FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2237-1
FCC ID	: IHDT56AJ1
STANDARD	: 47 CFR Part 2, Part 27 Subpart Q
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Oct. 25, 2022 ~ Nov. 07, 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.

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

Jason Jia

Approved by: Jason Jia

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

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG2O0909H	Rev. 01	Initial issue of report	Nov. 23, 2022

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	—	Report Only	-
3.5	§27.50 (k)(4)	Peak-to-Average Ratio	<13dB	PASS	-
3.6	§27.50 (k)(3)	EIRP	EIRP < 1W (30dBm)	PASS	-
3.7	§2.1049	Occupied Bandwidth	—	Report Only	-
3.8	§2.1051 §27.53 (n)(2)	Conducted Band Edge Measurement	-13dBm/MHz	PASS	-
3.9	§2.1051 §27.53 (n)(2)	Conducted Spurious Emission	-13dBm/MHz	PASS	-
3.10	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within the band	PASS	-
4.4	§2.1053 §27.53 (n)(2)	Radiated Spurious Emission	-13dBm/MHz	PASS	Under limit 37.43 dB at 10368.000 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

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2237-1
FCC ID	IHDT56AJ1
IMEI Code	Conducted : 352182740025347/352182740025382 Radiation : 352182740025754/352182740025762
HW Version	DVT2
SW Version	TTN33.40
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Product Feature	
Tx/Rx Frequency	5G NR n78: 3450 MHz ~ 3550 MHz
Bandwidth	**For SCS 15kHz:** 10MHz / 15MHz / 20MHz / 30MHz / 40MHz / 50MHz **For SCS 30kHz:** 10MHz / 15MHz / 20MHz / 30MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
SCS	15kHz/30kHz
Antenna Gain	Ant. 1: -3.5 dBi Ant. 3: -6.3 dBi Ant. 5: -3.9 dBi Ant. 7: -6.3 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 of Ant.5 is shown in the report.
2. The device supports n78(1T4R) SRS resources on Ant.1/3/5/7, only the test data of worst Ant.5 is showed in the report according to the maximum power.

3. 5G NR support SA mode and NSA mode. According to the maximum power between SA and NSA mode, SA covers NSA mode for conducted test items.
4. All the supported ENDC combinations are verified conducted power, only the ENDC combination with highest power are shown in the report.
5. The EN-DC mode combination could be referred to the product spec.
6. For NSA mode of RSE testing, we only choose the combination of the maximum power among all NSA combinations to test.

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-301
AC Adapter 1(EU)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-302
AC Adapter 1(UK)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-303
AC Adapter 1(AU)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-305
AC Adapter 1(AR)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-306
AC Adapter 1(BR)	**Brand Name**	Motorola(Salom)	**Model Name**	MC-307
AC Adapter 2(IN)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-304
Battery 1	**Brand Name**	Motorola (Sunwoda)	**Model Name**	PV50
Battery 2	**Brand Name**	Motorola (SCUD)	**Model Name**	PV50
Earphone 1	**Brand Name**	Motorola(Juwei)	**Model Name**	MH202
USB Cable 1	**Brand Name**	Saibao	**Model Name**	SC18D13215
USB Cable 2	**Brand Name**	Cabletech	**Model Name**	SC18D13216
USB Cable 3	**Brand Name**	Luxshare	**Model Name**	SC18D13217

1.7 Maximum EIRP Power and Emission Designator

For SCS 15kHz:

5G NR n78		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	3455.01 ~ 3544.995	0.0757	9M27G7D	0.0594	9M29W7D
15	3457.50 ~ 3542.49	0.0785	14M1G7D	0.0619	14M1W7D
20	3460.005 ~ 3540.00	0.0789	18M9G7D	0.0618	18M9W7D
30	3465.00 ~ 3534.99	0.0740	28M6G7D	0.0579	28M6W7D
40	3470.01 ~ 3529.995	0.0700	38M6G7D	0.0551	38M6W7D
50	3475.005 ~ 3525.00	0.0851	48M2G7D	0.0643	48M2W7D

For SCS 30kHz:

5G NR n78		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	3455.01 ~ 3544.98	0.0841	8M59G7D	0.0684	8M57W7D
15	3457.50 ~ 3542.49	0.0841	13M6G7D	0.0659	13M6W7D
20	3460.02 ~ 3540.00	0.0841	18M2G7D	0.0685	18M2W7D
30	3465.00 ~ 3534.99	0.0807	27M9G7D	0.0652	27M9W7D
40	3470.01 ~ 3529.98	0.0764	37M8G7D	0.0621	37M9W7D
50	3475.02 ~ 3525.00	0.0813	47M5G7D	0.0662	47M5W7D
60	3480.00 ~ 3519.99	0.0804	57M9G7D	0.0652	57M8W7D
80	3490.02 ~ 3510.00	0.0757	77M3G7D	0.0590	77M5W7D
90	3495.00 ~ 3504.99	0.0736	87M5G7D	0.0597	87M4W7D
100	3500.01	0.0843	97M3G7D	0.0687	97M4W7D

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

1.8 Testing Site

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 items in section 3 of this report.

1.9 Test Software

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

1.10 Applied Standards

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

- 47 CFR Part 2, Part 27 Subpart Q
- ANSI C63.26-2015
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

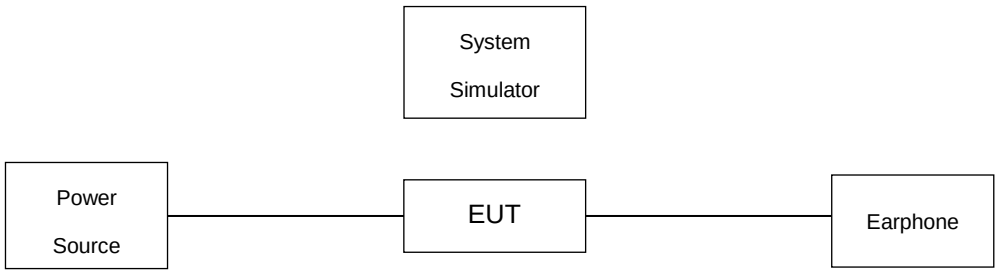
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission. (Z/Y-Plane)

Test Cases	Band	Bandwidth (MHz)	Modulation	RB #	Test Channel
		eg. 5M, 10M, 15M, 20M	eg. QPSK, 16QAM, 64QAM	1RB, Partial RB, Full RB	L/M/H
Max. Output Power	5G n78 (15kHz)	10M, 15M, 20M, 30M, 40M, 50M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1RB, Partial RB, Full RB	L, M, H
	5G n78 (30kHz)	10M, 15M, 20M, 30M, 40M, 50M, 60M, 80M, 90M, 100M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1RB, Partial RB, Full RB	L, M, H
Peak-to-Average Ratio	5G n78	20M	PI/2 BPSK, QPSK	1RB, Full RB	L, M, H
E.I.R.P	5G n78 (15kHz)	10M, 15M, 20M, 30M, 40M, 50M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1RB, Partial RB, Full RB	L, M, H
	5G n78 (30kHz)	10M, 15M, 20M, 30M, 40M, 50M, 60M, 80M, 90M, 100M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1RB, Partial RB, Full RB	L, M, H
26dB and 99% Bandwidth	5G n78 (15kHz)	10M, 15M, 20M, 30M, 40M, 50M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	Full RB	M
	5G n78 (30kHz)	10M, 15M, 20M, 30M, 40M, 50M, 60M, 80M, 90M, 100M	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	Full RB	M
Conducted Band Edge	5G n78 (15kHz)	10M, 20M, 50M	PI/2 BPSK, QPSK	1RB, Full RB	L, H
	5G n78 (30kHz)	10M, 50M, 100M	PI/2 BPSK, QPSK	1RB, Full RB	L, H
Conducted Spurious Emission	5G n78 (15kHz)	10M, 20M, 50M	PI/2 BPSK, QPSK	1RB	L, M, H
	5G n78 (30kHz)	10M, 50M, 100M	PI/2 BPSK, QPSK	1RB	L, M, H
Frequency Stability	5G n78	20M	QPSK	Full RB	M
Radiated Spurious Emission	5G n78	Worst case			M

Note:

1. 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.
2. Based on engineering evaluation, only the worst modulations test results are shown in the report.
3. Frequency Stability：Normal Voltage = 3.89V ； Low Voltage =3.6V.； High Voltage =4.2V

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

For detail, please refer to test mode configuration and setup photographs for each test item.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	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 5.69 dB and 10dB attenuator.

Example :

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

= 5.69 + 10 = 15.69 (dB)

2.5 Frequency List of Low/Middle/High Channels

For SCS 15kHz:

5G n78 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
50	Channel	631667	633334	635000
	Frequency	3475.005	3500.01	3525.00
40	Channel	631334	633334	635333
	Frequency	3470.01	3500.01	3529.995
30	Channel	631000	633334	635666
	Frequency	3465	3500.01	3534.99
20	Channel	630667	633334	636000
	Frequency	3460.005	3500.01	3540.00
15	Channel	630500	633334	636166
	Frequency	3457.50	3500.01	3542.49
10	Channel	630334	633334	636333
	Frequency	3455.01	3500.01	3544.995

For SCS 30kHz:

5G n78 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	-	633334	-
	Frequency	-	3500.01	-
90	Channel	633000	633334	633666
	Frequency	3495	3500.01	3504.99
80	Channel	632668	633334	634000
	Frequency	3490.02	3500.01	3510
60	Channel	632000	633334	634666
	Frequency	3480	3500.01	3519.99
50	Channel	631668	633334	635000
	Frequency	3475.02	3500.01	3525
40	Channel	631334	633334	635332
	Frequency	3470.01	3500.01	3529.98
30	Channel	631000	633334	635666
	Frequency	3465	3500.01	3534.99
20	Channel	630668	633334	636000
	Frequency	3460.02	3500.01	3540
15	Channel	630500	633334	636166
	Frequency	3457.5	3500.01	3542.49
10	Channel	630334	633334	636332
	Frequency	3455.01	3500.01	3544.98

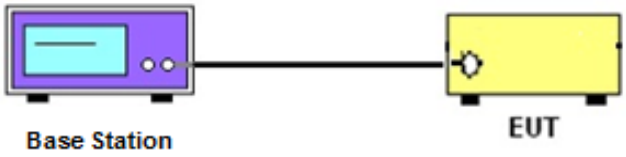
3 Conducted Test Items

3.1 Measuring Instruments

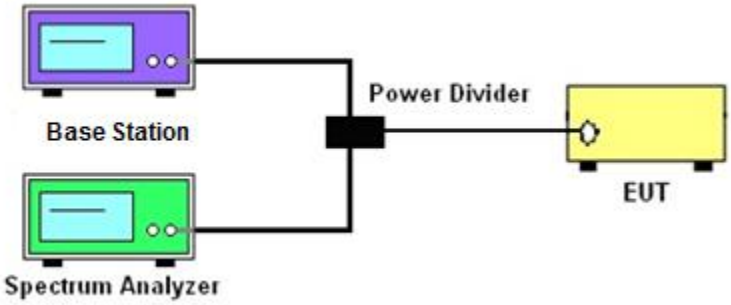
See list of measuring instruments of this test report.

3.2 Test Setup

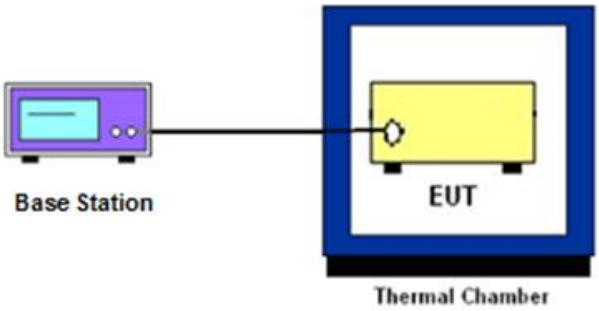
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied / 26dB Bandwidth, 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 Measurement

3.4.1 Description of the Conducted Output Power Measurement

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

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 EIRP

3.6.1 Description of EIRP Limit

§ 27.50 (k)(3)

Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

3.6.2 Test Procedures

1. According to KDB 412172 D01 Power Approach,
2. 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

3.7 Occupied Bandwidth

3.7.1 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.

3.7.2 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.

