

FCC RF Test Report

APPLICANT : Honeywell International Inc
EQUIPMENT : Mobile computer/Smart phone
BRAND NAME : Honeywell
MODEL NAME : CT47X1N
FCC ID : HD5-CT47X1N
STANDARD : 47 CFR Part 2, Part 27 Subpart Q
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S) : Nov. 14, 2022 ~ Jan. 03, 2023

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.

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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)

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG272913Q	Rev. 01	Initial issue of report	Dec. 29, 2022
FG272913Q	Rev. 02	Added EN_DC combination DC_12A_n77A, DC_14A_n77A, DC_2A_n78A, DC_71A_n78A radiated test data	Jan. 03, 2023

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 33.37 dB at 10356.00 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

Honeywell International Inc
9680 Old Bailes Rd, Fort Mill, SC 29707 United States

1.2 Manufacturer

Honeywell International Inc
9680 Old Bailes Rd, Fort Mill, SC 29707 United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile computer/Smart phone
Brand Name	Honeywell
Model Name	CT47X1N
FCC ID	HD5-CT47X1N
IMEI Code	Conducted : 990019560049753/990019560049761 Radiation : 990019560031876/990019560031884
HW Version	V1.0
SW Version	OS.21.001-HON.21.001
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Product Feature	
Tx/Rx Frequency	5G NR n77: 3450 MHz ~ 3550 MHz 5G NR n78: 3450 MHz ~ 3550 MHz
Bandwidth	n77/n78: 20MHz / 30MHz / 40MHz / 50MHz / 60MHz / 70MHz / 80MHz / 90MHz / 100MHz
SCS	30kHz
Antenna Type	PIFA Antenna
Antenna Gain	<Ant. 2/3/7/8>: n77/n78: -5.0 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The device supports HPUE mode for 5G NR n77/n78.
2. The device supports n77/n78(2T4R) SRS resources on Ant.2/3/7/8, only the worst test data of Antenna 8 is showed in the report.
3. 5G NR n77/n78 support UL MIMO mode for Ant(7+8)/ Ant(8+2)/ Ant(8+3)/ Ant(2+7)/ Ant(2+3)/ Ant(7+3), only the test data of main Ant(7+8) is shown in the report.
4. 5G NR n77/n78 UL_MIMO mode only supports CP-OFDM Modulation, the MIMO mode is completely uncorrelated, so the directional gain is selected the maximum gain among all antennas.

5. For n77/n78 MIMO mode, the conducted BE/Spurious are tested at single antenna port and add $10 \cdot \log(N_{\text{ANT}})$ according to KDB 662911 D01.
6. 5G NR n77/n78 support SA and NSA mode. According to the maximum power between SA and NSA mode, SA covers NSA mode for conducted test items.
7. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

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

1.6 Maximum EIRP and Emission Designator

5G NR n77		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)
20	3460.02 ~ 3540.00	0.1211	18M2G7D	0.1040	18M2W7D
30	3465.00 ~ 3534.99	0.1230	27M9G7D	0.1057	27M9W7D
40	3470.01 ~ 3529.98	0.1222	37M8G7D	0.1021	37M8W7D
50	3475.02 ~ 3525.00	0.1208	47M5G7D	0.1019	47M5W7D
60	3480.00 ~ 3519.99	0.1183	57M9G7D	0.0973	57M9W7D
70	3485.01 ~ 3514.98	0.1186	67M5G7D	0.0984	67M5W7D
80	3490.02 ~ 3510.00	0.1169	77M4G7D	0.0979	77M6W7D
90	3495.00 ~ 3504.99	0.1167	87M6G7D	0.0982	87M4W7D
100	3500.01	0.1315	97M4G7D	0.0966	97M6W7D

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)
20	3460.02 ~ 3540.00	0.1230	18M2G7D	0.1028	18M2W7D
30	3465.00 ~ 3534.99	0.1282	27M9G7D	0.1045	27M9W7D
40	3470.01 ~ 3529.98	0.1276	37M8G7D	0.1074	37M8W7D
50	3475.02 ~ 3525.00	0.1183	47M5G7D	0.0995	47M5W7D
60	3480.00 ~ 3519.99	0.1216	57M9G7D	0.0948	57M9W7D
70	3485.01 ~ 3514.98	0.1180	67M5G7D	0.0984	67M5W7D
80	3490.02 ~ 3510.00	0.1172	77M4G7D	0.0971	77M6W7D
90	3495.00 ~ 3504.99	0.1172	87M6G7D	0.0966	87M4W7D
100	3500.01	0.1291	97M4G7D	0.0957	97M6W7D

5G NR n77 UL MIMO		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
20	3460.02 ~ 3540.00	0.0883	18M2G7D	0.0843	18M3W7D
30	3465.00 ~ 3534.99	0.0993	27M8G7D	0.0893	27M9W7D
40	3470.01 ~ 3529.98	0.0984	37M8G7D	0.0895	37M9W7D
50	3475.02 ~ 3525.00	0.0962	47M5G7D	0.0859	47M5W7D
60	3480.00 ~ 3519.99	0.0948	57M8G7D	0.0851	57M8W7D
70	3485.01 ~ 3514.98	0.0925	67M6G7D	0.0828	67M6W7D
80	3490.02 ~ 3510.00	0.0940	77M5G7D	0.0838	77M6W7D
90	3495.00 ~ 3504.99	0.0925	87M6G7D	0.0847	87M6W7D
100	3500.01	0.0998	97M4G7D	0.0841	97M5W7D

5G NR n78 UL MIMO		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
20	3460.02 ~ 3540.00	0.0951	18M2G7D	0.0855	18M3W7D
30	3465.00 ~ 3534.99	0.0924	27M8G7D	0.0906	27M9W7D
40	3470.01 ~ 3529.98	0.0931	37M8G7D	0.0902	37M9W7D
50	3475.02 ~ 3525.00	0.0927	47M5G7D	0.0841	47M5W7D
60	3480.00 ~ 3519.99	0.0955	57M8G7D	0.0855	57M8W7D
70	3485.01 ~ 3514.98	0.0931	67M6G7D	0.0839	67M6W7D
80	3490.02 ~ 3510.00	0.0940	77M5G7D	0.0851	77M6W7D
90	3495.00 ~ 3504.99	0.0931	87M6G7D	0.0836	87M6W7D
100	3500.01	0.0973	97M4G7D	0.0830	97M5W7D

Note:

1. 5G NR Band n77 overlaps the entire frequency range of Band n77, and n77 power > n78 power, therefore the conducted test results of n77 provided in this report cover n78.
2. All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.

1.7 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 case in section 3 of this report.

1.8 Test Software

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

1.9 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

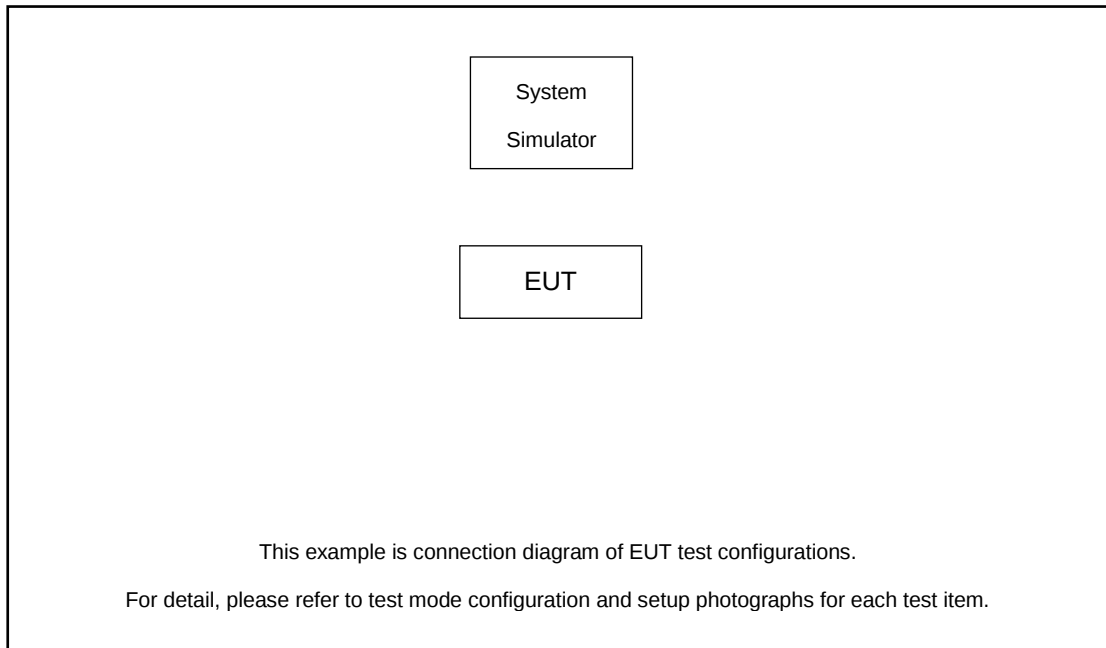
2.1 Test Mode

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.

Test Items	5G NR	Bandwidth (MHz)									Modulation					RB #		Test Channel		
		20	30	40	50	60	70	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	v
	n78	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n77	v									v	v				v	v	v	v	v
26dB and 99% Bandwidth	n77	v	v	v	v	v	v	v	v	v	v	v	v	v	v		v		v	
Conducted Band Edge	n77	v				v				v	v	v				v	v	v		v
Conducted Spurious Emission	n77	v				v				v	v	v				v		v	v	v
Frequency Stability	n77	v										v					v		v	
E.I.R.P	n77	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	v	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	
	n78	Worst Case																	v	
Note	1.	The mark “v ” means that this configuration is chosen for testing																		
	2.	The mark “-“ means that this bandwidth is not supported.																		
	3.	The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.																		
	4.	Based on engineering evaluation, only the worst modulations test results are shown in the report.																		
	5.	Frequency Stability : Normal Voltage = 3.85V ; Low Voltage =3.5V. ; High Voltage =4.45V																		

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 8.7dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 8.7 \text{ (dB)} \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

5G n77/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
70	Channel	632334	633334	634332
	Frequency	3485.01	3500.01	3514.98
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

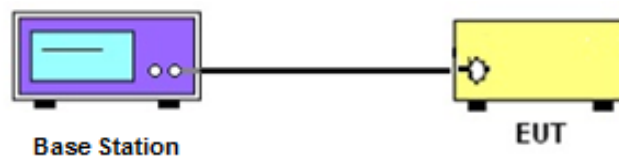
3 Conducted Test Items

3.1 Measuring Instruments

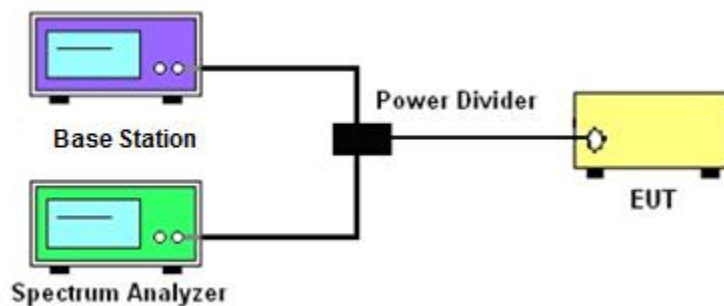
See list of measuring instruments of this test report.

3.2 Test Setup

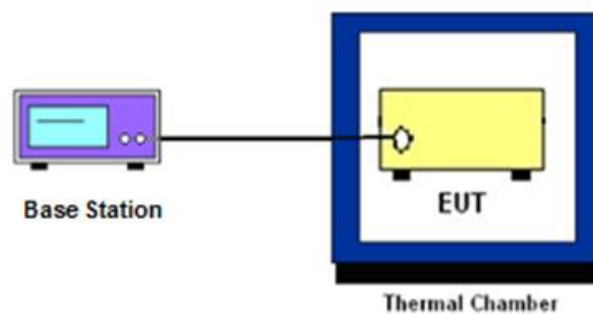
3.2.1 Conducted Output Power



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 $\geq 1\%$ 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 ≥ 500 KHz.
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 9 kHz 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.

