage	0.0011	
20	Maximum Voltage	0.0006	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0013	

Note:

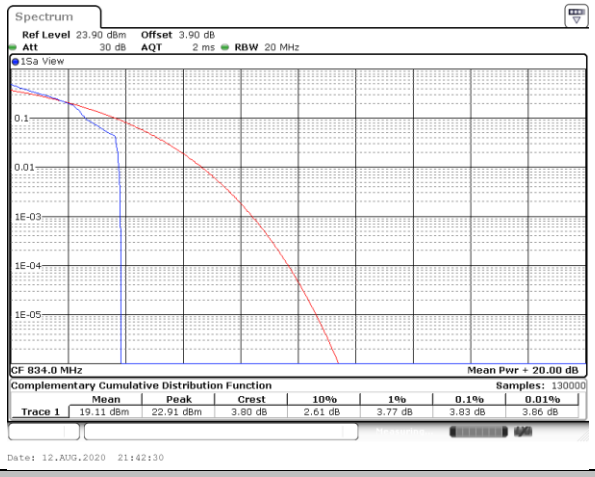
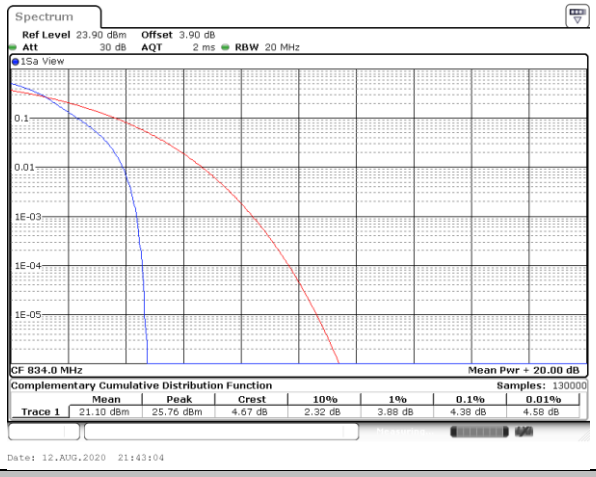
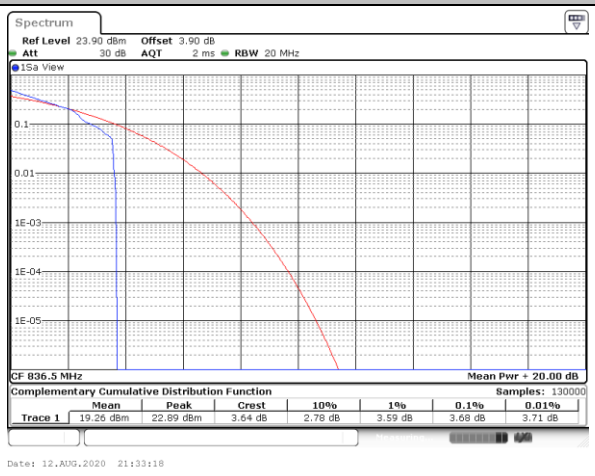
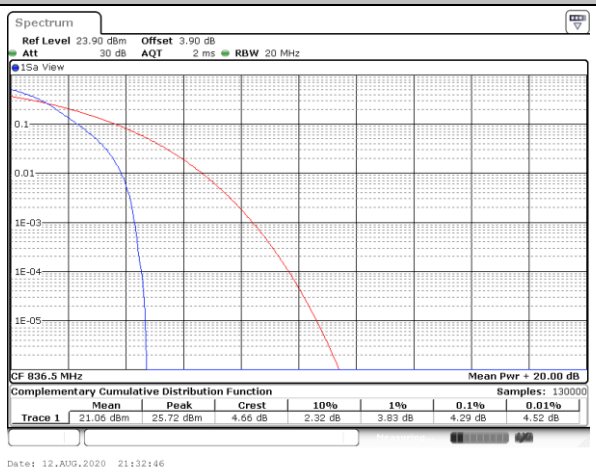
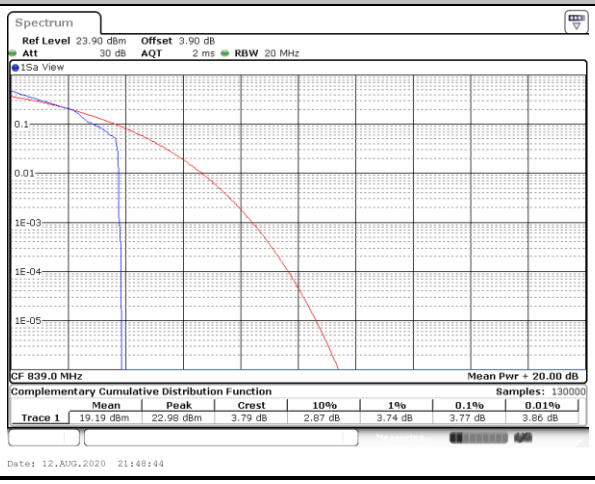
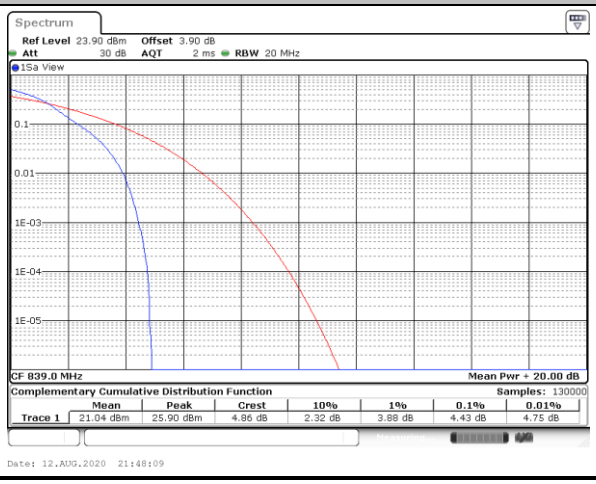
1. Normal Voltage =3.8 V.；Battery End Point (BEP) =3.135 V.；Maximum Voltage =4.4 V.

2. Note: The frequency fundamental emissions stay within the authorized frequency block.

5G NR n5

Peak-to-Average Ratio

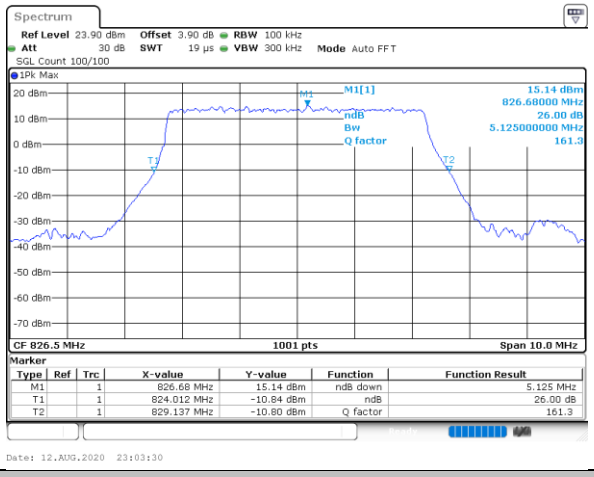
Mode	FR1 n5 / 20MHz / DFT-S OFDM				
Mod.	QPSK	QPSK			Limit: 13dB
RB Size	1 RB	Full RB			Result
Lowest CH	3.83	4.38			PASS
Middle CH	3.68	4.29			
Highest CH	3.77	4.43			

FR1 n5 / 20MHz / DFT-S OFDM	
QPSK	**QPSK**
Lowest Channel / 1 RB	**Lowest Channel / Full RB**
	
Middle Channel / 1 RB	**Middle Channel / Full RB**
	
Highest Channel / 1 RB	**Highest Channel / Full RB**
	

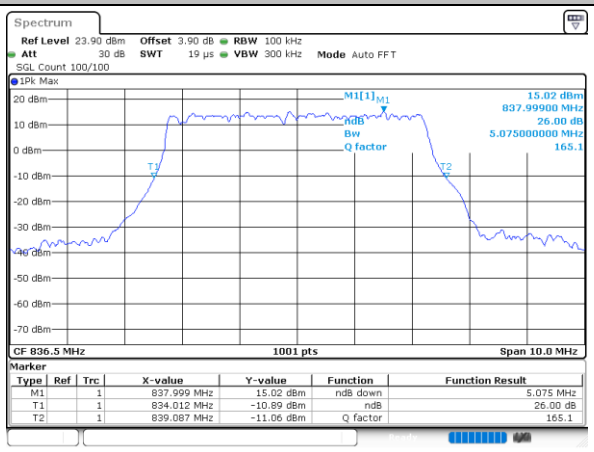
26dB Bandwidth

Mode	FR1 n5 : 26dB BW(MHz) / DFT-S OFDM				
BW	5MHz	10MHz	20MHz		
Mod.	QPSK	QPSK	QPSK		
Lowest CH	5.125	9.67	18.821		
Middle CH	5.075	9.55	18.741		
Highest CH	5.145	9.57	18.901		

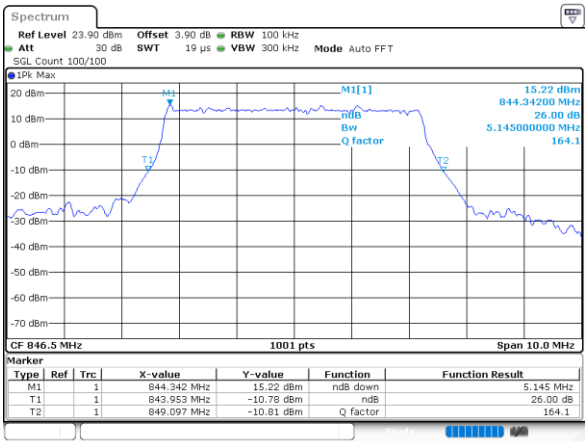
FR1 n5 / 5MHz / DFT-S OFDM
QPSK
Lowest Channel



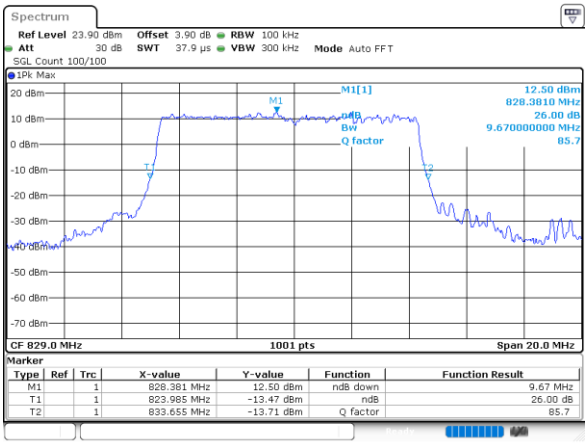
Middle Channel



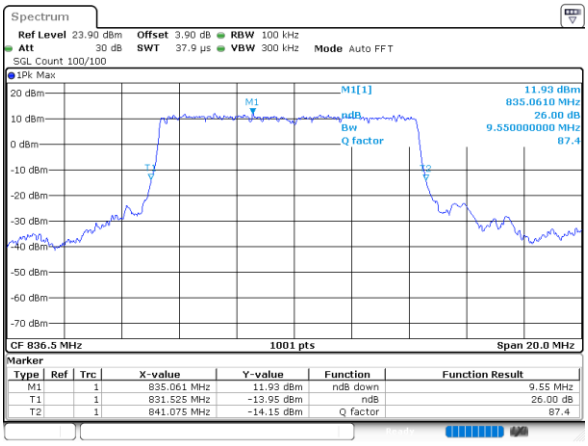
Highest Channel



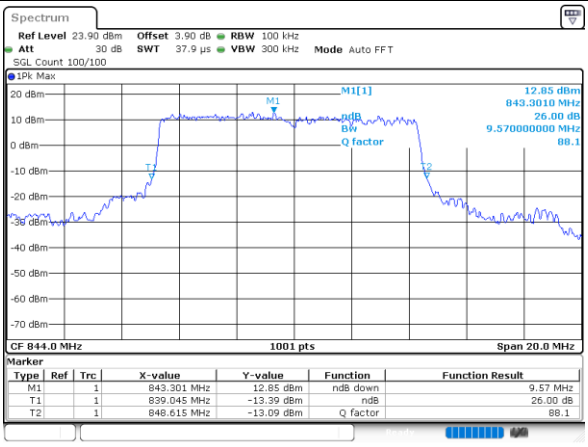
FR1 n5 / 10MHz / DFT-S OFDM
QPSK
Lowest Channel



