



# FCC RF Test Report

**APPLICANT** : Xiaomi Communications Co., Ltd.  
**EQUIPMENT** : Mobile Phone  
**BRAND NAME** : Redmi  
**MODEL NAME** : 22041219NY  
**FCC ID** : 2AFZZ1219NY  
**STANDARD** : 47 CFR Part 2, 270  
**CLASSIFICATION** : PCS Licensed Transmitter Held to Ear (PCE)  
**TEST DATE(S)** : Feb. 01, 2022 ~ Feb. 15, 2022

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

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

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

Alex Wang

Approved by: Alex Wang / Manager



**Sporton International Inc. (Kunshan)**

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300  
People's Republic of China**



TABLE OF CONTENTS

REVISION HISTORY... 3
SUMMARY OF TEST RESULT ... 4
1 GENERAL DESCRIPTION ... 5
1.1 Applicant ... 5
1.2 Manufacturer ... 5
1.3 Product Feature of Equipment Under Test ... 5
1.4 Product Specification of Equipment Under Test ... 6
1.5 Modification of EUT ... 6
1.6 Maximum EIRP Power and Emission Designator ... 7
1.7 Testing Location ... 9
1.8 Test Software ... 9
1.9 Applicable Standards ... 10
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST ... 11
2.1 Test Mode ... 11
2.2 Connection Diagram of Test System ... 12
2.3 Support Unit used in test configuration and system ... 12
2.4 Measurement Results Explanation Example ... 12
2.5 Frequency List of Low/Middle/High Channels ... 13
3 CONDUCTED TEST ITEMS ... 15
3.1 Measuring Instruments ... 15
3.2 Test Setup ... 15
3.3 Test Result of Conducted Test ... 15
3.4 Conducted Output Power and EIRP ... 16
3.5 Peak-to-Average Ratio ... 17
3.6 Occupied Bandwidth ... 18
3.7 Conducted Band Edge ... 19
3.8 Conducted Spurious Emission ... 20
3.9 Frequency Stability ... 21
4 RADIATED TEST ITEMS ... 22
4.1 Measuring Instruments ... 22
4.2 Test Setup ... 22
4.3 Test Result of Radiated Test ... 23
4.4 Radiated Spurious Emission ... 24
5 LIST OF MEASURING EQUIPMENT ... 25
6 UNCERTAINTY OF EVALUATION ... 26
APPENDIX A. TEST RESULTS OF CONDUCTED TEST
APPENDIX B. TEST RESULTS OF RADIATED TEST
APPENDIX C. TEST SETUP PHOTOGRAPHS





### 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)(3)	Equivalent Isotropic Radiated Power (5G NR n77, n78)	EIRP < 1Watt		
3.5	§27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051	Conducted Band Edge Measurement (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
	§27.53(l)(2)				
3.8	§2.1051	Conducted Spurious Emission (5G NR n77, n78)	< 43+10log10(P[Watts])	PASS	-
	§27.53(l)(2)				
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+10log <sub>10</sub> (P[Watts])	PASS	Under limit 36.77 dB at 7584.000 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

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

## 1.2 Manufacturer

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Redmi
Model Name	22041219NY
FCC ID	2AFZZ1219NY
IMEI Code	Conducted: 863160060030283/863160060030291 Radiation: 863160060062906/863160060062914
HW Version	P2
SW Version	MIUI 13
EUT Stage	Identical Prototype

Remark: Only 5G NR bands are tested in this report, all the other RF bands are tested in the other reports separately.



### 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
<b>Rx Frequency</b>	5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
<b>SCS</b>	15kHz, 30kHz
<b>Bandwidth</b>	n77, n78(15kHz): 10MHz / 15MHz / 20MHz / 40MHz / 50MHz n77, n78(30kHz): 10MHz / 15MHz / 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
<b>Antenna Gain</b>	<b>Ant. 2:</b> 5G NR n77: -2.06 dBi 5G NR n78: -2.43 dBi <b>Ant. 3:</b> 5G NR n77: -0.98 dBi 5G NR n78: -1.47 dBi <b>Ant. 5:</b> 5G NR n77: -1.49 dBi 5G NR n78: -3.35 dBi <b>Ant. 6:</b> 5G NR n77: -0.60 dBi 5G NR n78: -0.63 dBi
<b>Type of Modulation</b>	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/n78 for Antenna 3.
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.
3. The device supports HPUE mode for 5G NR SA n77/n78.
4. The EN-DC mode combination: DC\_41A\_n77A, DC\_5A\_n78A, DC\_7A\_n78A, DC\_38A\_n78A, DC\_41A\_n78A, DC\_66A\_n78A, DC\_2A\_n78A .

### 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	0.3192	9M28G7D	0.2553	9M28W7D
15	3707.505 ~ 3972.495	0.3296	14M1G7D	0.2600	14M1W7D
20	3710.01 ~ 3969.99	0.3273	18M9G7D	0.2600	18M9W7D
40	3720.00 ~ 3960.00	0.3296	38M6G7D	0.2612	38M6W7D
50	3725.01 ~ 3954.99	0.3266	48M2G7D	0.2588	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	0.3828	8M58G7D	0.2904	8M59W7D
15	3707.52 ~ 3972.48	0.3873	13M6G7D	0.2911	13M6W7D
20	3710.01 ~ 3969.99	0.3793	18M2G7D	0.2897	18M3W7D
40	3720.00 ~ 3960.00	0.3614	37M9G7D	0.2917	37M8W7D
50	3725.01 ~ 3954.99	0.3811	47M4G7D	0.2938	47M6W7D
60	3730.02 ~ 3949.98	0.3758	57M9G7D	0.2864	57M8W7D
80	3740.01 ~ 3939.99	0.3733	77M4G7D	0.2864	77M6W7D
90	3745.02 ~ 3934.98	0.3622	87M3G7D	0.2877	87M5W7D
100	3750.00 ~ 3930.00	0.3589	97M4G7D	0.2838	97M4W7D



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	0.3573	9M28G7D	0.2838	9M29W7D
15	3707.505 ~ 3792.495	0.3707	14M1G7D	0.2931	14M1W7D
20	3710.01 ~ 3789.99	0.3733	18M9G7D	0.2979	18M9W7D
40	3720.00 ~ 3780.00	0.3707	38M6G7D	0.2951	38M6W7D
50	3725.01 ~ 3774.99	0.3639	48M2G7D	0.2897	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	0.4009	8M59G7D	0.3126	8M58W7D
15	3707.52 ~ 3792.48	0.3917	13M6G7D	0.3090	13M6W7D
20	3710.01 ~ 3789.99	0.3945	18M2G7D	0.3162	18M2W7D
40	3720.00 ~ 3780.00	0.3828	37M9G7D	0.3041	37M9W7D
50	3725.01 ~ 3774.99	0.3846	47M5G7D	0.3076	47M5W7D
60	3730.02 ~ 3769.98	0.3837	57M9G7D	0.3055	57M8W7D
80	3740.01 ~ 3759.99	0.3899	77M5G7D	0.3126	77M5W7D
90	3745.02 ~ 3754.98	0.3837	87M5G7D	0.3076	87M5W7D
100	3750.00	0.3793	97M4G7D	0.3020	97M3W7D

Note: All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.



### 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.

<b>Test Firm</b>	Sporton International Inc. (Kunshan)		
<b>Test Site Location</b>	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		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	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.

<b>Test Firm</b>	Sporton International Inc. (Shenzhen)		
<b>Test Site Location</b>	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		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	TH01-SZ	CN1256	421272

Test data subcontracted: conducted test items in section 3.4~3.9 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, 270
- ♦ 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.

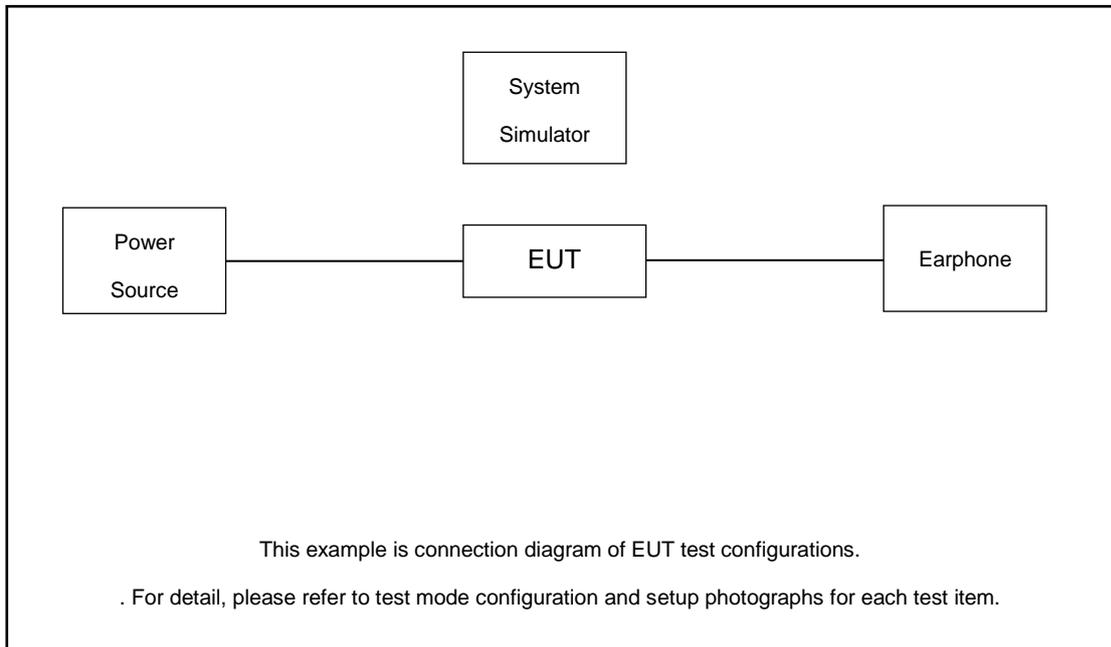
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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.

Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

Test Items	5G NR	Bandwidth (MHz)									Modulation					RB #		Test Channel		
		5	10	15	20	40	50	60	80-90	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	v	v
	n78	-	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
	n78				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		v	
	n78		v	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
	n78		v		v		v			v	v	v				v	v	v		v
Conducted Spurious Emission	n77	-	v		v		v			v	v	v				v		v	v	v
	n78		v		v		v			v	v	v				v		v	v	v
Frequency Stability	n77	-			v				-	-		v					v		v	
	n78				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	v	v
	n78		v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n77	Worst Case																	v	
Note	<ol style="list-style-type: none"> <li>The mark "v" means that this configuration is chosen for testing</li> <li>The mark "-" means that this bandwidth is not supported.</li> <li>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.</li> <li>Based on engineering evaluation, only the worst modulations test results are shown in the report.</li> <li>Normal Voltage: 3.87Vdc, Extreme Voltage: 3.6Vdc ~4.45Vdc</li> <li>5G NR Band n77 overlaps the entire frequency range of Band n78. Therefore, 5G NR Band n77 covers n78 for RSE testing.</li> </ol>																			

## 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.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8m
3.	Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8m
4.	Earphone	MI	EM023	N/A	Unshielded, 1.25m	N/A

## 2.4 Measurement Results Explanation Example

### For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss.

*Offset = RF cable loss.*

Following shows an offset computation example with cable loss 9.10 dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 9.10 \text{ (dB)} \end{aligned}$$



### 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	3750	3780
20	Channel	647334	650000	652666
	Frequency	3710.01	3750	3789.99
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

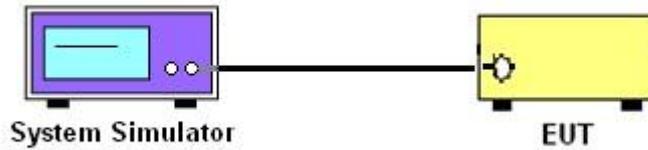
### 3 Conducted Test Items

#### 3.1 Measuring Instruments

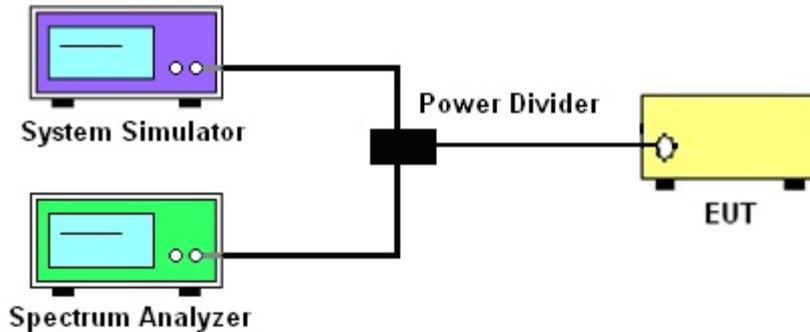
See list of measuring instruments of this test report.