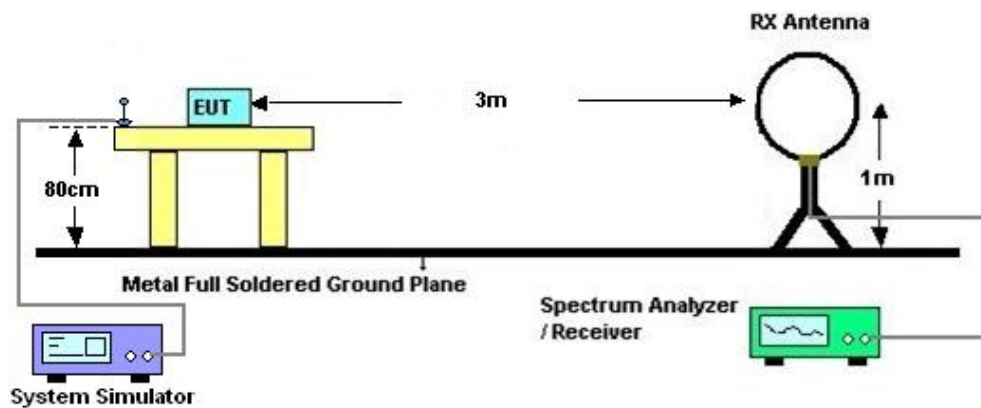
4 Radiated Test Items

4.1 Measuring Instruments

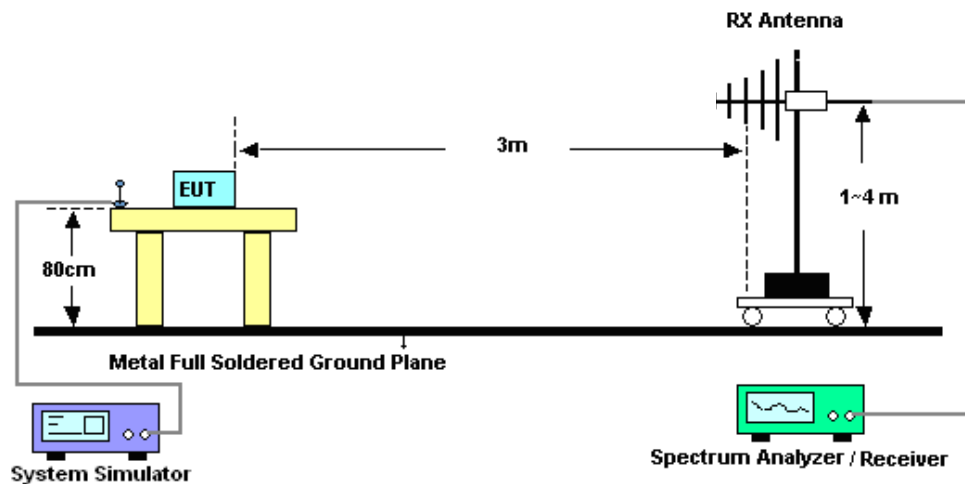
See list of measuring instruments of this test report.

4.2 Test Setup

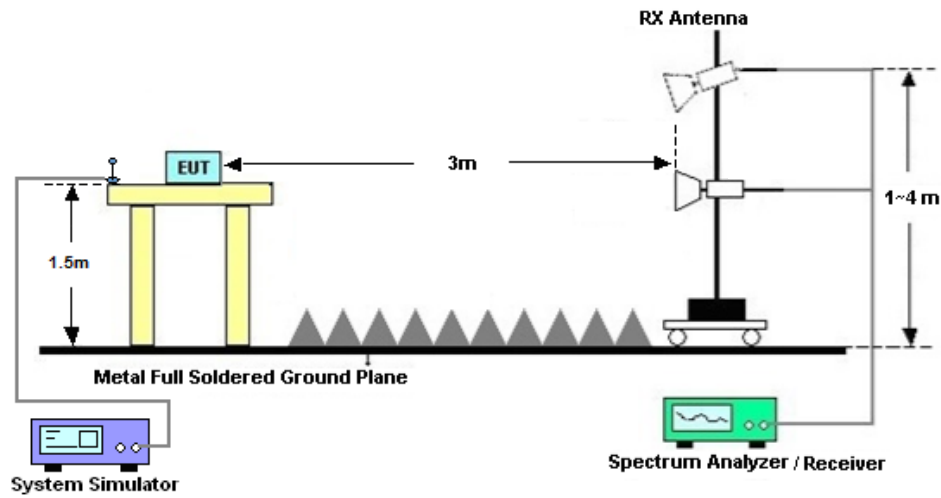
4.2.1 For radiated test below 30MHz



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.
$$\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$$
$$\text{ERP (dBm)} = \text{EIRP} - 2.15$$
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
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 07, 2022	Nov. 23, 2022~ Dec. 29, 2022	Apr. 08, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2021	Nov. 23, 2022~ Dec. 29, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 24, 2022		Dec. 23, 2023	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 07, 2022	Nov. 23, 2022~ Dec. 29, 2022	Jul. 06, 2023	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz~44G,MAX 30dB	Oct. 12, 2022	Nov. 14, 2022~ Jan. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 29, 2022	Nov. 14, 2022~ Jan. 03, 2023	Oct. 28, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 24, 2022	Nov. 14, 2022~ Jan. 03, 2023	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Jan. 05, 2022	Nov. 14, 2022~ Jan. 03, 2023	Jan. 04, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Nov. 14, 2022~ Jan. 03, 2023	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz~1GHz	Jan. 05, 2022	Nov. 14, 2022~ Jan. 03, 2023	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2022	Nov. 14, 2022~ Jan. 03, 2023	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz~18Ghz	Oct. 12, 2022	Nov. 14, 2022~ Jan. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz~18Ghz	Oct. 12, 2022	Nov. 14, 2022~ Jan. 03, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Nov. 14, 2022~ Jan. 03, 2023	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Nov. 14, 2022~ Jan. 03, 2023	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Nov. 14, 2022~ Jan. 03, 2023	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% ($U = 2U_c(y)$)	3.3dB
--	-------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.8dB
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----- THE END -----



Appendix A. Test Results of Conducted Test

Test Engineer :	Jung Kuo	Temperature :	22~23°C
		Relative Humidity :	40~42%

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Transmitter Conducted Output Power And EIRP, ($G_T - L_C$)=-5.0dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@1	25.83	20.83	0.1211
77	30	20	630668	3460.02	DFT-s-OFDM 16 QAM	1@1	25.17	20.17	0.1040
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.02	20.02	0.1005
77	30	20	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.25	19.25	0.0841
77	30	20	636000	3540	DFT-s-OFDM QPSK	1@1	23.91	18.91	0.0778
77	30	20	636000	3540	DFT-s-OFDM 16 QAM	1@1	23.08	18.08	0.0643
77	30	30	631000	3465	DFT-s-OFDM QPSK	1@1	25.9	20.9	0.1230
77	30	30	631000	3465	DFT-s-OFDM 16 QAM	1@1	25.24	20.24	0.1057
77	30	30	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.5	20.5	0.1122
77	30	30	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.51	19.51	0.0893
77	30	30	635666	3534.99	DFT-s-OFDM QPSK	1@1	24.19	19.19	0.0830
77	30	30	635666	3534.99	DFT-s-OFDM 16 QAM	1@1	23.36	18.36	0.0685
77	30	40	631334	3470.01	DFT-s-OFDM QPSK	1@1	25.87	20.87	0.1222
77	30	40	631334	3470.01	DFT-s-OFDM 16 QAM	1@1	25.09	20.09	0.1021
77	30	40	633334	3500.01	DFT-s-OFDM QPSK	1@1	24.32	19.32	0.0855
77	30	40	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.75	19.75	0.0944
77	30	40	635332	3529.98	DFT-s-OFDM QPSK	1@1	24.38	19.38	0.0867
77	30	40	635332	3529.98	DFT-s-OFDM 16 QAM	1@1	23.55	18.55	0.0716
77	30	50	631668	3475.02	DFT-s-OFDM QPSK	1@1	25.82	20.82	0.1208
77	30	50	631668	3475.02	DFT-s-OFDM 16 QAM	1@1	25.08	20.08	0.1019
77	30	50	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.16	20.16	0.1038
77	30	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.32	19.32	0.0855
77	30	50	635000	3525	DFT-s-OFDM QPSK	1@1	24.73	19.73	0.0940
77	30	50	635000	3525	DFT-s-OFDM 16 QAM	1@1	23.93	18.93	0.0782
77	30	60	632000	3480	DFT-s-OFDM QPSK	1@1	25.73	20.73	0.1183
77	30	60	632000	3480	DFT-s-OFDM 16 QAM	1@1	24.88	19.88	0.0973
77	30	60	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.03	20.03	0.1007
77	30	60	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.35	19.35	0.0861
77	30	60	634666	3519.99	DFT-s-OFDM QPSK	1@1	24.83	19.83	0.0962
77	30	60	634666	3519.99	DFT-s-OFDM 16 QAM	1@1	23.91	18.91	0.0778
77	30	70	632334	3485.01	DFT-s-OFDM QPSK	1@1	25.74	20.74	0.1186
77	30	70	632334	3485.01	DFT-s-OFDM 16 QAM	1@1	24.93	19.93	0.0984
77	30	70	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.55	20.55	0.1135
77	30	70	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.77	19.77	0.0948
77	30	70	634332	3514.98	DFT-s-OFDM QPSK	1@1	25.33	20.33	0.1079
77	30	70	634332	3514.98	DFT-s-OFDM 16 QAM	1@1	24.5	19.5	0.0891

77	30	80	632668	3490.02	DFT-s-OFDM QPSK	1@1	25.68	20.68	0.1169
77	30	80	632668	3490.02	DFT-s-OFDM 16 QAM	1@1	24.91	19.91	0.0979
77	30	80	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.67	20.67	0.1167
77	30	80	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.87	19.87	0.0971
77	30	80	634000	3510	DFT-s-OFDM QPSK	1@1	25.53	20.53	0.1130
77	30	80	634000	3510	DFT-s-OFDM 16 QAM	1@1	24.71	19.71	0.0935
77	30	90	633000	3495	DFT-s-OFDM QPSK	1@1	25.67	20.67	0.1167
77	30	90	633000	3495	DFT-s-OFDM 16 QAM	1@1	24.92	19.92	0.0982
77	30	90	633334	3500.01	DFT-s-OFDM QPSK	1@1	25.61	20.61	0.1151
77	30	90	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.81	19.81	0.0957
77	30	90	633666	3504.99	DFT-s-OFDM QPSK	1@1	25.39	20.39	0.1094
77	30	90	633666	3504.99	DFT-s-OFDM 16 QAM	1@1	24.6	19.6	0.0912
77	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	135@67	25.23	20.23	0.1054
77	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	25.61	20.61	0.1151
77	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@271	23.76	18.76	0.0752
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	135@67	25.33	20.33	0.1079
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@1	26.19	21.19	0.1315
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@271	23.7	18.7	0.0741
77	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	135@67	24.05	19.05	0.0804
77	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	24.85	19.85	0.0966
77	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	1@271	22.9	17.9	0.0617
77	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	135@67	22.58	17.58	0.0573
77	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	1@1	22.98	17.98	0.0628
77	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	1@271	20.98	15.98	0.0396
77	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	135@67	21.06	16.06	0.0404
77	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	1@1	21.09	16.09	0.0406
77	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	1@271	20.03	15.03	0.0318
77	30	100	633334	3500.01	CP-OFDM QPSK	137@68	23.56	18.56	0.0718
77	30	100	633334	3500.01	CP-OFDM QPSK	1@1	24.2	19.2	0.0832
77	30	100	633334	3500.01	CP-OFDM QPSK	1@271	22.11	17.11	0.0514