3.8 Conducted Band Edge Measurement

3.8.1 Description of Conducted Band Edge Measurement

§ 27.53 (n)(2)

For mobile operations in the 3450-3550 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, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 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.

3.8.2 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 band edges of low and high channels for the highest RF powers were measured.
4. Set RBW ≥ 1% EBW but limited to a maximum of 200 kHz in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz and 5 MHz removed from the band edge, set RBW ≥ 500KHz.
6. Beyond the 5 MHz removed from the band edge, set RBW = 1MHz.
7. Set spectrum analyzer with RMS detector.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. Checked that all the results comply with the emission limit line.

3.9 Conducted Spurious Emission Measurement

3.9.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges shall not exceed −13 dBm/MHz.

It is measured by means of a calibrated spectrum analyzer and scanned from 30MHz up to a frequency including its 10th harmonic.

3.9.2 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. Checked that all the results comply with the emission limit line.

3.10 Frequency Stability Measurement

3.10.1 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.

3.10.2 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.

3.10.3 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.

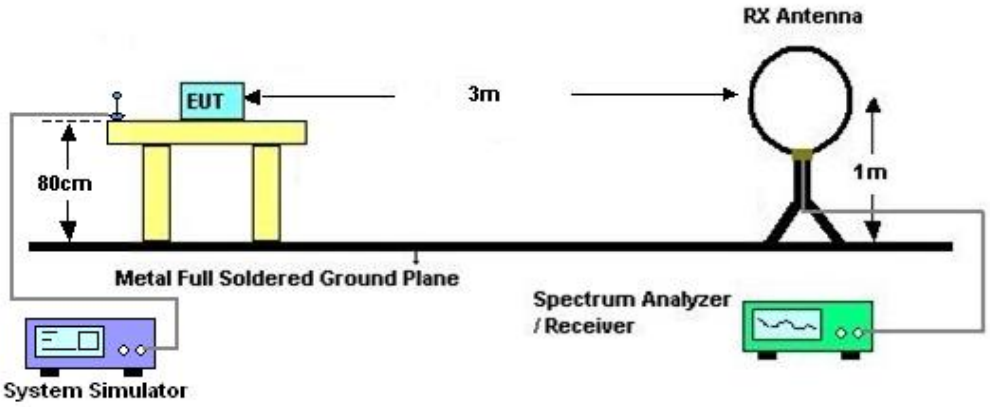
4 Radiated Test Items

4.1 Measuring Instruments

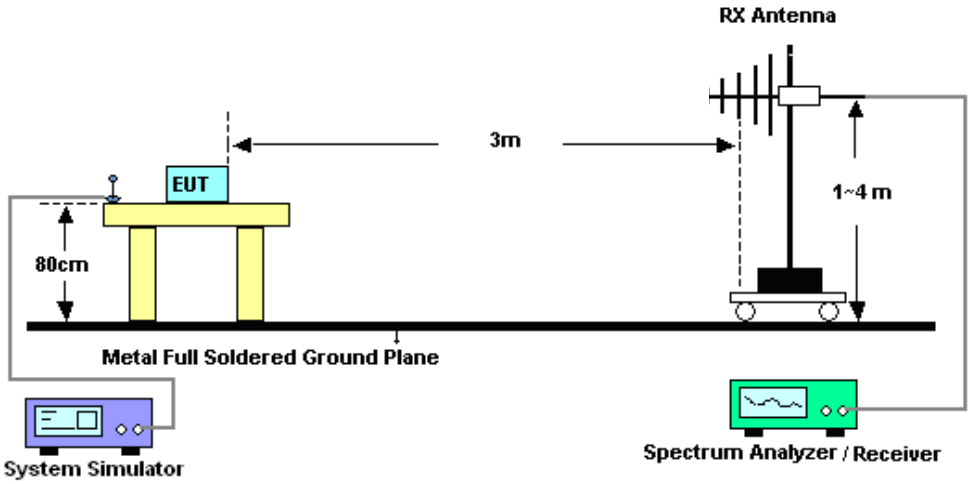
See list of measuring instruments of this test report.

4.2 Test Setup

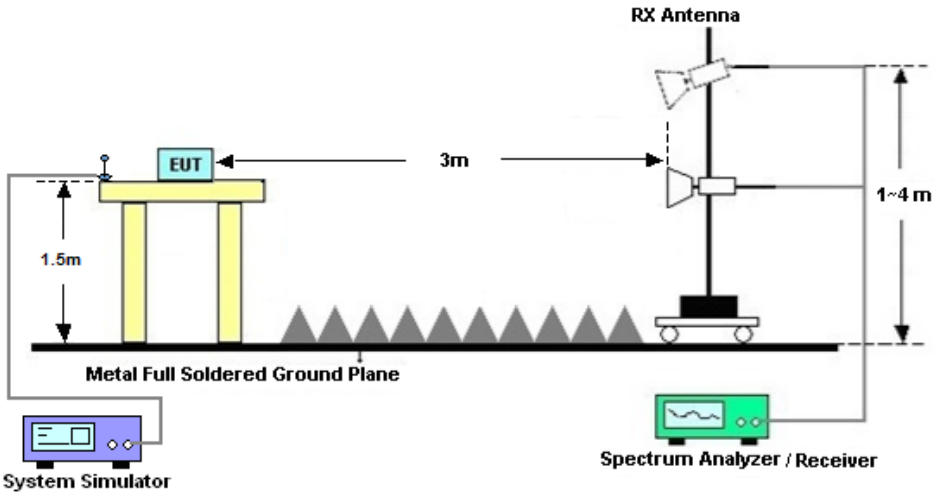
4.2.1 For radiated test below 30MHz



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 Measurement

4.4.1 Description of Radiated Spurious Emission

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

The power of any emission outside of the authorized operating frequency ranges shall not exceed −13 dBm/MHz.

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.
   EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
   ERP (dBm) = EIRP - 2.15
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

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. 02, 2022	Oct. 29, 2022~ Nov. 07, 2022	Apr. 01, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2021	Oct. 29, 2022~ Nov. 07, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 07, 2022	Oct. 29, 2022~ Nov. 07, 2022	Jul. 06, 2023	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	Oct. 25, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Oct. 25, 2022	Oct. 15, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 24, 2022	Oct. 25, 2022	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Jan. 05, 2022	Oct. 25, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Oct. 25, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 05, 2022	Oct. 25, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2022	Oct. 25, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 12, 2022	Oct. 25, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 12, 2022	Oct. 25, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 25, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Oct. 25, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Oct. 25, 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 Conducted Measurement

Test Item	Uncertainty
Conducted Power	±1.34 dB
Conducted Emissions	±1.34 dB
Occupied Channel Bandwidth	±0.13 %

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 :	Jung Guo	**Temperature :**	22~23℃
		Relative Humidity :	40~42%

Software Version: 22.09.0601

FR1 N78(ANT5) – SCS 15kHz

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=-3.9dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@1	22.63	18.73	0.0746
78	15	10	630334	3455.01	DFT-s-OFDM 16 QAM	1@1	21.47	17.57	0.0571
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.69	18.79	0.0757
78	15	10	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	18.72	14.82	0.0303
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@1	22.63	18.73	0.0746
78	15	10	636333	3544.995	DFT-s-OFDM 16 QAM	1@1	21.64	17.74	0.0594
78	15	15	630500	3457.5	DFT-s-OFDM QPSK	1@1	22.85	18.95	0.0785
78	15	15	630500	3457.5	DFT-s-OFDM 16 QAM	1@1	21.8	17.9	0.0617
78	15	15	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.84	18.94	0.0783
78	15	15	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.82	17.92	0.0619
78	15	15	636166	3542.49	DFT-s-OFDM QPSK	1@1	22.78	18.88	0.0773
78	15	15	636166	3542.49	DFT-s-OFDM 16 QAM	1@1	21.76	17.86	0.0611
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@1	22.82	18.92	0.0780
78	15	20	630667	3460.005	DFT-s-OFDM 16 QAM	1@1	21.79	17.89	0.0615
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.87	18.97	0.0789
78	15	20	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.81	17.91	0.0618
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@1	22.78	18.88	0.0773
78	15	20	636000	3540.0	DFT-s-OFDM 16 QAM	1@1	21.63	17.73	0.0593
78	15	30	631000	3465.0	DFT-s-OFDM QPSK	1@1	22.59	18.69	0.0740
78	15	30	631000	3465.0	DFT-s-OFDM 16 QAM	1@1	21.39	17.49	0.0561
78	15	30	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.59	18.69	0.0740
78	15	30	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	19.47	15.57	0.0361

78	15	30	635666	3534.99	DFT-s-OFDM QPSK	1@1	22.54	18.64	0.0731
78	15	30	635666	3534.99	DFT-s-OFDM 16 QAM	1@1	21.53	17.63	0.0579
78	15	40	631334	3470.01	DFT-s-OFDM QPSK	1@1	22.35	18.45	0.0700
78	15	40	631334	3470.01	DFT-s-OFDM 16 QAM	1@1	21.31	17.41	0.0551
78	15	40	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.29	18.39	0.0690
78	15	40	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.17	17.27	0.0533
78	15	40	635333	3529.995	DFT-s-OFDM QPSK	1@1	22.35	18.45	0.0700
78	15	40	635333	3529.995	DFT-s-OFDM 16 QAM	1@1	20.8	16.9	0.0490
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	135@67	23.19	19.29	0.0849
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	1@1	22.71	18.81	0.0760
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	1@268	22.52	18.62	0.0728
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	135@67	22.97	19.07	0.0807
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@1	22.65	18.75	0.0750
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@268	22.55	18.65	0.0733
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	135@67	21.97	18.07	0.0641
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	1@1	21.66	17.76	0.0597
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	1@268	21.57	17.67	0.0585
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	135@67	19.97	16.07	0.0405
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	1@1	20.05	16.15	0.0412
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	1@268	19.91	16.01	0.0399
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	135@67	18.6	14.7	0.0295
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	1@1	18.35	14.45	0.0279
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	1@268	18.24	14.34	0.0272
78	15	50	631667	3475.005	CP-OFDM QPSK	135@67	21.44	17.54	0.0568
78	15	50	631667	3475.005	CP-OFDM QPSK	1@1	21.14	17.24	0.0530
78	15	50	631667	3475.005	CP-OFDM QPSK	1@268	20.94	17.04	0.0506
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	135@67	23.2	19.3	0.0851

78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.75	18.85	0.0767
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@268	22.49	18.59	0.0723
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	135@67	22.95	19.05	0.0804
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.71	18.81	0.0760
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@268	22.46	18.56	0.0718
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	135@67	21.98	18.08	0.0643
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.63	17.73	0.0593
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@268	21.44	17.54	0.0568
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	135@67	19.92	16.02	0.0400
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	1@1	20.07	16.17	0.0414
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	1@268	19.86	15.96	0.0394
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	135@67	18.59	14.69	0.0294
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	1@1	18.46	14.56	0.0286
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	1@268	18.23	14.33	0.0271
78	15	50	633334	3500.01	CP-OFDM QPSK	135@67	21.33	17.43	0.0553
78	15	50	633334	3500.01	CP-OFDM QPSK	1@1	21.15	17.25	0.0531
78	15	50	633334	3500.01	CP-OFDM QPSK	1@268	20.98	17.08	0.0511
78	15	50	635000	3525.0	DFT-s-OFDM PI/2 BPSK	135@67	23.17	19.27	0.0845
78	15	50	635000	3525.0	DFT-s-OFDM PI/2 BPSK	1@1	22.74	18.84	0.0766
78	15	50	635000	3525.0	DFT-s-OFDM PI/2 BPSK	1@268	22.38	18.48	0.0705
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	135@67	22.9	19	0.0794
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@1	22.72	18.82	0.0762
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@268	22.4	18.5	0.0708
78	15	50	635000	3525.0	DFT-s-OFDM 16 QAM	135@67	21.89	17.99	0.0630
78	15	50	635000	3525.0	DFT-s-OFDM 16 QAM	1@1	21.65	17.75	0.0596
78	15	50	635000	3525.0	DFT-s-OFDM 16 QAM	1@268	21.81	17.91	0.0618
78	15	50	635000	3525.0	DFT-s-OFDM 64 QAM	135@67	20.37	16.47	0.0444