#### 3.2 Test Setup

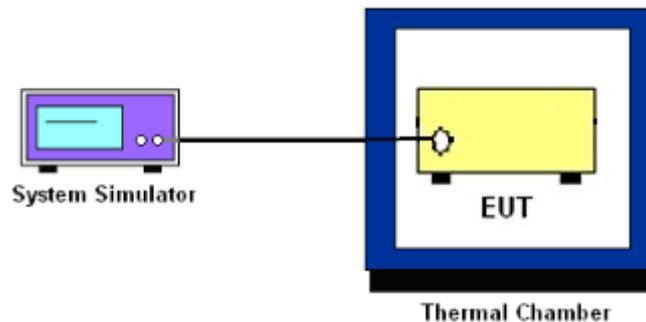
##### 3.2.1 Conducted Output Power



##### 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 mobile transmitters must not exceed 1 Watts for 5G NR n77, n78.

According to KDB 412172 D01 Power Approach,

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

$P_T$  = transmitter output power in dBm

$G_T$  = gain of the transmitting antenna in dBi

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

#### 3.4.2 Test Procedures

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



## **3.5 Peak-to-Average Ratio**

### **3.5.1 Description of the PAR Measurement**

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

### **3.5.2 Test Procedures**

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

#### 3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW  $\geq$  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:

$$\begin{aligned} &\text{The limit line is derived from } 43 + 10\log(P)\text{dB below the transmitter power } P(\text{Watts}) \\ &= P(\text{W}) - [43 + 10\log(P)] \text{ (dB)} \\ &= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}. \end{aligned}$$

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<sup>th</sup> 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  $43 + 10\log(P)$ 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  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) 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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . 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  $20\pm 5^{\circ}\text{C}$  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.

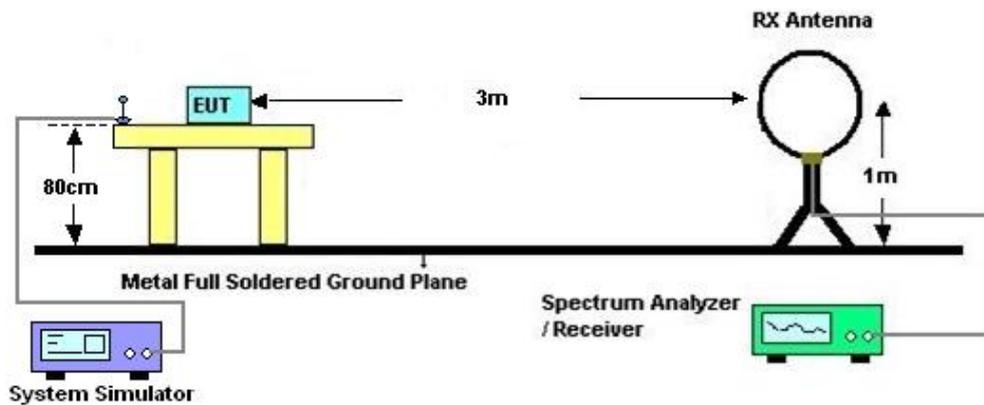
## 4 Radiated Test Items

### 4.1 Measuring Instruments

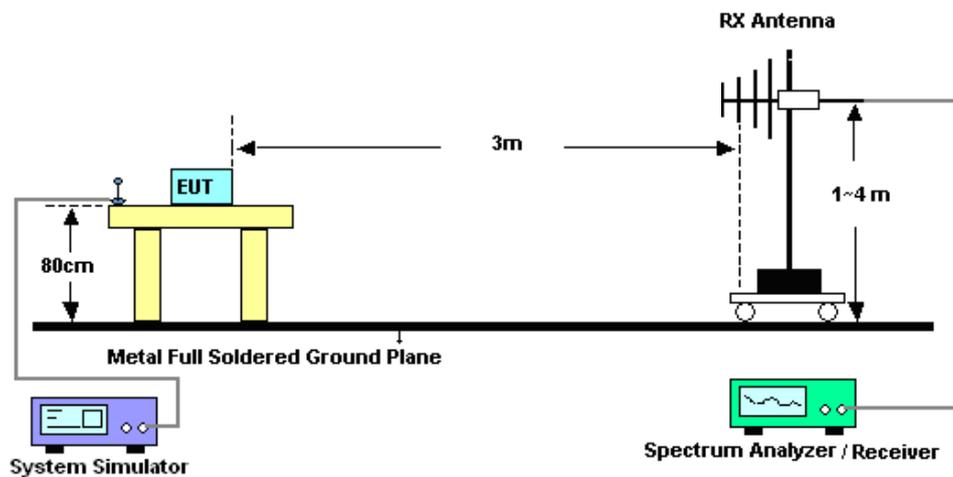
See list of measuring instruments of this test report.

### 4.2 Test Setup

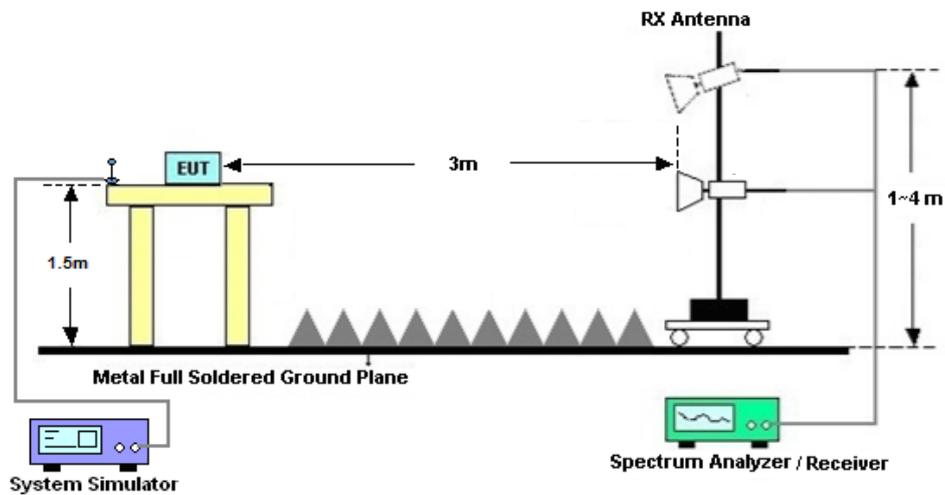
#### 4.2.1 For radiated test below 30MHz



#### 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.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11.  $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from  $43 + 10\log(P)$ dB below the transmitter power P(Watts)  
=  $P(W) - [43 + 10\log(P)] \text{ (dB)}$   
=  $[30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
= -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	Feb. 01, 2022~ Feb. 02, 2022	Apr. 02, 2022	Conducted (TH01-SZ)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 26, 2021	Feb. 01, 2022~ Feb. 02, 2022	Aug. 25, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 14, 2021	Feb. 01, 2022~ Feb. 02, 2022	Jul. 13, 2022	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 13, 2021	Feb. 15, 2022	Apr. 12, 2022	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Feb. 15, 2022	Oct. 29, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Jun. 04 ,2021	Feb. 15, 2022	Jun. 03, 2022	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 24, 2021	Feb. 15, 2022	Apr. 23, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Jan. 05, 2022	Feb. 15, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Apr. 12, 2021	Feb. 15, 2022	Apr. 11, 2022	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2022	Feb. 15, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00 101800-30-1 0P	2025788	1Ghz-18Ghz	Jan. 05, 2022	Feb. 15, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 13, 2021	Feb. 15, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Feb. 15, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Feb. 15, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Feb. 15, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required



## 6 Uncertainty of Evaluation

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

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

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

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 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 :	Jung Guo	Temperature :	21~23°C
		Relative Humidity :	45~51%

# FR1 N77 – SCS 15kHz

## Transmitter Conducted Output Power And EIRP, (GT - LC)=-0.98dB

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	25.02	0.3177
77	15	10	647000	3705	DFT-s-OFDM PI/2 BPSK	1@1	25.9	24.92	0.3105
77	15	10	647000	3705	DFT-s-OFDM PI/2 BPSK	1@50	25.89	24.91	0.3097
77	15	10	647000	3705	DFT-s-OFDM QPSK	25@12	26.02	25.04	0.3192
77	15	10	647000	3705	DFT-s-OFDM QPSK	1@1	25.89	24.91	0.3097
77	15	10	647000	3705	DFT-s-OFDM QPSK	1@50	25.93	24.95	0.3126
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	25@12	24.99	24.01	0.2518
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	1@1	25.05	24.07	0.2553
77	15	10	647000	3705	DFT-s-OFDM 16 QAM	1@50	25.05	24.07	0.2553
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	25@12	23.55	22.57	0.1807
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	1@1	23.52	22.54	0.1795
77	15	10	647000	3705	DFT-s-OFDM 64 QAM	1@50	23.52	22.54	0.1795
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	25@12	21.42	20.44	0.1107
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	1@1	21.31	20.33	0.1079
77	15	10	647000	3705	DFT-s-OFDM 256 QAM	1@50	21.34	20.36	0.1086
77	15	10	647000	3705	CP-OFDM QPSK	26@13	24.47	23.49	0.2234
77	15	10	647000	3705	CP-OFDM QPSK	1@1	24.34	23.36	0.2168
77	15	10	647000	3705	CP-OFDM QPSK	1@50	24.34	23.36	0.2168
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	25@12	25.82	24.84	0.3048
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.74	24.76	0.2992
77	15	10	656000	3840	DFT-s-OFDM PI/2 BPSK	1@50	25.76	24.78	0.3006
77	15	10	656000	3840	DFT-s-OFDM QPSK	25@12	25.85	24.87	0.3069
77	15	10	656000	3840	DFT-s-OFDM QPSK	1@1	25.75	24.77	0.2999
77	15	10	656000	3840	DFT-s-OFDM QPSK	1@50	25.77	24.79	0.3013
77	15	10	656000	3840	DFT-s-OFDM 16 QAM	25@12	24.85	23.87	0.2438

77	15	10	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.89	23.91	0.2460
77	15	10	656000	3840	DFT-s-OFDM 16 QAM	1@50	24.91	23.93	0.2472
77	15	10	656000	3840	DFT-s-OFDM 64 QAM	25@12	23.37	22.39	0.1734
77	15	10	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.34	22.36	0.1722
77	15	10	656000	3840	DFT-s-OFDM 64 QAM	1@50	23.39	22.41	0.1742
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	25@12	21.28	20.3	0.1072
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.16	20.18	0.1042
77	15	10	656000	3840	DFT-s-OFDM 256 QAM	1@50	21.16	20.18	0.1042
77	15	10	656000	3840	CP-OFDM QPSK	26@13	24.29	23.31	0.2143
77	15	10	656000	3840	CP-OFDM QPSK	1@1	24.26	23.28	0.2128
77	15	10	656000	3840	CP-OFDM QPSK	1@50	24.26	23.28	0.2128
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	25@12	25.78	24.8	0.3020
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	1@1	25.67	24.69	0.2944
77	15	10	665000	3975	DFT-s-OFDM PI/2 BPSK	1@50	25.71	24.73	0.2972
77	15	10	665000	3975	DFT-s-OFDM QPSK	25@12	25.84	24.86	0.3062
77	15	10	665000	3975	DFT-s-OFDM QPSK	1@1	25.66	24.68	0.2938
77	15	10	665000	3975	DFT-s-OFDM QPSK	1@50	25.72	24.74	0.2979
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	25@12	24.8	23.82	0.2410
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	1@1	24.86	23.88	0.2443
77	15	10	665000	3975	DFT-s-OFDM 16 QAM	1@50	24.92	23.94	0.2477
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	25@12	23.37	22.39	0.1734
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	1@1	23.31	22.33	0.1710
77	15	10	665000	3975	DFT-s-OFDM 64 QAM	1@50	23.37	22.39	0.1734
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	25@12	21.21	20.23	0.1054
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	1@1	21.1	20.12	0.1028
77	15	10	665000	3975	DFT-s-OFDM 256 QAM	1@50	21.12	20.14	0.1033
77	15	10	665000	3975	CP-OFDM QPSK	26@13	24.25	23.27	0.2123
77	15	10	665000	3975	CP-OFDM QPSK	1@1	24.27	23.29	0.2133
77	15	10	665000	3975	CP-OFDM QPSK	1@50	24.3	23.32	0.2148
77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	36@18	26.13	25.15	0.3273