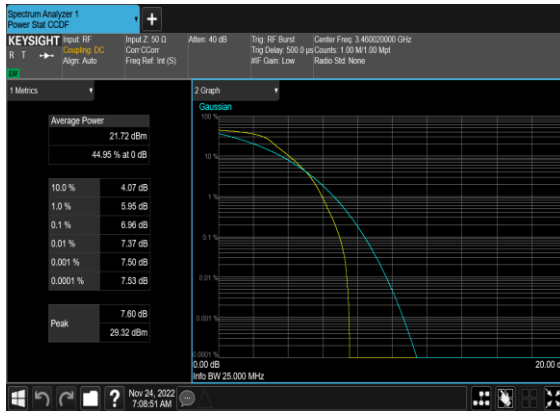
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0036	PASS	NV
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0057	PASS	LV
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0061	PASS	HV
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0046	PASS	-30°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0060	PASS	-20°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0033	PASS	-10°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0067	PASS	0°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0069	PASS	10°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0036	PASS	20°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0044	PASS	30°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0067	PASS	40°C
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	0.0030	PASS	50°C

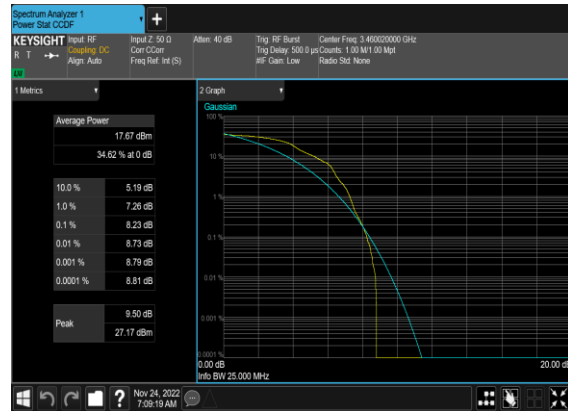
Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
77	30	20	630668	3460.02	DFT-s-OFDM PI/2 BPSK	50@0	6.96	13	PASS
77	30	20	630668	3460.02	DFT-s-OFDM PI/2 BPSK	1@0	8.23	13	PASS
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	50@0	7.74	13	PASS
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@0	7.28	13	PASS
77	30	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	50@0	6.91	13	PASS
77	30	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@0	7.05	13	PASS
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	7.59	13	PASS
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	7.93	13	PASS
77	30	20	636000	3540.0	DFT-s-OFDM PI/2 BPSK	50@0	6.96	13	PASS
77	30	20	636000	3540.0	DFT-s-OFDM PI/2 BPSK	1@0	8.17	13	PASS
77	30	20	636000	3540.0	DFT-s-OFDM QPSK	50@0	7.64	13	PASS
77	30	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	7.79	13	PASS

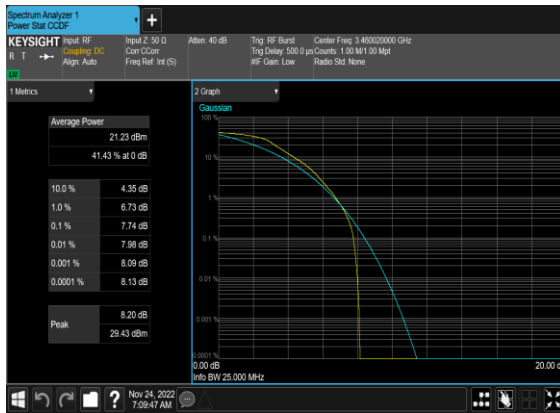
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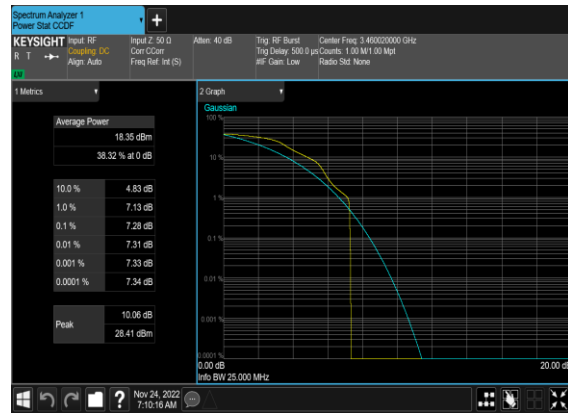
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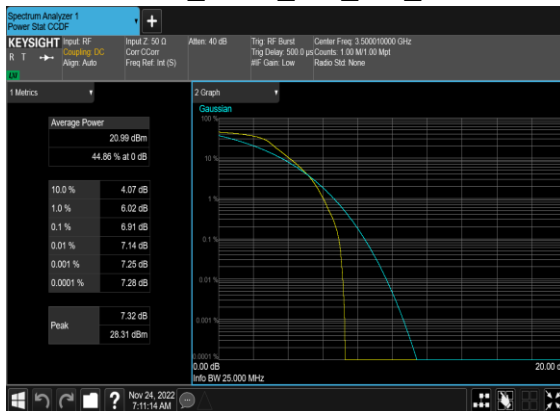
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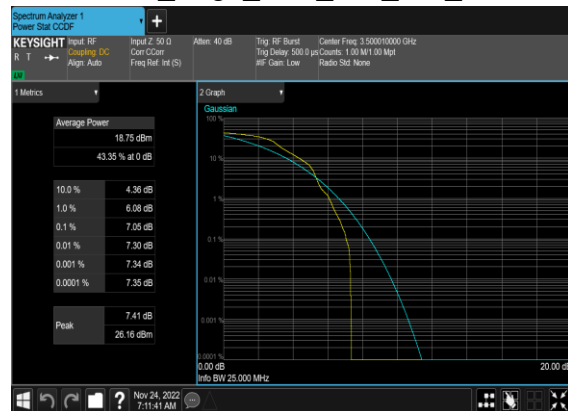
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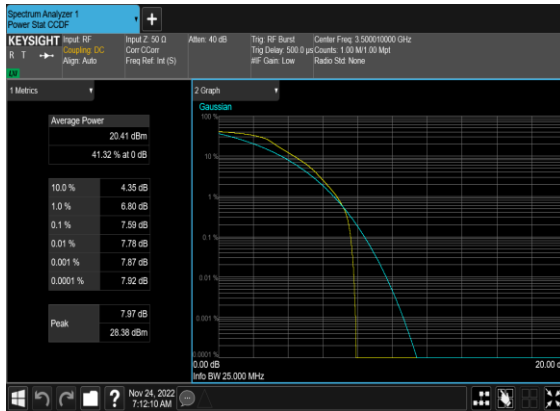
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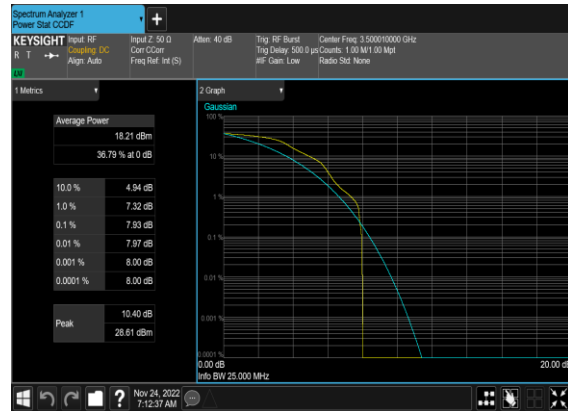
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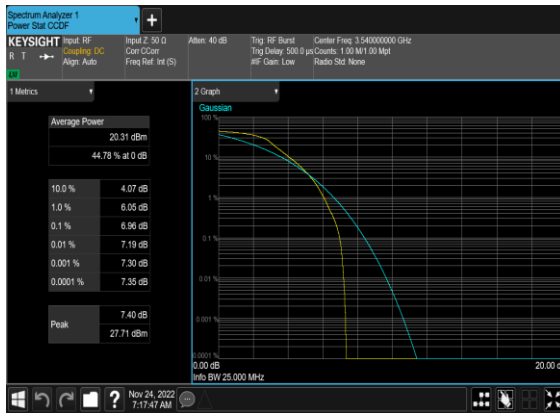
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OFDM_QPSK_Outer_Full_Mid_CH



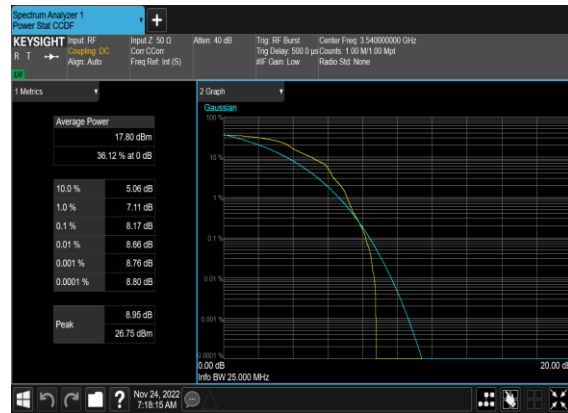
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OFDM_QPSK_Edge_1RB_Left_Mid_CH



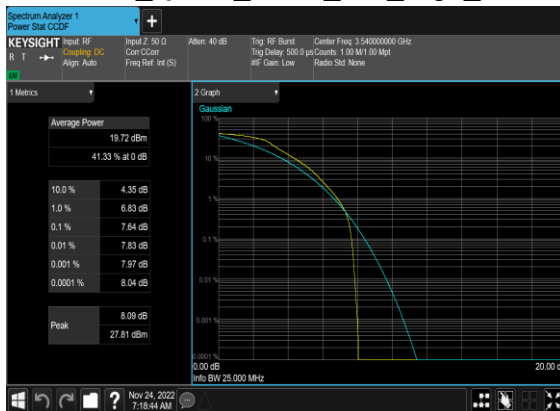
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BPSK_Outer_Full_High_CH



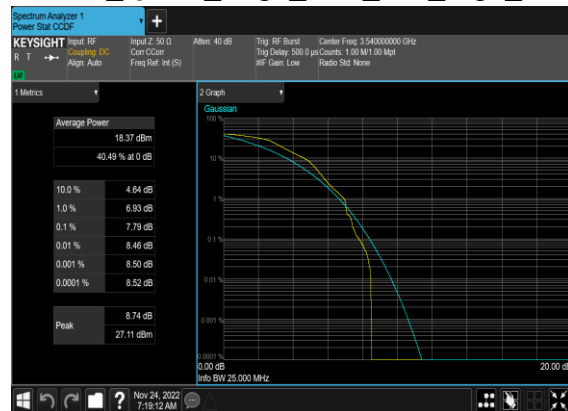
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N77(20M)_DFT-s-
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N77(20M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