78	15	50	635000	3525.0	DFT-s-OFDM 64 QAM	1@1	20.15	16.25	0.0422
78	15	50	635000	3525.0	DFT-s-OFDM 64 QAM	1@268	19.85	15.95	0.0394
78	15	50	635000	3525.0	DFT-s-OFDM 256 QAM	135@67	18.55	14.65	0.0292
78	15	50	635000	3525.0	DFT-s-OFDM 256 QAM	1@1	18.39	14.49	0.0281
78	15	50	635000	3525.0	DFT-s-OFDM 256 QAM	1@268	18.07	14.17	0.0261
78	15	50	635000	3525.0	CP-OFDM QPSK	135@67	21.36	17.46	0.0557
78	15	50	635000	3525.0	CP-OFDM QPSK	1@1	21.32	17.42	0.0552
78	15	50	635000	3525.0	CP-OFDM QPSK	1@268	21.28	17.38	0.0547

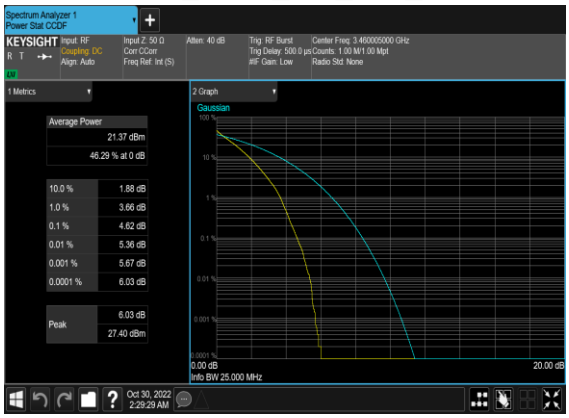
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0046	**PASS**	NV
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0051	**PASS**	LV
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0025	**PASS**	HV
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0056	**PASS**	-30℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0054	**PASS**	-20℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0069	**PASS**	-10℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0042	**PASS**	0℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0030	**PASS**	10℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0046	**PASS**	20℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0041	**PASS**	30℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0037	**PASS**	40℃
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	0.0056	**PASS**	50℃

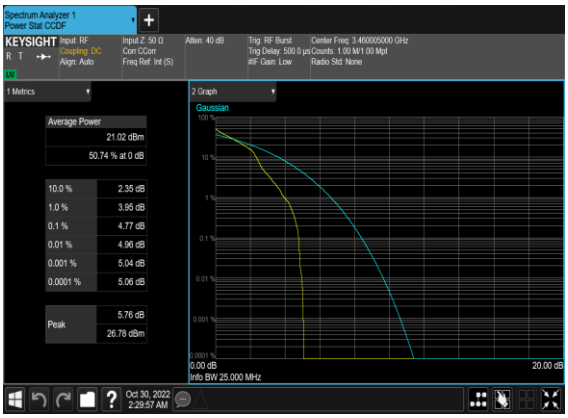
Peak to Average Radio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
78	15	20	630667	3460.005	DFT-s-OFDM PI/2 BPSK	100@0	4.62	13	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM PI/2 BPSK	1@0	4.77	13	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	100@0	5.75	13	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@0	6.73	13	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	100@0	4.58	13	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@0	5.19	13	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	5.82	13	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	6.76	13	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM PI/2 BPSK	100@0	4.6	13	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM PI/2 BPSK	1@0	4.88	13	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	100@0	5.79	13	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	6.89	13	**PASS**

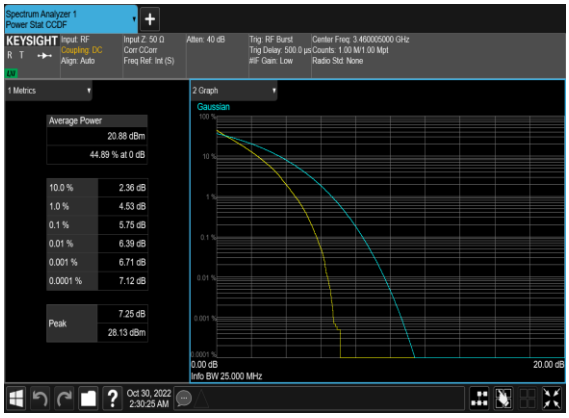
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



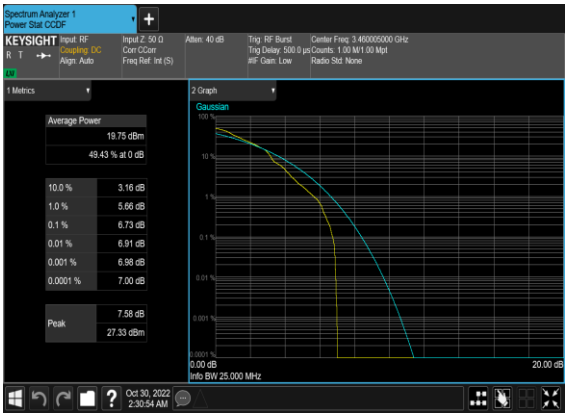
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



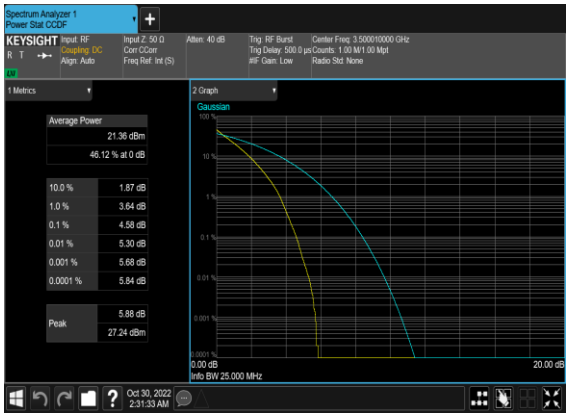
N78(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



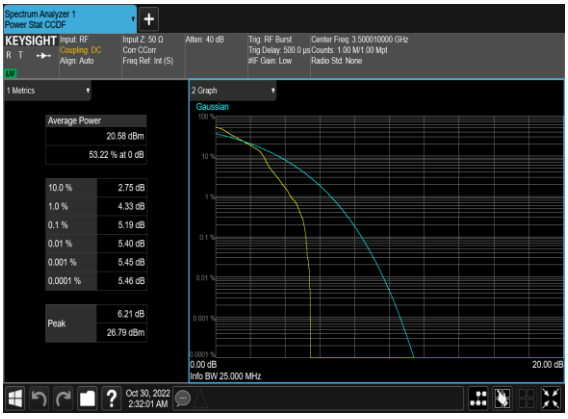
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



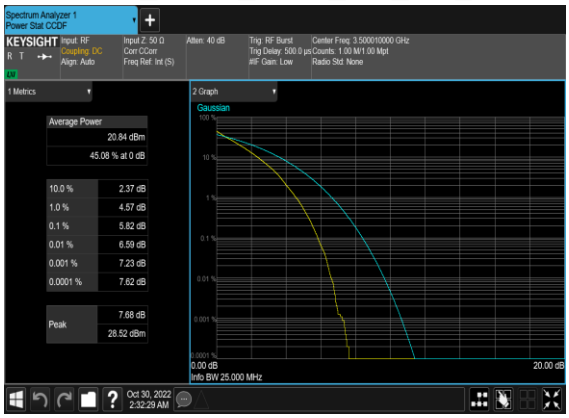
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



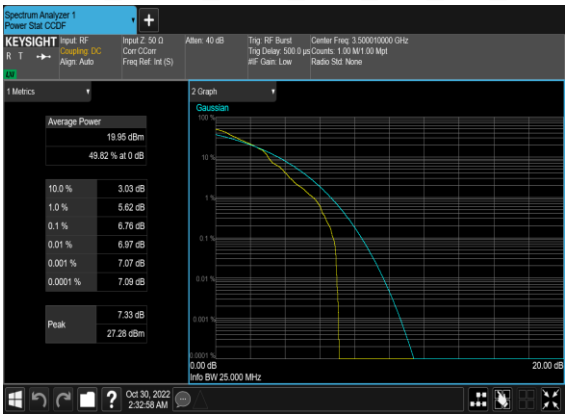
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



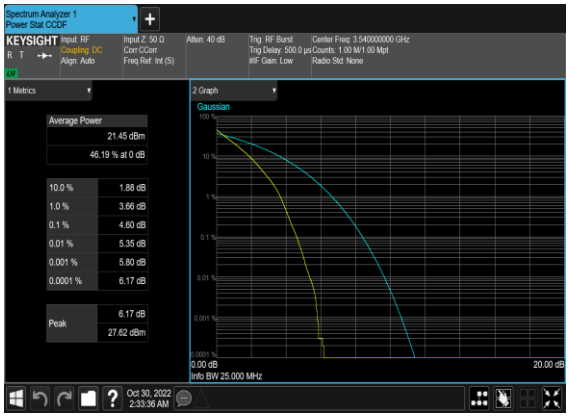
N78(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



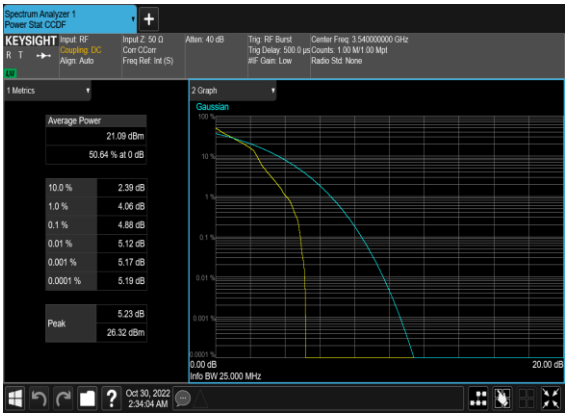
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



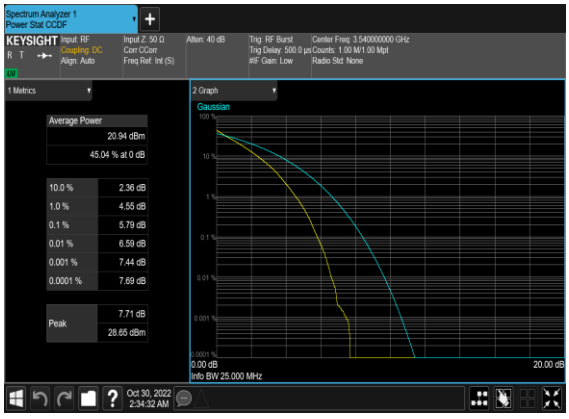
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH



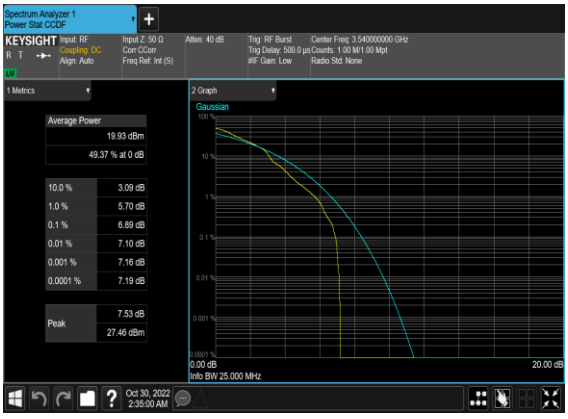
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