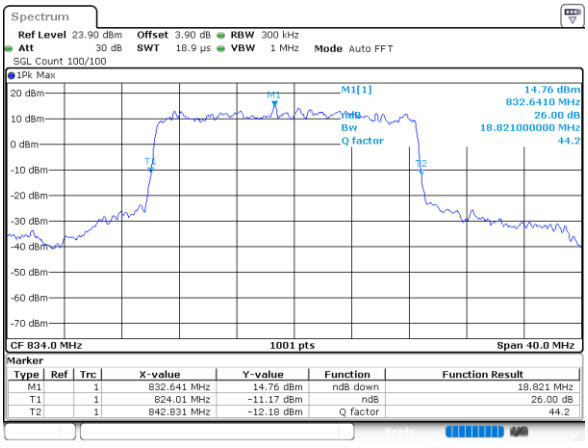
Middle Channel



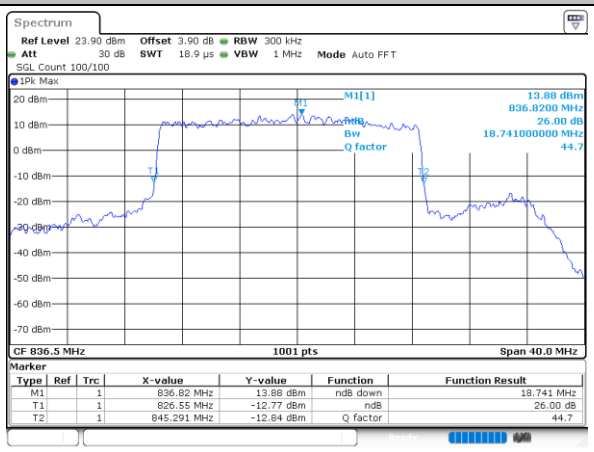
Highest Channel



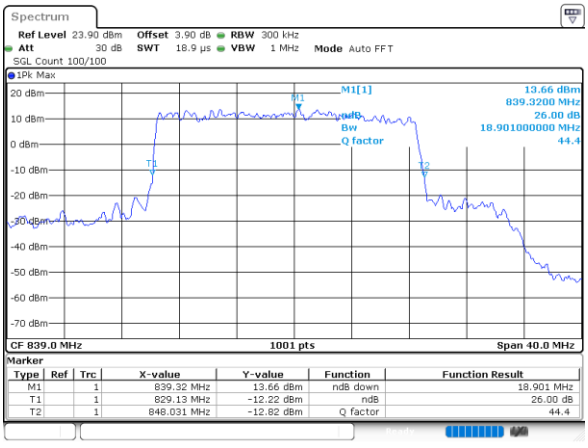
FR1 n5 / 20MHz / DFT-S OFDM
QPSK
Lowest Channel



Middle Channel



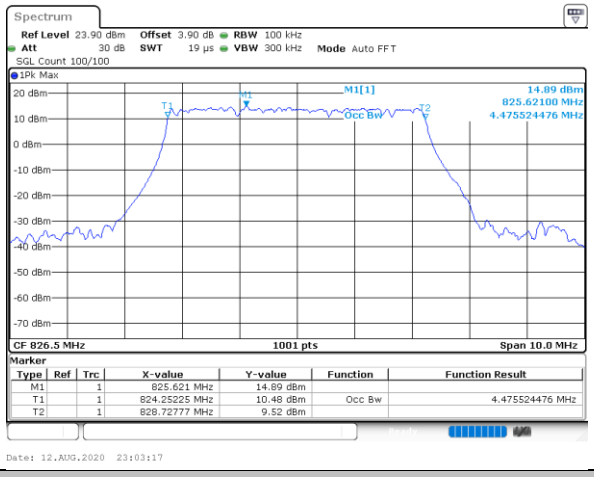
Highest Channel



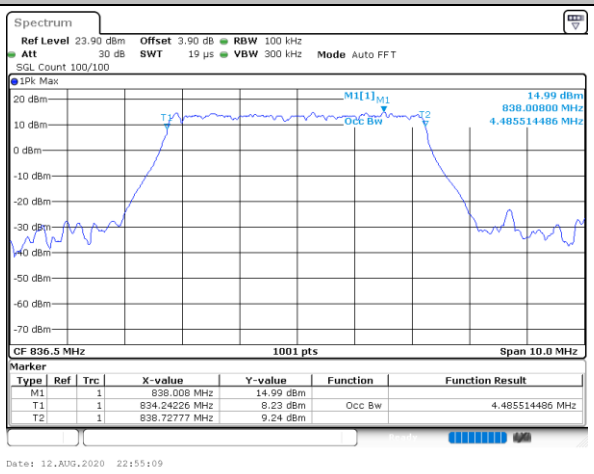
Occupied Bandwidth

Mode	FR1 n5 : 99%OBW(MHz) / DFT-S OFDM					
BW	5MHz	10MHz	20MHz	5MHz	10MHz	20MHz
Mod.	QPSK	QPSK	QPSK	16QAM	16QAM	16QAM
Lowest CH	4.48	8.93	17.82	-	-	-
Middle CH	4.49	8.91	17.82	4.49	9.29	18.86
Highest CH	4.49	8.93	17.86	-	-	-

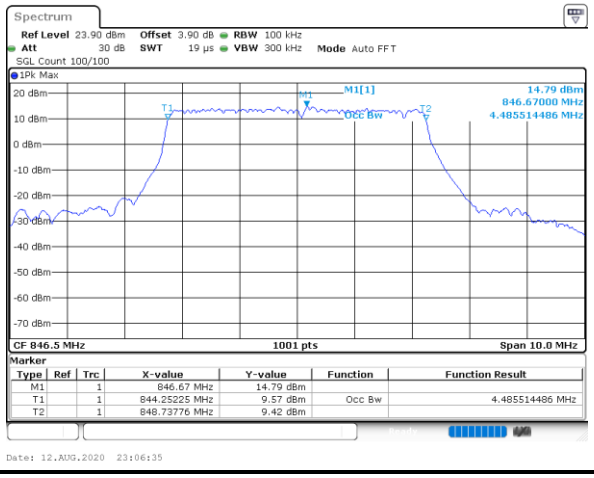
FR1 n5 / 5MHz / DFT-S OFDM
QPSK
Lowest Channel



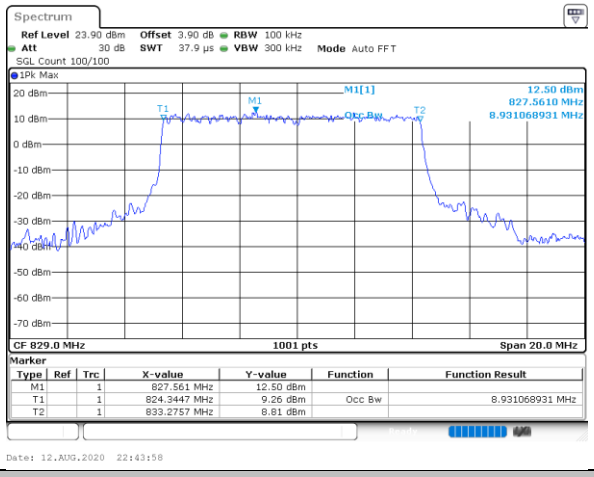
Middle Channel



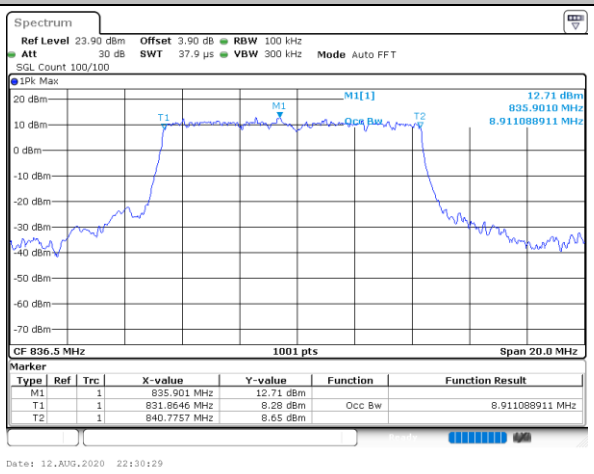
Highest Channel



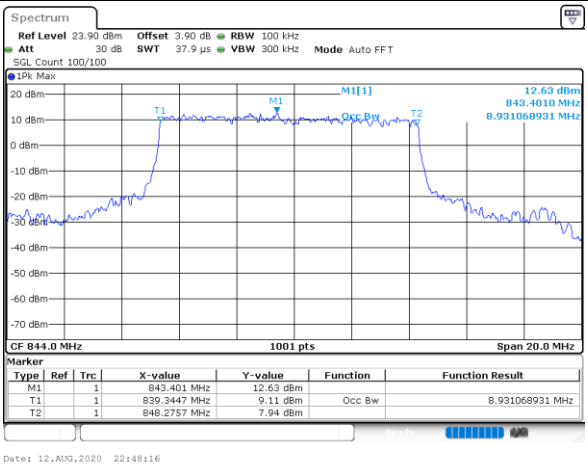
FR1 n5 / 10MHz / DFT-S OFDM
QPSK
Lowest Channel



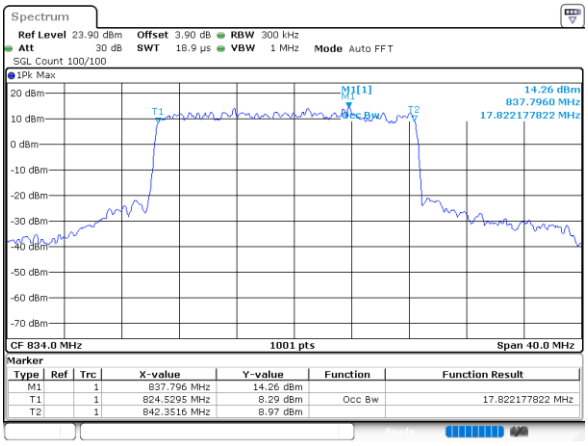
Middle Channel



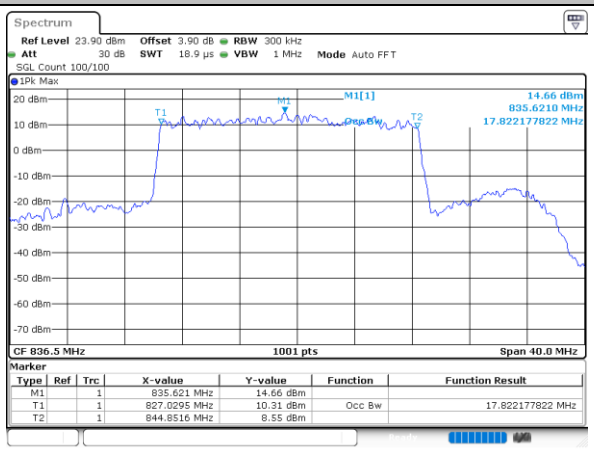
Highest Channel



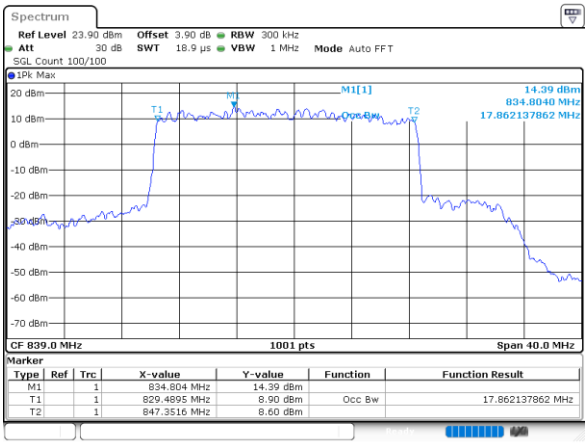
FR1 n5 / 20MHz / DFT-S OFDM
QPSK
Lowest Channel



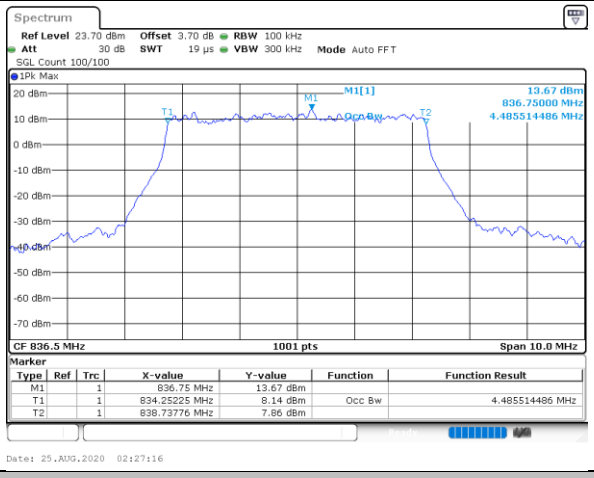
Middle Channel



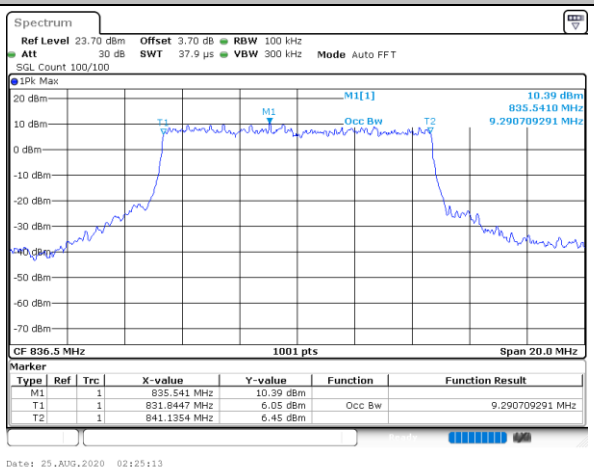
Highest Channel



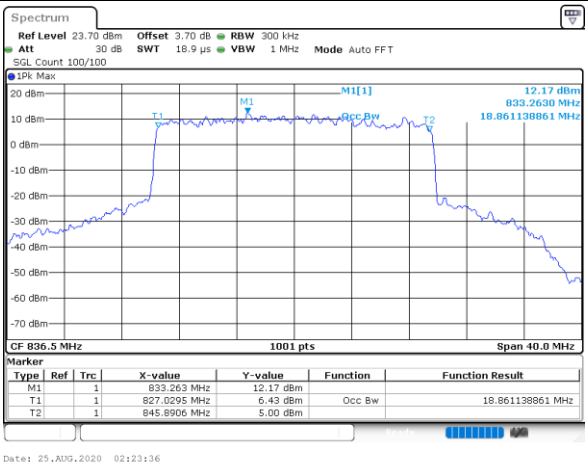
FR1 n5 / DFT-S OFDM
16QAM / Middle Channel
5MHz



10MHz



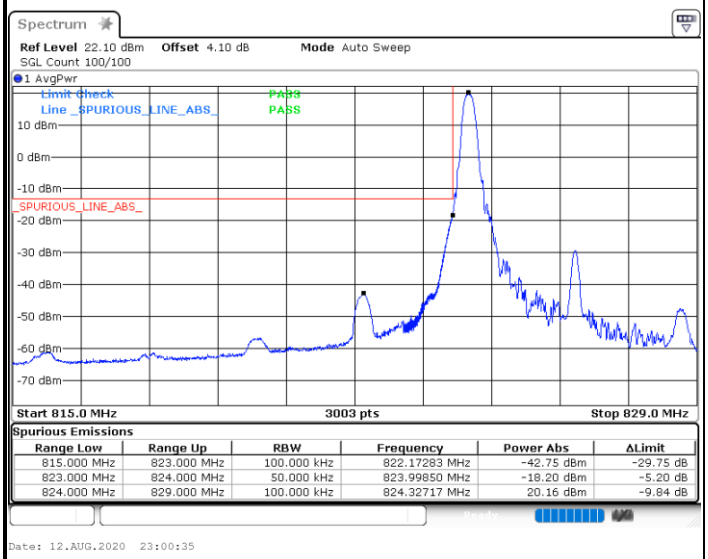
20MHz



Conducted Band Edge

FR1 n5 / 5MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0



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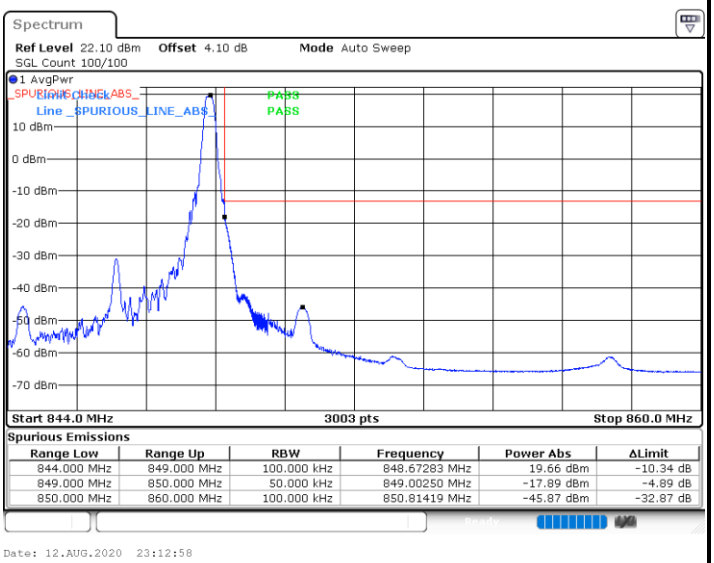
Highest Band Edge / 1RBmax



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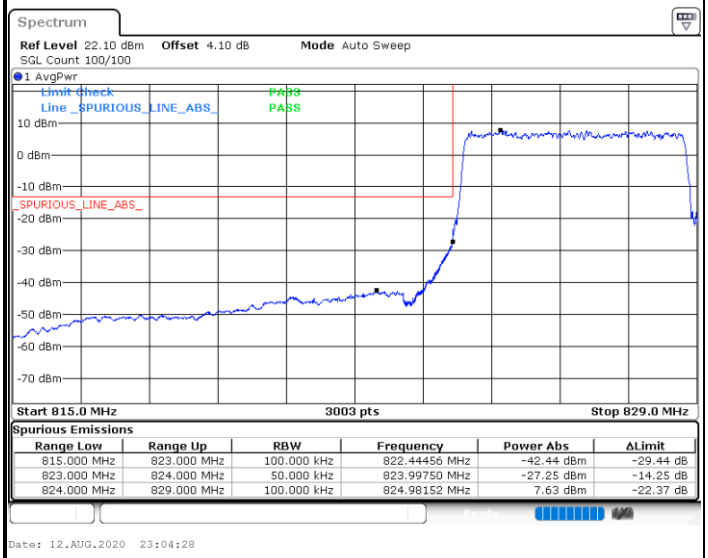
Lowest Band Edge / Full RB



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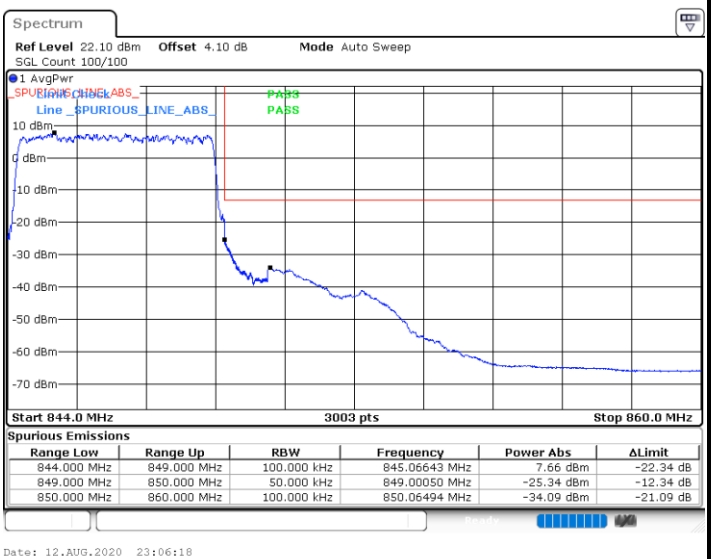
Highest Band Edge / Full RB



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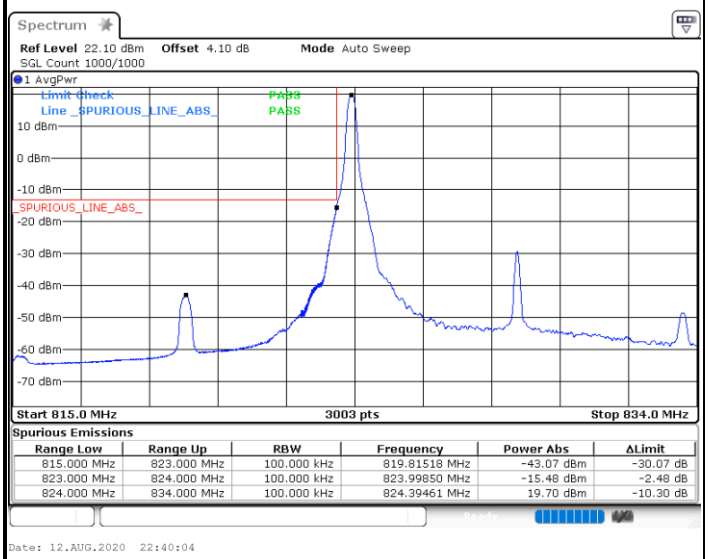
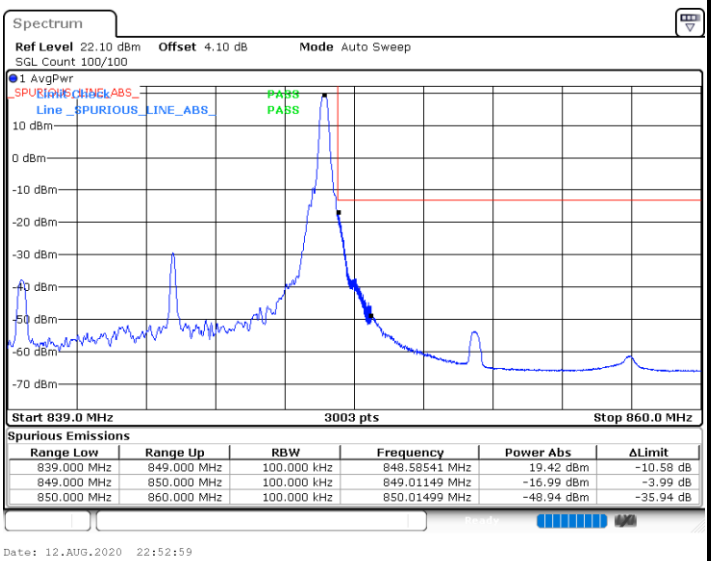
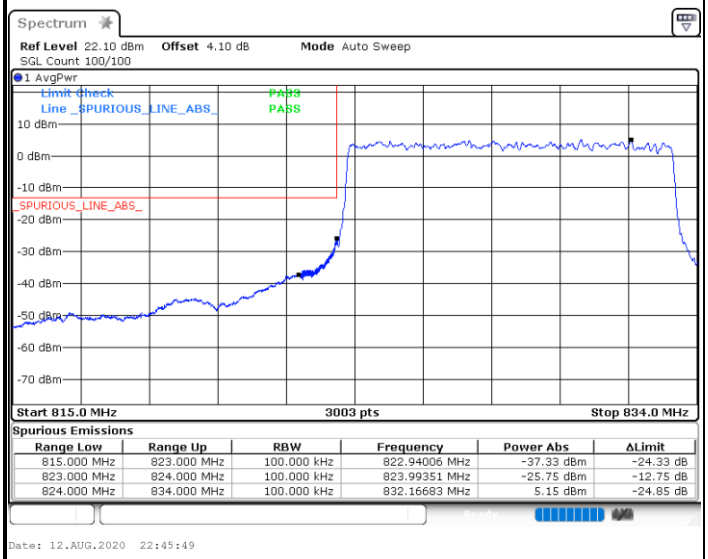
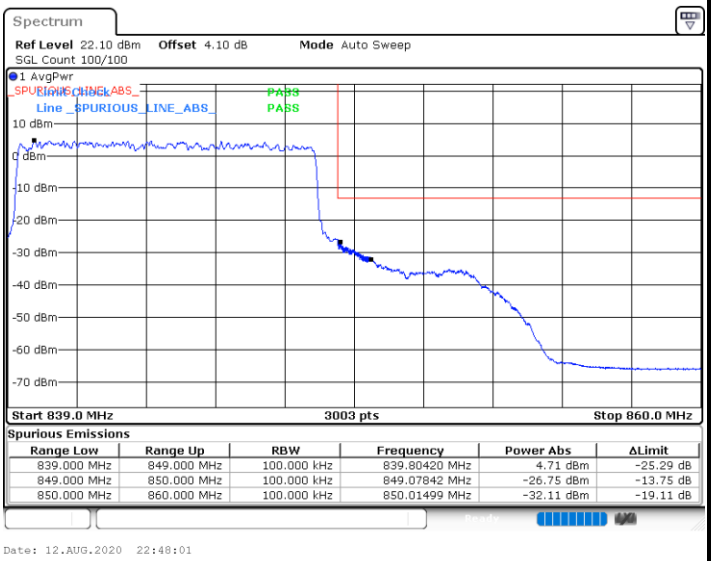
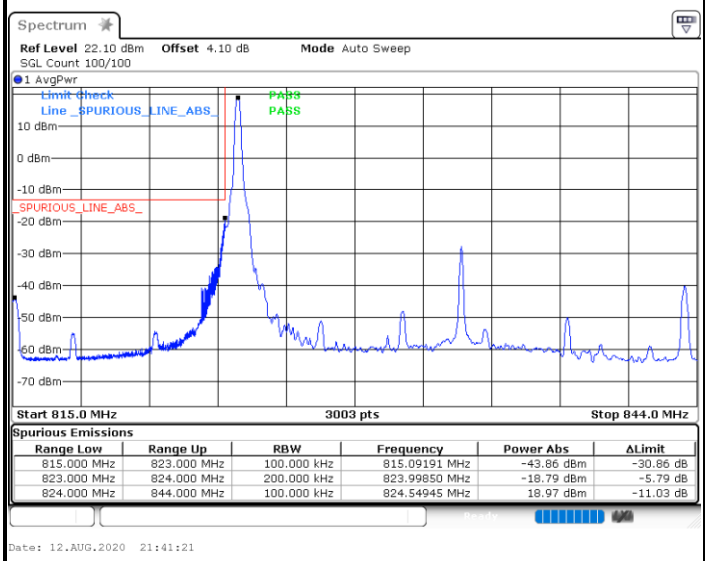
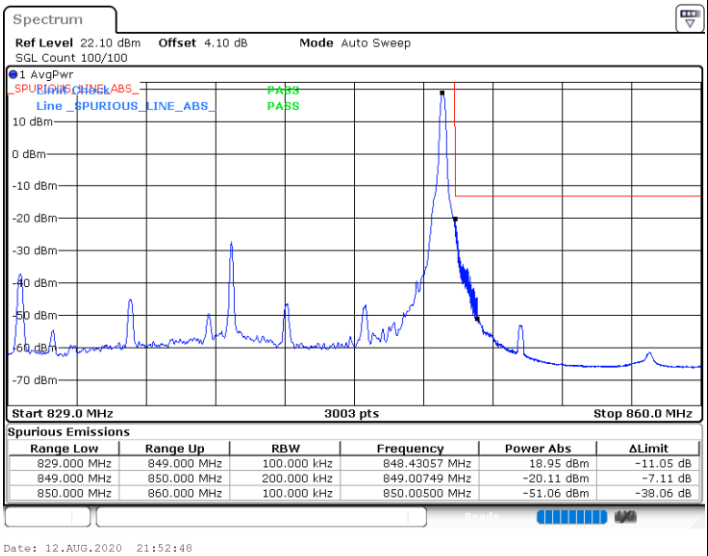
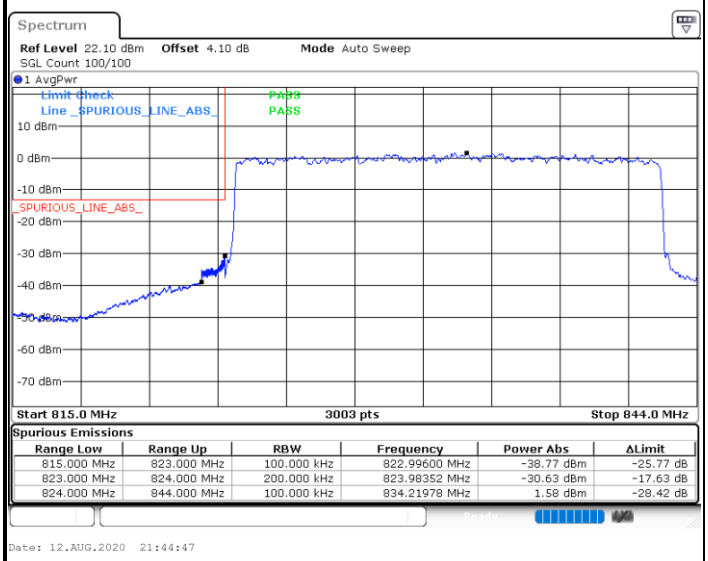
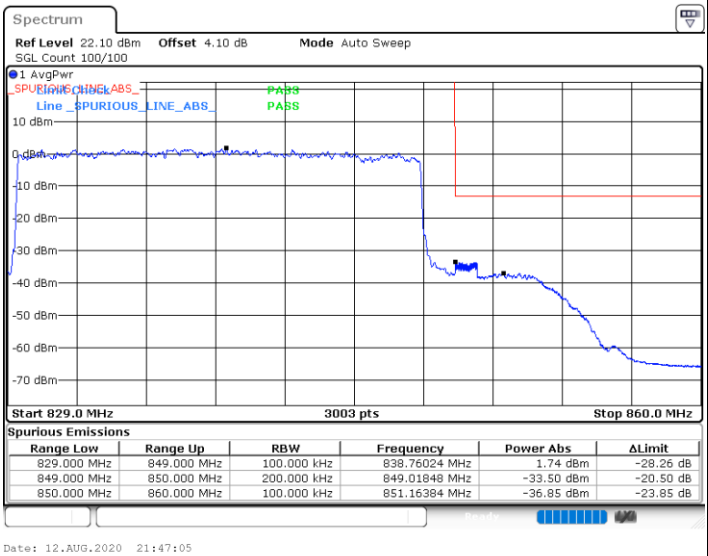
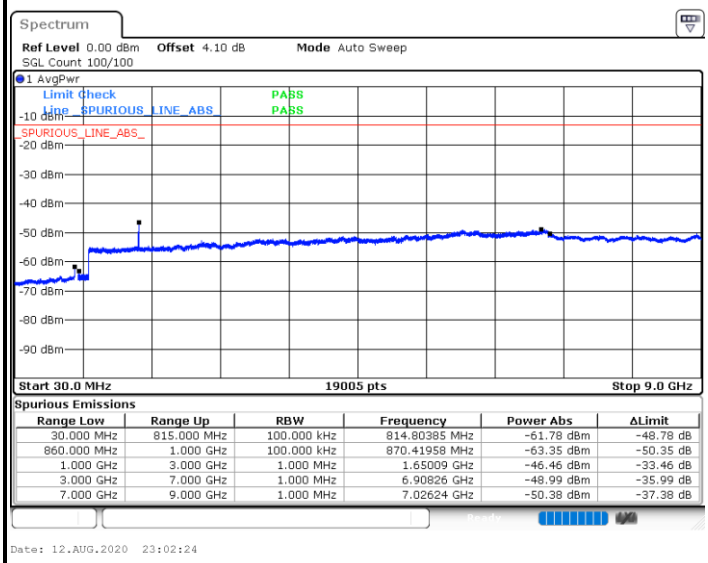
FR1 n5 / 10MHz / DFT-s-OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

FR1 n5 / 20MHz / DFT-s-OFDM / QPSK	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

Conducted Spurious Emission

FR1 n5 / 5MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.80385 MHz	-61.78 dBm	-48.78 dB
860.000 MHz	1.000 GHz	100.000 kHz	870.41958 MHz	-63.35 dBm	-50.35 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.65009 GHz	-46.46 dBm	-33.46 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.90826 GHz	-48.99 dBm	-35.99 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.02624 GHz	-50.38 dBm	-37.38 dB

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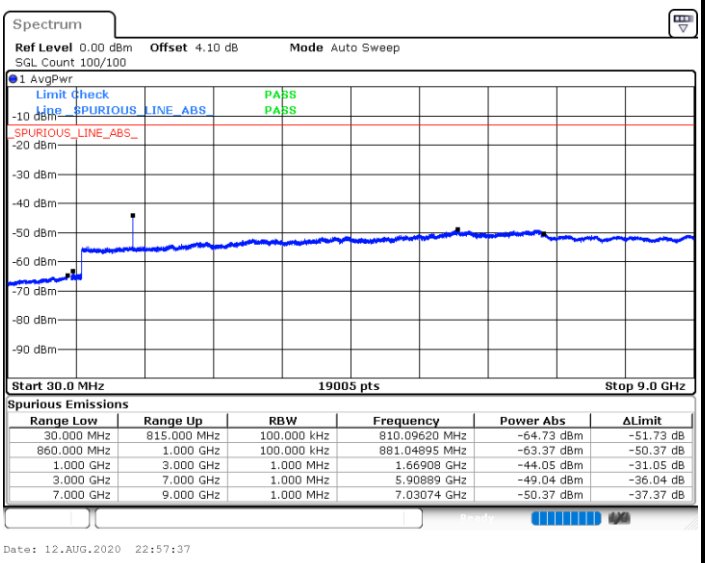
Middle Channel / 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	810.09620 MHz	-64.73 dBm	-51.73 dB
860.000 MHz	1.000 GHz	100.000 kHz	881.04895 MHz	-63.37 dBm	-50.37 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.66908 GHz	-44.05 dBm	-31.05 dB
3.000 GHz	7.000 GHz	1.000 MHz	5.90889 GHz	-49.04 dBm	-36.04 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.03074 GHz	-50.37 dBm	-37.37 dB

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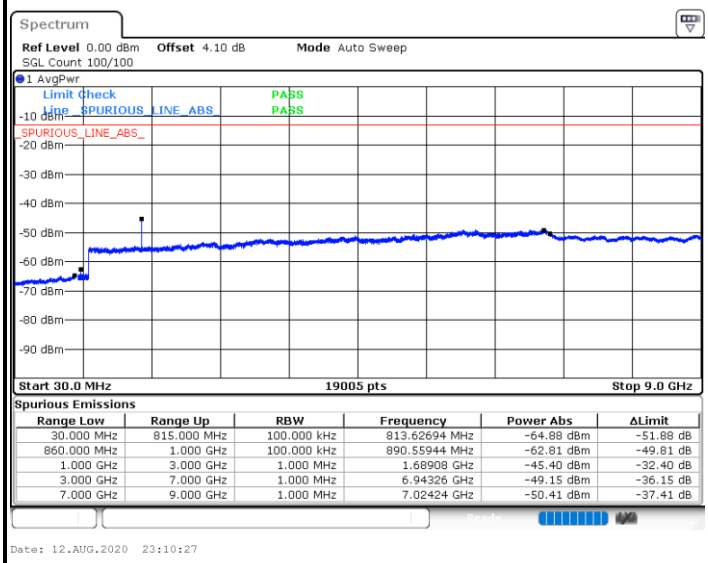
Highest Channel / 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	813.62694 MHz	-64.88 dBm	-51.88 dB
860.000 MHz	1.000 GHz	100.000 kHz	890.55944 MHz	-62.81 dBm	-49.81 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.68908 GHz	-45.40 dBm	-32.40 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94326 GHz	-49.15 dBm	-36.15 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.02424 GHz	-50.41 dBm	-37.41 dB

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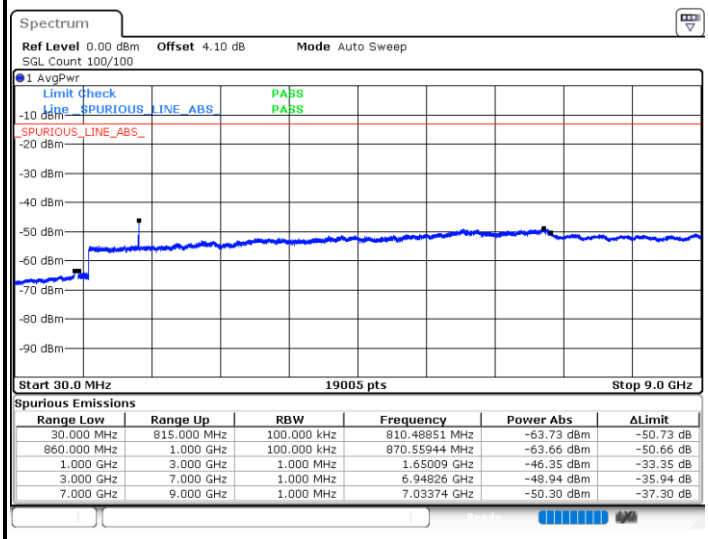
FR1 n5 / 10MHz / DFT-S OFDM / QPSK

Lowest Channel / 1RB

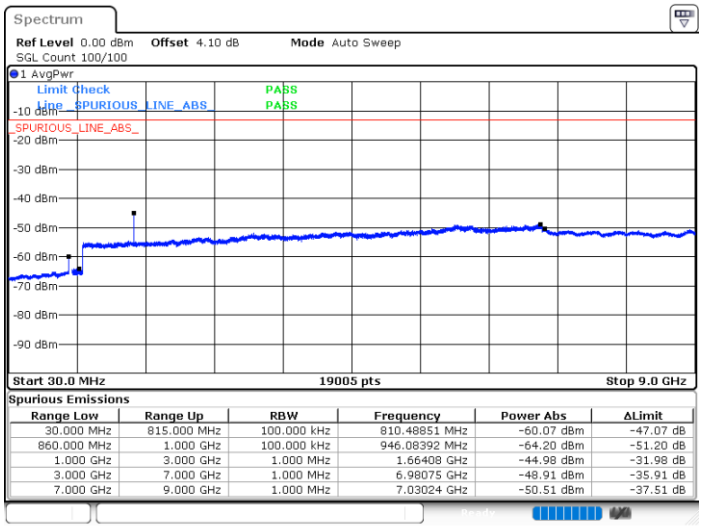


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	810.48851 MHz	-63.73 dBm	-50.73 dB
860.000 MHz	1.000 GHz	100.000 kHz	870.55944 MHz	-63.66 dBm	-50.66 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.65009 GHz	-46.35 dBm	-33.35 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94826 GHz	-48.94 dBm	-35.94 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.03374 GHz	-50.30 dBm	-37.30 dB

Date: 12.AUG.2020 22:42:09

Middle Channel / 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	810.48851 MHz	-60.07 dBm	-47.07 dB
860.000 MHz	1.000 GHz	100.000 kHz	946.08392 MHz	-64.20 dBm	-51.20 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.66408 GHz	-44.98 dBm	-31.98 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98075 GHz	-48.91 dBm	-35.91 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.03024 GHz	-50.51 dBm	-37.51 dB

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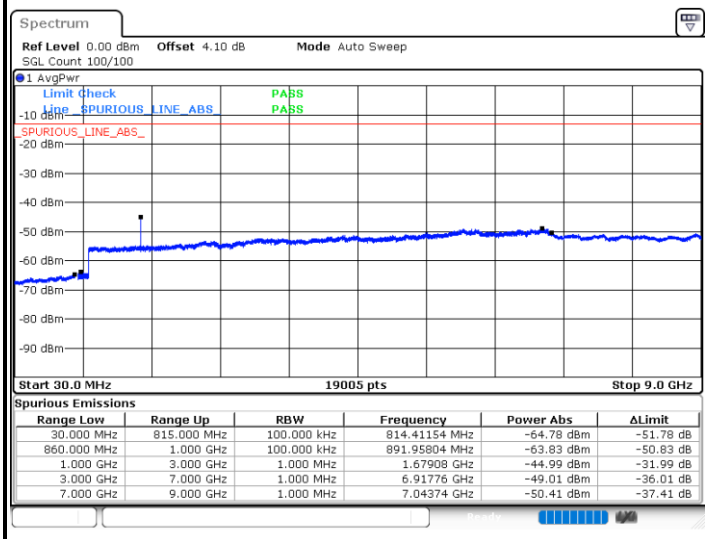
Highest Channel / 1RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	815.000 MHz	100.000 kHz	814.41154 MHz	-64.78 dBm	-51.78 dB
860.000 MHz	1.000 GHz	100.000 kHz	891.95804 MHz	-63.83 dBm	-50.83 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.67908 GHz	-44.99 dBm	-31.99 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.91776 GHz	-49.01 dBm	-36.01 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.04374 GHz	-50.41 dBm	-37.41 dB

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