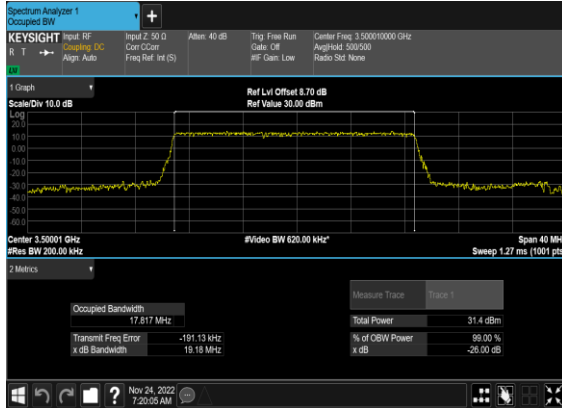
Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
77	30	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	50@0	17.817	19.18
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	50@0	17.814	19.13
77	30	20	633334	3500.01	CP-OFDM QPSK	51@0	18.221	19.4
77	30	20	633334	3500.01	CP-OFDM 16 QAM	51@0	18.215	19.44
77	30	20	633334	3500.01	CP-OFDM 64 QAM	51@0	18.228	19.5
77	30	20	633334	3500.01	CP-OFDM 256 QAM	51@0	18.184	19.33
77	30	30	633334	3500.01	DFT-s-OFDM PI/2 BPSK	75@0	26.754	28.21
77	30	30	633334	3500.01	DFT-s-OFDM QPSK	75@0	26.791	28.13
77	30	30	633334	3500.01	CP-OFDM QPSK	78@0	27.888	29.06
77	30	30	633334	3500.01	CP-OFDM 16 QAM	78@0	27.88	29.17
77	30	30	633334	3500.01	CP-OFDM 64 QAM	78@0	27.828	29.24
77	30	30	633334	3500.01	CP-OFDM 256 QAM	78@0	27.818	29.22
77	30	40	633334	3500.01	DFT-s-OFDM PI/2 BPSK	100@0	35.737	37.28
77	30	40	633334	3500.01	DFT-s-OFDM QPSK	100@0	35.75	37.25
77	30	40	633334	3500.01	CP-OFDM QPSK	106@0	37.806	39.42
77	30	40	633334	3500.01	CP-OFDM 16 QAM	106@0	37.834	39.26
77	30	40	633334	3500.01	CP-OFDM 64 QAM	106@0	37.76	39.39
77	30	40	633334	3500.01	CP-OFDM 256 QAM	106@0	37.821	39.46
77	30	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	128@0	45.711	47.27
77	30	50	633334	3500.01	DFT-s-OFDM QPSK	128@0	45.773	47.47
77	30	50	633334	3500.01	CP-OFDM QPSK	133@0	47.467	49.24
77	30	50	633334	3500.01	CP-OFDM 16 QAM	133@0	47.517	49.27
77	30	50	633334	3500.01	CP-OFDM 64 QAM	133@0	47.448	49.32
77	30	50	633334	3500.01	CP-OFDM 256 QAM	133@0	47.525	49.36
77	30	60	633334	3500.01	DFT-s-OFDM PI/2 BPSK	162@0	57.914	59.75

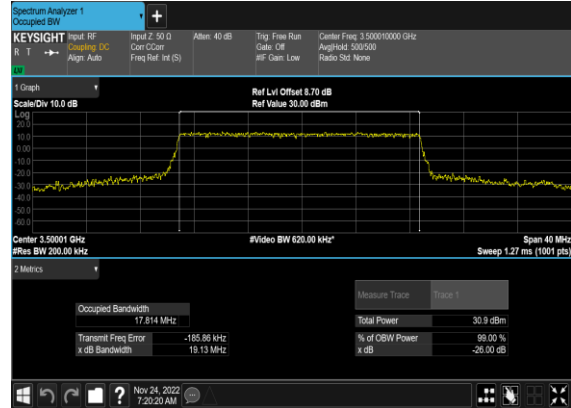
77	30	60	633334	3500.01	DFT-s-OFDM QPSK	162@0	57.843	59.75
77	30	60	633334	3500.01	CP-OFDM QPSK	162@0	57.752	59.91
77	30	60	633334	3500.01	CP-OFDM 16 QAM	162@0	57.708	59.86
77	30	60	633334	3500.01	CP-OFDM 64 QAM	162@0	57.88	60.01
77	30	60	633334	3500.01	CP-OFDM 256 QAM	162@0	57.839	59.8
77	30	70	633334	3500.01	DFT-s-OFDM PI/2 BPSK	180@0	64.359	66.45
77	30	70	633334	3500.01	DFT-s-OFDM QPSK	180@0	64.26	66.63
77	30	70	633334	3500.01	CP-OFDM QPSK	189@0	67.542	69.7
77	30	70	633334	3500.01	CP-OFDM 16 QAM	189@0	67.393	69.8
77	30	70	633334	3500.01	CP-OFDM 64 QAM	189@0	67.497	69.7
77	30	70	633334	3500.01	CP-OFDM 256 QAM	189@0	67.385	69.57
77	30	80	633334	3500.01	DFT-s-OFDM PI/2 BPSK	216@0	77.08	79.61
77	30	80	633334	3500.01	DFT-s-OFDM QPSK	216@0	77.127	79.62
77	30	80	633334	3500.01	CP-OFDM QPSK	217@0	77.434	80.15
77	30	80	633334	3500.01	CP-OFDM 16 QAM	217@0	77.518	79.99
77	30	80	633334	3500.01	CP-OFDM 64 QAM	217@0	77.566	80.04
77	30	80	633334	3500.01	CP-OFDM 256 QAM	217@0	77.328	80.06
77	30	90	633334	3500.01	DFT-s-OFDM PI/2 BPSK	240@0	85.733	88.46
77	30	90	633334	3500.01	DFT-s-OFDM QPSK	240@0	85.623	88.48
77	30	90	633334	3500.01	CP-OFDM QPSK	245@0	87.553	90.27
77	30	90	633334	3500.01	CP-OFDM 16 QAM	245@0	87.354	90.23
77	30	90	633334	3500.01	CP-OFDM 64 QAM	245@0	87.411	90.22
77	30	90	633334	3500.01	CP-OFDM 256 QAM	245@0	87.446	90.32
77	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	270@0	96.392	99.47
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	270@0	96.392	99.44
77	30	100	633334	3500.01	CP-OFDM QPSK	273@0	97.402	100.5
77	30	100	633334	3500.01	CP-OFDM 16 QAM	273@0	97.464	100.5

77	30	100	633334	3500.01	CP-OFDM 64 QAM	273@0	97.283	100.5
77	30	100	633334	3500.01	CP-OFDM 256 QAM	273@0	97.618	100.6

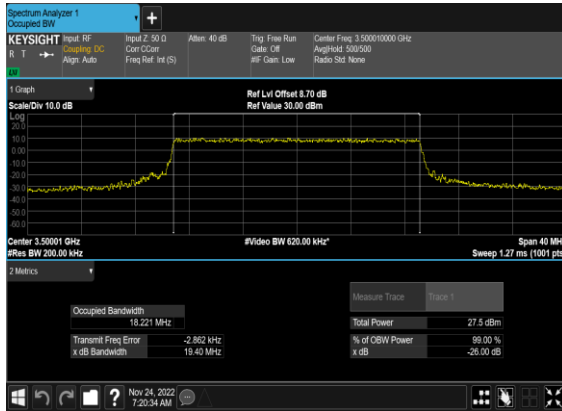
N77(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



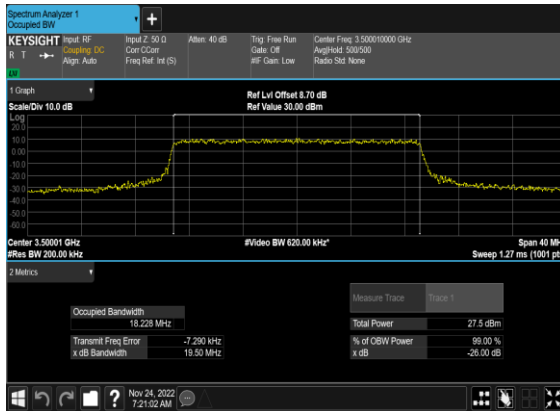
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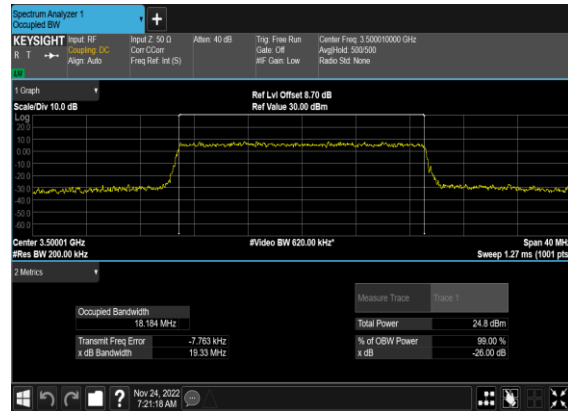
N77(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



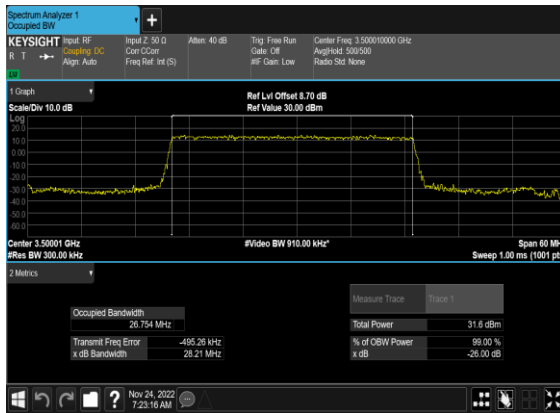
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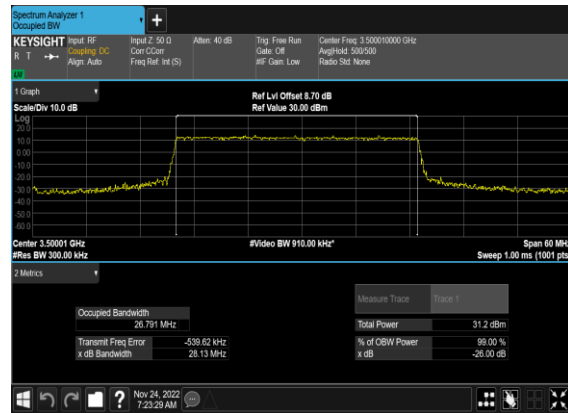
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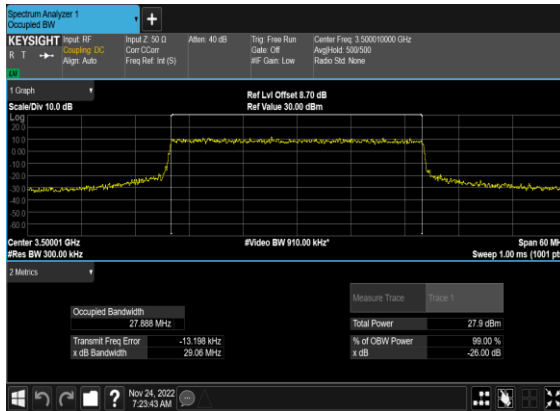
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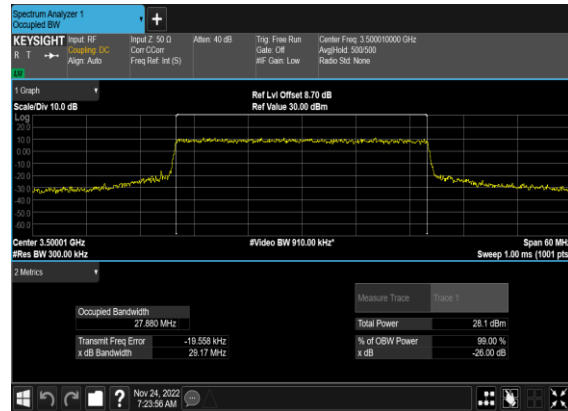
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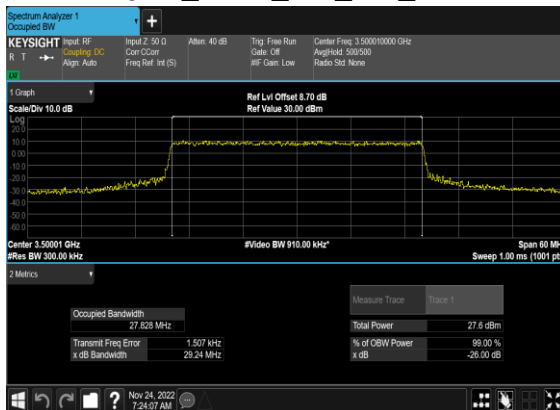
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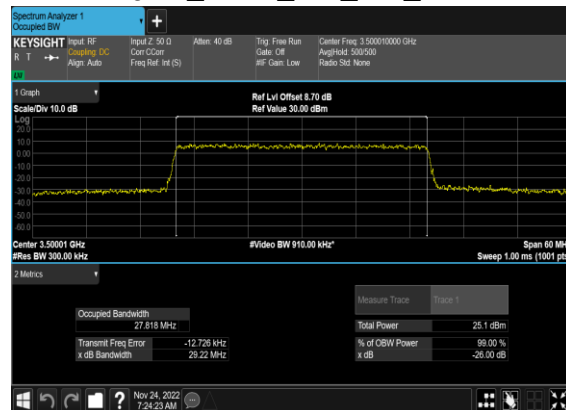
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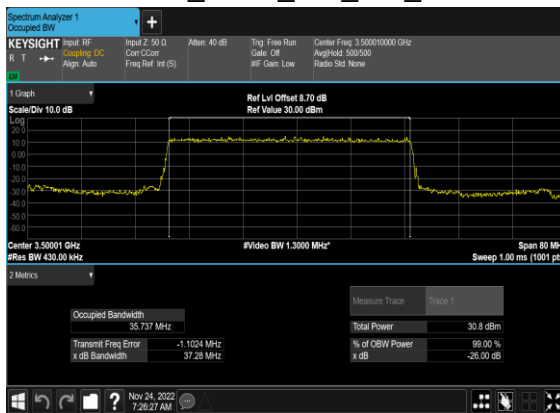
N77(30M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