N78(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

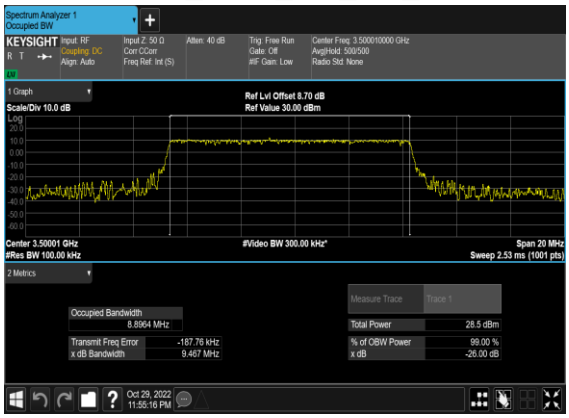


Occupied Bandwidth

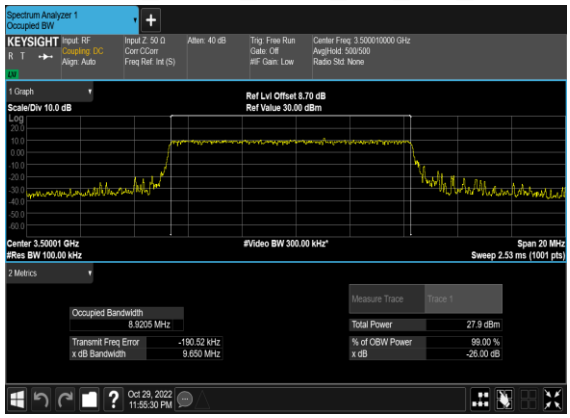
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
78	15	10	633334	3500.01	DFT-s-OFDM PI/2 BPSK	50@0	8.8964	9.467
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	50@0	8.9205	9.65
78	15	10	633334	3500.01	CP-OFDM QPSK	52@0	9.2724	9.703
78	15	10	633334	3500.01	CP-OFDM 16 QAM	52@0	9.2824	9.922
78	15	10	633334	3500.01	CP-OFDM 64 QAM	52@0	9.2922	9.82
78	15	10	633334	3500.01	CP-OFDM 256 QAM	52@0	9.276	9.882
78	15	15	633334	3500.01	DFT-s-OFDM PI/2 BPSK	75@0	13.369	14.12
78	15	15	633334	3500.01	DFT-s-OFDM QPSK	75@0	13.37	14.13
78	15	15	633334	3500.01	CP-OFDM QPSK	79@0	14.082	14.72
78	15	15	633334	3500.01	CP-OFDM 16 QAM	79@0	14.11	14.79
78	15	15	633334	3500.01	CP-OFDM 64 QAM	79@0	14.076	14.75
78	15	15	633334	3500.01	CP-OFDM 256 QAM	79@0	14.117	14.7
78	15	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	100@0	17.879	18.83
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	100@0	17.836	18.9
78	15	20	633334	3500.01	CP-OFDM QPSK	106@0	18.906	19.64
78	15	20	633334	3500.01	CP-OFDM 16 QAM	106@0	18.916	19.86
78	15	20	633334	3500.01	CP-OFDM 64 QAM	106@0	18.948	19.85
78	15	20	633334	3500.01	CP-OFDM 256 QAM	106@0	18.865	19.79
78	15	30	633334	3500.01	DFT-s-OFDM PI/2 BPSK	160@0	28.589	29.64
78	15	30	633334	3500.01	DFT-s-OFDM QPSK	160@0	28.553	29.6
78	15	30	633334	3500.01	CP-OFDM QPSK	160@0	28.585	29.62
78	15	30	633334	3500.01	CP-OFDM 16 QAM	160@0	28.57	29.6
78	15	30	633334	3500.01	CP-OFDM 64 QAM	160@0	28.538	29.63
78	15	30	633334	3500.01	CP-OFDM 256 QAM	160@0	28.586	29.63
78	15	40	633334	3500.01	DFT-s-OFDM PI/2 BPSK	216@0	38.512	40.19

78	15	40	633334	3500.01	DFT-s-OFDM QPSK	216@0	38.615	39.9
78	15	40	633334	3500.01	CP-OFDM QPSK	216@0	38.609	40.06
78	15	40	633334	3500.01	CP-OFDM 16 QAM	216@0	38.588	39.93
78	15	40	633334	3500.01	CP-OFDM 64 QAM	216@0	38.507	40.0
78	15	40	633334	3500.01	CP-OFDM 256 QAM	216@0	38.604	39.93
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	270@0	48.236	49.89
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	270@0	48.138	49.72
78	15	50	633334	3500.01	CP-OFDM QPSK	270@0	48.079	49.75
78	15	50	633334	3500.01	CP-OFDM 16 QAM	270@0	48.181	49.84
78	15	50	633334	3500.01	CP-OFDM 64 QAM	270@0	48.101	49.77
78	15	50	633334	3500.01	CP-OFDM 256 QAM	270@0	48.201	49.73

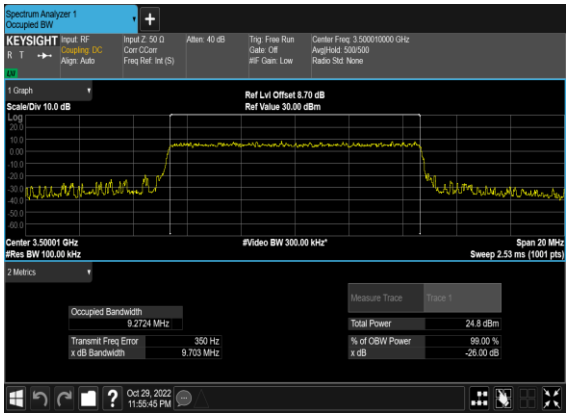
N78(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N78(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

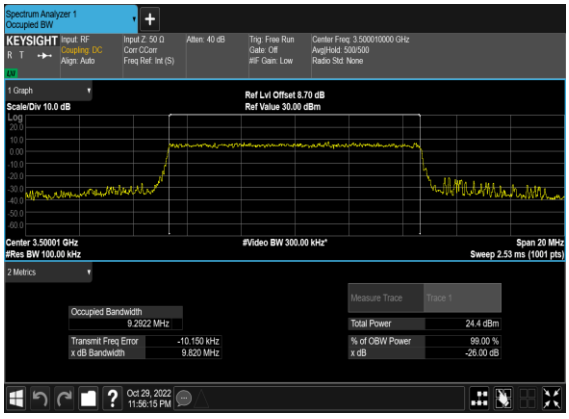


N78(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

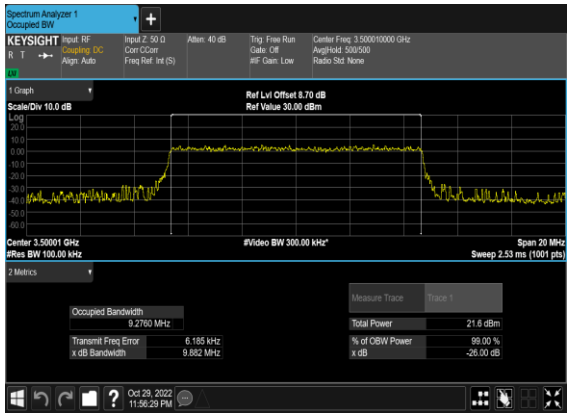


N78(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

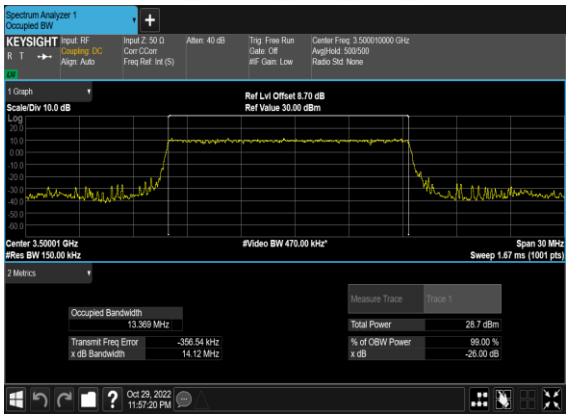
N78(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



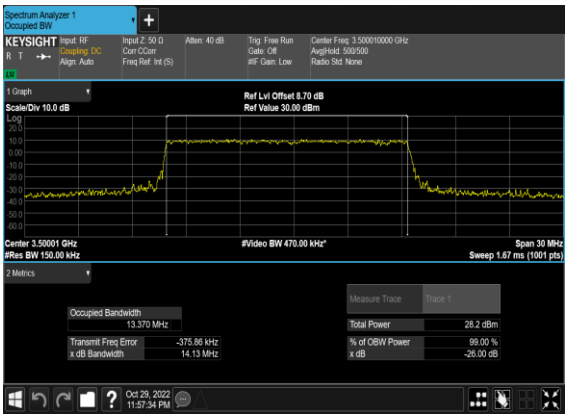
N78(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



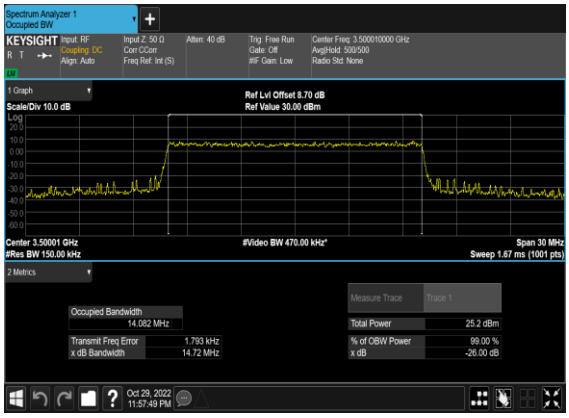
N78(15M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



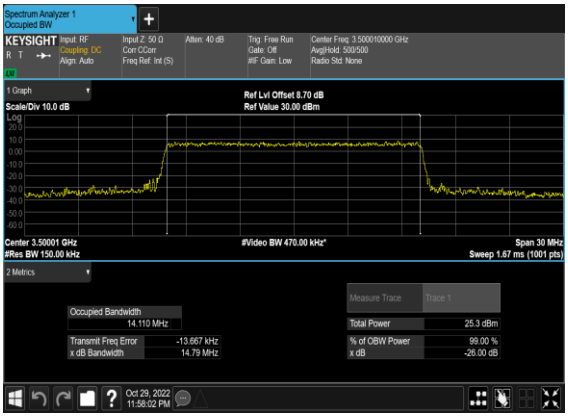
N78(15M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



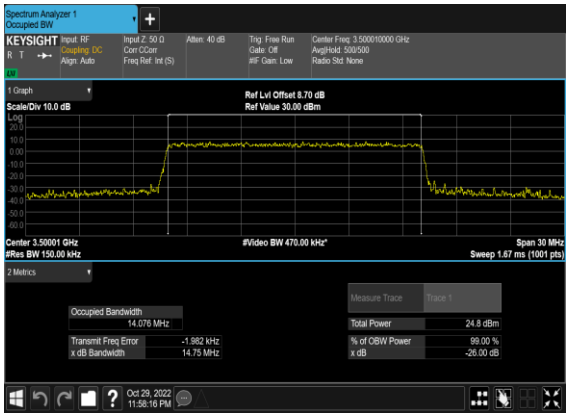
N78(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



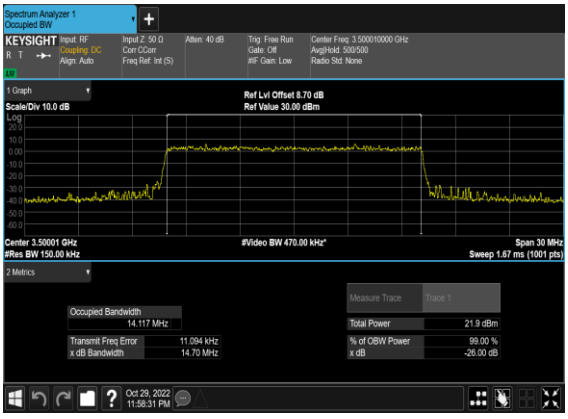
N78(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



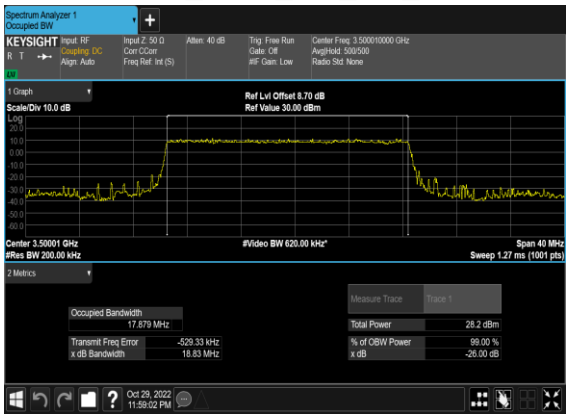
N78(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



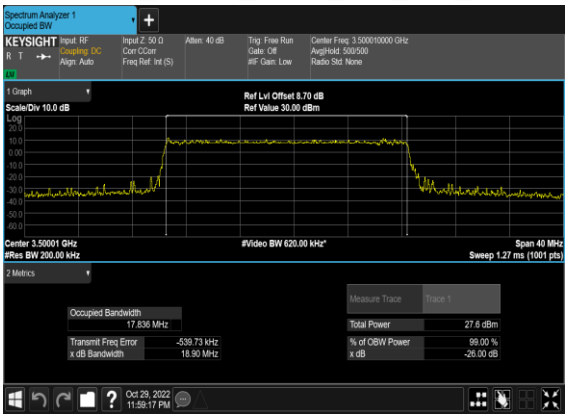
N78(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



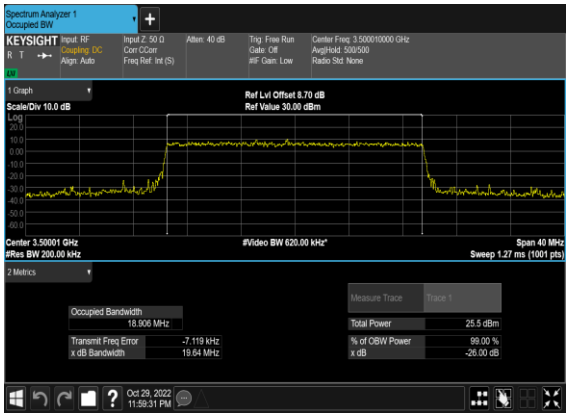
N78(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



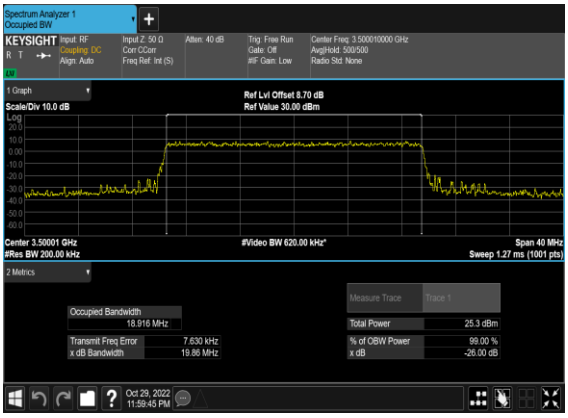
N78(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



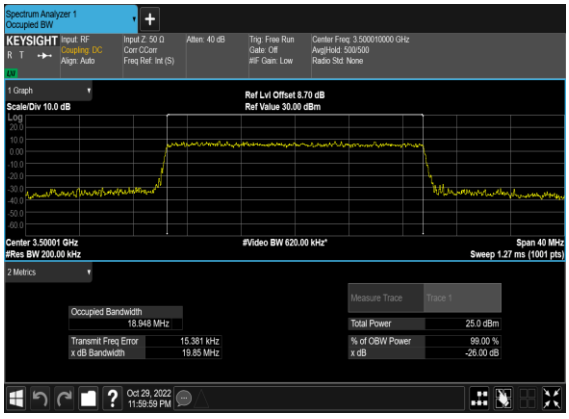
N78(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N78(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

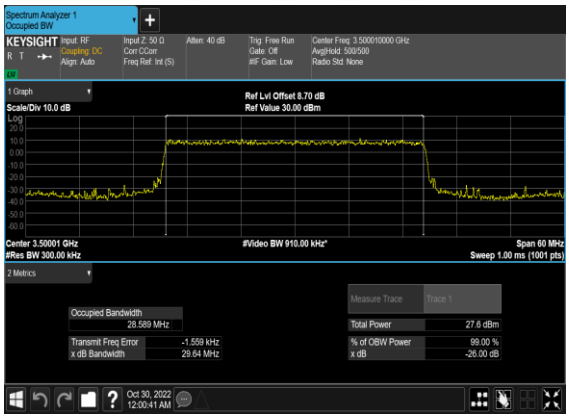


N78(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

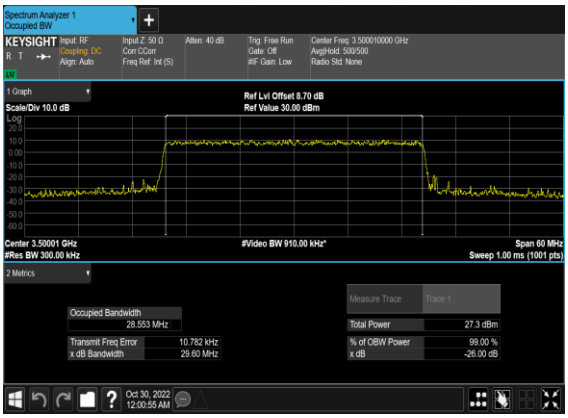


N78(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N78(30M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

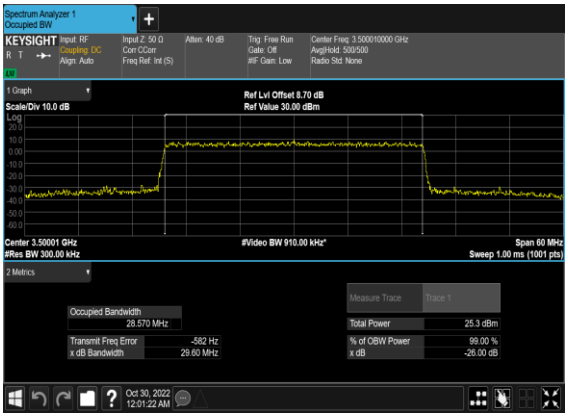


N78(30M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

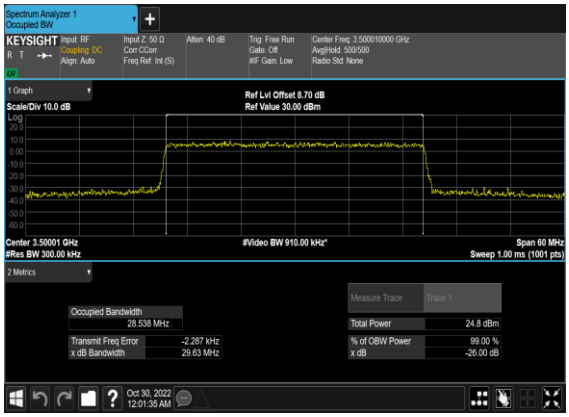


N78(30M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

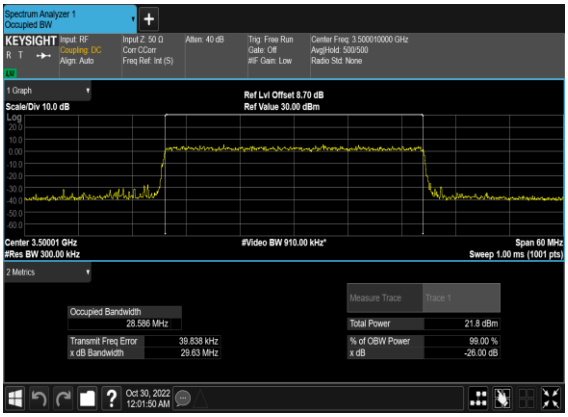
N78(30M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



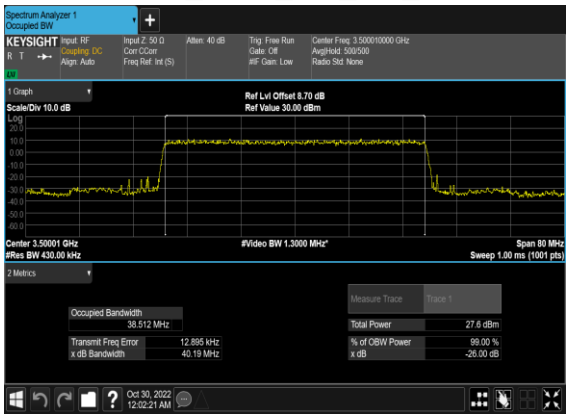
N78(30M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



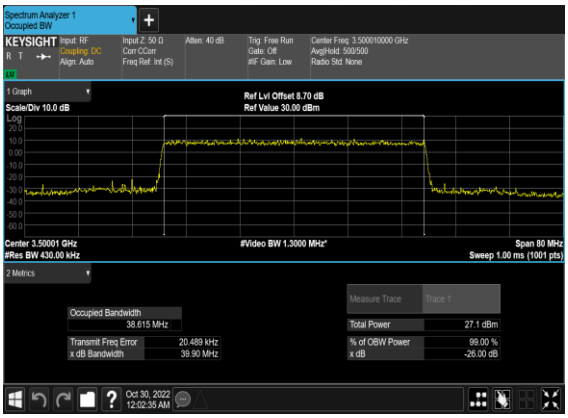
N78(30M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



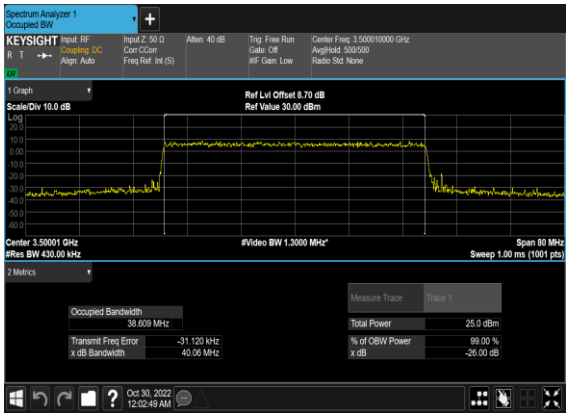
N78(40M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



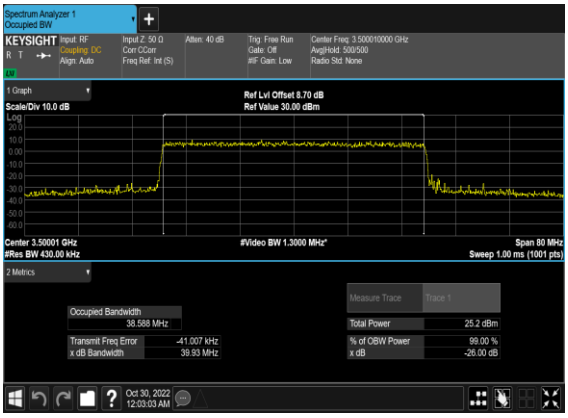
N78(40M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



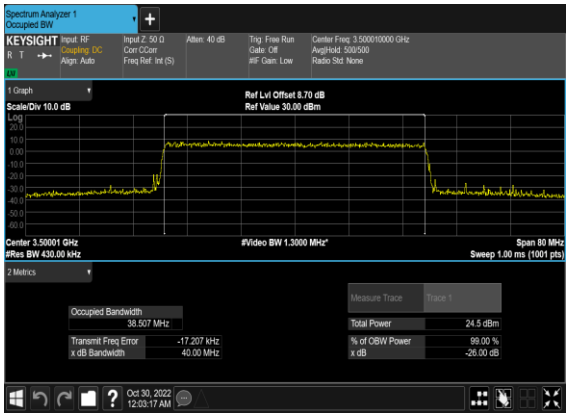
N78(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



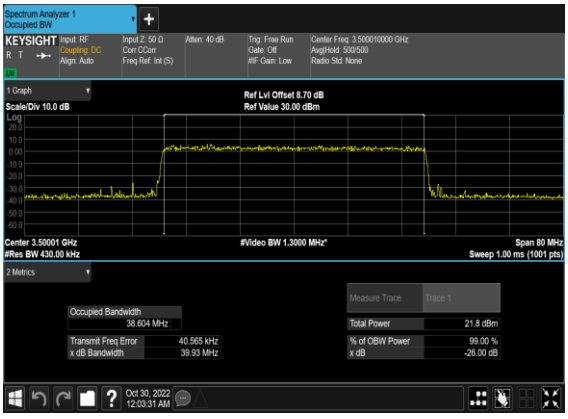
N78(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



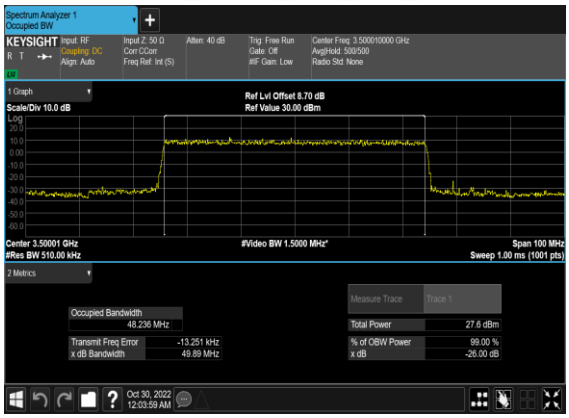
N78(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