77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	1@1	25.99	25.01	0.3170
77	15	15	647167	3707.505	DFT-s-OFDM PI/2 BPSK	1@77	25.97	24.99	0.3155
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	36@18	26.16	25.18	0.3296
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	1@1	26	25.02	0.3177
77	15	15	647167	3707.505	DFT-s-OFDM QPSK	1@77	25.97	24.99	0.3155
77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	36@18	25.13	24.15	0.2600
77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	1@1	25.1	24.12	0.2582
77	15	15	647167	3707.505	DFT-s-OFDM 16 QAM	1@77	25.11	24.13	0.2588
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	36@18	23.54	22.56	0.1803
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	1@1	23.64	22.66	0.1845
77	15	15	647167	3707.505	DFT-s-OFDM 64 QAM	1@77	23.64	22.66	0.1845
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	36@18	21.63	20.65	0.1161
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	1@1	21.36	20.38	0.1091
77	15	15	647167	3707.505	DFT-s-OFDM 256 QAM	1@77	21.35	20.37	0.1089
77	15	15	647167	3707.505	CP-OFDM QPSK	39@19	24.59	23.61	0.2296
77	15	15	647167	3707.505	CP-OFDM QPSK	1@1	24.48	23.5	0.2239
77	15	15	647167	3707.505	CP-OFDM QPSK	1@77	24.49	23.51	0.2244
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	36@18	26.02	25.04	0.3192
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.83	24.85	0.3055
77	15	15	656000	3840	DFT-s-OFDM PI/2 BPSK	1@77	25.85	24.87	0.3069
77	15	15	656000	3840	DFT-s-OFDM QPSK	36@18	26.05	25.07	0.3214
77	15	15	656000	3840	DFT-s-OFDM QPSK	1@1	25.87	24.89	0.3083
77	15	15	656000	3840	DFT-s-OFDM QPSK	1@77	25.89	24.91	0.3097
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	36@18	25.02	24.04	0.2535
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.9	23.92	0.2466
77	15	15	656000	3840	DFT-s-OFDM 16 QAM	1@77	24.92	23.94	0.2477
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	36@18	23.45	22.47	0.1766
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.45	22.47	0.1766
77	15	15	656000	3840	DFT-s-OFDM 64 QAM	1@77	23.43	22.45	0.1758
77	15	15	656000	3840	DFT-s-OFDM 256 QAM	36@18	21.53	20.55	0.1135

77	15	15	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.27	20.29	0.1069
77	15	15	656000	3840	DFT-s-OFDM 256 QAM	1@77	21.32	20.34	0.1081
77	15	15	656000	3840	CP-OFDM QPSK	39@19	24.52	23.54	0.2259
77	15	15	656000	3840	CP-OFDM QPSK	1@1	24.33	23.35	0.2163
77	15	15	656000	3840	CP-OFDM QPSK	1@77	24.39	23.41	0.2193
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	36@18	25.87	24.89	0.3083
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	1@1	25.72	24.74	0.2979
77	15	15	664833	3972.495	DFT-s-OFDM PI/2 BPSK	1@77	25.76	24.78	0.3006
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	36@18	25.88	24.9	0.3090
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	1@1	25.72	24.74	0.2979
77	15	15	664833	3972.495	DFT-s-OFDM QPSK	1@77	25.76	24.78	0.3006
77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	36@18	24.91	23.93	0.2472
77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	1@1	24.88	23.9	0.2455
77	15	15	664833	3972.495	DFT-s-OFDM 16 QAM	1@77	24.9	23.92	0.2466
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	36@18	23.31	22.33	0.1710
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	1@1	23.38	22.4	0.1738
77	15	15	664833	3972.495	DFT-s-OFDM 64 QAM	1@77	23.41	22.43	0.1750
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	36@18	21.39	20.41	0.1099
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	1@1	21.19	20.21	0.1050
77	15	15	664833	3972.495	DFT-s-OFDM 256 QAM	1@77	21.23	20.25	0.1059
77	15	15	664833	3972.495	CP-OFDM QPSK	39@19	24.37	23.39	0.2183
77	15	15	664833	3972.495	CP-OFDM QPSK	1@1	24.31	23.33	0.2153
77	15	15	664833	3972.495	CP-OFDM QPSK	1@77	24.39	23.41	0.2193
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	50@25	26.12	25.14	0.3266
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@1	25.86	24.88	0.3076
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@104	25.88	24.9	0.3090
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	50@25	26.13	25.15	0.3273
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@1	25.92	24.94	0.3119
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@104	25.89	24.91	0.3097
77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	50@25	25.13	24.15	0.2600

77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	1@1	24.95	23.97	0.2495
77	15	20	647334	3710.01	DFT-s-OFDM 16 QAM	1@104	24.94	23.96	0.2489
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	50@25	23.56	22.58	0.1811
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	1@1	23.51	22.53	0.1791
77	15	20	647334	3710.01	DFT-s-OFDM 64 QAM	1@104	23.49	22.51	0.1782
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	50@25	21.51	20.53	0.1130
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	1@1	21.34	20.36	0.1086
77	15	20	647334	3710.01	DFT-s-OFDM 256 QAM	1@104	21.35	20.37	0.1089
77	15	20	647334	3710.01	CP-OFDM QPSK	53@26	24.57	23.59	0.2286
77	15	20	647334	3710.01	CP-OFDM QPSK	1@1	24.37	23.39	0.2183
77	15	20	647334	3710.01	CP-OFDM QPSK	1@104	24.37	23.39	0.2183
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	50@25	26.03	25.05	0.3199
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.78	24.8	0.3020
77	15	20	656000	3840	DFT-s-OFDM PI/2 BPSK	1@104	25.79	24.81	0.3027
77	15	20	656000	3840	DFT-s-OFDM QPSK	50@25	26.04	25.06	0.3206
77	15	20	656000	3840	DFT-s-OFDM QPSK	1@1	25.82	24.84	0.3048
77	15	20	656000	3840	DFT-s-OFDM QPSK	1@104	25.81	24.83	0.3041
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	50@25	25.07	24.09	0.2564
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.85	23.87	0.2438
77	15	20	656000	3840	DFT-s-OFDM 16 QAM	1@104	24.84	23.86	0.2432
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	50@25	23.51	22.53	0.1791
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.39	22.41	0.1742
77	15	20	656000	3840	DFT-s-OFDM 64 QAM	1@104	23.41	22.43	0.1750
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	50@25	21.44	20.46	0.1112
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.28	20.3	0.1072
77	15	20	656000	3840	DFT-s-OFDM 256 QAM	1@104	21.24	20.26	0.1062
77	15	20	656000	3840	CP-OFDM QPSK	53@26	24.49	23.51	0.2244
77	15	20	656000	3840	CP-OFDM QPSK	1@1	24.33	23.35	0.2163
77	15	20	656000	3840	CP-OFDM QPSK	1@104	24.34	23.36	0.2168
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	50@25	25.88	24.9	0.3090

77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@1	25.65	24.67	0.2931
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@104	25.68	24.7	0.2951
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	50@25	25.92	24.94	0.3119
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@1	25.7	24.72	0.2965
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@104	25.74	24.76	0.2992
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	50@25	24.97	23.99	0.2506
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	1@1	24.72	23.74	0.2366
77	15	20	664666	3969.99	DFT-s-OFDM 16 QAM	1@104	24.75	23.77	0.2382
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	50@25	23.36	22.38	0.1730
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	1@1	23.31	22.33	0.1710
77	15	20	664666	3969.99	DFT-s-OFDM 64 QAM	1@104	23.32	22.34	0.1714
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	50@25	21.31	20.33	0.1079
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	1@1	21.16	20.18	0.1042
77	15	20	664666	3969.99	DFT-s-OFDM 256 QAM	1@104	21.17	20.19	0.1045
77	15	20	664666	3969.99	CP-OFDM QPSK	53@26	24.37	23.39	0.2183
77	15	20	664666	3969.99	CP-OFDM QPSK	1@1	24.26	23.28	0.2128
77	15	20	664666	3969.99	CP-OFDM QPSK	1@104	24.32	23.34	0.2158
77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	108@54	26.13	25.15	0.3273
77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	1@1	25.49	24.51	0.2825
77	15	40	648000	3720	DFT-s-OFDM PI/2 BPSK	1@214	25.57	24.59	0.2877
77	15	40	648000	3720	DFT-s-OFDM QPSK	108@54	26.16	25.18	0.3296
77	15	40	648000	3720	DFT-s-OFDM QPSK	1@1	25.51	24.53	0.2838
77	15	40	648000	3720	DFT-s-OFDM QPSK	1@214	25.61	24.63	0.2904
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	108@54	25.15	24.17	0.2612
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	1@1	24.56	23.58	0.2280
77	15	40	648000	3720	DFT-s-OFDM 16 QAM	1@214	24.64	23.66	0.2323
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	108@54	23.66	22.68	0.1854
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	1@1	23.1	22.12	0.1629
77	15	40	648000	3720	DFT-s-OFDM 64 QAM	1@214	23.2	22.22	0.1667
77	15	40	648000	3720	DFT-s-OFDM 256 QAM	108@54	21.65	20.67	0.1167

77	15	40	648000	3720	DFT-s-OFDM 256 QAM	1@1	20.93	19.95	0.0989
77	15	40	648000	3720	DFT-s-OFDM 256 QAM	1@214	21.02	20.04	0.1009
77	15	40	648000	3720	CP-OFDM QPSK	108@54	24.59	23.61	0.2296
77	15	40	648000	3720	CP-OFDM QPSK	1@1	23.93	22.95	0.1972
77	15	40	648000	3720	CP-OFDM QPSK	1@214	23.99	23.01	0.2000
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	108@54	25.99	25.01	0.3170
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.31	24.33	0.2710
77	15	40	656000	3840	DFT-s-OFDM PI/2 BPSK	1@214	25.4	24.42	0.2767
77	15	40	656000	3840	DFT-s-OFDM QPSK	108@54	26.01	25.03	0.3184
77	15	40	656000	3840	DFT-s-OFDM QPSK	1@1	25.34	24.36	0.2729
77	15	40	656000	3840	DFT-s-OFDM QPSK	1@214	25.41	24.43	0.2773
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	108@54	24.99	24.01	0.2518
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.38	23.4	0.2188
77	15	40	656000	3840	DFT-s-OFDM 16 QAM	1@214	24.43	23.45	0.2213
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	108@54	23.51	22.53	0.1791
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	1@1	22.96	21.98	0.1578
77	15	40	656000	3840	DFT-s-OFDM 64 QAM	1@214	23	22.02	0.1592
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	108@54	21.47	20.49	0.1119
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	1@1	20.75	19.77	0.0948
77	15	40	656000	3840	DFT-s-OFDM 256 QAM	1@214	20.84	19.86	0.0968
77	15	40	656000	3840	CP-OFDM QPSK	108@54	24.44	23.46	0.2218
77	15	40	656000	3840	CP-OFDM QPSK	1@1	23.85	22.87	0.1936
77	15	40	656000	3840	CP-OFDM QPSK	1@214	23.86	22.88	0.1941
77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	108@54	25.84	24.86	0.3062
77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	1@1	25.27	24.29	0.2685
77	15	40	664000	3960	DFT-s-OFDM PI/2 BPSK	1@214	25.23	24.25	0.2661
77	15	40	664000	3960	DFT-s-OFDM QPSK	108@54	25.87	24.89	0.3083
77	15	40	664000	3960	DFT-s-OFDM QPSK	1@1	25.27	24.29	0.2685
77	15	40	664000	3960	DFT-s-OFDM QPSK	1@214	25.31	24.33	0.2710
77	15	40	664000	3960	DFT-s-OFDM 16 QAM	108@54	24.86	23.88	0.2443

77	15	40	664000	3960	DFT-s-OFDM 16 QAM	1@1	24.34	23.36	0.2168
77	15	40	664000	3960	DFT-s-OFDM 16 QAM	1@214	24.33	23.35	0.2163
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	108@54	23.37	22.39	0.1734
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	1@1	22.89	21.91	0.1552
77	15	40	664000	3960	DFT-s-OFDM 64 QAM	1@214	22.88	21.9	0.1549
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	108@54	21.33	20.35	0.1084
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	1@1	20.72	19.74	0.0942
77	15	40	664000	3960	DFT-s-OFDM 256 QAM	1@214	20.7	19.72	0.0938
77	15	40	664000	3960	CP-OFDM QPSK	108@54	24.27	23.29	0.2133
77	15	40	664000	3960	CP-OFDM QPSK	1@1	23.81	22.83	0.1919
77	15	40	664000	3960	CP-OFDM QPSK	1@214	23.73	22.75	0.1884
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	135@67	26.12	25.14	0.3266
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	1@1	25.74	24.76	0.2992
77	15	50	648334	3725.01	DFT-s-OFDM PI/2 BPSK	1@268	25.83	24.85	0.3055
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	135@67	26.12	25.14	0.3266
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@1	25.78	24.8	0.3020
77	15	50	648334	3725.01	DFT-s-OFDM QPSK	1@268	25.86	24.88	0.3076
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	135@67	25.11	24.13	0.2588
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	1@1	24.83	23.85	0.2427
77	15	50	648334	3725.01	DFT-s-OFDM 16 QAM	1@268	24.9	23.92	0.2466
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	135@67	23.62	22.64	0.1837
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	1@1	23.36	22.38	0.1730
77	15	50	648334	3725.01	DFT-s-OFDM 64 QAM	1@268	23.44	22.46	0.1762
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	135@67	21.58	20.6	0.1148
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	1@1	21.2	20.22	0.1052
77	15	50	648334	3725.01	DFT-s-OFDM 256 QAM	1@268	21.29	20.31	0.1074
77	15	50	648334	3725.01	CP-OFDM QPSK	135@67	24.6	23.62	0.2301
77	15	50	648334	3725.01	CP-OFDM QPSK	1@1	24.29	23.31	0.2143
77	15	50	648334	3725.01	CP-OFDM QPSK	1@268	24.39	23.41	0.2193
77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	135@67	25.97	24.99	0.3155

77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	1@1	25.61	24.63	0.2904
77	15	50	656000	3840	DFT-s-OFDM PI/2 BPSK	1@268	25.69	24.71	0.2958
77	15	50	656000	3840	DFT-s-OFDM QPSK	135@67	25.99	25.01	0.3170
77	15	50	656000	3840	DFT-s-OFDM QPSK	1@1	25.65	24.67	0.2931
77	15	50	656000	3840	DFT-s-OFDM QPSK	1@268	25.72	24.74	0.2979
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	135@67	24.99	24.01	0.2518
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	1@1	24.68	23.7	0.2344
77	15	50	656000	3840	DFT-s-OFDM 16 QAM	1@268	24.76	23.78	0.2388
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	135@67	23.51	22.53	0.1791
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	1@1	23.21	22.23	0.1671
77	15	50	656000	3840	DFT-s-OFDM 64 QAM	1@268	23.3	22.32	0.1706
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	135@67	21.46	20.48	0.1117
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	1@1	21.07	20.09	0.1021
77	15	50	656000	3840	DFT-s-OFDM 256 QAM	1@268	21.15	20.17	0.1040
77	15	50	656000	3840	CP-OFDM QPSK	135@67	24.49	23.51	0.2244
77	15	50	656000	3840	CP-OFDM QPSK	1@1	24.14	23.16	0.2070
77	15	50	656000	3840	CP-OFDM QPSK	1@268	24.24	23.26	0.2118
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	135@67	25.79	24.81	0.3027
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	1@1	25.52	24.54	0.2844
77	15	50	663666	3954.99	DFT-s-OFDM PI/2 BPSK	1@268	25.53	24.55	0.2851
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	135@67	25.82	24.84	0.3048
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@1	25.59	24.61	0.2891
77	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@268	25.59	24.61	0.2891
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	135@67	24.82	23.84	0.2421
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	1@1	24.61	23.63	0.2307
77	15	50	663666	3954.99	DFT-s-OFDM 16 QAM	1@268	24.6	23.62	0.2301
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	135@67	23.35	22.37	0.1726
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	1@1	23.23	22.25	0.1679
77	15	50	663666	3954.99	DFT-s-OFDM 64 QAM	1@268	23.22	22.24	0.1675
77	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	135@67	21.29	20.31	0.1074

<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	1@1	21	20.02	0.1005
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM 256 QAM	1@268	21.03	20.05	0.1012
<b>77</b>	15	50	663666	3954.99	CP-OFDM QPSK	135@67	24.3	23.32	0.2148
<b>77</b>	15	50	663666	3954.99	CP-OFDM QPSK	1@1	24.04	23.06	0.2023
<b>77</b>	15	50	663666	3954.99	CP-OFDM QPSK	1@268	24.1	23.12	0.2051

## 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	0.00269	PASS	NV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00378	PASS	LV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00222	PASS	HV
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00605	PASS	-30°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00502	PASS	-20°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00372	PASS	-10°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00265	PASS	0°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00314	PASS	10°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00502	PASS	20°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00048	PASS	30°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00504	PASS	40°C
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	0.00402	PASS	50°C

## Peak to Average Ratio

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	4.15	13	PASS
77	15	20	647334	3710.01	DFT-s-OFDM PI/2 BPSK	1@0	4.72	13	PASS
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	100@0	5.32	13	PASS
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	7.42	13	PASS
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	100@0	3.93	13	PASS
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	1@0	5.67	13	PASS
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	5.06	13	PASS
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	1@0	7.01	13	PASS
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	100@0	3.9	13	PASS
77	15	20	664666	3969.99	DFT-s-OFDM PI/2 BPSK	1@0	4.37	13	PASS
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	100@0	4.75	13	PASS
77	15	20	664666	3969.99	DFT-s-OFDM QPSK	1@0	6.79	13	PASS

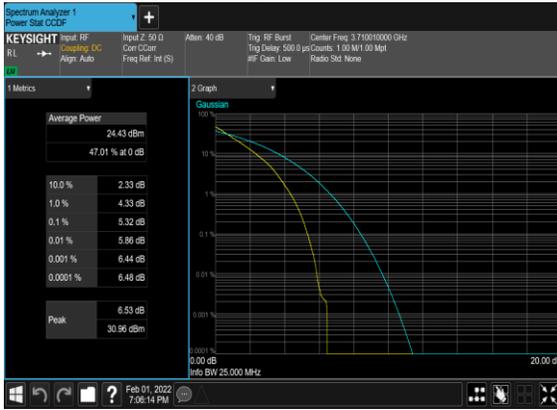
N77(20M)\_DFT-s-OFDM\_PI\_2-BPSK\_Outer\_Full\_Low\_CH



N77(20M)\_DFT-s-OFDM\_PI\_2-BPSK\_Edge\_1RB\_Left\_Low\_CH



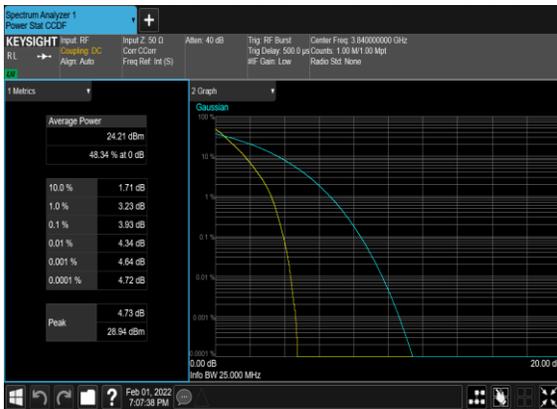
N77(20M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Low\_CH



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



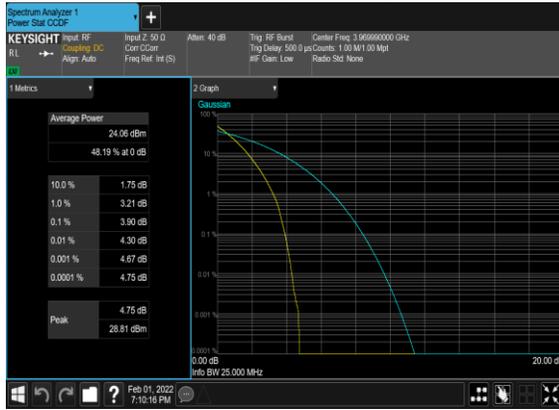
N77(20M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



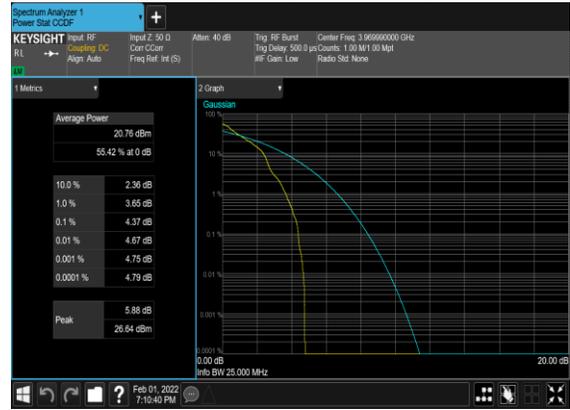
N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



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

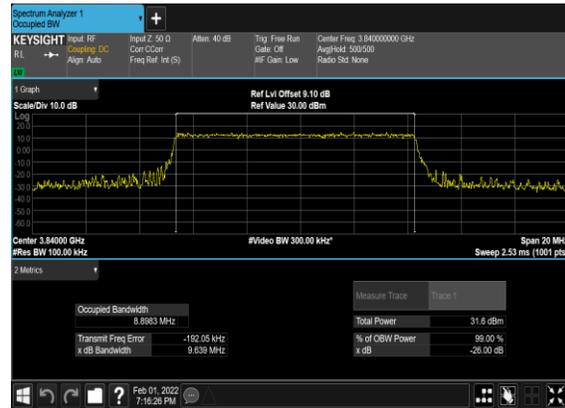
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
77	15	10	656000	3840.0	DFT-s-OFDM PI/2 BPSK	50@0	8.9288	9.749
77	15	10	656000	3840.0	DFT-s-OFDM QPSK	50@0	8.8983	9.639
77	15	10	656000	3840.0	CP-OFDM QPSK	52@0	9.2778	10.1
77	15	10	656000	3840.0	CP-OFDM 16 QAM	52@0	9.2802	9.744
77	15	10	656000	3840.0	CP-OFDM 64 QAM	52@0	9.2694	9.924
77	15	10	656000	3840.0	CP-OFDM 256 QAM	52@0	9.2496	9.872
77	15	15	656000	3840.0	DFT-s-OFDM PI/2 BPSK	75@0	13.387	13.97
77	15	15	656000	3840.0	DFT-s-OFDM QPSK	75@0	13.39	14.08
77	15	15	656000	3840.0	CP-OFDM QPSK	79@0	14.104	14.8
77	15	15	656000	3840.0	CP-OFDM 16 QAM	79@0	14.113	14.78
77	15	15	656000	3840.0	CP-OFDM 64 QAM	79@0	14.051	14.76
77	15	15	656000	3840.0	CP-OFDM 256 QAM	79@0	14.079	14.65
77	15	20	656000	3840.0	DFT-s-OFDM PI/2 BPSK	100@0	17.852	18.82
77	15	20	656000	3840.0	DFT-s-OFDM QPSK	100@0	17.863	18.8
77	15	20	656000	3840.0	CP-OFDM QPSK	106@0	18.935	19.75
77	15	20	656000	3840.0	CP-OFDM 16 QAM	106@0	18.888	19.82
77	15	20	656000	3840.0	CP-OFDM 64 QAM	106@0	18.925	19.76
77	15	20	656000	3840.0	CP-OFDM 256 QAM	106@0	18.89	19.92
77	15	40	656000	3840.0	DFT-s-OFDM PI/2 BPSK	216@0	38.561	39.97
77	15	40	656000	3840.0	DFT-s-OFDM QPSK	216@0	38.559	39.9
77	15	40	656000	3840.0	CP-OFDM QPSK	216@0	38.563	40.43
77	15	40	656000	3840.0	CP-OFDM 16 QAM	216@0	38.508	39.87
77	15	40	656000	3840.0	CP-OFDM 64 QAM	216@0	38.609	39.97
77	15	40	656000	3840.0	CP-OFDM 256 QAM	216@0	38.594	39.99

77	15	50	656000	3840.0	DFT-s-OFDM PI/2 BPSK	270@0	48.154	49.93
77	15	50	656000	3840.0	DFT-s-OFDM QPSK	270@0	48.232	49.9
77	15	50	656000	3840.0	CP-OFDM QPSK	270@0	48.186	49.85
77	15	50	656000	3840.0	CP-OFDM 16 QAM	270@0	48.137	49.8
77	15	50	656000	3840.0	CP-OFDM 64 QAM	270@0	48.159	49.76
77	15	50	656000	3840.0	CP-OFDM 256 QAM	270@0	48.091	49.98

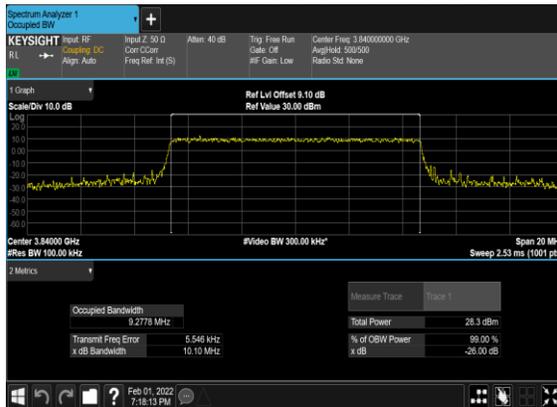
N77(10M)\_DFT-s-OFDM\_PI\_2-  
BPSK\_Outer\_Full\_Mid\_CH



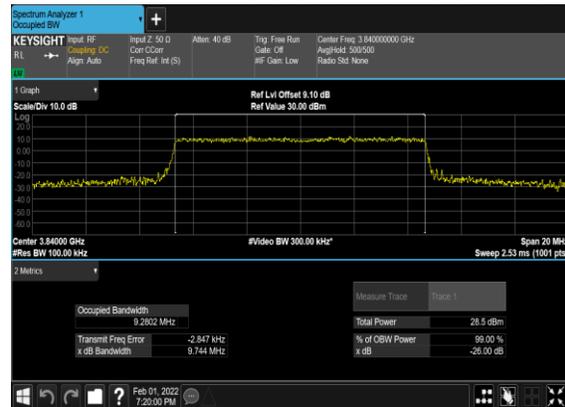
N77(10M)\_DFT-s-  
OFDM\_QPSK\_Outer\_Full\_Mid\_CH



N77(10M)\_CP-  
OFDM\_QPSK\_Outer\_Full\_Mid\_CH



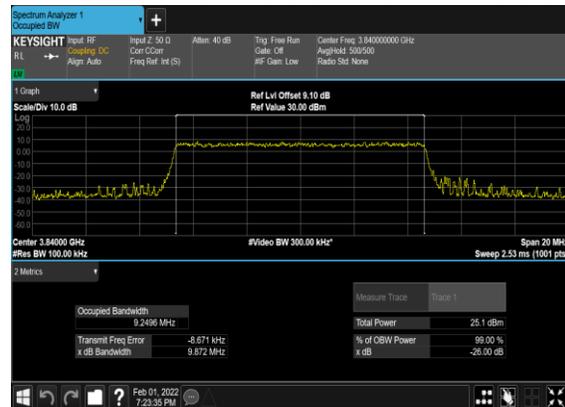
N77(10M)\_CP-OFDM\_16  
QAM\_Outer\_Full\_Mid\_CH



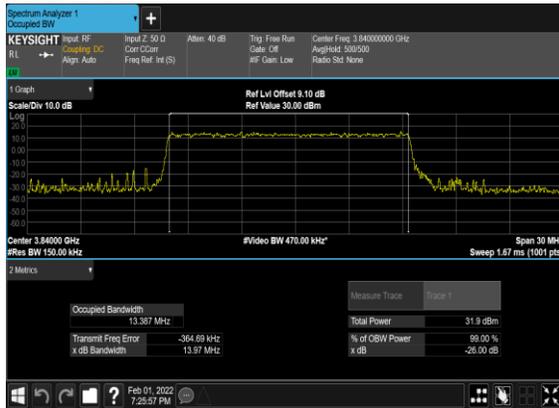
N77(10M)\_CP-OFDM\_64  
QAM\_Outer\_Full\_Mid\_CH



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



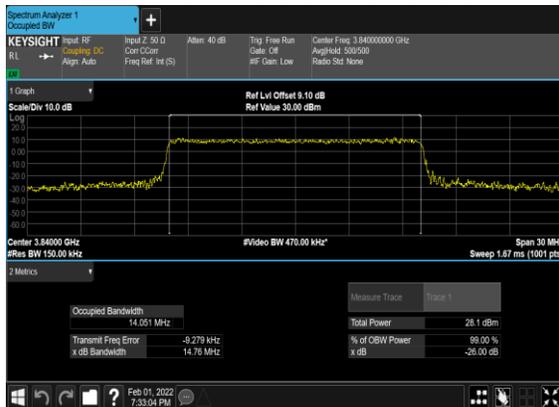
N77(15M)\_CP-  
OFDM\_QPSK\_Outer\_Full\_Mid\_CH



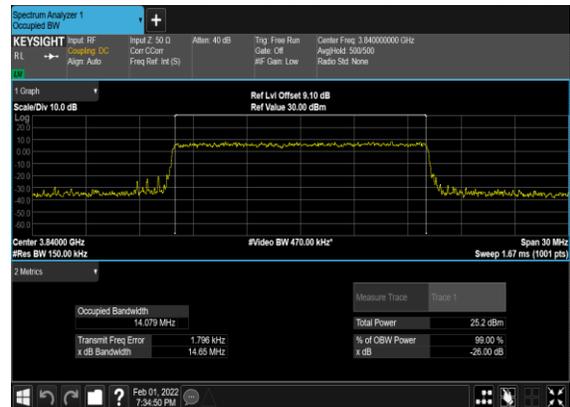
N77(15M)\_CP-OFDM\_16  
QAM\_Outer\_Full\_Mid\_CH



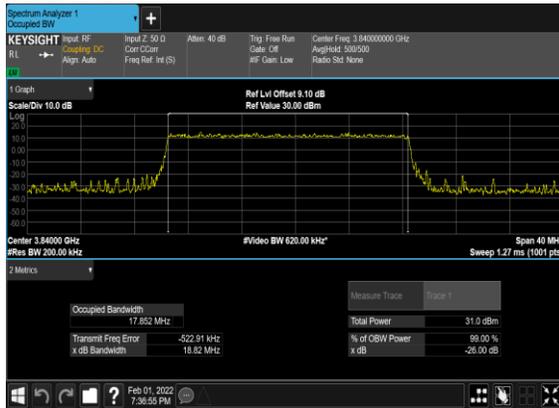
N77(15M)\_CP-OFDM\_64  
QAM\_Outer\_Full\_Mid\_CH



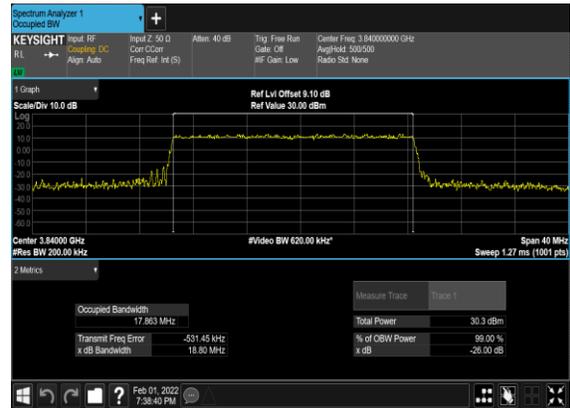
N77(15M)\_CP-OFDM\_256  
QAM\_Outer\_Full\_Mid\_CH



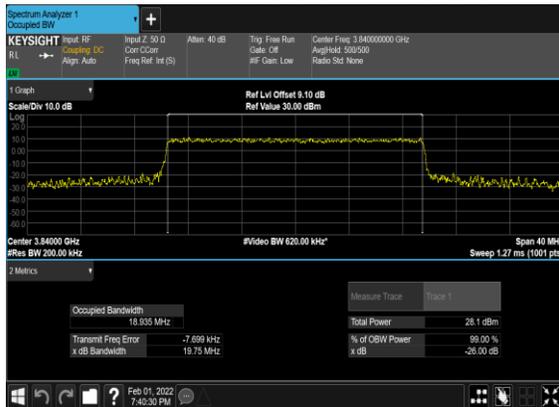
### N77(20M)\_DFT-s-OFDM\_PI\_2-BPSK\_Outer\_Full\_Mid\_CH



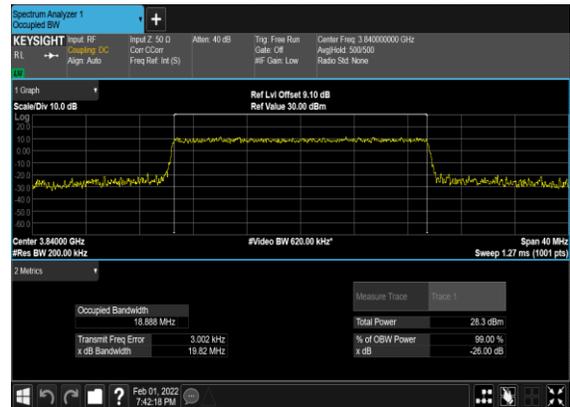
### N77(20M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



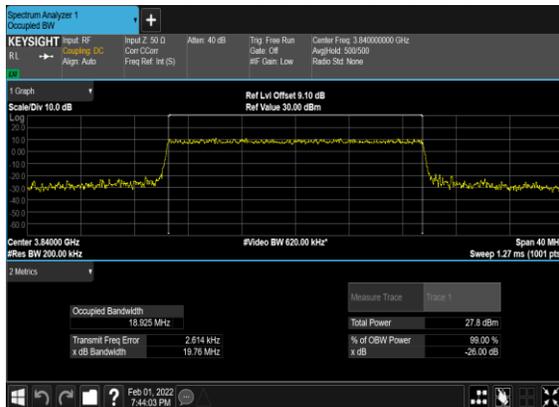
### N77(20M)\_CP-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



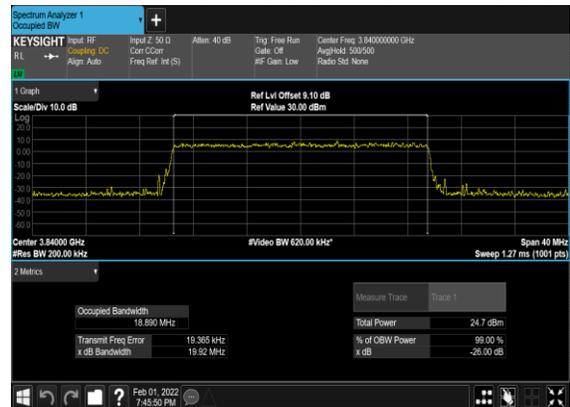
### N77(20M)\_CP-OFDM\_16QAM\_Outer\_Full\_Mid\_CH



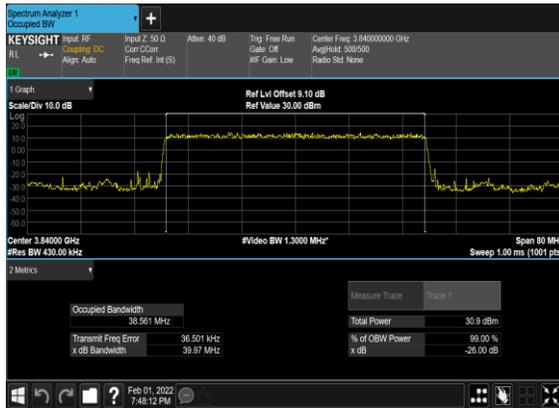
### N77(20M)\_CP-OFDM\_64QAM\_Outer\_Full\_Mid\_CH



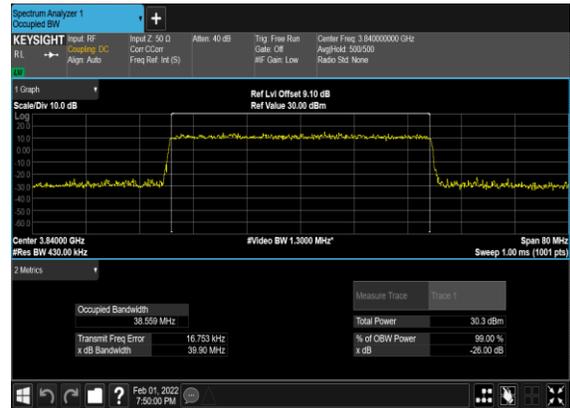
### N77(20M)\_CP-OFDM\_256QAM\_Outer\_Full\_Mid\_CH



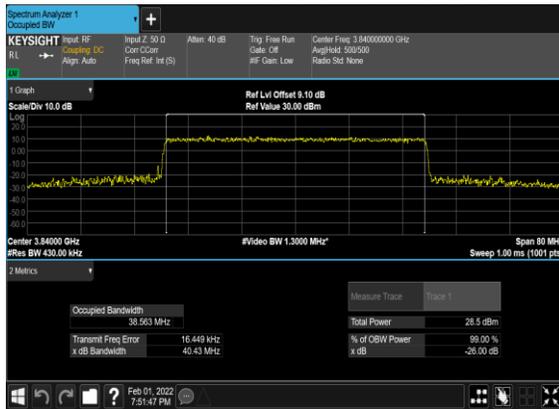
### N77(40M)\_DFT-s-OFDM\_PI\_2-BPSK\_Outer\_Full\_Mid\_CH



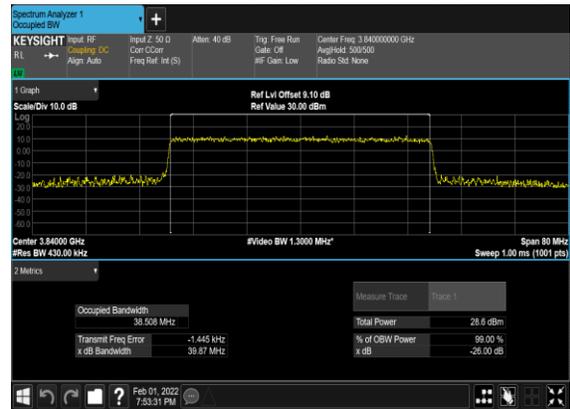
### N77(40M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



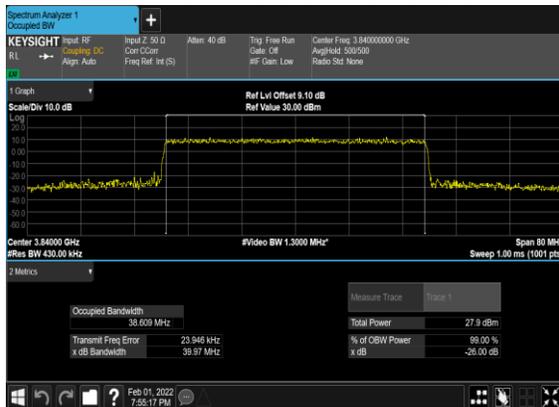
### N77(40M)\_CP-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



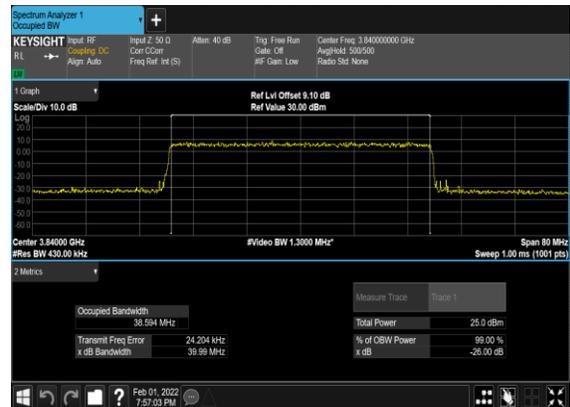
### N77(40M)\_CP-OFDM\_16QAM\_Outer\_Full\_Mid\_CH



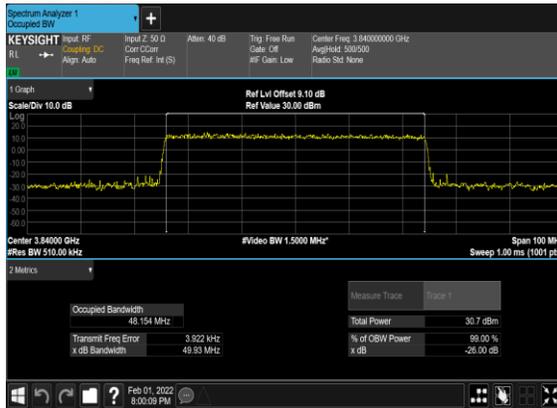
### N77(40M)\_CP-OFDM\_64QAM\_Outer\_Full\_Mid\_CH



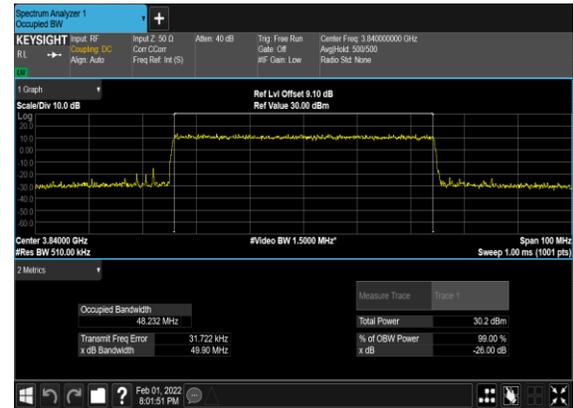
### N77(40M)\_CP-OFDM\_256QAM\_Outer\_Full\_Mid\_CH



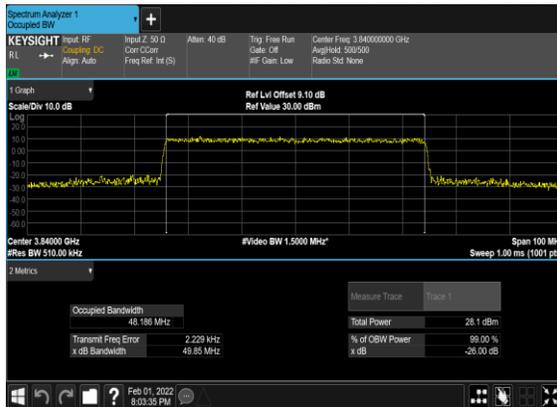
### N77(50M)\_DFT-s-OFDM\_PI\_2-BPSK\_Outer\_Full\_Mid\_CH



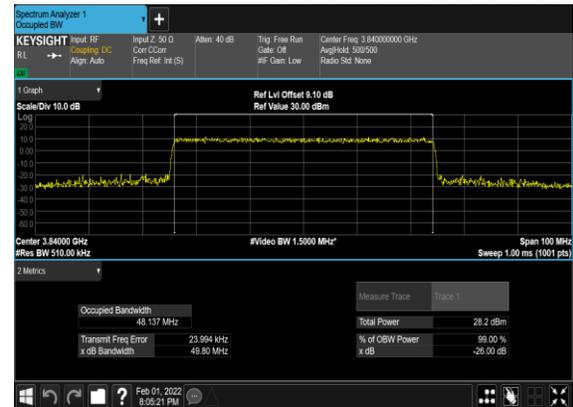
### N77(50M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



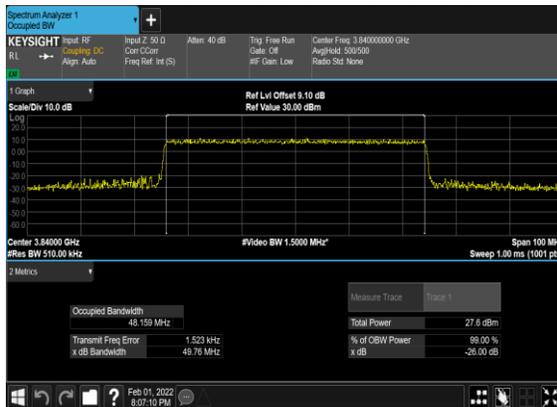
### N77(50M)\_CP-OFDM\_QPSK\_Outer\_Full\_Mid\_CH



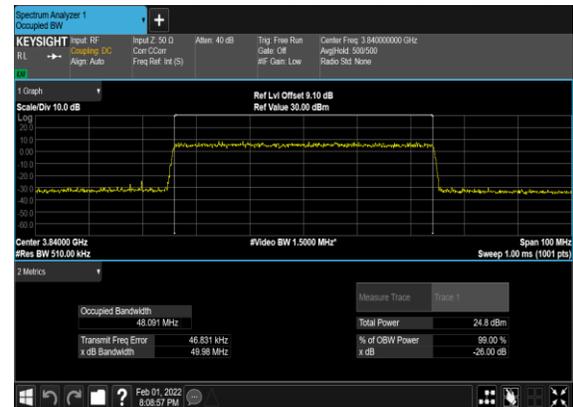
### N77(50M)\_CP-OFDM\_16QAM\_Outer\_Full\_Mid\_CH



### N77(50M)\_CP-OFDM\_64QAM\_Outer\_Full\_Mid\_CH



### N77(50M)\_CP-OFDM\_256QAM\_Outer\_Full\_Mid\_CH



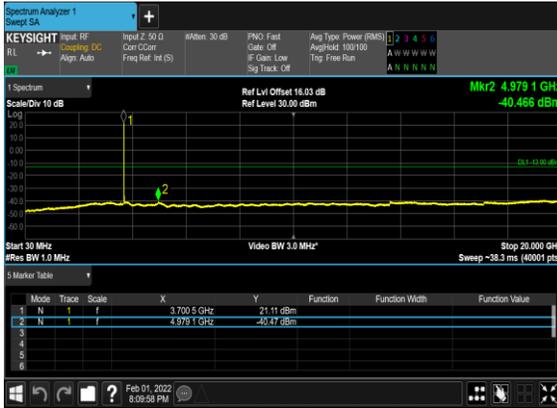
## Conducted Spurious Emissions

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	---

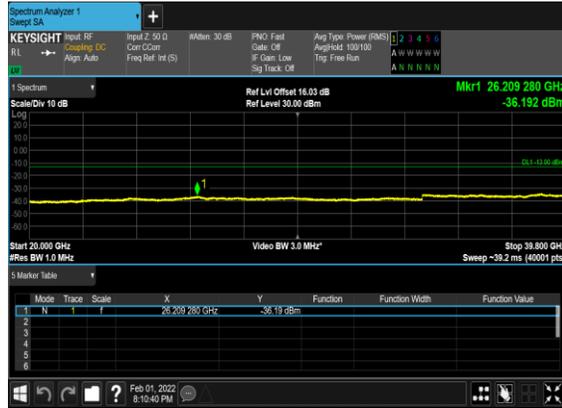
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	15	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	---
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	15	20	656000	3840.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	15	20	656000	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	---

<b>77</b>	15	50	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	<b>PASS</b>
<b>77</b>	15	50	656000	3840.0	DFT-s-OFDM QPSK	1@0	see graph	<b>PASS</b>
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	---
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	<b>PASS</b>
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM BPSK	1@0	see graph	<b>PASS</b>
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	---
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	<b>PASS</b>
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM QPSK	1@0	see graph	<b>PASS</b>

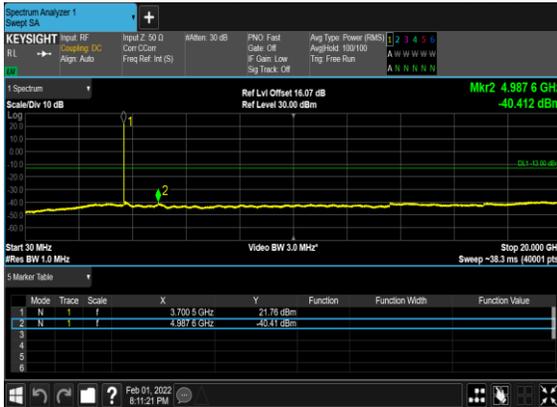
### N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



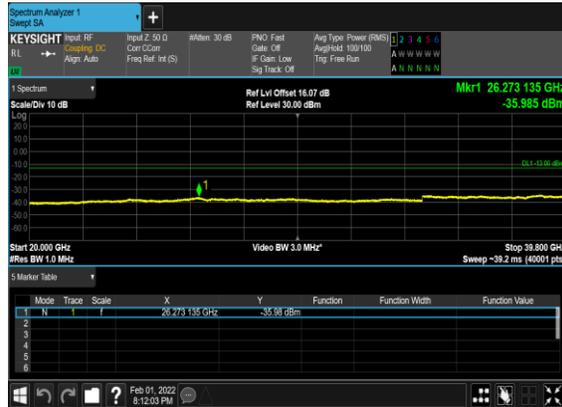
### N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



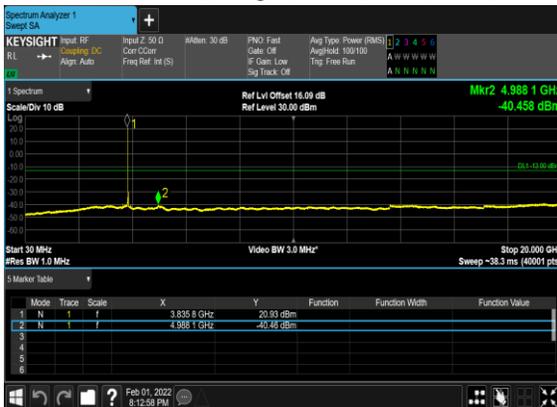
### N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



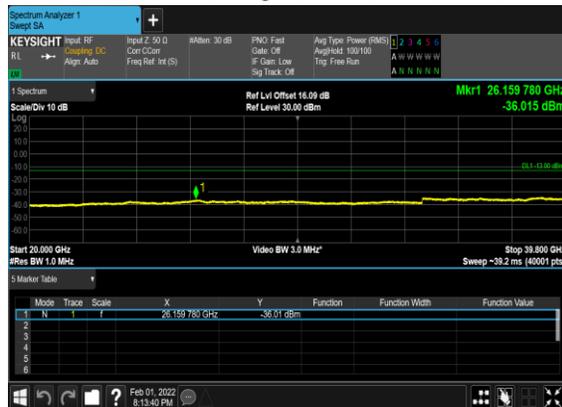
### N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



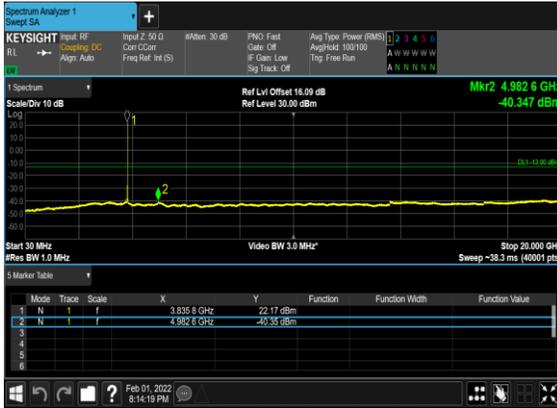
### N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



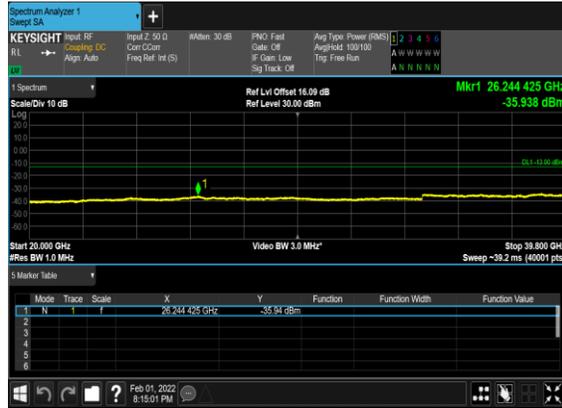
### N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



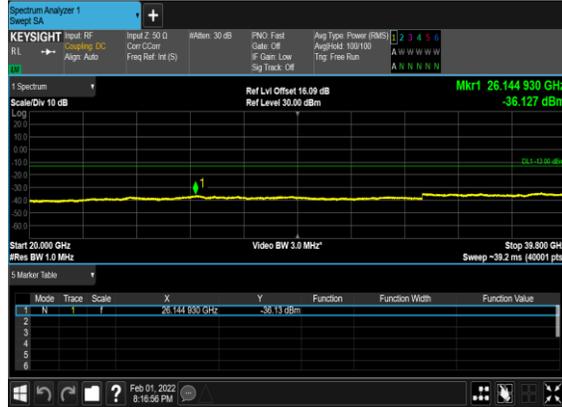
N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



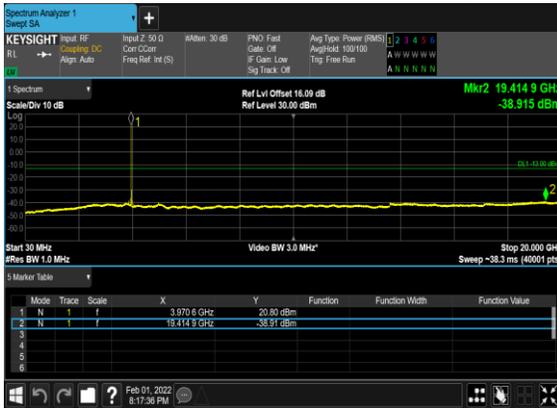
N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



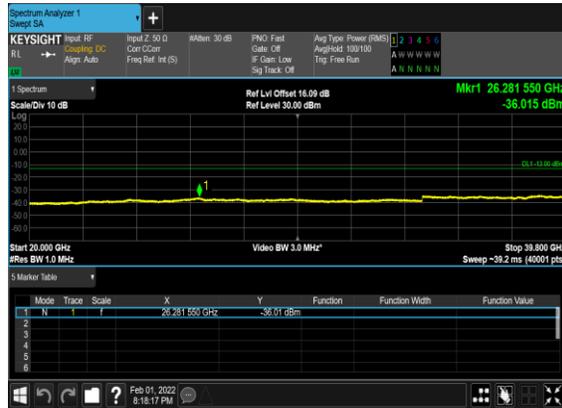
N77(10M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



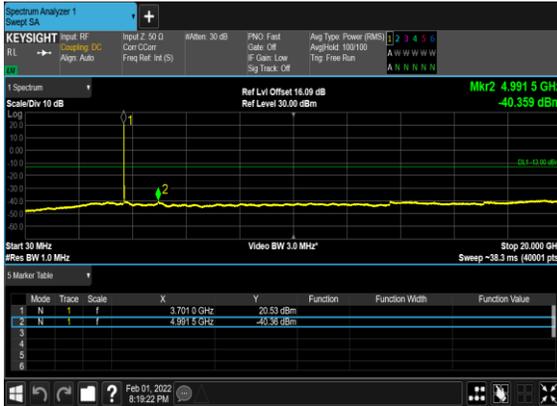
N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_High\_CH



N77(10M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_High\_CH



### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



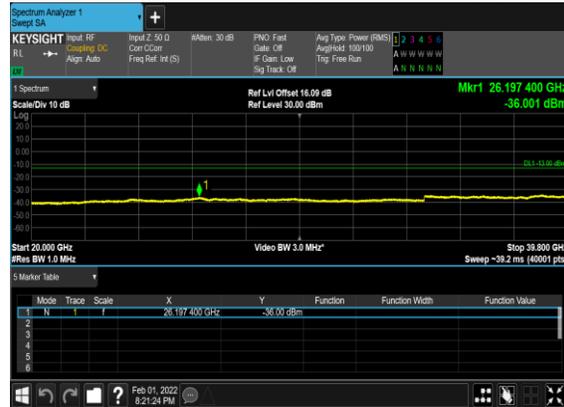
### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



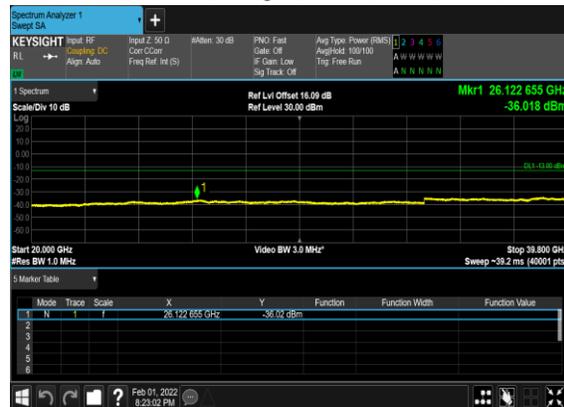
### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



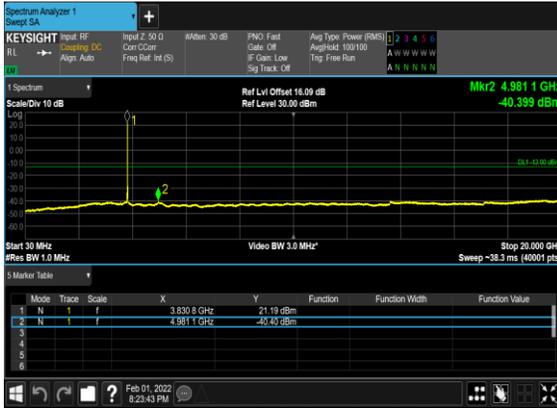
### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



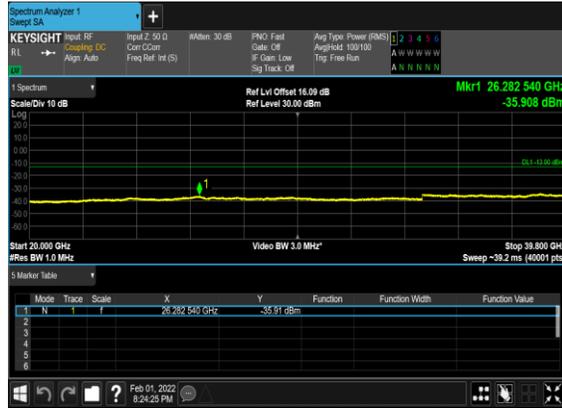
### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



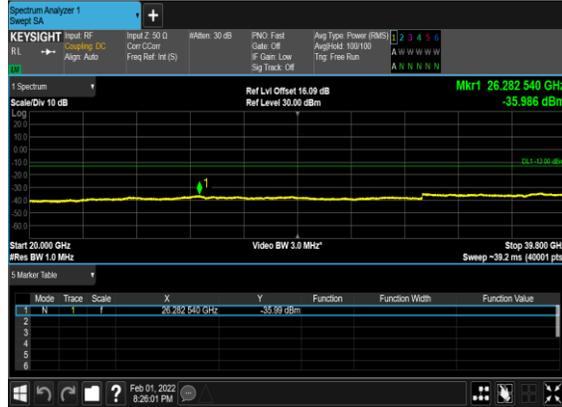
### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



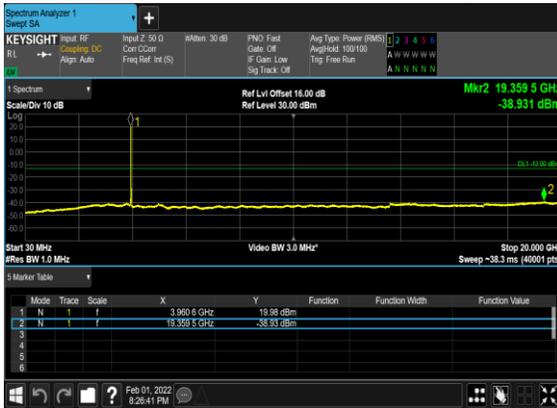
### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



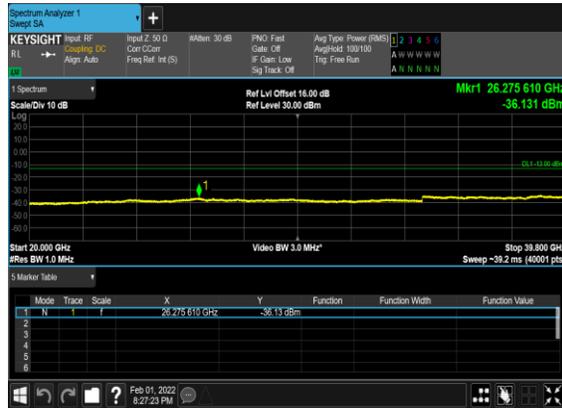
### N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



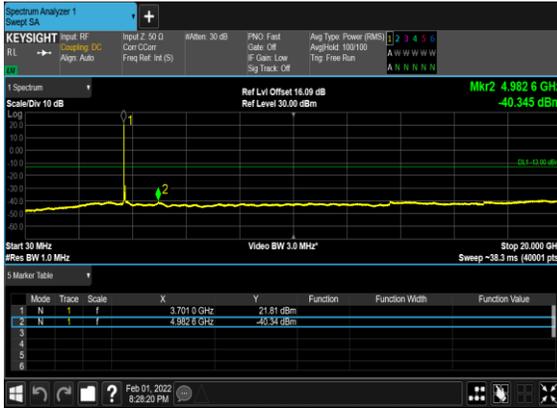
### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_High\_CH



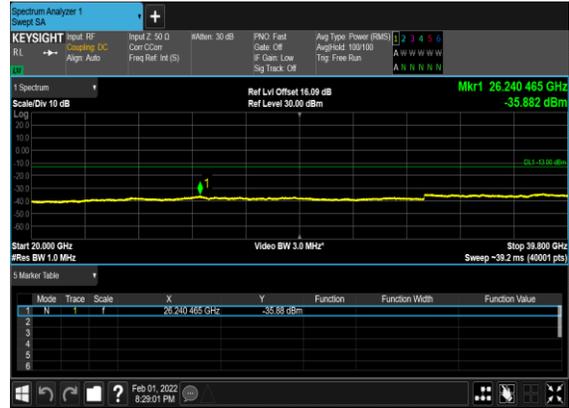
### N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_High\_CH



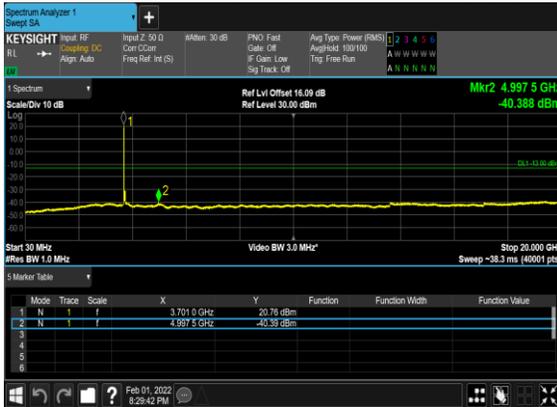
### N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



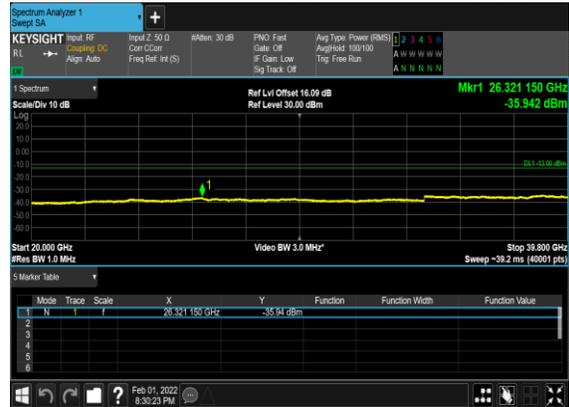
### N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



### N77(50M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



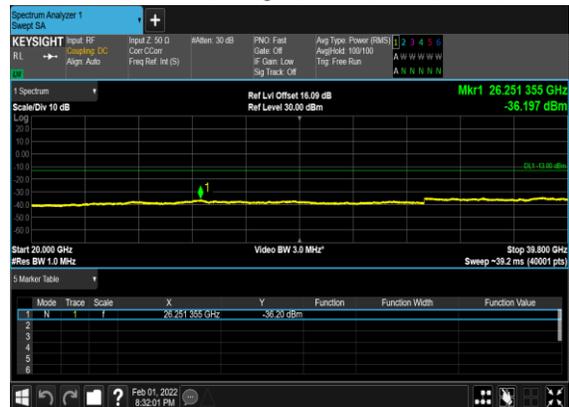
### N77(50M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



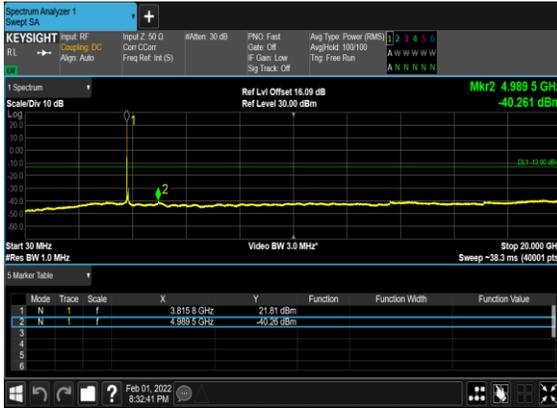
### N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



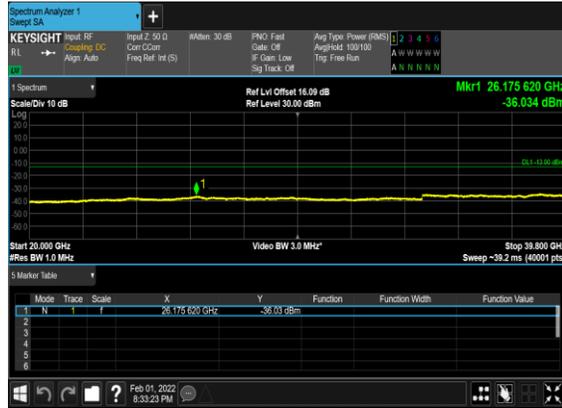
### N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Mid\_CH



N77(50M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



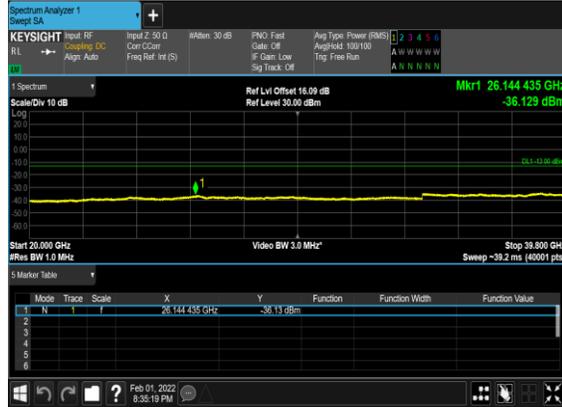
N77(50M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Mid\_CH



N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



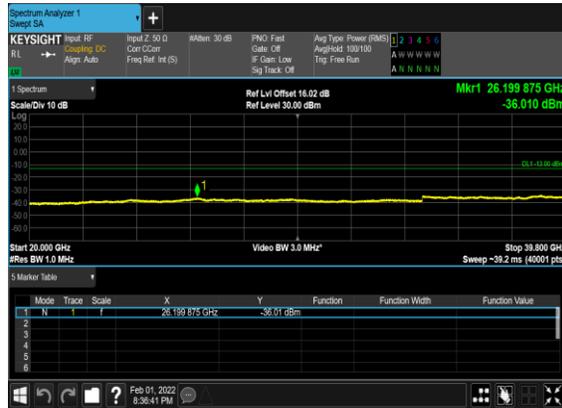
N77(50M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_High\_CH



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

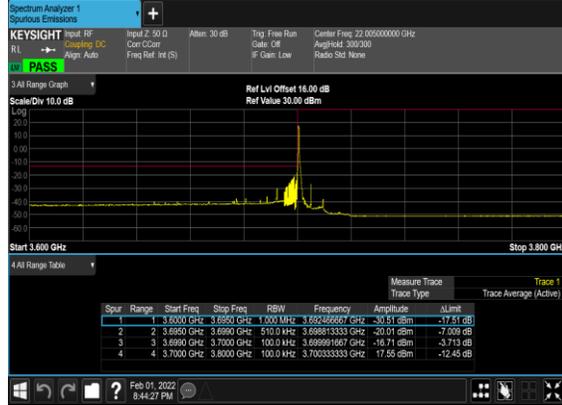
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	15	10	647000	3705.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
77	15	10	647000	3705.0	DFT-s-OFDM QPSK	50@0	see 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

<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM BPSK	270@0	see graph	<b>PASS</b>
<b>77</b>	15	50	663666	3954.99	DFT-s-OFDM QPSK	270@0	see graph	<b>PASS</b>

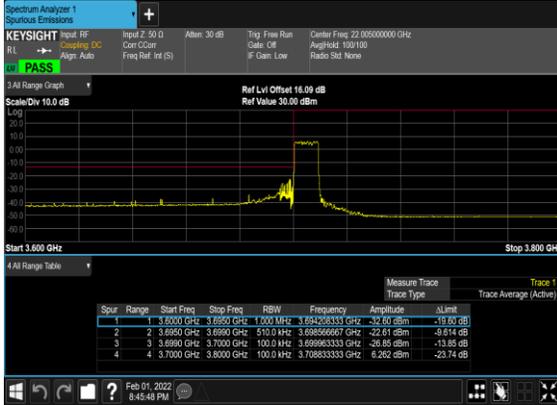
N77(10M)\_DFT-s-  
OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



N77(10M)\_DFT-s-  
OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



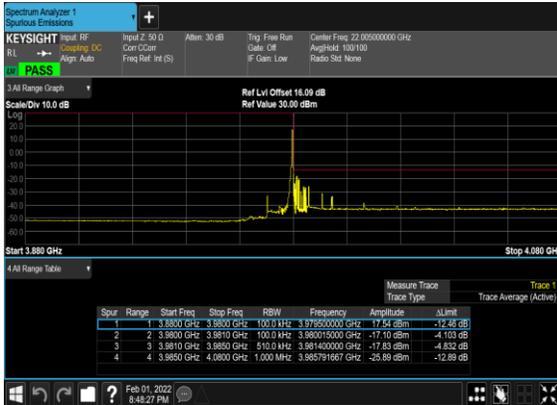
N77(10M)\_DFT-s-  
OFDM\_BPSK\_Outer\_Full\_Low\_CH



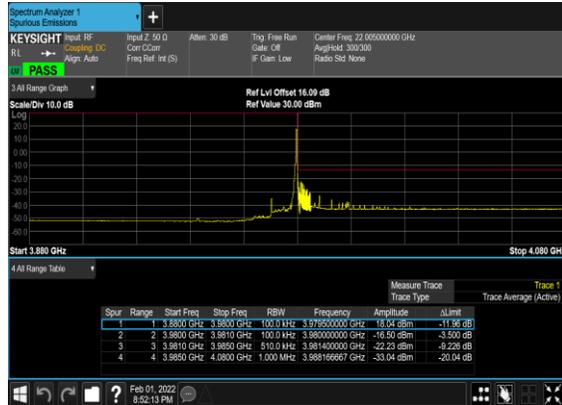
N77(10M)\_DFT-s-  
OFDM\_QPSK\_Outer\_Full\_Low\_CH



N77(10M)\_DFT-s-  
OFDM\_BPSK\_Edge\_1RB\_Right\_High\_CH



N77(10M)\_DFT-s-  
OFDM\_QPSK\_Edge\_1RB\_Right\_High\_CH



N77(10M)\_DFT-s-OFDM\_BPSK\_Outer\_Full\_High\_CH



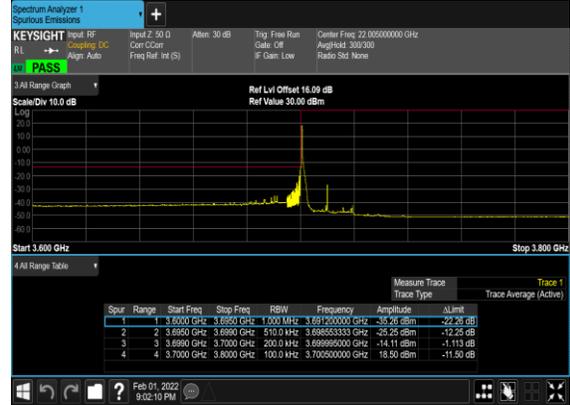
N77(10M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_High\_CH



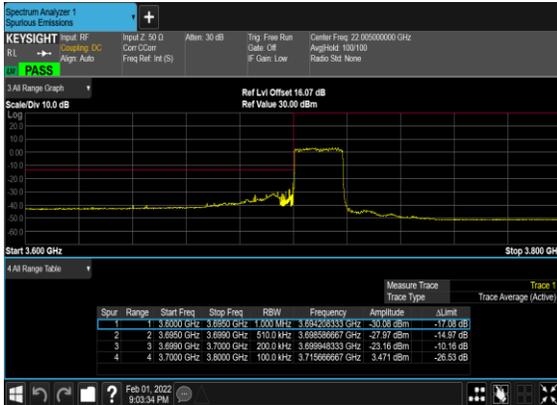
N77(20M)\_DFT-s-OFDM\_BPSK\_Edge\_1RB\_Left\_Low\_CH



N77(20M)\_DFT-s-OFDM\_QPSK\_Edge\_1RB\_Left\_Low\_CH



N77(20M)\_DFT-s-OFDM\_BPSK\_Outer\_Full\_Low\_CH



N77(20M)\_DFT-s-OFDM\_QPSK\_Outer\_Full\_Low\_CH