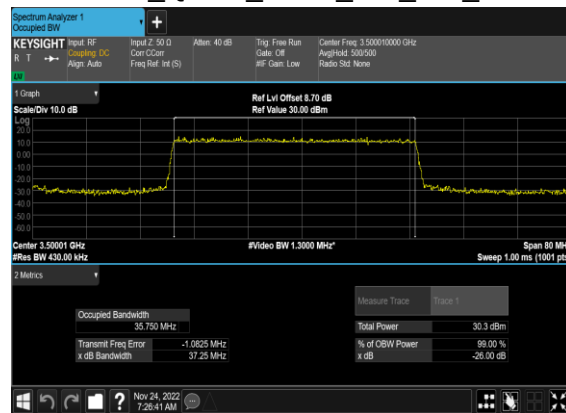
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QAM_Outer_Full_Mid_CH



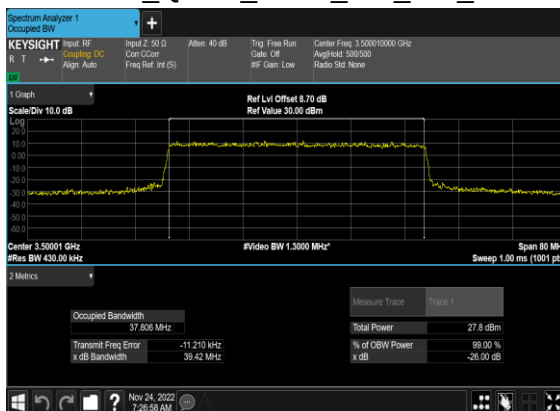
N77(40M)_DFT-s-OFDM_PI_2-
BPSK_Outer_Full_Mid_CH



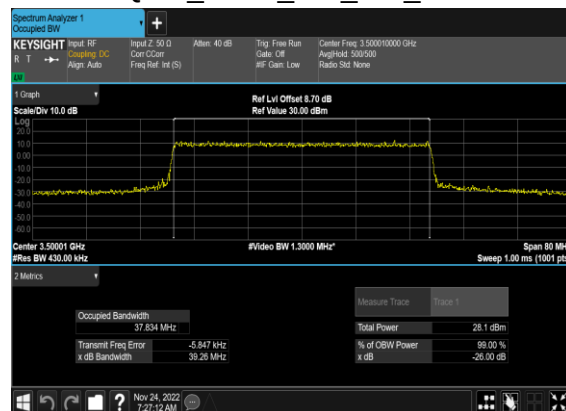
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OFDM_QPSK_Outer_Full_Mid_CH



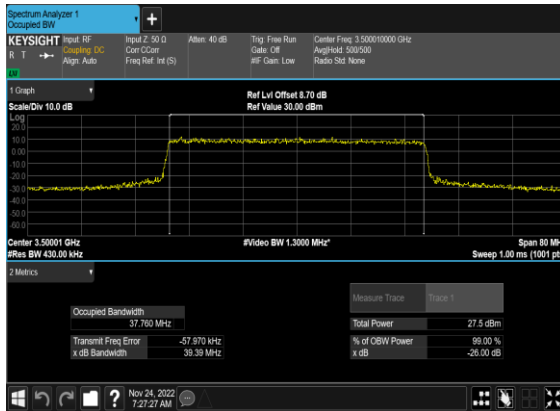
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OFDM_QPSK_Outer_Full_Mid_CH



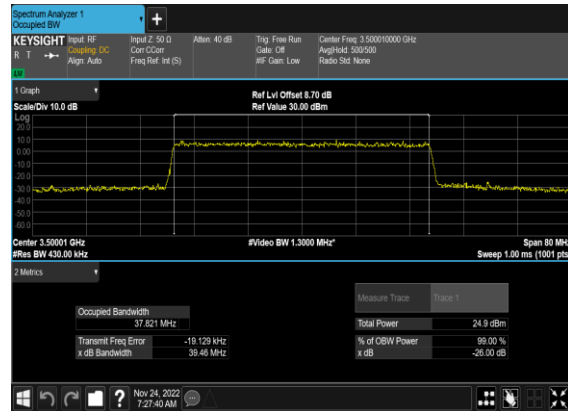
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QAM_Outer_Full_Mid_CH



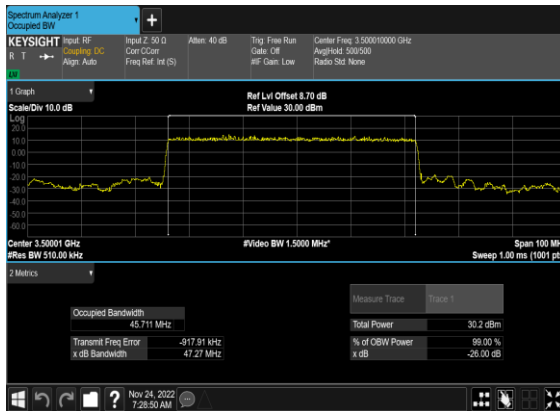
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QAM_Outer_Full_Mid_CH



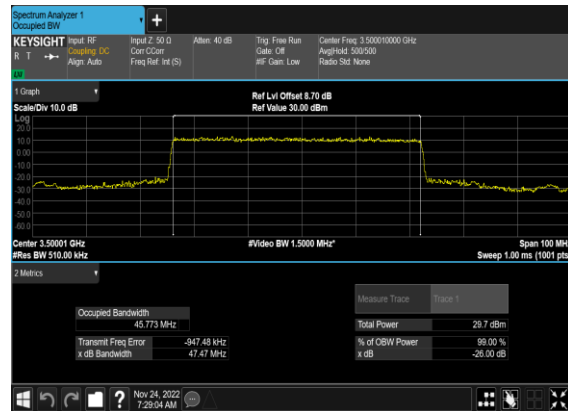
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QAM_Outer_Full_Mid_CH



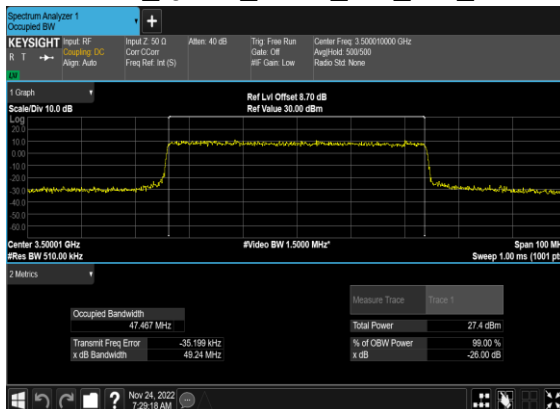
N77(50M)_DFT-s-OFDM_PI_2-
BPSK_Outer_Full_Mid_CH



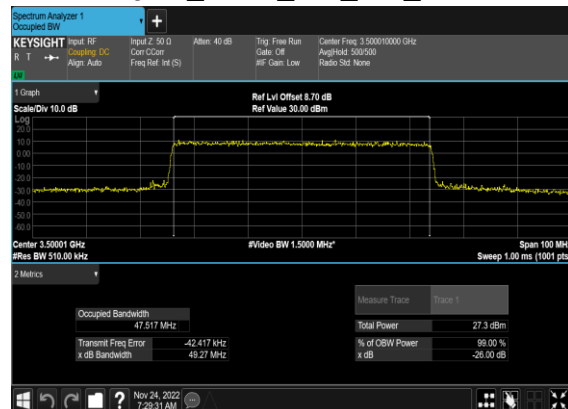
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OFDM_QPSK_Outer_Full_Mid_CH



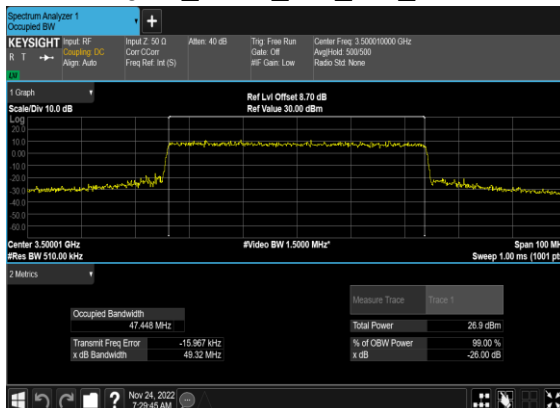
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OFDM_QPSK_Outer_Full_Mid_CH



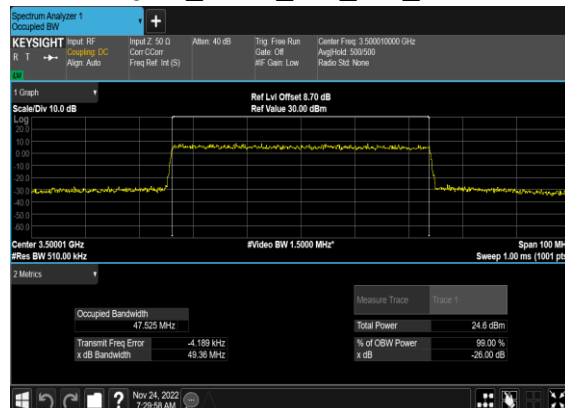
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QAM_Outer_Full_Mid_CH



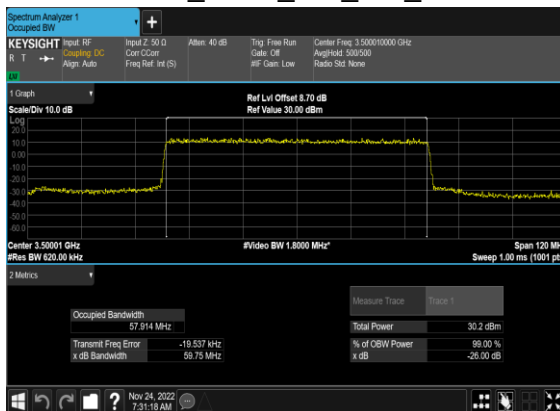
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QAM_Outer_Full_Mid_CH