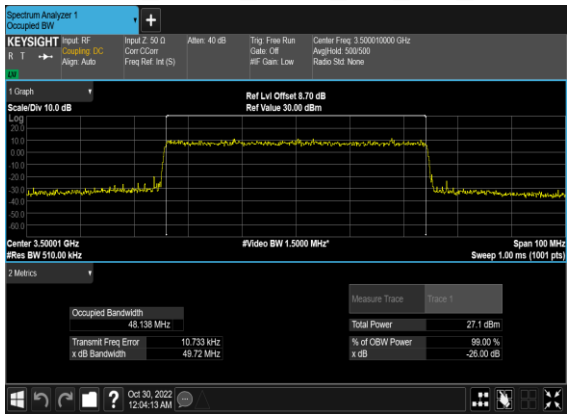
N78(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



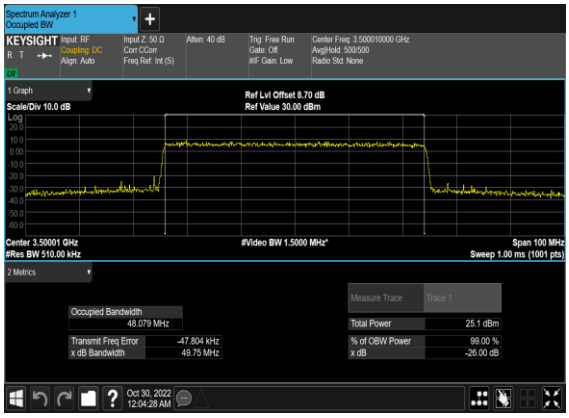
N78(50M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



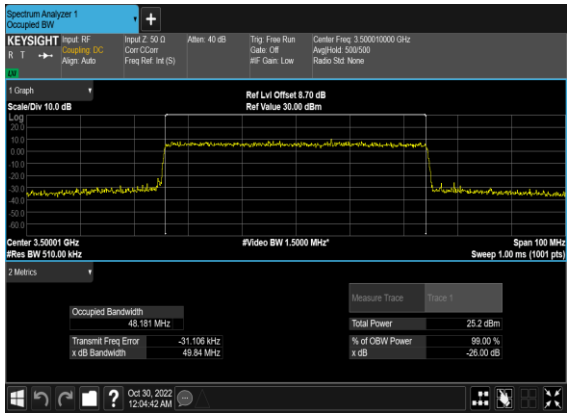
N78(50M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



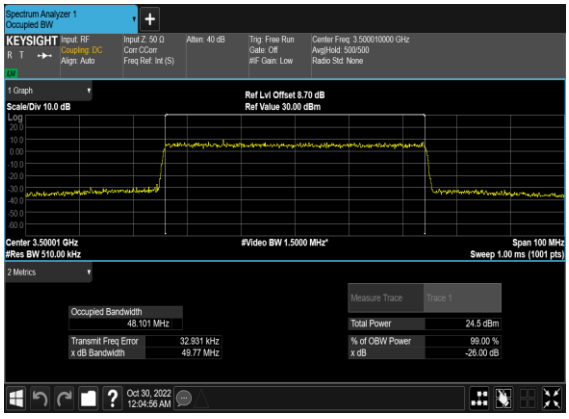
N78(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



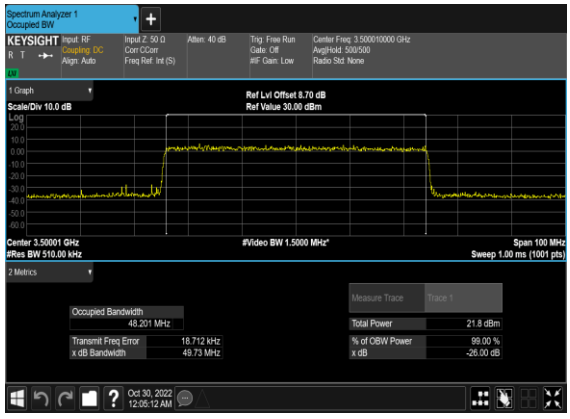
N78(50M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N78(50M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N78(50M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



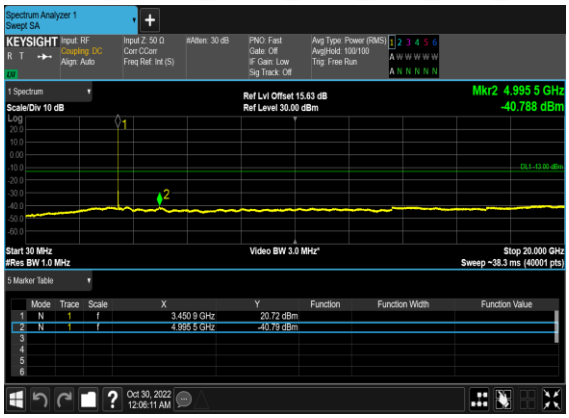
Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
78	15	10	630334	3455.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	10	630334	3455.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	10	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	10	636333	3544.995	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	20	630667	3460.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@0	see graph	**---**

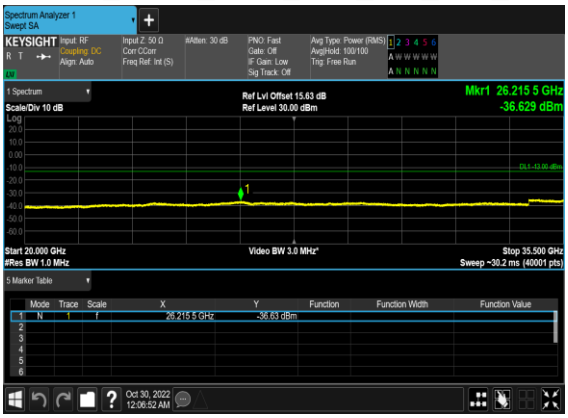
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	50	631667	3475.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	50	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**---**

78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	15	50	635000	3525.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**

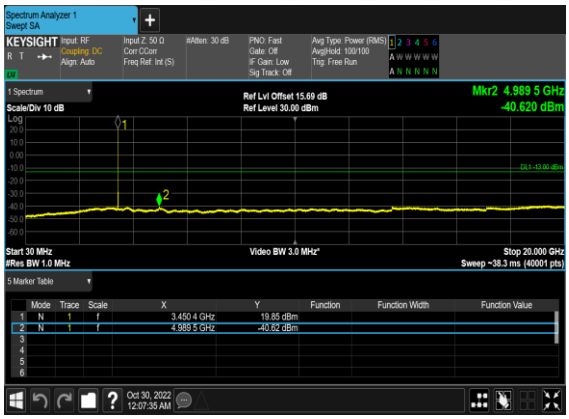
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



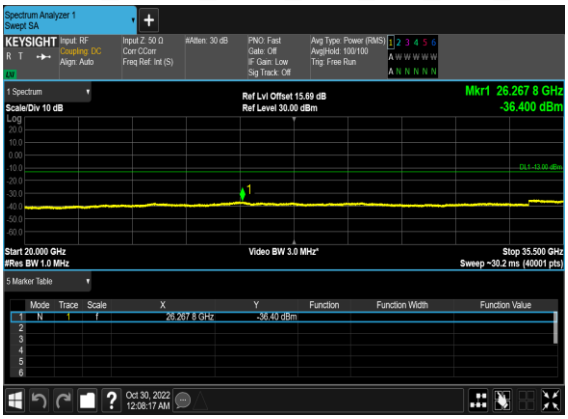
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



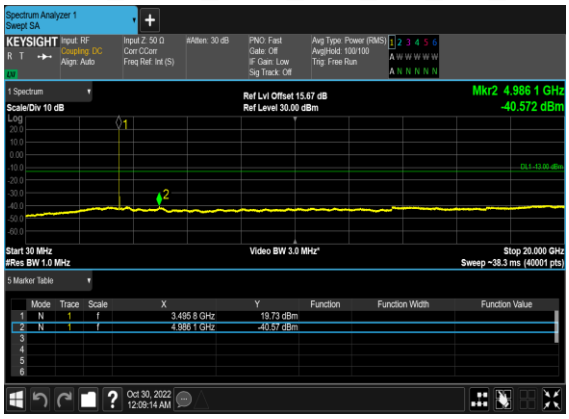
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



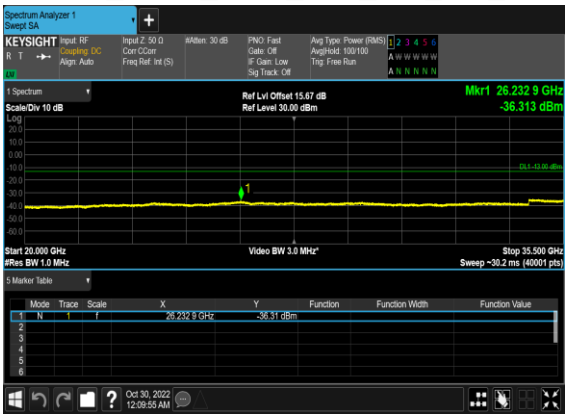
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



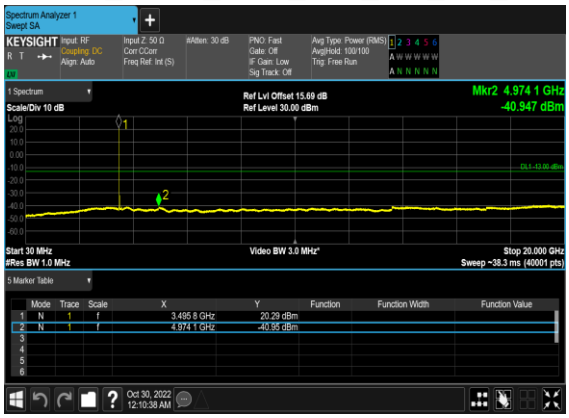
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



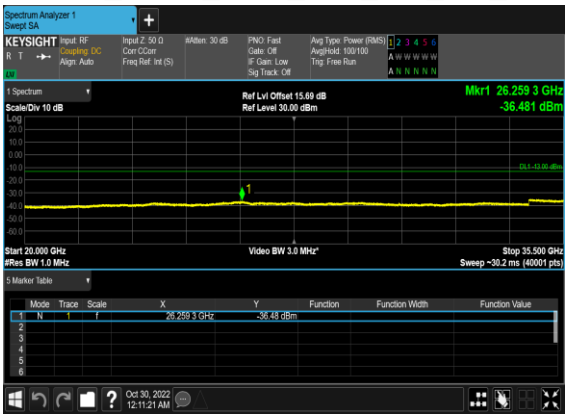
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



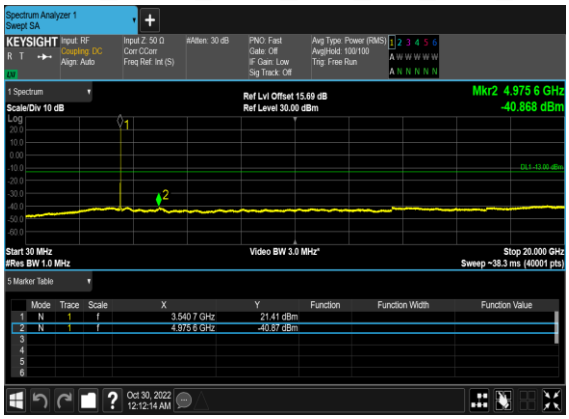
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



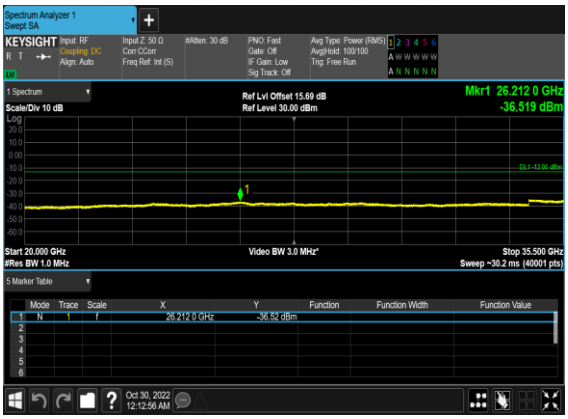
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



