FCC RADIO TEST REPORT

FCC ID	:	**A4RGD1YQ**
Equipment	:	**Phone**
Model Name	:	**GD1YQ**
Applicant	:	**Google LLC** **1600 Amphitheatre Parkway,** **Mountain View, California, 94043 USA**
Standard	:	**FCC 47 CFR Part 2, 27**

The product was received on Oct. 06, 2020 and testing was started from Oct. 13, 2020 and completed on Nov. 19, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FG011718-06	01	Initial issue of report	Nov. 27, 2020

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
	§27.50 (j)(3)	Equivalent Isotropic Radiated Power (n77)	Pass	
3.3	§27.50 (j)(4)	Peak-to-Average Ratio	Pass	-
3.4	§2.1049	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §27.53 (l)(2)	Conducted Band Edge Measurement (n77)	Pass	-
3.6	§2.1051 §27.53 (l)(2)	Conducted Spurious Emission (n77)	Pass	-
3.7	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Pass	-
4.2	§2.1051 §27.53 (l)(2)	Radiated Spurious Emission (n77)	Pass	Under limit 23.24 dB at 15846.000 MHz for Primary Antenna Under limit 23.55 dB at 15846.000 MHz for ASDIV Antenna

Remark: This is a variant report to include NR band n77 with ENDC 41A-n77A combination enabled by software. All the test cases were performed on original report which can be referred to Sporton Report Number FG011718-05B.

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.

Reviewed by: Wii Chang

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Phone
Model Name	GD1YQ
FCC ID	A4RGD1YQ
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/5G NR /NFC/GNSS/WPC/WPT WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

Remark: The above EUT's information was declared by manufacturer.

EUT Information List	
S/N	Performed Test Item
06021FDD4000YF	Conducted Measurement EIRP
06021FDD40002B	Radiated Spurious Emission

1.2 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n77: 3710.01 MHz ~ 3969.99 MHz
Rx Frequency	5G NR n77: 3710.01 MHz ~ 3969.99 MHz
Bandwidth	5G NR n77: 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
Maximum Output Power to Antenna <DFT-s-OFDM>	**<Primary Antenna>** **<Ant. 7>** 5G NR n77 : 24.99 dBm 5G NR n77 : 27.26 dBm for HPUE **<ASDIV Antenna>** **<Ant. 2>** 5G NR n77 : 23.48 dBm 5G NR n77 : 25.41 dBm for HPUE
Antenna Type	**<Primary Antenna>:** **<Ant. 7>:** Loop Antenna type **<ASDIV Antenna>:** **<Ant. 2>:** Monopole Antenna type
Type of Modulation	PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

<Primary Antenna>

Radio Tech	Band Number	Antenna name	Gain
5G NR	n77	ANT7	-1.8

<ASDIV Antenna>

Radio Tech	Band Number	Antenna name	Gain
5G NR	n77	ANT2	-4

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.3 Modification of EUT

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

1.4 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH05-HY
Test Engineer	HAO SYU / Howard Lin
Temperature	22.1~25.3℃
Relative Humidity	48.9~56.4%

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH12-HY
Test Engineer	Jack Cheng, Lance Chiang and Chuan Chu
Temperature	23.8~25.6℃
Relative Humidity	56~68%

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW0007

1.5 Applicable Standards

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

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

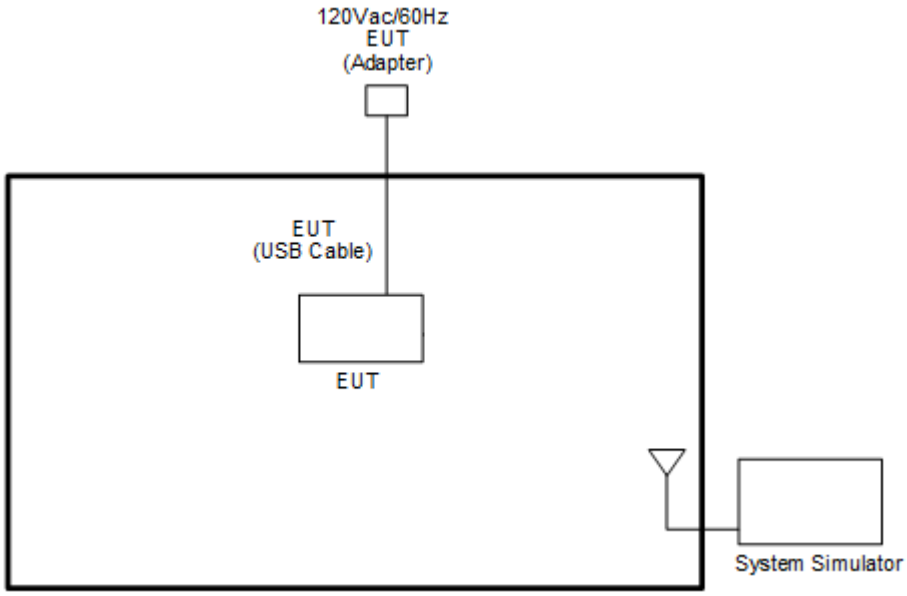
2.1 Test Mode

Antenna port conducted and radiated test items listed below 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 and Accessory (Adapter or Earphone). The worst cases (Y Plane) were recorded in this report.

Test Items	NR Band	Bandwidth (MHz)									Modulation					RB #			Test Channel		
		10	15	20	40	50	60	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	n77			v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n77			v							v	v	v	v	v			v		v	
26dB and 99% Bandwidth	n77			v	v	v	v	v	v	v	v	v	v	v	v			v		v	
Conducted Band Edge	n77			v	v	v	v	v	v	v	v	v	v	v	v	v		v	v		v
Conducted Spurious Emission	n77			v	v	v	v	v	v	v		v				v			v	v	v
Frequency Stability	n77			v								v						v		v	
E.I.R.P	n77			v	v	v	v	v	v	v	v	v	v	v	v	v	v		v	v	v
Radiated Spurious Emission	n77	Worst Case																	v	v	v
Remark	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. Test combination is EN-DC 41A-n77A. 5. The DFT-s-OFDM and CP-OFDM waveforms were investigated, and DFT-s-OFDM was found to be the worst case. 6. All the radiated test cases were performed with Adapter 2.																				

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	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 and attenuator factor 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 and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G NR Band n77 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	650000	656000	662000
	Frequency	3750	3840	3930
90	Channel	649668	656000	662332
	Frequency	3745.02	3840	3934.98
80	Channel	649334	656000	662666
	Frequency	3740.01	3840	3939.99
60	Channel	648668	656000	663332
	Frequency	3730.02	3840	3949.98
50	Channel	648334	656000	663666
	Frequency	3725.01	3840	3954.99
40	Channel	648000	656000	664000
	Frequency	3720	3840	3960
20	Channel	647334	656000	664666
	Frequency	3710.01	3840	3969.99

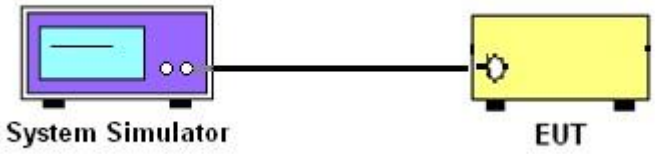
3 Conducted Test Items

3.1 Measuring Instruments

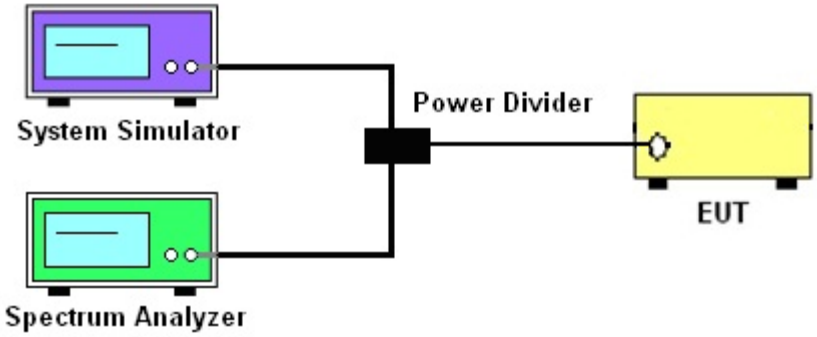
See list of measuring instruments of this test report.

3.1.1 Test Setup

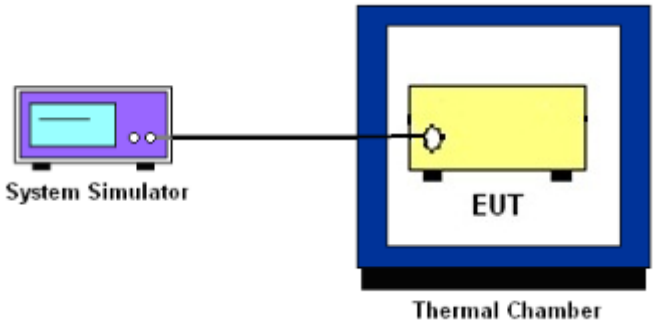
3.1.2 Conducted Output Power



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



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and EIRP

3.2.1 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 1 Watts for 5G NR n77

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

3.2.2 Test Procedures

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

3.3 Peak-to-Average Ratio

3.3.1 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.

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

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

3.4 Occupied Bandwidth

3.4.1 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.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. 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.
4. Set the detection mode to peak, and the trace mode to max hold.
5. 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)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. 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.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

27.53 (l)(2)

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.6 Conducted Spurious Emission

3.6.1 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.

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.7 Frequency Stability

3.7.1 Description of Frequency Stability Measurement

27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.7.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. 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.
3. 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.

3.7.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 20±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

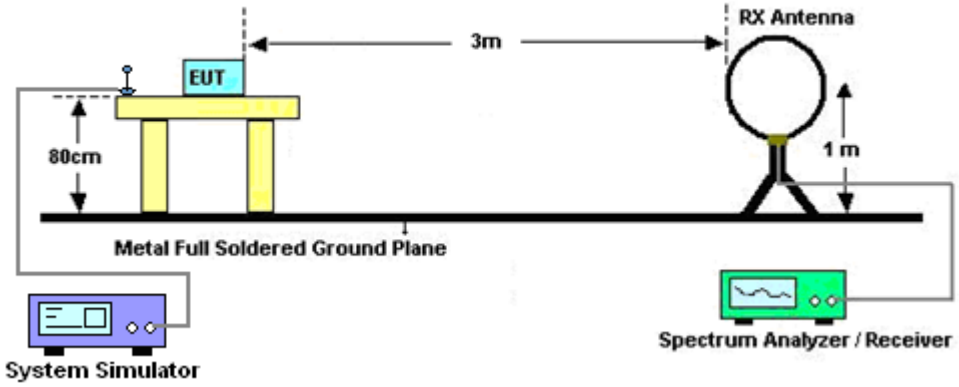
4 Radiated Test Items

4.1 Measuring Instruments

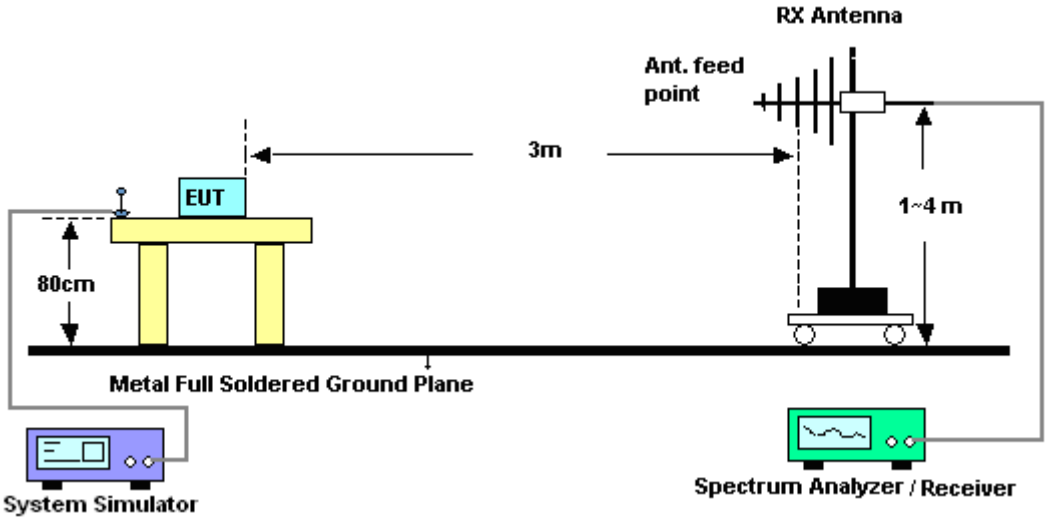
See list of measuring instruments of this test report.

4.1.1 Test Setup

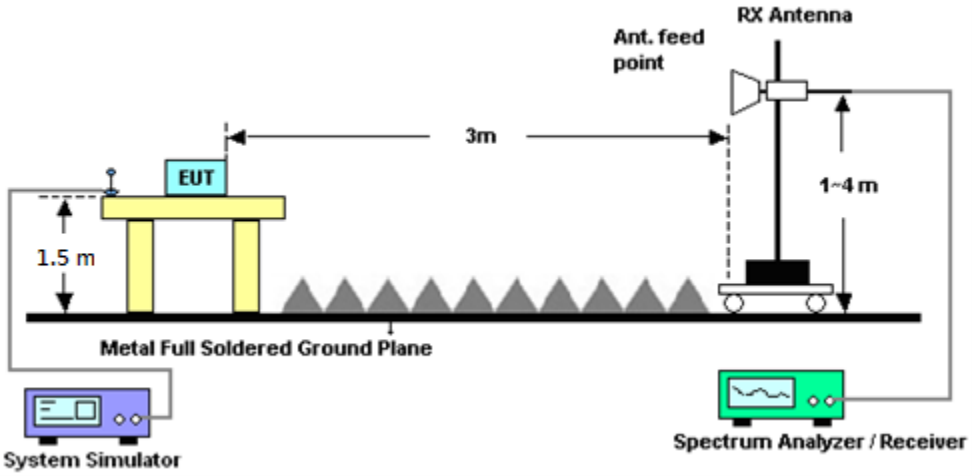
For radiated emissions below 30MHz



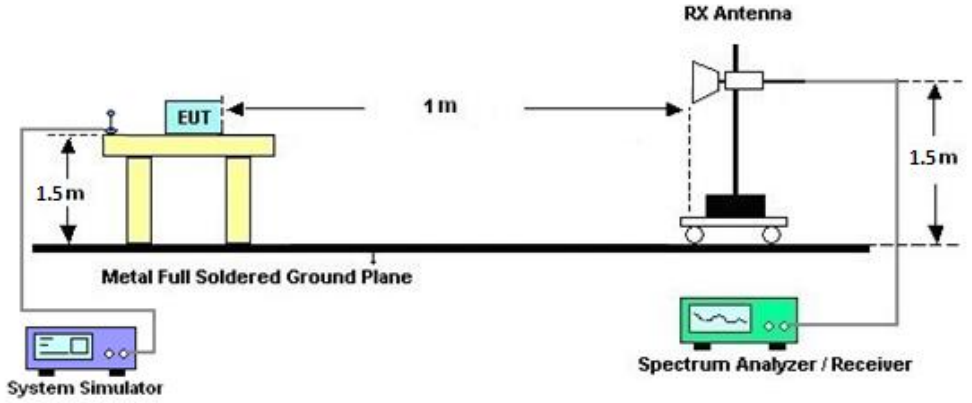
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

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.

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. 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.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. 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)

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 25, 2020	Nov. 18, 2020~ Nov. 19, 2020	Mar. 24, 2021	Radiation (03CH12-HY)
Preamplifier	Keysight	83017A	MY57280120	1GHz~26.5GHz	Jul. 20, 2020	Nov. 18, 2020~ Nov. 19, 2020	Jul. 19, 2021	Radiation (03CH12-HY)
Preamplifier	Jet-Power	JPA0118-55-303K	1710001800054002	1GHz~18GHz	Feb. 07, 2020	Nov. 18, 2020~ Nov. 19, 2020	Feb. 06, 2021	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 13, 2019	Nov. 18, 2020~ Nov. 19, 2020	Dec. 12, 2020	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY54200485	10Hz~44GHz	Feb. 10, 2020	Nov. 18, 2020~ Nov. 19, 2020	Feb. 09, 2021	Radiation (03CH12-HY)
Signal Generator	Anritsu	MG3694C	163401	0.1Hz~40GHz	Feb. 15, 2020	Nov. 18, 2020~ Nov. 19, 2020	Feb. 14, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 12, 2020	Nov. 18, 2020~ Nov. 19, 2020	Mar. 11, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 12, 2019	Nov. 18, 2020~ Nov. 19, 2020	Dec. 11, 2020	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 25, 2020	Nov. 18, 2020~ Nov. 19, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 25, 2020	Nov. 18, 2020~ Nov. 19, 2020	Feb. 24, 2021	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140349	N/A	Oct. 02, 2020	Nov. 18, 2020~ Nov. 19, 2020	Oct. 01, 2021	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Nov. 18, 2020~ Nov. 19, 2020	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Nov. 18, 2020~ Nov. 19, 2020	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Nov. 18, 2020~ Nov. 19, 2020	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Nov. 18, 2020~ Nov. 19, 2020	N/A	Radiation (03CH12-HY)
DC Power Supply	GW Instek	GPE-2323	GEU810968	Voltage:0V~64V; Current: 0A~6A	Jul. 30, 2020	Oct. 13, 2020~ Oct. 16, 2020	Jul. 29, 2021	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101905	10Hz~40GHz	May 05, 2020	Oct. 13, 2020~ Oct. 16, 2020	May 04, 2021	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SU-241	92003713	-30℃ ~95℃	May 15, 2020	Oct. 13, 2020~ Oct. 16, 2020	May 14, 2021	Conducted (TH05-HY)
Base Station (Measure)	Anritsu	MT8821C	6262044657	LTE(FDD)	Jan. 16, 2020	Oct. 13, 2020~ Oct. 16, 2020	Jan. 15, 2021	Conducted (TH05-HY)
Base Station (Measure)	Anritsu	MT8000A	6262012917	5GNR	Jan. 20, 2020	Oct. 13, 2020~ Oct. 16, 2020	Jan. 19, 2021	Conducted (TH05-HY)

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.07**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.21**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.80**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

<Primary Antenna>
<DFT-s-OFDM>

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	PI/2 BPSK	24.18	24.62	24.80
20	1	49		24.55	24.93	24.98
20	25	12		24.28	24.84	24.91
20	1	0		23.71	24.11	24.22
20	1	50		24.04	24.44	24.56
20	50	0		23.87	24.30	24.45
20	1	1	QPSK	24.13	24.65	24.81
20	1	49		24.53	24.98	24.98
20	25	12		24.32	24.76	24.94
20	1	0		23.16	23.60	23.73
20	1	50		23.56	23.95	24.02
20	50	0		23.34	23.80	23.97
20	1	1	16-QAM	23.31	23.62	23.90
20	1	1	64-QAM	21.77	22.49	22.39
20	1	1	256-QAM	19.44	19.96	20.12

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	PI/2 BPSK	24.30	24.54	24.64
40	1	104		24.93	24.98	**24.99**
40	50	25		24.80	24.87	24.82
40	1	0		23.94	24.12	24.12
40	1	105		24.52	24.61	24.73
40	100	0		24.36	24.52	24.40
40	1	1	QPSK	24.36	24.60	24.64
40	1	104		24.94	24.98	24.98
40	50	25		24.79	24.89	24.81
40	1	0		23.43	23.63	23.63
40	1	105		24.04	24.07	24.17
40	100	0		23.89	23.99	23.90
40	1	1	16-QAM	23.45	23.71	23.69
40	1	1	64-QAM	22.07	22.31	22.36
40	1	1	256-QAM	19.61	20.01	19.81

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	PI/2 BPSK	24.00	24.11	24.43
50	1	131		24.51	24.77	24.90
50	64	32		24.50	24.74	24.67
50	1	0		23.57	23.75	24.05
50	1	132		24.11	24.39	24.53
50	128	0		23.98	24.29	24.30
50	1	1	QPSK	23.95	24.16	24.44
50	1	131		24.49	24.75	24.94
50	64	32		24.46	24.71	24.68
50	1	0		23.11	23.26	23.51
50	1	132		23.59	23.85	24.01
50	128	0		23.52	23.77	23.79
50	1	1	16-QAM	23.19	23.28	23.59
50	1	1	64-QAM	21.70	21.84	22.15
50	1	1	256-QAM	19.33	19.54	19.79

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	PI/2 BPSK	24.06	24.23	24.37
60	1	160		24.73	24.74	24.70
60	81	40		24.69	24.76	24.43
60	1	0		23.64	23.81	23.97
60	1	161		24.32	24.35	24.35
60	162	0		24.28	24.28	24.09
60	1	1	QPSK	24.12	24.21	24.36
60	1	160		24.75	24.68	24.77
60	81	40		24.74	24.78	24.46
60	1	0		23.18	23.36	23.50
60	1	161		23.86	23.81	23.85
60	162	0		23.71	23.80	23.57
60	1	1	16-QAM	23.25	23.42	23.51
60	1	1	64-QAM	21.78	21.96	22.11
60	1	1	256-QAM	19.49	19.62	19.74

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	PI/2 BPSK	24.30	24.41	24.51
80	1	215		24.81	24.74	24.80
80	108	54		24.81	24.85	24.50
80	1	0		23.82	23.99	24.09
80	1	216		24.37	24.26	24.27
80	216	0		24.34	24.34	24.11
80	1	1	QPSK	24.31	24.37	24.49
80	1	215		24.84	24.77	24.75
80	108	54		24.80	24.77	24.48
80	1	0		23.33	23.42	23.58
80	1	216		23.90	23.80	23.80
80	216	0		23.89	23.73	23.60
80	1	1	16-QAM	23.30	23.55	23.56
80	1	1	64-QAM	22.24	22.08	22.42
80	1	1	256-QAM	19.68	19.63	19.81

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	PI/2 BPSK	24.39	24.66	24.77
90	1	243		24.72	24.77	24.82
90	120	60		24.84	24.85	24.60
90	1	0		23.90	24.18	24.33
90	1	244		24.18	24.28	24.35
90	240	0		24.36	24.39	24.25
90	1	1	QPSK	24.36	24.62	24.72
90	1	243		24.64	24.74	24.85
90	120	60		24.82	24.81	24.59
90	1	0		23.41	23.70	23.80
90	1	244		23.79	23.83	23.91
90	240	0		23.74	23.85	23.77
90	1	1	16-QAM	23.38	23.90	23.68
90	1	1	64-QAM	22.04	22.22	22.64
90	1	1	256-QAM	19.69	19.93	20.05

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	PI/2 BPSK	24.32	24.76	24.82
100	1	271		24.41	24.74	24.89
100	135	67		24.85	24.87	24.46
100	1	0		23.91	24.36	24.36
100	1	272		23.91	24.30	24.40
100	270	0		24.35	24.37	24.23
100	1	1	QPSK	24.44	24.42	24.81
100	1	271		24.53	24.71	24.00
100	135	67		24.91	24.83	24.52
100	1	0		23.48	23.80	23.73
100	1	272		23.42	23.36	23.91
100	270	0		23.83	23.82	23.68
100	1	1	16-QAM	23.69	23.74	24.13
100	1	1	64-QAM	22.14	22.01	22.46
100	1	1	256-QAM	19.67	19.73	20.14

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	PI/2 BPSK	26.50	26.97	26.52
20	1	49		26.57	27.00	26.55
20	25	12		26.46	27.03	26.45
20	1	0		22.99	23.43	23.01
20	1	50		23.09	23.56	23.00
20	50	0		26.00	26.51	25.98
20	1	1	QPSK	26.45	26.93	26.47
20	1	49		26.43	27.04	26.46
20	25	12		26.47	27.03	26.46
20	1	0		23.02	23.45	23.00
20	1	50		22.98	23.52	22.98
20	50	0		25.48	26.08	25.47
20	1	1	16-QAM	25.41	26.04	25.41
20	1	1	64-QAM	23.76	24.35	23.98
20	1	1	256-QAM	21.62	22.15	21.78

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	PI/2 BPSK	26.71	26.98	26.66
40	1	104		26.75	27.17	26.70
40	50	25		26.78	27.13	26.55
40	1	0		23.26	23.65	23.14
40	1	105		23.25	23.77	23.23
40	100	0		26.22	26.68	26.21
40	1	1	QPSK	26.69	26.95	26.64
40	1	104		26.76	**27.26**	26.72
40	50	25		26.76	27.11	26.57
40	1	0		23.25	23.73	23.19
40	1	105		23.31	23.68	23.27
40	100	0		25.71	26.18	25.70
40	1	1	16-QAM	25.76	25.95	25.63
40	1	1	64-QAM	24.20	24.61	24.21
40	1	1	256-QAM	21.94	22.37	21.80

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	PI/2 BPSK	26.37	26.70	26.43
50	1	131		26.39	26.90	26.45
50	64	32		26.38	26.93	26.50
50	1	0		22.87	23.22	23.01
50	1	132		22.92	23.50	22.96
50	128	0		25.86	26.38	25.99
50	1	1	QPSK	26.30	26.71	26.43
50	1	131		26.36	26.98	26.42
50	64	32		26.40	26.92	26.51
50	1	0		22.87	23.26	23.00
50	1	132		22.84	23.52	22.92
50	128	0		25.38	25.90	25.46
50	1	1	16-QAM	25.29	25.67	25.46
50	1	1	64-QAM	23.93	24.36	23.88
50	1	1	256-QAM	21.59	21.95	21.78

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	PI/2 BPSK	26.33	26.85	26.47
60	1	160		26.58	26.92	26.30
60	81	40		26.47	26.96	26.41
60	1	0		22.95	23.37	23.04
60	1	161		23.13	23.43	22.81
60	162	0		26.05	26.44	25.92
60	1	1	QPSK	26.36	26.84	26.48
60	1	160		26.57	26.89	26.25
60	81	40		26.53	26.92	26.38
60	1	0		22.92	23.32	23.08
60	1	161		23.09	23.44	22.77
60	162	0		25.60	25.93	25.42
60	1	1	16-QAM	25.46	25.80	25.54
60	1	1	64-QAM	24.05	24.30	24.21
60	1	1	256-QAM	21.71	22.09	21.85

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	PI/2 BPSK	26.45	26.76	26.67
80	1	215		26.47	26.77	26.20
80	108	54		26.44	26.96	26.40
80	1	0		23.02	23.36	23.20
80	1	216		23.01	23.36	22.81
80	216	0		25.99	26.44	25.99
80	1	1	QPSK	26.38	26.77	26.64
80	1	215		26.44	26.77	26.24
80	108	54		26.41	26.91	26.45
80	1	0		22.96	23.32	23.20
80	1	216		22.95	23.32	22.78
80	216	0		25.52	25.96	25.52
80	1	1	16-QAM	25.47	25.89	25.76
80	1	1	64-QAM	24.17	24.48	24.28
80	1	1	256-QAM	21.71	22.12	22.02

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	PI/2 BPSK	26.43	26.75	26.68
90	1	243		26.38	26.80	26.24
90	120	60		26.53	26.94	26.54
90	1	0		22.97	23.32	23.25
90	1	244		22.98	23.31	22.84
90	240	0		26.01	26.43	26.10
90	1	1	QPSK	26.42	26.74	26.66
90	1	243		26.40	26.81	26.24
90	120	60		26.49	26.95	26.52
90	1	0		22.96	23.28	23.24
90	1	244		22.93	23.39	22.79
90	240	0		25.45	25.90	25.61
90	1	1	16-QAM	25.56	25.77	25.77
90	1	1	64-QAM	24.04	24.29	24.37
90	1	1	256-QAM	21.76	22.02	21.99

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	PI/2 BPSK	26.41	26.67	26.73
100	1	271		26.50	26.75	26.34
100	135	67		26.59	26.94	26.48
100	1	0		23.02	23.29	23.29
100	1	272		22.99	23.32	22.84
100	270	0		26.01	26.41	26.04
100	1	1	QPSK	26.40	26.63	26.61
100	1	271		26.43	26.76	26.26
100	135	67		26.53	26.98	26.49
100	1	0		23.01	23.30	23.26
100	1	272		22.98	23.34	22.89
100	270	0		25.50	25.93	25.53
100	1	1	16-QAM	25.45	25.79	25.77
100	1	1	64-QAM	23.93	24.22	24.18
100	1	1	256-QAM	21.71	22.00	22.05

<ASDIV Antenna>
<DFT-s-OFDM>

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	PI/2 BPSK	22.57	23.02	23.11
20	1	49		22.92	23.23	23.43
20	25	12		22.58	23.17	23.30
20	1	0		22.08	22.44	22.54
20	1	50		22.41	22.82	22.90
20	50	0		22.22	22.66	22.80
20	1	1	QPSK	22.48	23.03	23.13
20	1	49		22.92	23.37	23.42
20	25	12		22.68	23.15	23.30
20	1	0		21.56	21.95	22.04
20	1	50		21.90	22.34	22.40
20	50	0		21.66	22.19	22.32
20	1	1	16-QAM	21.68	21.98	22.26
20	1	1	64-QAM	20.08	20.88	20.71
20	1	1	256-QAM	17.82	18.27	18.48

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	PI/2 BPSK	22.67	22.93	22.96
40	1	104		23.30	23.43	**23.48**
40	50	25		23.14	23.19	23.21
40	1	0		22.34	22.44	22.43
40	1	105		22.84	22.99	23.09
40	100	0		22.74	22.91	22.70
40	1	1	QPSK	22.74	22.92	23.00
40	1	104		23.30	23.40	23.47
40	50	25		23.15	23.23	23.16
40	1	0		21.76	21.93	21.94
40	1	105		22.36	22.46	22.47
40	100	0		22.22	22.30	22.29
40	1	1	16-QAM	21.82	22.08	22.05
40	1	1	64-QAM	20.41	20.67	20.72
40	1	1	256-QAM	17.92	18.35	18.12

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	PI/2 BPSK	22.33	22.47	22.79
50	1	131		22.81	23.13	23.24
50	64	32		22.85	23.11	22.99
50	1	0		21.90	22.14	22.44
50	1	132		22.50	22.78	22.91
50	128	0		22.33	22.67	22.67
50	1	1	QPSK	22.32	22.48	22.75
50	1	131		22.85	23.09	23.33
50	64	32		22.81	23.04	23.04
50	1	0		21.44	21.62	21.83
50	1	132		21.90	22.21	22.31
50	128	0		21.86	22.09	22.14
50	1	1	16-QAM	21.57	21.63	21.92
50	1	1	64-QAM	20.05	20.17	20.54
50	1	1	256-QAM	17.68	17.91	18.14

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	PI/2 BPSK	22.43	22.62	22.74
60	1	160		23.04	23.06	23.08
60	81	40		23.07	23.14	22.81
60	1	0		21.95	22.17	22.30
60	1	161		22.70	22.65	22.73
60	162	0		22.68	22.64	22.45
60	1	1	QPSK	22.47	22.52	22.72
60	1	160		23.08	23.05	23.12
60	81	40		23.08	23.13	22.78
60	1	0		21.56	21.70	21.90
60	1	161		22.21	22.12	22.22
60	162	0		22.10	22.15	21.89
60	1	1	16-QAM	21.55	21.75	21.82
60	1	1	64-QAM	20.10	20.27	20.46
60	1	1	256-QAM	17.83	18.01	18.13

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	PI/2 BPSK	22.66	22.73	22.90
80	1	215		23.20	23.08	23.16
80	108	54		23.16	23.20	22.83
80	1	0		22.20	22.30	22.41
80	1	216		22.76	22.61	22.60
80	216	0		22.64	22.73	22.45
80	1	1	QPSK	22.66	22.69	22.82
80	1	215		23.23	23.08	23.08
80	108	54		23.11	23.13	22.80
80	1	0		21.71	21.77	21.88
80	1	216		22.23	22.15	22.16
80	216	0		22.26	22.05	21.94
80	1	1	16-QAM	21.66	21.86	21.92
80	1	1	64-QAM	20.57	20.41	20.80
80	1	1	256-QAM	18.01	18.01	18.16

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	PI/2 BPSK	22.76	22.99	23.10
90	1	243		23.06	23.07	23.14
90	120	60		23.15	23.24	22.95
90	1	0		22.28	22.56	22.64
90	1	244		22.58	22.62	22.74
90	240	0		22.67	22.76	22.61
90	1	1	QPSK	22.69	22.95	23.09
90	1	243		23.03	23.11	23.20
90	120	60		23.21	23.15	22.93
90	1	0		21.79	22.05	22.19
90	1	244		22.17	22.14	22.26
90	240	0		22.14	22.17	22.16
90	1	1	16-QAM	21.77	22.29	22.04
90	1	1	64-QAM	20.39	20.54	20.97
90	1	1	256-QAM	18.07	18.28	18.40

NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	PI/2 BPSK	22.70	23.12	23.13
100	1	271		22.77	23.12	23.25
100	135	67		23.25	23.26	22.76
100	1	0		22.23	22.76	22.71
100	1	272		22.26	22.63	22.74
100	270	0		22.71	22.76	22.62
100	1	1	QPSK	22.76	22.77	23.12
100	1	271		22.87	23.06	22.34
100	135	67		23.23	23.18	22.91
100	1	0		21.84	22.20	22.09
100	1	272		21.81	21.68	22.26
100	270	0		22.17	22.15	22.02
100	1	1	16-QAM	22.02	22.07	22.47
100	1	1	64-QAM	20.50	20.32	20.81
100	1	1	256-QAM	17.99	18.07	18.49

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	PI/2 BPSK	24.47	25.12	24.54
20	1	49		24.46	25.15	24.51
20	25	12		24.35	25.16	24.59
20	1	0		20.95	21.63	21.00
20	1	50		20.97	21.79	21.07
20	50	0		23.98	24.70	24.10
20	1	1	QPSK	24.45	25.13	24.51
20	1	49		24.50	25.25	24.55
20	25	12		24.39	25.15	24.54
20	1	0		20.94	21.63	21.04
20	1	50		21.01	21.81	21.04
20	50	0		23.42	24.18	23.59
20	1	1	16-QAM	23.51	24.20	23.56
20	1	1	64-QAM	21.92	22.67	22.09
20	1	1	256-QAM	19.62	20.36	19.82

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	PI/2 BPSK	24.69	25.17	24.73
40	1	104		24.99	25.35	24.76
40	50	25		24.75	25.32	24.69
40	1	0		21.25	21.80	21.20
40	1	105		21.47	21.85	21.24
40	100	0		24.32	24.85	24.23
40	1	1	QPSK	24.71	25.20	24.73
40	1	104		24.99	**25.41**	24.78
40	50	25		24.79	25.34	24.72
40	1	0		21.22	21.71	21.23
40	1	105		21.50	21.93	21.28
40	100	0		23.78	24.36	23.71
40	1	1	16-QAM	23.85	24.33	23.95
40	1	1	64-QAM	22.23	22.71	22.17
40	1	1	256-QAM	19.93	20.48	20.02

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	PI/2 BPSK	24.35	24.78	24.66
50	1	131		24.30	25.06	24.46
50	64	32		24.39	25.06	24.51
50	1	0		20.81	21.27	21.10
50	1	132		20.79	21.57	20.94
50	128	0		23.83	24.54	24.04
50	1	1	QPSK	24.36	24.74	24.63
50	1	131		24.28	25.06	24.47
50	64	32		24.38	25.07	24.55
50	1	0		20.86	21.26	21.08
50	1	132		20.87	21.55	20.95
50	128	0		23.35	24.06	23.54
50	1	1	16-QAM	23.43	23.97	23.77
50	1	1	64-QAM	21.82	22.48	22.17
50	1	1	256-QAM	19.59	20.04	19.93

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	PI/2 BPSK	24.40	24.85	24.63
60	1	160		24.42	25.08	24.32
60	81	40		24.59	25.05	24.45
60	1	0		20.88	21.34	21.15
60	1	161		20.96	21.58	20.84
60	162	0		24.03	24.52	23.97
60	1	1	QPSK	24.39	24.84	24.64
60	1	160		24.50	25.12	24.30
60	81	40		24.59	25.10	24.47
60	1	0		20.91	21.31	21.13
60	1	161		20.98	21.54	20.84
60	162	0		23.50	24.06	23.44
60	1	1	16-QAM	23.38	24.01	23.74
60	1	1	64-QAM	21.95	22.32	22.15
60	1	1	256-QAM	19.73	20.08	19.96

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	PI/2 BPSK	24.48	24.86	24.78
80	1	215		24.48	25.01	24.29
80	108	54		24.58	25.12	24.56
80	1	0		20.99	21.34	21.30
80	1	216		20.99	21.55	20.82
80	216	0		24.05	24.55	24.04
80	1	1	QPSK	24.46	24.85	24.75
80	1	215		24.41	24.99	24.31
80	108	54		24.48	25.04	24.52
80	1	0		20.98	21.34	21.27
80	1	216		20.97	21.49	20.78
80	216	0		23.49	23.97	23.56
80	1	1	16-QAM	23.51	23.96	23.82
80	1	1	64-QAM	21.95	22.38	22.31
80	1	1	256-QAM	19.67	19.99	19.95

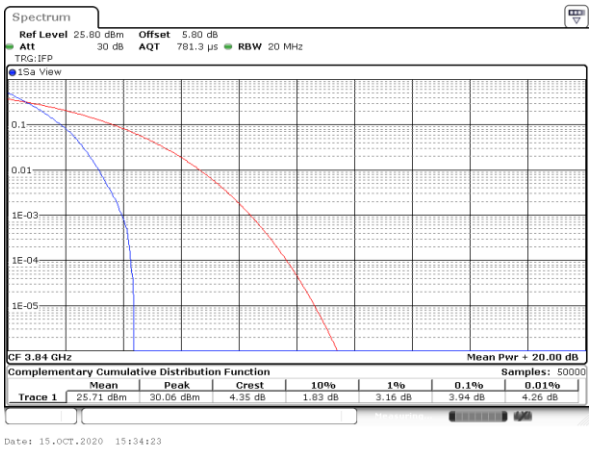
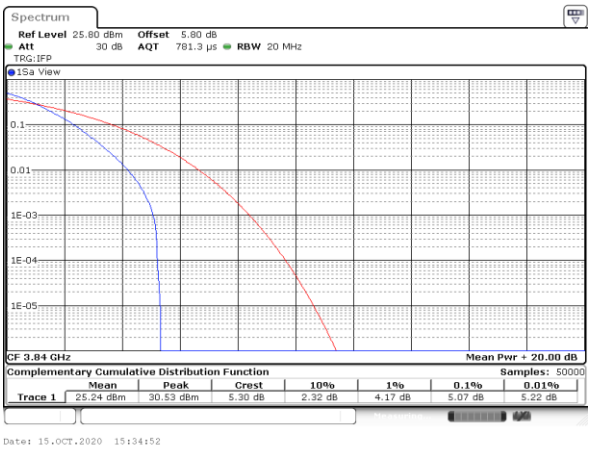
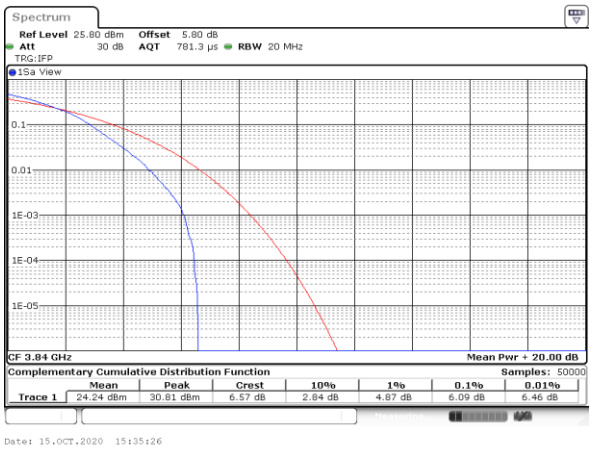
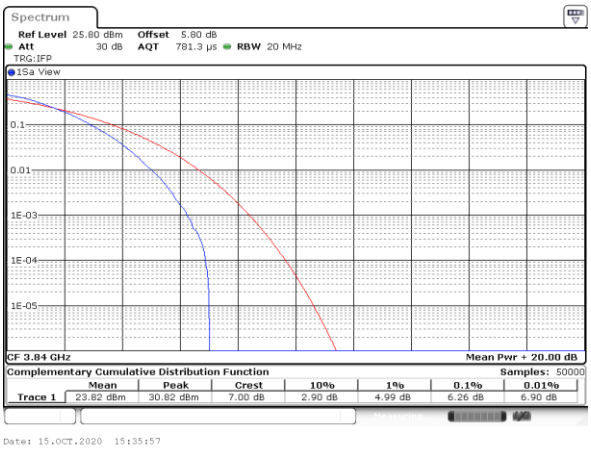
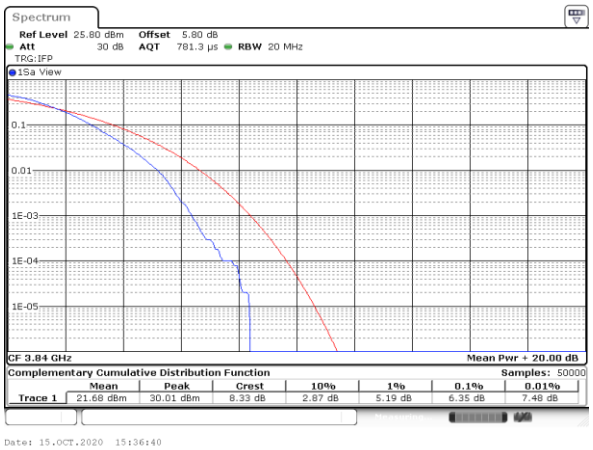
NR n77 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	PI/2 BPSK	24.43	24.94	24.91
90	1	243		24.57	25.01	24.34
90	120	60		24.31	25.10	24.66
90	1	0		21.04	21.49	21.41
90	1	244		21.08	21.57	20.79
90	240	0		23.96	24.56	24.14
90	1	1	QPSK	24.47	24.86	24.88
90	1	243		24.51	24.89	24.30
90	120	60		24.46	25.06	24.67
90	1	0		21.04	21.35	21.44
90	1	244		21.07	21.44	20.82
90	240	0		23.46	23.96	23.67
90	1	1	16-QAM	23.55	23.99	24.02
90	1	1	64-QAM	22.10	22.54	22.48
90	1	1	256-QAM	19.75	20.21	20.12

NR n77 (HPUE) Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	PI/2 BPSK	24.47	24.96	24.86
100	1	271		24.47	24.95	24.34
100	135	67		24.46	25.02	24.64
100	1	0		20.97	21.41	21.41
100	1	272		21.02	21.44	20.88
100	270	0		23.97	24.49	24.12
100	1	1	QPSK	24.45	24.84	24.97
100	1	271		24.44	24.92	24.38
100	135	67		24.48	25.00	24.64
100	1	0		20.97	21.35	21.37
100	1	272		21.01	21.44	20.91
100	270	0		23.45	23.97	23.65
100	1	1	16-QAM	23.57	24.05	23.97
100	1	1	64-QAM	21.99	22.45	22.46
100	1	1	256-QAM	19.66	20.05	20.15

FR1 n77 HPUE

Peak-to-Average Ratio

Mode	FR1 n77 / 20MHz / DFT-S OFDM				
Mod.	PI/2 BPSK	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	3.94	5.07	6.09	6.26	PASS
Mode	FR1 n77 / 20MHz / DFT-S OFDM				
Mod.	256QAM				Limit: 13dB
RB Size	Full RB				Result
Middle CH	6.35				PASS

FR1 n77 / 20MHz / DFT-S OFDM / Middle Channel / Full RB	
PI/2 BPSK	QPSK
	
16QAM	64QAM
	
256QAM	
	

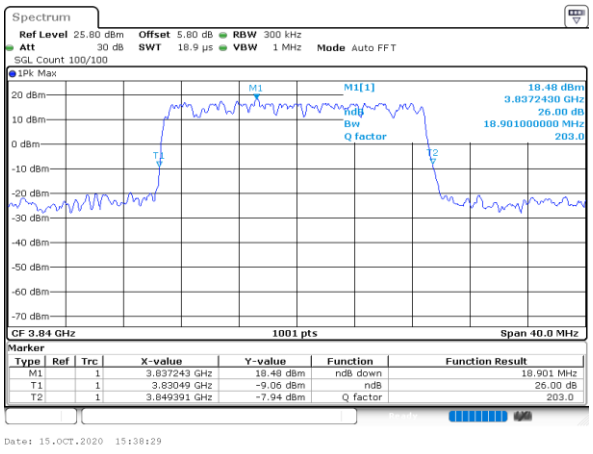
26dB Bandwidth

Mode	FR1 n77 : 26dB BW(MHz) / DFT-S OFDM							
BW	20MHz	40MHz	50MHz	60MHz	80MHz	90MHz	100MHz	
Mod.	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	
Middle CH	18.90	38.36	48.15	60.42	80.08	88.47	99.30	

Mode	FR1 n77 : 26dB BW(MHz) / CP OFDM							
BW	20MHz		40MHz		50MHz		60MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	19.30	19.10	40.20	40.28	49.75	49.65	60.30	60.42
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM
Middle CH	19.26	19.14	40.28	40.12	49.55	49.75	60.42	60.42
BW	80MHz		90MHz		100MHz			
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM		
Middle CH	79.92	79.92	90.27	90.27	100.30	100.30		
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM		
Middle CH	79.92	79.92	90.45	90.27	100.30	100.30		

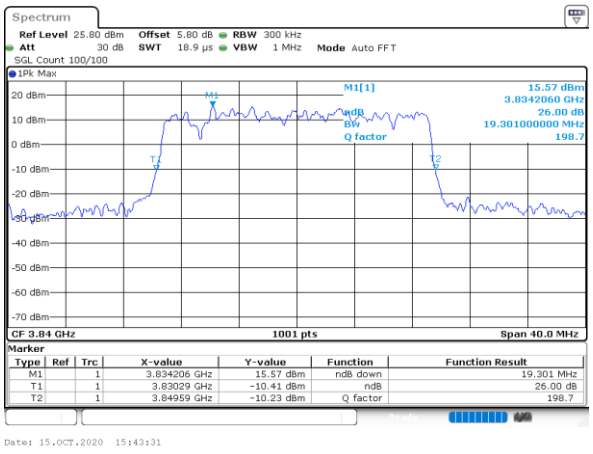
FR1 n77 / 20MHz / DFT-S OFDM / Middle Channel

PI/2 BPSK

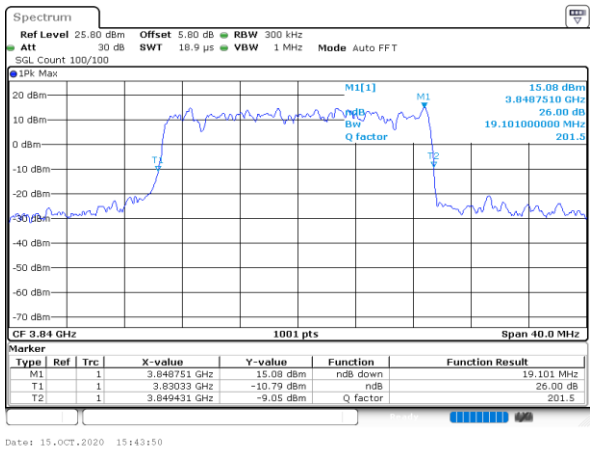


FR1 n77 / 20MHz / CP OFDM

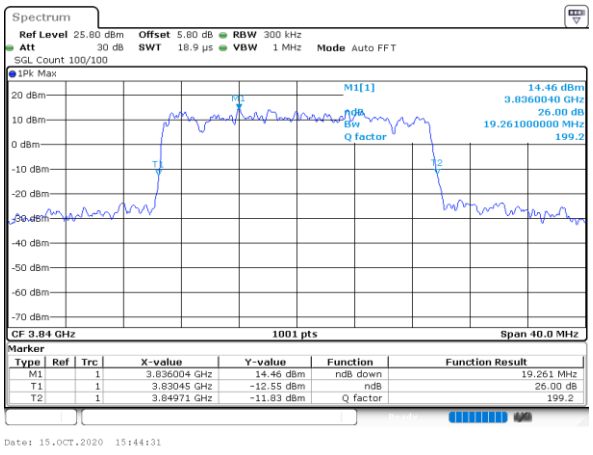
QPSK



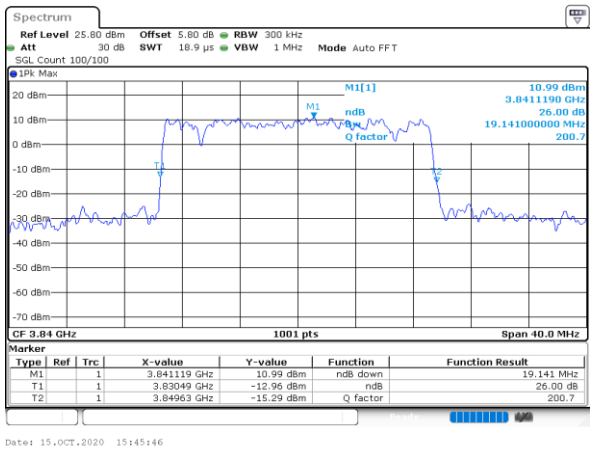
16QAM



64QAM

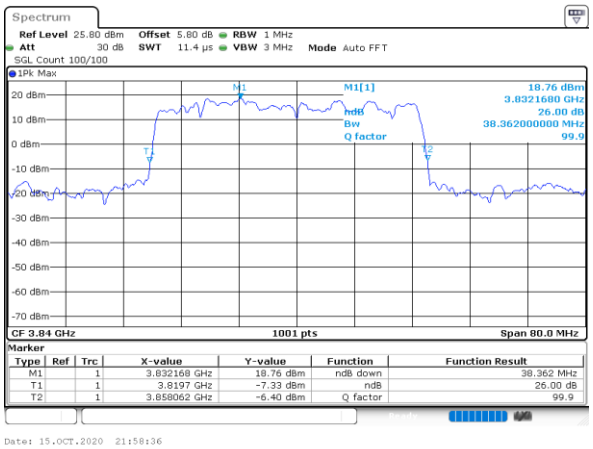


256QAM



FR1 n77 / 40MHz / DFT-S OFDM / Middle Channel

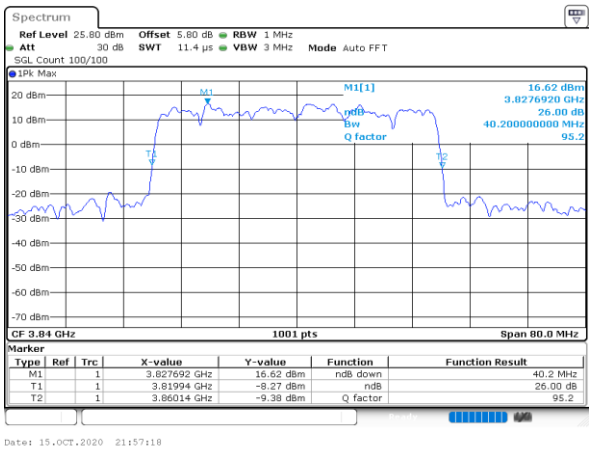
PI/2 BPSK



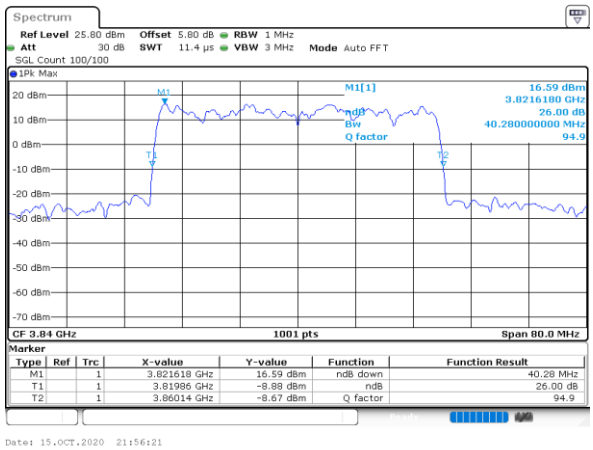
QPSK

16QAM

Middle Channel



Middle Channel



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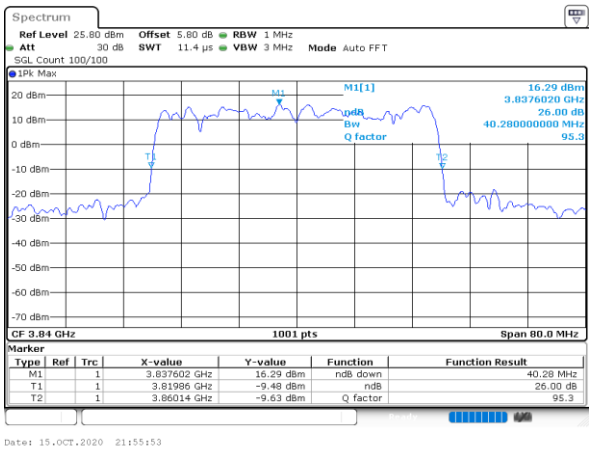
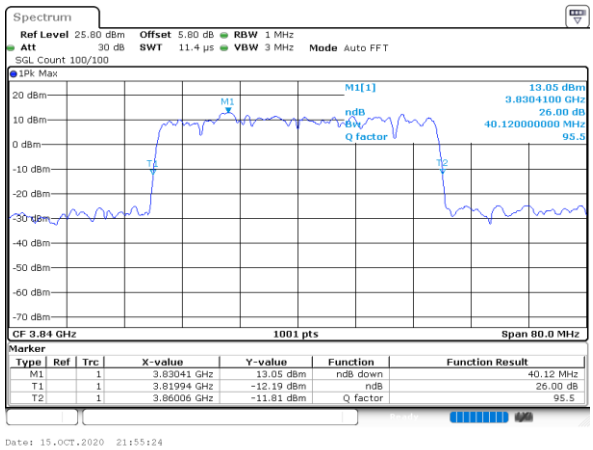
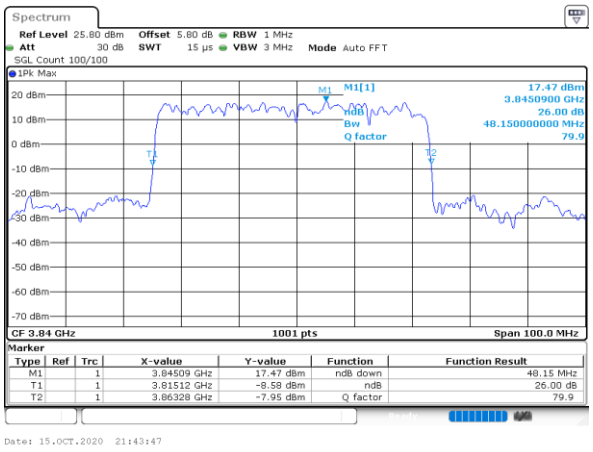


256QAM

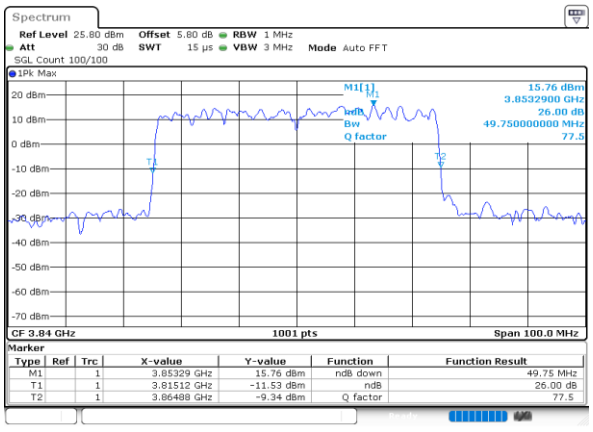


FR1 n77 / 50MHz / DFT-S OFDM / Middle Channel

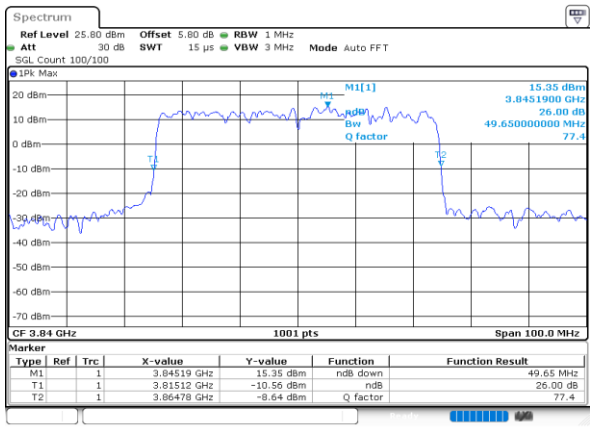
PI/2 BPSK



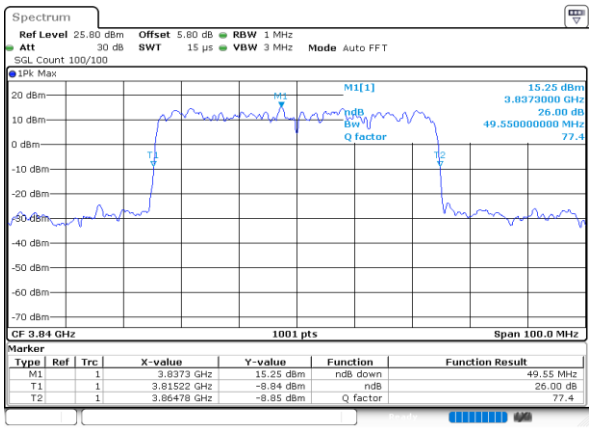
QPSK



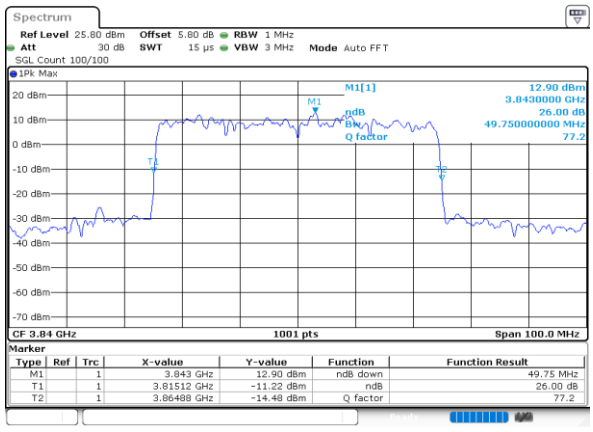
16QAM



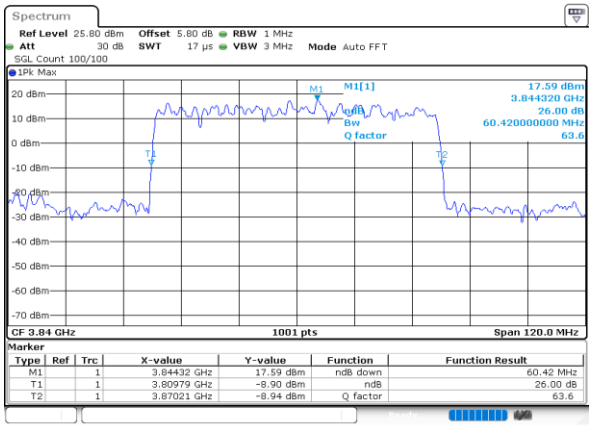
64QAM



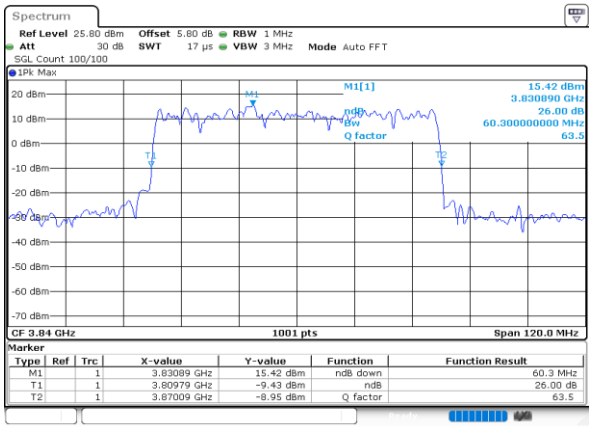
256QAM

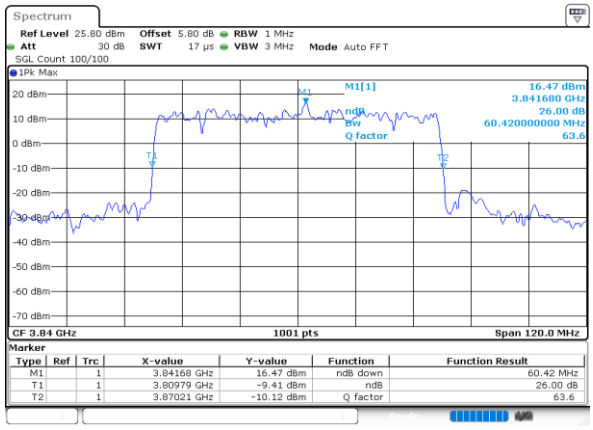


FR1 n77 / 60MHz / DFT-S OFDM / Middle Channel	
PI/2 BPSK	

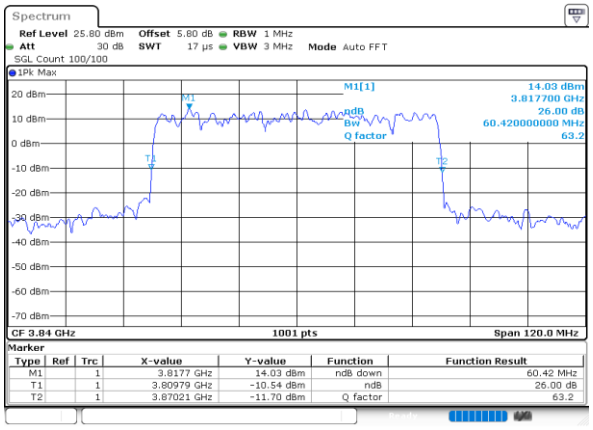


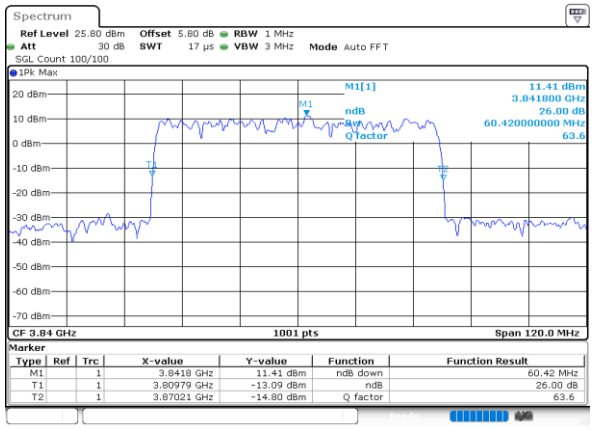
FR1 n77 / 60MHz / CP OFDM	
QPSK	16QAM





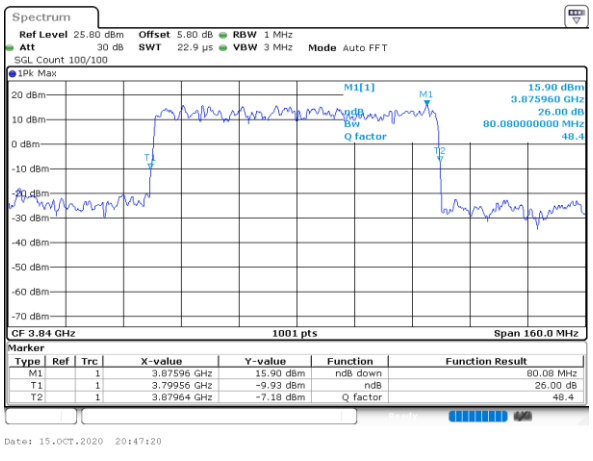
64QAM	256QAM



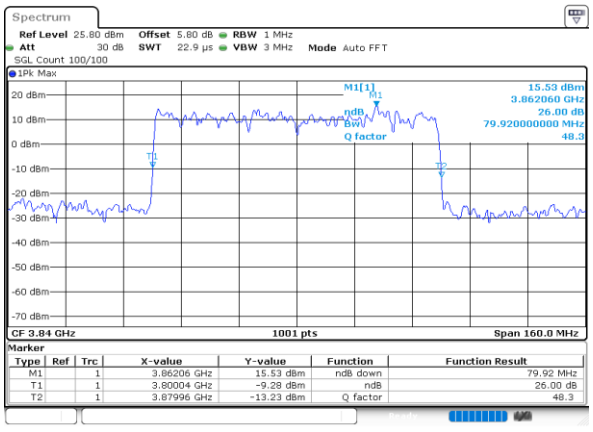


FR1 n77 / 80MHz / DFT-S OFDM / Middle Channel

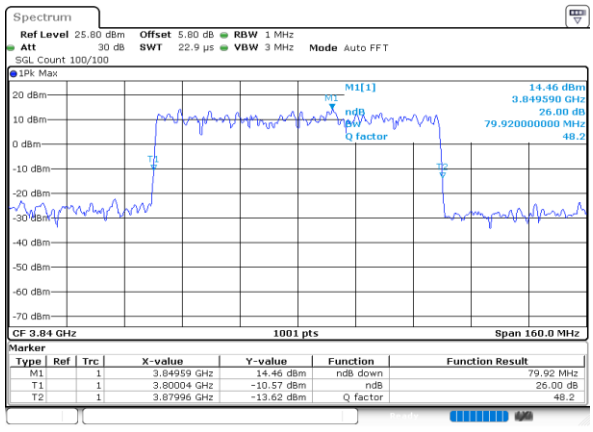
PI/2 BPSK



QPSK



16QAM



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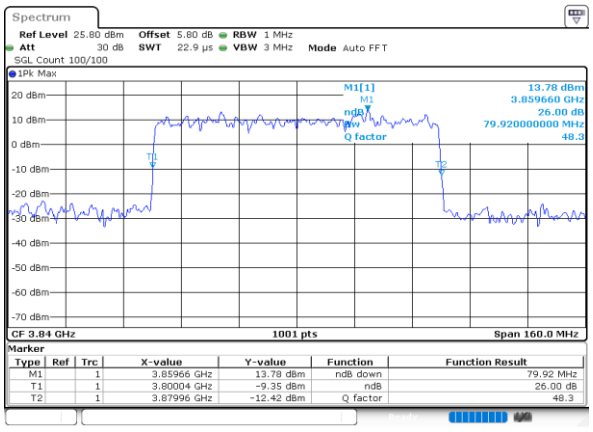
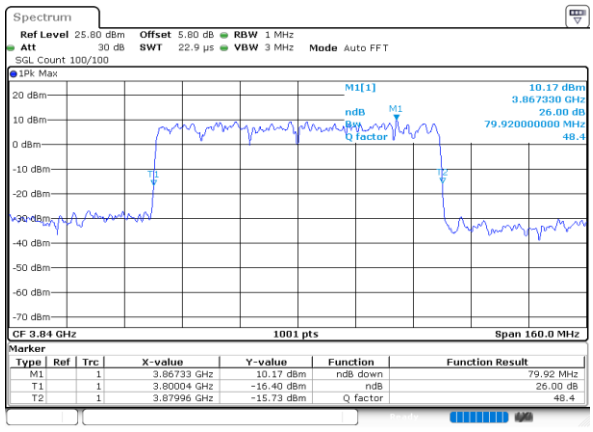
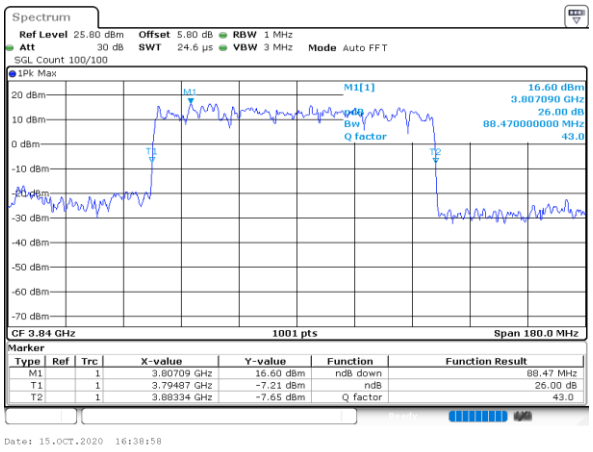


256QAM

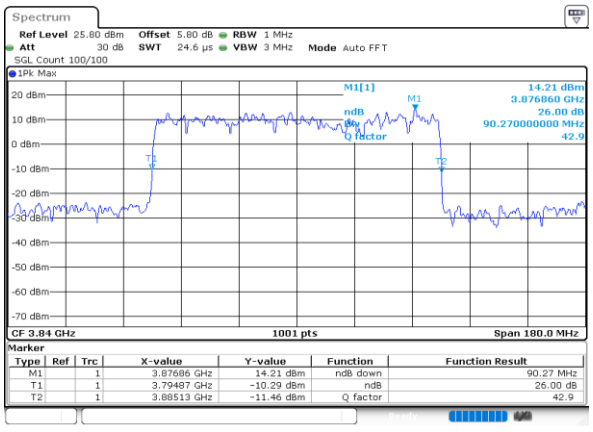


FR1 n77 / 90MHz / DFT-S OFDM / Middle Channel

PI/2 BPSK



QPSK



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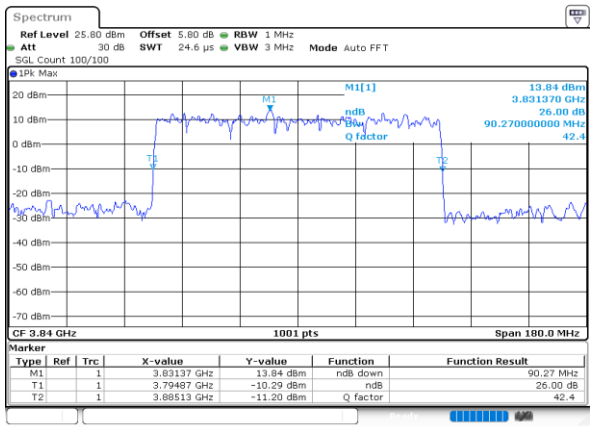

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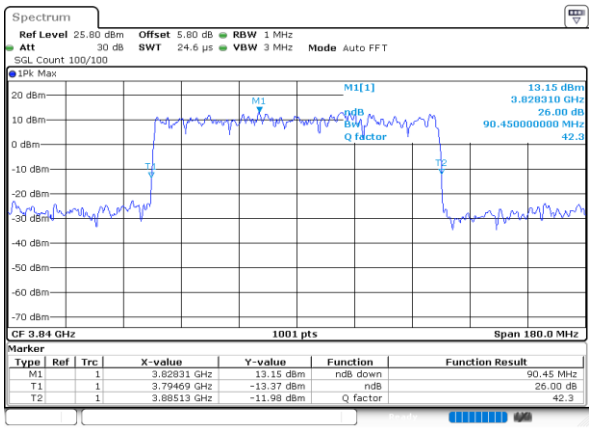

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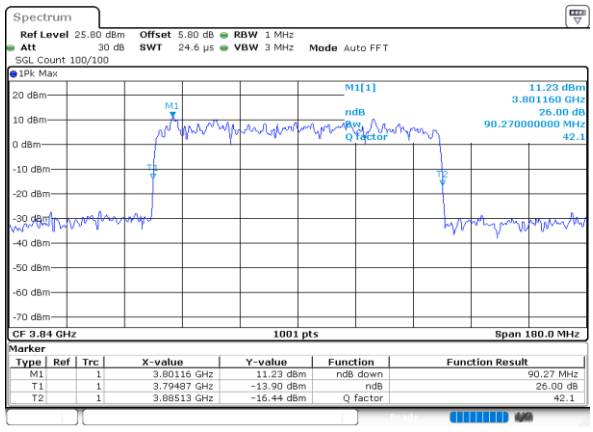
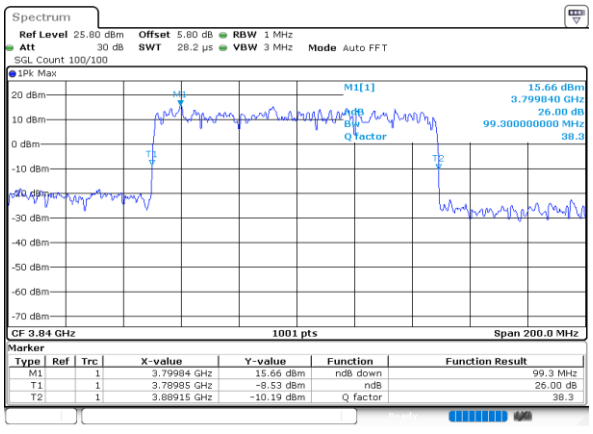
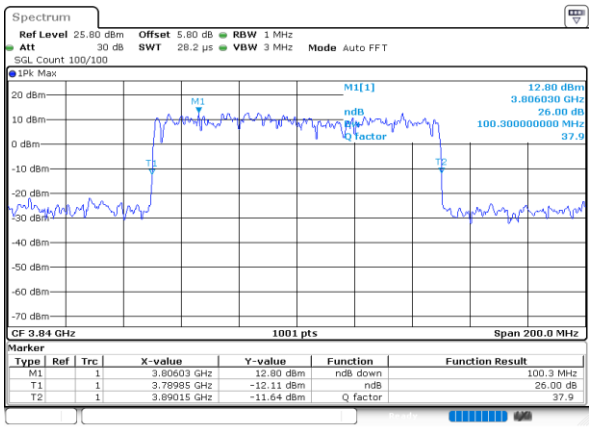


FR1 n77 / 100MHz / DFT-S OFDM / Middle Channel

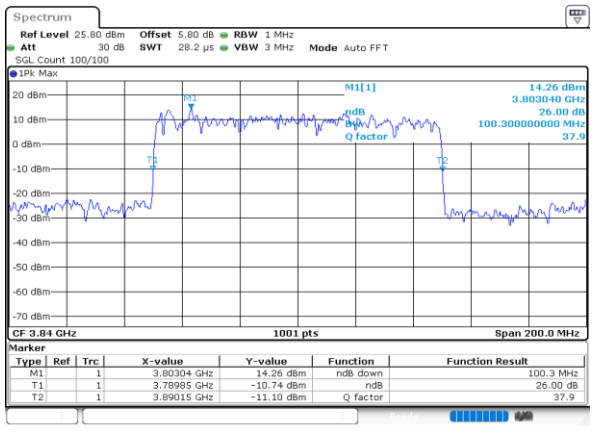
PI/2 BPSK



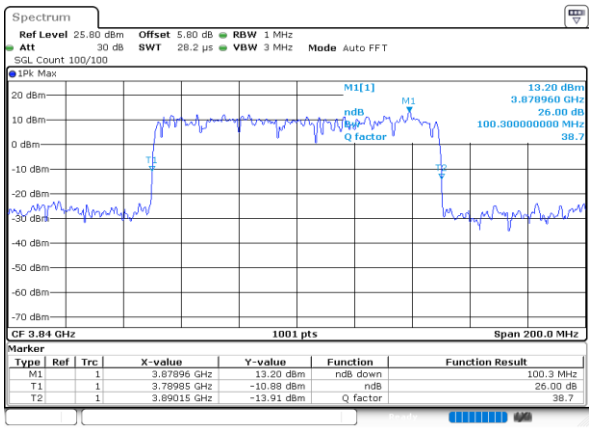
QPSK



16QAM



64QAM



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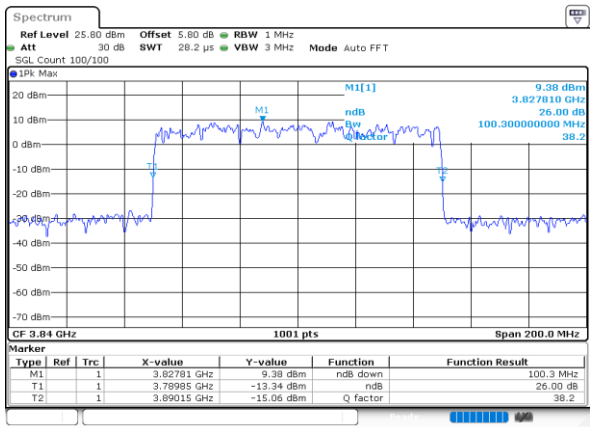
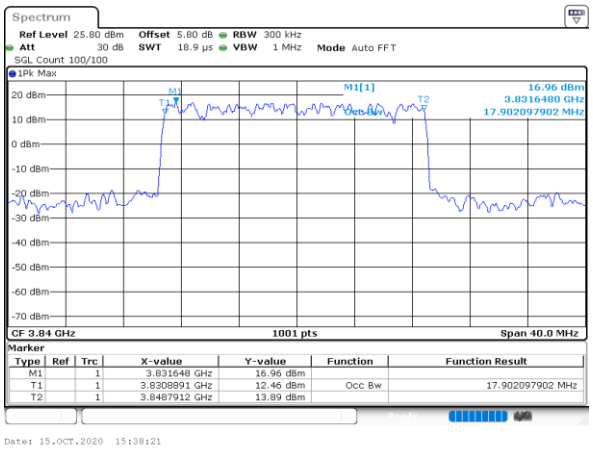
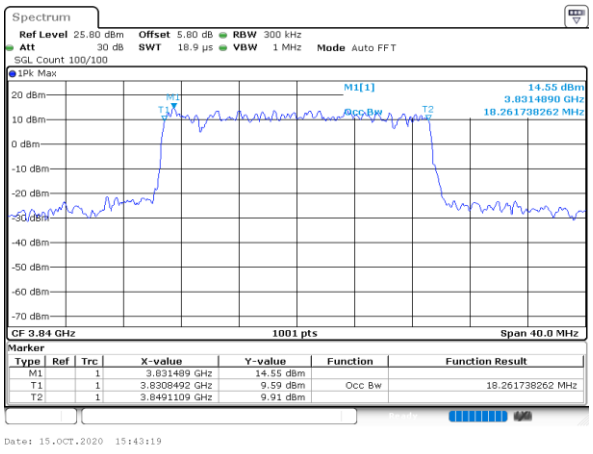
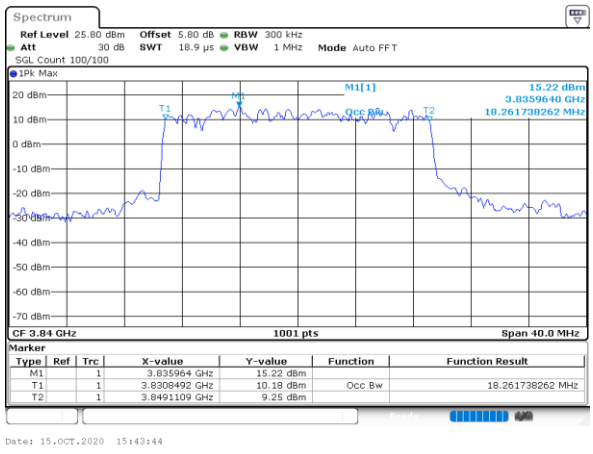
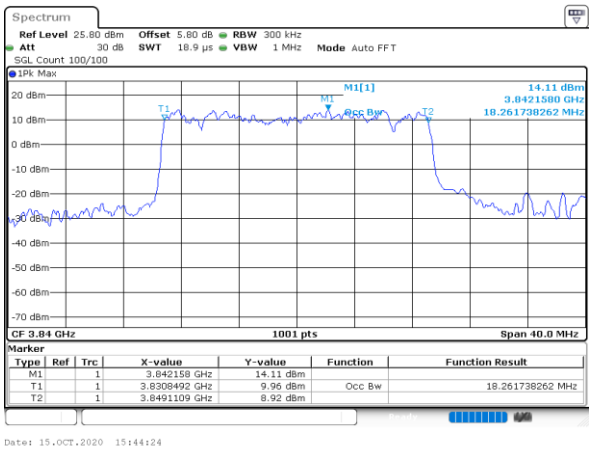
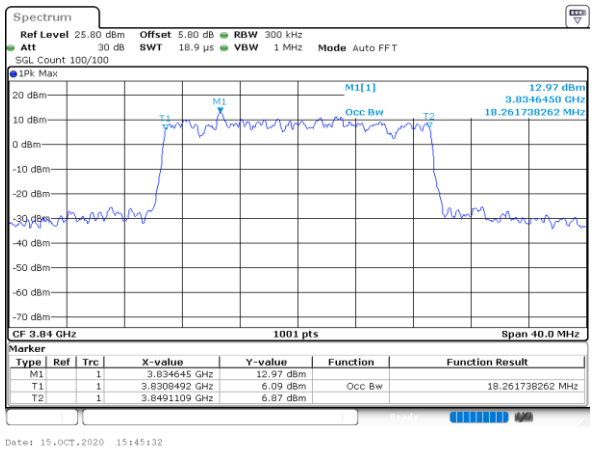


Occupied Bandwidth

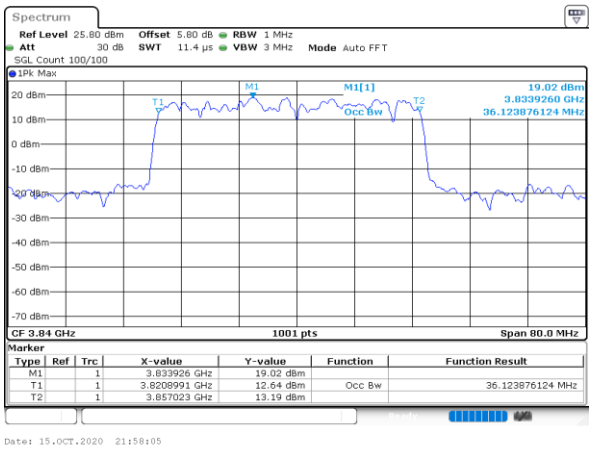
Mode	FR1 n77 : OB BW(MHz) / DFT-S OFDM							
BW	20MHz	40MHz	50MHz	60MHz	80MHz	90MHz	100MHz	
Mod.	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	PI/2 BPSK	
Middle CH	17.90	36.12	46.05	57.90	77.04	85.41	96.30	

Mode	FR1 n77 : OB BW(MHz) / CP OFDM							
BW	20MHz		40MHz		50MHz		60MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	18.26	18.26	38.12	38.28	47.55	47.65	57.78	57.78
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM
Middle CH	18.26	18.26	37.80	38.12	47.85	47.85	57.54	58.14
BW	80MHz		90MHz		100MHz			
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM		
Middle CH	77.36	76.72	87.39	87.75	97.10	97.70		
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM		
Middle CH	77.52	77.36	87.39	87.39	97.10	97.30		

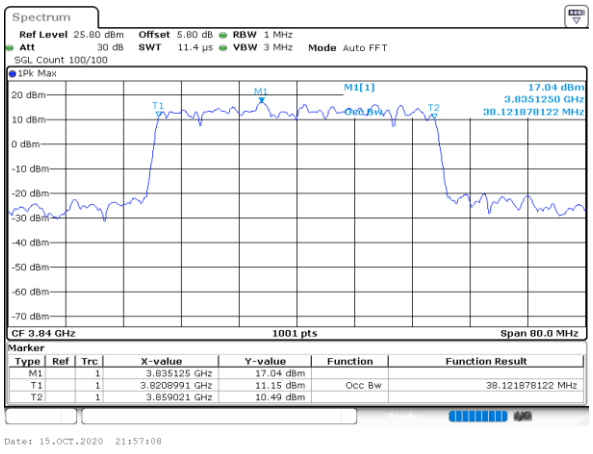
FR1 n77 / 20MHz / DFT-S OFDM / Middle Channel	
PI/2 BPSK	
	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n77 / 40MHz / DFT-S OFDM / Middle Channel

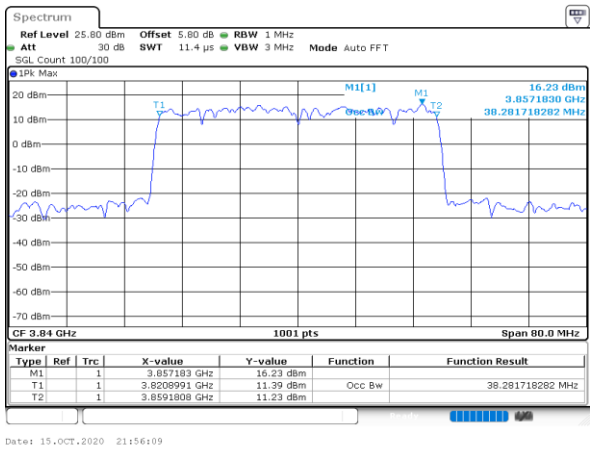
PI/2 BPSK



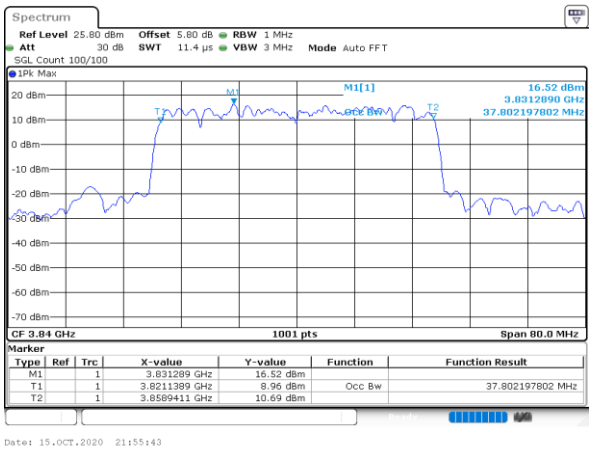
QPSK



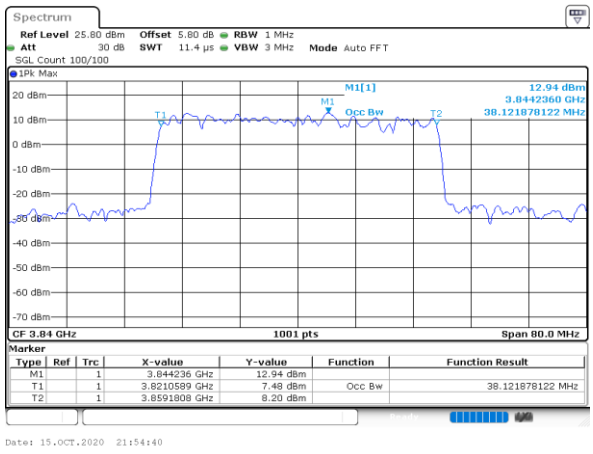
16QAM



64QAM

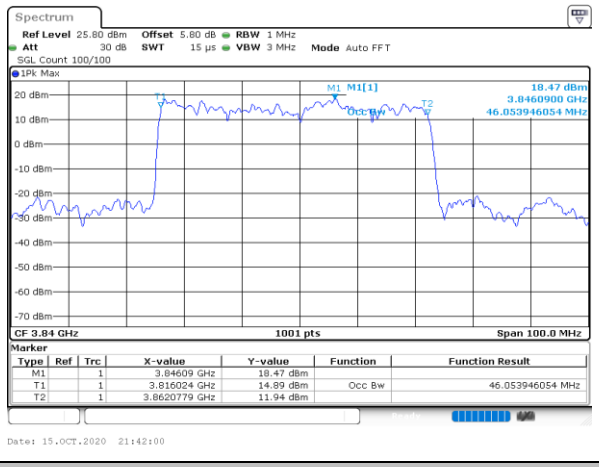


256QAM

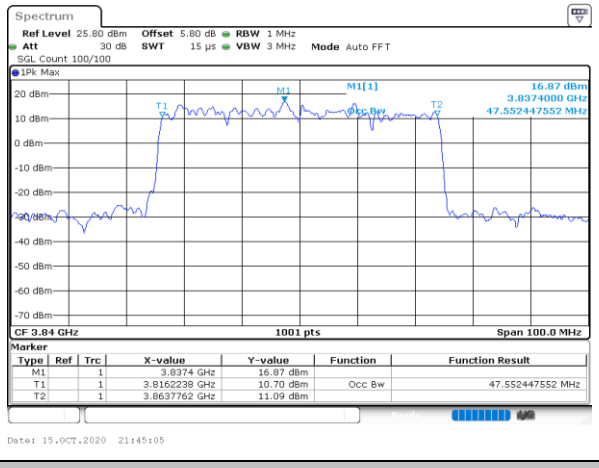


FR1 n77 / 50MHz / DFT-S OFDM / Middle Channel

PI/2 BPSK



QPSK



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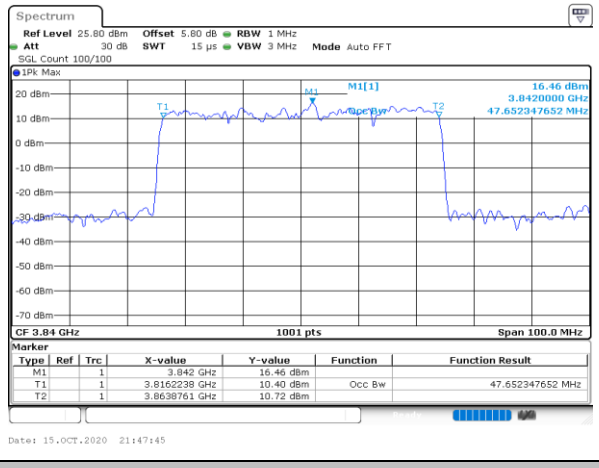
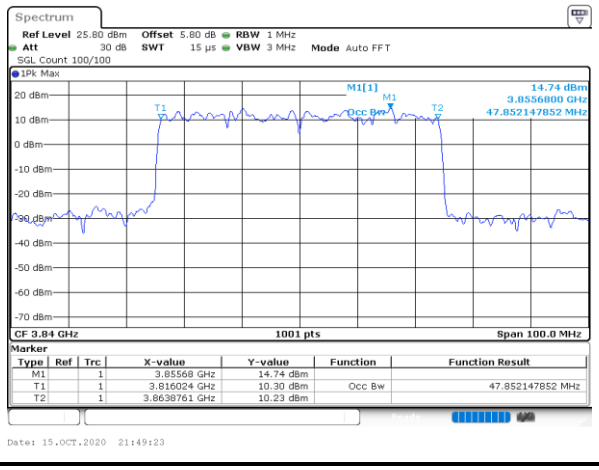
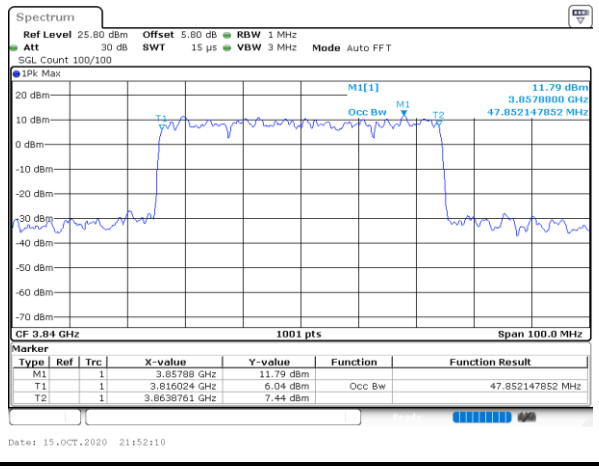
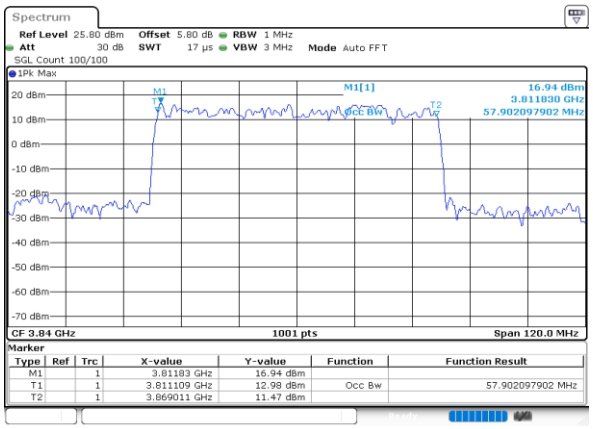
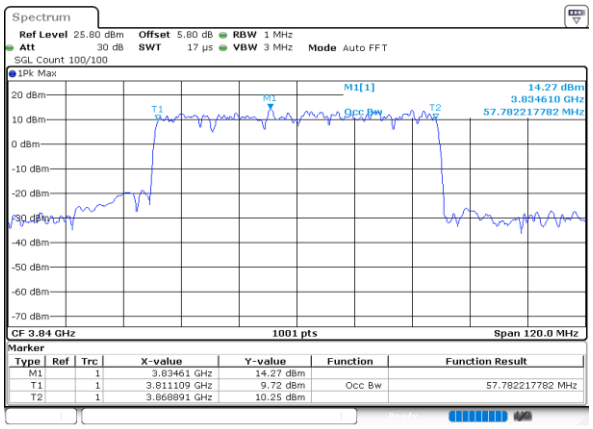
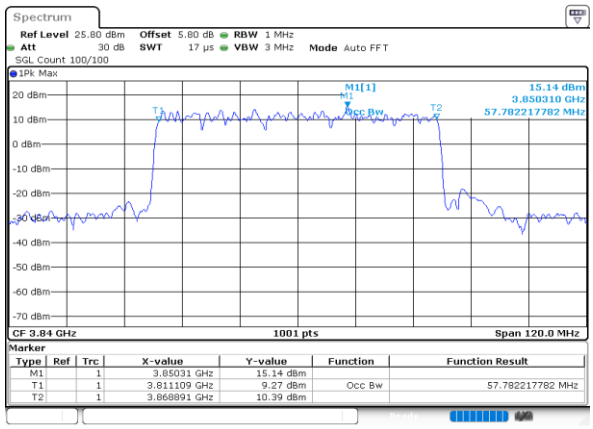
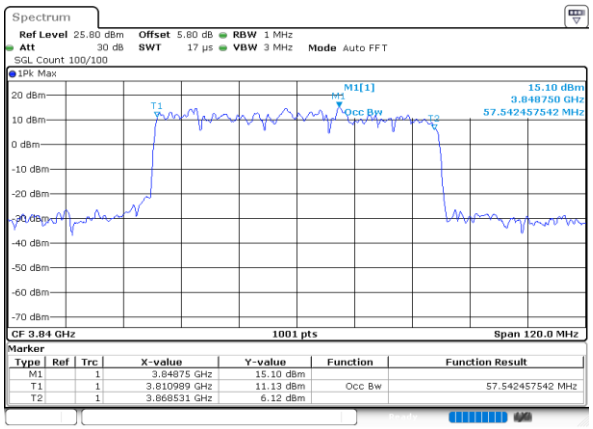
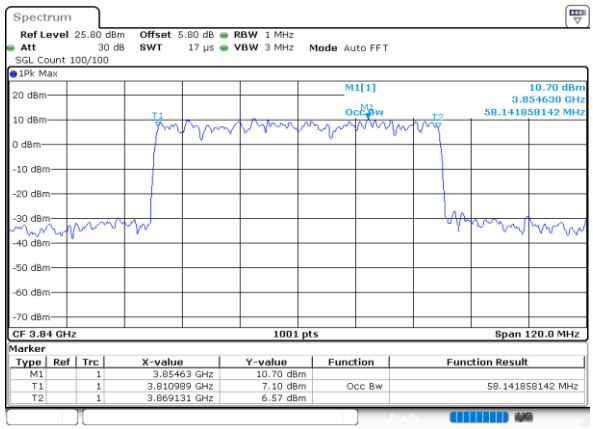


64QAM



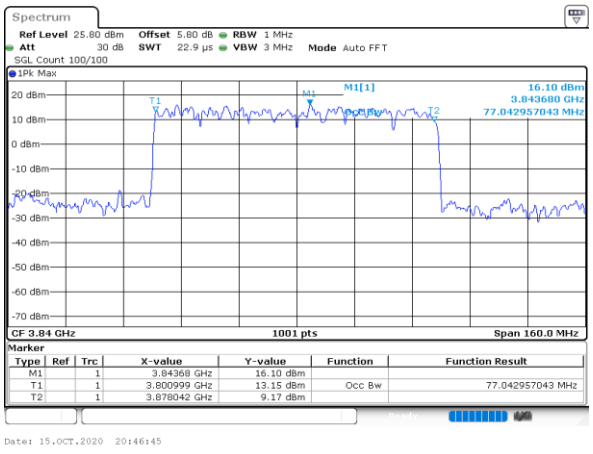
256QAM



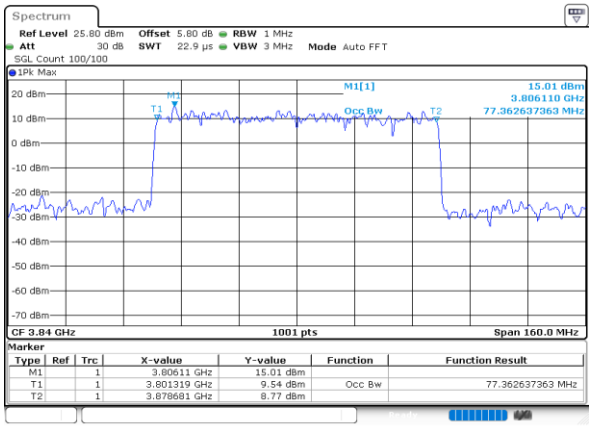
FR1 n77 / 60MHz / DFT-S OFDM / Middle Channel	
PI/2 BPSK	
	
QPSK	**16QAM**
	
64QAM	**256QAM**
	

FR1 n77 / 80MHz / DFT-S OFDM / Middle Channel

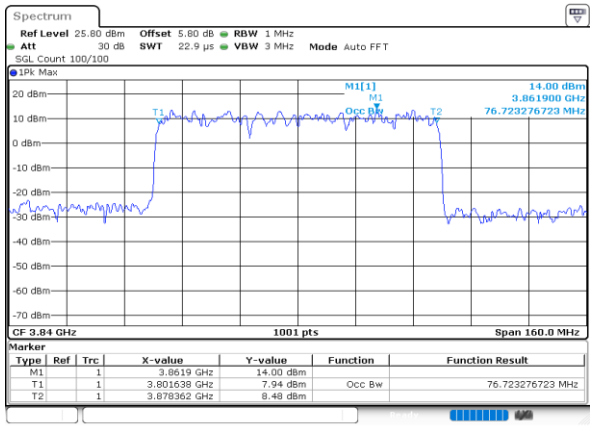
PI/2 BPSK



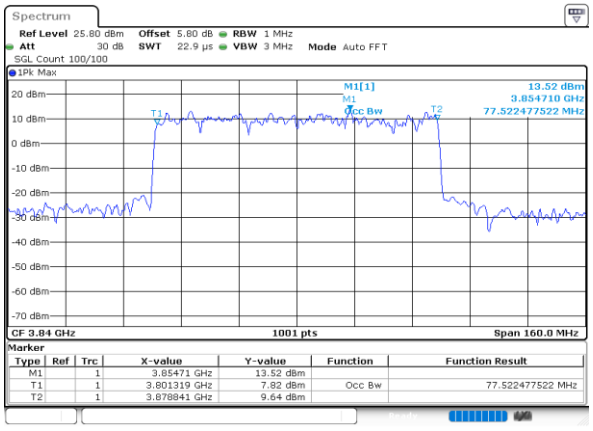
QPSK



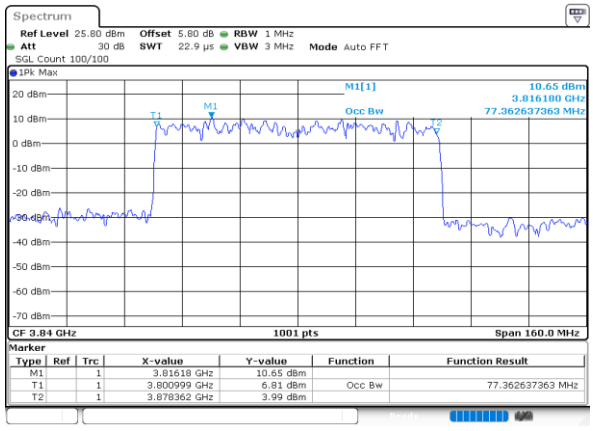
16QAM

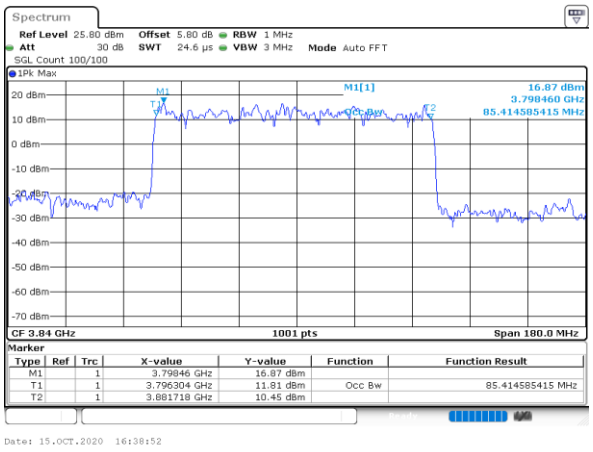
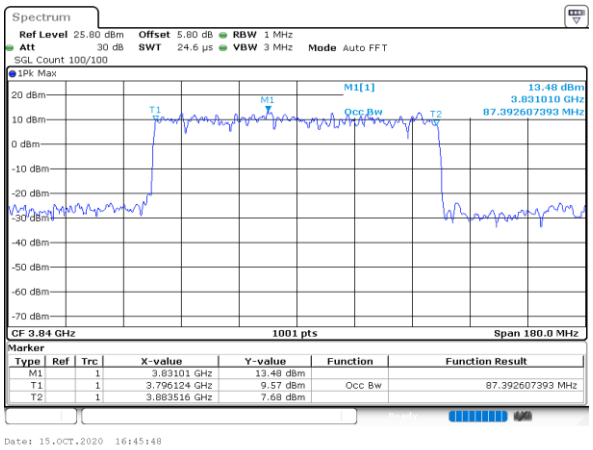
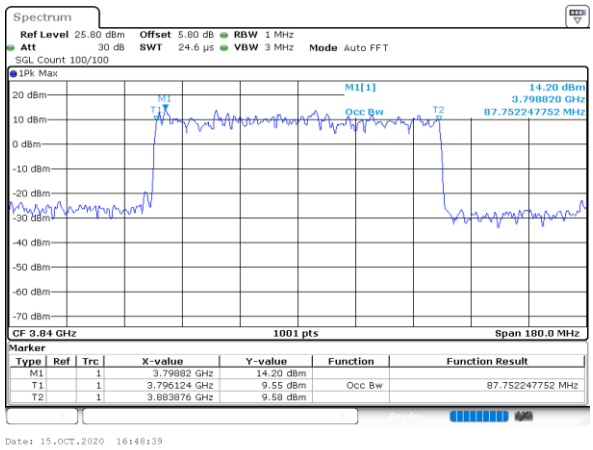
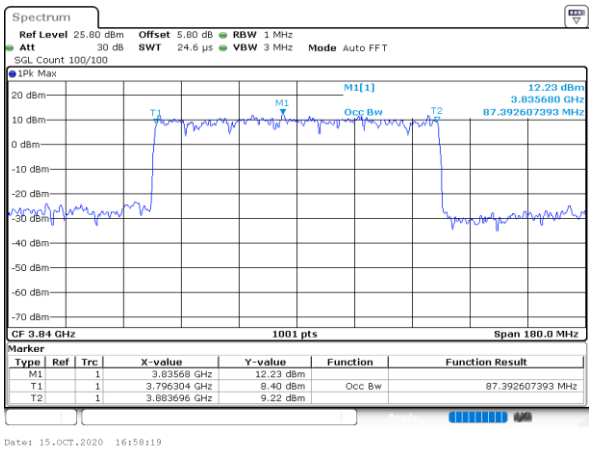
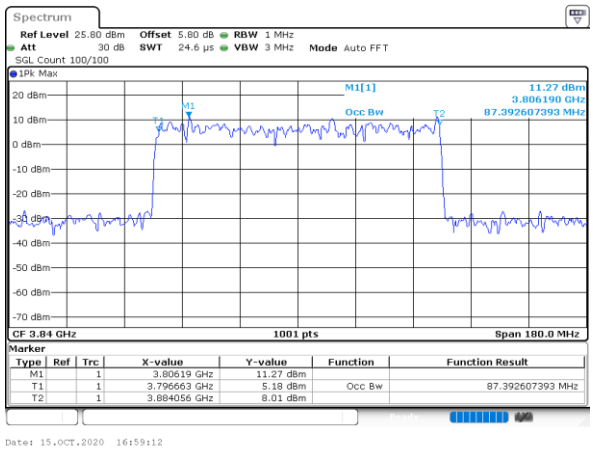


64QAM



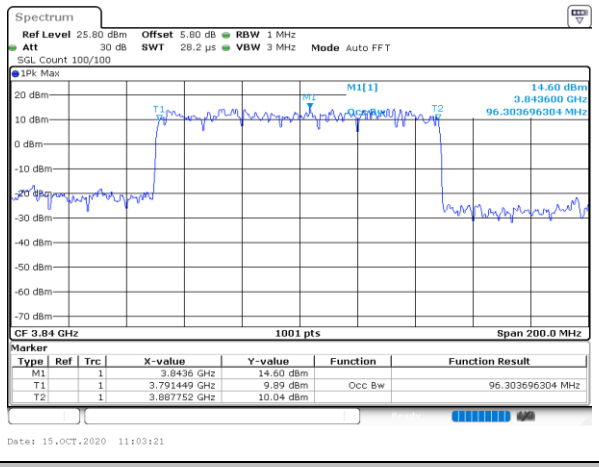
256QAM



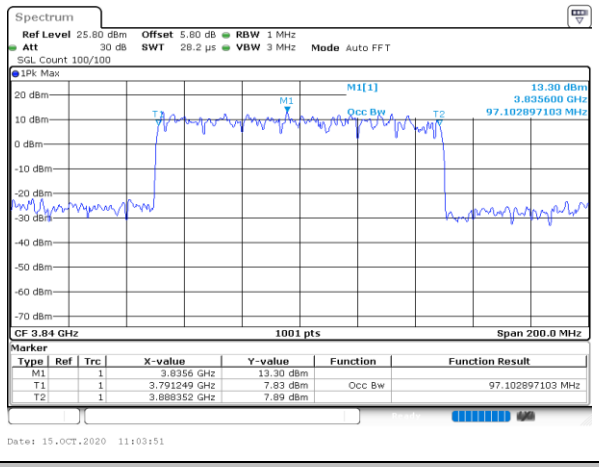
FR1 n77 / 90MHz / DFT-S OFDM / Middle Channel	
PI/2 BPSK	
	
QPSK	16QAM
	
64QAM	256QAM
	

FR1 n77 / 100MHz / DFT-S OFDM / Middle Channel

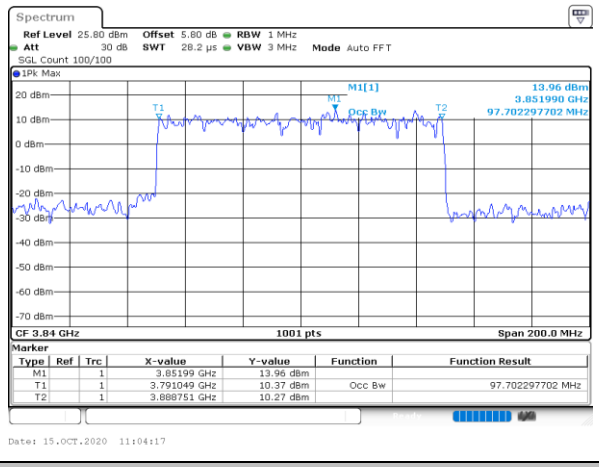
PI/2 BPSK



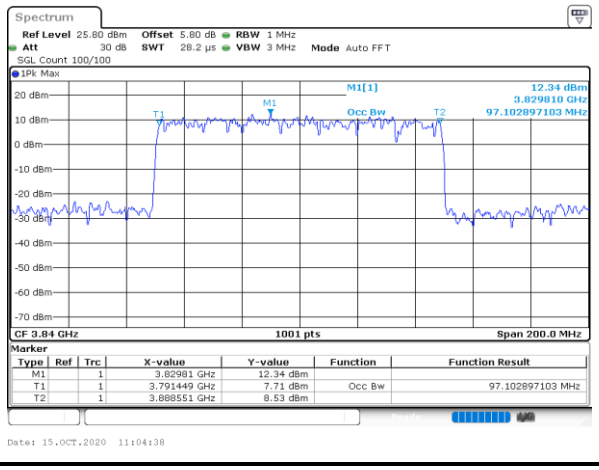
QPSK



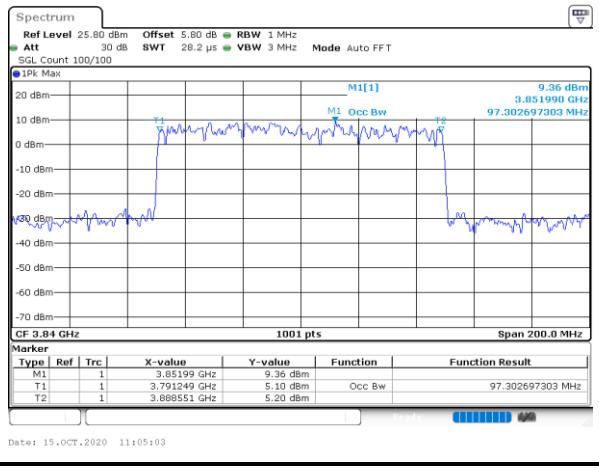
16QAM



64QAM



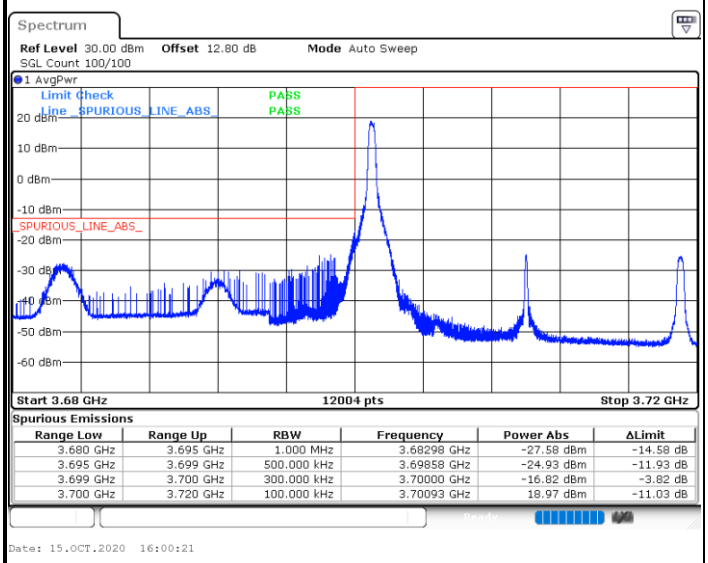
256QAM



Conducted Band Edge

FR1 n77 / 20MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0

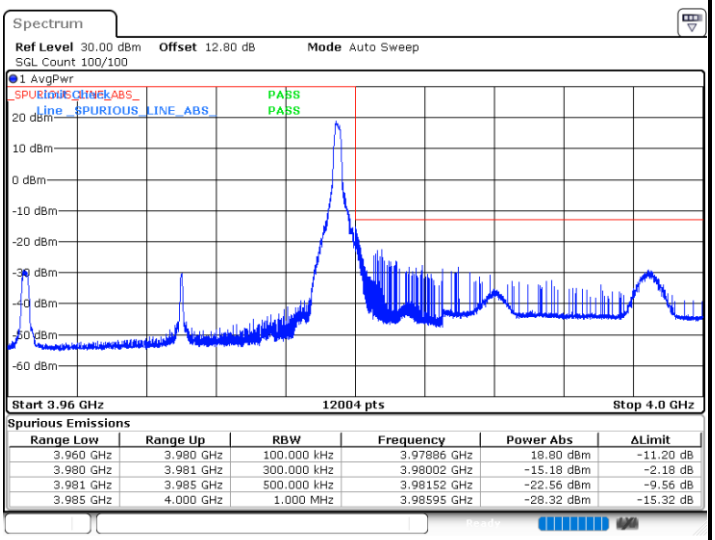


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.68298 GHz	-27.58 dBm	-14.58 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69858 GHz	-24.93 dBm	-11.93 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.70000 GHz	-16.82 dBm	-3.82 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.70093 GHz	18.97 dBm	-11.03 dB

Date: 15.OCT.2020 16:00:21

Highest Band Edge / 1RBmax

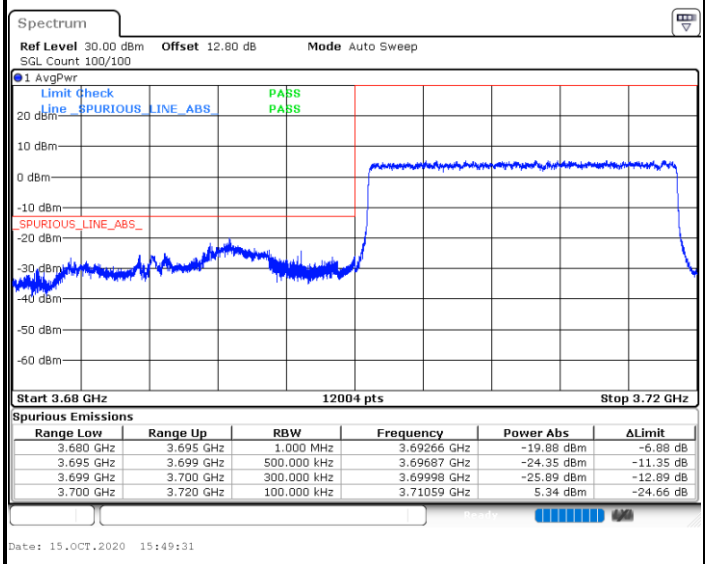


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97886 GHz	18.80 dBm	-11.20 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98002 GHz	-15.18 dBm	-2.18 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98152 GHz	-22.56 dBm	-9.56 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98595 GHz	-28.32 dBm	-15.32 dB

Date: 15.OCT.2020 16:33:30

Lowest Band Edge / Full RB

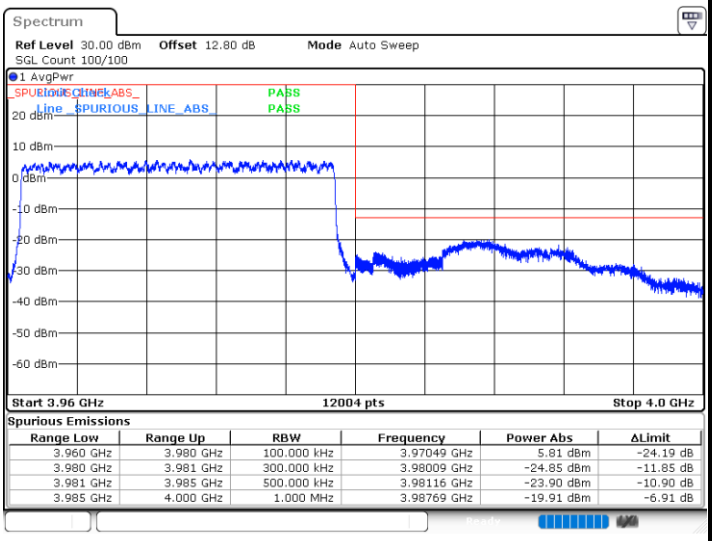


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.69266 GHz	-19.88 dBm	-6.88 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69687 GHz	-24.35 dBm	-11.35 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.69998 GHz	-25.89 dBm	-12.89 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.71059 GHz	5.34 dBm	-24.66 dB

Date: 15.OCT.2020 15:49:31

Highest Band Edge / Full RB



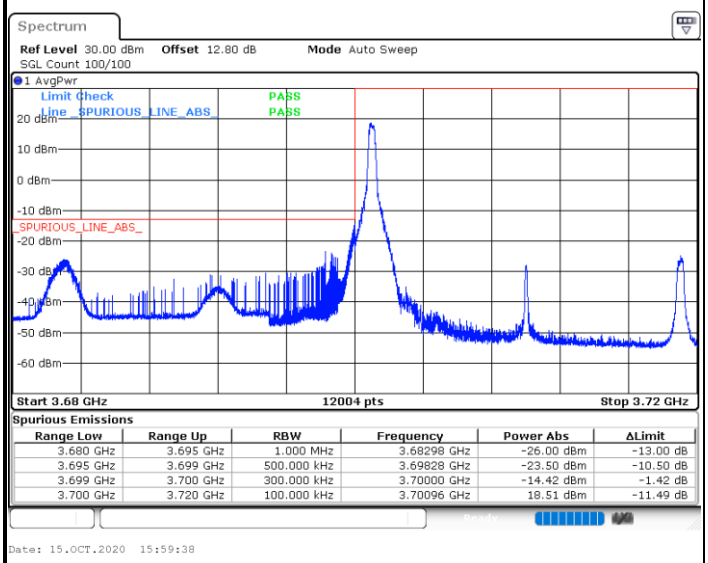
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97049 GHz	5.81 dBm	-24.19 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98009 GHz	-24.85 dBm	-11.85 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98116 GHz	-23.90 dBm	-10.90 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98769 GHz	-19.91 dBm	-6.91 dB

Date: 15.OCT.2020 16:18:47

FR1 n77 / 20MHz / DFT-S OFDM / QPSK

Lowest Band Edge / 1RB0

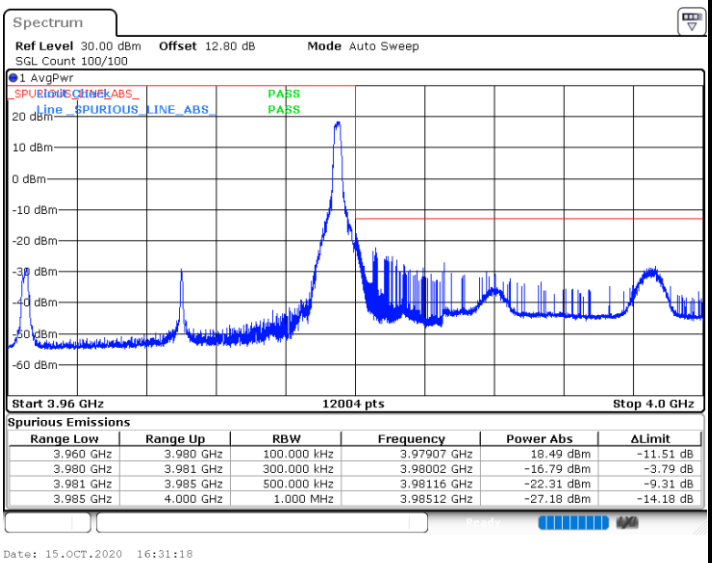


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.68298 GHz	-26.00 dBm	-13.00 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69828 GHz	-23.50 dBm	-10.50 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.70000 GHz	-14.42 dBm	-1.42 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.70096 GHz	18.51 dBm	-11.49 dB

Date: 15.OCT.2020 15:59:38

Highest Band Edge / 1RBmax

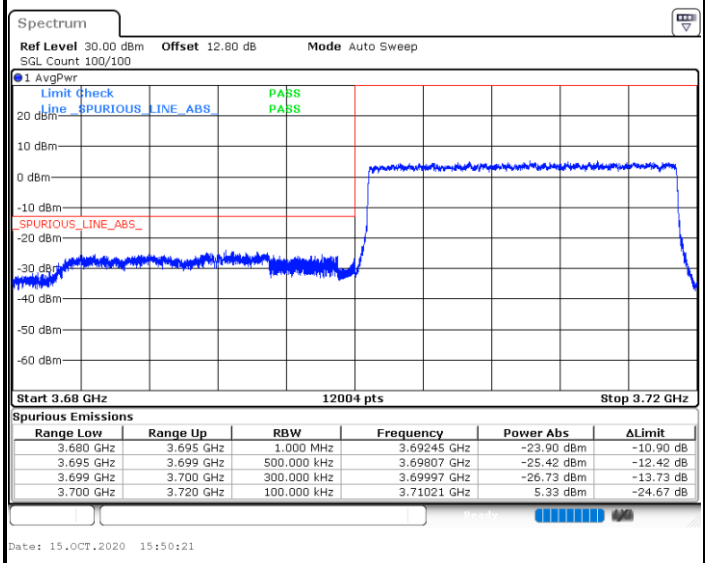


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97907 GHz	18.49 dBm	-11.51 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98002 GHz	-16.79 dBm	-3.79 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98116 GHz	-22.31 dBm	-9.31 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98512 GHz	-27.18 dBm	-14.18 dB

Date: 15.OCT.2020 16:31:18

Lowest Band Edge / Full RB

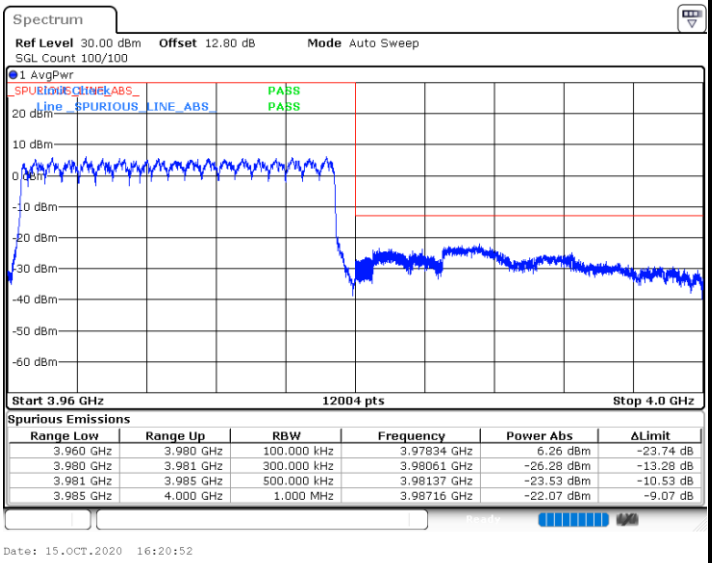


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.69245 GHz	-23.90 dBm	-10.90 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69807 GHz	-25.42 dBm	-12.42 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.69997 GHz	-26.73 dBm	-13.73 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.71021 GHz	5.33 dBm	-24.67 dB

Date: 15.OCT.2020 15:50:21

Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97834 GHz	6.26 dBm	-23.74 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98061 GHz	-26.28 dBm	-13.28 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98137 GHz	-23.53 dBm	-10.53 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98716 GHz	-22.07 dBm	-9.07 dB

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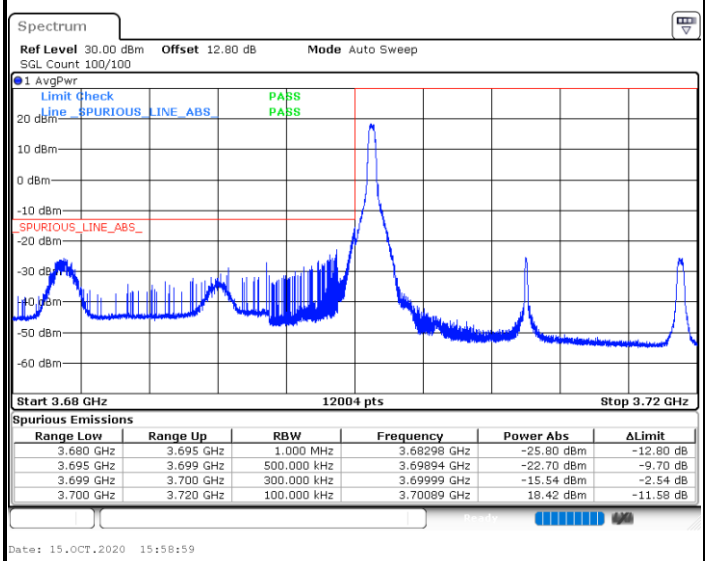
FR1 n77 / 20MHz / DFT-S OFDM / 16QAM

Lowest Band Edge / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.68298 GHz	-25.80 dBm	-12.80 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69894 GHz	-22.70 dBm	-9.70 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.69999 GHz	-15.54 dBm	-2.54 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.70089 GHz	18.42 dBm	-11.58 dB

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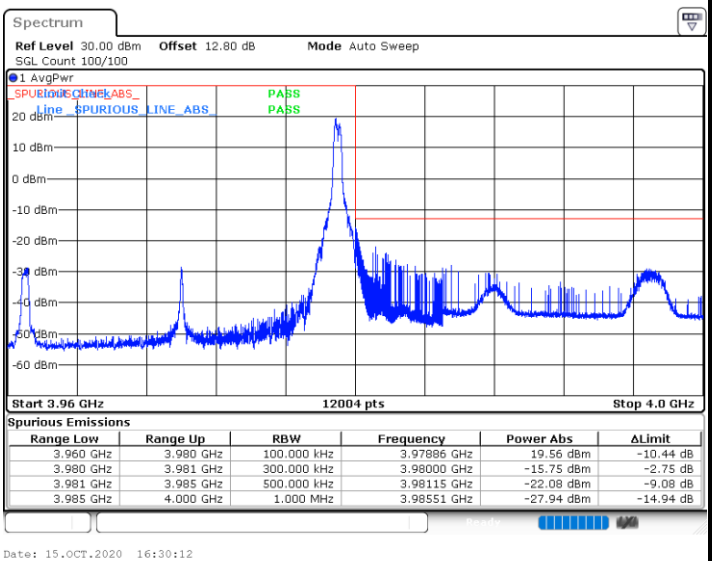
Highest Band Edge / 1RBmax



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97886 GHz	19.56 dBm	-10.44 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98000 GHz	-15.75 dBm	-2.75 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98115 GHz	-22.08 dBm	-9.08 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98551 GHz	-27.94 dBm	-14.94 dB

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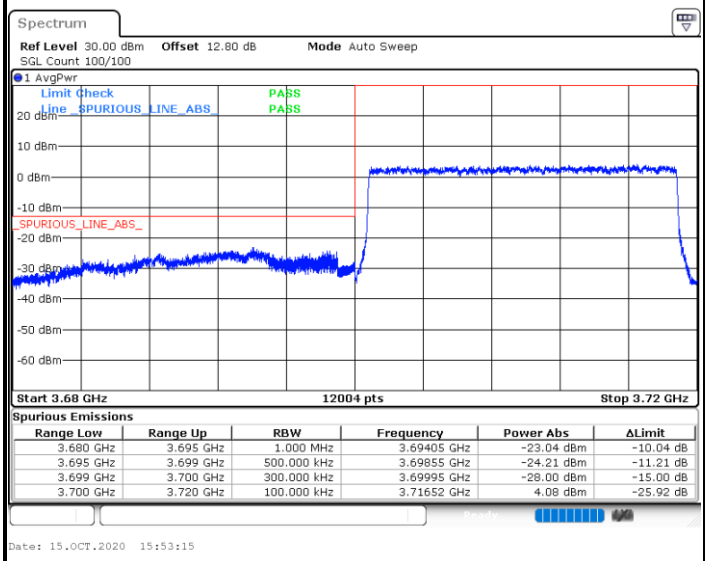
Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.69405 GHz	-23.04 dBm	-10.04 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69855 GHz	-24.21 dBm	-11.21 dB
3.699 GHz	3.700 GHz	300.000 kHz	3.69995 GHz	-28.00 dBm	-15.00 dB
3.700 GHz	3.720 GHz	100.000 kHz	3.71652 GHz	4.08 dBm	-25.92 dB

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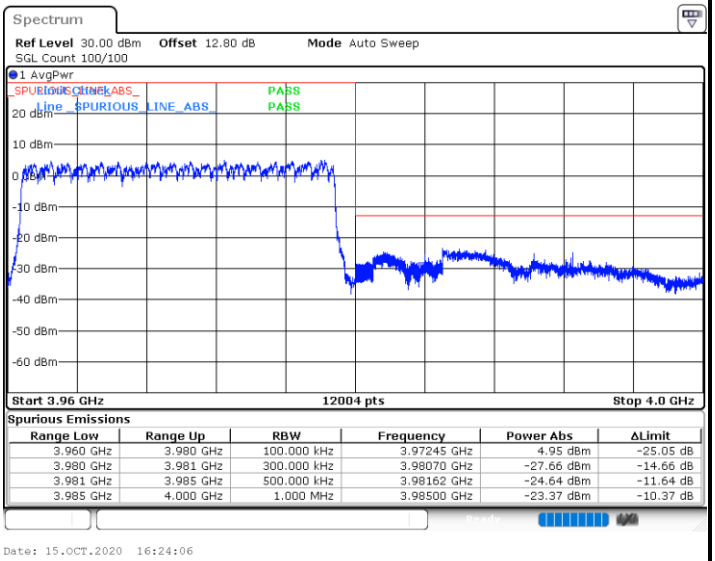
Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.960 GHz	3.980 GHz	100.000 kHz	3.97245 GHz	4.95 dBm	-25.05 dB
3.980 GHz	3.981 GHz	300.000 kHz	3.98070 GHz	-27.66 dBm	-14.66 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98162 GHz	-24.64 dBm	-11.64 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98500 GHz	-23.37 dBm	-10.37 dB

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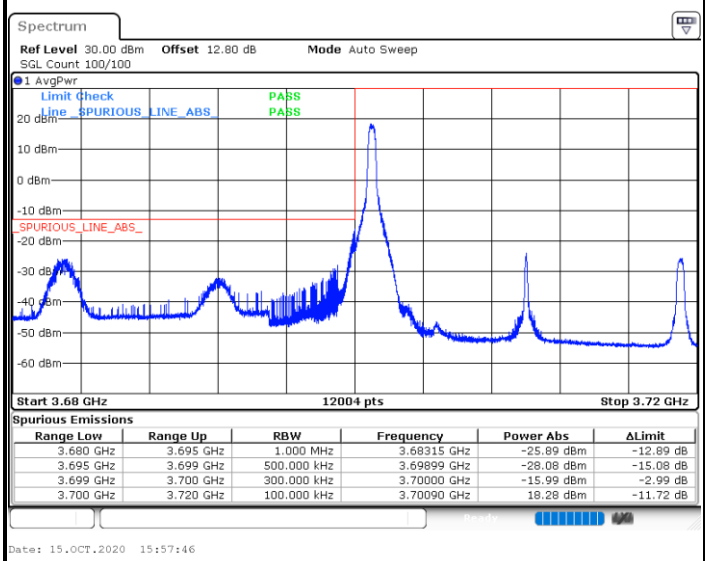
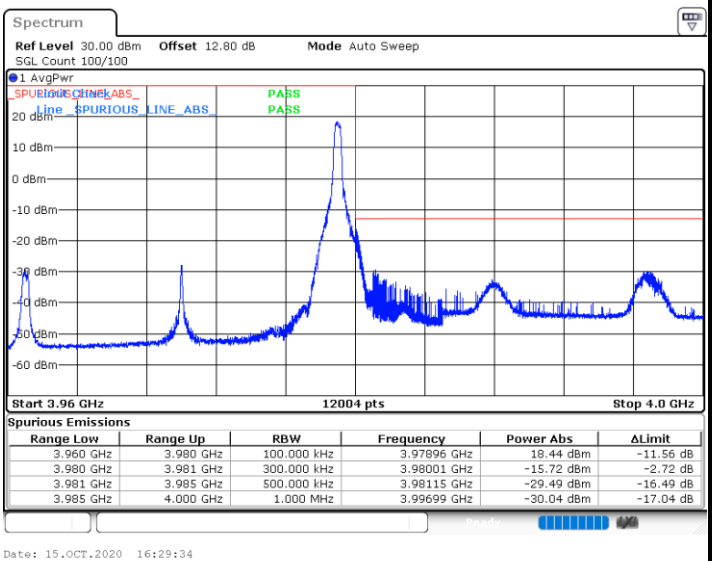
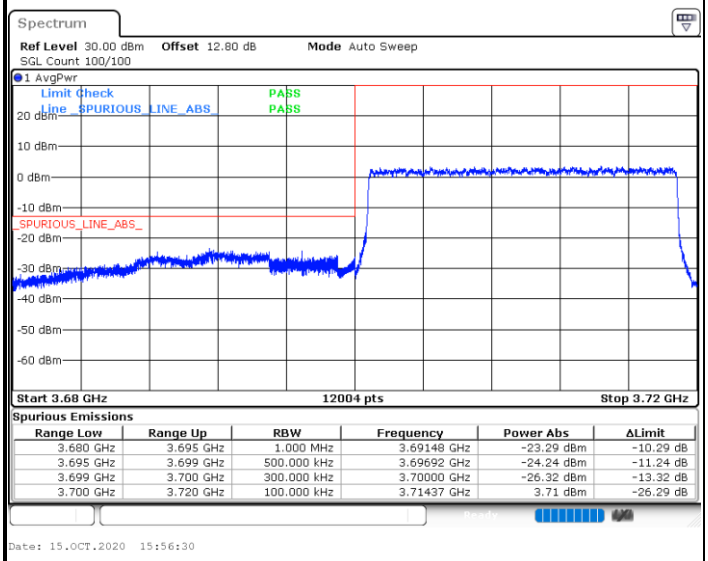
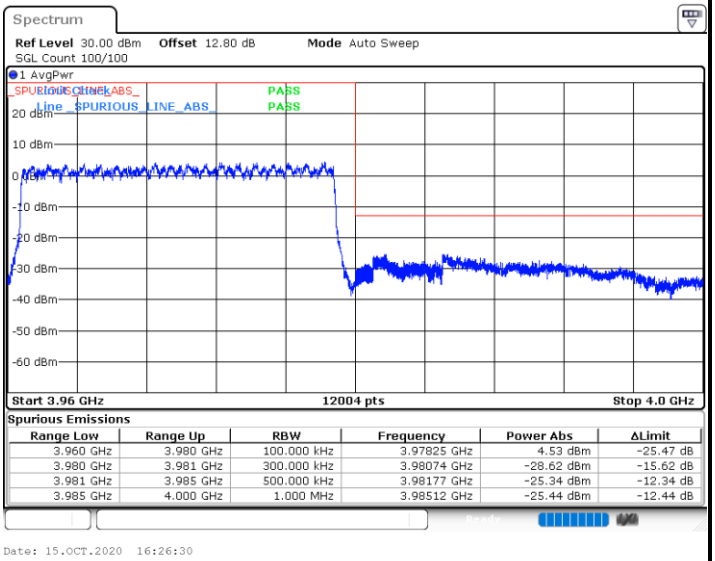
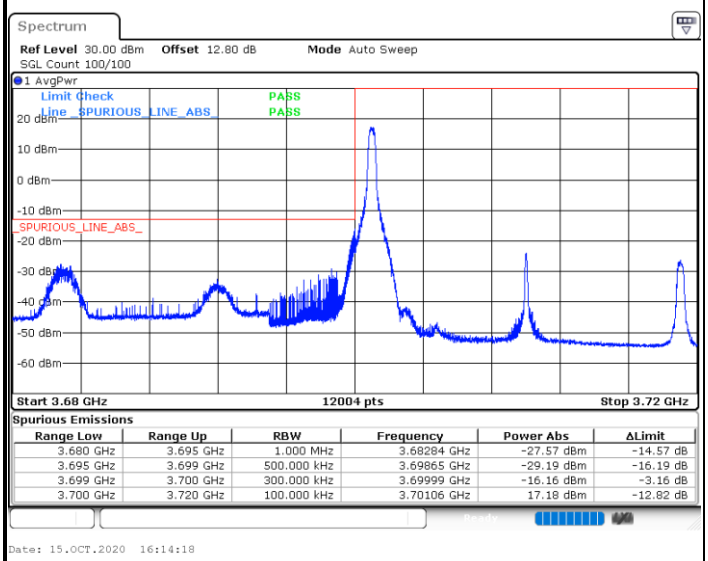
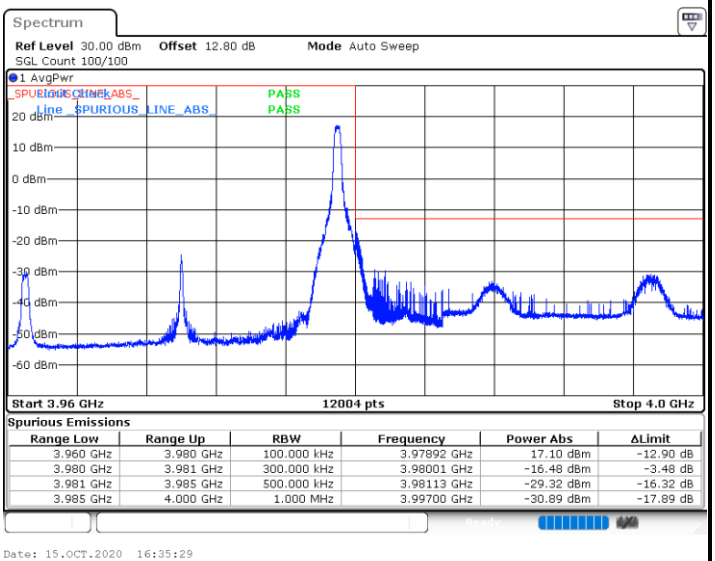
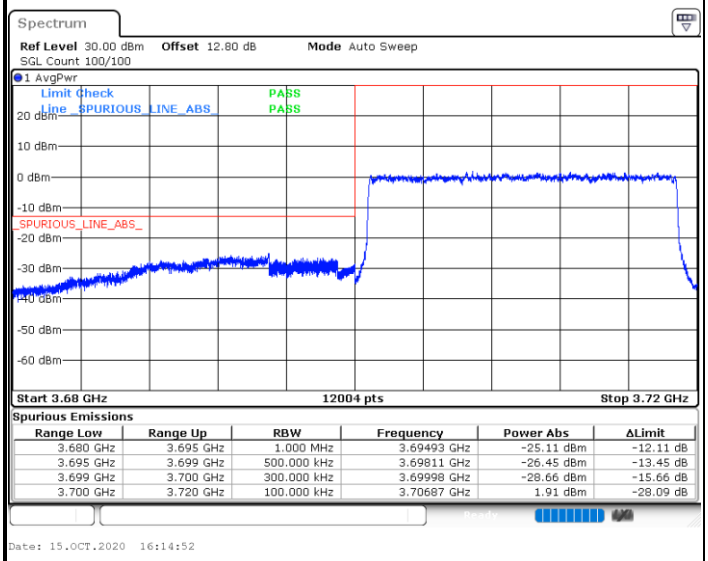
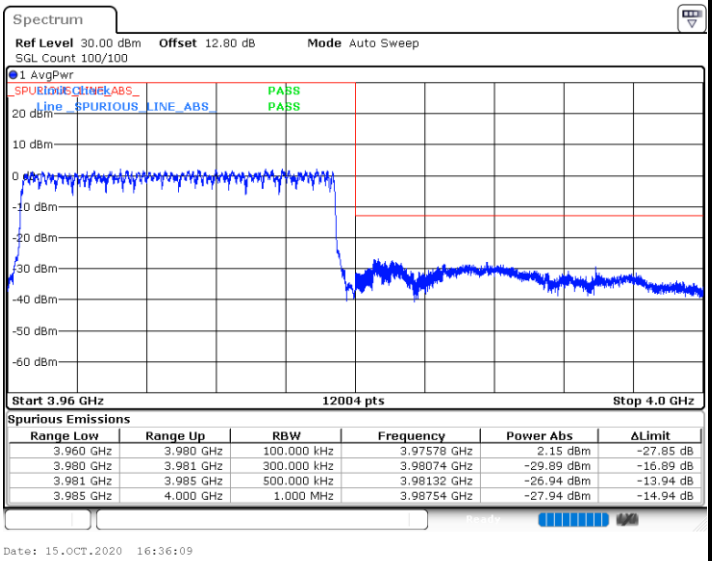
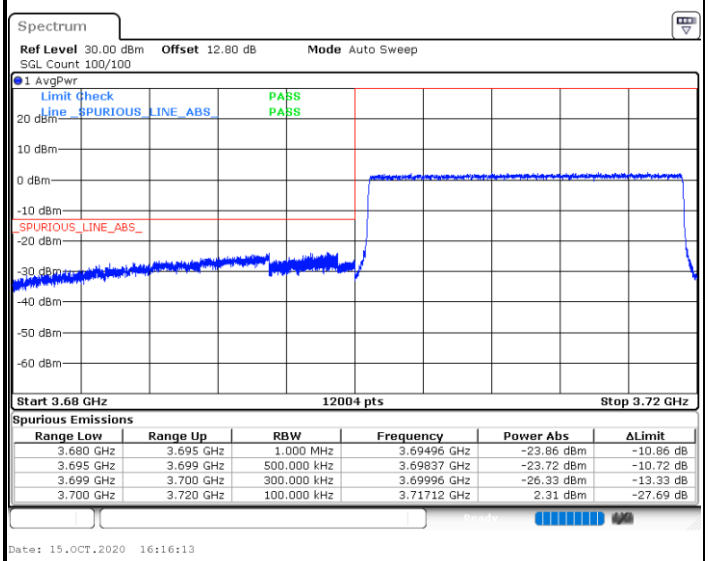
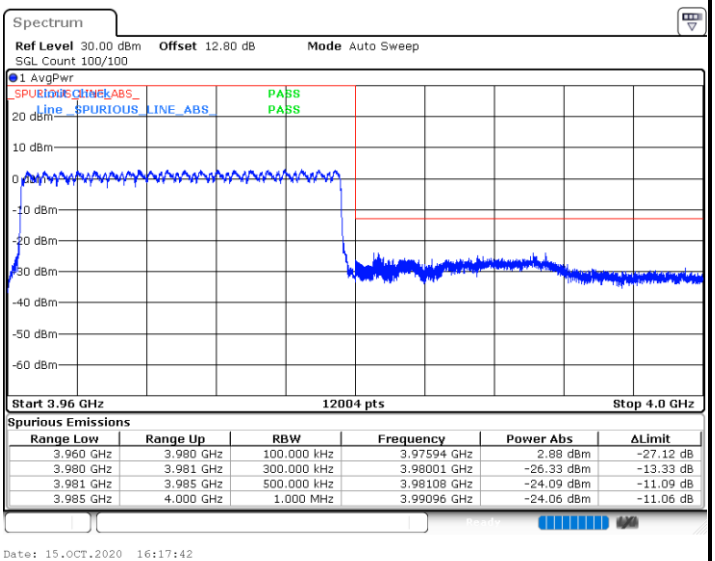
FR1 n77 / 20MHz / DFT-S OFDM / 64QAM	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

FR1 n77 / 20MHz / DFT-S OFDM / 256QAM	
Lowest Band Edge / 1RB0	**Highest Band Edge / 1RBmax**
	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**
	

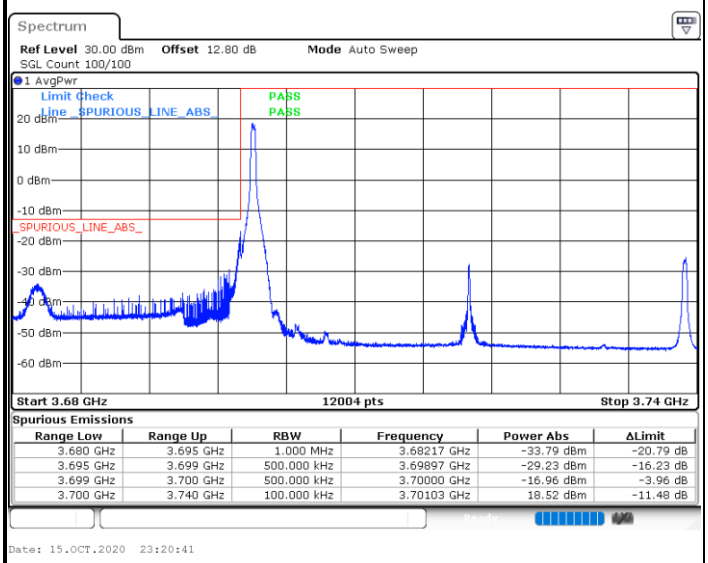
FR1 n77 / 20MHz / CP OFDM / QPSK	
Lowest Band Edge / Full RB	**Highest Band Edge / Full RB**





FR1 n77 / 40MHz / DFT-S OFDM / PI/2 BPSK

Lowest Band Edge / 1RB0



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.68217 GHz	-33.79 dBm	-20.79 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69897 GHz	-29.23 dBm	-16.23 dB
3.699 GHz	3.700 GHz	500.000 kHz	3.70000 GHz	-16.96 dBm	-3.96 dB
3.700 GHz	3.740 GHz	100.000 kHz	3.70103 GHz	18.52 dBm	-11.48 dB

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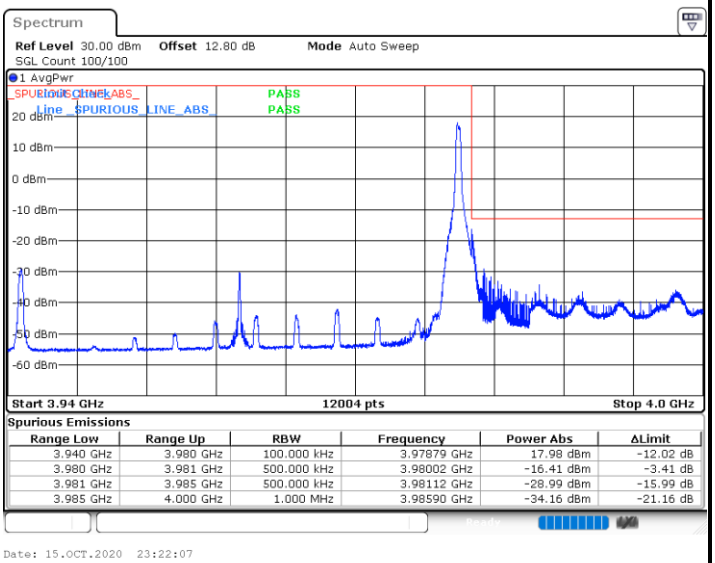
Highest Band Edge / 1RBmax



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.940 GHz	3.980 GHz	100.000 kHz	3.97879 GHz	17.98 dBm	-12.02 dB
3.980 GHz	3.981 GHz	500.000 kHz	3.98002 GHz	-16.41 dBm	-3.41 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98112 GHz	-28.99 dBm	-15.99 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.98590 GHz	-34.16 dBm	-21.16 dB

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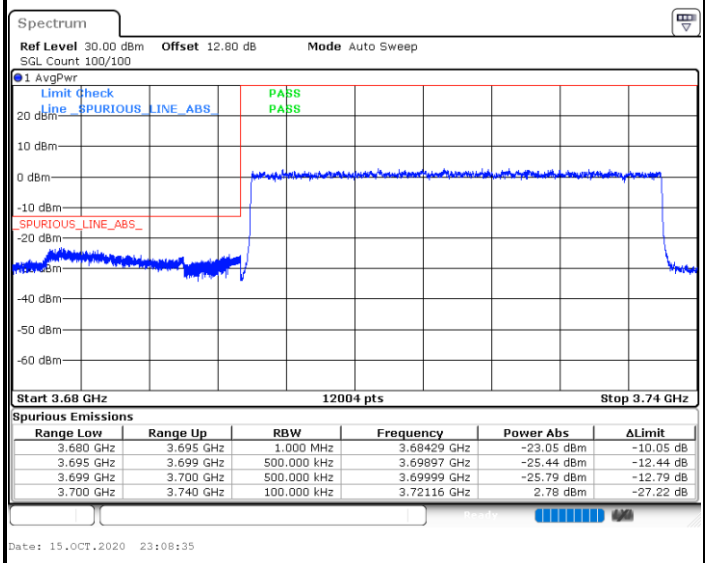
Lowest Band Edge / Full RB

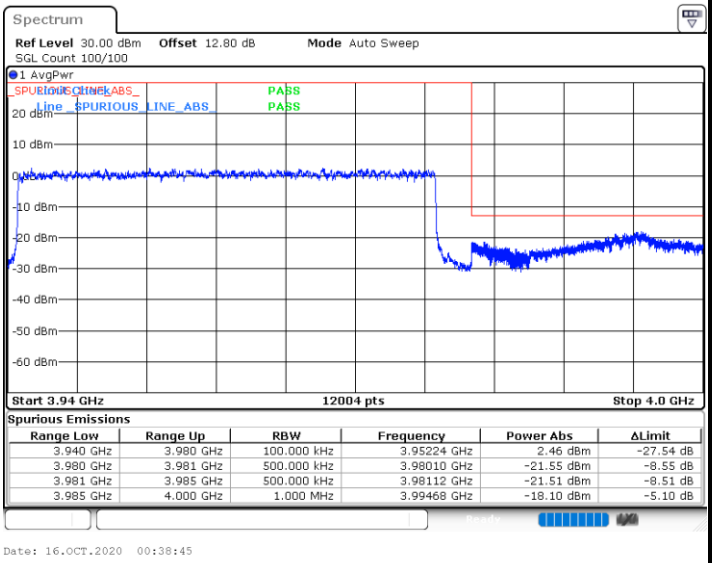


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.680 GHz	3.695 GHz	1.000 MHz	3.68429 GHz	-23.05 dBm	-10.05 dB
3.695 GHz	3.699 GHz	500.000 kHz	3.69897 GHz	-25.44 dBm	-12.44 dB
3.699 GHz	3.700 GHz	500.000 kHz	3.69999 GHz	-25.79 dBm	-12.79 dB
3.700 GHz	3.740 GHz	100.000 kHz	3.72116 GHz	2.78 dBm	-27.22 dB

Date: 15.OCT.2020 23:08:35

Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
3.940 GHz	3.980 GHz	100.000 kHz	3.95224 GHz	2.46 dBm	-27.54 dB
3.980 GHz	3.981 GHz	500.000 kHz	3.98010 GHz	-21.55 dBm	-8.55 dB
3.981 GHz	3.985 GHz	500.000 kHz	3.98112 GHz	-21.51 dBm	-8.51 dB
3.985 GHz	4.000 GHz	1.000 MHz	3.99468 GHz	-18.10 dBm	-5.10 dB

Date: 16.OCT.2020 00:38:45