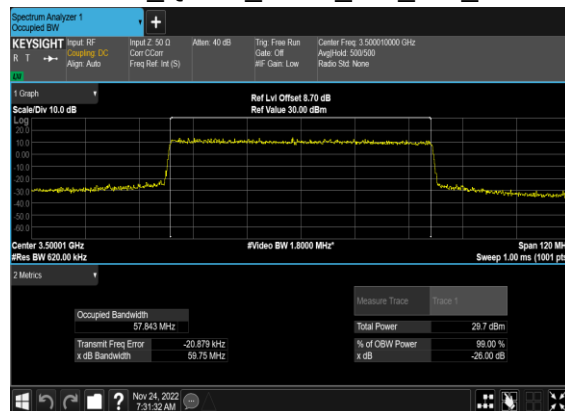
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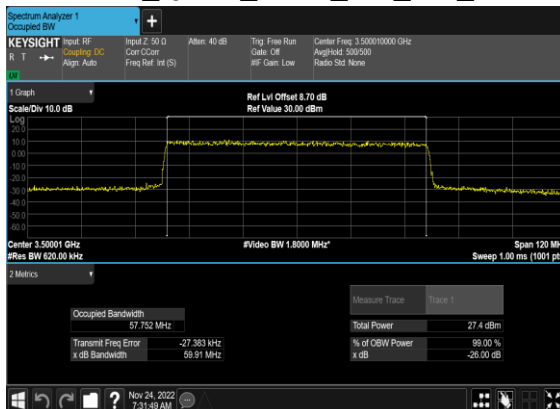
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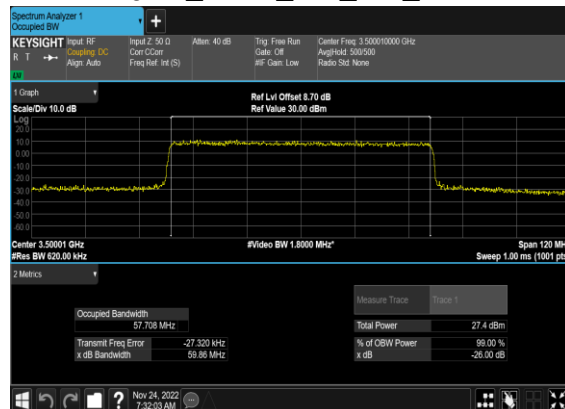
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OFDM_QPSK_Outer_Full_Mid_CH



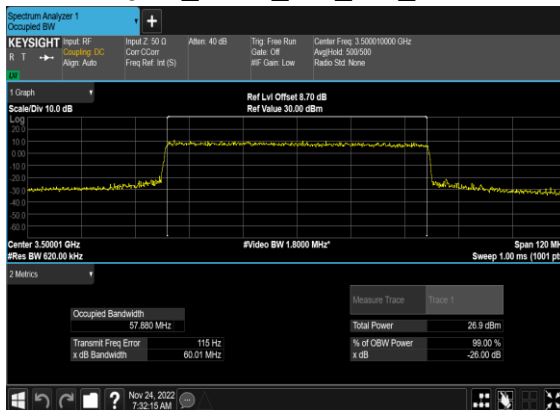
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OFDM_QPSK_Outer_Full_Mid_CH



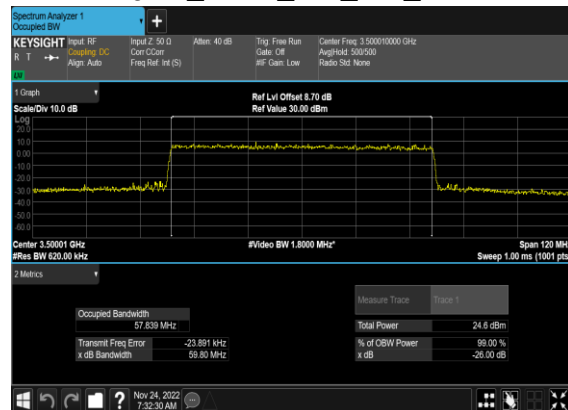
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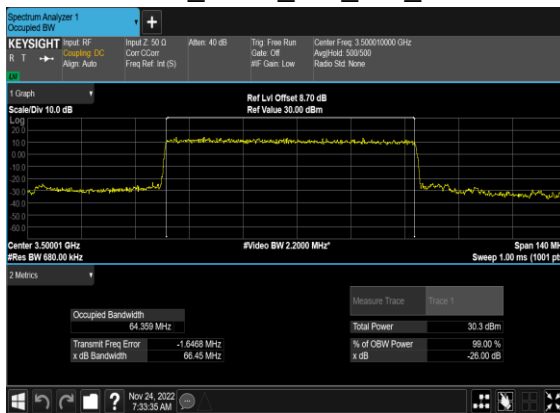
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QAM_Outer_Full_Mid_CH



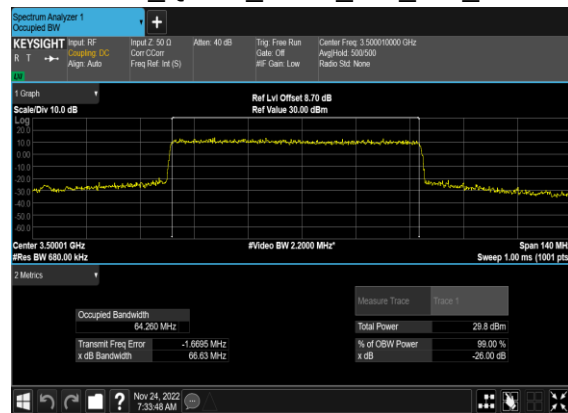
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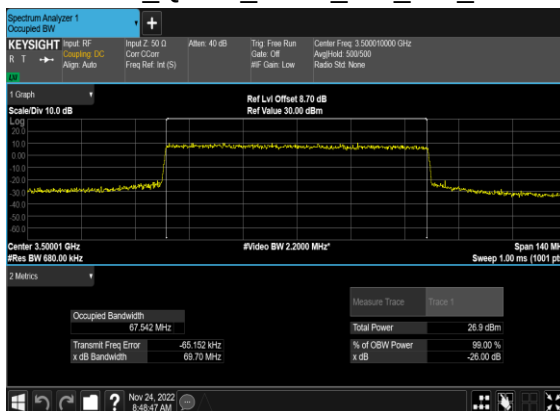
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BPSK_Outer_Full_Mid_CH



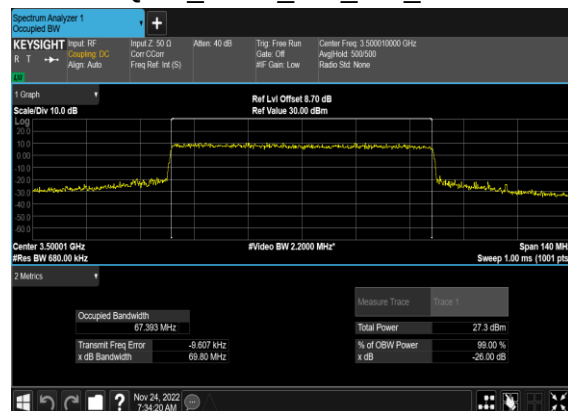
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OFDM_QPSK_Outer_Full_Mid_CH



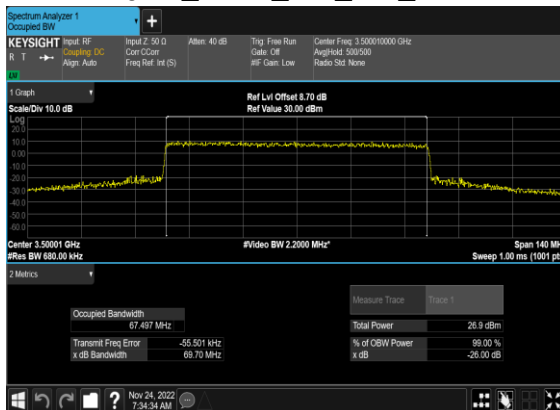
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OFDM_QPSK_Outer_Full_Mid_CH



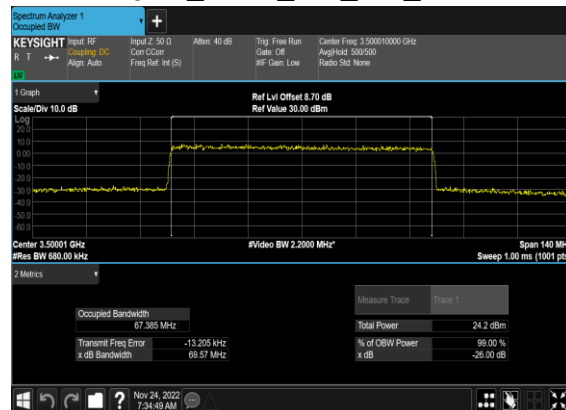
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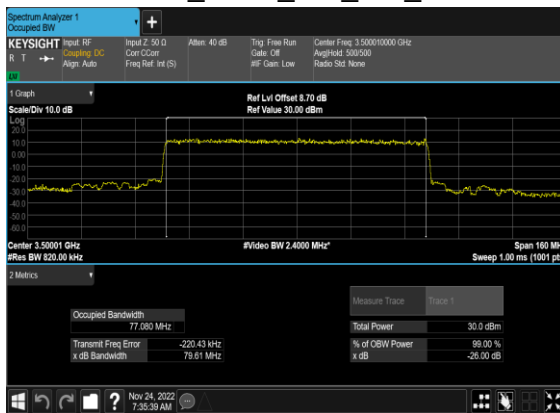
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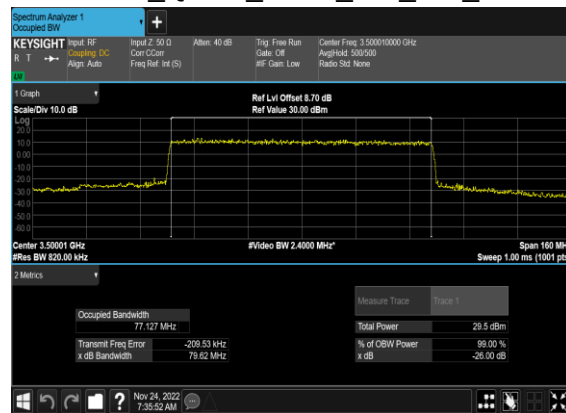
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QAM_Outer_Full_Mid_CH



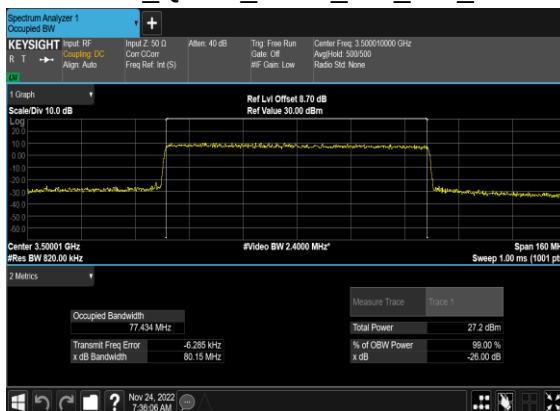
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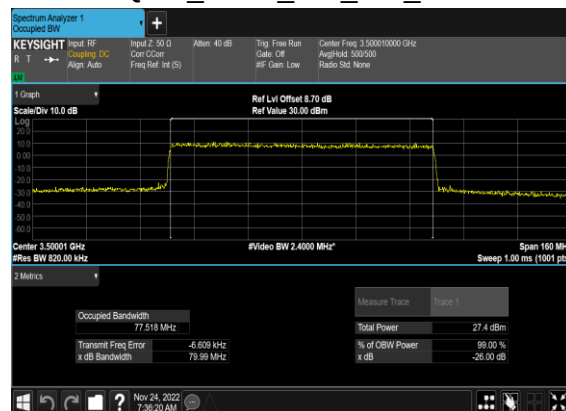
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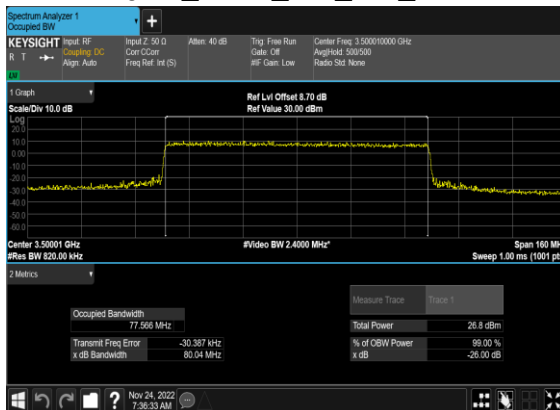
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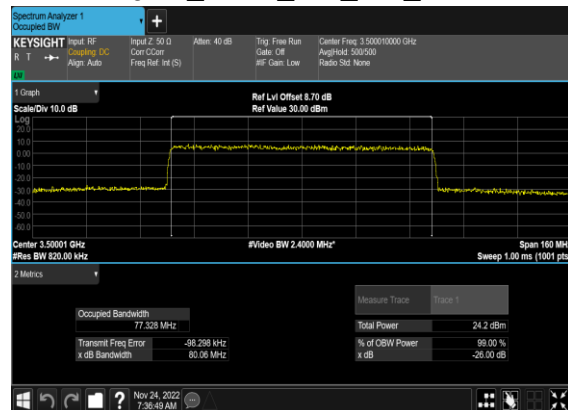
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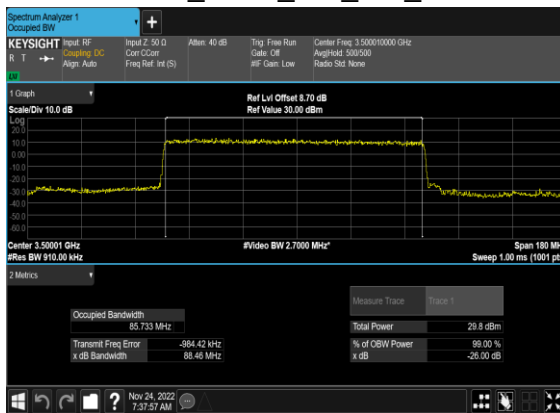
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QAM_Outer_Full_Mid_CH



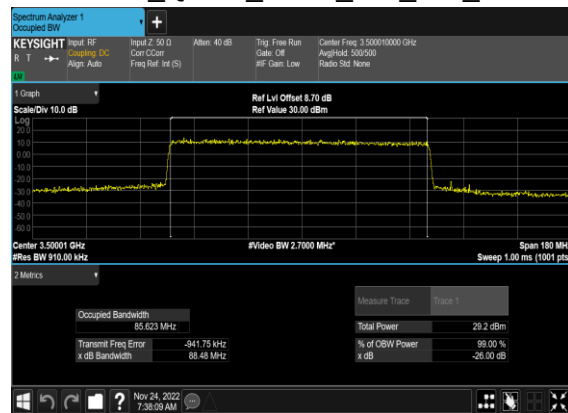
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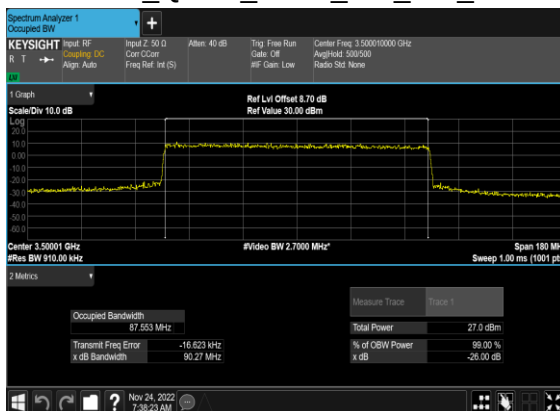
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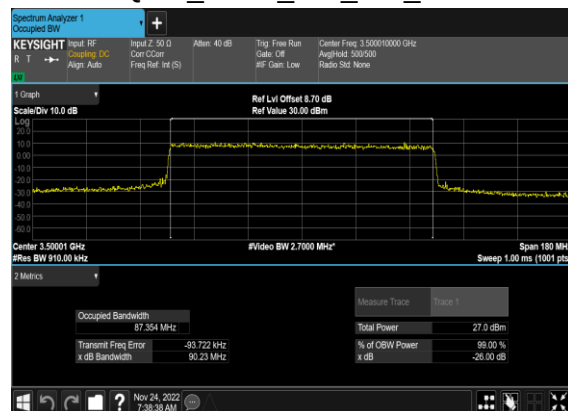
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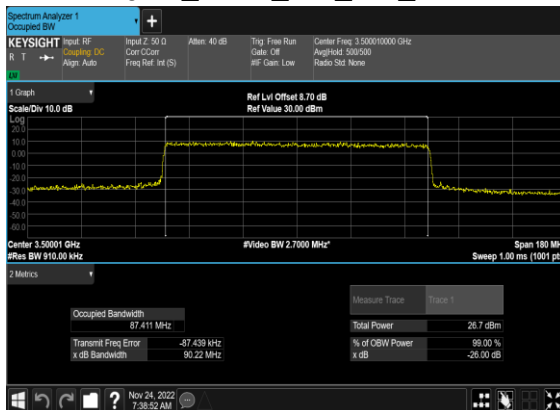
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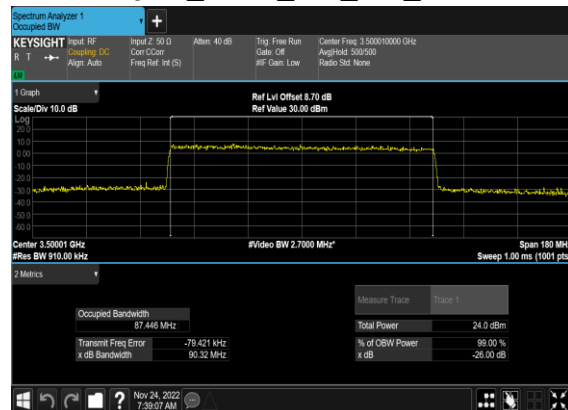
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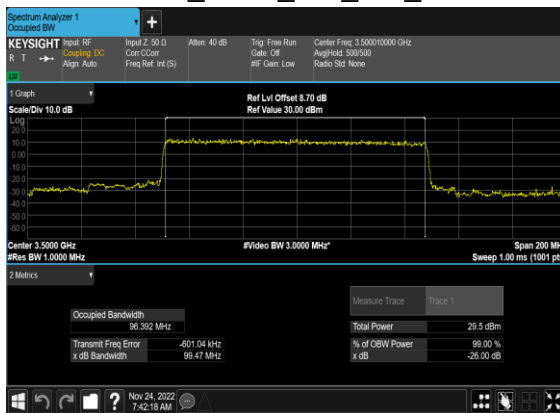
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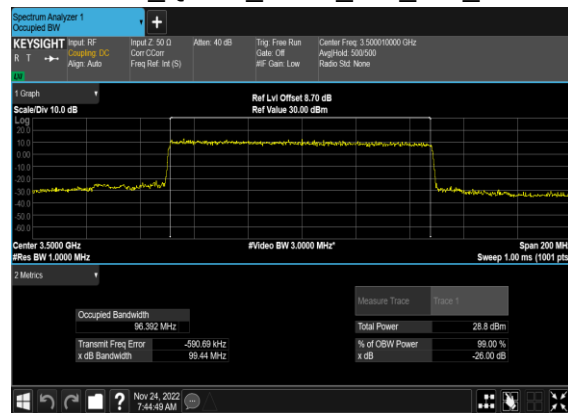
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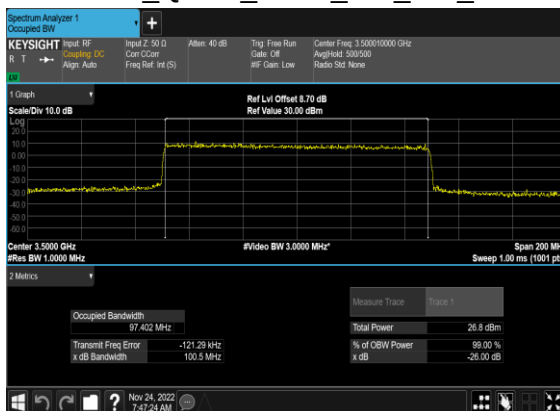
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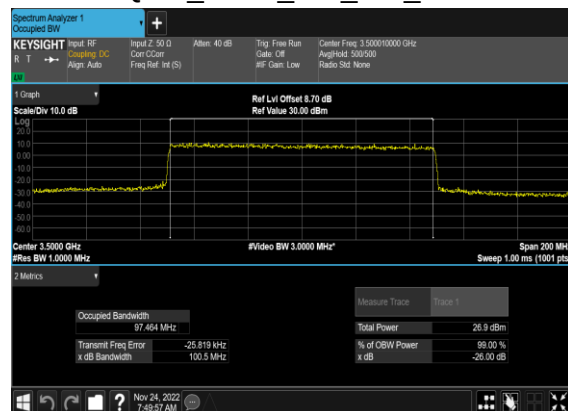
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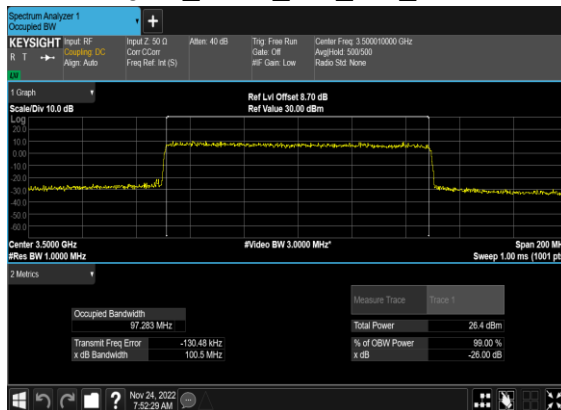
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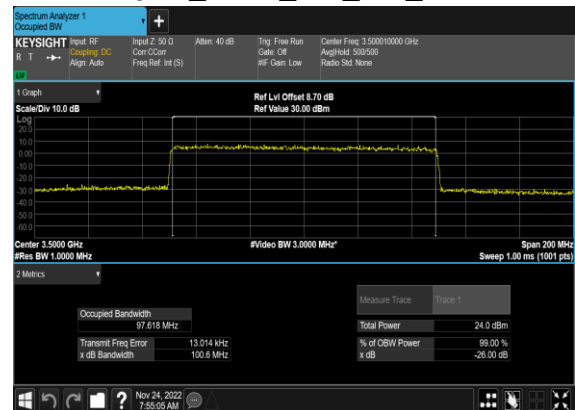
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QAM_Outer_Full_Mid_CH



N77(100M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N77(100M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



Conducted Spurious Emissions

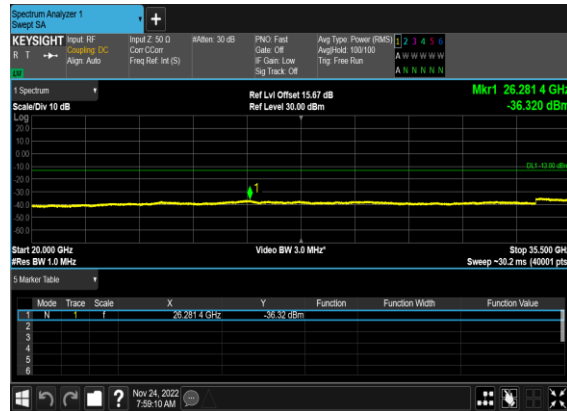
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	20	630668	3460.02	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	20	630668	3460.02	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	630668	3460.02	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	636000	3540.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	20	636000	3540.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	632000	3480.0	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	60	632000	3480.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	632000	3480.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	632000	3480.0	DFT-s-OFDM QPSK	1@0	see graph	---

77	30	60	632000	3480.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	632000	3480.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	60	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	60	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	634666	3519.99	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	60	634666	3519.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	634666	3519.99	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	60	634666	3519.99	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	60	634666	3519.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	60	634666	3519.99	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	100	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	---
77	30	100	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	100	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	---
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
77	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS

N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



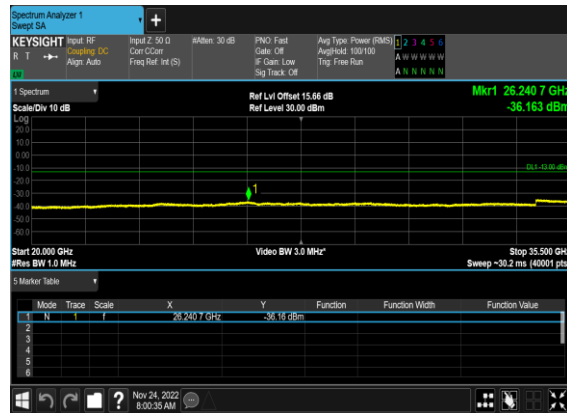
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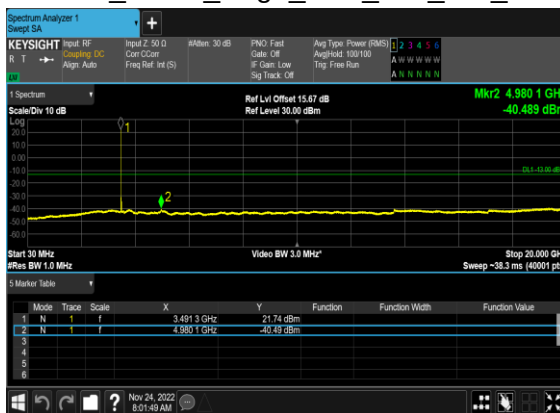
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



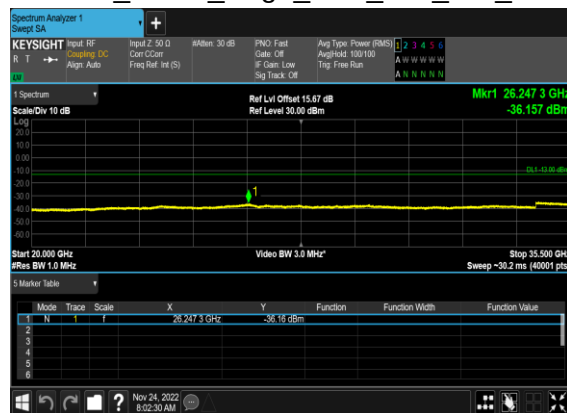
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



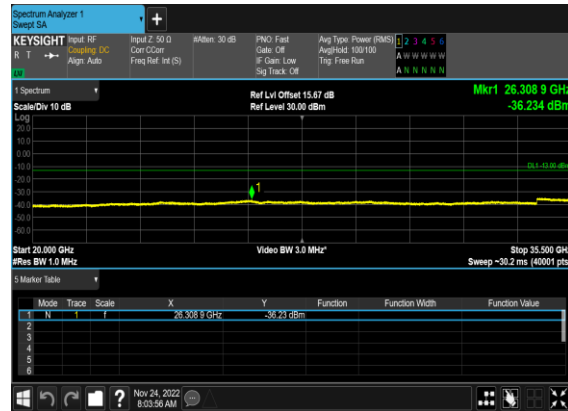
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N77(20M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Mid_CH



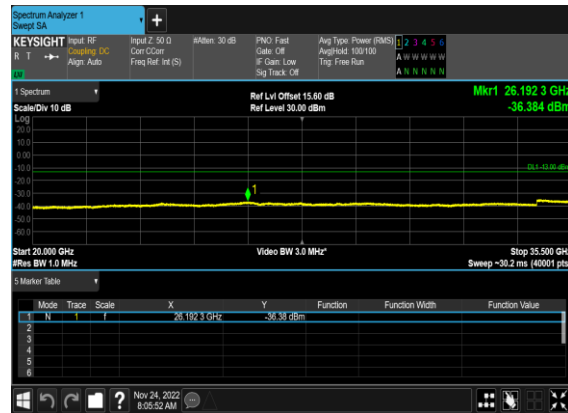
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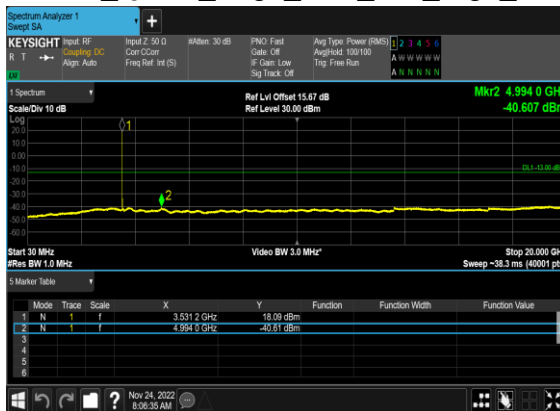
N77(20M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



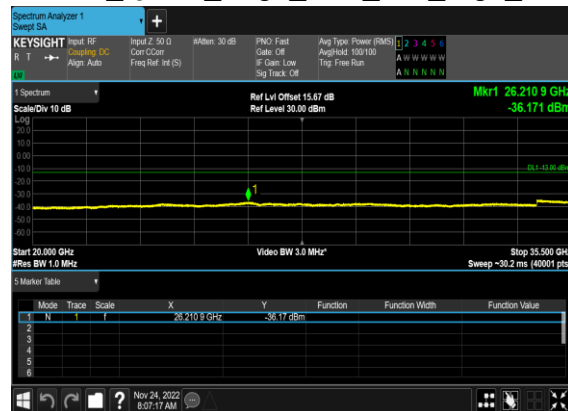
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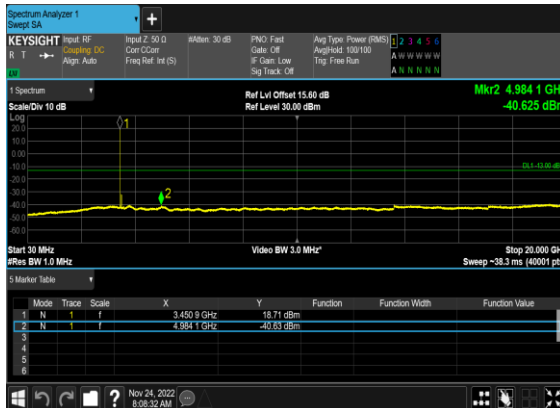
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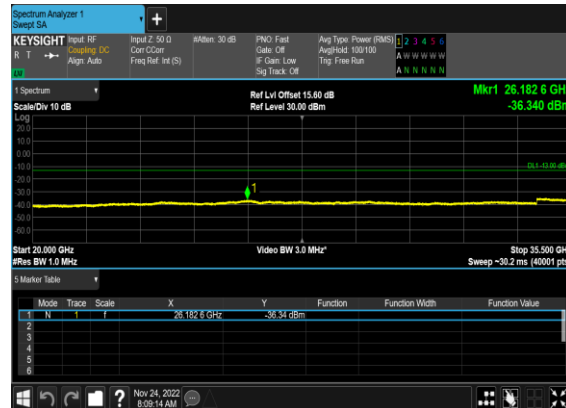
N77(20M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_High_CH



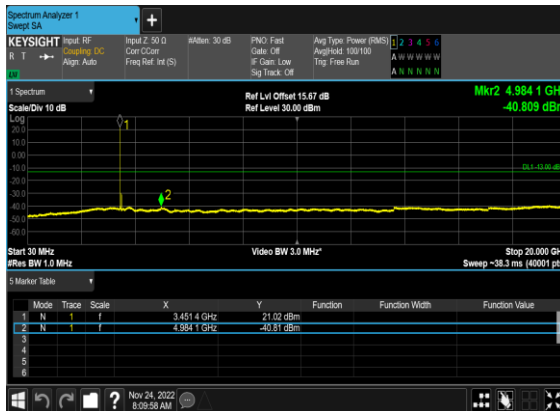
N77(60M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



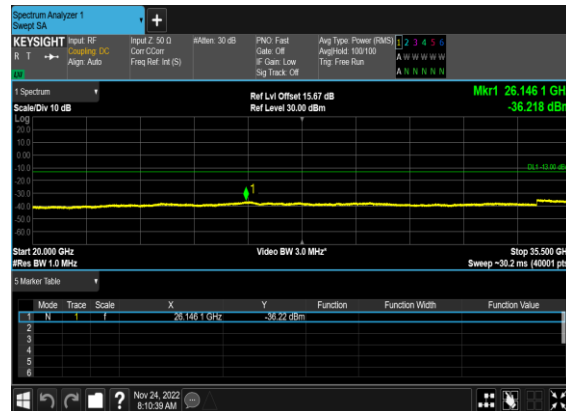
N77(60M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



N77(60M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



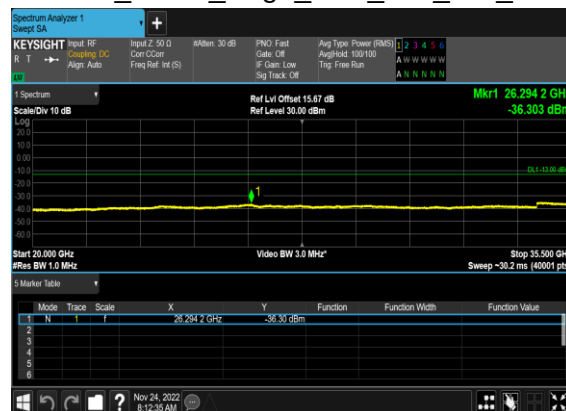
N77(60M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



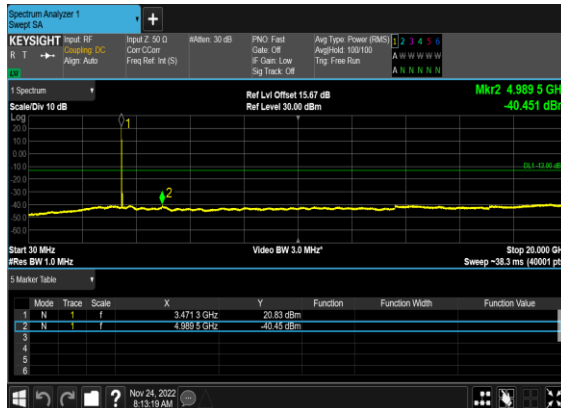
N77(60M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



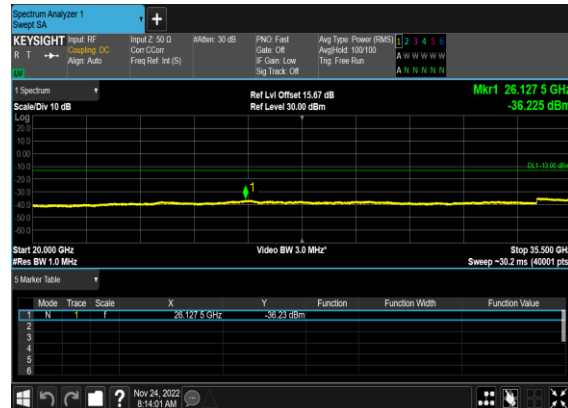
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OFDM_BPSK_Edge_1RB_Left_Mid_CH



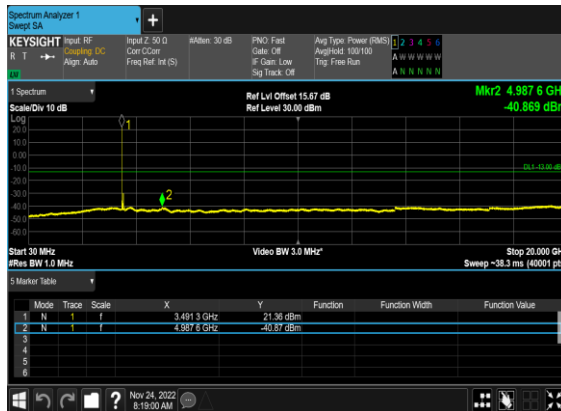
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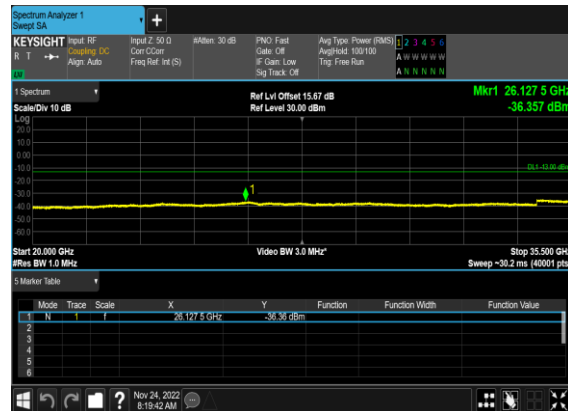
N77(60M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Mid_CH



N77(60M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



N77(60M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



N77(60M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_High_CH



N77(60M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_High_CH