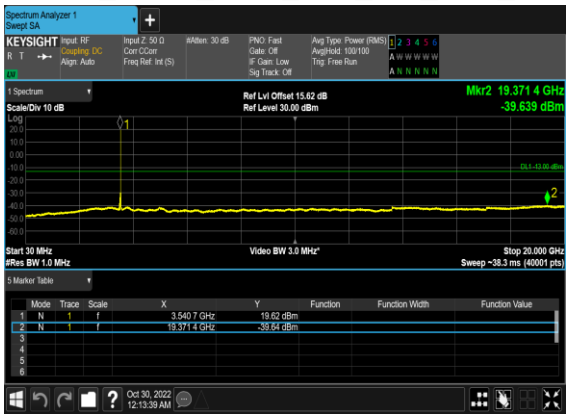
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



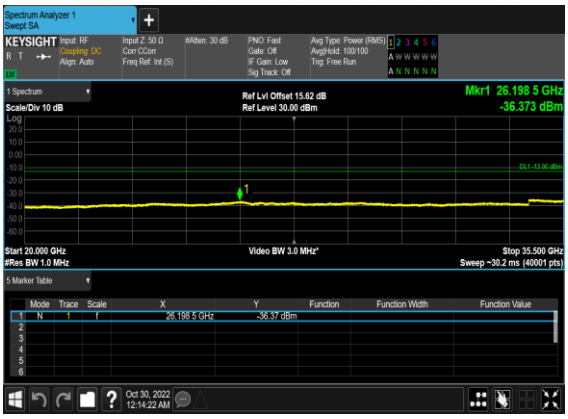
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



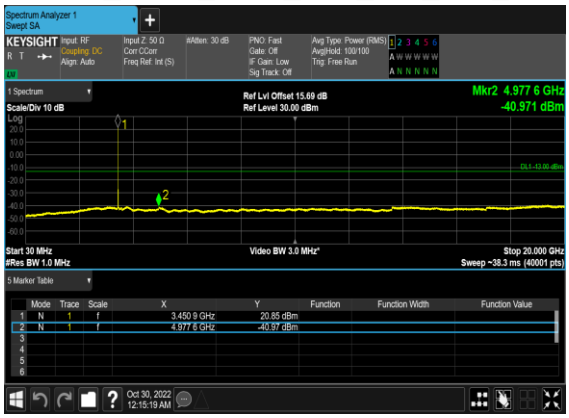
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



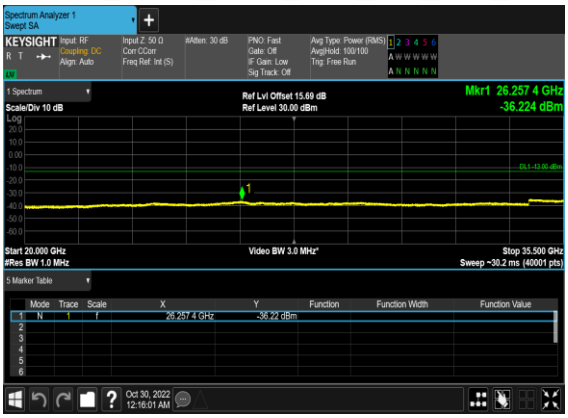
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



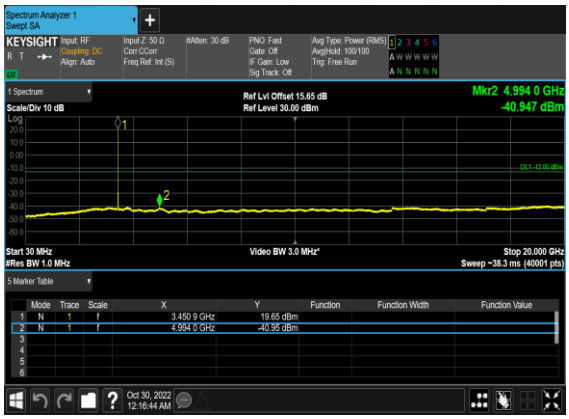
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



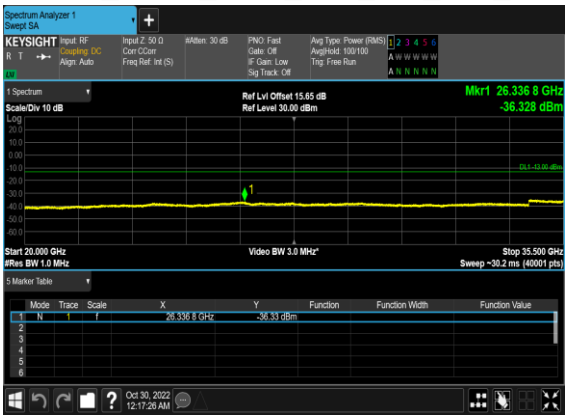
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



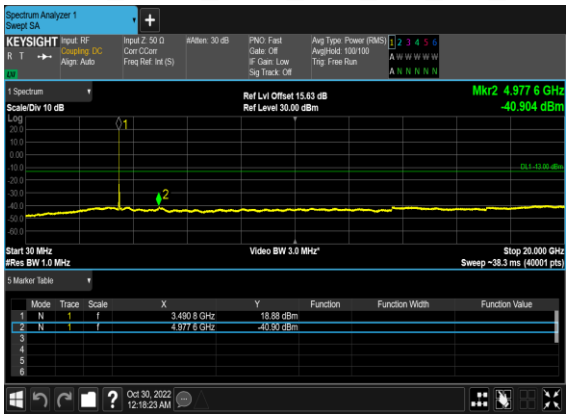
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



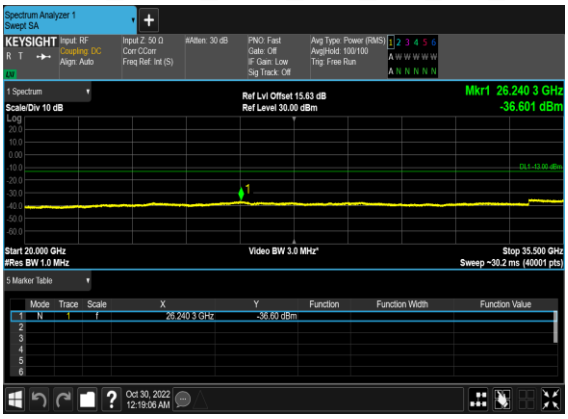
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



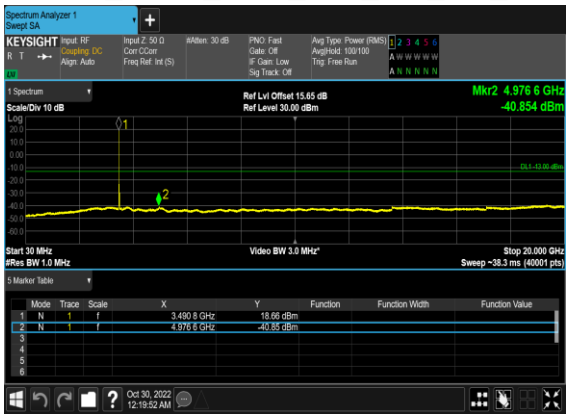
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



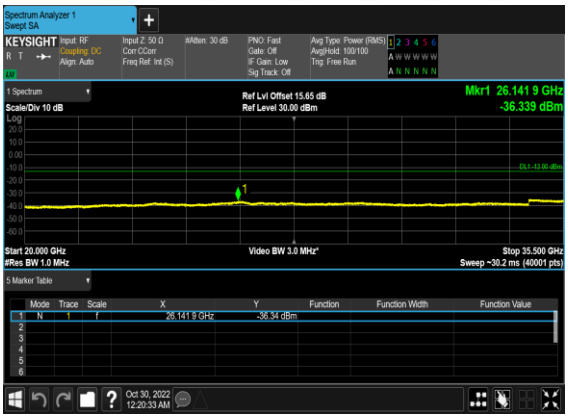
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



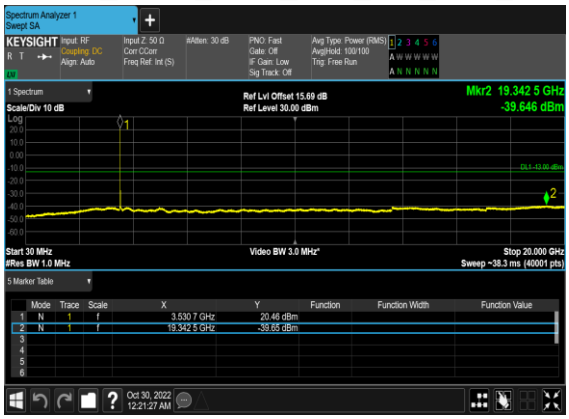
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



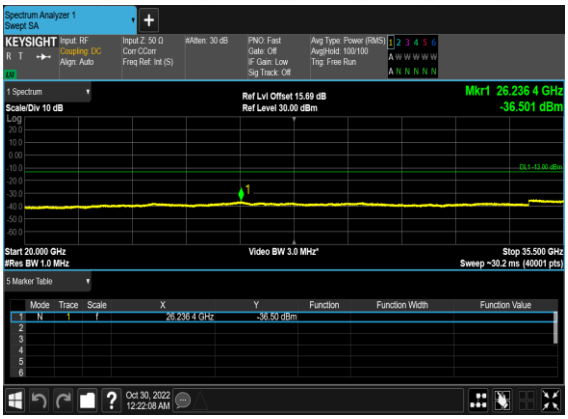
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



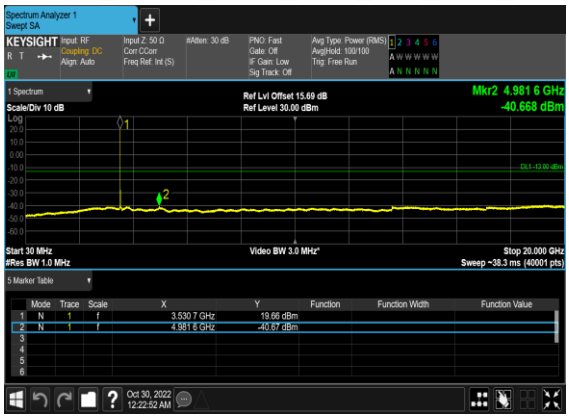
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



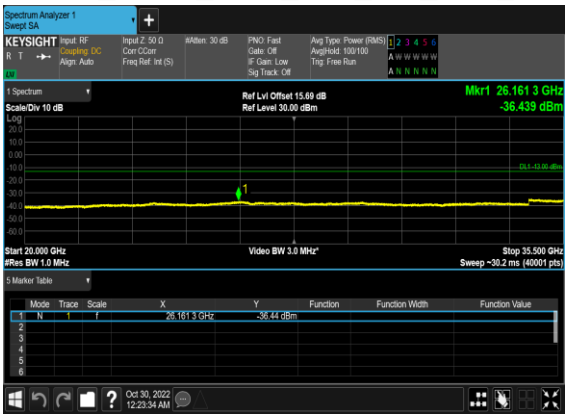
N78(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



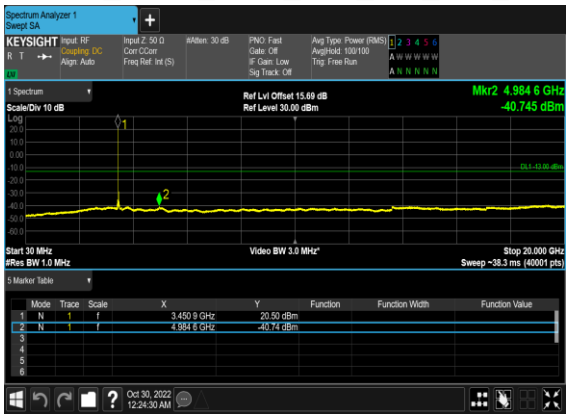
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



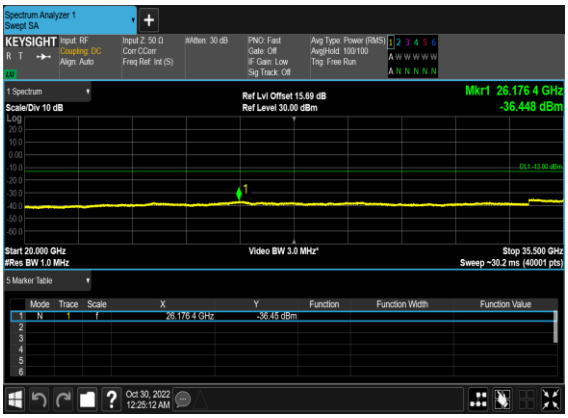
N78(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



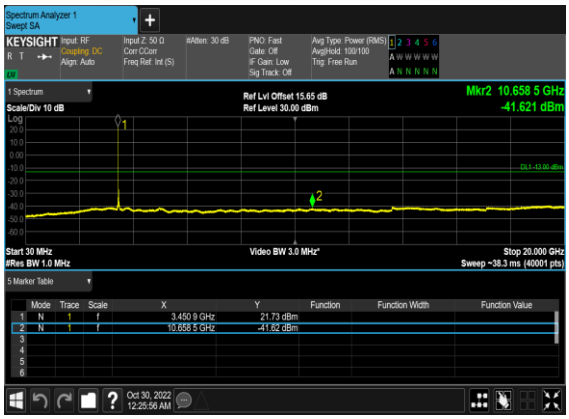
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



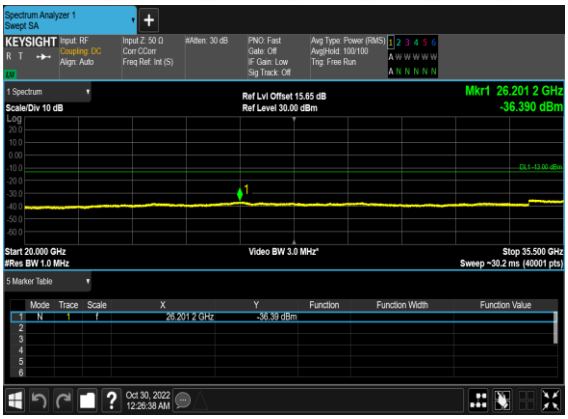
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



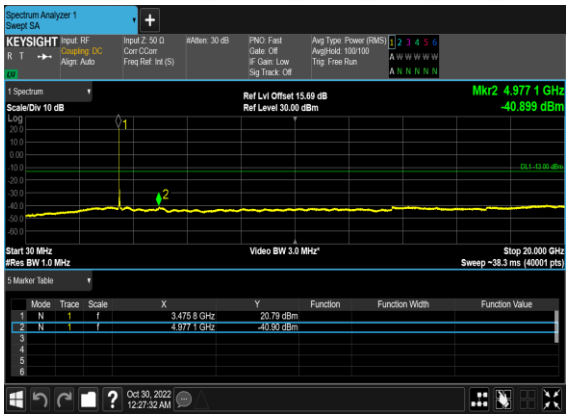
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



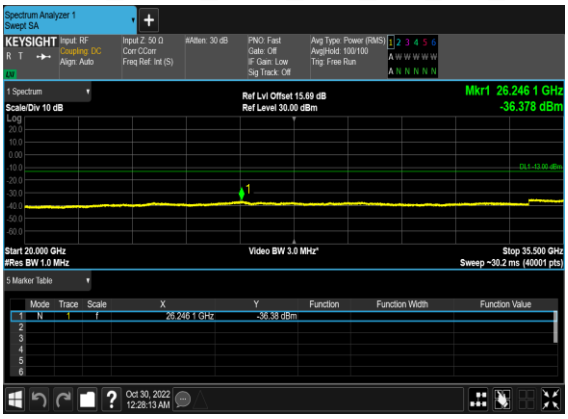
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



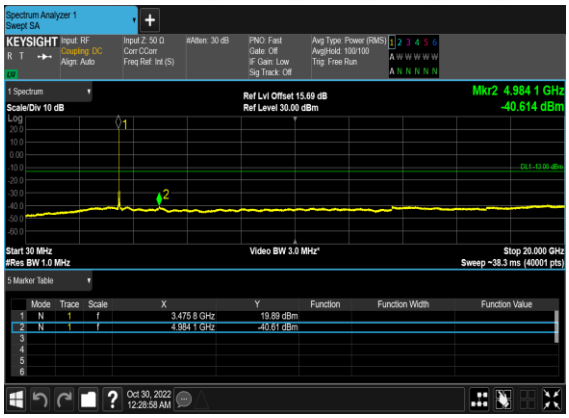
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



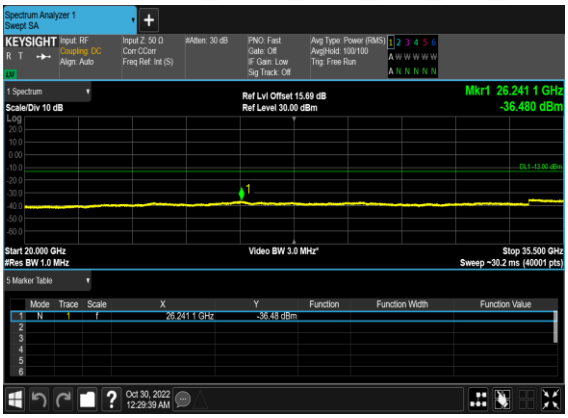
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



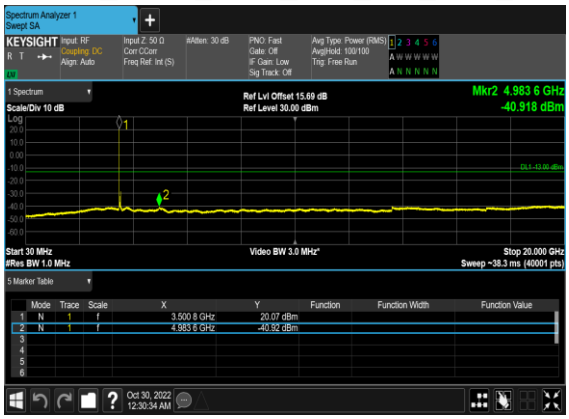
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



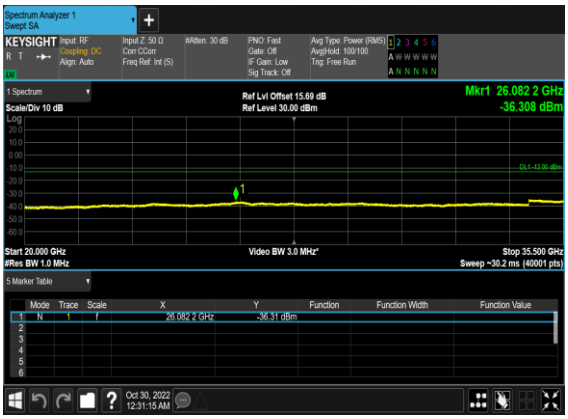
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



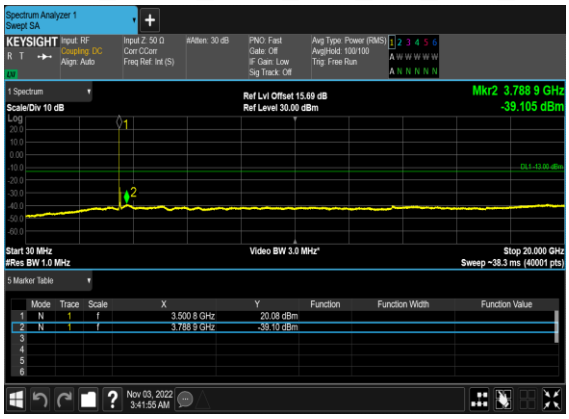
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



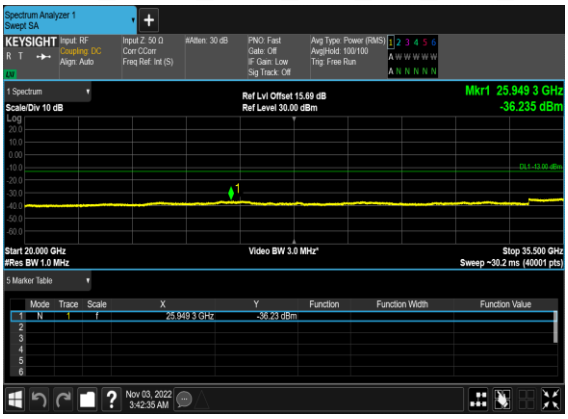
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



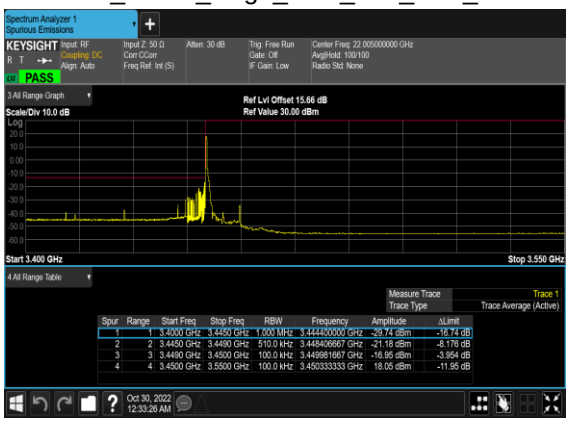
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



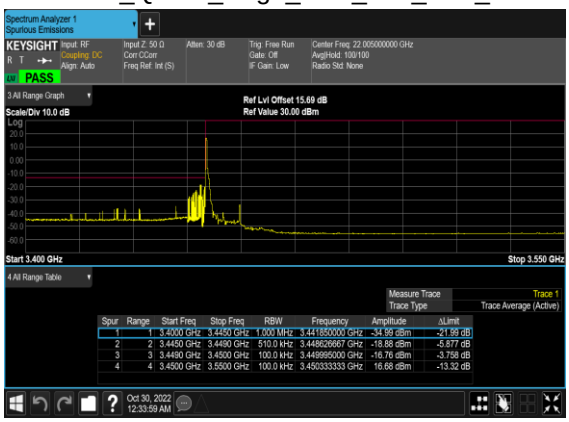
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
78	15	10	630334	3455.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM BPSK	1@51	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@51	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM BPSK	1@105	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	1@105	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
78	15	20	636000	3540.0	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	270@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM BPSK	1@269	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	1@269	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
78	15	50	635000	3525.0	DFT-s-OFDM QPSK	270@0	see graph	**PASS**

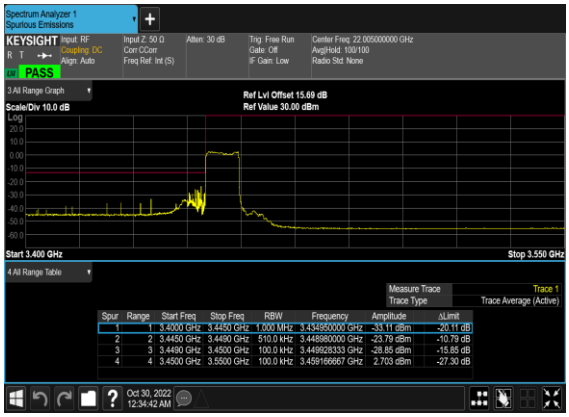
N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



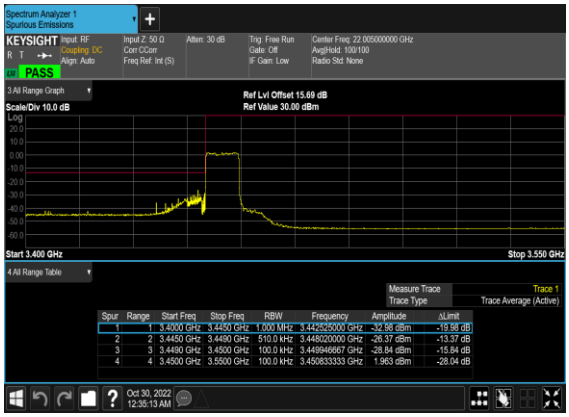
N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



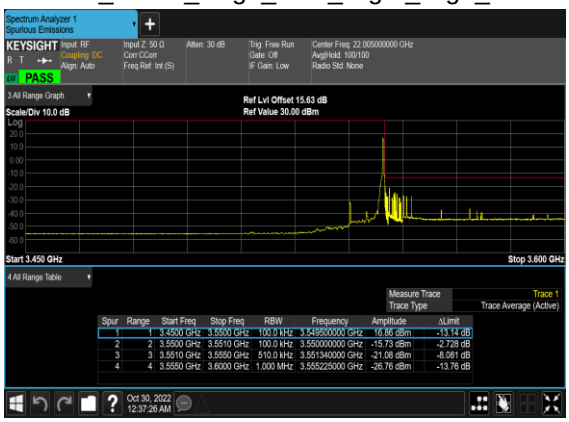
N78(10M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



N78(10M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



N78(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



N78(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH