FCC RF Test Report

APPLICANT	:	Nokia Shanghai Bell Co. Ltd.
EQUIPMENT	:	Nokia FastMile 5G Gateway 3.2
BRAND NAME	:	Nokia
MODEL NAME	:	5G16-12W-A
FCC ID	:	2ADZR5G1612WA
STANDARD	:	47 CFR Part 2, 27
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
TEST DATE(S)	:	Dec. 14, 2021 ~ Dec. 31, 2021

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

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

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG1O2908J	Rev. 01	Initial issue of report	Jan. 20, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(j)(2)	Equivalent Isotropic Radiated Power (5G NR n77, n78)	EIRP < 1640 Watt		
3.5	§27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(l)(2)	Conducted Band Edge Measurement (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §27.53(l)(2)	Conducted Spurious Emission (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(l)(2)	Radiated Spurious Emission (5G NR n77, n78)	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 34.91 dB at 7482.000 MHz

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Nokia Shanghai Bell Co. Ltd.
No. 388, Ningqiao Rd. Pilot Free Trade Zone, Shanghai 201206, China

1.2 Manufacturer

Nokia Solutions and Networks Oy
Karakaari 7 02610 Espoo Finland

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Nokia FastMile 5G Gateway 3.2
Brand Name	Nokia
Model Name	5G16-12W-A
FCC ID	2ADZR5G1612WA
HW Version	3TG01797A
SW Version	5GGW3-OMNI-1_D210400Bh3T0301E0156
EUT Stage	Identical Prototype

Remark:

1. Only 5G NR bands are tested in this report, all the other RF bands are tested in the other reports separately.
2. Pre-scanned harmonic for USIM and eSIM sample, we choose the worse mode of the USIM sample to test.
3. There are two types of EUT: sample 1 with 1st source antenna and sample 2 with 2nd source antenna. According to the difference, we chose sample 1 to perform full test and sample 2 to verify the worst cases of RSE.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
Rx Frequency	5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
SCS	15kHz, 30kHz
Bandwidth	n77, n78(15kHz): 10MHz / 15MHz / 20MHz / 40MHz / 50MHz n77, n78(30kHz): 10MHz / 15MHz / 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
Antenna Gain	5G NR n77: 6.0 dBi 5G NR n78: 6.0 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum EIRP is calculated from max output power and max antenna gain, only the maximum EIRP is shown in the report, 5G NR n77/78 for Antenna 5.
2. 5G NR Band supports SA and NSA mode for SCS 15kHz/30kHz. According to the maximum power between SA and NSA mode, SA covers NSA mode for 5G NR n77 covers n78.
3. The device supports HPUE mode for 5G NR n77/n78.
4. 5G NR n77/n78 support UL MIMO mode for Antenna 5+6.
5. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

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

1.6 Maximum EIRP Power and Emission Designator

5G NR n77 (15kHz)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3975.00	1.8664	9M27G7D	1.5101	9M32W7D
15	3707.505 ~ 3972.495	1.8239	14M1G7D	1.4622	14M1W7D
20	3710.01 ~ 3969.99	1.8281	18M9G7D	1.4825	18M9W7D
40	3720.00 ~ 3960.00	1.8113	38M6G7D	1.4355	38M7W7D
50	3725.01 ~ 3954.99	1.8707	48M2G7D	1.4622	48M2W7D

5G NR n77 (30kHz)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3975.00	1.7298	8M60G7D	1.5382	8M61W7D
15	3707.52 ~ 3972.48	1.6943	13M6G7D	1.4355	13M6W7D
20	3710.01 ~ 3969.99	1.7022	18M2G7D	1.4488	18M2W7D
40	3720.00 ~ 3960.00	1.7498	37M8G7D	1.3740	37M9W7D
50	3725.01 ~ 3954.99	1.7579	47M5G7D	1.3900	47M5W7D
60	3730.02 ~ 3949.98	1.7824	57M9G7D	1.4256	57M8W7D
80	3740.01 ~ 3939.99	1.7620	77M5G7D	1.4093	77M5W7D
90	3745.02 ~ 3934.98	1.7100	87M3G7D	1.3709	87M6W7D
100	3750.00 ~ 3930.00	1.6943	97M2G7D	1.3583	97M3W7D

5G NR n78(15kHz)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3795.00	1.8664	9M27G7D	1.5101	9M32W7D
15	3707.505 ~ 3792.495	1.8239	14M1G7D	1.4622	14M1W7D
20	3709.995 ~ 3790.005	1.8281	18M9G7D	1.4825	18M9W7D
40	3720.00 ~ 3780.00	1.8113	38M6G7D	1.4355	38M7W7D
50	3725.01 ~ 3774.99	1.8707	48M2G7D	1.4622	48M2W7D

5G NR n78(30kHz)		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3795.00	1.7298	8M60G7D	1.5382	8M61W7D
15	3707.52 ~ 3792.48	1.6943	13M6G7D	1.4355	13M6W7D
20	3710.01 ~ 3789.99	1.7022	18M2G7D	1.4488	18M2W7D
40	3720.00 ~ 3780.00	1.7498	37M8G7D	1.3740	37M9W7D
50	3725.01 ~ 3774.99	1.7579	47M5G7D	1.3900	47M5W7D
60	3730.02 ~ 3769.98	1.7824	57M9G7D	1.4256	57M8W7D
80	3740.01 ~ 3759.99	1.7620	77M5G7D	1.4093	77M5W7D
90	3745.02 ~ 3754.98	1.7100	87M3G7D	1.3709	87M6W7D
100	3750.00	1.6943	97M2G7D	1.3583	97M3W7D

5G NR n77 (15kHz) UL MIMO		QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3975.00	1.3293	9M29G7D	1.1874	9M30W7D
15	3707.505 ~ 3972.495	1.3078	14M1G7D	1.1773	14M1W7D
20	3710.01 ~ 3969.99	1.3006	18M9G7D	1.1575	18M9W7D
40	3720.00 ~ 3960.00	1.2901	38M6G7D	1.1615	38M5W7D
50	3725.01 ~ 3954.99	1.3154	48M2G7D	1.1763	48M2W7D

5G NR n77 (30kHz) UL MIMO		QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3975.00	1.3086	8M58G7D	1.1601	8M59W7D
15	3707.52 ~ 3972.48	1.2961	13M6G7D	1.1727	13M6W7D
20	3710.01 ~ 3969.99	1.2986	18M2G7D	1.1452	18M2W7D
40	3720.00 ~ 3960.00	1.2628	37M8G7D	1.1196	37M9W7D
50	3725.01 ~ 3954.99	1.2519	47M4G7D	1.1208	47M5W7D
60	3730.02 ~ 3949.98	1.2576	57M9G7D	1.1286	58M0W7D
80	3740.01 ~ 3939.99	1.2128	77M4G7D	1.1118	77M6W7D
90	3745.02 ~ 3934.98	1.2128	87M5G7D	1.0991	87M5W7D
100	3750.00 ~ 3930.00	1.1974	97M2G7D	1.0790	97M5W7D

5G NR n78 (15kHz) UL MIMO		QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3795.00	1.3293	9M29G7D	1.1874	9M30W7D
15	3707.505 ~ 3792.495	1.3078	14M1G7D	1.1773	14M1W7D
20	3709.995 ~ 3790.005	1.3006	18M9G7D	1.1575	18M9W7D
40	3720.00 ~ 3780.00	1.2901	38M6G7D	1.1615	38M5W7D
50	3725.01 ~ 3774.99	1.3154	48M2G7D	1.1763	48M2W7D

5G NR n78(30kHz) UL MIMO		QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10	3705.00 ~ 3795.00	1.3086	8M58G7D	1.1601	8M59W7D
15	3707.52 ~ 3792.48	1.2961	13M6G7D	1.1727	13M6W7D
20	3710.01 ~ 3789.99	1.2986	18M2G7D	1.1452	18M2W7D
40	3720.00 ~ 3780.00	1.2628	37M8G7D	1.1196	37M9W7D
50	3725.01 ~ 3774.99	1.2519	47M4G7D	1.1208	47M5W7D
60	3730.02 ~ 3769.98	1.2576	57M9G7D	1.1286	58M0W7D
80	3740.01 ~ 3759.99	1.2128	77M4G7D	1.1118	77M6W7D
90	3745.02 ~ 3754.98	1.2128	87M5G7D	1.0991	87M5W7D
100	3750.00	1.1974	97M2G7D	1.0790	97M5W7D

Note:

1. All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.
2. 5G NR Band n77 overlaps the entire frequency range of Band n78. Therefore, the conducted test results provided in this report covers Band n77 as well as Band n78
3. 5G NR n77/n78 UL MIMO mode support for CP-OFDM mode only.

1.7 Testing Location

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

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

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

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	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

Test data subcontracted: Conducted test case in section 3 of this report

1.8 Test Software

Item	Site	Manufacturer	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, 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.

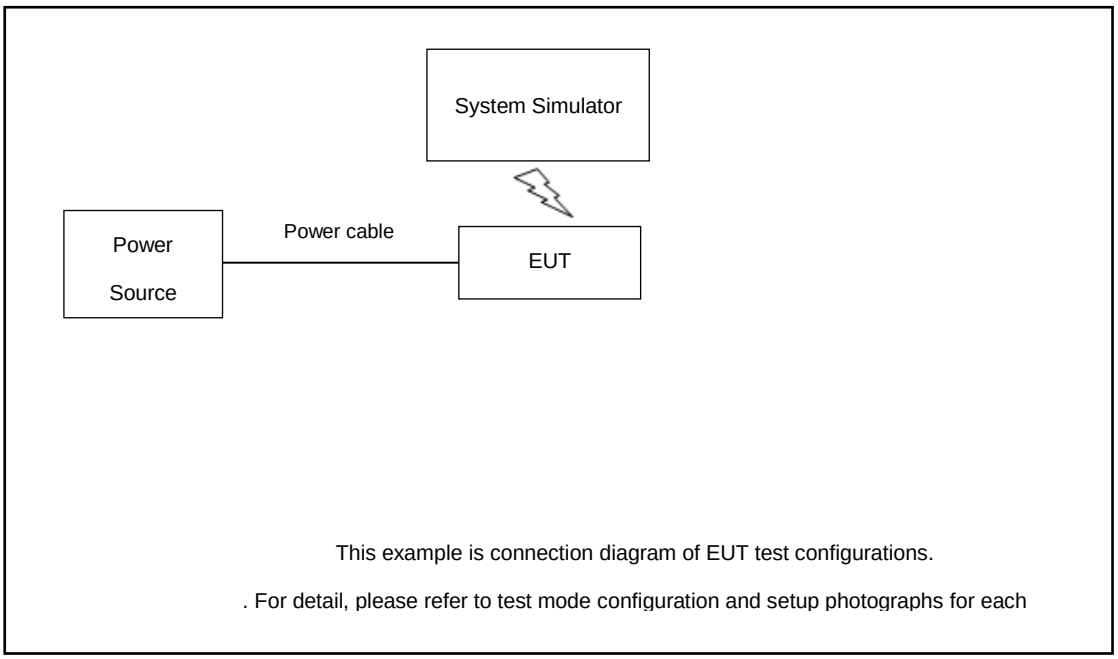
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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	30	40	50-90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n77	-	v	v	v		v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	-	v	v	v		v	v	v	v	v	v	v	v	v	v	v	v	v
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	
Conducted Band Edge	n77	-	v		v			v	v	v	v				v	v	v		v
Conducted Spurious Emission	n77	-	v		v			v	v	v	v				v		v	v	v
Frequency Stability	n77	-			v			-	-		v					v		v	
E.R.P / E.I.R.P	n77	-	v	v	v		v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n77	Worst Case																v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. Based on engineering evaluation, only the worst modulations test results are shown in the report.																		

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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 1.99 dB and 10dB attenuator.

Example :

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

= 1.99 + 10 = 11.99 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G n77 (15kHz) Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
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
15	Channel	647167	656000	664833
	Frequency	3707.505	3840	3972.495
10	Channel	647000	656000	665000
	Frequency	3705	3840	3975

5G n77 (30kHz) 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
15	Channel	647168	656000	664832
	Frequency	3707.52	3840	3972.48
10	Channel	647000	656000	665000
	Frequency	3705	3840	3975

5G n78(15kHz) Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
50	Channel	648334	650000	651666
	Frequency	3725.01	3750	3774.99
40	Channel	648000	650000	652000
	Frequency	3720.00	3750	3780.00
20	Channel	647333	650000	652667
	Frequency	3709.995	3750	3790.005
15	Channel	647167	650000	652833
	Frequency	3707.505	3750	3792.495
10	Channel	647000	650000	653000
	Frequency	3705	3750	3795

5G n78(30kHz) Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel		650000	
	Frequency		3750	
90	Channel	649668	650000	650332
	Frequency	3745.02	3750	3754.98
80	Channel	649334	650000	650666
	Frequency	3740.01	3750	3759.99
60	Channel	648668	650000	651332
	Frequency	3730.02	3750	3769.98
50	Channel	648334	650000	651666
	Frequency	3725.01	3750	3774.99
40	Channel	648000	650000	652000
	Frequency	3720	3750	3780
20	Channel	647334	650000	652666
	Frequency	3710.01	3750	3789.99
15	Channel	647168	650000	652832
	Frequency	3707.52	3750	3792.48
10	Channel	647000	650000	653000
	Frequency	3705	3750	3795

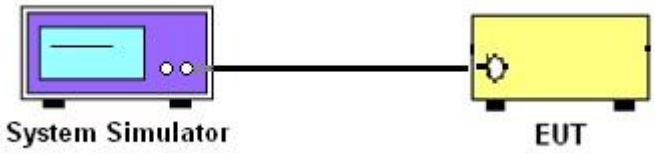
3 Conducted Test Items

3.1 Measuring Instruments

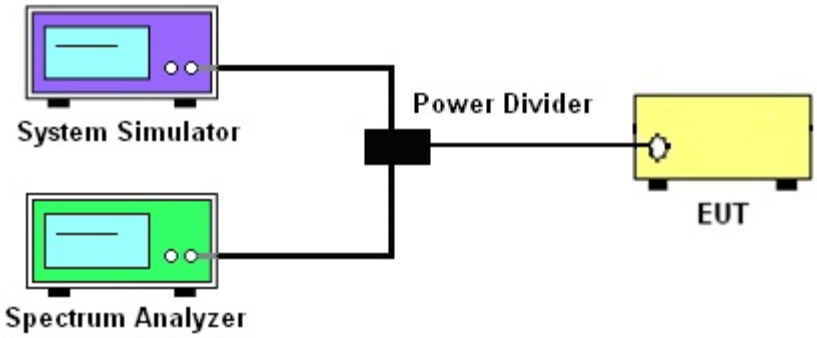
See list of measuring instruments of this test report.

3.2 Test Setup

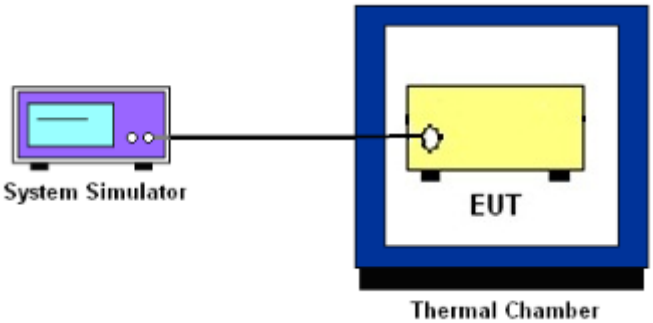
3.2.1 Conducted Output Power



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



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and EIRP Measurement

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

The EIRP of fixed transmitters must not exceed 1640 Watts for 5G NR n77, n78.

According to KDB 412172 D01 Power Approach,

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

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

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

3.4.2 Test Procedures

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

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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

3.5.2 Test Procedures

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

27.53(l)(2)

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

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.
   Example:
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
9. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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

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.

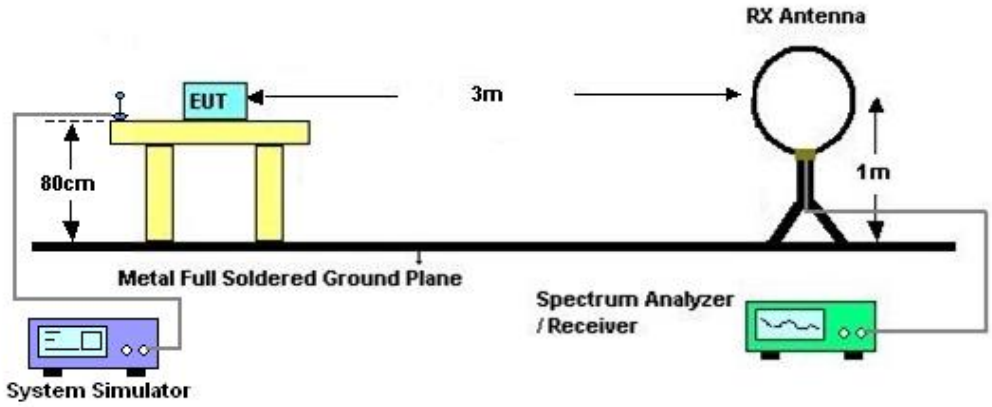
4 Radiated Test Items

4.1 Measuring Instruments

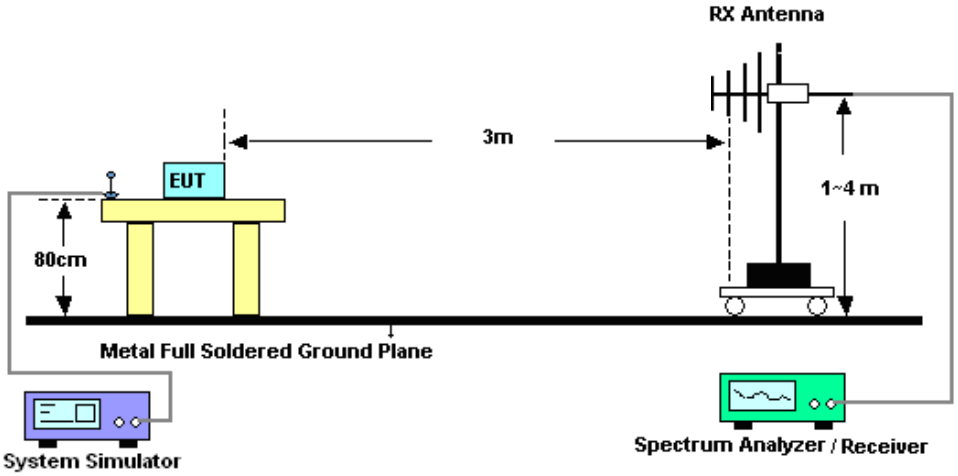
See list of measuring instruments of this test report.

4.2 Test Setup

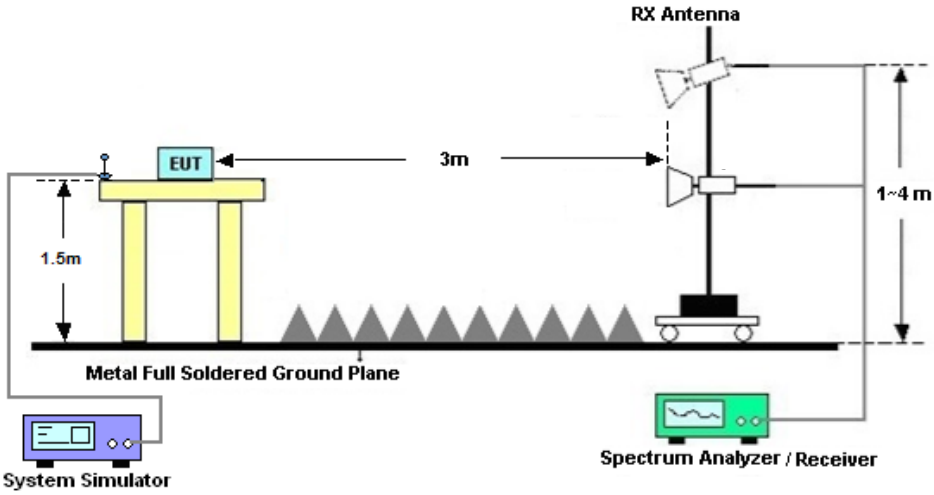
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

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

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

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
EXA Signal Analyzer	KEYSIGHT	N9010B	MY60240803	10Hz~44GHz	Apr. 03, 2021	Dec. 14, 2021~ Dec. 22, 2021	Apr. 02, 2022	Conducted (TH01-SZ)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Dec. 14, 2021~ Dec. 22, 2021	Aug. 25, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 14, 2021	Dec. 14, 2021~ Dec. 22, 2021	Jul. 13, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 13, 2021	Dec. 30, 2021~ Dec. 31, 2021	Apr. 12, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Dec. 30, 2021~ Dec. 31, 2021	Oct. 29, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 30, 2021	Dec. 30, 2021~ Dec. 31, 2021	May 29, 2022	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 18, 2021	Dec. 30, 2021~ Dec. 31, 2021	Apr. 17, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Jan. 06, 2021	Dec. 30, 2021~ Dec. 31, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 06, 2021	Dec. 30, 2021~ Dec. 31, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 07, 2021	Dec. 30, 2021~ Dec. 31, 2021	Jan. 06, 2022	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Jan. 06, 2021	Dec. 30, 2021~ Dec. 31, 2021	Jan. 05, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Dec. 30, 2021~ Dec. 31, 2021	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 30, 2021~ Dec. 31, 2021	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 30, 2021~ Dec. 31, 2021	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 30, 2021~ Dec. 31, 2021	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

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

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

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

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

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

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

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

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

Appendix A. Test Results of Conducted Test

Test Engineer :	Fly Liang	**Temperature :**	21~23℃
		Relative Humidity :	45~51%

Software Version: 21.02.121001

FR1 N77(ANT5) – SCS 15kHz

Transmitter Conducted Output Power And EIRP, (GT - LC)=6.0dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
77	15	10	647000	3705	DFT-s-OFDM PI/2 BPSK	25@12	26.48	32.48	1.7701
77	15	10	647000	3705	DFT-s-OFDM PI/2 BPSK	1@1	26.3	32.3	1.6982
77	15	10	647000	3705	DFT-s-OFDM PI/2 BPSK	1@50	26.4	32.4	1.7378
77	15	10	647000	3705	DFT-s-OFDM QPSK	25@12	26.46	32.46	1.7620
77	15	10	647000	3705	DFT-s-OFDM QPSK	1@1	26.32	32.32	1.7061
77	15	10	647000	3705	DFT-s-OFDM QPSK	1@50	26.4	32.4	1.7378
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	25@12	25.52	31.52	1.4191
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	1@1	25	31	1.2589
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	1@50	25.08	31.08	1.2823
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	25@12	23.97	29.97	0.9931
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	1@1	23.89	29.89	0.9750
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	1@50	24	30	1.0000
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	25@12	21.99	27.99	0.6295
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	1@1	22.09	28.09	0.6442
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	1@50	22.2	28.2	0.6607
77	15	10	647000	3705	CP-OFDM QPSK	26@13	24.96	30.96	1.2474
77	15	10	647000	3705	CP-OFDM QPSK	1@1	24.9	30.9	1.2303
77	15	10	647000	3705	CP-OFDM QPSK	1@50	25.01	31.01	1.2618
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	25@12	26.58	32.58	1.8113
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	26.36	32.36	1.7219
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	1@50	26.47	32.47	1.7660
77	15	10	656000	3840	DFT-s-OFDM QPSK	25@12	26.6	32.6	1.8197
77	15	10	656000	3840	DFT-s-OFDM QPSK	1@1	26.37	32.37	1.7258
77	15	10	656000	3840	DFT-s-OFDM QPSK	1@50	26.49	32.49	1.7742
77	15	10	656000	3840	DFT-s-OFDM 16 QAM	25@12	25.65	31.65	1.4622
77	15	10	656000	3840	DFT-s-OFDM 16 QAM	1@1	25.62	31.62	1.4521
77	15	10	656000	3840	DFT-s-OFDM 16 QAM	1@50	25.73	31.73	1.4894
77	15	10	656000	3840	DFT-s-OFDM 64 QAM	25@12	24.1	30.1	1.0233
77	15	10	656000	3840	DFT-s-OFDM	1@1	23.98	29.98	0.9954

					64 QAM				
77	15	10	656000	3840	DFT-s-OFDM 64 QAM	1@50	24.11	30.11	1.0257
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	25@12	21.96	27.96	0.6252
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.99	27.99	0.6295
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	1@50	22.13	28.13	0.6501
77	15	10	656000	3840	CP-OFDM QPSK	26@13	25.09	31.09	1.2853
77	15	10	656000	3840	CP-OFDM QPSK	1@1	25	31	1.2589
77	15	10	656000	3840	CP-OFDM QPSK	1@50	25.1	31.1	1.2882
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	25@12	26.71	32.71	1.8664
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	1@1	26.42	32.42	1.7458
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	1@50	26.59	32.59	1.8155
77	15	10	665000	3975	DFT-s-OFDM QPSK	25@12	26.71	32.71	1.8664
77	15	10	665000	3975	DFT-s-OFDM QPSK	1@1	26.39	32.39	1.7338
77	15	10	665000	3975	DFT-s-OFDM QPSK	1@50	26.56	32.56	1.8030
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	25@12	25.75	31.75	1.4962
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	1@1	25.64	31.64	1.4588
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	1@50	25.79	31.79	1.5101
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	25@12	24.21	30.21	1.0495
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	1@1	24.07	30.07	1.0162
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	1@50	24.24	30.24	1.0568
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	25@12	22.08	28.08	0.6427
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	1@1	22.11	28.11	0.6471
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	1@50	22.26	28.26	0.6699
77	15	10	665000	3975	CP-OFDM QPSK	26@13	25.24	31.24	1.3305
77	15	10	665000	3975	CP-OFDM QPSK	1@1	25.1	31.1	1.2882
77	15	10	665000	3975	CP-OFDM QPSK	1@50	25.27	31.27	1.3397
77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	36@18	26.46	32.46	1.7620
77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	1@1	26.23	32.23	1.6711
77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	1@77	26.31	32.31	1.7022
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	36@18	26.46	32.46	1.7620
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	1@1	26.24	32.24	1.6749
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	1@77	26.33	32.33	1.7100
77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	36@18	25.45	31.45	1.3964
77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	1@1	25.3	31.3	1.3490

77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	1@77	25.37	31.37	1.3709
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	36@18	23.97	29.97	0.9931
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	1@1	23.83	29.83	0.9616
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	1@77	23.91	29.91	0.9795
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	36@18	22.03	28.03	0.6353
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	1@1	22.03	28.03	0.6353
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	1@77	22.1	28.1	0.6457
77	15	15	647167	3707.505	CP-OFDM QPSK	39@19	24.92	30.92	1.2359
77	15	15	647167	3707.505	CP-OFDM QPSK	1@1	24.82	30.82	1.2078
77	15	15	647167	3707.505	CP-OFDM QPSK	1@77	24.9	30.9	1.2303
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	36@18	26.56	32.56	1.8030
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	26.35	32.35	1.7179
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	1@77	26.44	32.44	1.7539
77	15	15	656000	3840	DFT-s-OFDM QPSK	36@18	26.58	32.58	1.8113
77	15	15	656000	3840	DFT-s-OFDM QPSK	1@1	26.36	32.36	1.7219
77	15	15	656000	3840	DFT-s-OFDM QPSK	1@77	26.45	32.45	1.7579
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	36@18	25.59	31.59	1.4421
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	1@1	25.42	31.42	1.3868
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	1@77	25.54	31.54	1.4256
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	36@18	24.1	30.1	1.0233
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.94	29.94	0.9863
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	1@77	24.06	30.06	1.0139
77	15	15	656000	3840	DFT-s-OFDM 256 QAM	36@18	22.01	28.01	0.6324
77	15	15	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.97	27.97	0.6266
77	15	15	656000	3840	DFT-s-OFDM 256 QAM	1@77	22.09	28.09	0.6442
77	15	15	656000	3840	CP-OFDM QPSK	39@19	25.06	31.06	1.2764
77	15	15	656000	3840	CP-OFDM QPSK	1@1	24.92	30.92	1.2359
77	15	15	656000	3840	CP-OFDM QPSK	1@77	25.08	31.08	1.2823
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	36@18	26.58	32.58	1.8113
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	1@1	26.31	32.31	1.7022
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	1@77	26.5	32.5	1.7783
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	36@18	26.61	32.61	1.8239
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	1@1	26.3	32.3	1.6982
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	1@77	26.5	32.5	1.7783

77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	36@18	25.65	31.65	1.4622
77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	1@1	25.39	31.39	1.3772
77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	1@77	25.52	31.52	1.4191
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	36@18	24.13	30.13	1.0304
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	1@1	23.92	29.92	0.9817
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	1@77	24.13	30.13	1.0304
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	36@18	22.05	28.05	0.6383
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	1@1	22.01	28.01	0.6324
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	1@77	22.19	28.19	0.6592
77	15	15	664833	3972.495	CP-OFDM QPSK	39@19	25.07	31.07	1.2794
77	15	15	664833	3972.495	CP-OFDM QPSK	1@1	24.96	30.96	1.2474
77	15	15	664833	3972.495	CP-OFDM QPSK	1@77	25.2	31.2	1.3183
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	50@25	26.46	32.46	1.7620
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@1	26.28	32.28	1.6904
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@104	26.33	32.33	1.7100
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	50@25	26.5	32.5	1.7783
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@1	26.36	32.36	1.7219
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@104	26.43	32.43	1.7498
77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	50@25	25.53	31.53	1.4223
77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	1@1	25.47	31.47	1.4028
77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	1@104	25.53	31.53	1.4223
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	50@25	23.94	29.94	0.9863
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	1@1	23.8	29.8	0.9550
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	1@104	23.85	29.85	0.9661
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	50@25	22.12	28.12	0.6486
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	1@1	22.07	28.07	0.6412
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	1@104	22.11	28.11	0.6471
77	15	20	647334	3710.01	CP-OFDM QPSK	53@26	24.92	30.92	1.2359
77	15	20	647334	3710.01	CP-OFDM QPSK	1@1	24.87	30.87	1.2218
77	15	20	647334	3710.01	CP-OFDM QPSK	1@104	24.95	30.95	1.2445
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	50@25	26.58	32.58	1.8113
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	26.36	32.36	1.7219
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	1@104	26.45	32.45	1.7579
77	15	20	656000	3840	DFT-s-OFDM QPSK	50@25	26.62	32.62	1.8281

77	15	20	656000	3840	DFT-s-OFDM QPSK	1@1	26.37	32.37	1.7258
77	15	20	656000	3840	DFT-s-OFDM QPSK	1@104	26.44	32.44	1.7539
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	50@25	25.65	31.65	1.4622
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	1@1	25.6	31.6	1.4454
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	1@104	25.71	31.71	1.4825
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	50@25	24.07	30.07	1.0162
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.99	29.99	0.9977
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	1@104	24.08	30.08	1.0186
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	50@25	22.1	28.1	0.6457
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	1@1	22.11	28.11	0.6471
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	1@104	22.2	28.2	0.6607
77	15	20	656000	3840	CP-OFDM QPSK	53@26	25.08	31.08	1.2823
77	15	20	656000	3840	CP-OFDM QPSK	1@1	24.99	30.99	1.2560
77	15	20	656000	3840	CP-OFDM QPSK	1@104	25.14	31.14	1.3002
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	50@25	26.58	32.58	1.8113
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@1	26.35	32.35	1.7179
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@104	26.57	32.57	1.8072
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	50@25	26.61	32.61	1.8239
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@1	26.35	32.35	1.7179
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@104	26.56	32.56	1.8030
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	50@25	25.62	31.62	1.4521
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	1@1	25.4	31.4	1.3804
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	1@104	25.63	31.63	1.4555
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	50@25	24.06	30.06	1.0139
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	1@1	23.97	29.97	0.9931
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	1@104	24.19	30.19	1.0447
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	50@25	22.05	28.05	0.6383
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	1@1	21.99	27.99	0.6295
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	1@104	22.24	28.24	0.6668
77	15	20	664666	3969.99	CP-OFDM QPSK	53@26	25.06	31.06	1.2764
77	15	20	664666	3969.99	CP-OFDM QPSK	1@1	24.94	30.94	1.2417
77	15	20	664667	3969.99	CP-OFDM QPSK	1@104	25.22	31.22	1.3243
77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	108@54	26.39	32.39	1.7338
77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	1@1	25.78	31.78	1.5066

77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	1@214	25.75	31.75	1.4962
77	15	40	648000	3720	DFT-s-OFDM QPSK	108@54	26.4	32.4	1.7378
77	15	40	648000	3720	DFT-s-OFDM QPSK	1@1	25.79	31.79	1.5101
77	15	40	648000	3720	DFT-s-OFDM QPSK	1@214	25.76	31.76	1.4997
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	108@54	25.39	31.39	1.3772
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	1@1	25.03	31.03	1.2677
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	1@214	25.03	31.03	1.2677
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	108@54	23.9	29.9	0.9772
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	1@1	23.38	29.38	0.8670
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	1@214	23.38	29.38	0.8670
77	15	40	648000	3720	DFT-s-OFDM 256 QAM	108@54	22.02	28.02	0.6339
77	15	40	648000	3720	DFT-s-OFDM 256 QAM	1@1	21.63	27.63	0.5794
77	15	40	648000	3720	DFT-s-OFDM 256 QAM	1@214	21.61	27.61	0.5768
77	15	40	648000	3720	CP-OFDM QPSK	108@54	24.86	30.86	1.2190
77	15	40	648000	3720	CP-OFDM QPSK	1@1	24.37	30.37	1.0889
77	15	40	648000	3720	CP-OFDM QPSK	1@214	24.34	30.34	1.0814
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	108@54	26.5	32.5	1.7783
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.82	31.82	1.5205
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	1@214	25.99	31.99	1.5812
77	15	40	656000	3840	DFT-s-OFDM QPSK	108@54	26.57	32.57	1.8072
77	15	40	656000	3840	DFT-s-OFDM QPSK	1@1	25.85	31.85	1.5311
77	15	40	656000	3840	DFT-s-OFDM QPSK	1@214	25.99	31.99	1.5812
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	108@54	25.53	31.53	1.4223
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	1@1	25.09	31.09	1.2853
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	1@214	25.24	31.24	1.3305
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	108@54	23.99	29.99	0.9977
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.45	29.45	0.8810
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	1@214	23.62	29.62	0.9162
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	108@54	22	28	0.6310
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.55	27.55	0.5689
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	1@214	21.76	27.76	0.5970
77	15	40	656000	3840	CP-OFDM QPSK	108@54	25	31	1.2589
77	15	40	656000	3840	CP-OFDM QPSK	1@1	24.47	30.47	1.1143
77	15	40	656000	3840	CP-OFDM QPSK	1@214	24.6	30.6	1.1482

77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	108@54	26.53	32.53	1.7906
77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	1@1	26	32	1.5849
77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	1@214	26.05	32.05	1.6032
77	15	40	664000	3960	DFT-s-OFDM QPSK	108@54	26.58	32.58	1.8113
77	15	40	664000	3960	DFT-s-OFDM QPSK	1@1	25.98	31.98	1.5776
77	15	40	664000	3960	DFT-s-OFDM QPSK	1@214	26	32	1.5849
77	15	40	664000	3960	DFT-s-OFDM 16 QAM	108@54	25.57	31.57	1.4355
77	15	40	664000	3960	DFT-s-OFDM 16 QAM	1@1	25.21	31.21	1.3213
77	15	40	664000	3960	DFT-s-OFDM 16 QAM	1@214	25.22	31.22	1.3243
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	108@54	24.04	30.04	1.0093
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	1@1	23.62	29.62	0.9162
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	1@214	23.65	29.65	0.9226
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	108@54	22.05	28.05	0.6383
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	1@1	21.63	27.63	0.5794
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	1@214	21.68	27.68	0.5861
77	15	40	664000	3960	CP-OFDM QPSK	108@54	25.02	31.02	1.2647
77	15	40	664000	3960	CP-OFDM QPSK	1@1	24.71	30.71	1.1776
77	15	40	664000	3960	CP-OFDM QPSK	1@214	24.68	30.68	1.1695
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	135@67	26.44	32.44	1.7539
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	1@1	26.23	32.23	1.6711
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	1@268	26.2	32.2	1.6596
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	135@67	26.46	32.46	1.7620
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@1	26.22	32.22	1.6672
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@268	26.17	32.17	1.6482
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	135@67	25.49	31.49	1.4093
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	1@1	25.48	31.48	1.4060
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	1@268	25.45	31.45	1.3964
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	135@67	23.95	29.95	0.9886
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	1@1	23.81	29.81	0.9572
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	1@268	23.79	29.79	0.9528
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	135@67	22.04	28.04	0.6368
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	1@1	22.03	28.03	0.6353
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	1@268	22.01	28.01	0.6324
77	15	50	648334	3725.01	CP-OFDM QPSK	135@67	24.93	30.93	1.2388

77	15	50	648334	3725.01	CP-OFDM QPSK	1@1	24.85	30.85	1.2162
77	15	50	648334	3725.01	CP-OFDM QPSK	1@268	24.87	30.87	1.2218
77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	135@67	26.55	32.55	1.7989
77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	26.25	32.25	1.6788
77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	1@268	26.4	32.4	1.7378
77	15	50	656000	3840	DFT-s-OFDM QPSK	135@67	26.58	32.58	1.8113
77	15	50	656000	3840	DFT-s-OFDM QPSK	1@1	26.23	32.23	1.6711
77	15	50	656000	3840	DFT-s-OFDM QPSK	1@268	26.34	32.34	1.7140
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	135@67	25.59	31.59	1.4421
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	1@1	25.49	31.49	1.4093
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	1@268	25.65	31.65	1.4622
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	135@67	24.04	30.04	1.0093
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.82	29.82	0.9594
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	1@268	23.98	29.98	0.9954
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	135@67	22.05	28.05	0.6383
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.95	27.95	0.6237
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	1@268	22.12	28.12	0.6486
77	15	50	656000	3840	CP-OFDM QPSK	135@67	25.06	31.06	1.2764
77	15	50	656000	3840	CP-OFDM QPSK	1@1	24.86	30.86	1.2190
77	15	50	656000	3840	CP-OFDM QPSK	1@268	25.09	31.09	1.2853
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	135@67	26.5	32.5	1.7783
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	1@1	26.38	32.38	1.7298
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	1@268	26.41	32.41	1.7418
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	135@67	26.72	32.72	1.8707
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@1	26.3	32.3	1.6982
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@268	26.32	32.32	1.7061
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	135@67	25.58	31.58	1.4388
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	1@1	25.62	31.62	1.4521
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	1@268	25.63	31.63	1.4555
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	135@67	24.05	30.05	1.0116
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	1@1	24.01	30.01	1.0023
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	1@268	24.02	30.02	1.0046
77	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	135@67	22.02	28.02	0.6339
77	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	1@1	22.05	28.05	0.6383

77	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	1@268	22.13	28.13	0.6501
77	15	50	663666	3954.99	CP-OFDM QPSK	135@67	25.04	31.04	1.2706
77	15	50	663666	3954.99	CP-OFDM QPSK	1@1	25.01	31.01	1.2618
77	15	50	663666	3954.99	CP-OFDM QPSK	1@268	25.05	31.05	1.2735

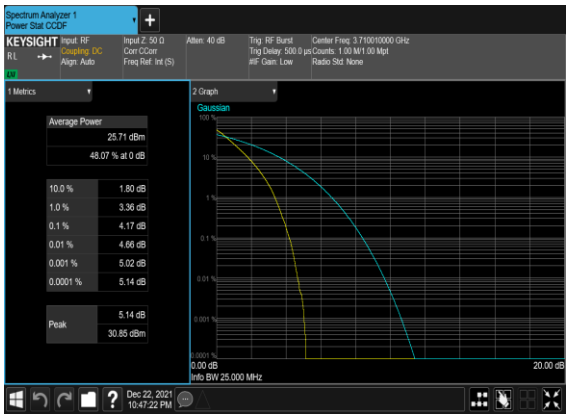
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0337	**PASS**	NV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0226	**PASS**	LV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0556	**PASS**	HV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0495	**PASS**	-30℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0243	**PASS**	-20℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0488	**PASS**	-10℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0513	**PASS**	0℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0432	**PASS**	10℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0258	**PASS**	20℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0406	**PASS**	30℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0601	**PASS**	40℃
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.0034	**PASS**	50℃

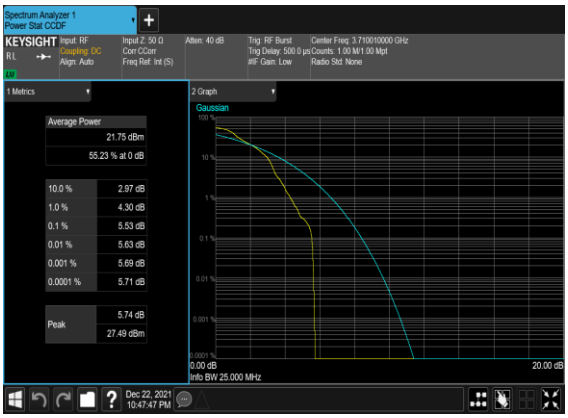
Peak to Average Radio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	100@0	4.17	13	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@0	5.53	13	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	100@0	5.21	13	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	7.04	13	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	100@0	3.68	13	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	1@0	5.18	13	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	4.83	13	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	5.35	13	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	100@0	3.35	13	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@0	5.04	13	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	100@0	4.35	13	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	5.62	13	**PASS**

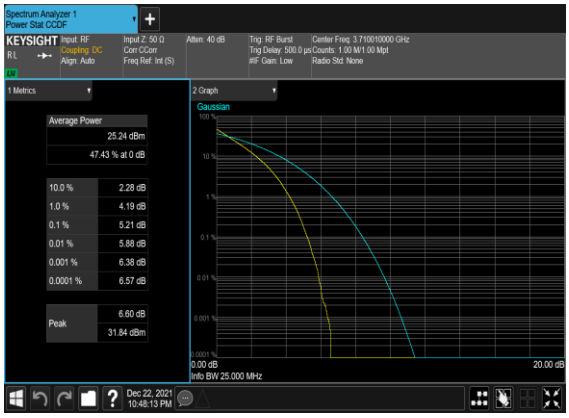
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



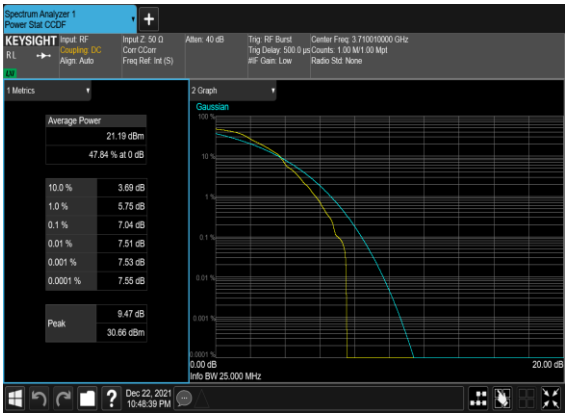
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



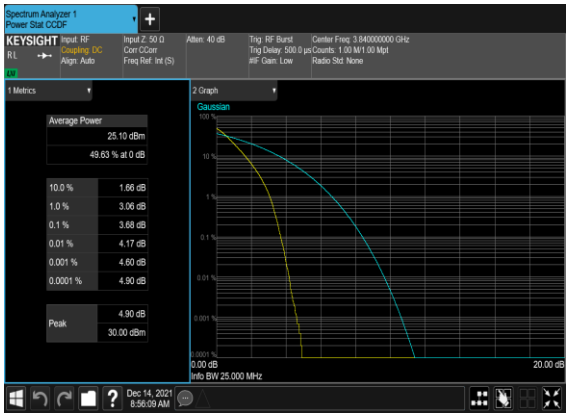
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



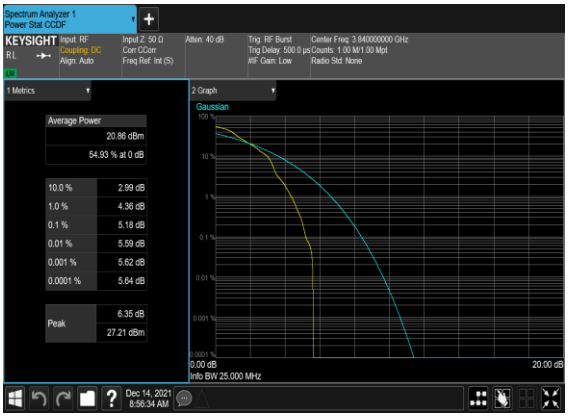
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



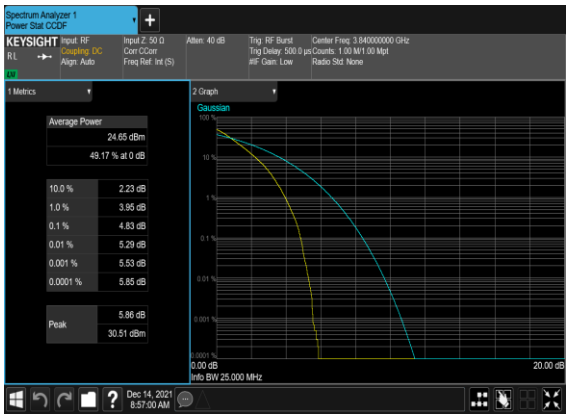
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



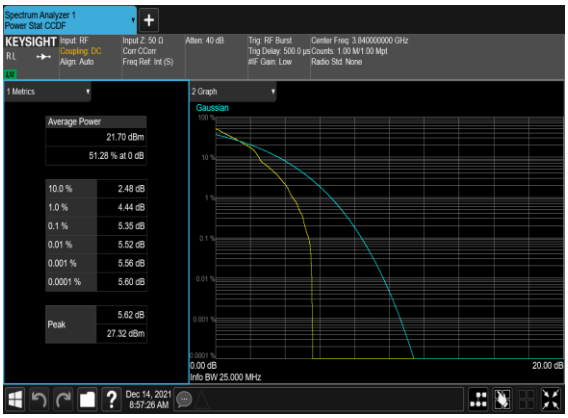
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



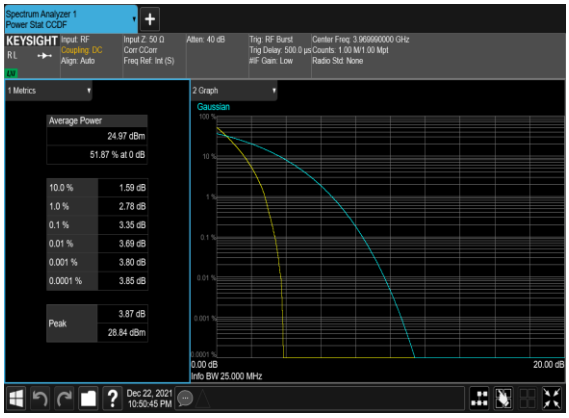
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



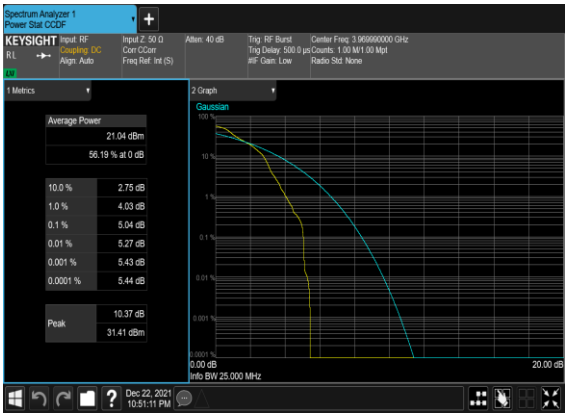
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



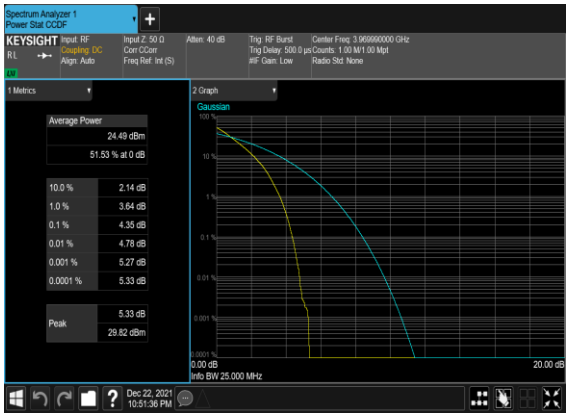
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



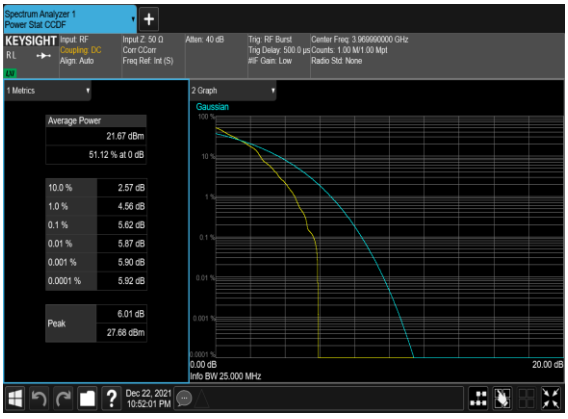
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



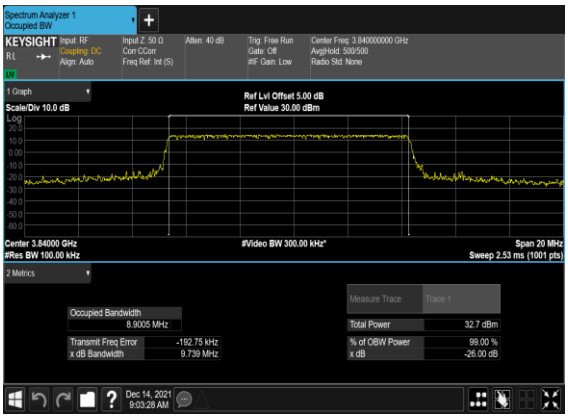
Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
77	15	10	656000	3840.0	DFT-s-OFDM PI/2 BPSK	50@0	8.9148	9.339
77	15	10	656000	3840.0	DFT-s-OFDM QPSK	50@0	8.9005	9.739
77	15	10	656000	3840.0	CP-OFDM QPSK	52@0	9.2734	9.98
77	15	10	656000	3840.0	CP-OFDM 16 QAM	52@0	9.2765	9.77
77	15	10	656000	3840.0	CP-OFDM 64 QAM	52@0	9.288	9.741
77	15	10	656000	3840.0	CP-OFDM 256 QAM	52@0	9.3164	9.977
77	15	15	656000	3840.0	DFT-s-OFDM PI/2 BPSK	75@0	13.388	14.09
77	15	15	656000	3840.0	DFT-s-OFDM QPSK	75@0	13.395	14.08
77	15	15	656000	3840.0	CP-OFDM QPSK	79@0	14.122	14.72
77	15	15	656000	3840.0	CP-OFDM 16 QAM	79@0	14.116	14.72
77	15	15	656000	3840.0	CP-OFDM 64 QAM	79@0	14.128	14.77
77	15	15	656000	3840.0	CP-OFDM 256 QAM	79@0	14.091	14.63
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	100@0	17.884	18.85
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	17.825	18.99
77	15	20	656000	3840.0	CP-OFDM QPSK	106@0	18.923	19.73
77	15	20	656000	3840.0	CP-OFDM 16 QAM	106@0	18.94	19.79
77	15	20	656000	3840.0	CP-OFDM 64 QAM	106@0	18.924	19.85
77	15	20	656000	3840.0	CP-OFDM 256 QAM	106@0	18.936	19.75
77	15	40	656000	3840.0	DFT-s-OFDM PI/2 BPSK	216@0	38.542	40.16
77	15	40	656000	3840.0	DFT-s-OFDM QPSK	216@0	38.602	40.45
77	15	40	656000	3840.0	CP-OFDM QPSK	216@0	38.593	40.11
77	15	40	656000	3840.0	CP-OFDM 16 QAM	216@0	38.56	39.9
77	15	40	656000	3840.0	CP-OFDM 64 QAM	216@0	38.652	39.86
77	15	40	656000	3840.0	CP-OFDM 256 QAM	216@0	38.461	39.96

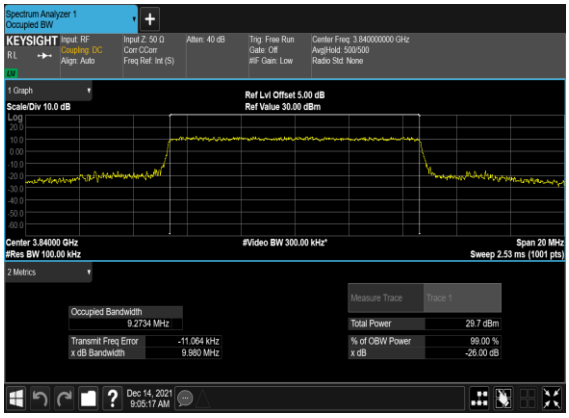
77	15	50	656000	3840.0	DFT-s-OFDM PI/2 BPSK	270@0	48.19	49.82
77	15	50	656000	3840.0	DFT-s-OFDM QPSK	270@0	48.241	49.91
77	15	50	656000	3840.0	CP-OFDM QPSK	270@0	48.195	50.13
77	15	50	656000	3840.0	CP-OFDM 16 QAM	270@0	48.163	49.82
77	15	50	656000	3840.0	CP-OFDM 64 QAM	270@0	48.22	49.76
77	15	50	656000	3840.0	CP-OFDM 256 QAM	270@0	48.179	49.8

N77(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

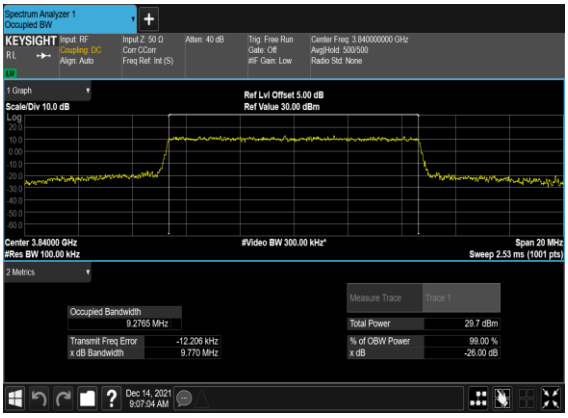
N77(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



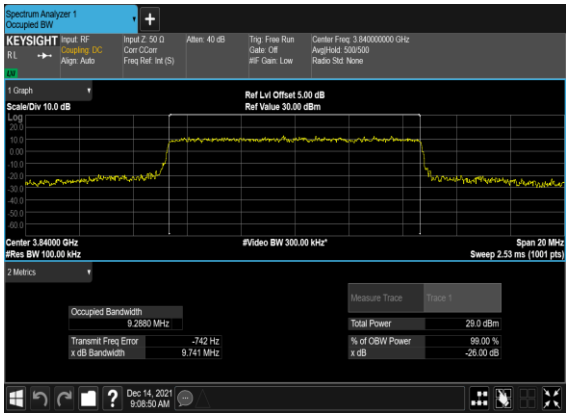
N77(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



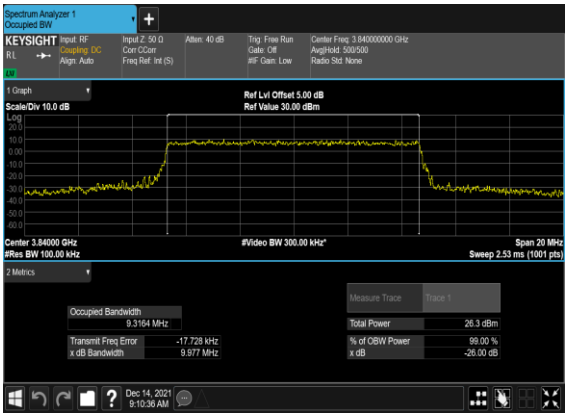
N77(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

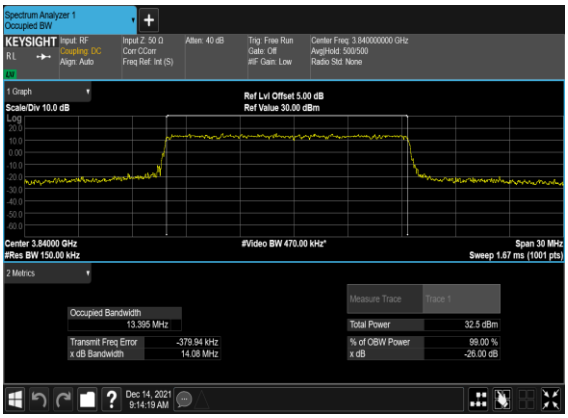


N77(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

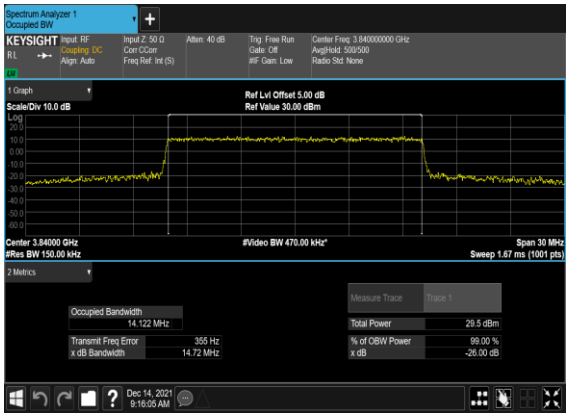


N77(15M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

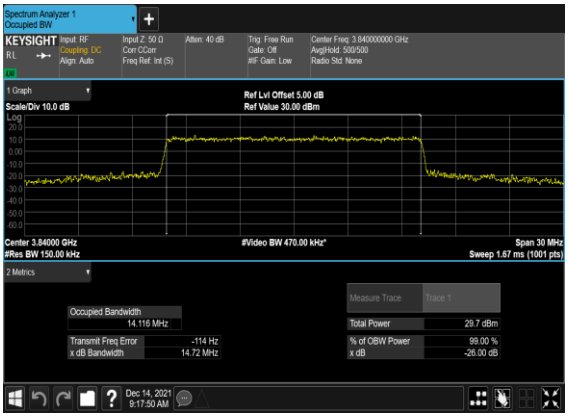
N77(15M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



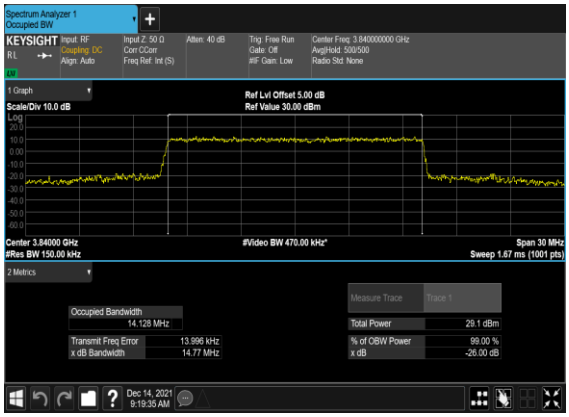
N77(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



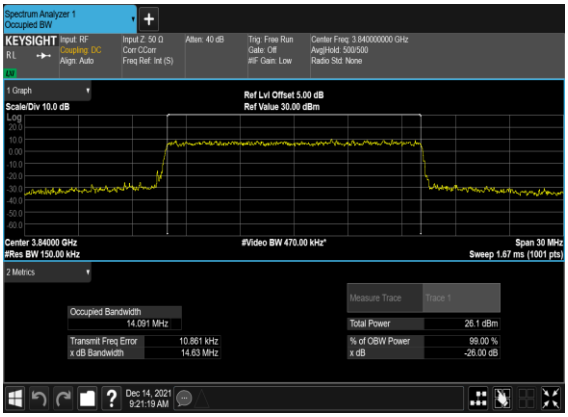
N77(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

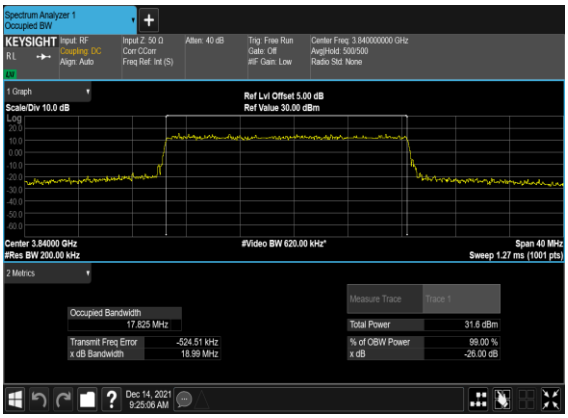


N77(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

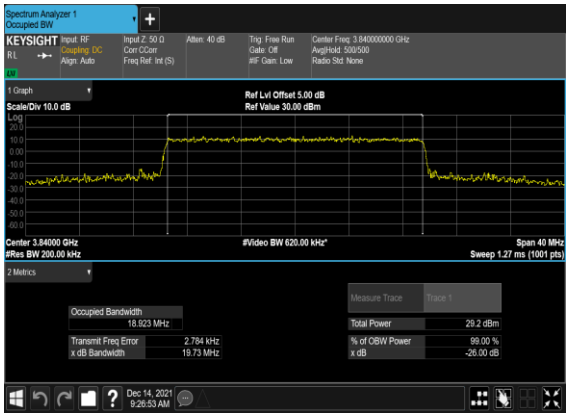


N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

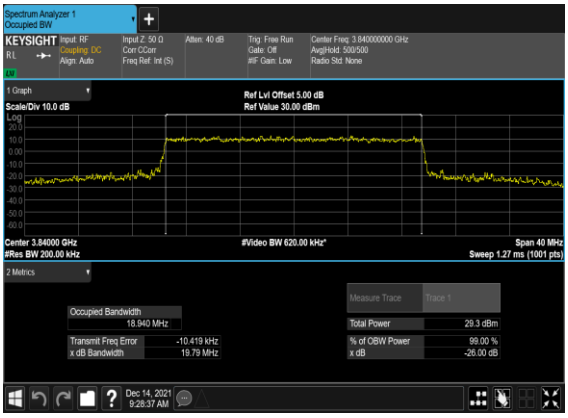
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



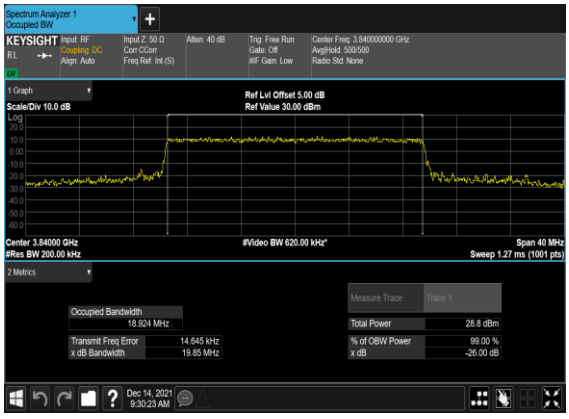
N77(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



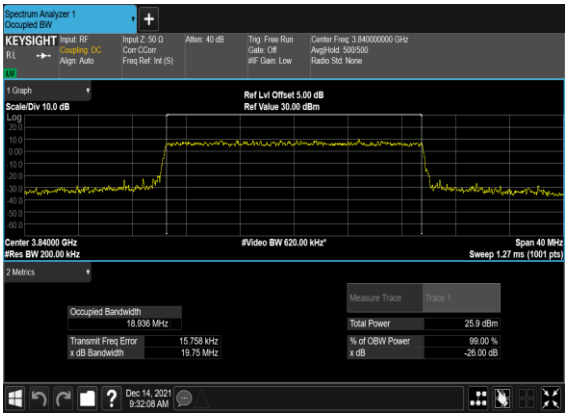
N77(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



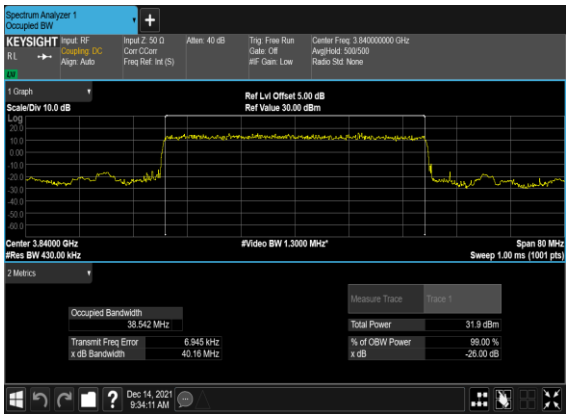
N77(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



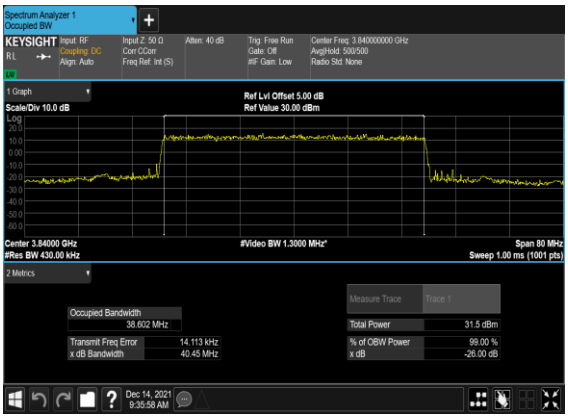
N77(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



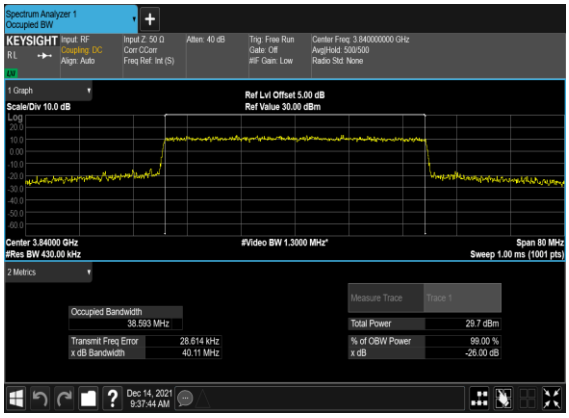
N77(40M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



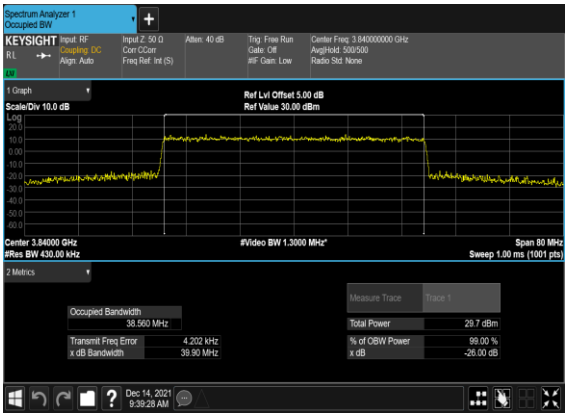
N77(40M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



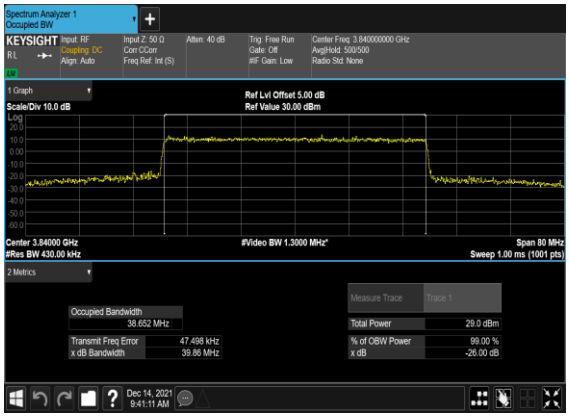
N77(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N77(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

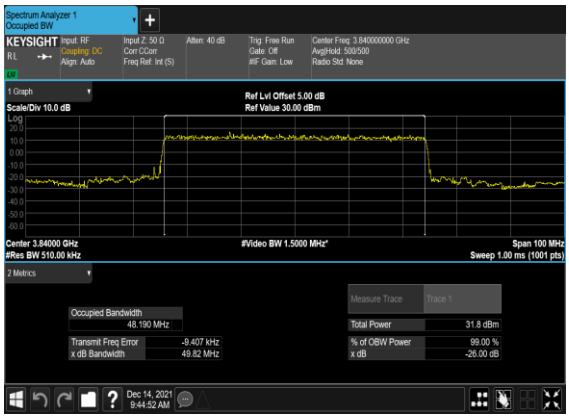


N77(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

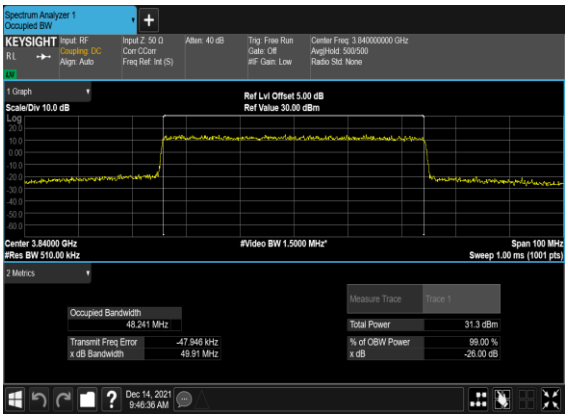


N77(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

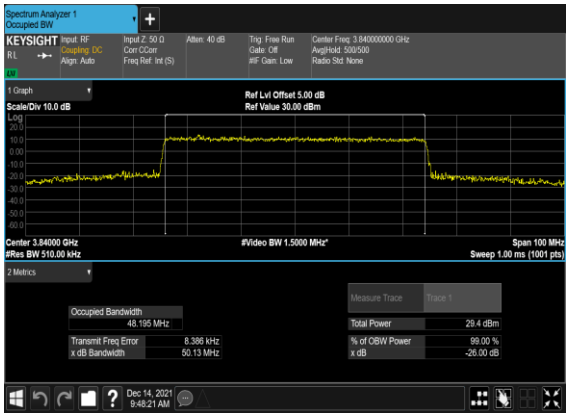
N77(50M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



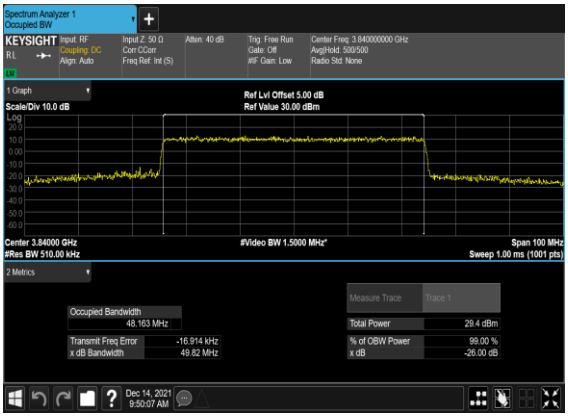
N77(50M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



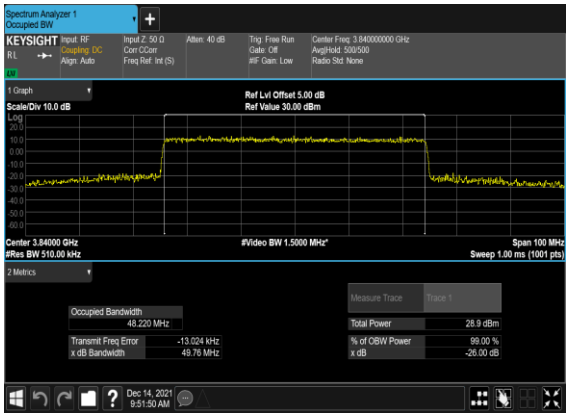
N77(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N77(50M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(50M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(50M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

Conducted Spurious Emissions

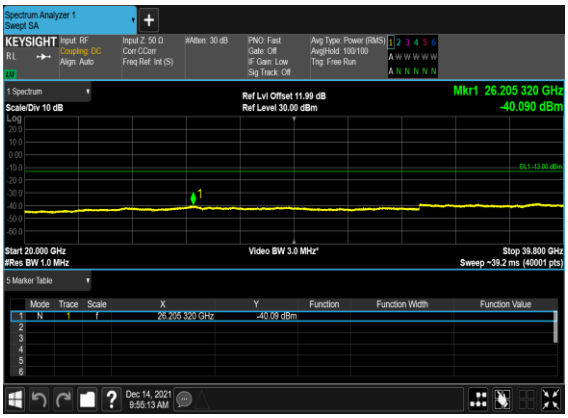
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	10	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	10	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	10	665000	3975.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	10	665000	3975.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**---**

77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	50	648334	3725.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	50	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**---**

77	15	50	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	**---**
77	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	**---**
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**

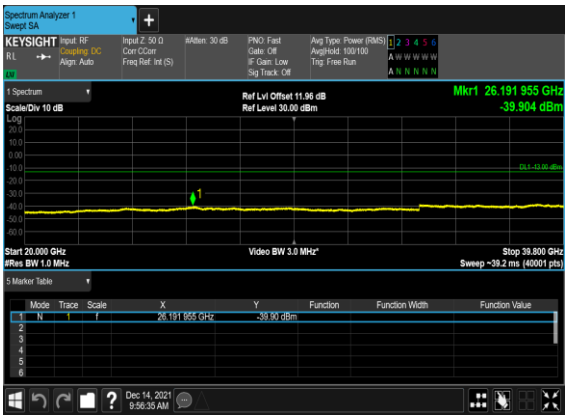
N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



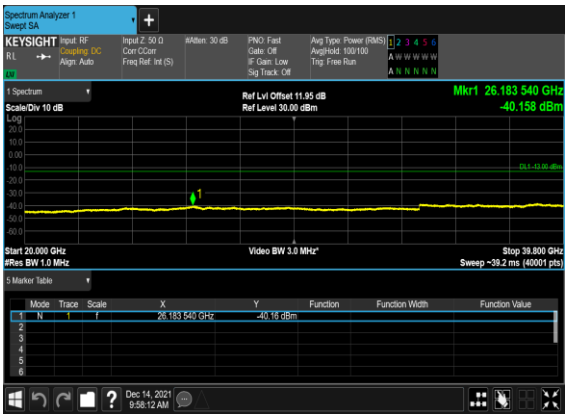
N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

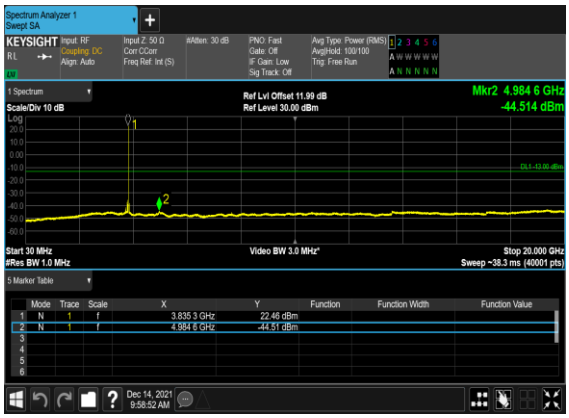


N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

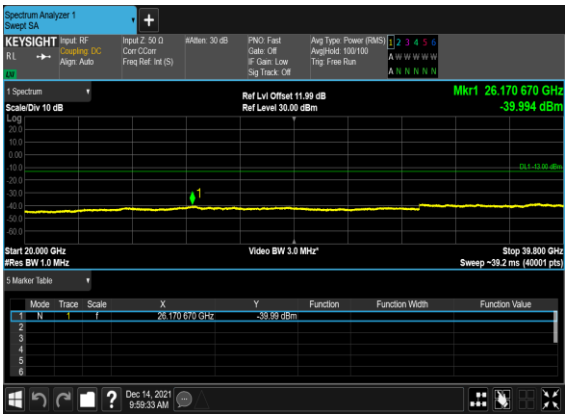
N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

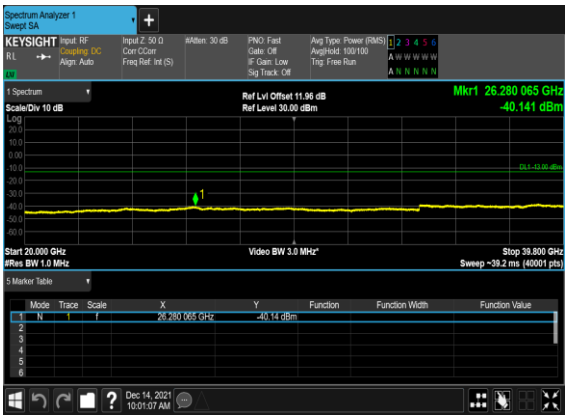


N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

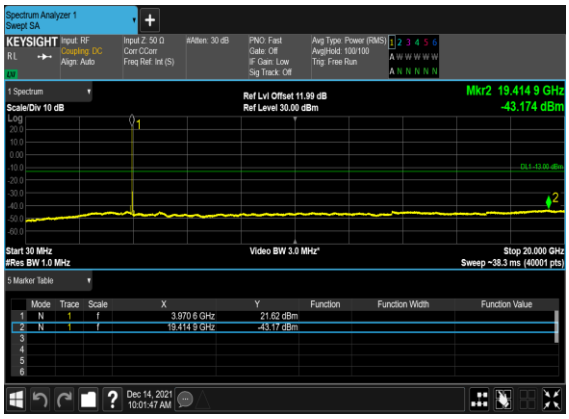


N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

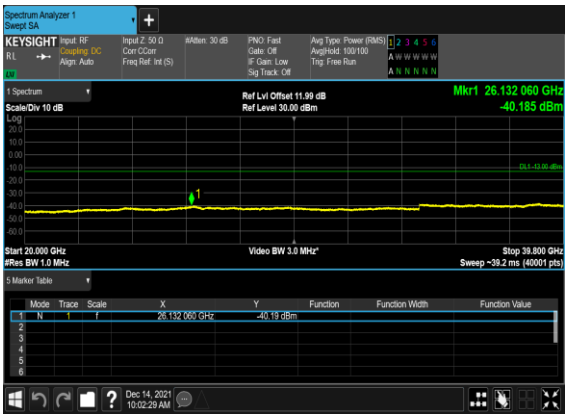
N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

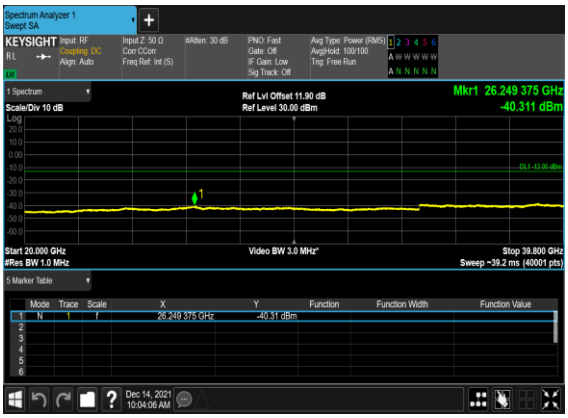


N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



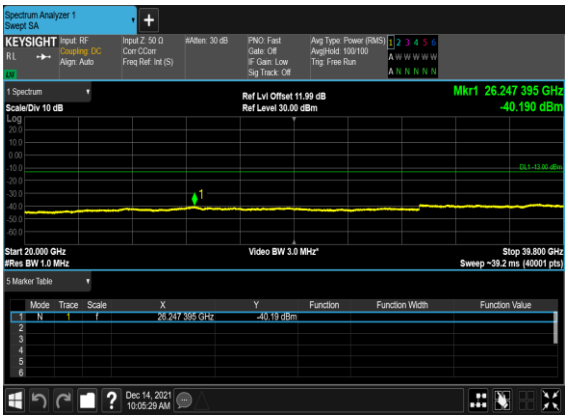
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



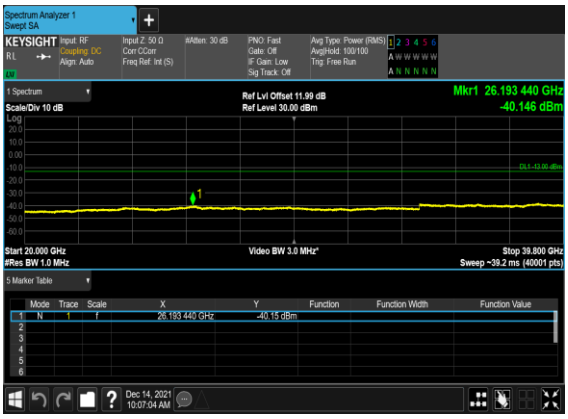
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

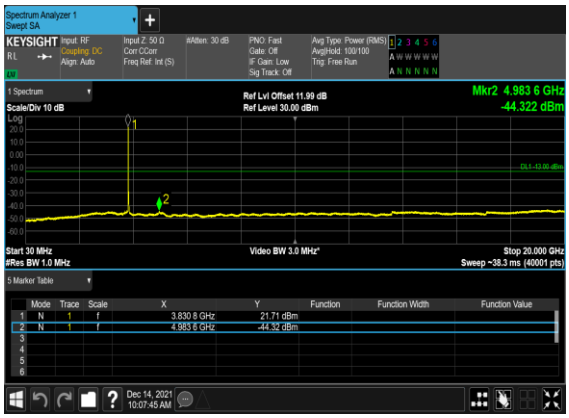


N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

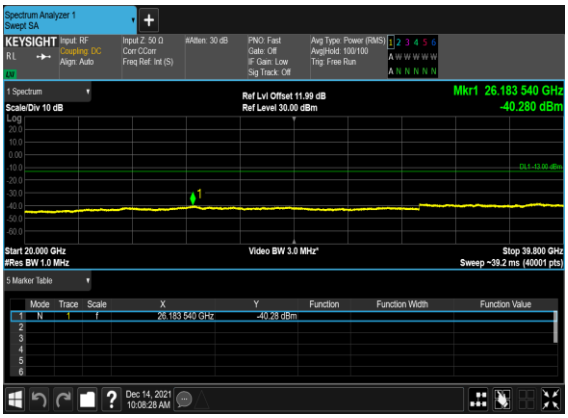
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

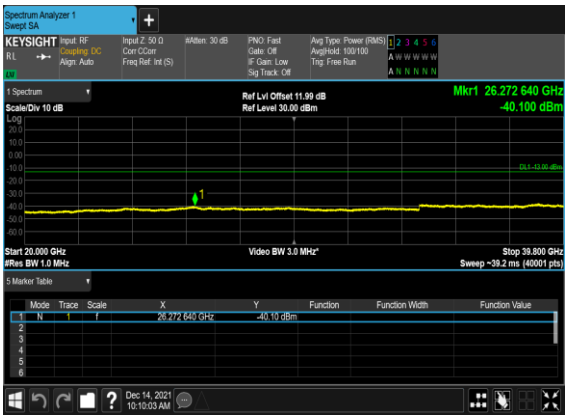


N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



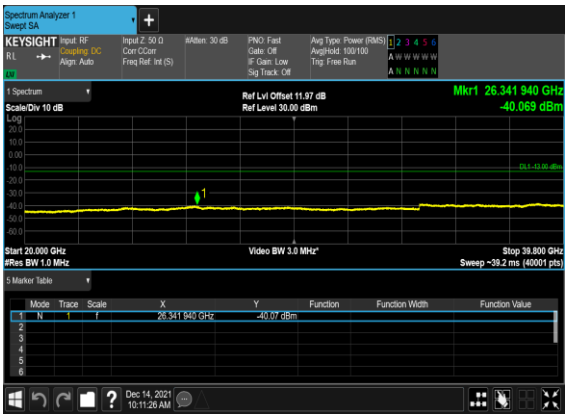
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

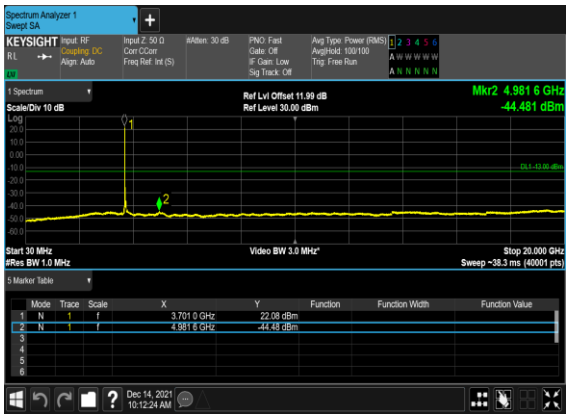


N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

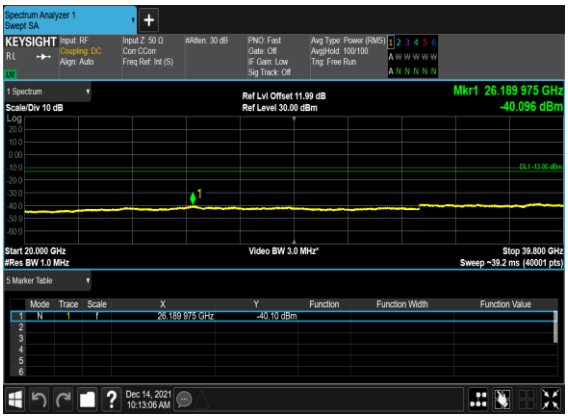
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



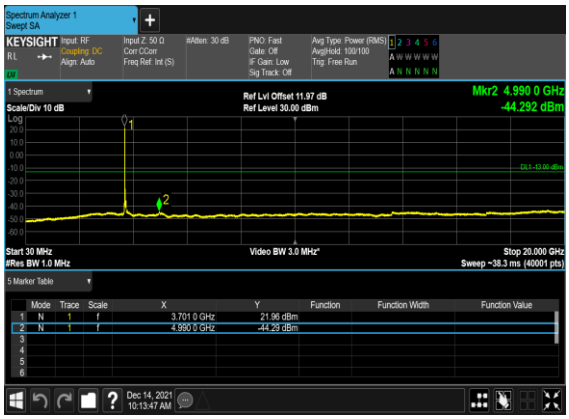
N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



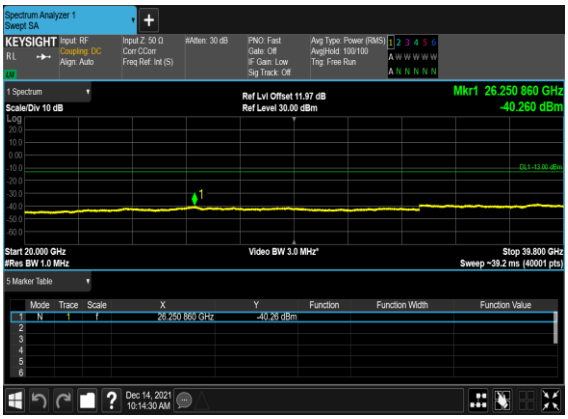
N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



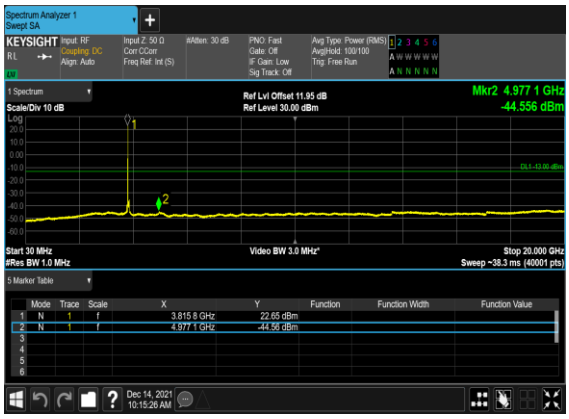
N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



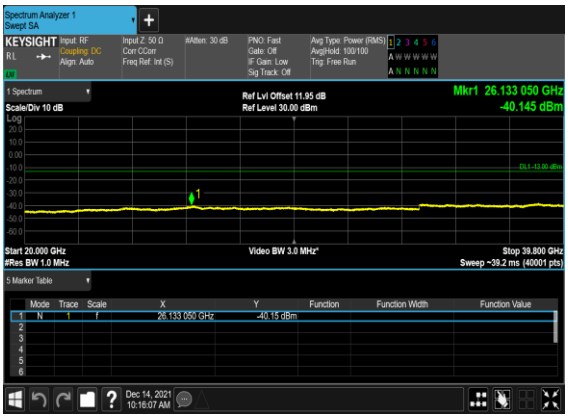
N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

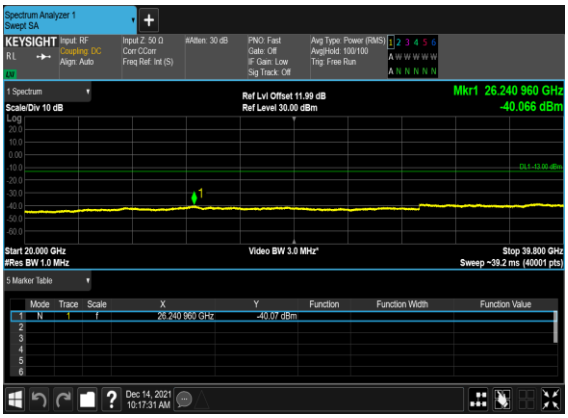


N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

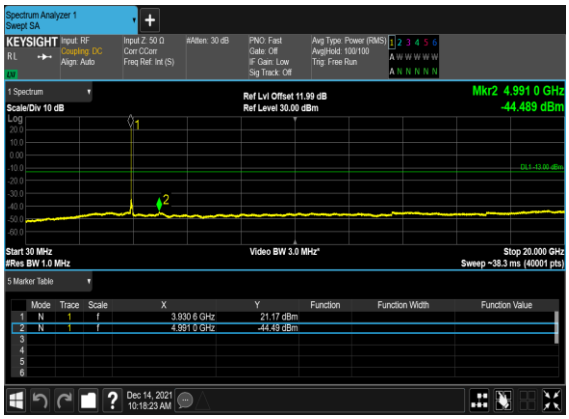


N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

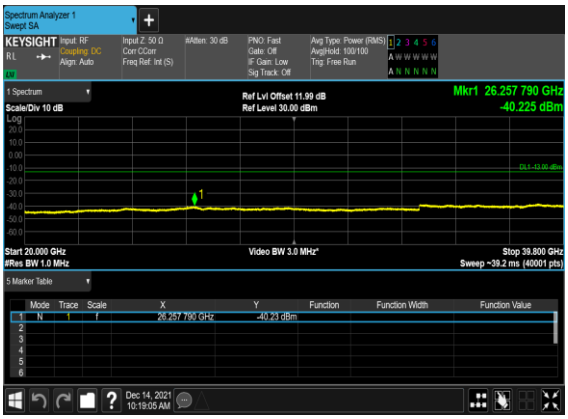
N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

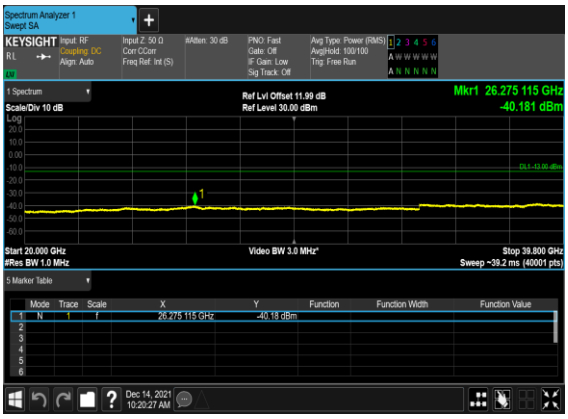


N77(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

N77(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

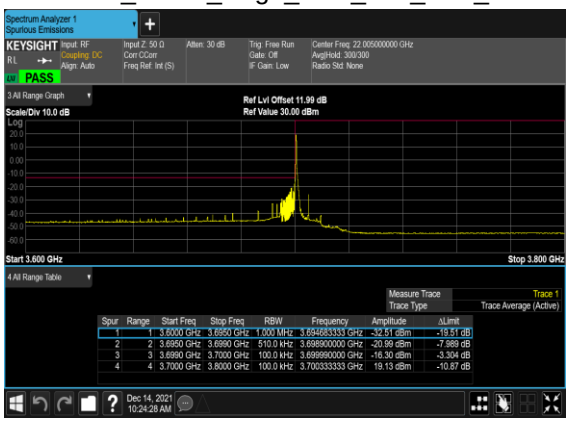


Conducted Band Edge

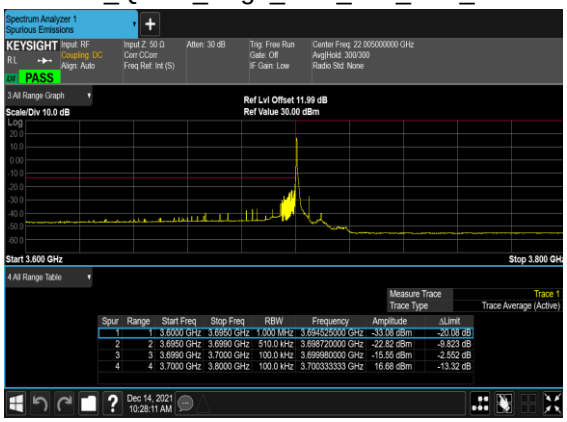
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM BPSK	1@51	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM QPSK	1@51	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
77	15	10	665000	3975.0	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM BPSK	1@105	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@105	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	270@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@269	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@269	see graph	**PASS**

77	15	50	663666	3954.99	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	270@0	see graph	**PASS**

N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



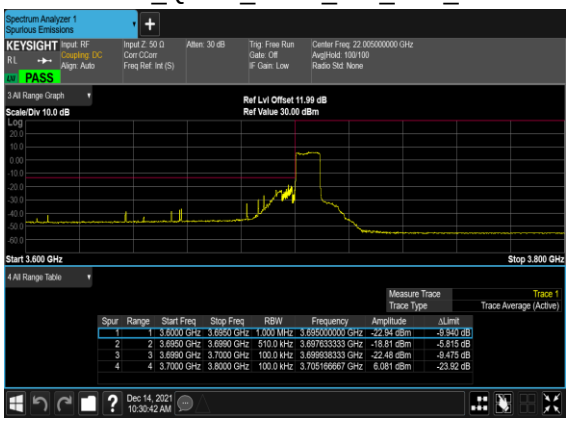
N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_CHP_PASS

N77(10M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

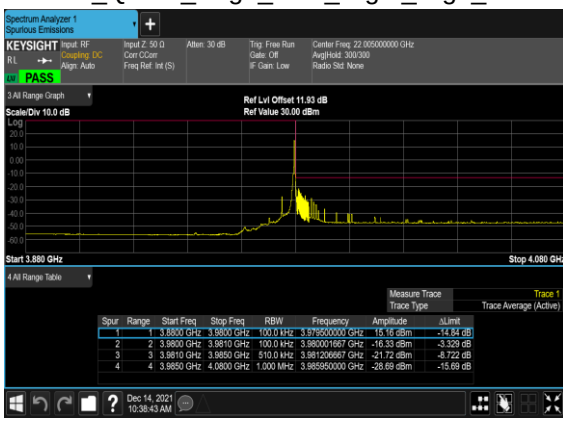
N77(10M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



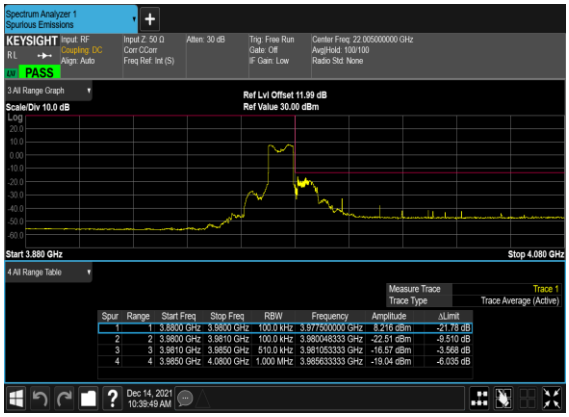
N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

N77(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH_**CHP_PASS**

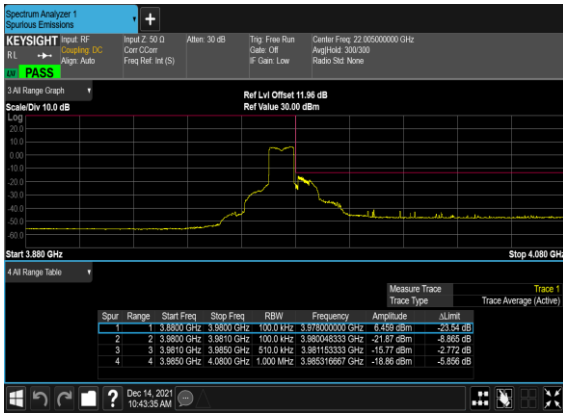
N77(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



N77(10M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



N77(10M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N77(10M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH_**CHP_PASS**

N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH